

0310045-NA-AC

**JEA**

**Air Quality Permit Application** PSD-FL-010C

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**St. Johns River Power Park  
PSD Permit Update**



**Materials Handling and Storage Operations  
May 3, 1999**

## ATTACHMENTS

<u>Number</u>	<u>Description</u>
1	Revised PSD Permit Tables 2 and 6, 1986 Version
2	Materials Handling and Storage Operations - Allowable Emissions
3	Figure SJRPP01
4	New Table 6 (Parts A, B & C)
5	Air Construction Permit Application

## 1.0 INTRODUCTION

The St. Johns River Power Park (SJRPP) consists of two steam generating units firing coal and petroleum coke with each producing 679.6 megawatts (MW) of electricity. Associated with the steam generators are the materials handling operations for the raw materials and by-products. These operations include receiving materials by ship, rail, and truck, transporting materials by conveyors and trucks, storage of materials in open piles and enclosed bins or silos, and truck loadout operations. Materials currently handled include coal, petroleum coke, limestone, quick lime, fly ash, bottom ash, and gypsum.

The original Prevention of Significant Deterioration (PSD) air construction permit for SJRPP was issued by the U.S. Environmental Protection Agency (EPA) in 1982. In addition to the PSD permit, SJRPP also received Conditions of Certification under Florida's Power Plant Siting Act from the Siting Board. In 1986, both the PSD permit and Site Certification were amended to reflect design changes to the materials handling operations. Specifically, the revisions reflected the use of an overland conveyor system between the ship unloading area and the plant and enhancements to the coal blending capabilities within the plant. In 1996, the PSD permit was revised a second time to allow the use of up to 20 percent petroleum coke, and materials handling was not addressed.

In 1998, as part of the Repowering Project at JEA's Northside Generating Station (NGS), JEA evaluated the use of the existing SJRPP materials handling operations to support the Repowering Project. During this evaluation, JEA's consultants noted that information provided in the tables attached to the PSD Permit, as revised, did not precisely reflect the current "as built" status of the SJRPP materials handling operations. In addition, review of the historical records related to the PSD permit and Site Certification applications noted short-term and annual coal and limestone throughputs based on an expected capacity factor of 74 percent for the materials handling operations, unlike the boilers which were modelled and permitted based on a 100 percent capacity factor.

The petroleum coke reclaim system and the use of the overland conveyor system to receive and transport limestone from the ship unloader, while authorized by the Department, are not currently reflected in the PSD permit. Potential emissions from the petroleum coke reclaim system have been estimated at 0.7 lb/hr and 3.0 TPY. Potential emissions associated with the use of the overland conveyor system to receive and transport limestone have been estimated at 2.3 lb/hr and 0.96 TPY. No other changes have occurred to the materials handling operations since originally constructed.

JEA would like to update its PSD permit to reflect the comprehensive and complete inventory of emission points associated with the materials handling operations and the maximum potential throughput rates for those operations. As part of the Northside Units 1 and 2 Repowering Project, JEA evaluated the ambient impacts of the materials handling operations based on the comprehensive inventory of emission points and the maximum potential short-term and annual throughput rates (calculated based on the maximum capacities of the boilers and worst-case fuels). The results of the dispersion modeling demonstrated that the materials handling operations at SJRPP will not cause or contribute to a violation of any ambient air quality standard or PSD increment. In addition to the ambient impact analyses, JEA has also reviewed the best

available control technology (BACT) for the materials handling operations and, where appropriate, is requesting lower allowable emissions to levels that are being achieved in practice at SJRPP.

All changes associated with the repowering of the NGS are being presented in a separate PSD application for that project. Revisions to the Title V Operating Permit will be handled following issuance of a revised PSD permit.

## **2.0 PSD APPLICABILITY**

As a new major source, SJRPP underwent all phases of the PSD review process including the application of Best Available Control Technology (BACT) to all emission units proposed under the initial PSD Permit and Site Certification applications. Under the PSD regulations, a physical or operational change to a facility such as SJRPP is subject to PSD review if that change would result in a significant net emissions increase as defined in Rule 62-212.400(2)(e)2., F.A.C. For particulate matter, a significant net increase is equal to or greater than 25 tons per year of total suspended particulate and 15 tons per year of PM<sub>10</sub>.

As stated in the introduction, the only changes made since the materials handling system was originally constructed were authorized by the Department and had potential annual emissions of less than 4 TPY. Moreover, when comparing the potential short-term emissions of the materials handling operations authorized in 1986 versus the "As-Built" systems, including the minor authorized changes, the "As-Built" system actually represents an overall decrease in potential emissions of about 35 lb/hr. The removal of the auxiliary boiler from the list of authorized emission units results in an additional decrease of approximately 25 lb/hr for a total particulate matter decrease of approximately 60 lb/hr.

The materials handling operations for SJRPP are generally reflected in the PSD permit Tables 2 and 6, as revised in 1986, (Attachment 1). The differences between the short term emissions rates information in Tables 2 and 6 and the more comprehensive and complete description of the materials handling operations are shown in Attachment 2. This comparison demonstrates that there will be an overall reduction in potential emissions from those authorized in 1986. For purposes of this update, JEA is requesting that Tables 2 and 6 be taken out of the PSD permit and replaced with a new Table 6. Attachment 3 contains Figure SJRPP01 which provides an overview of the materials handling emission units/activities, emissions, control strategies and monitoring/testing protocol.

For The SJRPP materials handling operations certain emissions units are subject to the following New Source Performance Standards (NSPS) when handling coal and /or limestone:

- 40 CFR 60 Subpart Y - Standards of Performance for Coal Preparation Plants was determined to be applicable to those activities specifically regulated. For the materials handling operations, 40 CFR 60.252(c) limits visible emissions to less than 20 percent opacity. The regulation, although applicable, was noted as less stringent than the EPA's 1982 BACT determination of 10 percent opacity for the materials handling operations.
- 40 CFR 60 Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants was determined to be applicable to those regulated operations which commenced

construction after August 31, 1983. The regulation specifically applies to the overland conveyor system from the ship unloading operations through the new limestone storage pile. The regulation establishes a 10 percent opacity limit on the transfer points which was determined to be as stringent as the existing emission limitation.

For the transfer stations and dust collection systems, JEA is requesting a lower emission limitation of 5 percent opacity and has applied an overall control efficiency of 98 percent to the fugitive dust sources. Specific details of the controls are discussed in subsection 3.2.

### **3.2 Control Technology Review**

For new major sources subject to PSD review, the applicant is required to apply BACT to each pollutant subject to review emitted in a significant amount as specified under Rule 62-212.400(5)(c), F.A.C. For SJRPP, PSD review and BACT were triggered during the initial permitting and a BACT analysis was performed for all particulate matter emissions units and activities. For purposes of updating the PSD Permit, JEA has reviewed the 1986 BACT limits on the materials handling operations. Attachment 2 contains a comparison of the existing materials handling operations versus the 1986 BACT limitations listed in Table 6 of the PSD Permit. Where appropriate lower emission limitations are being requested.

#### **3.2.1 Emission Estimates**

SJRPP activities include operations that handle and store materials such as coal, limestone, quick lime, petroleum coke, fly ash, bottom ash, and gypsum. The limestone, fly ash, and gypsum are associated with the air quality control systems (AQCS) of the two boilers. These operations generate emissions of particulate matter. The handling operations include ship, rail car, and truck unloading, material transport by conveyor belts and pneumatic systems, material transfers (i.e., conveyor to conveyor, storage pile to reclaim hoppers, hoppers to conveyors, etc.) and grinding operations. Storage operations include limestone, coal, petroleum coke, and gypsum storage piles, silos, bins and the ash/by-product disposal area.

This application utilizes emission estimates based on current AP-42 emission factors for the materials handling and storage operations. In most cases, partial enclosures and wet suppression techniques are used as controls except when handling dry-unconditioned materials when the use of partial enclosures and dust collection systems are employed. Emission estimates were based on various AP-42 (EPA, 1998a) emission factors including the following:

- Chapter 13.2.4 Aggregate Handling and Storage Piles;
- Chapter 13.2.5 Industrial Wind Erosion
- Chapter 11.2 Concrete Batching

Figure SJRPP01 presents an overview of the materials handling operations (Point & Fugitive Emission Units) along with the AQCS or strategy, reduction or control efficiency, short-term and annual emissions of particulate matter ( $PM_{10}$ ), and the monitoring/testing protocol. The emission estimates for the various units are presented within the individual emissions unit sections of the application forms.

### **3.2.2 Summary of Control Technologies**

The comprehensive inventory noted that various control strategies have been implemented to control visible emissions to 10% opacity as required by the PSD permit. Emissions of particulate matter from materials handling and storage operations can be controlled by various techniques including but not limited to the following:

- a. Conditioned Materials - (Bulk materials with normal moisture contents greater than 3.5 percent).
- b. Wet Suppression - (Direct application of water and/or chemicals to the bulk materials for purposes of increasing moisture contents and/or stabilizing small particles)
- c. Water Sprays - (Indirect application of water for purposes of knocking down fugitive dust once it is released from the operation.)
- d. Enclosures - (Total or partial enclosures, or wind breaks/guards to reduce or eliminate particulate emissions or causes of such emissions)
- e. Dust Collection Systems - (Collects and controls particulate emissions from partial or totally enclosed operations.)
- f. Best Operating Practices - (Design features and operating practices to reduce or eliminate the causes of fugitive dust emissions.)

The application of each control strategy has ensured compliance with the 10% opacity limit of the 1982 BACT determination. For the following emissions units/activities, JEA is requesting lower allowable emission limitations for some operations and clarifying the applicable control strategies for others.

#### **3.2.2.1 Transfer Operation - Receiving Hoppers to Conveyor Belts**

For the transfer operations from the receiving hoppers to the ship unloading conveyors, JEA handles conditioned materials and uses partial enclosures. This control strategy provides at least 85 percent control efficiency and complies with the 10% opacity limit of the PSD permit. At one time a dust collection system was used but it became impracticable to operate because of the high humidity and salinity in the water-front area.

#### **3.2.2.2 Transfer Points**

For the transfer points (Transfer Station Nos. 1, 2, 3, 4, 5, 6, & 7) following after the ship unloading operations, controls include handling of conditioned materials, wet suppression (Points 1, 2, & 3), and partial enclosures. The requested emission limit is a 5% opacity limitation on each transfer point.

#### **3.2.2.3 Conveyor Belts**

For the conveyor belts, excluding the ship unloading conveyor (CT-1) and the stacker/reclaimer conveyors (CT-4, C-4 & L-2), controls include handling conditioned materials, conveyor covers, and best operating practices. The requested emission limit is a 5% opacity limitation.

For these conveyor belts (CT-1, CT-4, C-4, & L-2), controls include the handling of conditioned materials, wind screens on each side of the conveyor, and best operating practices. The emission limitation remains a visible emissions limitation of 10% opacity.

#### **3.2.2.4 Storage Piles**

The coal storage pile now includes 38 active acres, versus the 10 active and 26 inactive acres referenced in Table 6, storing coal, petroleum coke, and limestone. The controls include the use of wetting agents to reduce potential emissions by 90 percent and a visible emissions limitation of 10 percent opacity.

For the gypsum and solid waste disposal areas, the 10 percent opacity limitation from the storage areas and the use of conditioned materials with wet suppression as needed remains as the emission limitation.

#### **3.2.2.5 Fuel Transfer House**

For the fuel transfer house, the controls include the handling of conditioned materials, partial enclosure, and water sprays for a control efficiency of 85% or more and the 10% opacity limitation on the tower and lowering well will remain. The dust collection system and fabric filter used in the past is being removed and replaced with a water spray system. The fabric filter was replaced because it was no longer practical to operate given the potential emission rates.

#### **3.2.2.6 Fuel Handling Building**

For the fuel handling building, the controls include the handling of conditioned materials, partial enclosure of the operations, and a dust collection system equipped with a fabric filter with a control efficiency of 99% or more. The requested emission limitation is a 5% opacity limitation on the building, building ventilation exhausts, and the dust collection system exhaust.

#### **3.2.2.8 Boiler Silos**

For the boiler silos, the controls include the partial enclosure of the operations and a dust collection system equipped with a fabric filter with a control efficiency of 99% or more. The requested emission limitation is a 5% opacity limitation on the dust collection system exhaust.

#### **3.2.2.9 Limestone Loadout Facility**

For the limestone loadout facility, the controls include the handling of conditioned materials, partial enclosure of the operations, and a dust collection system equipped with a fabric filter with a control efficiency of 99% or more. The requested emission limitation is a 5% opacity limitation on the building, building ventilation exhausts, and the dust collection system exhaust.

#### **3.2.2.10 Limestone Silos/Preparation Building**

For the limestone silos and preparation facility, the controls include the handling of conditioned materials, partial enclosure of the operations, and a dust collection system equipped with a fabric filter with a control efficiency of 99% or more. The requested emission limitation is a 5% opacity limitation on the building, building ventilation exhausts, and the dust collection system exhaust.

### **3.2.2.11 Fly Ash Transfer and Storage Operations**

For the fly ash transfer and storage operations, the controls include the total enclosure of the operations, use of a pneumatic transfer system, and a dust collection system equipped with a fabric filter with a control efficiency of 99% or more. The requested emission limitation is a 5% opacity limitation on the dust collection system exhaust.

### **3.2.2.12 Bottom Ash and Fly Ash Loadout Operations**

For the bottom ash and fly ash loadout operations, the controls include the partial enclosure of the preparation operations and the handling of conditioned materials. The requested emission limitation is a 5% opacity limitation on the loadout stations. Fugitive emissions will be controlled by the partial enclosure of the activities, water sprays, and material conditioning with water to increase moisture content prior to loading into the vehicles.

## **4.0 CONCLUSIONS**

The materials handling operations at SJRPP have been constructed under the authorizations of the initial and revised PSD permit and Site Certification and subsequent Department approvals. The comprehensive and complete emissions inventory for the materials handling operations at SJRPP reveals that none of the emission units or activities emits particulate matter in significant amounts (Title V - Particulate Matter Significant Level 5 tons per year).

The prior Tables 2 and 6 reflect an off-site coal pile (30 Acres) and associated materials handling operations (8 Transfer Points), and the auxiliary boiler that were never constructed which are therefore being deleted from the permit in the new Table 6. In addition, the prior Tables 2 and 6 reflect the operation of two ship unloaders (2 Grab Buckets), while only one ship unloader, capable of using 1 grab bucket at a time (Note: 2 Buckets, 1 operation & 1 spare), was built. This too is being clarified in this application and new Table 6.

The prior Tables 2 and 6 reflect three coal storage piles (1-Active & 2-Inactive), a stacker and a bucket wheel reclaimer, although the existing operations include a single active pile storing coal, petroleum coke, and limestone, and an additional stacker/reclaimer. This is being clarified in the new Table 6.

In addition to the coal/petroleum coke storage pile, outdoor storage and handling of limestone, gypsum (Covered Building & Landfill), and ash (Landfill) is also conducted. The prior Tables 2 and 6 reflect receipt and transfer of limestone by train, and the application package reflects receipt by ship, truck, and on-site transfers by trucks, as well as stacking, storage, and reclaiming. The by-product system for gypsum (vacuum filters, transfer points, conveyors, & storage areas), which was not included in the initial PSD permit application because of the insignificant emissions, is reflected in the updated application package. The prior Tables 2 and 6 reflect the solid waste disposal area, and the updated application package and new Table 6 reflect the loadout of conditioned materials into open trucks.

The prior Tables 2 and 6 reflect average short-term transfer rates, while this application package provides the maximum potential transfer rates. The application package also reflects the maximum potential annual throughput rates for coal and/or petroleum coke and limestone, based on the maximum continuous usage rate of the two steam generating units and worst-case fuels.



This amount conservatively totals approximately 5.13 million tons per year for coal and/or petroleum coke and 600,000 tons per year for limestone.

The technology review for the materials handling system noted that specific operations are subject to the requirements of 40 CFR 60 Subpart Y when handling coal, and that the overland conveyor system is subject to the requirements of 40 CFR 60 Subpart OOO when handling limestone.

The application requests visible emissions limitations on the materials handling operations which are as stringent as or more stringent than the current BACT limits.

Attachment 5 contains a complete air permit application reflecting the materials handling operations. The application package includes several emission units which were previously grouped within the "Facility-Fugitive PM/PM10 emissions" as identified in the Title V Operating Permit application. These units reflect point source emissions (i.e., those sources equipped with a dust collection system).

Based on the evaluations conducted for this update, the materials handling operations at SJRPP reflect the application of BACT and will not cause or contribute to a violation of any ambient air quality standard or PSD Class I or II Increment. Therefore, JEA requests that the PSD permit for SJRPP be updated to reflect the comprehensive and complete identification of the existing materials handling operations and maximum potential throughput rates, and that Tables 2 and 6 be replaced with a new Table 6.

**ATTACHMENT 1**

**SJRPP PSD PERMIT UPDATE**

**Revised PSD Permit Tables 2 and 6, 1986 Version**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

OCT 28 1986

REGION IV

345 COURTLAND STREET  
ATLANTA, GEORGIA 30365

4APT-AP/ch

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Richard Breitmoser, P. E.  
Division Chief  
Research and Environmental Affairs Division  
Jacksonville Electric Authority  
P. O. Box 53015  
233 W. Duval Street  
Jacksonville, Florida 32201

RE: St. John's River Power Park PSD-FL-010

Dear Mr. Breitmoser:

This letter is in response to your May 12, 1986, request for coal terminal and blending modifications at the above-referenced facility permitted on March 12, 1982, by EPA Region IV. The Florida Department of Regulation (FDER) published a public notice announcing the proposed coal handling modifications on July 28, 1986. No comments were received and the FDER subsequently recommended that the PSD permit be modified.

In addition to the above, we have reviewed recommendations from The Department of Health, Welfare, and Bio-Environmental Services (City of Jacksonville, Florida) dated July 1, 1986, regarding opacity and control of fugitive emissions from shiploading, and subsequent recommendations from your office dated August 27, 1986, regarding emission limits and testing of non-stack emission points. In response to these recommendations and communications with the FDER, your PSD permit (PSD-FL-010) is hereby modified as follows:

1. The second paragraph of Condition of Approval No. 3 is changed from the existing wording regarding compliance testing of particulate emission points to the following:

"Opacity tests shall be performed for emission points three (3) through nineteen (19) of revised Table 6 for compliance purposes. If the opacity limits are not met for those sources that exhaust through a stack, permit compliance shall be determined on the basis of mass emission rate tests."

2. Table 2 of the final determination is replaced by revised Table 2 (enclosed).
3. Table 6 of the final determination is replaced by revised Table 6 (enclosed).
4. All reference to Table 2 and Table 6 in Conditions of Approval numbers 2, 3, 4, and 5, as contained in the March 12, 1982 PSD permit, shall be construed to pertain to the enclosed revised Tables 2 and 6.

DER

NOV 17 1986

ROOM

Please be advised that the modification to your PSD permit herein described shall become a binding part of permit PSD-FL-010. This permit modification shall become effective upon receipt of this letter, unless you notify us of your unacceptance of the conditions contained herein within ten (10) days after receipt of this letter.

If you have any questions regarding this permit modification, please contact Mr. Wayne J. Aronson, Chief, Program Support Section, at (404) 347-4901.

Sincerely yours,

/s/ Lee A. DeHihns, III  
Deputy Regional Administrator

Jack E. Ravan  
Regional Administrator

Attachments: 2

cc: Mr. Clair H. Fancy  
Deputy Bureau Chief  
Florida Department of Environmental Regulation

Table 2. Fugitive Emissions and Control Summary (Revised: From PSD Permit)

Process	Type	Amount	Factor	Control	Technique	Emission (grams/hr)
1 Ship Unloading*	2 Grab Buckets	2,200 Tons/hr	0.0016 lb/Ton*	70.0%	Suppression, Enclosure	0.13
2 Feeders to Conveyor A*	2 Points	2,200 Tons/hr	0.00039 lb/Ton	85.0%	Suppression, Enclosure	0.02
3 Conveyor Transfers, 1 and 2*	2 Points	2,200 Tons/hr	0.00087 lb/Ton**	85.0%	Suppression Enclosure	0.07
4 Conveyor Transfers 3, 4, 5 and D to D by-pass*	4 Points	2,200 Tons/hr	0.00118 lb/Ton**	75.0%	Enclosure, Conditioned Material	0.33
5 Conveyor Transfers 6 and 7*	2 Points	2,000 Tons/hr	0.00106 lb/Ton**	75.0%	Enclosure, Conditioned Material	0.13
6 Traveling Stacker*	3 Points: 1 Point	2,200 Tons/hr	0.00031 lb/Ton	75.0%	Enclosure, Conditioned Material	0.02
	1 Point	2,200 Tons/hr	0.00039 lb/Ton	75.0%	Enclosure, Conditioned Material	0.03
	1 Point	2,200 Tons/hr	0.00017 lb/Ton	0.0%		0.05
7 Bucket Wheel Reclaimer*	2 Points	2,000 Tons/hr	0.00063 lb/Ton**	75.0%	Enclosure, Conditioned Material	0.08
8 Ship-Unloading Facility Coal Surge Pile	Active	30 Acres	13 lb/Acre/day <sup>a</sup>	(90%) <sup>a</sup>	Wetting Agent	0.20
9 Coal Handling Transfer Points Ship Unloading Facility Coal Pile*	8 Points	2,200 Tons/Hr.	0.00041 lbs/Ton**	75.0%	Enclosure, Conditioned Material	0.23
10 Rail Car Unloading	Rotary Dumper	10,000 Tons/Day	0.4 lb/Ton <sup>a</sup>	(97%) <sup>b</sup>	Wet Suppression	0.63
11 Coal Handling Transfer Points	2 Points	10,000 Tons/Day	0.2 lb/Ton <sup>c</sup>	(99.9%) <sup>b</sup>	Dry Collection	0.02
12 Coal Handling Transfer Points	2 Points	3,300 Tons/Day	0.2 lb/Ton <sup>c</sup>	(99.9%) <sup>b</sup>	Dry Collection	0.01
13 Coal Handling Transfer Points	6 Points	3,300 Tons/Day	0.2 lb/Ton <sup>c</sup>	(97%) <sup>b</sup>	Wet Suppression	0.62
14 Coal Handling Transfer Points	7 Points	5,000 Tons/Day	0.2 lb/Ton <sup>c</sup>	(99.9%) <sup>b</sup>	Dry Collection	0.04
15 Coal Storage At Plant*	Active	10 Acres	13 lb/Acre/day <sup>a</sup>	(90%) <sup>a</sup>	Wetting Agent	0.07
16 Coal Storage At Plant*	2 Inactive Piles	13 Acres	3.5 lb/Acre/day <sup>a</sup>	(99%) <sup>a</sup>	Wetting Agent	0.00
17 Limestone Unloading	Rail Dumper	750 Tons/Day	0.4 lb/ton <sup>a</sup>	(97%) <sup>b</sup>	Wet Suppression	0.05
18 Limestone Transfer	1 Point	750 Tons/Day	0.2 lb/Ton <sup>a</sup>	(99.9%) <sup>b</sup>	Dry Collection	0.00
19 Cooling Towers	Drift	2 x 243,500 gal/min	51,450 ppm solids (maximum) (40% < 50 microns diameter)	99.998%	Drift Elimination	12.66
20 Solid Waste Disposal Area	Active	10 Acres	13 lb/Acre/day <sup>a</sup>	(90%) <sup>a</sup>	Wetting Agent	0.07

\* Revised process or emissions, May 1986.

- Weighted average based on 1,500 and 700 STPH ship unloaders.

\*\* Average of emission factors for individual sources.

a. Pedco, 1977.

b. Stoughton, 1980.

c. EPA, 1979.

Table 6. Allowable Emission Limits (Revised: From PSD Permit) (lb/hour: lb/MMBtu)

Emission Unit	SO <sub>2</sub>	NO <sub>x</sub>	PM (Revised Original)	Opacity (Percent)
1. Steam Generating Boiler No. 1 (6.144 MMBtu/hr maximum heat input)	4.669; 0.76 (30-day rolling average)	3.686; 0.6	184; 0.03	20
2. Steam Generating Boiler No. 2 (6.144 MMBtu/hr maximum heat input)	4.669; 0.76 (30-day rolling average)	3.686; 0.6	184; 0.03	20
3. Auxiliary boilers (254 MMBtu/hr maximum heat input total)	203; 0.8		25.0; 0.1	20
4. Ship Unloading (2 Grab Buckets)*			1.0	10
5. Feeders to Conveyor A (2 Wet Suppression points)*			0.13	10
6. Conveyor Transfers 1 & 2 (2 points)*			0.57	10
7. Conveyor Transfer 3, 4, 5 & D to D by-pass (4 points)*			2.6	10
8. Conveyor Transfers 6 & 7 (2 points)*			1.0	10
9. Traveling Stacker (3 points)*			0.8	10
10. Bucket Wheel Reclaimer (2 points)*			0.6	10
11. Ship unloading facility coal storage pile			1.6	10
12. Coal handling transfer points ship unloading facility coal pile (8 points)*			1.8	10
13. Rail car unloading (Rotary Dumper)			5	10
14. Coal handling transfer points (6 wet suppression points)			5 (each)	10
15. Coal handling transfer points (11 dry collection)			0.1 (each)	10
16. Coal storage at plant* (10 acres active)			0.5	10
17. Coal storage at plant* (2 to 13-acre inactive piles)			0.02	10
18. Limestone unloading (rail dumper)			0.1	10
19. Limestone transfer points			0.4 (each)	10
20. Cooling towers			67 (each tower)	N/A

**ATTACHMENT 2**

**SJRPP PSD PERMIT UPDATE**

**Materials Handling and Storage Operations - Allowable Emissions**

**ATTACHMENT 2  
ST JOHNS RIVER POWER PARK  
PSD PERMIT UPDATE**

**MATERIALS HANDLING AND STORAGE OPERATIONS - ALLOWABLE EMISSIONS**

ID No.	Emission Unit - Table 6	Allowable Emissions (lb/hr)	Emission Unit(s) - Updated Inventory	Potential Emissions (lb/hr)	Difference (lb/hr)
4	Ship Unloading (2 Grab Buckets)	1	Ship Hold	0.544	-0.456
5	Feeders to Conveyor A (2 Wet Suppression Points)	0.13	Transfer Points to CT1, Unloader Hopper, and Spillage Collector Transfers	1.271	1.141
6	Conveyor Transfers 1 & 2 (2 points)	0.57	Transfer Stations 1 & 2	0.089	-0.481
7	Conveyor Transfers 3, 4, 5, & D to D by-pass (4 points)	2.6	Transfer Stations 3, 4, & 5	0.135	-2.465
8	Conveyor Transfers 6 & 7 (2 points)	1	Transfer Stations 6 & 7	0.088	-0.912
9	Traveling Stacker (3 points)	0.8	Stacker	1.151	0.351
10	Bucket Wheel Reclaimer (2 points)	0.6	Reclaimer	0.915	0.315
11	Ship Unloading Facility Coal Storage Pile	1.6	Never Constructed	0	-1.6
12	Coal Handling Transfer Points Ship Unloading Facility Coal Pile	1.8	Never Constructed	0	-1.8
13	Rail Car Unloading (Rotary Dumper)	5	Railcar Rotary Dumper & Dust Collector DC-1	0.320	-4.680469
14	Coal Handling Transfer Points (6 Wet Suppression Points)	30	Fuel Transfer Building, Conveyor C-3 Ventilation, Petroleum Coke Reclaimer System, Emergency Reclaim Hoppers, & Stacker/Reclaimer.	4.405	-25.59536
15	Coal Handling Transfer Points (11 dry collection)	1.1	Dust Collectors DC-3, DC-4, & DC-5	0.272	-0.827659
16	Coal Storage at Plant (10 Acres Active)	0.5	Coal Pile, Petroleum Coke, & New Limestone Storage Pile	1.093	0.593
17	Coal Storage at Plant (2, 13 acres inactive piles)	0.02	All Active	0	-0.02
18	Limestone Unloading (rail dumper)	0.1	Limestone Railcar Unloader, & Dust Collectors LDC-1	0.035	-0.065
19	Limestone Transfer Points (0.4lb/point)	0.4	Limestone Loadout & Dust Collectors LDC-2, 3DC-01, 1DC-01, & 2DC-01, New Truck Loadout & Transfer, Limestone Storage Pile #1, & Limestone Reclaim Hopper	0.778	0.378
			Additional Emission Units/Activities Listed on Figure SJRPP01	1.9245	1.9245
Totals	1986 PSD Permit	47.22	Proposed 1999 Permit Revision	13.019012	-34.20099



Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet

St. John's River Power Park - PSD Permit Update  
Materials Handling and Storage Operations  
Point Source Calculations

Equipment/Activity	EU ID #	Excel 7.0 Cal. Sheet	Control Efficiency (%)	Opacity (%)	Emission Estimates							
					lb/hr		TPY		gps - Short Term		gps-Long Term	
					PM	PM <sub>10</sub>	PM	PM <sub>10</sub>	PM	PM <sub>10</sub>	PM	PM <sub>10</sub>
Rotary Railcar Dumper, Fuel Transfer Points (DC-1)	043	MP #55	99.5%	5.0%	0.1744	0.0825	0.1117	0.0529	0.0220	0.0104	0.00322	0.00152
Fuel Handling Building (DC-3)	046	MP #21	99.5%	5.0%	0.2372	0.1122	0.1520	0.0719	0.0299	0.0141	0.00438	0.00207
Unit #1 Fuel Storage Bins (DC-4)	047	MP #31	99.5%	5.0%	0.0176	0.0083	0.0225	0.0106	0.0022	0.0010	0.00065	0.00031
Unit #2 Fuel Storage Bins (DC-5)	047	MP #32	99.5%	5.0%	0.0176	0.0083	0.0225	0.0106	0.0022	0.0010	0.00065	0.00031
Railcar Unloader, Limestone Transfer Points (LDC-1)	048	MP #63	99.5%	5.0%	0.0243	0.0115	0.0036	0.0017	0.0031	0.0015	0.00011	0.00005
Limestone Loadout Facility (LDC-2)	049	MP #68	99.5%	5.0%	0.0122	0.0058	0.0009	0.0004	0.00153	0.00073	0.000026	0.000012
Limestone Reclaim Hopper, Transfer Points (3DC-01)	050	MP #72	99.5%	5.0%	0.0007	0.0003	0.0007	0.0003	0.00008	0.00004	0.000019	0.000009
Limestone Silo (1DC-01)	051	MP #73	99.5%	5.0%	0.0007	0.0003	0.0007	0.0003	0.00008	0.00004	0.000019	0.000009
Limestone Silo (2DC-01)	051	MP #74	99.5%	5.0%	0.0007	0.0003	0.0007	0.0003	0.00008	0.00004	0.000019	0.000009
Quick Lime Silo	052	MP #97	99.5%	5.0%	0.0225	0.0225	0.0986	0.0986	0.0028	0.0028	0.00284	0.00284
Non-Saleable Ash Silo U#1-A	053	MP #75	99.5%	5.0%	0.0169	0.0169	0.0739	0.0739	0.0021	0.0021	0.00213	0.00213
Non-Saleable Ash Silo U#2-A	053	MP #80	99.5%	5.0%	0.0169	0.0169	0.0739	0.0739	0.0021	0.0021	0.00213	0.00213
Saleable Ash Silo 1A	054	MP #76	99.5%	5.0%	0.0338	0.0338	0.1478	0.1478	0.0043	0.0043	0.00426	0.00426
Saleable Ash Silo 1B	054	MP #77	99.5%	5.0%	0.0338	0.0338	0.1478	0.1478	0.0043	0.0043	0.00426	0.00426
Saleable Ash Silo 2A	054	MP #81	99.5%	5.0%	0.0338	0.0338	0.1478	0.1478	0.0043	0.0043	0.00426	0.00426
Saleable Ash Silo 2B	054	MP #82	99.5%	5.0%	0.0338	0.0338	0.1478	0.1478	0.0043	0.0043	0.00426	0.00426
Railcar Rotary Dumper - Building Emissions	023a	MP #54	97.0%	10.0%	0.1451	0.0686	0.0930	0.0440	0.0183	0.0087	0.00268	0.00127
Conveyor C-3 Tunnel Ventilation - 6,400 cfm	023b	MP # 48	98.0%	5.0%	0.0324	0.0153	0.0416	0.0197	0.0041	0.0019	0.00120	0.00057
Conveyor C-3 Tunnel Ventilation - 6,400 cfm	023b	MP # 49	98.0%	5.0%	0.0324	0.0153	0.0416	0.0197	0.0041	0.0019	0.00120	0.00057
Conveyor C-3 Tunnel Ventilation - 21,600 cfm	023b	MP #50	98.0%	5.0%	0.1095	0.0518	0.1403	0.0664	0.0138	0.0065	0.00404	0.00191

St. John's River Power Park - PSD Permit Update  
Materials Handling and Storage Operations  
Fugitive Dust Calculations

Equipment/Activity	EU ID #	Excel 7.0 Cal. Sheet	Control Efficiency (%)	Opacity (%)	Emission Estimates							
					lb/hr		TPY		gps - Short Term		gps-Long Term	
					PM	PM <sub>10</sub>	PM	PM <sub>10</sub>	PM	PM <sub>10</sub>	PM	PM <sub>10</sub>
Shiphold	023c	MP #1	70.0%	10.0%	0.544	0.257	1.005	0.476	0.069	0.032	0.029	0.014
Unloader Hopper and Spillage Collector Transfers	023d	MP #2	85.0%	10.0%	0.275	0.130	0.508	0.240	0.035	0.016	0.015	0.007
Ship Unloader Hopper, Transfer to CT-1, Spillage Conveyor	023d	MP #3	85.0%	10.0%	0.996	0.471	1.840	0.870	0.126	0.059	0.053	0.025
Transfer Station No. 1	023e	MP #5	98.0%	5.0%	0.044	0.021	0.082	0.039	0.006	0.003	0.002	0.001
Transfer Station No. 2	023e	MP #8	98.0%	5.0%	0.044	0.021	0.082	0.039	0.006	0.003	0.002	0.001
Transfer Station No. 3	023e	MP #12	98.0%	5.0%	0.046	0.022	0.086	0.041	0.006	0.003	0.002	0.001
Transfer Station No. 4	023e	MP #16	98.0%	5.0%	0.044	0.021	0.076	0.036	0.006	0.003	0.002	0.001
Transfer Station No. 5	023e	MP #16a	98.0%	5.0%	0.044	0.021	0.076	0.036	0.006	0.003	0.002	0.001
Transfer Station No. 6	023e	MP #37	98.0%	5.0%	0.044	0.021	0.056	0.027	0.006	0.003	0.002	0.001
Transfer Station No. 7	023e	MP #39	98.0%	5.0%	0.044	0.021	0.056	0.027	0.006	0.003	0.002	0.001
Fuel Transfer Building	023e	MP #61	85.0%	5.0%	0.654	0.309	0.419	0.198	0.082	0.039	0.012	0.006
Stacker/Reclaimer (Stacker Mode)	023f	MP #40	82.7%	10.0%	2.286	1.081	1.465	0.693	0.288	0.136	0.042	0.020
Stacker	023f	MP #44	82.7%	10.0%	1.151	0.544	2.126	1.005	0.145	0.069	0.061	0.029
Reclaimer	023f	MP #45	89.7%	10.0%	0.915	0.433	1.172	0.554	0.115	0.055	0.034	0.016
Petroleum Coke Reclaimer System	023g	MP #46	60.0%	10.0%	0.685	0.324	3.002	1.420	0.086	0.041	0.086	0.041
Emergency Reclaim Hoppers - Loadout	023g	MP #47	75.0%	10.0%	0.605	0.286	0.775	0.367	0.076	0.036	0.022	0.011
Limestone Railcar Dumper	023h	MP #62	97.0%	10.0%	0.010	0.005	0.008	0.004	0.001	0.001	0.000	0.000
Limestone Loadout	023i	MP #69	97.0%	10.0%	0.010	0.005	0.008	0.004	0.001	0.001	0.000	0.000
Limestone Truck Loadout & Transfer	023j	MP #69a	75.0%	10.0%	0.209	0.099	0.188	0.089	0.026	0.012	0.005	0.003
Limestone Storage Pile #1 - Existing	023k	MP #70a	90.0%	10.0%	0.255	0.255	0.018	0.018	0.032	0.032	0.001	0.001
Limestone Storage Pile #2 - Fuel Yard	023k	MP #70b	90.0%	10.0%	0.118	0.118	0.008	0.008	0.015	0.015	0.000	0.000
Coal Pile	023k	MP #70c	90.0%	10.0%	0.264	0.264	0.006	0.006	0.033	0.033	0.000	0.000
Petroleum Coke Pile	023k	MP #70d	90.0%	10.0%	0.711	0.711	0.042	0.042	0.090	0.090	0.001	0.001
Limestone Reclaim Hopper	023g	MP #71	42.5%	10.0%	0.289	0.137	0.289	0.137	0.036	0.017	0.008	0.004
Fly Ash loadouts 1A	023l	MP #78	97.0%	10.0%	0.060	0.028	0.263	0.125	0.008	0.004	0.008	0.004
Fly Ash loadouts 1B	023l	MP #79	97.0%	10.0%	0.060	0.028	0.263	0.125	0.008	0.004	0.008	0.004
Fly Ash loadouts 2A	023l	MP #83	97.0%	10.0%	0.060	0.028	0.263	0.125	0.008	0.004	0.008	0.004
Fly Ash loadouts 2B	023l	MP #84	97.0%	10.0%	0.060	0.028	0.263	0.125	0.008	0.004	0.008	0.004
Bottom Ash Loadouts 1A	023l	MP #85	0.0%	10.0%	0.089	0.042	0.389	0.184	0.011	0.005	0.011	0.005
Bottom Ash Loadouts 1B	023l	MP #86	0.0%	10.0%	0.089	0.042	0.389	0.184	0.011	0.005	0.011	0.005
Bottom Ash Loadouts 2A	023l	MP #87	0.0%	10.0%	0.089	0.042	0.389	0.184	0.011	0.005	0.011	0.005
Bottom Ash Loadouts 2B	023l	MP #88	0.0%	10.0%	0.089	0.042	0.389	0.184	0.011	0.005	0.011	0.005
Gypsum Dewatering Building	023m	MP #89	0.0%	5.0%	0.042	0.020	0.046	0.022	0.005	0.003	0.001	0.001
Gypsum Storage Pile (Non-Commercial)	023k	MP #90	85.0%	5.0%	0.074	0.074	0.004	0.004	0.009	0.009	0.000	0.000
Transfer Point 9GC-04 to 9GC-05	023e	MP #92	0.0%	5.0%	0.007	0.003	0.032	0.015	0.001	0.0004	0.0009	0.0004
Gypsum Storage Enclosure	023n	MP #94	0.0%	5.0%	0.008	0.004	0.033	0.016	0.001	0.000	0.001	0.000
Gypsum Truck Loadout	023o	MP #95	0.0%	5.0%	0.275	0.130	0.578	0.273	0.035	0.016	0.017	0.008
Solid Waste Disposal Area	023k	MP #96	90.0%	10.0%	0.307	0.307	0.016	0.016	0.039	0.039	0.0005	0.0005
Unpaved Road, By-Product Transport	023p	MP #98	75.00%	10.00%	0.577	0.151	2.529	0.663	0.073	0.019	0.073	0.019

**ATTACHMENT 3**

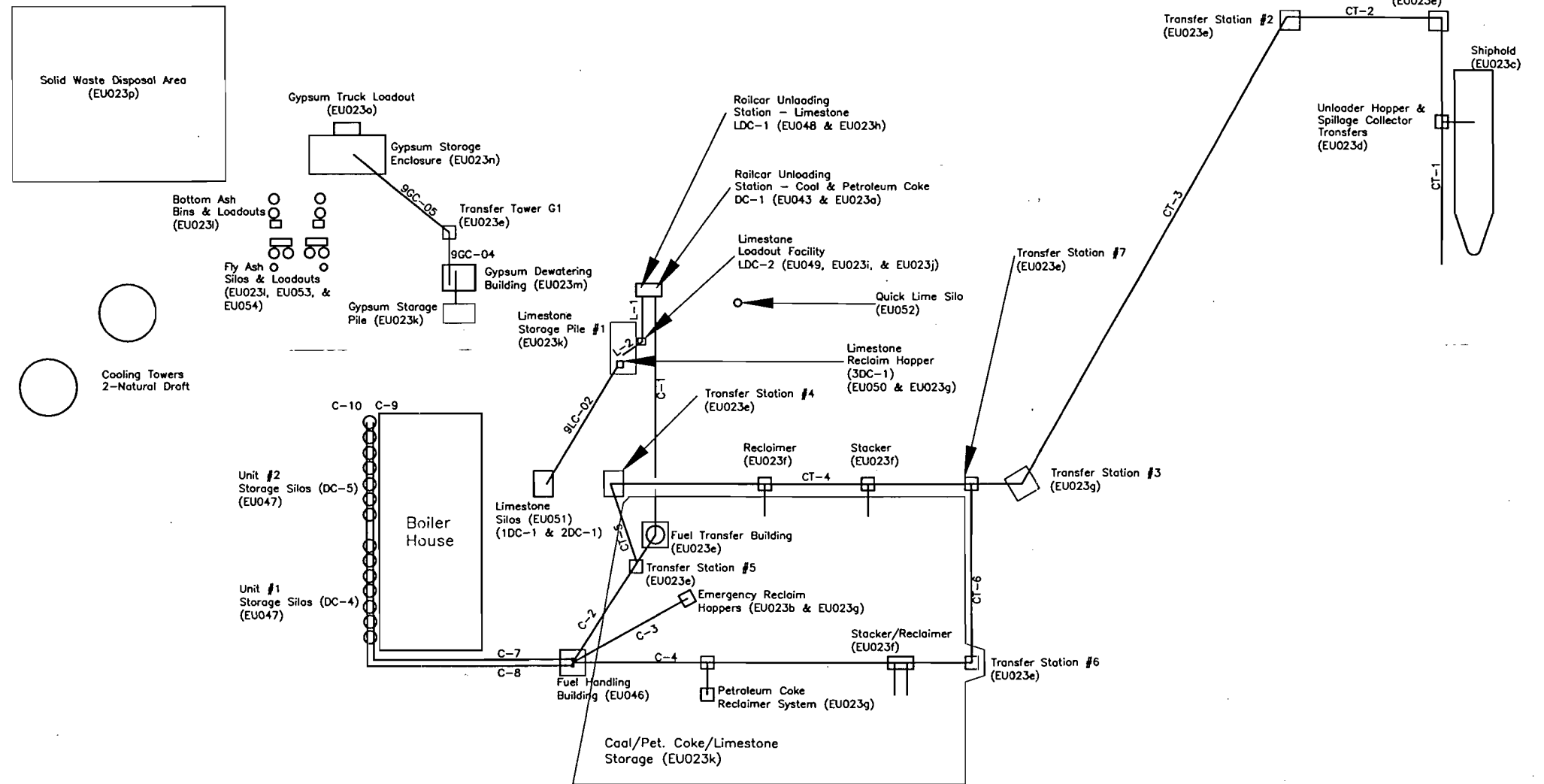
**SJRPP PSD PERMIT UPDATE**

**Figure SJRPP01**

# Figure SJRPP01

## SJRPP Materials Handling & Storage Operations Layout Schematic - Not To Scale

Fugitive Dust Sources	EU ID#	AQCS	Control Efficiency	PM10 (lb/hr)	PM10 (TPY)	Opacity (%)
Shiphold	023c	1, 4, & 6	70.00%	0.257	0.476	10%
Unloader Hopper and Spillage Collector Transfers	023d	1, 3, 4, & 6	85.00%	0.130	0.240	10%
Ship Unloader Hopper, Transfer to CT-1, Spillage Conveyor	023d	1, 3, 4, & 6	85.00%	0.471	0.870	10%
Transfer Station No. 1	023e	1, 2, & 4	98.00%	0.021	0.039	5%
Transfer Station No. 2	023e	1, 2, & 4	98.00%	0.021	0.039	5%
Transfer Station No. 3	023e	1, 2, & 4	98.00%	0.022	0.041	5%
Transfer Station No. 4	023e	1 & 4	98.00%	0.021	0.036	5%
Transfer Station No. 5	023e	1 & 4	98.00%	0.021	0.036	5%
Transfer Station No. 6	023e	1 & 4	98.00%	0.021	0.027	5%
Transfer Station No. 7	023e	1 & 4	98.00%	0.021	0.027	5%
Fuel Transfer Building	023f	1, 3 & 4	85.00%	0.309	0.198	10%
Stacker/Reclaimer (Stacker Mode)	023f	1 & 3	82.67%	1.081	0.693	10%
Stacker	023f	1 & 3	82.67%	0.544	1.005	10%
Reclaimer	023f	1 & 3	89.67%	0.433	0.554	10%
Petroleum Coke Reclaimer System	023g	1	60.00%	0.324	1.420	10%
Emergency Reclaim Hoppers - Loadout	023g	1	75.00%	0.286	0.367	10%
Limestone Railcar Dumper	023h	1, 2, 3, & 4	97.00%	0.005	0.004	10%
Limestone Loadout	023i	1 & 3	97.00%	0.005	0.004	10%
Limestone Truck Loadout & Transfer	023j	1	75.00%	0.099	0.089	10%
Limestone Storage Pile #1 - Existing	023k	1 & 3	90.00%	0.255	0.018	10%
Limestone Storage Pile #2 - Fuel Yard	023k	1, 2 & 3	90.00%	0.118	0.008	10%
Coal Pile	023k	1, 2 & 3	90.00%	0.264	0.006	10%
Petroleum Coke Pile	023k	1, 2 & 3	90.00%	0.711	0.042	10%
Limestone Reclaim Hopper	023l	1	42.50%	0.137	0.137	10%
Fly Ash loadouts 1A	023l	1 & 3	97.00%	0.028	0.125	10%
Fly Ash loadouts 1B	023l	1 & 3	97.00%	0.028	0.125	10%
Fly Ash loadouts 2A	023l	1 & 3	97.00%	0.028	0.125	10%
Fly Ash loadouts 2B	023l	1 & 3	97.00%	0.028	0.125	10%
Bottom Ash Loadouts 1A	023l	1	0.00%	0.042	0.184	10%
Bottom Ash Loadouts 1B	023l	1	0.00%	0.042	0.184	10%
Bottom Ash Loadouts 2A	023l	1	0.00%	0.042	0.184	10%
Bottom Ash Loadouts 2B	023l	1	0.00%	0.042	0.184	10%
Gypsum Dewatering Building	023m	1	0.00%	0.020	0.022	5%
Gypsum Storage Pile (Non-Commercial)	023n	1	85.00%	0.074	0.004	5%
Transfer Point 9GC-04 to 9GC-05	023o	1	0.00%	0.003	0.015	5%
Gypsum Storage Enclosure	023p	1	0.00%	0.004	0.016	5%
Gypsum Truck Loadout	023q	1	0.00%	0.130	0.273	5%
Solid Waste Disposal Area	023r	1 & 2	90.00%	0.307	0.016	10%
Unpaved Road, By-Product Transport	023s	1 & 2	75.00%	0.151	0.663	10%
Point Sources	EU ID#	AQCS	Control Efficiency	PM10 (lb/hr)	PM10 (TPY)	Opacity (%)
Rotary Railcar Dumper, Fuel Transfer Points (DC-1)	043	1, 4, & 5	99.50%	0.0825	0.0529	5%
Fuel Handling Building (DC-3)	046	1, 4, & 5	99.50%	0.1122	0.0719	5%
Unit #1 Fuel Storage Bins (DC-4)	047	1, 4, & 5	99.50%	0.0083	0.0106	5%
Unit #2 Fuel Storage Bins (DC-5)	047	1, 4, & 5	99.50%	0.0083	0.0106	5%
Railcar Unloader, Limestone Transfer Points (LDC-1)	048	1, 4, & 5	99.50%	0.0115	0.0017	5%
Limestone Loadout Facility (LDC-2)	049	1, 4, & 5	99.50%	0.0058	0.0004	5%
Limestone Reclaim Hopper, Transfer Points (3DC-01)	050	1, 4, & 5	99.50%	0.0003	0.0003	5%
Limestone Silo (1DC-01)	051	1, 4, & 5	99.50%	0.0003	0.0003	5%
Limestone Silo (2DC-01)	051	1, 4, & 5	99.50%	0.0003	0.0003	5%
Quick Lime Silo	052	4 & 5	99.50%	0.0225	0.0986	5%
Non-Saleable Ash Silo U#1-A	053	4 & 5	99.50%	0.0169	0.0739	5%
Non-Saleable Ash Silo U#2-A	053	4 & 5	99.50%	0.0169	0.0739	5%
Saleable Ash Silo 1A	054	4 & 5	99.50%	0.0338	0.1478	5%
Saleable Ash Silo 1B	054	4 & 5	99.50%	0.0338	0.1478	5%
Saleable Ash Silo 2A	054	4 & 5	99.50%	0.0338	0.1478	5%
Saleable Ash Silo 2B	054	4 & 5	99.50%	0.0338	0.1478	5%
Railcar Rotary Dumper - Building Emissions	023a	4 & 5	97.00%	0.0686	0.0440	10%
Conveyor C-3 Tunnel Ventilation - 6,400 cfm	023b	4 & 5	98.00%	0.0153	0.0197	5%
Conveyor C-3 Tunnel Ventilation - 6,400 cfm	023b	1, 3, & 4	98.00%	0.0153	0.0197	5%
Conveyor C-3 Tunnel Ventilation - 21,600 cfm	023b	1 & 4	98.00%	0.0518	0.0664	5%



Air Quality Control Systems (AQCS)	
1. Conditioned Materials	
2. Wet Suppression	
3. Water Sprays	
4. Enclosures (Total, Partial, Covers, & Wind Screens)	
5. Dust Collection Systems	
6. Best Operating Practices	

**JEA**  
ST JOHNS RIVER POWER PARK  
PSD PERMIT UPDATE

Materials Handling and Storage Operations  
Equipment Layout

**FOSTER WHEELER ENVIRONMENTAL CORPORATION**

SCALE N/A	PREPARED DJG	CAD FILE NO. PPOAd.DWG
DATE: 04/29/99	CHECKED MAE	FIGURE NO. SJRPP01
	APPROVED DJG	

**ATTACHMENT 4**  
**SJRPP PSD PERMIT UPDATE**  
**New Table 6 and Permit Conditions**

- DRAFT-  
4/29/99

May \_\_\_\_\_, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Walter Bussells  
Managing Director and CEO  
JEA  
21 West Church Street  
Jacksonville, FL 32202

Re: Permit Amendment--Materials Handling Operations  
St. Johns River Power Park; Duval County  
PSD Permit No. PSD-FL-010(C)

Dear Mr. Bussells:

The Department hereby amends the specific conditions related to materials handling operations in the subject Final Determination (dated March 12, 1982) pursuant to 40 CFR 52.21--Prevention of Significant Deterioration (PSD Permit). The PSD Permit, previously amended on October 28, 1986 and on October 11, 1996, is further amended as follows:

Condition 3 FROM: First Paragraph: no change.  
Second Paragraph: Opacity tests shall be performed for emission points three (3) through nineteen (19) of revised Table 6 for compliance purposes. If the opacity limits are not met for those sources that exhaust through a stack, permit compliance shall be determined on the basis of mass emission rate tests.

TO: Second Paragraph: Opacity tests shall be performed for the emission points in Part C of revised Table 6 for compliance purposes, initial only using a Method 9 test. If the opacity limits are not met for those sources that exhaust through a stack, permit compliance shall be determined on the basis of mass emission rate tests. In addition to these initial tests, a Method 9 test shall be conducted annually for the limestone silos, non-saleable ash silos, and saleable ash silos.

Conditions 3A, 3B & 3C: No change.

Tables 2 and 6: Replaced with new Table 6.

Mr. Walter Bussells  
JEA  
May \_\_\_\_, 1999  
Page 2

A copy of this amendment letter shall be attached to and shall become a part of Permit PSD-FL-010.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION

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Howard L. Rhodes, Director  
Division Air Resources Management

SJRPP PSD PERMIT  
PSD-FL-010(C)

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Table 6 – Part A

Emissions Unit	SO <sub>2</sub>	NO <sub>x</sub>	PM	Opacity (%)
Steam Generating Boiler No. 1 (6,144 MMBtu/hr maximum heat input)	4,669 lb/hr 0.76 lb/mmBtu (30-day rolling average)	3,686 lb/hr 0.6 lb/mmBtu	184 lb/hr 0.03 lb/mmBtu	20
Steam Generating Boiler No. 2 (6,144 MMBtu/hr maximum heat input)	4,669 lb/hr 0.76 lb/mmBtu (30-day rolling average)	3,686 lb/hr 0.6 lb/mmBtu	184 lb/hr 0.03 lb/mmBtu	20
Cooling Towers			67 lb/hr (each tower)	N/A



SJRPP PSD PERMIT  
PSD-FL-010(C)

Table 6 – Part B

Existing Materials Handling Operations	PM/PM10 (lb/hr)	Opacity (%)
Railcar Rotary Dumper – Building Emissions	0.15/0.07	10
Conveyor C-3 Tunnel Ventilation – 6,400 cfm	0.32/0.02	5
Conveyor C-3 Tunnel Ventilation – 6,400 cfm	0.32/0.02	5
Conveyor C-3 Tunnel Ventilation – 21,600 cfm	0.10/0.05	5
Shiphold	0.54/0.26	10
Unloader Hopper and Spillage Collector Transfers	0.28/0.13	10
Ship Unloader Hopper, Transfer to CT-1, Spillage Conveyor	1.0/0.48	10
Transfer Station No. 1	0.04/0.02	5
Transfer Station No. 2	0.04/0.02	5
Transfer Station No. 3	0.05/0.02	5
Transfer Station No. 4	0.04/0.02	5
Transfer Station No. 5	0.04	5
Transfer Station No. 6	0.04	5
Transfer Station No. 7	0.04	5
Transfer Point 9GC-04 to 9GC-05	0.007	5
Stacker/Reclaimer (Stacker Mode)	2.29	10
Stacker	1.15	10
Reclaimer	0.43	10
Petroleum Coke Reclaimer System	0.32	10
Emergency Reclaim Hoppers – Loadout	0.29	10
Limestone Reclaim Hopper	0.14	10
Limestone Railcar Dumper	0.005	10
Limestone Loadout	0.005	10
Limestone Truck Loadout & Transfer	0.1	10
Limestone Storage Pile #1 – Existing	0.26/0.26	10
Limestone Storage Pile #2 - Fuel Yard	0.12	10
Coal Pile	0.26/0.26	10
Petroleum Coke Pile	0.71/0.71	10
Gypsum Storage Pile (Non-Commercial)	0.07	10
Fly Ash Loadouts 1A	0.06	10
Fly Ash Loadouts 1B	0.06	10
Fly Ash Loadouts 2A	0.06	10
Fly Ash Loadouts 2B	0.06	10
Bottom Ash Loadouts 1A	0.09	10
Bottom Ash Loadouts 1B	0.09	10
Bottom Ash Loadouts 2A	0.09	10
Bottom Ash Loadouts 2B	0.09	10
Gypsum Dewatering Building	0.04	5
Gypsum Storage Enclosure	0.008	5
Gypsum Truck Loadout	0.28	5
Solid Waste Disposal Area	0.31	10
Unpaved Road, By-Product Transport	0.58	10
Rotary Railcar Unloader, Fuel Transfer Points (DC-1)	0.17/0.08	5
Fuel Transfer Building	0.65/0.31	10
Fuel Handling Building (DC-3)	0.24	5
Unit #1 Fuel Storage Bins (DC-4)	0.009	5
Unit #2 Fuel Storage Bins (DC-5)	0.009	5
Railcar Unloader, Limestone Transfer Points (LDC-1)	0.02	5

SJRPP PSD PERMIT  
PSD-FL-010(C)

Limestone Loadout Facility (LDC-2)	0.006	5
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Table 6 – Part C

<b>New Materials Handling Operations (May ____, 1999)</b>	<b>PM/PM10 (lb/hr)</b>	<b>Opacity (%)</b>
Hopper Belt, Spillage Conveyors, and DC-1 Transfer Points - New Ship Unloader	0.13/0.06	10
Shiphold – New	0.54/0.26	10
Unloader Hopper and Spillage Collector Transfers - New Ship Unloader	0.28/0.13	10
Enclosed Pile – Vehicle Activities	0.04/0.01	5
Enclosed Storage Pile - 3 Transfer Points	0.13/0.06	5
Transfer Tower D-1	0.04/0.02	5
Transfer Tower D-2	0.04/0.02	5
New Blend Hopper	0.12/0.06	5
New Transfer Tower #1-NGS	0.09/0.04	5
New Transfer Tower #2-NGS	0.09/0.04	5
New Stacker	0.66/0.31	10
NGS Reclaimer	0.52/0.24	10
SJRPP Reclaimer	0.52/0.24	10
New Reclaim Transfer Tower	0.04/0.02	5
New Transfer Tower #3-NGS	0.08/0.04	5
New Transfer Tower #4-NGS	0.06/0.03	5

Notes:

1. PM 10 limits apply only to new and modified emission points. If only one standard is listed, the standard applies to PM emissions.
2. The total coal and petroleum coke throughput rate shall not exceed 7.62 million tons per year and the total limestone throughput rate shall not exceed 2.05 million tons per year for SJRPP and Northside Generating Station combined.

**ATTACHMENT 5**  
**SJRPP PSD PERMIT UPDATE**  
**Air Construction Permit Application**

**Department of  
Environmental Protection**

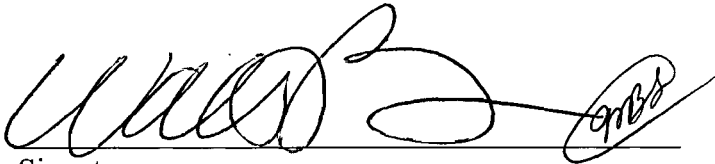
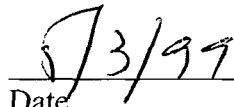
**DIVISION OF AIR RESOURCES MANAGEMENT  
APPLICATION FOR AIR PERMIT - LONG FORM**

**I. APPLICATION INFORMATION**

**Identification of Facility Addressed in This Application**

1. Facility Owner/Company Name : JEA	
2. Site Name : JEA - SJRPP	
3. Facility Identification Number :    310045	<input type="checkbox"/> Unknown
4. Facility Location : St Johns River Power Park  Street Address or Other Locator :    11201 New Berlin Road City : Jacksonville                      County : Duval                      Zip Code : 32226	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**Owner/Authorized Representative or Responsible Official**

1. Name and Title of Owner/Authorized Representative or Responsible Official:  Name: Walter P. Bussells Title: Managing Director and Chief Executive Officer
2. Owner/Authorized Representative or Responsible Official Mailing Address:  Organization/Firm: JEA Street Address: 21 West Church Street City: Jacksonville State: FL Zip Code: 32202
3. Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: 904-665-7220 Fax: 904-665-7366
4. Owner/Authorized Representative or Responsible Official Statement:  <i>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.</i>   Signature  Date

\* Attach letter of authorization if not currently on file.

**Scope of Application**

<b>Emissions Unit ID</b>	<b>Description of Emissions Unit</b>	<b>Permit Type</b>
023	SJRPP - Materials Handling & Storage Operations	ACM1
043	SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)	ACM1
046	SJRPP - Fuel Handling Building (DC-3)	ACM1
047	SJRPP - Fuel Storage Bins (DC-4 & DC-5)	ACM1
048	SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)	ACM1
049	SJRPP - Limestone Loadout Facility (LDC-2)	ACM1
050	SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)	ACM1
051	SJRPP - Limestone Silos (1DC-01 & 2DC-01)	ACM1
052	SJRPP - Quick Lime Silo	ACM1
053	SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)	ACM1
054	SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)	ACM1

**Purpose of Application and Category**

Category I: All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain :

- Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.
  
- Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number :

- Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed :

- Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number :

Operation permit to be revised :

- Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application.

Operation permit to be revised/corrected :

- Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit.

Operation permit to be revised :

Reason for revision :

Category II : All Air Operation Permit Applications Subject to Processing Under Rule 62-210.300(2)(b), F.A.C.

This Application for Air Permit is submitted to obtain :

- Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s) :

- Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed :

- Air operation permit revision for a synthetic non-Title V source.

Operation permit to be revised :

Reason for revision :

Category III : All Air Construction Permit Applications for All Facilities and Emissions Units

This Application for Air Permit is submitted to obtain :

- Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

I. Part 4 - 2



Current operation permit number(s), if any :

Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s) :  
0310045-002-AV

Air construction permit for one or more existing, but unpermitted, emissions units.

**Application Processing Fee**

Check one :

[ ] Attached - Amount : \$0.00 [X] Not Applicable.

**Construction/Modification Information**

1. Description of Proposed Project or Alterations :	
PSD Permit Update - St. Johns River Power Park (SJRPP)	
JEA seeks to update the PSD permit and Site Certification to reflect the "As-Built" materials handling operations and the maximum potential throughput rates for these operations.	
All changes associated with the repowering of the NGS are being presented in a separate PSD application for that project.	
Revisions to the Title V Operating Permit will be handled following issuance of a revised PSD permit.	
2. Projected or Actual Date of Commencement of Construction :	31-May-1982
3. Projected Date of Completion of Construction :	01-Jun-1987

**Professional Engineer Certification**

1. Professional Engineer Name : Darrel J. Graziani	
Registration Number : 44685	
2. Professional Engineer Mailing Address :	
Organization/Firm : Foster Wheeler Environmental Corp.	
Street Address : Suite 100, 759 S. Federal Hwy	
City : Stuart	State : FL Zip Code : 34994
3. Professional Engineer Telephone Numbers :	
Telephone : (561)781-3439	Fax : (561)781-3411

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 [ X ] if so), I further certify that the engineering features of each such emissions unit described in this application have been ~~designed or~~ examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.*

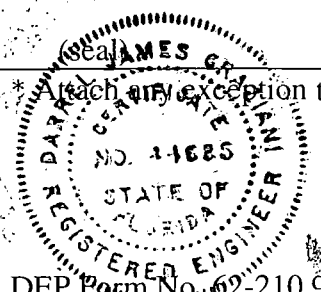
*If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ] if so), I further certify that, with the exception of any changes detailed as part of this application, each such 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.*

*Daniel J. Big...*  
Signature

Date

4-30-99

\* Attach any exception to certification statement.



**Application Contact**

1. Name and Title of Application Contact :

Name : Bert Gianazza  
Title : Professional Engineer

2. Application Contact Mailing Address :

Organization/Firm : JEA  
Street Address : 21 West Church Street  
City : Jacksonville  
State : FL                      Zip Code : 32202

3. Application Contact Telephone Numbers :

Telephone : (904)665-6247                      Fax : (904)665-7376

**Application Comment**

## SJRPP - PSD Permit Update

The recently finalized Title V Operating Permit for SJRPP addresses the various materials handling operations within Emissions Units 022 and 023. Emissions Unit 022, Limestone and Flyash Handling, and Emissions Unit 023, Coal Storage Yard and Transfer Systems address both point and nonpoint source emissions.

JEA seeks to update the SJRPP PSD Permit and Conditions of Certification to reflect the "As-Built" materials handling operations, maximum short-term throughput rates, and required annual throughput rates. In addition, JEA seeks to separate the point sources from the nonpoint sources into individual emissions units.

For purposes of individual emissions unit identifications, JEA proposes the following:

- Emissions Unit 043: SJRPP - Rotary Railcar Unloader, Fuel Transfer Points (DC-1)
- Emissions Unit 046: SJRPP - Fuel Handling Building (DC-3)
- Emissions Unit 047: SJRPP - Unit #1 & Unit #2 Fuel Storage Bins (DC-4 & DC-5))
- Emissions Unit 048: SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)
- Emissions Unit 049: SJRPP - Limestone Loadout Facility (LDC-2)
- Emissions Unit 050: SJRPP - Limestone Reclaim Hopper, Transfer Points (3DC-01)
- Emissions Unit 051: SJRPP - Limestone Silos, (1DC-01 & 2DC-01)
- Emissions Unit 052: SJRPP - Quick Lime Silo
- Emissions Unit 053: SJRPP - Non-Saleable Ash Silos (2x)
- Emissions Unit 054: SJRPP - Saleable Ash Silos (4x)

The revised Emissions Unit 023 will be limited to nonpoint sources including the ship unloading operation, conveyor belts, transfer points, storage piles (Coal, Petroleum Coke, Limestone, Gypsum, Flyash, and Bottom Ash), loadout operations, and reclaim operations.

Activities authorized under existing emissions Unit 022 will be covered under either revised Emissions Unit EU023 for the nonpoint sources or under one of the above listed point sources.

## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility, Location, and Type

1. Facility UTM Coordinates : Zone : 17                      East (km) : 446.90                      North (km) : 3366.30			
2. Facility Latitude/Longitude : Latitude (DD/MM/SS) : 30 25 51      Longitude (DD/MM/SS) : 81 33 3			
3. Governmental Facility Code : 4	4. Facility Status Code : A	5. Facility Major Group SIC Code : 49	6. Facility SIC(s) : 4911
7. Facility Comment :			

## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility Contact

1. Name and Title of Facility Contact :

Bert Gianazza  
Professional Engineer

2. Facility Contact Mailing Address :

Organization/Firm : JEA  
Street Address : 21 West Church Street  
City : Jacksonville State : FL Zip Code : 32202

3. Facility Contact Telephone Numbers :

Telephone : (904)665-6247

Fax : (904)665-7376

**Facility Regulatory Classifications**

1. Small Business Stationary Source?	N
2. Title V Source?	Y
3. Synthetic Non-Title V Source?	N
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?	Y
5. Synthetic Minor Source of Pollutants Other than HAPs?	N
6. Major Source of Hazardous Air Pollutants (HAPs)?	Y
7. Synthetic Minor Source of HAPs?	N
8. One or More Emissions Units Subject to NSPS?	Y
9. One or More Emission Units Subject to NESHAP?	N
10. Title V Source by EPA Designation?	Y
11. Facility Regulatory Classifications Comment :	



## B. FACILITY REGULATIONS

### Rule Applicability Analysis

Construction of the SJRPP's materials handling operations was authorized by the issuance of the Site Certification and PSD Permit in 1982. Following initial authorization, both the Site Certification and PSD Permit were revised in 1986 to reflect authorization to construct the overland conveyor system. The overland conveyor system is used to transport coal, petroleum coke, and limestone from the St Johns River Coal Terminal (SJRCT) to SJRPP.

Through the PSD Review Process, the materials handling operations were required to apply the Best Available Control Technology (BACT) which equated to a 10 percent opacity limit.

In 1997, JEA received authorization to fire a blend of coal and petroleum coke in the SJRPP Boilers. Associated with the authorization was permission to construct a temporary petroleum coke reclaim system. The permission for the temporary petroleum coke reclaim system was based on an understanding that following initial testing and performance acceptance, JEA would update the Site Certification and PSD Permit to reflect the addition of a permanent system. JEA proposes to make the temporary system permanent through this application. The system is capable of reclaiming 400 TPH and 3.5 million TPY of petroleum coke. Potential emissions associated with the systems capabilities were estimated at 0.7 lb/hr and 3 TPY excluding any offsets from reduced coal usage and current limitations on petroleum coke usage. The addition of the permanent system is not subject to PSD Review and, based on potential emissions, can be considered insignificant.

In 1998, JEA provided notification of its plans to use the ship unloader and overland conveyor system to receive and transport limestone from SJRCT to SJRPP. The use of the ship unloader and overland conveyor system to transport limestone is regulated under 40 CFR Part 60, Subpart OOO. Potential emission increases associated with the use of the ship unloader and overland conveyor system were estimated at 2.3 lb/hr and 0.96 TPY. The use of the ship unloader and overland conveyor system is not subject to PSD Review and, based on potential emissions, can also be considered insignificant.

The SJRPP and the adjacent Northside Generating Station (NGS) are consider major sources of air pollution under the PSD Program, the Title V Operating Permit Program, and the Hazardous Air Pollutant Program. Under the PSD Program, SJRPP is considered a new source.

## **B. FACILITY REGULATIONS**

### **List of Applicable Regulations**

Rule 62-213.420, Permit Applications

Rule 62-213.900(1), F.A.C., Forms and Instructions

Rule 62-212.300, F.A.C, General - Preconstruction Review Requirements

Rule 62-296.320(1), F.A.C., Volatile Organic Compound Emissions or Organic Solvent Emissions

Rule 62-296.320(2), F.A.C., Objectionable Odor Prohibited

Rule 62-296.320(3), F.A.C., Industrial, Commercial, and Muncpal Open Burning Prohibited

Rule 62-296.320(4)(b), F.A.C., General Visible Emissions Standard

Rule 62-296.320(4)(c), F.A.C., Unconfined Emissions of Particulate Matter

Rule 62-256.300, F.A.C, Prohibitions - Open Burning

Rule 62-256.500, F.A.C., Land Clearing

Rule 62-256.600, F.A.C., Industrial, Commercial, Municipal, and Research Open Burning

Rule 62-256.700(3), F.A.C., Open Burning Allowed

Title X. Environmental Affairs Chapter 360 Environmental Regulation, as noted

Section 360.109, Entry on Property

II. Part 3b - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## B. FACILITY REGULATIONS

### List of Applicable Regulations

Section 360.113, Public Health, Safety or Welfare Determinations

Section 360.301, Compliance Plans; Compliance Agreements

Section 360.306, Inspection by Director or Authorized Representative;

Section 360.307, Collection of Fines; Civil Actions

Section 360.409, Emergency Proceedings

Section 360.501, Liability for Violation

Section 360.502, Punitive Damages

Section 360.504, Indemnification, Hold Harmless etc. agreements or conveyances; subrogation rights

Section 360.701, Environmental Protection Board Ticketing Authority; Minor Violations

Section 360.702, Collection of Civil Penalties; Civil Actions

Title X. Environmental Affairs Chapter 362 Air and Water Pollution, as noted

Section 362.106, Chapter 360 Applicable

Section 362.109, Violations and Penalties

Section 362.110, Civil Penalties

II. Part 3b - 2

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## **B. FACILITY REGULATIONS**

### **List of Applicable Regulations**

Section 362.111, Assessment and Recovery of Civil Penalty

Title X. Environmental Affairs Chapter 376 E Odor Control, as noted

Section 376.105, Chapter 360 Applicable

Section 376.106, Enforcement

Section 376.110, Violations and Penalties

Section 376.111, Civil Penalties

Section 376.112, Assessment and Recovery of Civil Penalty

Jacksonville Environmental Protection Board Rules

Rule 1, Part VII Fees and Collection of Fees

Rule 1, Part VIII Investigations - Right of Entry

Rule 2, Part I General Provisions

Rule 2.104, Registration and Reports

Rule 2.106, General Restrictions

Rule 2.107, Air Pollution Prohibited

II. Part 3b - 3

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## B. FACILITY REGULATIONS

### List of Applicable Regulations

Rule 2.109, Investigations - Right of Entry

Rule 2.110, Penalties and Injunctive Relief

Rule 2.201, Adoption of Chapter 62-204, Florida Administrative Code, as applicable

Rule 2.301, Adoption of Chapter 62-210, Florida Administrative Code, as applicable

40 CFR Part 61, Subpart M - National Emission Standards for Asbestos

Rule 62-204.800(9)(b)8., F.A.C., Adoption of 40 CFR 61 Subpart M except for Figure 3, Section 61.145

Rule 62-257.301, F.A.C., Notification Procedure and Fee

Rule 62-257.400, F.A.C., Fee Schedule

Rule 62-257.900(1), F.A.C., DEP Form - Notice of Asbestos Removal Project

40 CFR Part 61, Appendix C - Quality Assurance Procedures

40 CFR Part 63.40(c), MACT Determinations - Exclusion for Electric Utility Steam Generating Units

40 CFR Part 82.35(a), Prohibitions - Repair and Service of Motor Vehicle Air Conditioner (MVAC)

40 CFR Part 82.42(a), Certification Requirements for Persons repairing or servicing MVACs

II. Part 3b - 4

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## B. FACILITY REGULATIONS

### List of Applicable Regulations

40 CFR Part 82.42(b), Recordkeeping Requirements for persons owning refrigerant recycling equipment

Rule 62-204.800(21)(b), F.A.C., Adoption of 40 CFR Part 82, Subpart B

Rule 62-281.100, F.A.C., Purpose, Scope, and Compliance Requirements for Affected Establishments

Rule 62-4.130, F.A.C., Plant Operations - Problems

Rule 62-4.160, F.A.C., Permit Conditions

Rule 62-210.300(1), F.A.C., Air Construction Permits

Rule 62-210.300(2), F.A.C., Air Operation Permits

Rule 62-210.300(3)(a), F.A.C., Categorical Exemptions

Rule 62-210.300(3)(b)(1), F.A.C., Generic Emissions Unit Exemptions

Rule 62-210.350(1), F.A.C., Public Notice of Proposed Agency Action

Rule 2.501, Adoption of Chapter 62-213, Florida Administrative Code, as applicable

Rule 2.701, Adoption of Chapter 62-256, Florida Administrative Code, as applicable

Rule 2.1001, Adoption of Chapter 62-296 Florida Administrative Code, as applicable

Rule 2.1101, Adoption of Chapter 62-297, Florida Administrative Code, as applicable

II. Part 3b - 5

DEP Form No. 62-210:900(1) - Form  
Effective : 3-21-96

## B. FACILITY REGULATIONS

### List of Applicable Regulations

Rule 2.1201, General Standard for Volatile Organic Compounds

Rule 2.1202 C.1., Emissions from Ships and Locomotives - Prohibited Acts

Rule 2.1202 F., Emissions from Ships and Locomotives - Compliance Test Method

Rule 2.1202 I., Emissions from Ships and Locomotives - Air Pollution Nuisance Prohibited

Rule 2.1203 E., Air Pollution Nuisance Prohibited

Rule 2.1301, Adoption of Chapter 62-4, Florida Administrative Code (as noted)

Rule 62-4.040, F.A.C., Exemptions

Rule 62-210.370(3), F.A.C., Annual Operating Report

Rule 62-210.900, F.A.C., Forms and Instructions

40 CFR Part 82.154, Prohibitions

40 CFR Part 82.156, Required Practices

40 CFR Part 82.161(a), Technician Certification

40 CFR Part 82.162, Certification by Owners of Recovery and Recycling Equipment

40 CFR Part 82.164, Reclaimer Certification

II. Part 3b - 6

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## B. FACILITY REGULATIONS

### List of Applicable Regulations

40 CFR Part 82.166, Reporting and Recordkeeping Requirements for Owners/Operators

Rule 62-204.800(21)(e), F.A.C., Adoption of 40 CFR Part 82, Subpart F

40 CFR Part 68, Chemical Accident Prevention Provisions

II. Part 3b - 7

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96



## C. FACILITY POLLUTANTS

### Facility Pollutant Information

1. Pollutant Emitted	2. Pollutant Classification
CO	A
NOX	A
SO2	A
PM	A
VOC	A
PB	B
H114	B
FL	B
SAM	B
HAPS	A
H106	A
PM10	A

II. Part 4 - 1

## D. FACILITY POLLUTANT DETAIL INFORMATION

### Facility Pollutant Information

Pollutant   1  

1. Pollutant Emitted :	CO	
2. Requested Emissions Cap :	0.0000 (lbs/hour)	0.0000 (tons/year)
3. Basis for Emissions Cap Code :		
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.	

II. Part 4b - 1

## D. FACILITY POLLUTANT DETAIL INFORMATION

### Facility Pollutant Information

Pollutant   2  

1. Pollutant Emitted :	NOX
2. Requested Emissions Cap :	(lbs/hour)                      0.0000 (tons/year)
3. Basis for Emissions Cap Code :	
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.

II. Part 4b - 2

## D. FACILITY POLLUTANT DETAIL INFORMATION

### Facility Pollutant Information

Pollutant   3  

1. Pollutant Emitted :	SO2
2. Requested Emissions Cap :	(lbs/hour)                      0.0000 (tons/year)
3. Basis for Emissions Cap Code :	
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.

II. Part 4b - 3

## D. FACILITY POLLUTANT DETAIL INFORMATION

### Facility Pollutant Information

Pollutant 4

1. Pollutant Emitted :	PM	
2. Requested Emissions Cap :	(lbs/hour)	0.0000 (tons/year)
3. Basis for Emissions Cap Code :		
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.	

II. Part 4b - 4

## D. FACILITY POLLUTANT DETAIL INFORMATION

### Facility Pollutant Information

Pollutant , 5

1. Pollutant Emitted :	VOC	
2. Requested Emissions Cap :	(lbs/hour)	0.0000 (tons/year)
3. Basis for Emissions Cap Code :		
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.	

II. Part 4b - 5

## D. FACILITY POLLUTANT DETAIL INFORMATION

### Facility Pollutant Information

Pollutant 6

1. Pollutant Emitted :	PB	
2. Requested Emissions Cap :	(lbs/hour)	(tons/year)
3. Basis for Emissions Cap Code :		
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.	

II. Part 4b - 6

**D. FACILITY POLLUTANT DETAIL INFORMATION**

**Facility Pollutant Information**

Pollutant 7

1. Pollutant Emitted :	H114	
2. Requested Emissions Cap :	(lbs/hour)	(tons/year)
3. Basis for Emissions Cap Code :		
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.	

II. Part 4b - 7



**D. FACILITY POLLUTANT DETAIL INFORMATION**

**Facility Pollutant Information**

Pollutant 8

1. Pollutant Emitted :	FL	
2. Requested Emissions Cap :	(lbs/hour)	(tons/year)
3. Basis for Emissions Cap Code :		
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.	

II. Part 4b - 8

## D. FACILITY POLLUTANT DETAIL INFORMATION

### Facility Pollutant Information

Pollutant 9

1. Pollutant Emitted :	SAM	
2. Requested Emissions Cap :	(lbs/hour)	(tons/year)
3. Basis for Emissions Cap Code :		
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.	

II. Part 4b - 9

**D. FACILITY POLLUTANT DETAIL INFORMATION**

**Facility Pollutant Information**

Pollutant 10

1. Pollutant Emitted :	HAPS	
2. Requested Emissions Cap :	(lbs/hour)	(tons/year)
3. Basis for Emissions Cap Code :		
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.	

## D. FACILITY POLLUTANT DETAIL INFORMATION

### Facility Pollutant Information

Pollutant 11

1. Pollutant Emitted :	H106	
2. Requested Emissions Cap :	(lbs/hour)	(tons/year)
3. Basis for Emissions Cap Code :		
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.	

II. Part 4b - 11

## D. FACILITY POLLUTANT DETAIL INFORMATION

### Facility Pollutant Information

Pollutant 12

1. Pollutant Emitted :	PM10
2. Requested Emissions Cap :	(lbs/hour) 0.0000 (tons/year)
3. Basis for Emissions Cap Code :	
4. Facility Pollutant Comment :	No Facility Wide Cap or Multi-unit Cap has been assigned to this facility.

II. Part 4b - 12

## D. FACILITY SUPPLEMENTAL INFORMATION

### Supplemental Requirements for All Applications

1. Area Map Showing Facility Location :	F-1
2. Facility Plot Plan :	F-2
3. Process Flow Diagram(s) :	NA
4. Precautions to Prevent Emissions of Unconfined Particulate Matter :	F-3
5. Fugitive Emissions Identification :	F-3
6. Supplemental Information for Construction Permit Applic	F-4

### Additional Supplemental Requirements for Category I Applications Only

7. List of Proposed Exempt
8. List of Equipment/Activities Regulated under
9. Alternative Methods of Operation :
10. Alternative Modes of Operation (Emissions
11. Identification of Additional Applicable
12. Compliance Assurance Monitoring
13. Risk Management Plan Verification :
14. Compliance Report and Plan :
15. Compliance Certification (Hard-copy Requir

II. Part 5 - 2

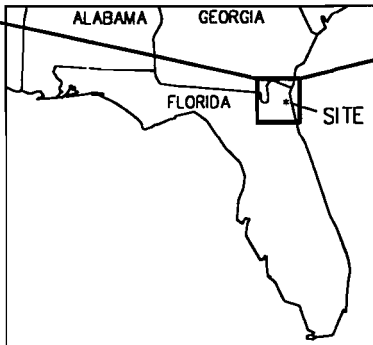
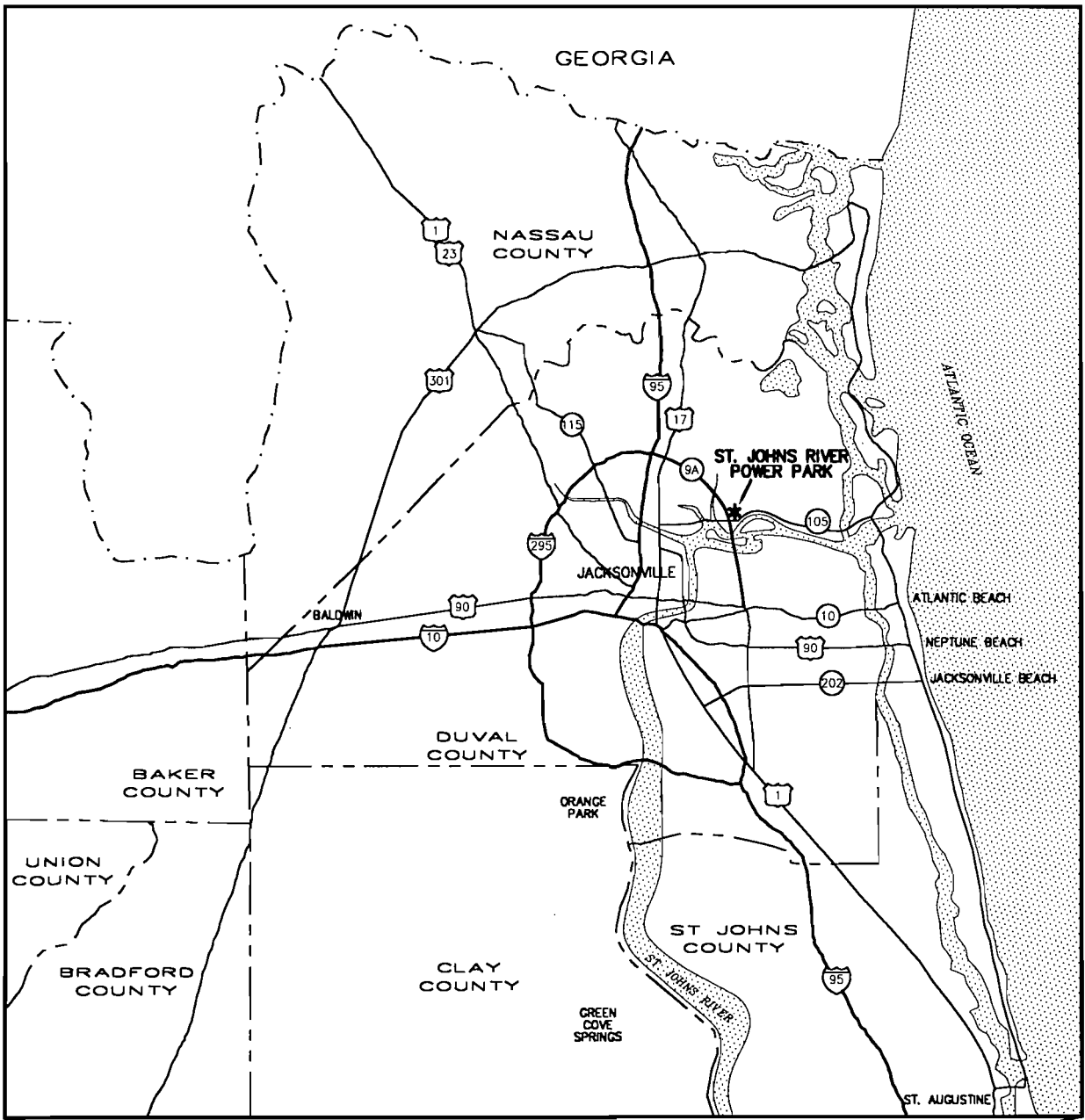
DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96




**FACILITY SUPPLEMENTAL INFORMATION**  
**St Johns River Power Park**

**ATTACHMENT F-1**  
**Area Map/Facility Location Map**





**LEGEND**

-  INTERSTATE HIGHWAY
-  U.S. HIGHWAY
-  STATE HIGHWAY



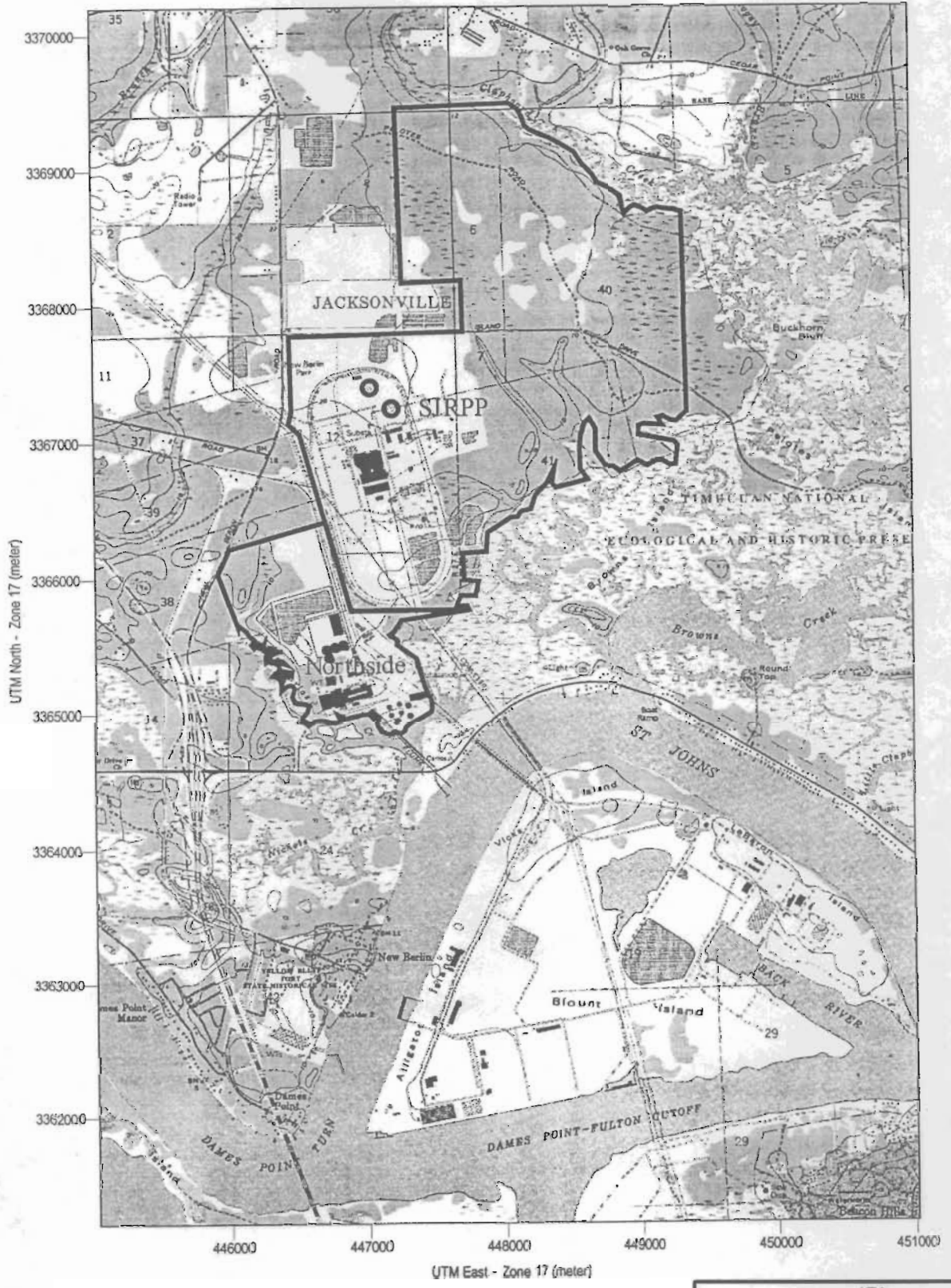
APPROXIMATE GRAPHIC SCALE IN MILES

**JEA**  
**ST. JOHNS RIVER POWER PARK**  
**PSD PERMIT UPDATE**  
**AREA MAP**

**F** **FOSTER WHEELER ENVIRONMENTAL CORPORATION**

SCALE AS SHOWN	PREPARED R.PAV	CAD FILE NO.	JEAREA.DWG
DATE 4/29/99	CHECKED APPROVED <i>[Signature]</i>	FIGURE NO.	F-1A

SOURCE: FOSTER WHEELER ENVIRONMENTAL CORPORATION



SOURCE: FOSTER WHEELER ENVIRONMENTAL CORPORATION

<b>JEA</b> <b>ST. JOHNS RIVER POWER PARK</b> <b>PSD PERMIT UPDATE</b> <b>SITE LOCATION MAP</b>		
<b>FOSTER WHEELER ENVIRONMENTAL CORPORATION</b>		
SCALE AS SHOWN DATE 4/9/99	PREPARED R.PAV CHECKED [Signature] APPROVED [Signature]	CAD FILE NO. JEAS.OC.DWG FIGURE NO. F-1B

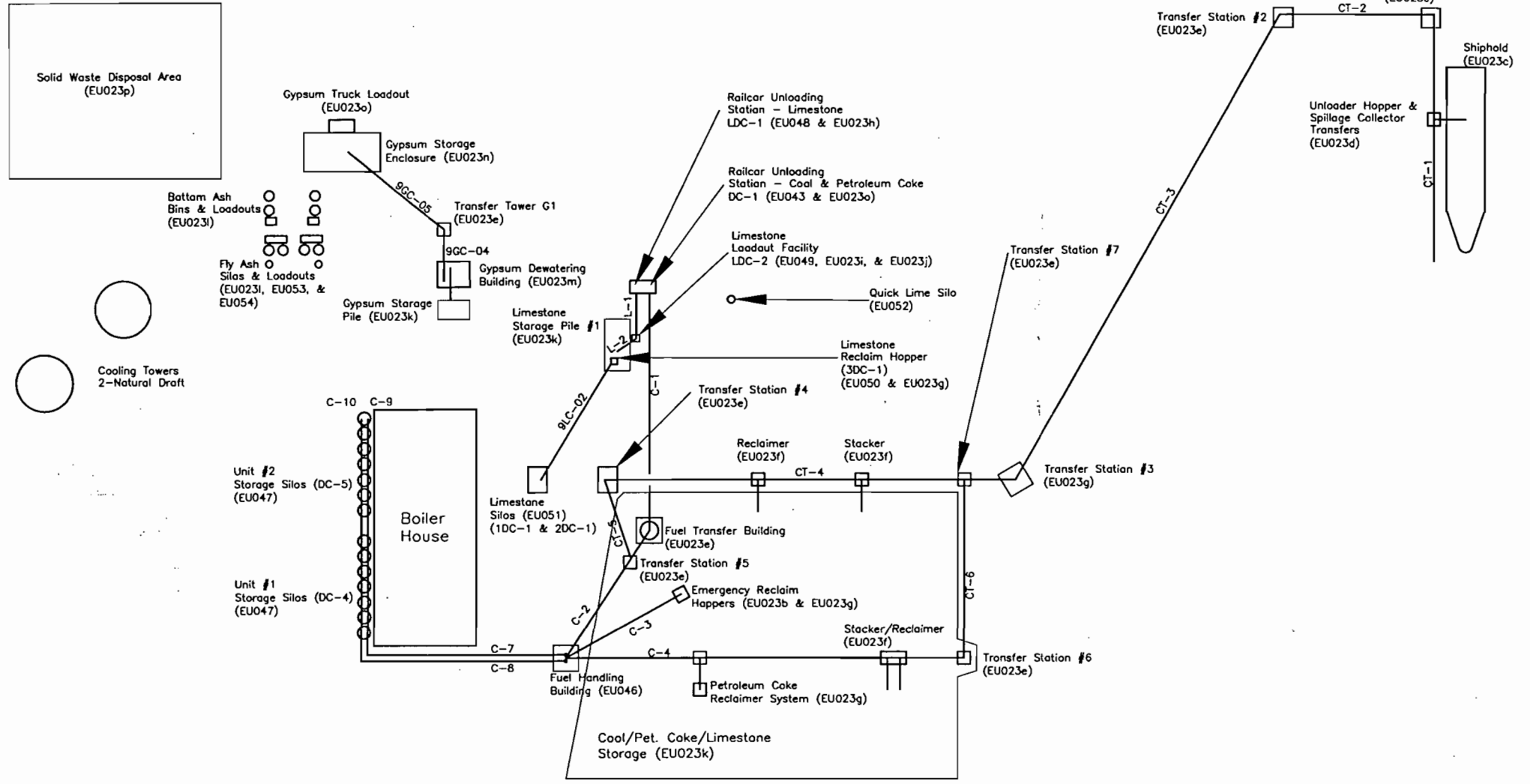
**FACILITY SUPPLEMENTAL INFORMATION**  
**St Johns River Power Park**

**ATTACHMENT F-2**  
**Facility Plot Plan**

# Figure SJRPP01

## SJRPP Materials Handling & Storage Operations Layout Schematic - Not To Scale

Fugitive Dust Sources	EU ID#	AQCS	Control Efficiency	PM10 (lb/hr)	PM10 (TPY)	Opacity (%)
Shiphold	023c	1, 4, & 6	70.00%	0.257	0.476	10%
Unloader Hopper and Spillage Collector Transfers	023d	1, 3, 4, & 6	85.00%	0.130	0.240	10%
Ship Unloader Hopper, Transfer to CT-1, Spillage Conveyor	023d	1, 3, 4, & 6	85.00%	0.471	0.870	10%
Transfer Station No. 1	023e	1, 2, & 4	98.00%	0.021	0.039	5%
Transfer Station No. 2	023e	1, 2, & 4	98.00%	0.021	0.039	5%
Transfer Station No. 3	023e	1, 2, & 4	98.00%	0.022	0.041	5%
Transfer Station No. 4	023e	1 & 4	98.00%	0.021	0.036	5%
Transfer Station No. 5	023e	1 & 4	98.00%	0.021	0.036	5%
Transfer Station No. 6	023e	1 & 4	98.00%	0.021	0.027	5%
Transfer Station No. 7	023e	1 & 4	98.00%	0.021	0.027	5%
Fuel Transfer Building	023e	1, 3 & 4	85.00%	0.309	0.198	10%
Stacker/Reclaimer (Stacker Mode)	023f	1 & 3	82.67%	1.081	0.693	10%
Stacker	023f	1 & 3	82.67%	0.544	1.005	10%
Reclaimer	023f	1 & 3	89.67%	0.433	0.554	10%
Petroleum Coke Reclaimer System	023g	1	60.00%	0.324	1.420	10%
Emergency Reclaim Hoppers - Loadout	023g	1	75.00%	0.286	0.367	10%
Limestone Railcar Dumper	023h	1, 2, 3, & 4	97.00%	0.005	0.004	10%
Limestone Loadout	023i	1 & 3	97.00%	0.005	0.004	10%
Limestone Truck Loadout & Transfer	023j	1	75.00%	0.099	0.089	10%
Limestone Storage Pile #1 - Existing	023k	1 & 3	90.00%	0.255	0.018	10%
Limestone Storage Pile #2 - Fuel Yard	023k	1, 2 & 3	90.00%	0.118	0.008	10%
Coal Pile	023k	1, 2 & 3	90.00%	0.264	0.006	10%
Petroleum Coke Pile	023k	1, 2 & 3	90.00%	0.711	0.042	10%
Limestone Reclaim Hopper	023l	1	42.50%	0.137	0.137	10%
Fly Ash loadouts 1A	023m	1 & 3	97.00%	0.028	0.125	10%
Fly Ash loadouts 1B	023m	1 & 3	97.00%	0.028	0.125	10%
Fly Ash loadouts 2A	023m	1 & 3	97.00%	0.028	0.125	10%
Fly Ash loadouts 2B	023m	1 & 3	97.00%	0.028	0.125	10%
Bottom Ash Loadouts 1A	023n	1	0.00%	0.042	0.184	10%
Bottom Ash Loadouts 1B	023n	1	0.00%	0.042	0.184	10%
Bottom Ash Loadouts 2A	023n	1	0.00%	0.042	0.184	10%
Bottom Ash Loadouts 2B	023n	1	0.00%	0.042	0.184	10%
Gypsum Dewatering Building	023o	1	0.00%	0.020	0.022	5%
Gypsum Storage Pile (Non-Commercial)	023p	1	85.00%	0.074	0.004	5%
Transfer Point 9GC-04 to 9GC-05	023q	1	0.00%	0.003	0.015	5%
Gypsum Storage Enclosure	023r	1	0.00%	0.004	0.016	5%
Gypsum Truck Loadout	023s	1	0.00%	0.130	0.273	5%
Solid Waste Disposal Area	023t	1 & 2	90.00%	0.307	0.016	10%
Unpaved Road, By-Product Transport	023u	1 & 2	75.00%	0.151	0.663	10%
Point Sources	EU ID#	AQCS	Control Efficiency	PM10 (lb/hr)	PM10 (TPY)	Opacity (%)
Rotary Railcar Dumper, Fuel Transfer Points (DC-1)	043	1, 4, & 5	99.50%	0.0825	0.0529	5%
Fuel Handling Building (DC-3)	046	1, 4, & 5	99.50%	0.1122	0.0719	5%
Unit #1 Fuel Storage Bins (DC-4)	047	1, 4, & 5	99.50%	0.0083	0.0106	5%
Unit #2 Fuel Storage Bins (DC-5)	047	1, 4, & 5	99.50%	0.0083	0.0106	5%
Railcar Unloader, Limestone Transfer Points (LDC-1)	048	1, 4, & 5	99.50%	0.0115	0.0017	5%
Limestone Loadout Facility (LDC-2)	049	1, 4, & 5	99.50%	0.0058	0.0004	5%
Limestone Reclaim Hopper, Transfer Points (3DC-01)	050	1, 4, & 5	99.50%	0.0003	0.0003	5%
Limestone Silo (1DC-01)	051	1, 4, & 5	99.50%	0.0003	0.0003	5%
Limestone Silo (2DC-01)	051	1, 4, & 5	99.50%	0.0003	0.0003	5%
Quick Lime Silo	052	4 & 5	99.50%	0.0225	0.0986	5%
Non-Saleable Ash Silo U#1-A	053	4 & 5	99.50%	0.0169	0.0739	5%
Non-Saleable Ash Silo U#2-A	053	4 & 5	99.50%	0.0169	0.0739	5%
Saleable Ash Silo 1A	054	4 & 5	99.50%	0.0338	0.1478	5%
Saleable Ash Silo 1B	054	4 & 5	99.50%	0.0338	0.1478	5%
Saleable Ash Silo 2A	054	4 & 5	99.50%	0.0338	0.1478	5%
Saleable Ash Silo 2B	054	4 & 5	99.50%	0.0338	0.1478	5%
Railcar Rotary Dumper - Building Emissions	023a	4 & 5	97.00%	0.0686	0.0440	10%
Conveyor C-3 Tunnel Ventilation - 6,400 cfm	023b	4 & 5	98.00%	0.0153	0.0197	5%
Conveyor C-3 Tunnel Ventilation - 6,400 cfm	023b	1, 3, & 4	98.00%	0.0153	0.0197	5%
Conveyor C-3 Tunnel Ventilation - 21,600 cfm	023b	1 & 4	98.00%	0.0518	0.0664	5%



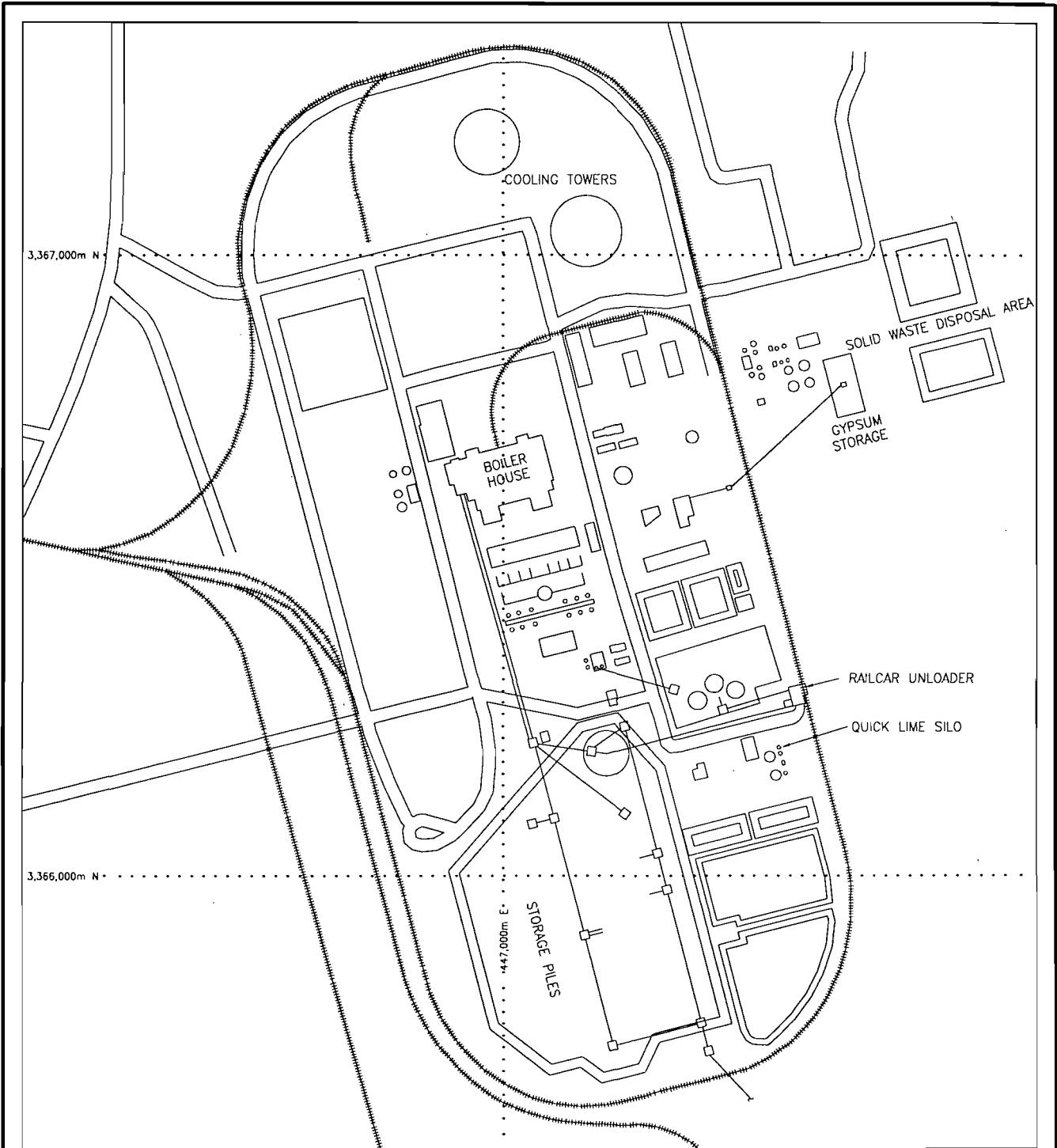
Air Quality Control Systems (AQCS)	
1. Conditioned Materials	
2. Wet Suppression	
3. Water Sprays	
4. Enclosures (Total, Partial, Covers, & Wind Screens)	
5. Dust Collection Systems	
6. Best Operating Practices	

**JEA**  
ST JOHNS RIVER POWER PARK  
PSD PERMIT UPDATE

Materials Handling and Storage Operations  
Equipment Layout

**FOSTER WHEELER ENVIRONMENTAL CORPORATION**

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DATE: 04/29/99	CHECKED: MAE	FIGURE NO.: SJRPP01
	APPROVED: DJG	



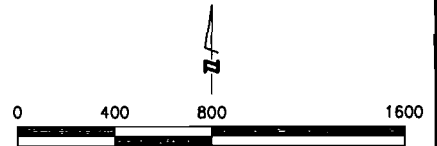
**NOTES**

THE INFORMATION ON THIS DRAWING WAS NOT SURVEYED BY A PROFESSIONAL LAND SURVEYOR. LOCATIONS OF ITEMS SHOWN ARE CONSIDERED APPROXIMATE.

SEE FIGURE SRRPP01 FOR EMISSION UNIT LOCATIONS.

1000-METER UNIVERSAL TRANSVERSE MERCATOR GRID LINES, ZONE 17, 1927 NORTH AMERICAN DATUM (NAD 27) ARE SHOWN AS DOTTED LINES.

SOURCES: EBASCO SERVICES, INC. DRAWING JEA 3332 M-001600-01, REV 5, DATED 5-23-88  
 MICRO MAP & CAD (USGS EASTPORT QUAD AND TROUT RIVER QUAD, 1:24,000 DLG DATA FILE, 1992;  
 CONVERTED TO ACAD FILE, FEBRUARY 1998)



APPROXIMATE GRAPHIC SCALE IN FEET

**JEA**  
**ST. JOHNS RIVER POWER PARK**  
**PSD PERMIT UPDATE**  
**FACILITY PLOT PLAN**

<b>Foster Wheeler Environmental Corporation</b>			
SCALE AS SHOWN	PREPARED	R.PAV	CAD FILE NO.
DATE 4/29/99	CHECKED	<i>[Signature]</i>	SJRFPPM.DWG
	APPROVED		FIGURE NO. E-2

**FACILITY SUPPLEMENTAL INFORMATION  
St Johns River Power Park**

**ATTACHMENT F-3  
Reasonable Precautions for Unconfined Particulate Matter  
Fugitive Emissions Identification  
(As Described and As Listed on Figure SJRPP01)**

## Precautions to Prevent Emissions of Unconfined Particulate Matter

Unconfined particulate matter as a result of the operation of the facility is associated with the following activities:

- Materials Handling and Storage Operations (Coal, Petroleum Coke, Limestone, Flyash, and Bottom Ash);
- Sandblasting Activities;
- Surface Coating Activities; and
- Vehicle Activities

Several precautions have been implemented to prevent emissions of unconfined particulate matter from vehicle activities which include:

- Paving of roads, parking areas and equipment yards;
- Landscaping and planting of vegetation.

Emissions of unconfined particulate matter from materials handling and storage operations are controlled by various techniques and strategies which are identified on Figure SJRPP01. These techniques and strategies include the following:

- Conditioned Materials;
- Wet Suppression;
- Water Sprays ;
- Enclosures ;
- Dust Collection Systems; and
- Best Operating Practices

*Operational measures* are undertaken at the facility which also minimize particulate emissions, in accordance with 62-296.310 F.A.C.:

- Maintenance of paved areas as needed;
- Regular mowing of grass and care of vegetation;
- Limiting access to plant property by unnecessary vehicles;
- With the exception of bagged fertilizer, bagged chemical products are stored in weather-tight buildings until they are used. Spills of powdered chemical products are cleaned up immediately;
- A wetting agent is used to reduce fugitive PM emissions from the coal storage area.

During construction activities a combination of the following techniques will be implemented:

Contractors will be instructed to comply with any applicable state and local regulations governing open-bodied trucks hauling sand, gravel, or soil between on-site and off-site areas.

Areas disturbed during construction will be stabilized by mulching or seeding as soon as practicable.

When construction occurs on bare ground, water (possibly together with non-hazardous wetting agents) will be used as necessary to help suppress dust, as needed.

Temporary vehicular surfaces of crushed rock may be used in high traffic areas. Areas not subject to heavy traffic or continual disturbance will be wetted down as needed using nontoxic substances to help suppress dust.

Sandblasting operations will be localized to minimize effects on adjacent work areas. Protective covers will also be utilized where practicable.

Surface coating activities will include the maintenance painting of the facilities. As with normal surface coating operations, activities will be enclosed whenever practical.



**FACILITY SUPPLEMENTAL INFORMATION**  
**St Johns River Power Park**

**ATTACHMENT F-4**  
**Construction Permit Application - Supplemental Information**

**CONSTRUCTION PERMIT APPLICATION - SUPPLEMENTAL  
INFORMATION**

**ATTACHMENT F-4a  
Electronic Files - ELSA**

**CONSTRUCTION PERMIT APPLICATION - SUPPLEMENTAL  
INFORMATION**

**ATTACHMENT F-4b  
AP42- Emission Factors & References**

## 11.12 Concrete Batching

### 11.12.1 Process Description<sup>1-4</sup>

Concrete is composed essentially of water, cement, sand (fine aggregate), and coarse aggregate. Coarse aggregate may consist of gravel, crushed stone, or iron blast furnace slag. Some specialty aggregate products could be either heavyweight aggregate (of barite, magnetite, limonite, ilmenite, iron, or steel) or lightweight aggregate (with sintered clay, shale, slate, diatomaceous shale, perlite, vermiculite, slag, pumice, cinders, or sintered fly ash). Concrete batching plants store, convey, measure, and discharge these constituents into trucks for transport to a job site. In some cases, concrete is prepared at a building construction site or for the manufacture of concrete products such as pipes and prefabricated construction parts. Figure 11.12-1 is a generalized process diagram for concrete batching.

The raw materials can be delivered to a plant by rail, truck, or barge. The cement is transferred to elevated storage silos pneumatically or by bucket elevator. The sand and coarse aggregate are transferred to elevated bins by front end loader, clam shell crane, belt conveyor, or bucket elevator. From these elevated bins, the constituents are fed by gravity or screw conveyor to weigh hoppers, which combine the proper amounts of each material.

Truck mixed (transit mixed) concrete involves approximately 75 percent of U. S. concrete batching plants. At these plants, sand, aggregate, cement, and water are all gravity fed from the weigh hopper into the mixer trucks. The concrete is mixed on the way to the site where the concrete is to be poured. Central mix facilities (including shrink mixed) constitute the other one-fourth of the industry. With these, concrete is mixed and then transferred to either an open bed dump truck or an agitator truck for transport to the job site. Shrink mixed concrete is concrete that is partially mixed at the central mix plant and then completely mixed in a truck mixer on the way to the job site. Dry batching, with concrete mixed and hauled to the construction site in dry form, is seldom, if ever, used.

### 11.12.2 Emissions And Controls<sup>5-7</sup>

Emission factors for concrete batching are given in Tables 11.12-1 and 11.12-2, with potential air pollutant emission points shown. Particulate matter, consisting primarily of cement dust but including some aggregate and sand dust emissions, is the only pollutant of concern. All but one of the emission points are fugitive in nature. The only point source is the transfer of cement to the silo, and this is usually vented to a fabric filter or "sock". Fugitive sources include the transfer of sand and aggregate, truck loading, mixer loading, vehicle traffic, and wind erosion from sand and aggregate storage piles. The amount of fugitive emissions generated during the transfer of sand and aggregate depends primarily on the surface moisture content of these materials. The extent of fugitive emission control varies widely from plant to plant.

Types of controls used may include water sprays, enclosures, hoods, curtains, shrouds, movable and telescoping chutes, and the like. A major source of potential emissions, the movement of heavy trucks over unpaved or dusty surfaces in and around the plant, can be controlled by good maintenance and wetting of the road surface.

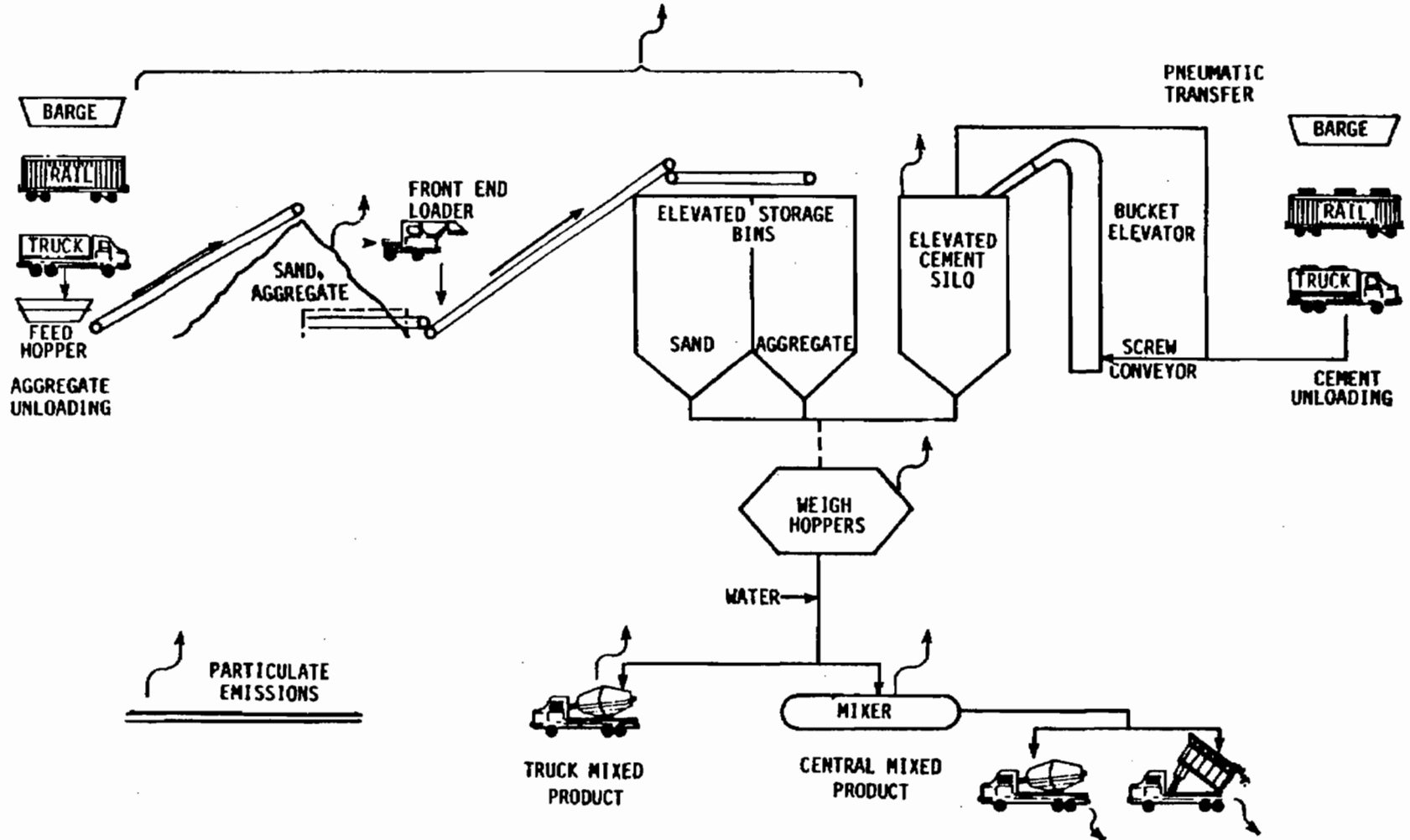


Figure 11.12-1. Typical concrete batching process.

Table 11.12-1 (Metric Units). EMISSION FACTORS FOR CONCRETE BATCHING<sup>a</sup>

Source (SCC)	Filterable <sup>b</sup>			Condensable PM <sup>c</sup>	
	PM	RATING	PM-10	Inorganic	Organic
Sand and aggregate transfer to elevated bin (3-05-011-06) <sup>d</sup>	0.014	E	ND	ND	ND
Cement unloading to elevated storage silo					
Pneumatic <sup>e</sup>	0.13	D	ND	ND	ND
Bucket elevator (3-05-011-07) <sup>f</sup>	0.12	E	ND	ND	ND
Weigh hopper loading (3-05-011-8) <sup>g</sup>	0.01	E	ND	ND	ND
Mixer loading (central mix) (3-05-011-09) <sup>g</sup>	0.02	E	ND	ND	ND
Truck loading (truck mix) (3-05-011-10) <sup>g</sup>	0.01	E	ND	ND	ND
Vehicle traffic (unpaved roads) (3-05-011-__) <sup>h</sup>	4.5	C	ND	ND	ND
Wind erosion from sand and aggregate storage piles (3-05-011-__) <sup>i</sup>	3.9	D	ND	ND	ND
Total process emissions (truck mix)(3-05-011-__) <sup>j</sup>	0.05	E	ND	ND	ND

<sup>a</sup> Factors represent uncontrolled emissions unless otherwise noted. All emission factors are in kg/Mg of material mixed unless noted. Based on a typical yd<sup>3</sup> weighing 1,818 kg (4,000 lb) and containing 227 kg (500 lb) cement, 564 kg (1,240 lb) sand, 864 kg (1,900 lb) coarse aggregate, and 164 kg (360 lb) water. SCC = Source Classification Code. ND = no data.

<sup>b</sup> Filterable PM is that PM collected on or prior to the filter of an EPA Method 5 (or equivalent) sampling train.

<sup>c</sup> Condensable PM is that PM collected in the impinger portion of a PM sampling train.

<sup>d</sup> Reference 6.

<sup>e</sup> For uncontrolled emissions measured before filter. Based on 2 tests on pneumatic conveying controlled by a fabric filter.

<sup>f</sup> Reference 7. From test of mechanical unloading to hopper and subsequent transport of cement by enclosed bucket elevator to elevated bins with fabric socks over bin vent.

<sup>g</sup> Reference 5. Engineering judgment, based on observations and emissions tests of similar controlled sources.

<sup>h</sup> From Section 13.2-1, with k = 0.8, s = 12, S = 20, W = 20, w = 14, and p = 100; units of kg/vehicle kilometers traveled; based on facility producing 23,100 m<sup>3</sup>/yr (30,000 yd<sup>3</sup>/yr) of concrete, with average truck load of 6.2 m<sup>3</sup> (8 yd<sup>3</sup>) and plant road length of 161 meters (0.1 mile).

<sup>i</sup> From Section 11.19-1, for emissions <30 micrometers from inactive storage piles; units of kg/hectare/day.

<sup>j</sup> Based on pneumatic conveying of cement at a truck mix facility. Does not include vehicle traffic or wind erosion from storage piles.

Table 11.12-2 (English Units). EMISSION FACTORS FOR CONCRETE BATCHING<sup>a,b</sup>

Source (SCC)	Filterable <sup>c</sup>			Condensable PM <sup>d</sup>	
	PM	RATING	PM-10	Inorganic	Organic
Sand and aggregate transfer to elevated bin (3-05-011-06) <sup>e</sup>	0.029 (0.05)	E	ND	ND	ND
Cement unloading to elevated storage silo Pneumatic <sup>f</sup>	0.27 (0.07)	D	ND	ND	ND
Bucket elevator (3-05-011-07) <sup>g</sup>	0.24 (0.06)	E	ND	ND	ND
Weigh hopper loading (3-05-011-08) <sup>h</sup>	0.02 (0.04)	E	ND	ND	ND
Mixer loading (central mix) (3-05-011-09) <sup>h</sup>	0.04 (0.07)	E	ND	ND	ND
Truck loading (truck mix) (3-05-011-10) <sup>h</sup>	0.02 (0.04)	E	ND	ND	ND
Vehicle traffic (unpaved roads) (3-05-011-___) <sup>i</sup>	16 (0.02)	C	ND	ND	ND
Wind erosion from sand and aggregate storage piles (3-05-011-___) <sup>j</sup>	3.5 <sup>k</sup> (0.1) <sup>l</sup>	D	ND	ND	ND
Total process emissions (truck mix) (3-05-011-___) <sup>m</sup>	0.1 (0.2)	E	ND	ND	ND

- <sup>a</sup> Factors represent uncontrolled emissions unless otherwise noted. All emission factors are in lb/ton (lb/yd<sup>3</sup>) of material mixed unless noted. SCC = Source Classification Code. ND = no data.
- <sup>b</sup> Based on a typical yd<sup>3</sup> weighing 1,818 kg (4,000 lb) and containing 227 kg (500 lb) cement, 564 kg (1,240 lb) sand, 864 kg (1,900 lb) coarse aggregate, and 164 kg (360 lb) water.
- <sup>c</sup> Filterable PM is that PM collected on or prior to the filter of an EPA Method 5 (or equivalent) sampling train.
- <sup>d</sup> Condensable PM is that PM collected in the impinger portion of a PM sampling train.
- <sup>e</sup> Reference 6.
- <sup>f</sup> For uncontrolled emissions measured before filter. Based on 2 tests on pneumatic conveying controlled by a fabric filter.
- <sup>g</sup> Reference 7. From test of mechanical unloading to hopper and subsequent transport of cement by enclosed bucket elevator to elevated bins with fabric socks over bin vent.
- <sup>h</sup> Reference 5. Engineering judgment, based on observations and emission tests of similar controlled sources.
- <sup>i</sup> From Section 13.2.1, with k = 0.8, s = 12, S = 20, W = 20, w = 14, and p = 100; units of lb/vehicle miles traveled; based on facility producing 23,100 m<sup>3</sup>/yr (30,000 yd<sup>3</sup>/yr) of concrete, with average truck load of 6.2 m<sup>3</sup> (8 yd<sup>3</sup>) and plant road length of 161 meters (0.1 mile).
- <sup>j</sup> From Section 11.19.1, for emissions <30 micrometers from inactive storage piles.
- <sup>k</sup> Units of lb/acre/day.
- <sup>l</sup> Assumes 1,011 m<sup>2</sup> (1/4 acre) of sand and aggregate storage at plant with production of 23,000 m<sup>3</sup>/yr (30,000 yd<sup>3</sup>/yr).
- <sup>m</sup> Based on pneumatic conveying of cement at a truck mix facility; does not include vehicle traffic or wind erosion from storage piles.

Predictive equations that allow for emission factor adjustment based on plant-specific conditions are given in Chapter 13. Whenever plant specific data are available, they should be used in lieu of the fugitive emission factors presented in Table 11.12-1.

## References For Section 11.12

1. *Air Pollutant Emission Factors*, APTD-0923, U. S. Environmental Protection Agency, Research Triangle Park, NC, April 1970.
2. *Air Pollution Engineering Manual*, 2nd Edition, AP-40, U. S. Environmental Protection Agency, Research Triangle Park, NC, 1974. Out of Print.
3. Telephone and written communication between Edwin A. Pfetzing, PEDCo Environmental, Inc., Cincinnati, OH, and Richard Morris and Richard Meininger, National Ready Mix Concrete Association, Silver Spring, MD, May 1984.
4. *Development Document For Effluent Limitations Guidelines And Standards Of Performance, The Concrete Products Industries, Draft*, U. S. Environmental Protection Agency, Washington, DC, August 1975.
5. *Technical Guidance For Control Of Industrial Process Fugitive Particulate Emissions*, EPA-450/3-77-010, U. S. Environmental Protection Agency, Research Triangle Park, NC, March 1977.
6. *Fugitive Dust Assessment At Rock And Sand Facilities In The South Coast Air Basin*, Southern California Rock Products Association and Southern California Ready Mix Concrete Association, Santa Monica, CA, November 1979.
7. Telephone communication between T. R. Blackwood, Monsanto Research Corp., Dayton, OH, and John Zoller, PEDCo Environmental, Inc., Cincinnati, OH, October 18, 1976.



## 13.2.4 Aggregate Handling And Storage Piles

### 13.2.4.1 General

Inherent in operations that use minerals in aggregate form is the maintenance of outdoor storage piles. Storage piles are usually left uncovered, partially because of the need for frequent material transfer into or out of storage.

Dust emissions occur at several points in the storage cycle, such as material loading onto the pile, disturbances by strong wind currents, and loadout from the pile. The movement of trucks and loading equipment in the storage pile area is also a substantial source of dust.

### 13.2.4.2 Emissions And Correction Parameters

The quantity of dust emissions from aggregate storage operations varies with the volume of aggregate passing through the storage cycle. Emissions also depend on 3 parameters of the condition of a particular storage pile: age of the pile, moisture content, and proportion of aggregate fines.

When freshly processed aggregate is loaded onto a storage pile, the potential for dust emissions is at a maximum. Fines are easily disaggregated and released to the atmosphere upon exposure to air currents, either from aggregate transfer itself or from high winds. As the aggregate pile weathers, however, potential for dust emissions is greatly reduced. Moisture causes aggregation and cementation of fines to the surfaces of larger particles. Any significant rainfall soaks the interior of the pile, and then the drying process is very slow.

Silt (particles equal to or less than 75 micrometers [ $\mu\text{m}$ ] in diameter) content is determined by measuring the portion of dry aggregate material that passes through a 200-mesh screen, using ASTM-C-136 method.<sup>1</sup> Table 13.2.4-1 summarizes measured silt and moisture values for industrial aggregate materials.

### 13.2.4.3 Predictive Emission Factor Equations

Total dust emissions from aggregate storage piles result from several distinct source activities within the storage cycle:

1. Loading of aggregate onto storage piles (batch or continuous drop operations).
2. Equipment traffic in storage area.
3. Wind erosion of pile surfaces and ground areas around piles.
4. Loadout of aggregate for shipment or for return to the process stream (batch or continuous drop operations).

Either adding aggregate material to a storage pile or removing it usually involves dropping the material onto a receiving surface. Truck dumping on the pile or loading out from the pile to a truck with a front-end loader are examples of batch drop operations. Adding material to the pile by a conveyor stacker is an example of a continuous drop operation.

Table 13.2.4-1. TYPICAL SILT AND MOISTURE CONTENTS OF MATERIALS AT VARIOUS INDUSTRIES<sup>a</sup>

Industry	No. Of Facilities	Material	Silt Content (%)			Moisture Content (%)		
			No. Of Samples	Range	Mean	No. Of Samples	Range	Mean
Iron and steel production	9	Pellet ore...	13	1.3 - 13	4.3	11	0.64 - 4.0	2.2
		Lump ore	9	2.8 - 19	9.5	6	1.6 - 8.0	5.4
		Coal	12	2.0 - 7.7	4.6	11	2.8 - 11	4.8
		Slag	3	3.0 - 7.3	5.3	3	0.25 - 2.0	0.92
		Flue dust	3	2.7 - 23	13	1	—	7
		Coke breeze	2	4.4 - 5.4	4.9	2	6.4 - 9.2	7.8
		Blended ore	1	—	15	1	—	6.6
		Sinter	1	—	0.7	0	—	—
		Limestone	3	0.4 - 2.3	1.0	2	ND	0.2
Stone quarrying and processing	2	Crushed limestone	2	1.3 - 1.9	1.6	2	0.3 - 1.1	0.7
		Various limestone products	8	0.8 - 14	3.9	8	0.46 - 5.0	2.1
Taconite mining and processing	1	Pellets	9	2.2 - 5.4	3.4	7	0.05 - 2.0	0.9
		Tailings	2	ND	11	1	—	0.4
Western surface coal mining	4	Coal	15	3.4 - 16	6.2	7	2.8 - 20	6.9
		Overburden	15	3.8 - 15	7.5	0	—	—
		Exposed ground	3	5.1 - 21	15	3	0.8 - 6.4	3.4
Coal-fired power plant	1	Coal (as received)	60	0.6 - 4.8	2.2	59	2.7 - 7.4	4.5
Municipal solid waste landfills	4	Sand	1	—	2.6	1	—	7.4
		Slag	2	3.0 - 4.7	3.8	2	2.3 - 4.9	3.6
		Cover	5	5.0 - 16	9.0	5	8.9 - 16	12
		Clay/dirt mix	1	—	9.2	1	—	14
		Clay	2	4.5 - 7.4	6.0	2	8.9 - 11	10
		Fly ash	4	78 - 81	80	4	26 - 29	27
		Misc. fill materials	1	—	12	1	—	11

<sup>a</sup> References 1-10. ND = no data.

The quantity of particulate emissions generated by either type of drop operation, per kilogram (kg) (ton) of material transferred, may be estimated, with a rating of A, using the following empirical expression:<sup>11</sup>

$$E = k(0.0016) \frac{\left(\frac{U}{2.2}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (kg/megagram [Mg])} \quad (1)$$

$$E = k(0.0032) \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (pound [lb]/ton)}$$

where:

E = emission factor

k = particle size multiplier (dimensionless)

U = mean wind speed, meters per second (m/s) (miles per hour [mph])

M = material moisture content (%)

The particle size multiplier in the equation, k, varies with aerodynamic particle size range, as follows:

Aerodynamic Particle Size Multiplier (k) For Equation 1				
< 30 μm	< 15 μm	< 10 μm	< 5 μm	< 2.5 μm
0.74	0.48	0.35	0.20	0.11

The equation retains the assigned quality rating if applied within the ranges of source conditions that were tested in developing the equation, as follows. Note that silt content is included, even though silt content does not appear as a correction parameter in the equation. While it is reasonable to expect that silt content and emission factors are interrelated, no significant correlation between the 2 was found during the derivation of the equation, probably because most tests with high silt contents were conducted under lower winds, and vice versa. It is recommended that estimates from the equation be reduced 1 quality rating level if the silt content used in a particular application falls outside the range given:

Ranges Of Source Conditions For Equation 1			
Silt Content (%)	Moisture Content (%)	Wind Speed	
		m/s	mph
0.44 - 19	0.25 - 4.8	0.6 - 6.7	1.3 - 15

To retain the quality rating of the equation when it is applied to a specific facility, reliable correction parameters must be determined for specific sources of interest. The field and laboratory procedures for aggregate sampling are given in Reference 3. In the event that site-specific values for correction parameters cannot be obtained, the appropriate mean from Table 13.2.4-1 may be used, but the quality rating of the equation is reduced by 1 letter.

For emissions from equipment traffic (trucks, front-end loaders, dozers, etc.) traveling between or on piles, it is recommended that the equations for vehicle traffic on unpaved surfaces be used (see Section 13.2.2). For vehicle travel between storage piles, the silt value(s) for the areas among the piles (which may differ from the silt values for the stored materials) should be used.

Worst-case emissions from storage pile areas occur under dry, windy conditions. Worst-case emissions from materials-handling operations may be calculated by substituting into the equation appropriate values for aggregate material moisture content and for anticipated wind speeds during the worst case averaging period, usually 24 hours. The treatment of dry conditions for Section 13.2.2, vehicle traffic, "Unpaved Roads", follows the methodology described in that section centering on parameter p. A separate set of nonclimatic correction parameters and source extent values corresponding to higher than normal storage pile activity also may be justified for the worst-case averaging period.

#### 13.2.4.4 Controls<sup>12-13</sup>

Watering and the use of chemical wetting agents are the principal means for control of aggregate storage pile emissions. Enclosure or covering of inactive piles to reduce wind erosion can also reduce emissions. Watering is useful mainly to reduce emissions from vehicle traffic in the storage pile area. Watering of the storage piles themselves typically has only a very temporary slight effect on total emissions. A much more effective technique is to apply chemical agents (such as surfactants) that permit more extensive wetting. Continuous chemical treating of material loaded onto piles, coupled with watering or treatment of roadways, can reduce total particulate emissions from aggregate storage operations by up to 90 percent.<sup>12</sup>

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## 13.2.5 Industrial Wind Erosion

### 13.2.5.1 General<sup>1-3</sup>

Dust emissions may be generated by wind erosion of open aggregate storage piles and exposed areas within an industrial facility. These sources typically are characterized by nonhomogeneous surfaces impregnated with nonerodible elements (particles larger than approximately 1 centimeter [cm] in diameter). Field testing of coal piles and other exposed materials using a portable wind tunnel has shown that (a) threshold wind speeds exceed 5 meters per second (m/s) (11 miles per hour [mph]) at 15 cm above the surface or 10 m/s (22 mph) at 7 m above the surface, and (b) particulate emission rates tend to decay rapidly (half-life of a few minutes) during an erosion event. In other words, these aggregate material surfaces are characterized by finite availability of erodible material (mass/area) referred to as the erosion potential. Any natural crusting of the surface binds the erodible material, thereby reducing the erosion potential.

### 13.2.5.2 Emissions And Correction Parameters

If typical values for threshold wind speed at 15 cm are corrected to typical wind sensor height (7 - 10 m), the resulting values exceed the upper extremes of hourly mean wind speeds observed in most areas of the country. In other words, mean atmospheric wind speeds are not sufficient to sustain wind erosion from flat surfaces of the type tested. However, wind gusts may quickly deplete a substantial portion of the erosion potential. Because erosion potential has been found to increase rapidly with increasing wind speed, estimated emissions should be related to the gusts of highest magnitude.

The routinely measured meteorological variable that best reflects the magnitude of wind gusts is the fastest mile. This quantity represents the wind speed corresponding to the whole mile of wind movement that has passed by the 1 mile contact anemometer in the least amount of time. Daily measurements of the fastest mile are presented in the monthly Local Climatological Data (LCD) summaries. The duration of the fastest mile, typically about 2 minutes (for a fastest mile of 30 mph), matches well with the half-life of the erosion process, which ranges between 1 and 4 minutes. It should be noted, however, that peak winds can significantly exceed the daily fastest mile.

The wind speed profile in the surface boundary layer is found to follow a logarithmic distribution:

$$u(z) = \frac{u^*}{0.4} \ln \frac{z}{z_0} \quad (z > z_0) \quad (1)$$

where:

- u = wind speed, cm/s
- u\* = friction velocity, cm/s
- z = height above test surface, cm
- z<sub>0</sub> = roughness height, cm
- 0.4 = von Karman's constant, dimensionless

The friction velocity ( $u^*$ ) is a measure of wind shear stress on the erodible surface, as determined from the slope of the logarithmic velocity profile. The roughness height ( $z_0$ ) is a measure of the roughness of the exposed surface as determined from the y intercept of the velocity profile, i. e., the height at which the wind speed is zero. These parameters are illustrated in Figure 13.2.5-1 for a roughness height of 0.1 cm.

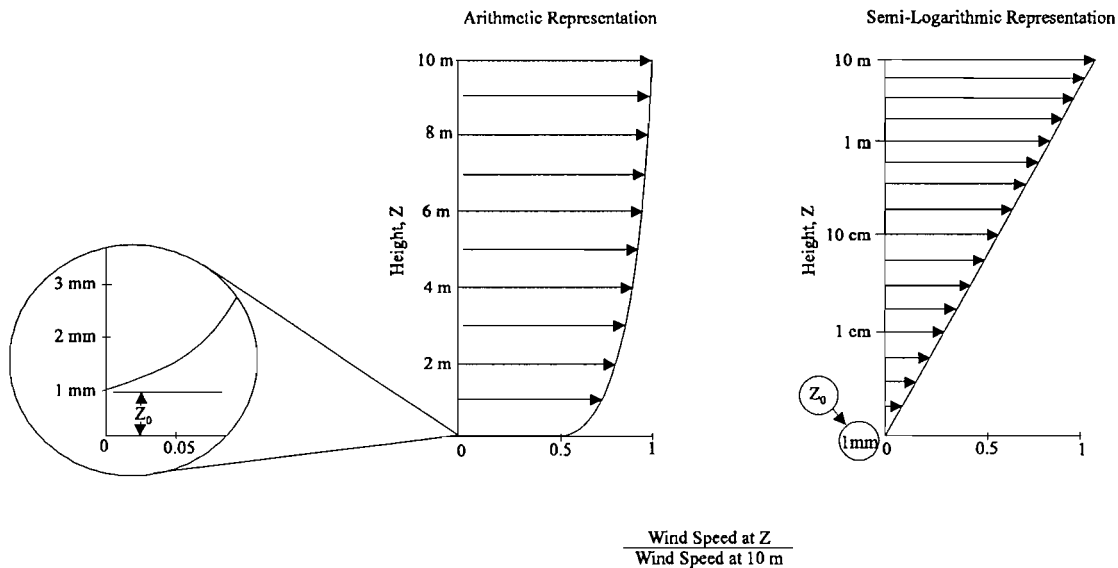


Figure 13.2.5-1. Illustration of logarithmic velocity profile.

Emissions generated by wind erosion are also dependent on the frequency of disturbance of the erodible surface because each time that a surface is disturbed, its erosion potential is restored. A disturbance is defined as an action that results in the exposure of fresh surface material. On a storage pile, this would occur whenever aggregate material is either added to or removed from the old surface. A disturbance of an exposed area may also result from the turning of surface material to a depth exceeding the size of the largest pieces of material present.

### 13.2.5.3 Predictive Emission Factor Equation<sup>4</sup>

The emission factor for wind-generated particulate emissions from mixtures of erodible and nonerodible surface material subject to disturbance may be expressed in units of grams per square meter ( $g/m^2$ ) per year as follows:

$$\text{Emission factor} = k \sum_{i=1}^N P_i \quad (2)$$

where:

- k = particle size multiplier
- N = number of disturbances per year
- $P_i$  = erosion potential corresponding to the observed (or probable) fastest mile of wind for the  $i$ th period between disturbances,  $g/m^2$

The particle size multiplier (k) for Equation 2 varies with aerodynamic particle size, as follows:

Aerodynamic Particle Size Multipliers For Equation 2			
30 $\mu\text{m}$	<15 $\mu\text{m}$	<10 $\mu\text{m}$	<2.5 $\mu\text{m}$
1.0	0.6	0.5	0.2

This distribution of particle size within the under 30 micrometer ( $\mu\text{m}$ ) fraction is comparable to the distributions reported for other fugitive dust sources where wind speed is a factor. This is illustrated, for example, in the distributions for batch and continuous drop operations encompassing a number of test aggregate materials (see Section 13.2.4).

In calculating emission factors, each area of an erodible surface that is subject to a different frequency of disturbance should be treated separately. For a surface disturbed daily,  $N = 365$  per year, and for a surface disturbance once every 6 months,  $N = 2$  per year.

The erosion potential function for a dry, exposed surface is:

$$P = 58 (u^* - u_t^*)^2 + 25 (u^* - u_t^*) \tag{3}$$

$$P = 0 \text{ for } u^* \leq u_t^*$$

where:

- $u^*$  = friction velocity (m/s)
- $u_t^*$  = threshold friction velocity (m/s)

Because of the nonlinear form of the erosion potential function, each erosion event must be treated separately.

Equations 2 and 3 apply only to dry, exposed materials with limited erosion potential. The resulting calculation is valid only for a time period as long or longer than the period between disturbances. Calculated emissions represent intermittent events and should not be input directly into dispersion models that assume steady-state emission rates.

For uncrusted surfaces, the threshold friction velocity is best estimated from the dry aggregate structure of the soil. A simple hand sieving test of surface soil can be used to determine the mode of the surface aggregate size distribution by inspection of relative sieve catch amounts, following the procedure described below.



**FIELD PROCEDURE FOR DETERMINATION OF THRESHOLD FRICTION VELOCITY**  
(from a 1952 laboratory procedure published by W. S. Chepil):

1. Prepare a nest of sieves with the following openings: 4 mm, 2 mm, 1 mm, 0.5 mm, and 0.25 mm. Place a collector pan below the bottom (0.25 mm) sieve.
2. Collect a sample representing the surface layer of loose particles (approximately 1 cm in depth, for an encrusted surface), removing any rocks larger than about 1 cm in average physical diameter. The area to be sampled should be not less than 30 cm by 30 cm.
3. Pour the sample into the top sieve (4-mm opening), and place a lid on the top.
4. Move the covered sieve/pan unit by hand, using a broad circular arm motion in the horizontal plane. Complete 20 circular movements at a speed just necessary to achieve some relative horizontal motion between the sieve and the particles.
5. Inspect the relative quantities of catch within each sieve, and determine where the mode in the aggregate size distribution lies, i. e., between the opening size of the sieve with the largest catch and the opening size of the next largest sieve.
6. Determine the threshold friction velocity from Table 13.2.5-1.

The results of the sieving can be interpreted using Table 13.2.5-1. Alternatively, the threshold friction velocity for erosion can be determined from the mode of the aggregate size distribution using the graphical relationship described by Gillette.<sup>5-6</sup> If the surface material contains nonerodible elements that are too large to include in the sieving (i. e., greater than about 1 cm in diameter), the effect of the elements must be taken into account by increasing the threshold friction velocity.<sup>10</sup>

Table 13.2.5-1 (Metric Units). FIELD PROCEDURE FOR DETERMINATION OF THRESHOLD FRICTION VELOCITY

Tyler Sieve No.	Opening (mm)	Midpoint (mm)	$u_t^*$ (cm/s)
5	4		
9	2	3	100
16	1	1.5	76
32	0.5	0.75	58
60	0.25	0.375	43

Threshold friction velocities for several surface types have been determined by field measurements with a portable wind tunnel. These values are presented in Table 13.2.5-2.

Table 13.2.5-2 (Metric Units). THRESHOLD FRICTION VELOCITIES

Material	Threshold Friction Velocity (m/s)	Roughness Height (cm)	Threshold Wind Velocity At 10 m (m/s)	
			$z_o = \text{Act}$	$z_o = 0.5 \text{ cm}$
Overburden <sup>a</sup>	1.02	0.3	21	19
Scoria (roadbed material) <sup>a</sup>	1.33	0.3	27	25
Ground coal (surrounding coal pile) <sup>a</sup>	0.55	0.01	16	10
Uncrusted coal pile <sup>a</sup>	1.12	0.3	23	21
Scraper tracks on coal pile <sup>a,b</sup>	0.62	0.06	15	12
Fine coal dust on concrete pad <sup>c</sup>	0.54	0.2	11	10

<sup>a</sup> Western surface coal mine. Reference 2.

<sup>b</sup> Lightly crusted.

<sup>c</sup> Eastern power plant. Reference 3.

The fastest mile of wind for the periods between disturbances may be obtained from the monthly LCD summaries for the nearest reporting weather station that is representative of the site in question.<sup>7</sup> These summaries report actual fastest mile values for each day of a given month. Because the erosion potential is a highly nonlinear function of the fastest mile, mean values of the fastest mile are inappropriate. The anemometer heights of reporting weather stations are found in Reference 8, and should be corrected to a 10-m reference height using Equation 1.

To convert the fastest mile of wind ( $u^+$ ) from a reference anemometer height of 10 m to the equivalent friction velocity ( $u^*$ ), the logarithmic wind speed profile may be used to yield the following equation:

$$u^* = 0.053 u_{10}^+ \quad (4)$$

where:

$u^*$  = friction velocity (m/s)

$u_{10}^+$  = fastest mile of reference anemometer for period between disturbances (m/s)

This assumes a typical roughness height of 0.5 cm for open terrain. Equation 4 is restricted to large relatively flat piles or exposed areas with little penetration into the surface wind layer.

If the pile significantly penetrates the surface wind layer (i. e., with a height-to-base ratio exceeding 0.2), it is necessary to divide the pile area into subareas representing different degrees of exposure to wind. The results of physical modeling show that the frontal face of an elevated pile is exposed to wind speeds of the same order as the approach wind speed at the top of the pile.

For 2 representative pile shapes (conical and oval with flattop, 37-degree side slope), the ratios of surface wind speed ( $u_s$ ) to approach wind speed ( $u_r$ ) have been derived from wind tunnel studies.<sup>9</sup> The results are shown in Figure 13.2.5-2 corresponding to an actual pile height of 11 m, a reference (upwind) anemometer height of 10 m, and a pile surface roughness height ( $z_0$ ) of 0.5 cm. The measured surface winds correspond to a height of 25 cm above the surface. The area fraction within each contour pair is specified in Table 13.2.5-3.

Table 13.2.5-3. SUBAREA DISTRIBUTION FOR REGIMES OF  $u_s/u_r$ <sup>a</sup>

Pile Subarea	Percent Of Pile Surface Area			
	Pile A	Pile B1	Pile B2	Pile B3
0.2a	5	5	3	3
0.2b	35	2	28	25
0.2c	NA	29	NA	NA
0.6a	48	26	29	28
0.6b	NA	24	22	26
0.9	12	14	15	14
1.1	NA	NA	3	4

<sup>a</sup> NA = not applicable.

The profiles of  $u_s/u_r$  in Figure 13.2.5-2 can be used to estimate the surface friction velocity distribution around similarly shaped piles, using the following procedure:

1. Correct the fastest mile value ( $u^+$ ) for the period of interest from the anemometer height ( $z$ ) to a reference height of 10 m  $u_{10}^+$  using a variation of Equation 1:

$$u_{10}^+ = u^+ \frac{\ln(10/0.005)}{\ln(z/0.005)} \quad (5)$$

where a typical roughness height of 0.5 cm (0.005 m) has been assumed. If a site-specific roughness height is available, it should be used.

2. Use the appropriate part of Figure 13.2.5-2 based on the pile shape and orientation to the fastest mile of wind, to obtain the corresponding surface wind speed distribution ( $u_s^+$ )

$$u_s^+ = \frac{(u_s)}{u_r} u_{10}^+ \quad (6)$$

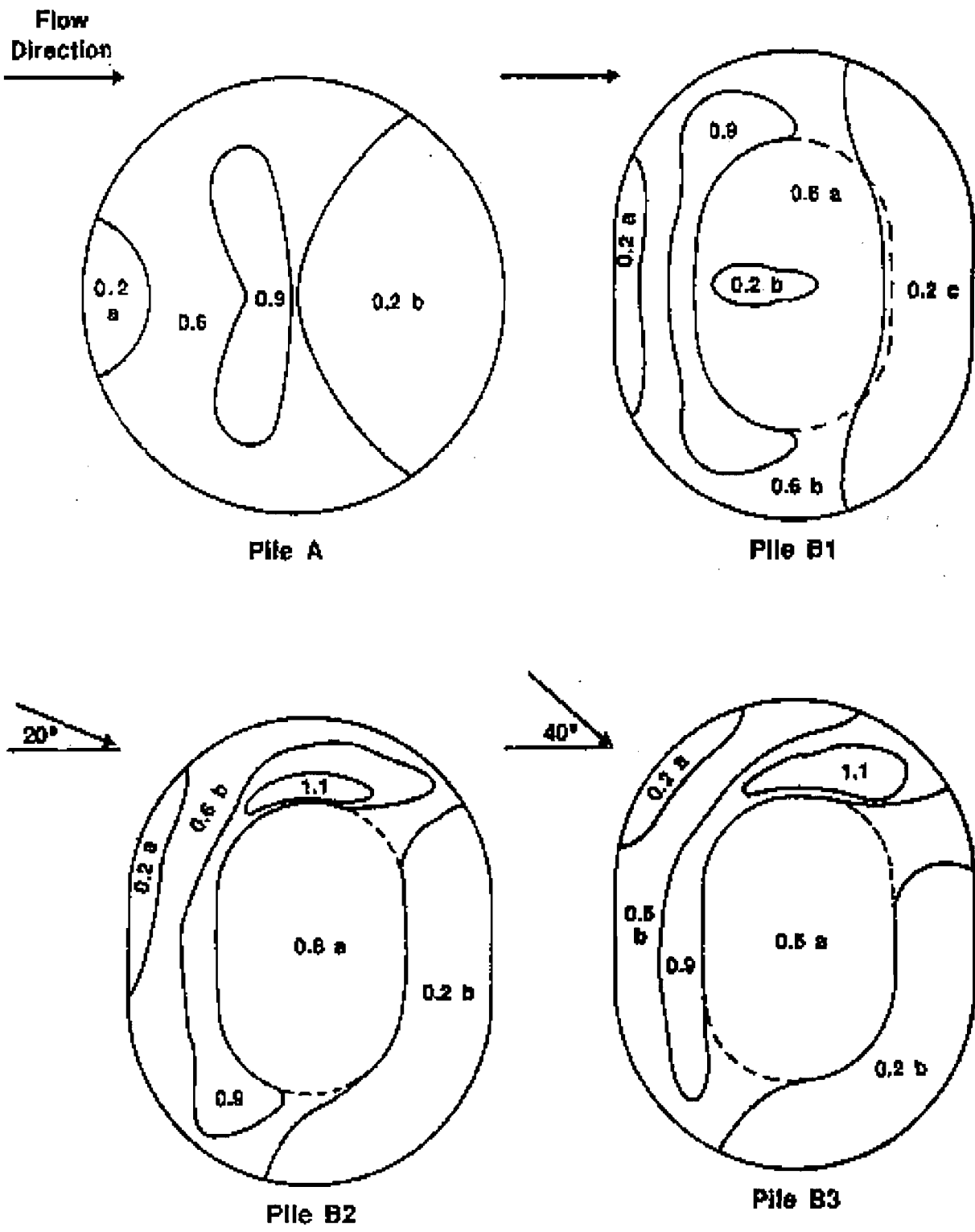


Figure 13.2.5-2. Contours of normalized surface windspeeds,  $u_s/u_r$ .

3. For any subarea of the pile surface having a narrow range of surface wind speed, use a variation of Equation 1 to calculate the equivalent friction velocity ( $u^*$ ):

$$u^* = \frac{0.4u_s^+}{\frac{25}{\ln 0.5}} = 0.10u_s^+ \quad (7)$$

From this point on, the procedure is identical to that used for a flat pile, as described above.

Implementation of the above procedure is carried out in the following steps:

1. Determine threshold friction velocity for erodible material of interest (see Table 13.2.5-2 or determine from mode of aggregate size distribution).
2. Divide the exposed surface area into subareas of constant frequency of disturbance (N).
3. Tabulate fastest mile values ( $u^+$ ) for each frequency of disturbance and correct them to 10 m ( $u^+$ ) using Equation 5.5
4. Convert fastest mile values ( $u_{10}$ ) to equivalent friction velocities ( $u^*$ ), taking into account (a) the uniform wind exposure of nonelevated surfaces, using Equation 4, or (b) the nonuniform wind exposure of elevated surfaces (piles), using Equations 6 and 7.
5. For elevated surfaces (piles), subdivide areas of constant N into subareas of constant  $u^*$  (i. e., within the isopleth values of  $u_s/u_r$  in Figure 13.2.5-2 and Table 13.2.5-3) and determine the size of each subarea.
6. Treating each subarea (of constant N and  $u^*$ ) as a separate source, calculate the erosion potential ( $P_i$ ) for each period between disturbances using Equation 3 and the emission factor using Equation 2.
7. Multiply the resulting emission factor for each subarea by the size of the subarea, and add the emission contributions of all subareas. Note that the highest 24-hour (hr) emissions would be expected to occur on the windiest day of the year. Maximum emissions are calculated assuming a single event with the highest fastest mile value for the annual period.

The recommended emission factor equation presented above assumes that all of the erosion potential corresponding to the fastest mile of wind is lost during the period between disturbances. Because the fastest mile event typically lasts only about 2 minutes, which corresponds roughly to the half-life for the decay of actual erosion potential, it could be argued that the emission factor overestimates particulate emissions. However, there are other aspects of the wind erosion process that offset this apparent conservatism:

1. The fastest mile event contains peak winds that substantially exceed the mean value for the event.
2. Whenever the fastest mile event occurs, there are usually a number of periods of

slightly lower mean wind speed that contain peak gusts of the same order as the fastest mile wind speed.

Of greater concern is the likelihood of overprediction of wind erosion emissions in the case of surfaces disturbed infrequently in comparison to the rate of crust formation.

#### 13.2.5.4 Example 1: Calculation for wind erosion emissions from conically shaped coal pile

A coal burning facility maintains a conically shaped surge pile 11 m in height and 29.2 m in base diameter, containing about 2000 megagrams (Mg) of coal, with a bulk density of 800 kilograms per cubic meter ( $\text{kg/m}^3$ ) (50 pounds per cubic feet [ $\text{lb/ft}^3$ ]). The total exposed surface area of the pile is calculated as follows:

$$\begin{aligned} S &= \pi r (r^2 + h^2) \\ &= 3.14(14.6) (14.6)^2 + (11.0)^2 \\ &= 838 \text{ m}^2 \end{aligned}$$

Coal is added to the pile by means of a fixed stacker and reclaimed by front-end loaders operating at the base of the pile on the downwind side. In addition, every 3 days 250 Mg (12.5 percent of the stored capacity of coal) is added back to the pile by a topping off operation, thereby restoring the full capacity of the pile. It is assumed that (a) the reclaiming operation disturbs only a limited portion of the surface area where the daily activity is occurring, such that the remainder of the pile surface remains intact, and (b) the topping off operation creates a fresh surface on the entire pile while restoring its original shape in the area depleted by daily reclaiming activity.

Because of the high frequency of disturbance of the pile, a large number of calculations must be made to determine each contribution to the total annual wind erosion emissions. This illustration will use a single month as an example.

Step 1: In the absence of field data for estimating the threshold friction velocity, a value of 1.12 m/s is obtained from Table 13.2.5-2.

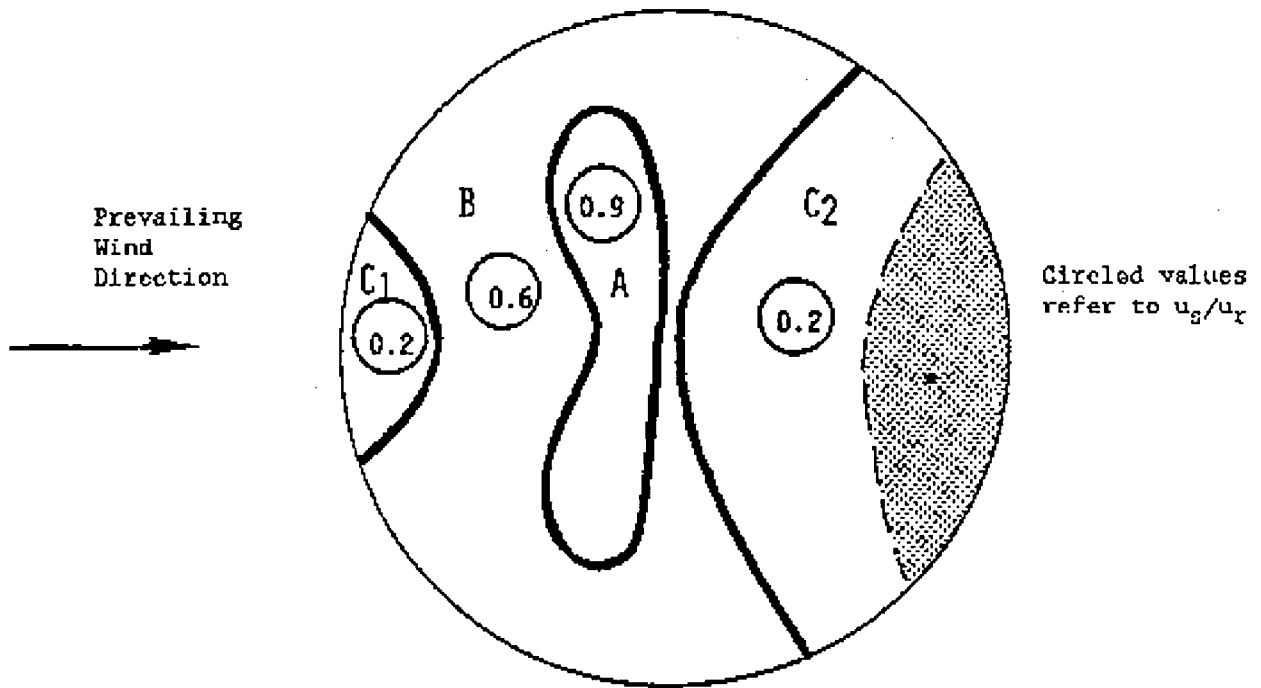
Step 2: Except for a small area near the base of the pile (see Figure 13.2.5-3), the entire pile surface is disturbed every 3 days, corresponding to a value of  $N = 120$  per year. It will be shown that the contribution of the area where daily activity occurs is negligible so that it does not need to be treated separately in the calculations.

Step 3: The calculation procedure involves determination of the fastest mile for each period of disturbance. Figure 13.2.5-4 shows a representative set of values (for a 1-month period) that are assumed to be applicable to the geographic area of the pile location. The values have been separated into 3-day periods, and the highest value in each period is indicated. In this example, the anemometer height is 7 m, so that a height correction to 10 m is needed for the fastest mile values. From Equation 5,

$$u_{10}^+ = u_7^+ \left( \frac{\ln(10/0.005)}{\ln(7/0.005)} \right)$$

$$u_{10}^+ = 1.05 u_7^+ .$$

Step 4: The next step is to convert the fastest mile value for each 3-day period into the



\* A portion of C<sub>2</sub> is disturbed daily by reclaiming activities.

Area ID	$\frac{u_g}{u_r}$	Pile Surface	
		%	Area (m <sup>2</sup> )
A	0.9	12	101
B	0.6	48	402
C <sub>1</sub> + C <sub>2</sub>	0.2	40	<u>335</u>
		Total	838

Figure 13.2.5-3. Example 1: Pile surface areas within each wind speed regime.

Local Climatological Data  
Monthly Summary



Wind					
Resultant Dir.	Resultant Speed M.P.H.	Average Speed M.P.H.	Fastest Mile		Date
			Speed M.P.H.	Direction	
13	14	15	16	17	22
30	5.3	6.9	9	36	1
01	10.5	10.6	14	01	2
10	2.4	6.0	10	02	3
13	11.0	11.4	16	13	4
12	11.3	11.9	15	11	5
20	11.1	19.0	29	30	6
29	19.6	19.8	30	30	7
29	10.9	11.2	17	30	8
22	3.0	8.1	15	13	9
14	14.6	15.1	23	12	10
29	22.3	23.3	31	29	11
17	7.9	13.5	23	17	12
21	7.7	15.5	18	18	13
10	4.5	9.6	22	13	14
10	6.7	8.8	13	11	15
01	13.7	13.8	21	36	16
33	11.2	11.5	15	34	17
27	4.3	5.8	12	31	18
32	9.3	10.2	14	35	19
24	7.5	7.8	16	24	20
22	10.3	10.6	16	20	21
32	17.1	17.3	25	32	22
29	2.4	8.5	14	13	23
07	5.9	8.8	15	02	24
34	11.3	11.7	17	32	25
31	12.1	12.2	16	32	26
30	8.3	8.5	16	26	27
30	8.2	8.3	13	32	28
33	5.0	6.6	10	32	29
34	3.1	5.2	9	31	30
29	4.9	5.5	8	25	31
For the Month:					
30	3.3	11.1	31	29	
			Date: 11		

Figure 13.2.5-4. Example daily fastest miles wind for periods of interest.



equivalent friction velocities for each surface wind regime (i. e.,  $u_s/u_r$  ratio) of the pile, using Equations 6 and 7. Figure 13.2.5-3 shows the surface wind speed pattern (expressed as a fraction of the approach wind speed at a height of 10 m). The surface areas lying within each wind speed regime are tabulated below the figure.

The calculated friction velocities are presented in Table 13.2.5-4. As indicated, only 3 of the periods contain a friction velocity which exceeds the threshold value of 1.12 m/s for an uncrusted coal pile. These 3 values all occur within the  $u_s/u_r = 0.9$  regime of the pile surface.

Table 13.2.5-4 (Metric And English Units). EXAMPLE 1:  
CALCULATION OF FRICTION VELOCITIES

3-Day Period	$u_7^+$		$u_{10}^+$		$u^* = 0.1u^+ \text{ (m/s)}$		
	mph	m/s	mph	m/s	s		
					$u_s/u_r: 0.2$	$u_s/u_r: 0.6$	$u_s/u_r: 0.9$
1	14	6.3	15	6.6	0.13	0.40	0.59
2	29	13.0	31	13.7	0.27	0.82	1.23
3	30	13.4	32	14.1	0.28	0.84	1.27
4	31	13.9	33	14.6	0.29	0.88	1.31
5	22	9.8	23	10.3	0.21	0.62	0.93
6	21	9.4	22	9.9	0.20	0.59	0.89
7	16	7.2	17	7.6	0.15	0.46	0.68
8	25	11.2	26	11.8	0.24	0.71	1.06
9	17	7.6	18	8.0	0.16	0.48	0.72
10	13	5.8	14	6.1	0.12	0.37	0.55

Step 5: This step is not necessary because there is only 1 frequency of disturbance used in the calculations. It is clear that the small area of daily disturbance (which lies entirely within the  $u_s/u_r = 0.2$  regime) is never subject to wind speeds exceeding the threshold value.

Steps 6 and 7: The final set of calculations (shown in Table 13.2.5-5) involves the tabulation and summation of emissions for each disturbance period and for the affected subarea. The erosion potential (P) is calculated from Equation 3.

For example, the calculation for the second 3-day period is:

$$P = 58(u^* - u_t^*)^2 + 25(u^* - u_t^*)$$

$$P_2 = 58(1.23 - 1.12)^2 + 25(1.23 - 1.12)$$

$$= 0.70 + 2.75 = 3.45 \text{ g/m}^2$$

Table 13.2.5-5 (Metric Units). EXAMPLE 1: CALCULATION OF PM-10 EMISSIONS<sup>a</sup>

3-Day Period	$u^*$ (m/s)	$u^* - u_t^*$ (m/s)	P (g/m <sup>2</sup> )	ID	Pile Surface Area (m <sup>2</sup> )	kPA (g)
2	1.23	0.11	3.45	A	101	170
3	1.27	0.15	5.06	A	101	260
4	1.31	0.19	6.84	A	101	350
TOTAL						780

<sup>a</sup> Where  $u_t^* = 1.12$  m/s for uncrusted coal and  $k = 0.5$  for PM-10.

The emissions of particulate matter greater than 10  $\mu\text{m}$  (PM-10) generated by each event are found as the product of the PM-10 multiplier ( $k = 0.5$ ), the erosion potential (P), and the affected area of the pile (A).

As shown in Table 13.2.5-5, the results of these calculations indicate a monthly PM-10 emission total of 780 g.

#### 13.2.5.5 Example 2: Calculation for wind erosion from flat area covered with coal dust

A flat circular area 29.2 m in diameter is covered with coal dust left over from the total reclaiming of a conical coal pile described in the example above. The total exposed surface area is calculated as follows:

$$s = \frac{\pi}{4} d^2 = 0.785 (29.2)^2 = 670 \text{ m}^2$$

This area will remain exposed for a period of 1 month when a new pile will be formed.

Step 1: In the absence of field data for estimating the threshold friction velocity, a value of 0.54 m/s is obtained from Table 13.2.5-2.

Step 2: The entire surface area is exposed for a period of 1 month after removal of a pile and  $N = 1/\text{yr}$ .

Step 3: From Figure 13.2.5-4, the highest value of fastest mile for the 30-day period (31 mph) occurs on the 11th day of the period. In this example, the reference anemometer height is 7 m, so that a height correction is needed for the fastest mile value. From Step 3 of the previous example,  $u_{10}^+ = 1.05 u^+$ , so that  $u^+ = \frac{33}{1.05} = 31.4 \text{ mph}$ .

Step 4: Equation 4 is used to convert the fastest mile value of 14.6 m/s (33 mph) to an equivalent friction velocity of 0.77 m/s. This value exceeds the threshold friction velocity from Step 1 so that erosion does occur.

Step 5: This step is not necessary, because there is only 1 frequency of disturbance for the entire source area.

Steps 6 and 7: The PM-10 emissions generated by the erosion event are calculated as the product of the PM-10 multiplier ( $k = 0.5$ ), the erosion potential ( $P$ ) and the source area ( $A$ ). The erosion potential is calculated from Equation 3 as follows:

$$\begin{aligned} P &= 58(u^* - u_t^*)^2 + 25(u^* - u_t^*) \\ P &= 58(0.77 - 0.54)^2 + 25(0.77 - 0.54) \\ &= 3.07 + 5.75 \\ &= 8.82 \text{ g/m}^2 \end{aligned}$$

Thus the PM-10 emissions for the 1-month period are found to be:

$$\begin{aligned} E &= (0.5)(8.82 \text{ g/m}^2)(670 \text{ m}^2) \\ &= 3.0 \text{ kg} \end{aligned}$$

#### References For Section 13.2.5

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4. *Update Of Fugitive Dust Emissions Factors In AP-42 Section 11.2 — Wind Erosion*, MRI No. 8985-K, Midwest Research Institute, Kansas City, MO, 1988.
5. W. S. Chepil, "Improved Rotary Sieve For Measuring State And Stability Of Dry Soil Structure", *Soil Science Society Of America Proceedings*, 16:113-117, 1952.
6. D. A. Gillette, *et al.*, "Threshold Velocities For Input Of Soil Particles Into The Air By Desert Soils", *Journal Of Geophysical Research*, 85(C10):5621-5630.
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8. M. J. Changery, *National Wind Data Index Final Report*, HCO/T1041-01 UC-60, National Climatic Center, Asheville, NC, December 1978.
9. B. J. B. Stunder and S. P. S. Arya, "Windbreak Effectiveness For Storage Pile Fugitive Dust Control: A Wind Tunnel Study", *Journal Of The Air Pollution Control Association*, 38:135-143, 1988.
10. C. Cowherd, Jr., *et al.*, *Control Of Open Fugitive Dust Sources*, EPA 450/3-88-008, U. S. Environmental Protection Agency, Research Triangle Park, NC, September 1988.

**FACILITY SUPPLEMENTAL INFORMATION**  
**St Johns River Power Park**

**ATTACHMENT F-4**  
**Compliance Testing Plan**

Table 1, SJRPP Materials Handling Operations

Emissions Unit	EU ID#	AQCS	Control Efficiency	PM (lb/hr)	Opacity (%)	Monitoring/ Testing Protocol
Railcar Rotary Dumper - Building Emissions	023a	1, 3, & 4	97.0%	0.27	10	a, b, c
Conveyor C-3 Tunnel Ventilation - 6,400 cfm	023b	1 & 4	98.0%	0.015	5	a, b
Conveyor C-3 Tunnel Ventilation - 6,400 cfm	023b	1 & 4	98.0%	0.015	5	a, b
Conveyor C-3 Tunnel Ventilation - 21,600 cfm	023b	1 & 4	98.0%	0.052	5	a, b
Shiphold	023c	1, 4, & 6	70.0%	0.26	10	a, b
Unloader Hopper and Spillage Collector Transfers	023d	1, 3, 4, & 6	85.0%	0.13	10	a, b, c
Ship Unloader	023d	1, 2 & 4	85.0%	0.016	5	a, b, c
Fuel Transfer Building	023e	1, 2 & 4	98.0%	0.01	10	a, b, c
Transfer Station No. 1	023e	1, 2, & 4	98.0%	0.02	5	a, b, c
Transfer Station No. 2	023e	1, 2, & 4	98.0%	0.02	5	a, b, c
Transfer Station No. 3	023e	1, 2, & 4	98.0%	0.02	5	a, b, c
Transfer Station No. 4	023e	1 & 4	98.0%	0.02	5	a, b
Transfer Station No. 5	023e	1 & 4	98.0%	0.02	5	a, b
Transfer Station No. 6	023e	1 & 4	98.0%	0.02	5	a, b
Transfer Station No. 7	023e	1 & 4	98.0%	0.02	5	a, b
Transfer Point 9GC-04 to 9GC-05	023e	1	0.00%	0.003	5	a, b
Stacker/Reclaimer (Stacker Mode)	023f	1 & 3	82.67%	1.08	10	a, b, c
Stacker	023f	1 & 3	82.67%	0.54	10	a, b, c
Reclaimer	023f	1 & 3	89.67%	0.43	10	a, b, c
Petroleum Coke Reclaimer System	023g	1	60.0%	0.32	10	a, b,
Emergency Reclaim Hoppers - Loadout	023g	1	75.0%	0.29	10	a, b
Limestone Reclaim Hopper	023g	1	42.50%	0.14	10	a, b
Limestone Railcar Dumper	023h	1, 2, 3, & 4	97.0%	0.005	10	a, b, c
Limestone Loadout	023i	1 & 3	97.0%	0.005	10	a, b, c
Limestone Truck Loadout & Transfer	023j	1	75.0%	0.099	10	a, b
Limestone Storage Pile #1 - Existing	023k	1 & 3	90.0%	0.26	10	a, b, c
Limestone Storage Pile #2 - Fuel Yard	023k	1, 2 & 3	90.0%	0.12	10	a, b, c
Coal Pile	023k	1, 2 & 3	90.0%	0.26	10	a, b, c
Petroleum Coke Pile	023k	1, 2 & 3	90.0%	0.71	10	a, b, c
Gypsum Storage Pile (Non-Commercial)	023k	1	85.0%	0.07	10	a, b
Fly Ash Loadouts 1A	023l	1 & 3	97.0%	0.028	10	a, b, c
Fly Ash Loadouts 1B	023l	1 & 3	97.0%	0.028	10	a, b, c
Fly Ash Loadouts 2A	023l	1 & 3	97.0%	0.028	10	a, b, c
Fly Ash Loadouts 2B	023l	1 & 3	97.0%	0.028	10	a, b, c
Bottom Ash Loadouts 1A	023l	1	0.00%	0.042	10	a, b
Bottom Ash Loadouts 1B	023l	1	0.00%	0.042	10	a, b
Bottom Ash Loadouts 2A	023l	1	0.00%	0.042	10	a, b
Bottom Ash Loadouts 2B	023l	1	0.00%	0.042	10	a, b
Gypsum Dewatering Building	023m	1	0.00%	0.02	5	a, b
Gypsum Storage Enclosure	023n	1	0.00%	0.004	5	a, b
Gypsum Truck Loadout	023o	1	0.00%	0.13	5	a, b
Solid Waste Disposal Area	023p	1 & 2	90.0%	0.31	10	a, b, c
Unpaved Road, By-Product Transport	023q	1 & 2	75.0%	0.15	10	a, b, c
Rotary Railcar Unloader, Fuel Transfer Points (DC-1)	043	1, 4, & 5	99.5%	0.083	5	a, b
Fuel Handling Building (DC-3)	046	1, 4, & 5	99.5%	0.11	5	a, b
Unit #1 Fuel Storage Bins (DC-4)	047	1, 4, & 5	99.5%	0.0042	5	a, b
Unit #2 Fuel Storage Bins (DC-5)	047	1, 4, & 5	99.5%	0.0042	5	a, b
Railcar Unloader, Limestone Transfer Points (LDC-1)	048	1, 4, & 5	99.5%	0.012	5	a, b
Limestone Loadout Facility (LDC-2)	049	1, 4, & 5	99.5%	0.0058	5	a, b
Limestone Reclaim Hopper, Transfer Points (3DC-01)	050	1, 4, & 5	99.5%	0.0003	5	a, b
Limestone Silo (1DC-01)	051	1, 4, & 5	99.5%	0.0003	5	a, b, d

Table 1, SJRPP Materials Handling Operations

Emissions Unit	EU ID#	AQCS	Control Efficiency	PM (lb/hr)	Opacity (%)	Monitoring/ Testing Protocol
Limestone Silo (2DC-01)	051	1, 4, & 5	99.5%	0.0003	5	a, b, d
Quick Lime Silo	052	4 & 5	99.5%	0.023	5	a, b
Non-Saleable Ash Silo U#1-A	053	4 & 5	99.5%	0.017	5	a, b, d
Non-Saleable Ash Silo U#2-A	053	4 & 5	99.5%	0.017	5	a, b, d
Saleable Ash Silo 1A	054	4 & 5	99.5%	0.034	5	a, b, d
Saleable Ash Silo 1B	054	4 & 5	99.5%	0.034	5	a, b, d
Saleable Ash Silo 2A	054	4 & 5	99.5%	0.034	5	a, b, d
Saleable Ash Silo 2B	054	4 & 5	99.5%	0.034	5	a, b, d

Notes:

The Air Quality Control System (AQCS) descriptions used to meet the emissions limitations include the following:

- Use of Conditioned Materials (i.e., Materials with moisture content above 3.5 percent by weight)
- Use of Wet Suppressions Technologies (i.e., application of wetting agents, chemicals, or water as required)
- Use of Water Sprays (as required)
- Enclosures (i.e., Total, Partial, Covers, & Wind Screens)
- Dust Collection Systems (as required during operation of material handling systems)
- Best Operating Practices (as required)

Monitoring and Testing Protocol:

- a. Inspection (and repair, as needed) as least once per year.
- b. Record keeping regarding routine inspection and repairs.
- c. Implementation of best operating practices regarding application of wet suppression, water sprays.
- d. Annual visible emission test - Method 9.

### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section     1    

SJRPP - Materials Handling & Storage Operations

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

- This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

III. Part 1 - 1

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**B. GENERAL EMISSIONS UNIT INFORMATION  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section :  SJRPP - Materials Handling & Storage Operations		
2. Emissions Unit Identification Number : 023 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment :  The revised emissions unit covers the non-point sources including ship unloading operations, the transfer operations, the conveyor belts, loadout operations (railcar, truck, & stackers), reclaim operations (limestone reclaimer, emergency reclaim hoppers, petroleum coke reclaim system, reclaimers, and truck loading), storage piles (coal, petroleum coke, limestone, and gypsum), cooling towers and storage areas (ash disposal and gypsum).		



**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      1

1. Description : EU023a Railcar Rotary Dumper Conditioned Materials, Partial Enclosure, and Water Sprays
2. Control Device or Method Code :      61

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      2

1. Description :	
EU023b Emergency Reclaim Hoppers Conditioned Materials	
2. Control Device or Method Code :	62

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      3

1. Description :

Ship Unloading Operations

EU023c & d

Partial Enclosures, Conditioned Materials, & Water Sprays

2. Control Device or Method Code :      61

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**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      4

1. Description : EU023e Transfer Stations & Fuel Transfer Building/Emergency Stackout Partial Enclosures, Conditioned Materials, & Water Sprays Figure EU028f
2. Control Device or Method Code :      61

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      5

1. Description :	
Stacker & Reclaimers	
EU023f	
Conditioned Materials & Water Sprays	
2. Control Device or Method Code :	61

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      6

1. Description :	
Reclaim Hoppers	
EU023g	
Conditioned Materials	
2. Control Device or Method Code :	62

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      7

1. Description :	
Limestone Railcar Dumper	
EU023h	
Conditioned Materials, Partial Enclosure, & Water Sprays	
2. Control Device or Method Code :	61

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      8

1. Description :	
Limestone Loadouts (Truck or Railcar)	
EU023i	
Conditioned Materials	
2. Control Device or Method Code :	62



**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      9

1. Description :	
Limestone Truck Loadout - Area #2	
EU023j	
Conditioned Materials	
2. Control Device or Method Code :	62

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      10

1. Description :	
Coal, Petroleum Coke, Limestone, Gypsum, and Disposal Ash	
EU023k	
Conditioned Materials & Water Sprays	
2. Control Device or Method Code :	62

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      11

1. Description :	
Fly Ash & Bottom Ash Loadouts	
EU0231	
Conditioned Materials, wet suppression, & Partial Enclosure	
2. Control Device or Method Code :	62

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      12

1. Description :	
Gypsum Dewatering Building	
EU023m	
Partial Enclosure & Conditioned Materials	
2. Control Device or Method Code :	62

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      13

1. Description :	
Gypsum Storage Building	
EU023n	
Partial Enclosure & Conditioned Materials	
2. Control Device or Method Code :	62

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      14

1. Description :	
Gypsum Truck Loadout	
EU023o	
Conditioned Materials	
2. Control Device or Method Code :	62

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      15

1. Description :	
Unpaved Roads	
EU023p	
Water Sprays	
2. Control Device or Method Code :	61

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Emissions Unit Control Equipment**      16

1. Description :	
EU023q Cooling Towers	
2. Control Device or Method Code :	15



**C. EMISSIONS UNIT DETAIL INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**          1      
 SJRPP - Materials Handling & Storage Operations

**Emissions Unit Details**

1. Initial Startup Date :	06-Aug-1986
2. Long-term Reserve Shutdown Date :	
3. Package Unit : Manufacturer :	Model Number :
4. Generator Nameplate Rating :	MW
5. Incinerator Information :	
Dwell Temperature :	Degrees Fahrenheit
Dwell Time :	Seconds
Incinerator Afterburner Temperature :	Degrees Fahrenheit

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate :	mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr                      tons/day
3. Maximum Process or Throughput Rate :	0
4. Maximum Production Rate :	
5. Operating Capacity Comment :	
See Process Flow Diagrams for individual rates.	

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**     1      
SJRPP - Materials Handling & Storage Operations

**Rule Applicability Analysis**

These activities were subject to PSD Review including the application of BACT which was set as a 10% opacity limit on fugitive dust emissions.

In addition, some of the activities are subject to NSPS Subpart OOO for the overland conveyor system's transfer points when handling limestone and to NSPS Subpart Y for the coal handling operations (Conveyors & Transfer Points but not the the open storage piles).

**List of Applicable Regulations**

40 CFR 60.7 Notification and Recordkeeping

40 CFR 60.8 Performance Tests

40 CFR 60.11 Compliance with Standard and Maintenance Requirements

40 CFR 60.12 Circumvention

40 CFR 60.13 Monitoring Requirements

40 CFR 60.19 General Notifications and Reporting Requirements

40 CFR 60 Subpart Y- Standards of Performance for Coal Preparation Plants

Rule 62-204.800(7)(b)31., F.A.C., Adoption of 40 CFR 60 Subpart Y

Rule 62-204.800(7)(c), F.A.C., NSPS Controlling Standards

Rule 62-210.300(1), F.A.C., Air Construction Permits

Rule 62-210.650 Circumvention, F.A.C.

Rule 62-210.700(1), (4) & (6), F.A.C. Excess Emissions

62-297.310 General Test Requirements

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**Emissions Unit Information Section**      1  
SJRPP - Materials Handling & Storage Operations

**List of Applicable Regulations**

62-204.800(7)(d), F.A.C., Adoption of the General Provisions (As Noted)

62-204.800(7)(e), F.A.C., Adoption of the NSPS Appendices (As Noted)

Rule 62-210.350(1) & (2), F.A.C. Public Notice and Comment

Rule 62-210.550, F.A.C., Stack Height Policy

Rule 62-212.300, F.A.C., General Preconstruction Review Requirements

Rule 62-297.401(5) & (9), F.A.C.

40 CFR 60.250(a) Applicability and Designation of Affected Facility

40 CFR 60.252(c) Standards for Particulate Matter (To the Extent Applicable)

40 CFR 60.254(b)(2) Test Methods and Procedures

Rule 62-204.800(7)(b)64., F.A.C., Adoption of 40 CFR 60 Subpart OOO (As Noted)

40 CFR 60 Subpart OOO - Standards of Performance for Nonmetallic-Mineral Processing Plants

40 CFR 60.670(a)(1) Applicability and Designation of Affected Facilities (Transfer Points)

40 CFR 60.672(b) Standard for Particulate Matter

III. Part 6b - 2

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**Emissions Unit Information Section**          1      
SJRPP - Materials Handling & Storage Operations

**List of Applicable Regulations**

40 CFR 60.675(a), (b)(2) & (c), (g), & (h) Test Methods & Procedures

40 CFR 60.676 Reporting and Recordkeeping

Jacksonville Environmental Protection Board, Rule 2 - Air Pollution (As Noted)

Rule 2.201, Adoption of Chapter 62-204, F.A.C., (As Noted)

Rule 2.301, Adoption of Chapter 62-210, F.A.C., (As Noted)

Rule 2.1101, Adoption of Chapter 62-297, F.A.C., (As Noted)

Rule 2.105, Maintenance of Air Pollution Control Devices

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 1

SJRPP - Materials Handling & Storage Operations

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	EU023a-EU023p
2. Emission Point Type Code :	4
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking : (limit to 100 characters per point)	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :  See Figure SJRPP-01 along with the individual process flow diagrams associated EU023.	
5. Discharge Type Code :	F
6. Stack Height :	0 feet
7. Exit Diameter :	0.0 feet
8. Exit Temperature :	0 °F
9. Actual Volumetric Flow Rate :	0 acfm
10. Percent Water Vapor :	0.00 %
11. Maximum Dry Standard Flow Rate :	0 dscfm
12. Nonstack Emission Point Height :	0 feet
13. Emission Point UTM Coordinates :	
Zone : 17	East (km) : 0.000
	North (km) : 0.000
14. Emission Point Comment :	

III. Part 7a - 1

## F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

SJRPP - Materials Handling & Storage Operations

**Segment Description and Rate :** Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Coal See Flow Diagrams for individual transfer rates.	
2. Source Classification Code (SCC) : 30501099	
3. SCC Units : Tons Transferred Or Handled	
4. Maximum Hourly Rate : 0.00	5. Maximum Annual Rate :
6. Estimated Annual Activity Factor : 100.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 1

**F. SEGMENT (PROCESS/FUEL) INFORMATION**

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Segment Description and Rate :**      Segment 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Petroleum Coke See Flow Diagrams for individual transfer rates.	
2. Source Classification Code (SCC) :      30501099	
3. SCC Units :      Tons Transferred Or Handled	
4. Maximum Hourly Rate :      0.00	5. Maximum Annual Rate :
6. Estimated Annual Activity Factor :      100.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 2

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96



## F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

SJRPP - Materials Handling & Storage Operations

**Segment Description and Rate :** Segment 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Limestone See Flow Diagrams for individual transfer rates.	
2. Source Classification Code (SCC) : 30501099	
3. SCC Units : Tons Transferred Or Handled	
4. Maximum Hourly Rate : 0.00	5. Maximum Annual Rate :
6. Estimated Annual Activity Factor : 100.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 3

**F. SEGMENT (PROCESS/FUEL) INFORMATION**

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Segment Description and Rate :**      Segment 4

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Gypsum See Flow Diagrams for individual transfer rates.	
2. Source Classification Code (SCC) :      30501099	
3. SCC Units :      Tons Transferred Or Handled	
4. Maximum Hourly Rate :      0.00	5. Maximum Annual Rate :
6. Estimated Annual Activity Factor :      100.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 4

## F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

SJRPP - Materials Handling & Storage Operations

**Segment Description and Rate :** Segment 5

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Bottom Ash See Flow Diagrams for individual transfer rates.	
2. Source Classification Code (SCC) : 30501099	
3. SCC Units : Tons Transferred Or Handled	
4. Maximum Hourly Rate : 0.00	5. Maximum Annual Rate :
6. Estimated Annual Activity Factor : 100.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 5

**F. SEGMENT (PROCESS/FUEL) INFORMATION**

**Emissions Unit Information Section**      1

SJRPP - Materials Handling & Storage Operations

**Segment Description and Rate :**      Segment 6

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Fly Ash See Flow Diagrams for individual transfer rates.	
2. Source Classification Code (SCC) :      30501099	
3. SCC Units :      Tons Transferred Or Handled	
4. Maximum Hourly Rate :      0.00	5. Maximum Annual Rate :
6. Estimated Annual Activity Factor :      100.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

**G. EMISSIONS UNIT POLLUTANTS**  
**(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section** 1  
SJRPP - Materials Handling & Storage Operations

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM10			WP
2 - PM			WP

III. Part 9a - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section**       1    
SJRPP - Materials Handling & Storage Operations

**Pollutant Potential/Estimated Emissions :**     Pollutant       1  

1. Pollutant Emitted : <b>PM10</b>		
2. Total Percent Efficiency of Control :		%
3. Potential Emissions :	lb/hour	tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions:	to	tons/year
6. Emissions Factor Reference    AP-42	Units	
7. Emissions Method Code :    3		
8. Calculations of Emissions :  See Attachment EU023-05 for Emission Estimates		
9. Pollutant Potential/Estimated Emissions Comment :		

III. Part 9b - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section**      1    
SJRPP - Materials Handling & Storage Operations

**Pollutant Potential/Estimated Emissions :**    Pollutant      2  

1. Pollutant Emitted : <b>PM</b>		
2. Total Percent Efficiency of Control :		%
3. Potential Emissions :	lb/hour	tons/year
4. Synthetically Limited? [   ] Yes            [X ] No		
5. Range of Estimated Fugitive/Other Emissions:	to	tons/year
6. Emissions Factor Reference	Units	
7. Emissions Method Code :    3		
8. Calculations of Emissions :  See Attachment EU023-05 for Emissions Estimates		
9. Pollutant Potential/Estimated Emissions Comment :		

**Emissions Unit Information Section** \_\_\_\_\_

**Pollutant Information Section** \_\_\_\_\_

**Allowable Emissions** \_\_\_\_\_

1. Basis for Allowable Emissions Code :
2. Future Effective Date of Allowable Emissions :
3. Requested Allowable Emissions and Units :
4. Equivalent Allowable Emissions : <p style="text-align: right;">lb/hour    tons/year</p>
5. Method of Compliance :
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :

III. Part 9c - 1



**I. VISIBLE EMISSIONS INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**   1    
SJRPP - Materials Handling & Storage Operations

**Visible Emissions Limitation :** Visible Emissions Limitation   1  

1. Visible Emissions Subtype :	10
2. Basis for Allowable Opacity :	RULE
3. Requested Allowable Opacity :	Normal Conditions : 10 % Exceptional Conditions : 100 % Maximum Period of Excess Opacity Allowed : min/hour
4. Method of Compliance :	EPA Method 9
5. Visible Emissions Comment :	See Individual Process Flow Diagrams for Requested VE Limitations.

**I. VISIBLE EMISSIONS INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**   1    
SJRPP - Materials Handling & Storage Operations

**Visible Emissions Limitation :** Visible Emissions Limitation   2  

1. Visible Emissions Subtype :	5									
2. Basis for Allowable Opacity :	RULE									
3. Requested Allowable Opacity :	<table style="width: 100%; border: none;"><tr><td style="text-align: right; padding-right: 20px;">Normal Conditions :</td><td style="text-align: center;">5</td><td style="text-align: right;">%</td></tr><tr><td style="text-align: right; padding-right: 20px;">Exceptional Conditions :</td><td style="text-align: center;">100</td><td style="text-align: right;">%</td></tr><tr><td style="text-align: right; padding-right: 20px;">Maximum Period of Excess Opacity Allowed :</td><td></td><td style="text-align: right;">min/hour</td></tr></table>	Normal Conditions :	5	%	Exceptional Conditions :	100	%	Maximum Period of Excess Opacity Allowed :		min/hour
Normal Conditions :	5	%								
Exceptional Conditions :	100	%								
Maximum Period of Excess Opacity Allowed :		min/hour								
4. Method of Compliance :	EPA Method 9									
5. Visible Emissions Comment :	As Read at the Property Line See Individual Process Flow Diagrams for Requested VE Limitations.									

**J. CONTINUOUS MONITOR INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**

III. Part 11 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION**

**Emissions Unit Information Section**        1  

SJRPP - Materials Handling & Storage Operations

**PSD Increment Consumption Determination**

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.

The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

- The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :		
PM : C	SO2 :	NO2 :
4. Baseline Emissions :		
PM :	lb/hour	tons/year
SO2 :	lb/hour	tons/year
NO2 :		tons/year
5. PSD Comment :		

## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

### Emissions Unit Information Section 1

SJRPP - Materials Handling & Storage Operations

#### Supplemental Requirements for All Applications

1. Process Flow Diagram :	EU023-01
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	EU023-02
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	EU023-03
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	EU023-05
9. Other Information Required by Rule or Statue :	NA

#### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alternative Modes of Operation (Emissions Trading) :

III. Part 13 - 1

12. Identification of Additional Applicable Requirements :

13. Compliance Assurance Monitoring  
Plan :

14. Acid Rain Application (Hard-copy Required) :

Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))

Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)

New Unit Exemption (Form No. 62-210.900(1)(a)2.)

Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

III. Part 13 - 2

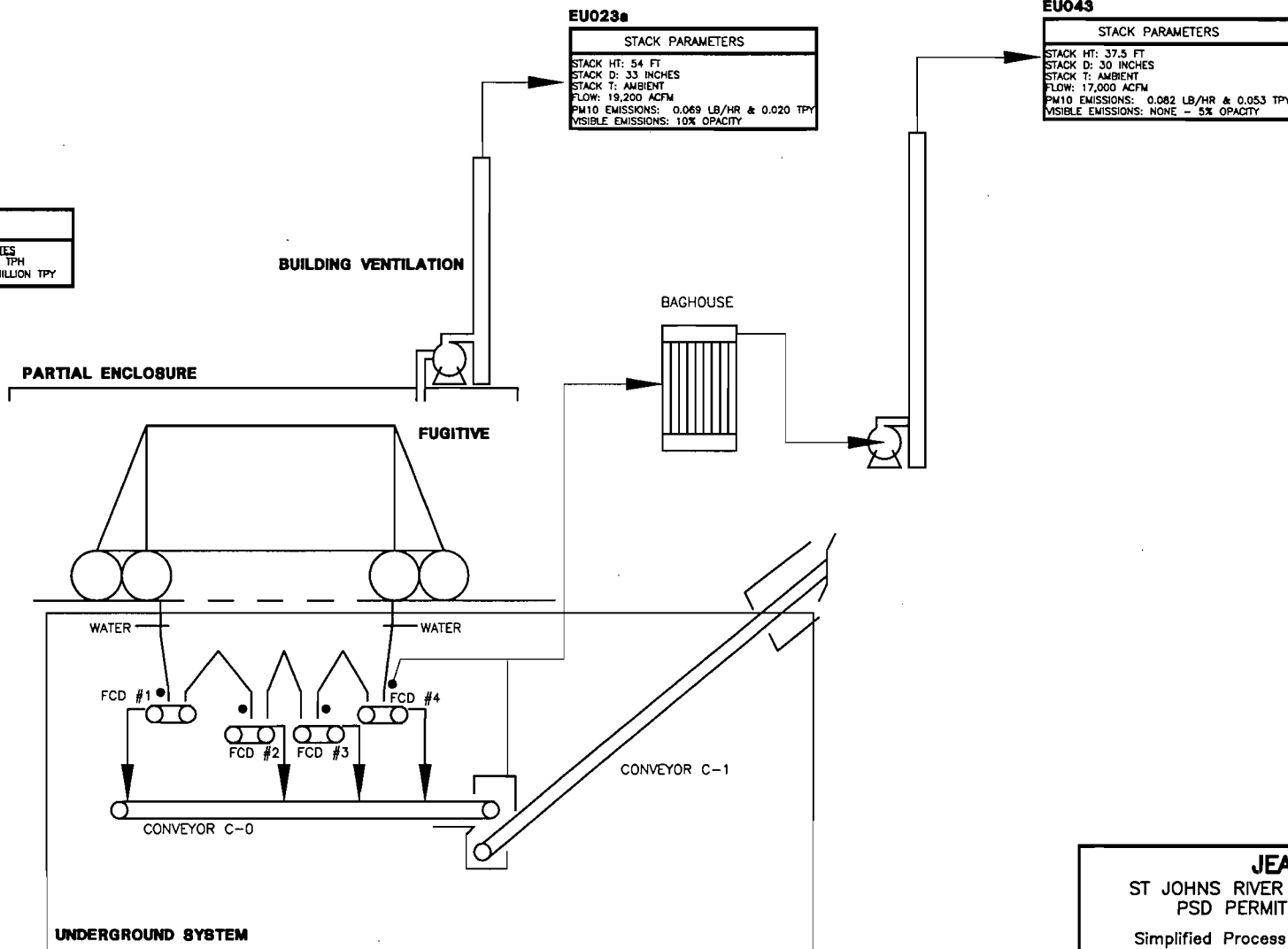
**EMISSIONS UNIT EU023**  
**Materials Handling & Storage Operations**

**ATTACHMENT EU023-01**  
**Process Flow Diagrams & Figure SJFPP01**



# ST JOHNS RIVER POWER PARK ROTARY RAILCAR DUMPER ATTACHMENT EU023a-01

HANDLING RATES
SJRRP THROUGHPUT RATES UNLOADING RATE: 4,000 TPH COAL/PET. COKE: 5.2 MILLION TPY



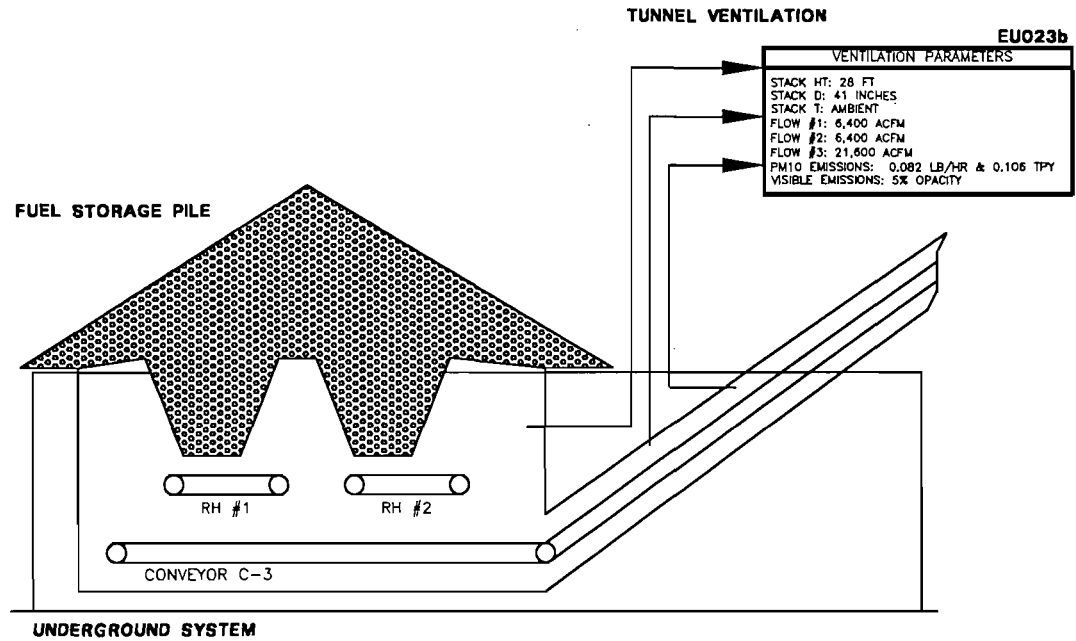
EU023a
STACK PARAMETERS
STACK HT: 54 FT STACK D: 33 INCHES STACK T: AMBIENT FLOW: 19,200 ACFM PM10 EMISSIONS: 0.069 LB/HR & 0.020 TPY VISIBLE EMISSIONS: 10% OPACITY

EU043
STACK PARAMETERS
STACK HT: 37.5 FT STACK D: 30 INCHES STACK T: AMBIENT FLOW: 17,000 ACFM PM10 EMISSIONS: 0.082 LB/HR & 0.053 TPY VISIBLE EMISSIONS: NONE - 5% OPACITY

NOTE: COVERS ON CONVEYORS

<b>JEA</b>			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 023a			
<b>F</b> FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED CHECKED DATE: 04/29/99	DJG MAE DJG	CAD FILE NO. EU023aPF.DWG FIGURE NO. EU023a-01

# ST JOHNS RIVER POWER PARK EMERGENCY RECLAIM HOPPERS ATTACHMENT EU023b-01

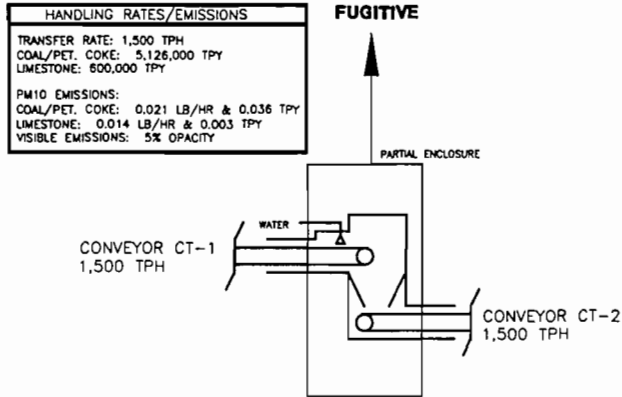


NOTE: COVERS ON CONVEYORS

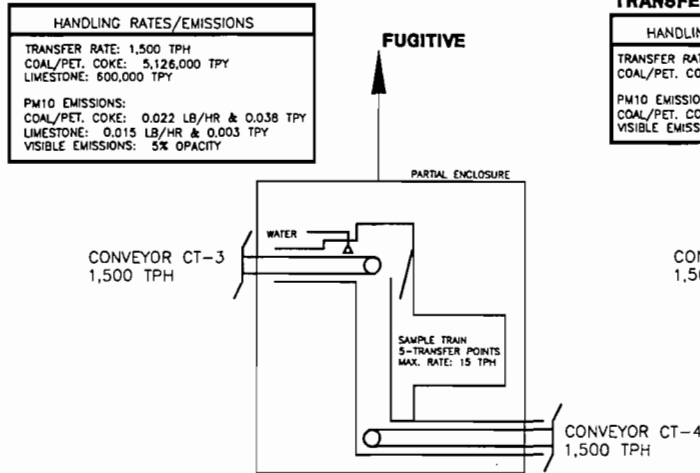
<b>JEA</b>			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram			
Emissions Unit ID 023b			
<b>F</b> FORTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023bPF.DWG	
DATE: 04/08/99	CHECKED MAE	FIGURE NO. EU023b-01	
	APPROVED DJF		

# ST JOHNS RIVER POWER PARK TRANSFER STATIONS ATTACHMENT EU023e-01a

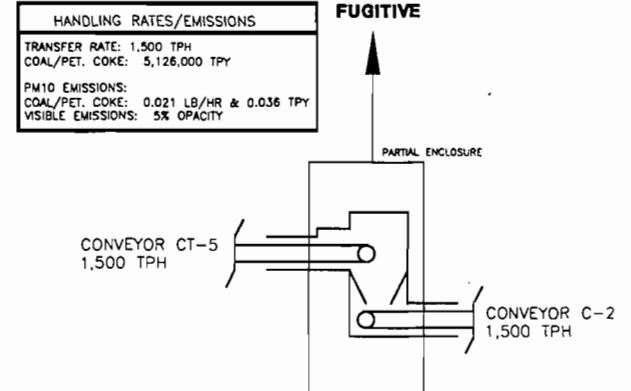
**TRANSFER STATION NO. 1**



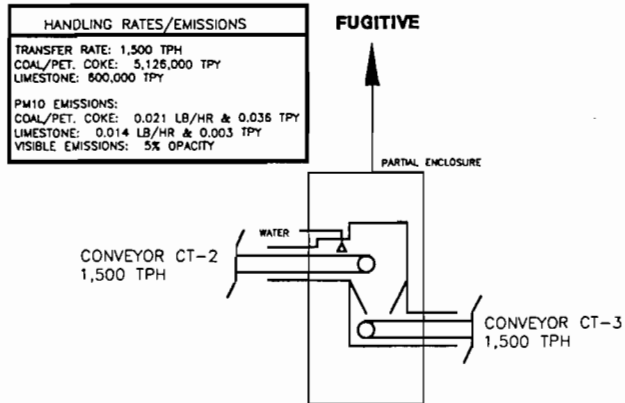
**TRANSFER STATION NO. 3**



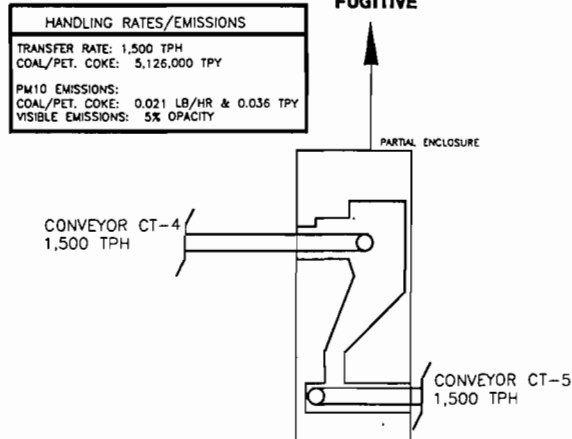
**TRANSFER STATION NO. 5**



**TRANSFER STATION NO. 2**



**TRANSFER STATION NO. 4**



NOTE: COVERS ON CONVEYORS

<b>JEA</b>			
ST JOHNS RIVER POWER PARK REPOWERING			
Simplified Process Flow Diagram Emissions Unit ID 023e			
<b>F</b> FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED DJG	CHECKED MAE	CAD FILE NO. EU023ePFq.DWG
DATE: 04/08/99	APPROVED DJF		FIGURE NO. EU023e-01a

# ST JOHNS RIVER POWER PARK TRANSFER STATIONS ATTACHMENT EU023e-01b

**TRANSFER STATION NO. 6**

HANDLING RATES/EMISSIONS
TRANSFER RATE: 2,000 TPH COAL/PET. COKE: 5,126,000 TPY
PM10 EMISSIONS: COAL/PET. COKE: 0.021 LB/HR & 0.027 TPY VISIBLE EMISSIONS: 5% OPACITY

FUGITIVE

PARTIAL ENCLOSURE

CONVEYOR C-4  
2,000 TPH

CONVEYOR CT-6  
2,000 TPH

**TRANSFER STATION NO. 7**

HANDLING RATES/EMISSIONS
TRANSFER RATE: 2,000 TPH COAL/PET. COKE: 5,126,000 TPY
PM10 EMISSIONS: COAL/PET. COKE: 0.021 LB/HR & 0.027 TPY VISIBLE EMISSIONS: 5% OPACITY

FUGITIVE

PARTIAL ENCLOSURE

CONVEYOR CT-6  
2,000 TPH

CONVEYOR CT-4  
2,000 TPH

**GYPSUM TRANSFER TOWER**

HANDLING RATES/EMISSIONS
TRANSFER RATE: 144 TPH COAL/PET. COKE: 1,261,440 TPY
PM10 EMISSIONS: GYPSUM: 0.0034 LB/HR & 0.015 TPY VISIBLE EMISSIONS: 5% OPACITY

FUGITIVE

PARTIAL ENCLOSURE

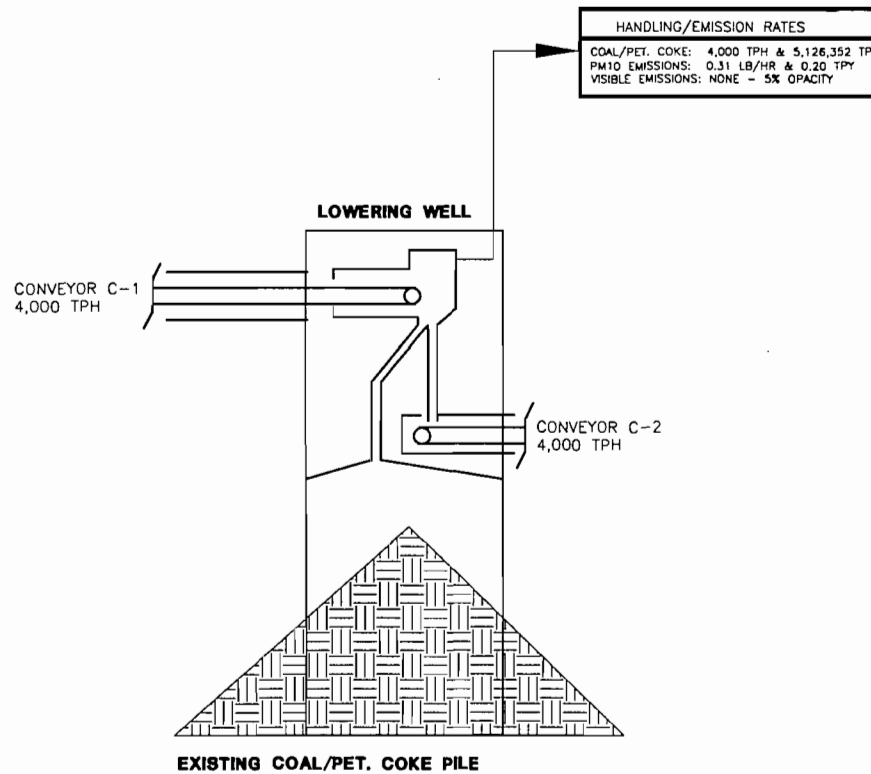
CONVEYOR 9GC-04  
144 TPH

CONVEYOR 9GC-05  
144 TPH

NOTE: COVERS ON CONVEYORS

<b>JEA</b>			
ST JOHNS RIVER POWER PARK REPOWERING			
Simplified Process Flow Diagram Emissions Unit ID 023e			
<b>FOSTER WHEELER ENVIRONMENTAL CORPORATION</b>			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023ePEP.DWG	
	CHECKED MAE	FIGURE NO.	
DATE: 04/08/99	APPROVED DJF	EU023e-01b	

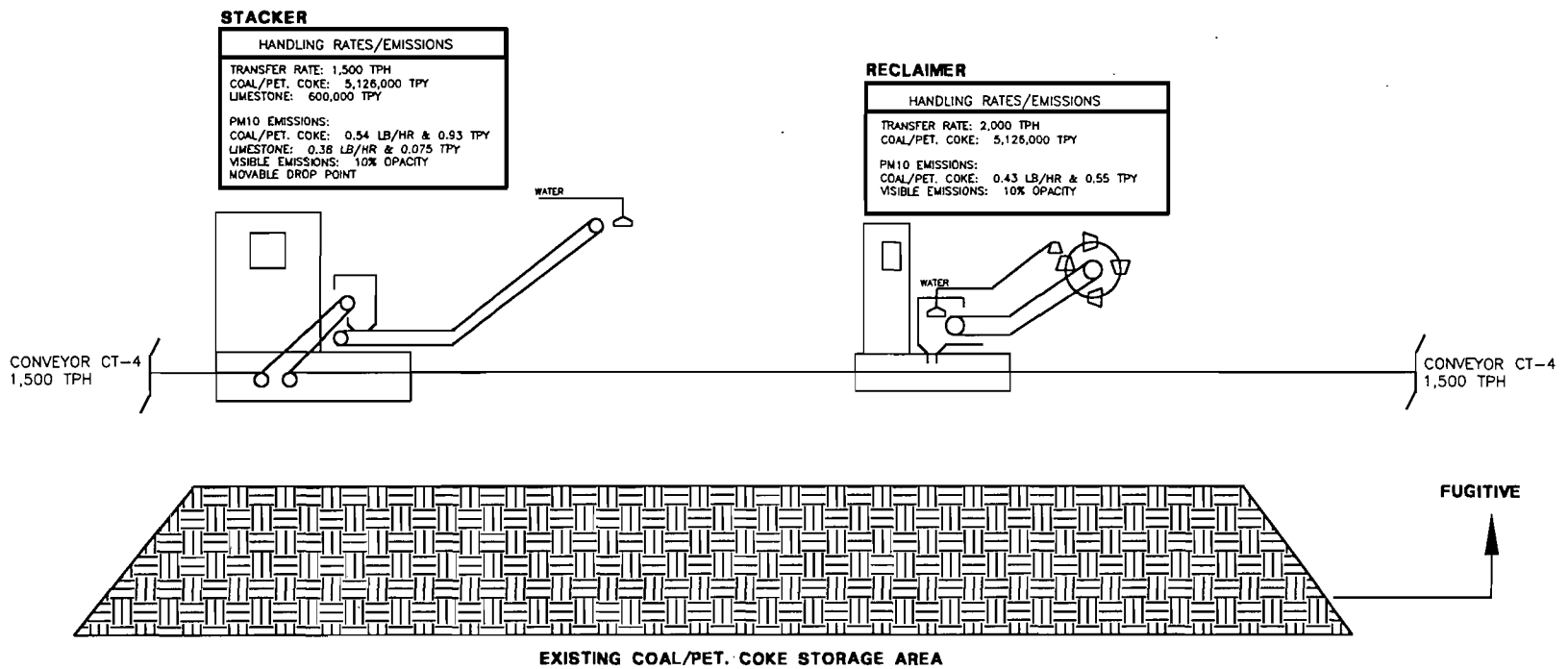
# ST JOHNS RIVER POWER PARK FUEL TRANSFER BUILDING ATTACHMENT EU023e-01c



NOTE: COVERS ON CONVEYORS

JEA		
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE		
Simplified Process Flow Diagram Emissions Unit ID 023e		
<b>FOSTER WHEELER ENVIRONMENTAL CORPORATION</b>		
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023ePFC.DWG
DATE: 04/09/99	CHECKED MAE	FIGURE NO. EU023e-01c
	APPROVED DJF	

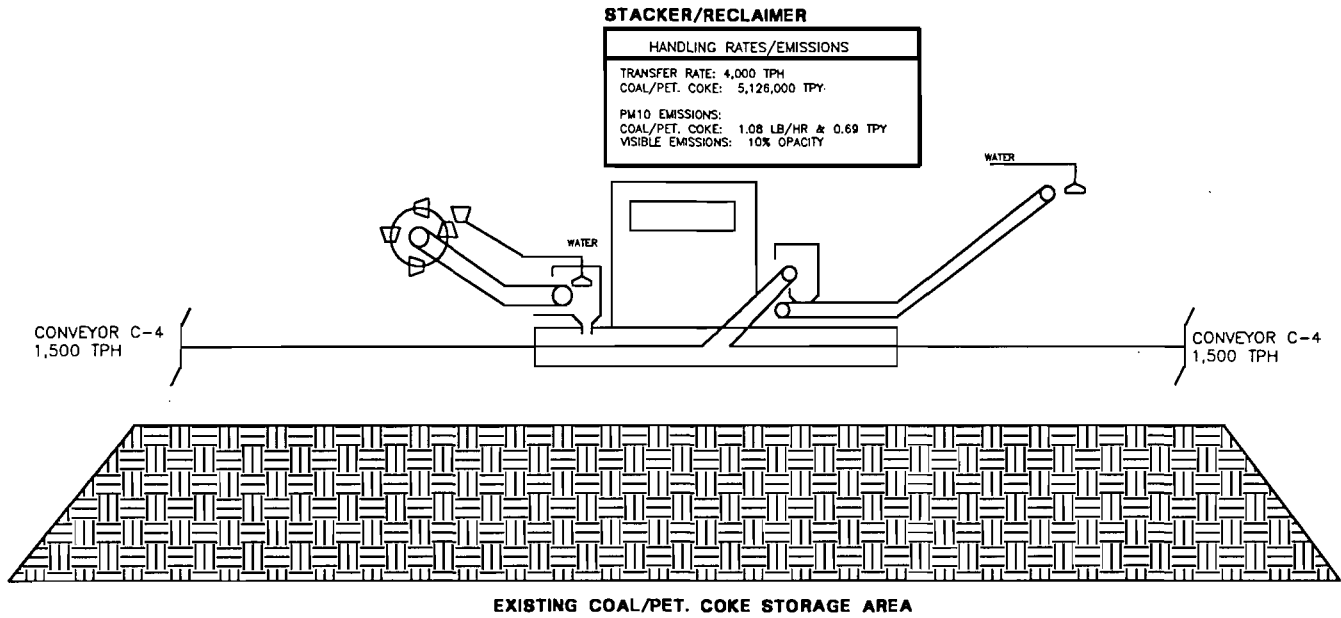
# ST JOHNS RIVER POWER PARK STACKER & RECLAIMER ATTACHMENT EU023f-01a



NOTE: WIND SCREENS ON CONVEYORS

<b>JEA</b>			
ST JOHNS RIVER POWER PARK REPOWERING			
Simplified Process Flow Diagram			
Emissions Unit ID 023f			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023fPE.dwg	
DATE: 04/08/99	CHECKED MAE	FIGURE NO. EU023f-01a	
	APPROVED DJF		

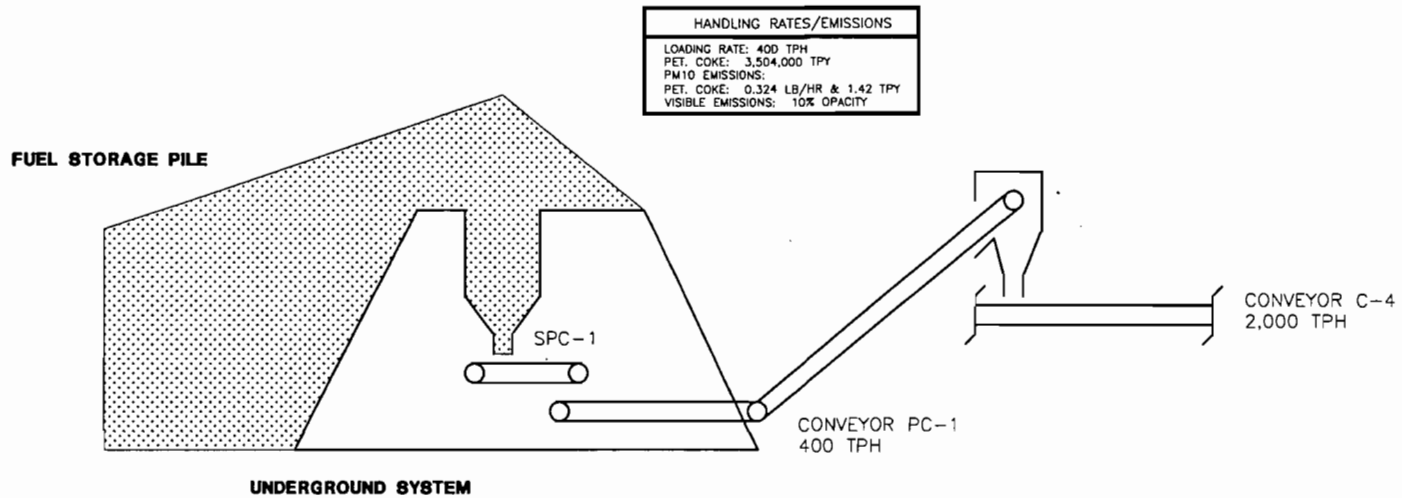
# ST JOHNS RIVER POWER PARK STACKER/RECLAIMER ATTACHMENT EU023f-01b



NOTE: WIND SCREENS ON CONVEYORS

<b>JEA</b>			
ST JOHNS RIVER POWER PARK REPOWERING			
Simplified Process Flow Diagram Emissions Unit ID 023f			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023fPFB.DWG	
DATE: 04/08/99	CHECKED MAE	FIGURE NO.	
	APPROVED DJF	EU023f-01b	

**ST JOHNS RIVER POWER PARK  
 PETROLEUM COKE RECLAIM SYSTEM  
 ATTACHMENT EU023g-01a**

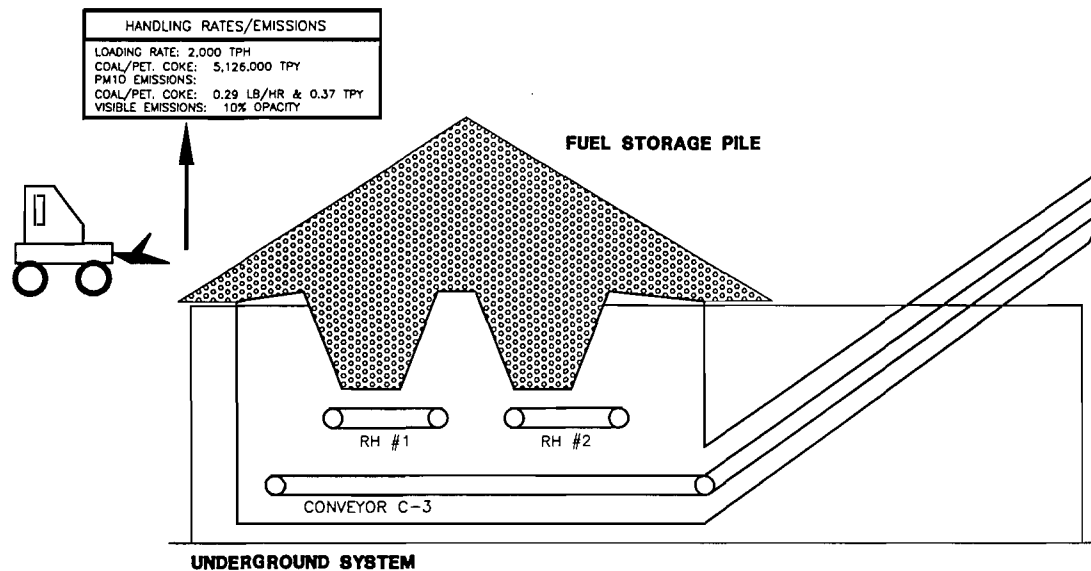


NOTE: COVERS ON CONVEYORS

<b>JEA</b>			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 023g			
<b>FOSTER WHEELER ENVIRONMENTAL CORPORATION</b>			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023gPFG.DWG	
DATE: 04/08/99	CHECKED MAE	FIGURE NO.	
	APPROVED DJF	EU023g-01a	



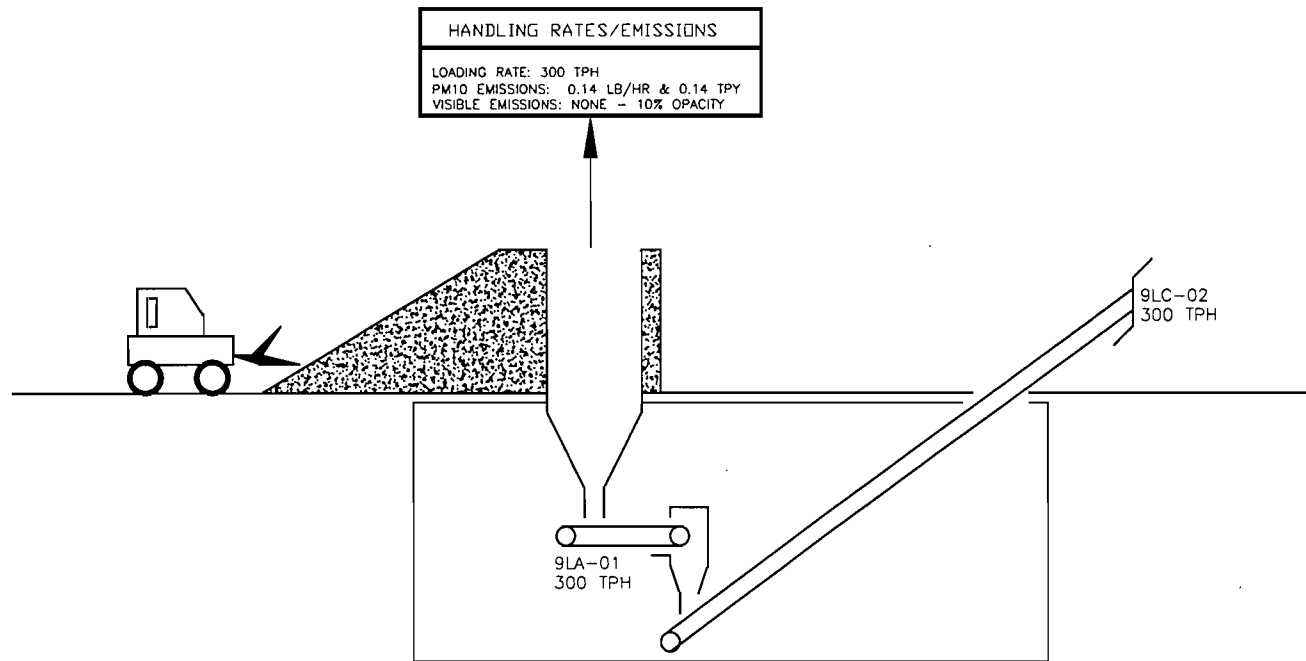
# ST JOHNS RIVER POWER PARK EMERGENCY RECLAIM HOPPERS ATTACHMENT EU023g-01b



NOTE: COVERS ON CONVEYORS

<b>JEA</b>			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 023g			
<b>F</b> FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023gPFb.DWG	
DATE: 04/08/99	CHECKED MAE	FIGURE NO. EU023g-01b	
	APPROVED DJF		

**ST JOHNS RIVER POWER PARK  
LIMESTONE RECLAIM  
ATTACHMENT EU023g-01c**

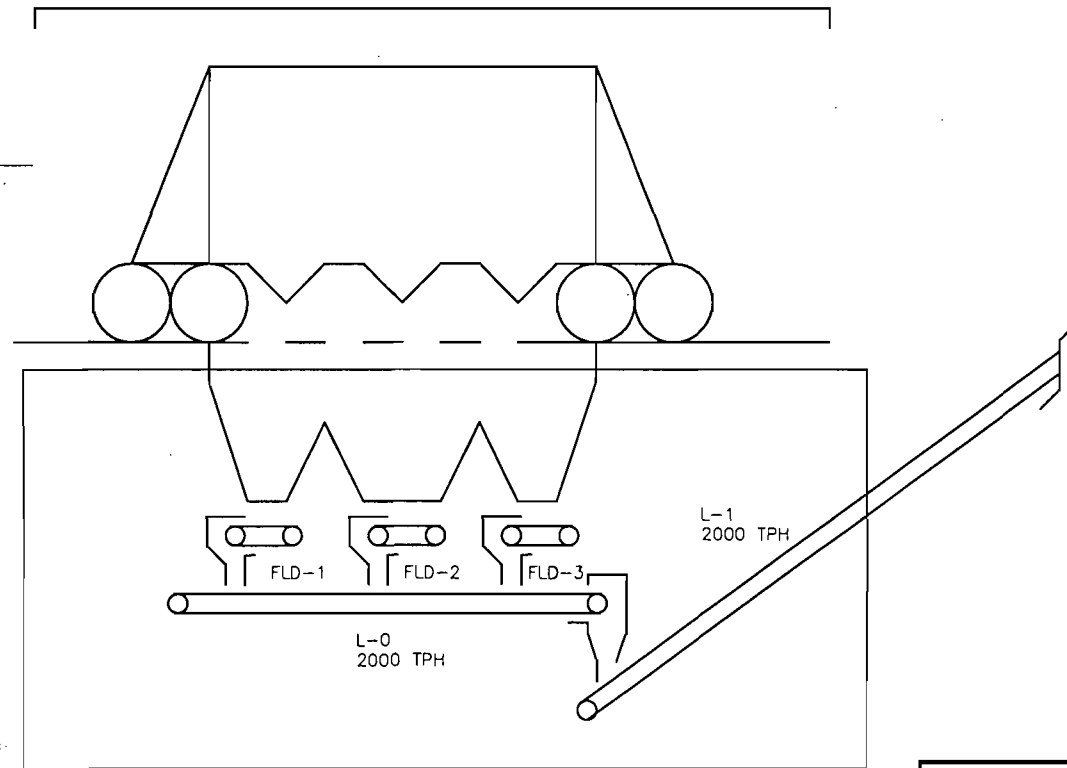


**UNDERGROUND TRANSFER SYSTEM**

<b>JEA</b>			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 023g			
<b>F</b> FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED CHECKED	DJG MAE	CAD FILE NO. EU023gPFc.DWG
DATE: 04/08/99	APPROVED	DJF	FIGURE NO. EU023g-01c

# ST JOHNS RIVER POWER PARK LIMESTONE RAILCAR DUMPER ATTACHMENT EU023h-01

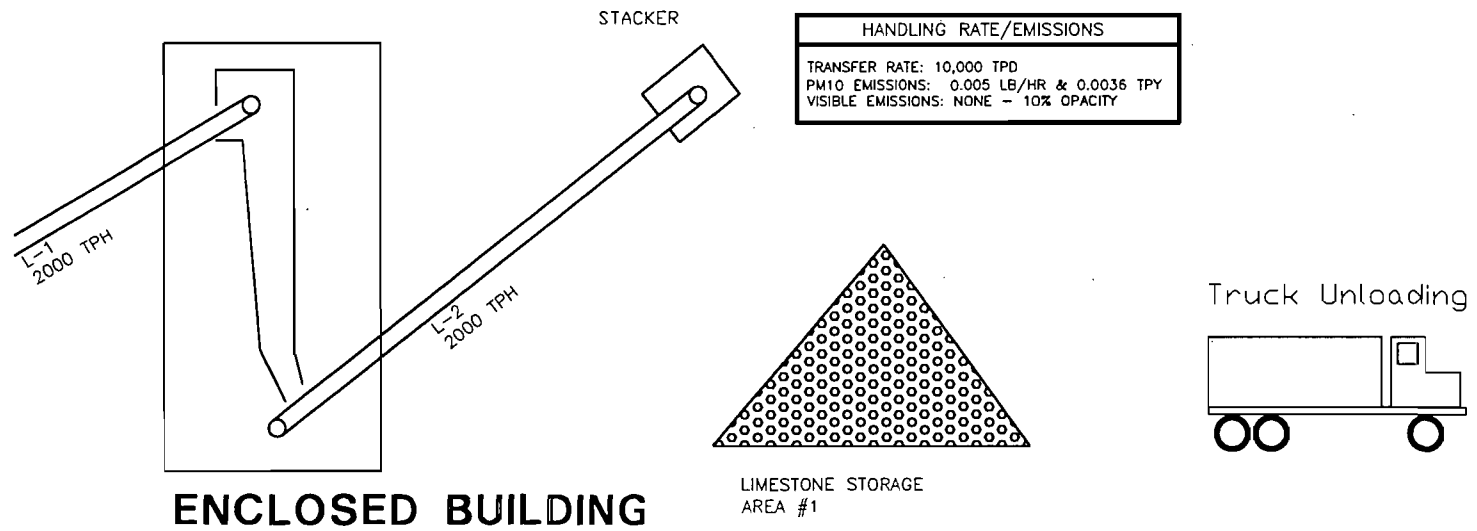
HANDLING RATES/EMISSIONS	
UNLOADING RATE:	10,000 TPD
PM10 EMISSIONS:	0.005 LB/HR & 0.004 TPD
VISIBLE EMISSIONS:	NONE - 10% OPACITY



## UNDERGROUND TRANSFER SYSTEM

<b>JEA</b>			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 023h			
<b>F</b> FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023HPF.DWG	
	CHECKED MAE	FIGURE NO. EU023h-01	
DATE: 04/08/99	APPROVED DJF		

**ST JOHNS RIVER POWER PARK  
LIMESTONE LOADOUT  
ATTACHMENT EU023i-01**



**JEA**  
ST JOHNS RIVER POWER PARK  
PSD PERMIT UPDATE

Simplified Process Flow Diagram  
Emissions Unit ID 023i

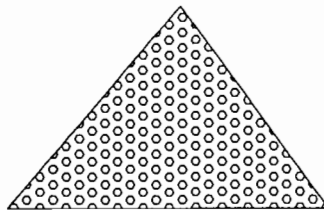
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**F** **FOBSTER WHEELER ENVIRONMENTAL CORPORATION**

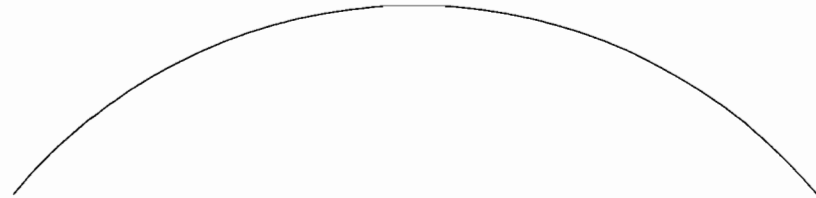
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DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023i-01
	APPROVED: DJF	

# ST JOHNS RIVER POWER PARK LIMESTONE TRUCK LOADOUT ATTACHMENT EU023j-01

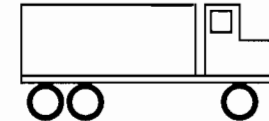
HANDLING RATE/EMISSIONS
TRANSFER RATE: 12,000 TPD
PM10 EMISSIONS: 0.099 LB/HR & 0.089 TPY
VISIBLE EMISSIONS: NONE - 10% OPACITY



LIMESTONE STORAGE  
AREA #2

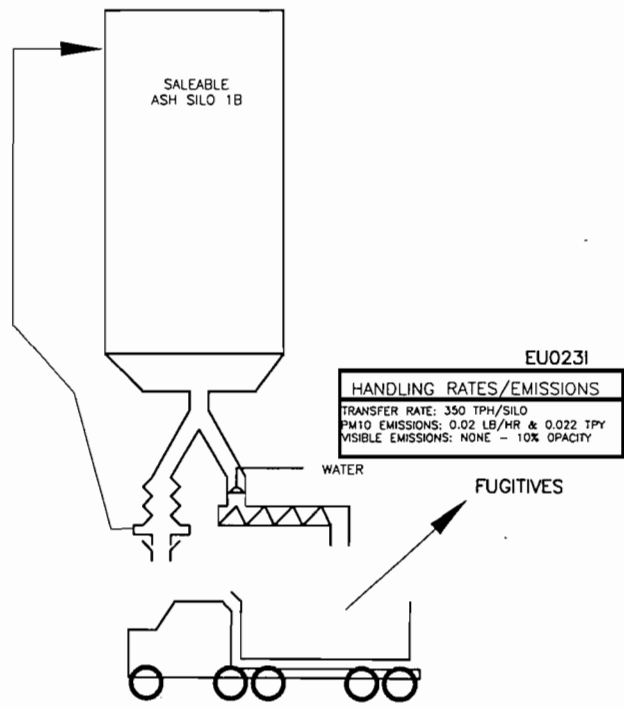
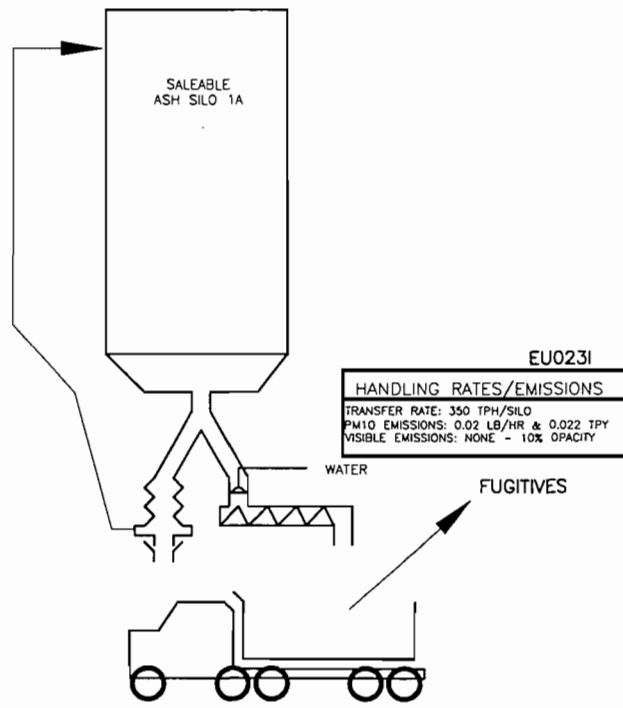


TRUCK LOADING



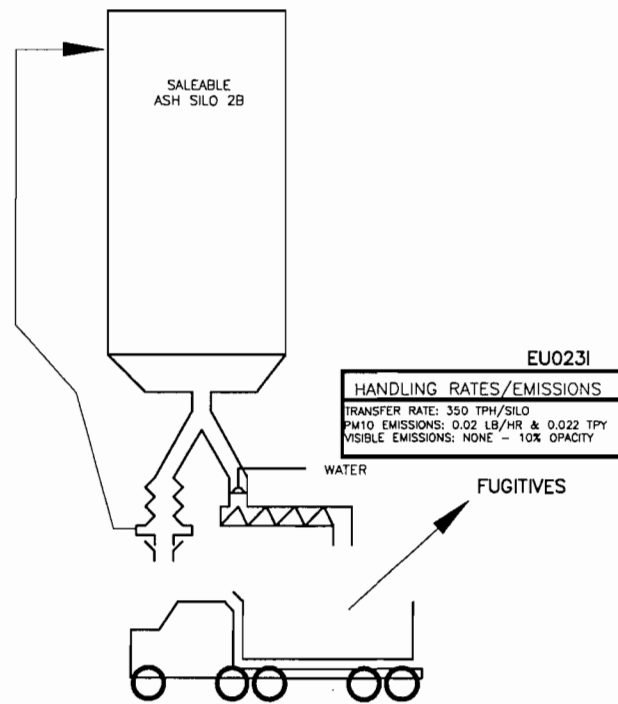
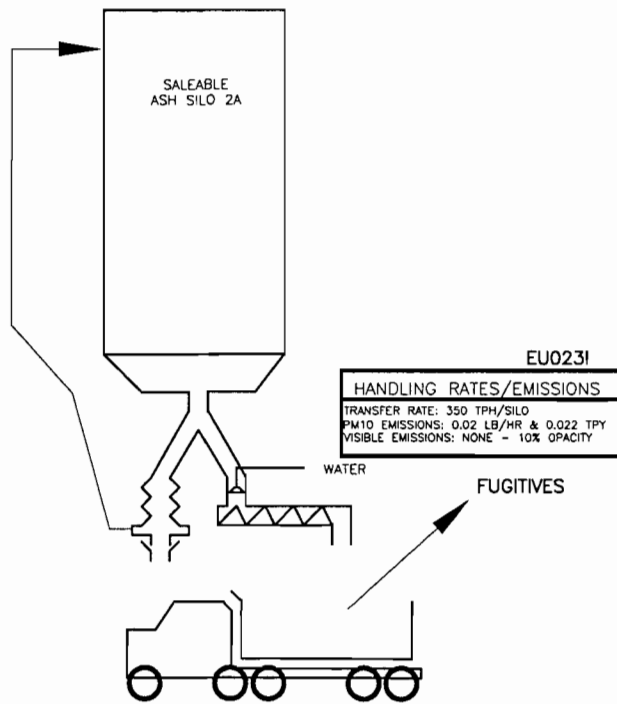
<b>JEA</b>			
ST JOHNS POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 023j			
<b>FW</b> FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023jPF.DWG	
DATE: 02/18/99	CHECKED MAE	FIGURE NO.	
	APPROVED DJF	EU023j-01	

# ST JOHNS RIVER POWER PARK UNIT 1 SALEABLE ASH SILO LOADOUTS ATTACHMENT EU023I-01a



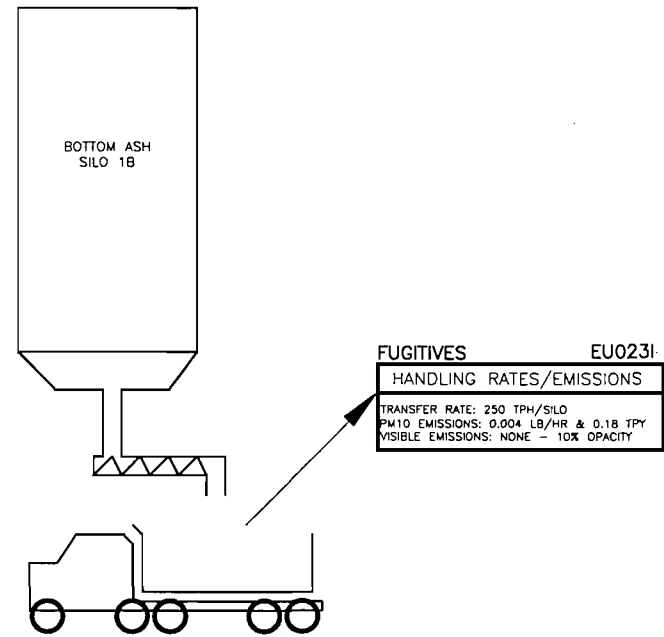
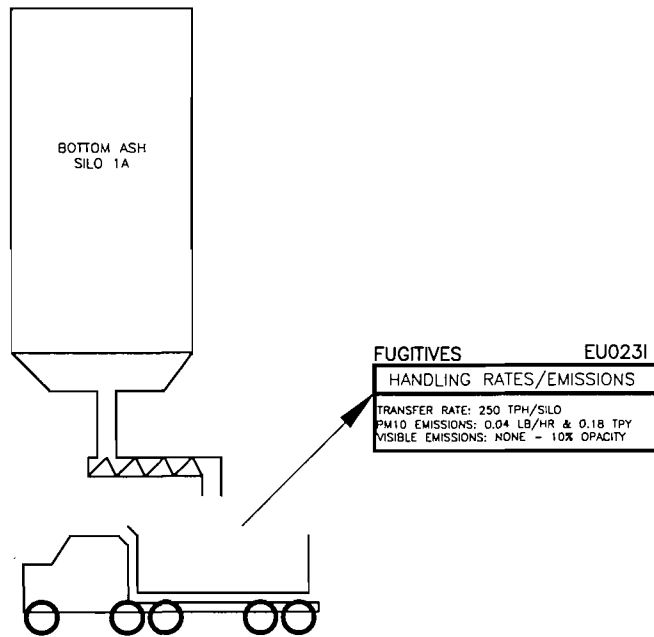
<b>JEA</b>		
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE		
Simplified Process Flow Diagram Emissions Unit ID 023I		
FOSTER WHEELER ENVIRONMENTAL CORPORATION		
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023IPFa.DWG
DATE: 04/08/99	CHECKED MAE	FIGURE NO. EU023I-01a
	APPROVED DJF	

# ST JOHNS RIVER POWER PARK UNIT 2 SALEABLE ASH SILO LOADOUTS ATTACHMENT EU023I-01b



<b>JEA</b>			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 023I			
<b>FOSTER WHEELER ENVIRONMENTAL CORPORATION</b>			
SCALE N/A	PREPARED CHECKED APPROVED	DJG MAE DJF	CAD FILE NO. EU023IPFb.DWG FIGURE NO. EU023I-01b
DATE: 04/08/99			

# ST JOHNS RIVER POWER PARK UNIT 1 BOTTOM ASH SILO LOADOUTS ATTACHMENT EU023L-01c



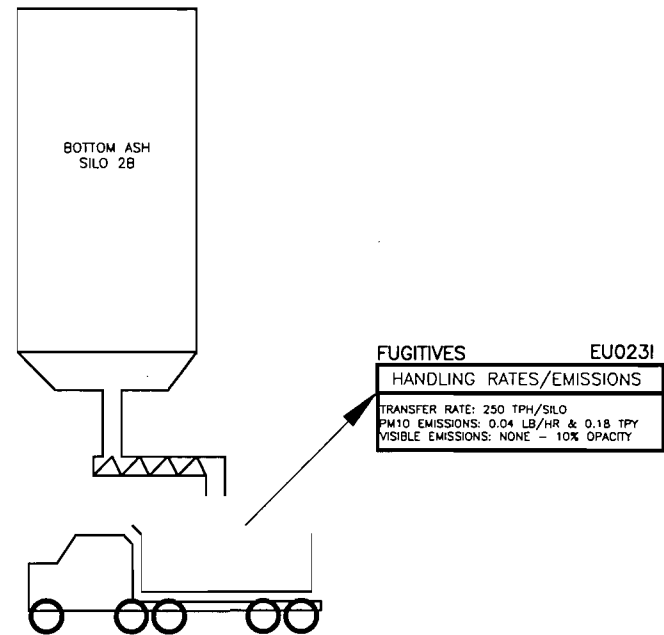
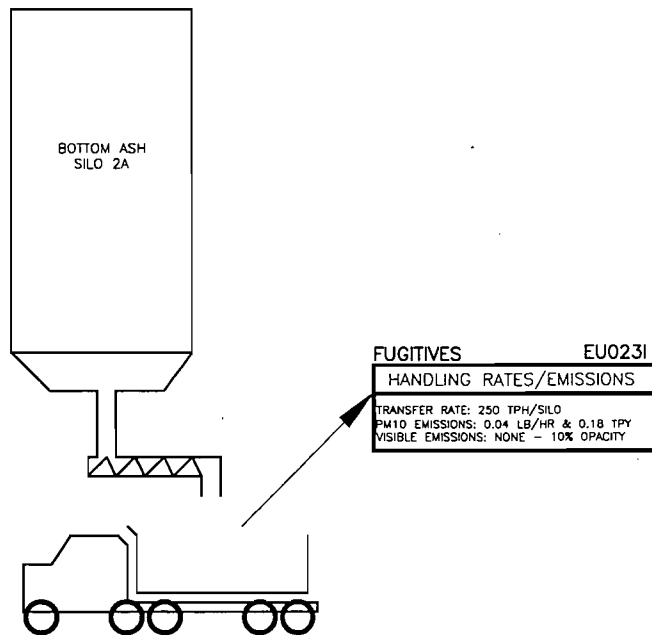
**JEA**  
ST JOHNS RIVER POWER PARK  
PSD PERMIT UPDATE

Simplified Process Flow Diagram  
Emissions Unit ID 023I

FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023IPFc.DWG	
DATE: 04/08/99	CHECKED MAE	FIGURE NO. EU023I-01c	
	APPROVED DJF		

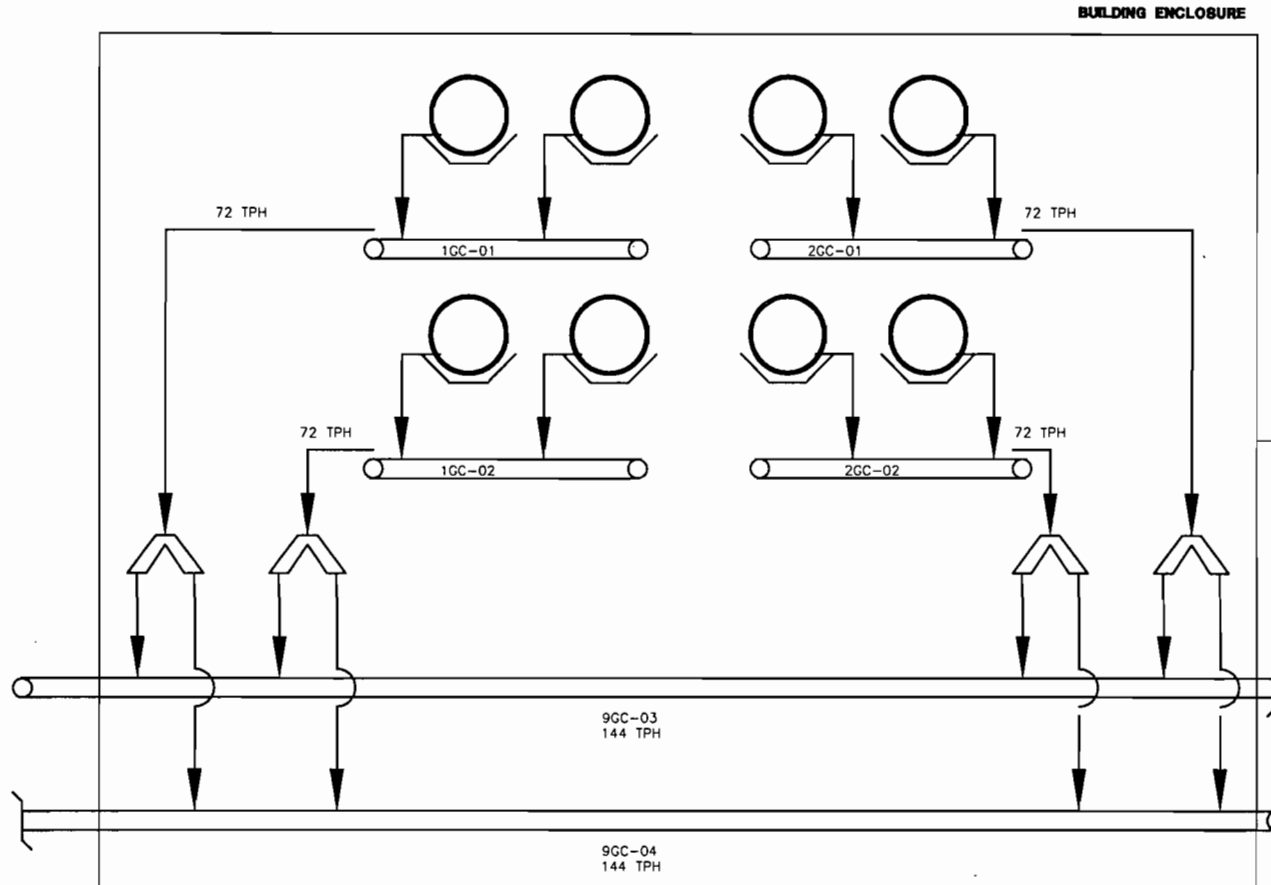


# ST JOHNS RIVER POWER PARK UNIT 2 BOTTOM ASH SILO LOADOUTS ATTACHMENT EU023I-01d



<b>JEA</b>		
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE		
Simplified Process Flow Diagram Emissions Unit ID 023I		
<b>F</b> FOSTER WHEELER ENVIRONMENTAL CORPORATION		
SCALE N/A	PREPARED DJG CHECKED MAE APPROVED DJF	CAD FILE NO. EU023IPFd.DWG FIGURE NO. EU023I-01d
DATE: 04/08/99		

# ST JOHNS RIVER POWER PARK GYPSUM DEWATERING BUILDING ATTACHMENT EU023m-01



**EU023m**

HANDLING RATES/EMISSIONS	
TRANSFER RATE:	72 TPH/FILTER
PM10 EMISSIONS:	0.02 LB/HR & 0.022 TPY
VISIBLE EMISSIONS:	NONE - 10% OPACITY

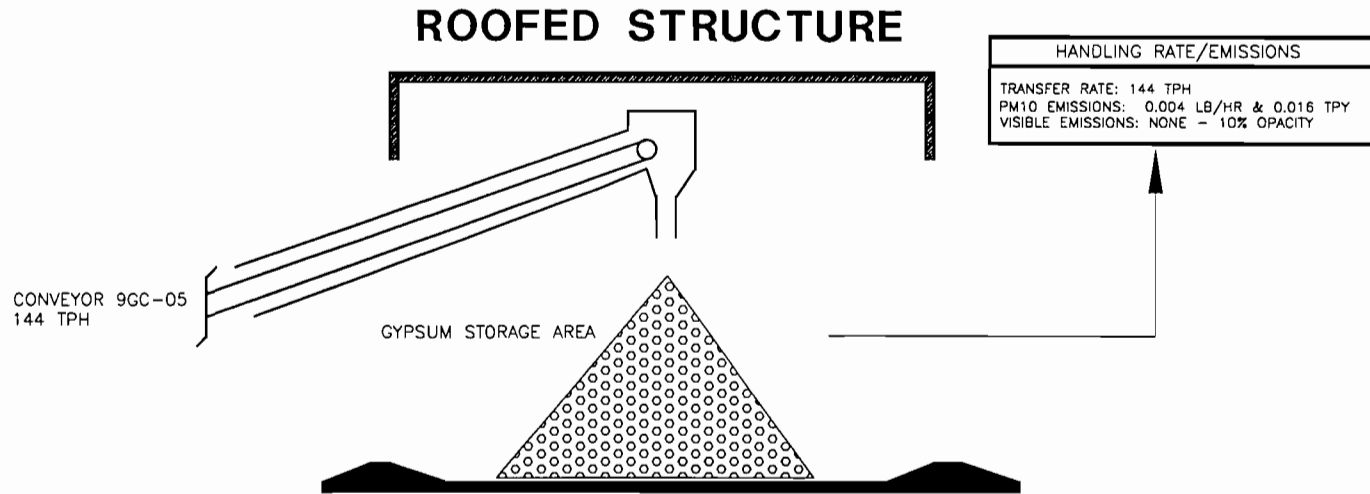
**JEA**  
ST JOHNS RIVER POWER PARK  
PSD PERMIT UPDATE

Simplified Process Flow Diagram  
Emissions Unit ID 023m

**FOSTER WHEELER ENVIRONMENTAL CORPORATION**

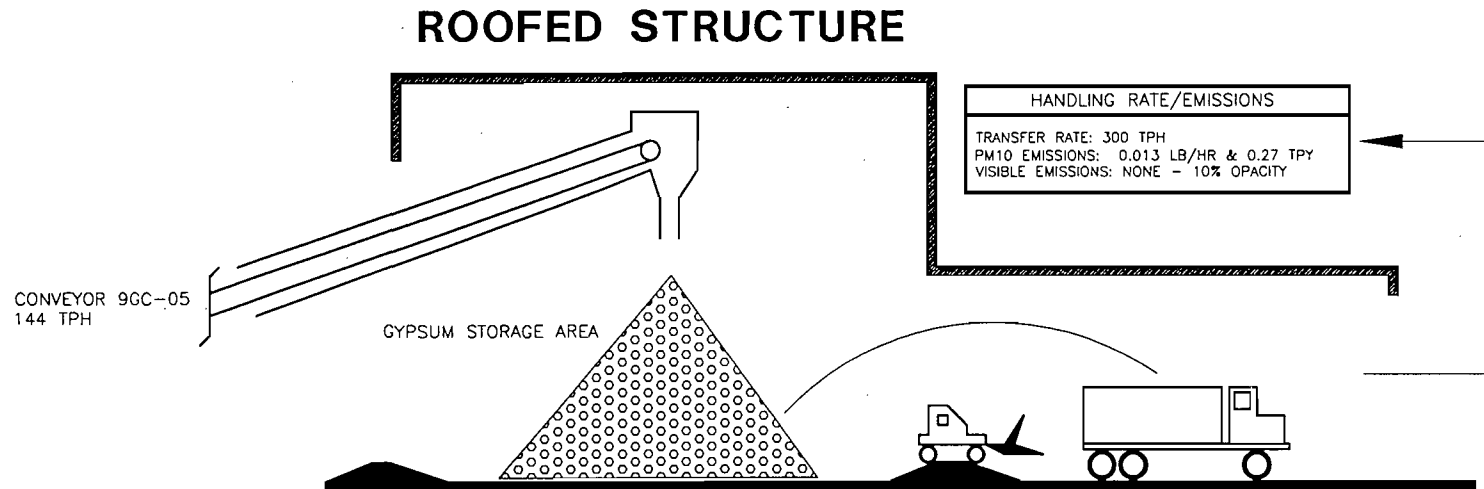
SCALE: N/A	PREPARED: DJG	CAD FILE NO.: EU023mPFB.DWG
DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023m-01
	APPROVED: DJF	

**ST JOHNS RIVER POWER PARK  
GYPSUM STORAGE AREA  
ATTACHMENT EU023o-01**



<b>JEA</b>			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 023o			
<b>F</b> FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED CHECKED	DJG MAE	CAD FILE NO. EU023oPE.DWG
DATE: 04/08/99	APPROVED	DJF	FIGURE NO. EU023o-01

**ST JOHNS RIVER POWER PARK  
 GYPSUM TRUCK LOADOUT  
 ATTACHMENT EU023p-01**



<b>JEA</b>			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 023p			
<b>FOSTER WHEELER ENVIRONMENTAL CORPORATION</b>			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023pPF.DWG	
DATE: 04/08/99	CHECKED MAE	FIGURE NO.	
	APPROVED DJF	EU023p-01	

**EMISSIONS UNIT EU023**  
**Materials Handling & Storage Operations**

**ATTACHMENT EU023-02**  
**Control Equipment Description**

## **Emissions Unit EU023**

### **Materials Handling & Storage Operations Control Equipment Descriptions**

Emissions of particulate matter from materials handling and storage operations are controlled by various techniques and strategies which have been identified on Figure SJRPP01. These techniques and strategies include the following:

1. **Conditioned Materials** - This technique addresses materials with moisture contents greater than 3.5 percent when handling and storage. The technique addresses the moisture variable within the wind erosion equation. By increasing moisture content, the emission potential is reduced.
2. **Wet Suppression** - For some materials the direct application of water and/or chemicals for purposes of increasing moisture contents and/or stabilizing small particles is possible. Following the application of the wetting agents the materials are considered "Conditioned" for purposes of controls.
3. **Water Sprays** - For some materials, the indirect application of water for purposes of knocking down fugitive dust once it is released from the operation is possible. This technique is applied to enhance control efficiency over that which can be obtained by the handling of conditioned materials and/or use of wet suppression.
4. **Enclosures** - For certain operations, either total or partial enclosures, or wind breaks/guards can be used to reduce or eliminate particulate emissions or causes of such emissions. When used in conjunction with conditioned materials and water sprays, the overall control efficiency can be greatly increased.
5. **Best Operating Practices** - This technique focuses on design features and operating practices to reduce or eliminate the causes of fugitive dust emissions.

The application of each control strategy for the different operations is presented on Figure SJRPP01.

**EMISSIONS UNIT EU023**  
**Materials Handling & Storage Operations**

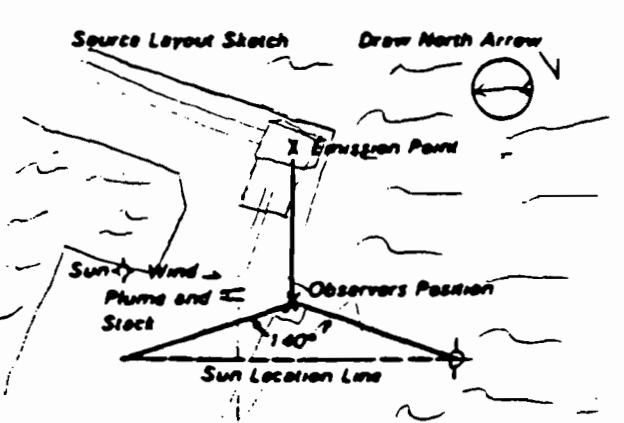
**ATTACHMENT EU023-03**  
**Compliance Test Report**

TEST SERIES #1 - COLOMBIAN COAL



SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/12/89				1440		1610			
ADDRESS			SEC		MIN		SEC		MIN		SEC	
6020 WILLIAM MILLS ST.			0	15	30	45	0	15	30	45		
			1	0	0	0	0	31				
			2	0	0	0	0	32				
			3	0	0	0	0	33				
			4	0	0	0	0	34				
			5	0	0	0	0	35				
			6	0	0	0	0	36				
			7	0	0	0	0	37				
			8	0	0	0	0	38				
			9	0	0	0	0	39				
			10	0	0	0	0	40				
			11	0	0	0	0	41				
			12	0	0	0	0	42				
			13	0	0	0	0	43				
			14	0	0	0	0	44				
			15	0	0	0	0	45				
			16	0	0	0		46				
			17					47				
			18					48				
			19					49				
			20					50				
			21					51				
			22					52				
			23					53				
			24					54				
			25					55				
			26					56				
			27					57				
			28					58				
			29					59				
			30					60				
CITY			STATE		ZIP							
JACKSONVILLE			FL		32226							
PHONE			SOURCE ID NUMBER									
904-751-7729			MOPPER-WET									
PROCESS EQUIPMENT			OPERATING MODE									
SHIP UNLOADER			NORMAL									
CONTROL EQUIPMENT			OPERATING MODE									
WET SUPPRESSION SYS.			NORMAL									
DESCRIBE EMISSION POINT			START		STOP							
40' x 40' opening												
HEIGHT ABOVE GROUND LEVEL			HEIGHT RELATIVE TO OBSERVER									
START 80' STOP ✓			START 50' STOP ✓									
DISTANCE FROM OBSERVER			DIRECTION FROM OBSERVER									
START 80' STOP ✓			START N STOP ✓									
DESCRIBE EMISSIONS			START		STOP							
START NONE												
EMISSION COLOR			PLUME TYPE: CONTINUOUS <input type="checkbox"/>		FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>							
START STOP												
WATER DROPLETS PRESENT:			IF WATER DROPLET PLUME		ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>							
NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>												
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			START		STOP							
START 3' ABOVE MOPPER												
DESCRIBE BACKGROUND			START		STOP							
START SKY					STOP ✓							
BACKGROUND COLOR			SKY CONDITIONS									
START BLUE STOP ✓			START CLEAR STOP ✓									
WIND SPEED			WIND DIRECTION									
START 5-10 mph STOP ✓			START NE STOP ✓									
AMBIENT TEMP.			WET BULB TEMP.		RH. percent							
START 71°F STOP ✓			56°F		40%							
<p>Source Layout Sketch</p>												
<p>Draw North Arrow</p>												
<p>AVERAGE OPACITY FOR HIGHEST PERIOD</p>			0%		<p>NUMBER OF READINGS ABOVE 0% WERE</p>		0					
<p>RANGE OF OPACITY READINGS</p>			MINIMUM 0		MAXIMUM 0							
OBSERVER'S NAME (PRINT)			THERESA A. BARNARD									
OBSERVER'S SIGNATURE			Theresa A. Barnard		DATE		2/12/89					
COMMENTS			D INDICATES SPRAYERS OFF									
HOLD NUMBER 4												
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			CERTIFIED BY		DATE		11/30/88					
SIGNATURE			EASTERN TECH. ASSOC.									
TITLE			VERIFIED BY		DATE							

SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/12/89				1100		1130			
ADDRESS			SEC				MIN		SEC			
6070 WILLIAM MILLS ST.			MIN	0	15	30	45	MIN	0	15	30	45
CITY			1				31					
JACKSONVILLE			2				32					
STATE			3				33					
FL			4				34					
ZIP			5				35					
32226			6				36					
PHONE			7				37					
734-751-7729			8				38					
SOURCE ID NUMBER			9				39					
②			10				40					
TRANSFER STN #1			11				41					
PROCESS EQUIPMENT			12				42					
CONVEYOR TRANSFER STATION			13				43					
OPERATING MODE			14				44					
NORMAL			15				45					
CONTROL EQUIPMENT			16				46					
WET SUPPRESSION/ENCLOSURE			17				47					
OPERATING MODE			18				48					
NORMAL			19				49					
DESCRIBE EMISSION POINT			20				50					
START STOP			21				51					
HEIGHT ABOVE GROUND LEVEL			22				52					
START 30' STOP ✓			23				53					
HEIGHT RELATIVE TO OBSERVER			24				54					
START 30' STOP ✓			25				55					
DISTANCE FROM OBSERVER			26				56					
START 70' STOP ✓			27				57					
DIRECTION FROM OBSERVER			28				58					
START NE STOP ✓			29				59					
DESCRIBE EMISSIONS			30				60					
START NONE STOP			AVERAGE OPACITY FOR HIGHEST PERIOD				NUMBER OF READINGS ABOVE 0 % WERE 0					
EMISSION COLOR			RANGE OF OPACITY READINGS				MINIMUM 0		MAXIMUM 0			
START STOP			OBSERVER'S NAME (PRINT)				THERESA A. BARNARD					
PLUME TYPE CONTINUOUS <input type="checkbox"/>			OBSERVER'S SIGNATURE				Theresa A. Barnard					
FUGITIVE <input type="checkbox"/> INTERMITTENT <input type="checkbox"/>			DATE				2/12/89					
WATER DROPLETS PRESENT: NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			ORGANIZATION				HUNTER ESE					
IF WATER DROPLET PLUME ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>			CERTIFIED BY				ESTER TECH. ASSOC.					
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			DATE				11/30/88					
START 1" ABOVE TRANSFER STOP			VERIFIED BY									
DESCRIBE BACKGROUND			TITLE				DATE					
START SKY STOP ✓												
BACKGROUND COLOR												
START BLUE STOP ✓												
SKY CONDITIONS												
START CLEAR STOP ✓												
WIND SPEED												
START 5-10 mph STOP ✓												
WIND DIRECTION												
START NE STOP ✓												
AMBIENT TEMP.												
START 63°F STOP ✓												
WET BULB TEMP.												
50°F												
RH. percent												
40%												



SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/12/89				1:20		12:00			
ADDRESS			SEC				MIN		SEC			
10025 WILLIAM MILLS ST.			0	15	30	45	0	15	30	45		
CITY			1				2		3			
JACKSONVILLE			0				0		0			
STATE			2				3		4			
FL			0				0		0			
ZIP			3				4		5			
32226			0				0		0			
PHONE			4				5		6			
304-751-7729			0				0		0			
SOURCE ID NUMBER			5				6		7			
TRANSFER STN #1			0				0		0			
PROCESS EQUIPMENT			6				7		8			
TRANSFER STATION			0				0		0			
OPERATING MODE			7				8		9			
NORMAL			0				0		0			
CONTROL EQUIPMENT			8				9		10			
WET SUPPRESSION ENCLOSURE			0				0		0			
OPERATING MODE			9				10		11			
NORMAL			0				0		0			
DESCRIBE EMISSION POINT			10				11		12			
START STOP			0				0		0			
HEIGHT ABOVE GROUND LEVEL			11				12		13			
START 30' STOP ✓			0				0		0			
HEIGHT RELATIVE TO OBSERVER			12				13		14			
START 30' STOP ✓			0				0		0			
DISTANCE FROM OBSERVER			13				14		15			
START 70' STOP ✓			0				0		0			
DIRECTION FROM OBSERVER			14				15		16			
START SE STOP ✓			0				0		0			
DESCRIBE EMISSIONS			15				16		17			
START NONE STOP			0				0		0			
EMISSION COLOR			16				17		18			
START STOP			0				0		0			
PLUME TYPE CONTINUOUS <input type="checkbox"/>			17				18		19			
FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>			0				0		0			
WATER DROPLETS PRESENT:			18				19		20			
NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			0				0		0			
IF WATER DROPLET PLUME			19				20		21			
ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>			0				0		0			
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			20				21		22			
START 1' ABOVE TRANSFER STATION STOP			0				0		0			
DESCRIBE BACKGROUND			21				22		23			
START SKY STOP ✓			0				0		0			
BACKGROUND COLOR			22				23		24			
START BLUE STOP ✓			0				0		0			
SKY CONDITIONS			23				24		25			
START CLEAR STOP ✓			0				0		0			
WIND SPEED			24				25		26			
START 5-10 mph STOP ✓			0				0		0			
WIND DIRECTION			25				26		27			
START NE STOP ✓			0				0		0			
AMBIENT TEMP			26				27		28			
START 63°F STOP ✓			0				0		0			
WET BULB TEMP.			27				28		29			
50°F			0				0		0			
RH. percent			28				29		30			
40%			0				0		0			
<p>Source Layout Sketch Draw North Arrow</p> <p>X Emission Point</p> <p>Sun ← Wind → Plume and Stack</p> <p>Observers Position</p> <p>Sun Location Line</p>			29				30		31			
			0				0					
			0				0					
			0				0					
			0				0					
			0				0					
			0				0					
			0				0					
			0				0					
			0				0					
AVERAGE OPACITY FOR HIGHEST PERIOD			30				31		32			
0.70			0				0		0			
NUMBER OF READINGS ABOVE 0% WERE			31				32		33			
0			0				0		0			
RANGE OF OPACITY READINGS			32				33		34			
MINIMUM			0				0		0			
MAXIMUM			0				0		0			
OBSERVER'S NAME (PRINT)			33				34		35			
THERESA A. BARNARD			0				0		0			
OBSERVER'S SIGNATURE			34				35		36			
Theresa A. Barnard			0				0		0			
DATE			35				36		37			
2/12/89			0				0		0			
ORGANIZATION			36				37		38			
HUNTER ESE			0				0		0			
COMMENTS			37				38		39			
FROM NORTH SIDE OF TRANSFER STATION			0				0		0			
HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			38				39		40			
SIGNATURE			0				0		0			
TITLE			39				40		41			
DATE			40				41		42			
CERTIFIED BY			41				42		43			
EASTERN TECL. ASSOC			0				0		0			
DATE			42				43		44			
11/30/88			0				0		0			
VERIFIED BY			43				44		45			
DATE			44				45		46			

SOURCE NAME ST JOHNS RIVER COAL TERMINAL POUNCE PARK NC.			OBSERVATION DATE 12 FEB. 89				START TIME 0855		STOP TIME 1009			
ADDRESS 6020 WILLIAM MILLS ST.			SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
CITY JACKSONVILLE	STATE FLA.	ZIP 32226	1	0	0	0	0	31	0	0	0	0
PHONE (904) 751-7729	SOURCE ID NUMBER		2	0	0	0	0	32	0	0	0	0
PROCESS EQUIPMENT CT 2 COAL CONVEYOR	OPERATING MODE NORMAL		3	0	0	0	0	33	0	0	0	0
CONTROL EQUIPMENT ENCLOSURE/UPSTREAM	OPERATING MODE NORMAL		4	0	0	0	0	34	0	0	0	0
DESCRIBE EMISSION POINT START COAL CONVEYOR STOP			5	0	0	0	0	35	0	0	0	0
HEIGHT ABOVE GROUND LEVEL START 6 STOP	HEIGHT RELATIVE TO OBSERVER START 6 STOP		6	0	0	0	0	36	0	0	0	0
DISTANCE FROM OBSERVER START 0-300 STOP	DIRECTION FROM OBSERVER START NNW STOP		7	0	0	0	0	37	0	0	0	0
DESCRIBE EMISSIONS START STOP			8	0	0	0	0	38	0	0	0	0
EMISSION COLOR START STOP	PLUME TYPE CONTINUOUS <input type="checkbox"/> FUGITIVE INTERMITTENT <input type="checkbox"/>		9	0	0	0	0	39	0	0	0	0
WATER DROPLETS PRESENT NO YES <input type="checkbox"/>	IF WATER DROPLET PLUME ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>		10	0	0	0	0	40	0	0	0	0
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START STOP			11	0	0	0	0	41	0	0	0	0
DESCRIBE BACKGROUND STRUCTURE START VEGETATION STOP			12	0	0	0	0	42	0	0	0	0
BACKGROUND COLOR START GREEN STOP	SKY CONDITIONS START CLEAR STOP		13	0	0	0	0	43	0	0	0	0
WIND SPEED START 5-8 STOP	WIND DIRECTION START NE STOP		14	0	0	0	0	44	0	0	0	0
AMBIENT TEMP START 40 STOP 50	WET BULB TEMP	RH, percent	15	0	0	0	0	45	0	0	0	0
<p>Source Layout Sketch</p> <p>Draw North Arrow</p> <p>Conveyor</p> <p>Emission Point</p> <p>Observers Position</p> <p>Sun Location Line</p> <p>140°</p> <p>W. Side</p>			16	0	0	0	0	46	0	0	0	0
			17	0	0	0	0	47	0	0	0	0
			18	0	0	0	0	48	0	0	0	0
			19	0	0	0	0	49	0	0	0	0
			20	0	0	0	0	50	0	0	0	0
			21	0	0	0	0	51	0	0	0	0
			22	0	0	0	0	52	0	0	0	0
			23	0	0	0	0	53	0	0	0	0
			24	0	0	0	0	54	0	0	0	0
			25	0	0	0	0	55	0	0	0	0
AVERAGE OPACITY FOR HIGHEST PERIOD 0			NUMBER OF READINGS ABOVE 0% WERE 0									
RANGE OF OPACITY READINGS MINIMUM 0% MAXIMUM 0%												
OBSERVER'S NAME (PRINT) NORMAN R. CZARNIAK			OBSERVER'S SIGNATURE Norman R. Czarniak									
COMMENTS			DATE 12 FEB 89									
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			ORGANIZATION HUNTER/E.S.E									
SIGNATURE			CERTIFIED BY EASTERN TECH. ASSOC.									
TITLE			DATE 30 NOV. 88									
DATE			VERIFIED BY									
			DATE									

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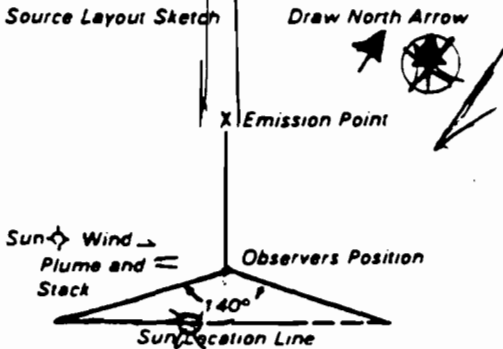
095

6  
Sun

SOURCE NAME COAL TERMINAL ST. JOHN'S RIVER POWER PLANT Point 4			OBSERVATION DATE 12 FEB. 89				START TIME 1022		STOP TIME 1124				
ADDRESS 6020 WILLIAM HILLS ST.			SEC MIN	0	15	30	45	SEC MIN	0	15	30	45	
CITY JACKSONVILLE			STATE FLA.		ZIP 32226		1	0	0	0	0	0	
(PHONE 904) 751-7729			SOURCE ID NUMBER		2	0	0	0	0	0	0	0	
PROCESS EQUIPMENT Transfer STATION			OPERATING MODE NORMAL		3	0	0	0	0	0	0	0	
CONTROL EQUIPMENT WET SUPPRESSION/ENCLOSURE			OPERATING MODE NORMAL		4	0	0	0	0	0	0	0	
DESCRIBE EMISSION POINT START CONVEYOR TRANSFER STATION STOP ✓			5	0	0	0	0	31	0	0	0	0	
HEIGHT ABOVE GROUND LEVEL START 30 STOP ✓			HEIGHT RELATIVE TO OBSERVER START 30 STOP ✓		6	0	0	0	0	0	0	0	
DISTANCE FROM OBSERVER START 120 STOP ✓			DIRECTION FROM OBSERVER START NNE STOP ✓		7	0	0	0	0	0	0	0	
DESCRIBE EMISSIONS START STOP			8	0	0	0	0	32	0	0	0	0	
EMISSION COLOR START STOP			PLUME TYPE CONTINUOUS <input type="checkbox"/> FUGITIVE INTERMITTENT <input type="checkbox"/>		9	0	0	0	0	0	0	0	
WATER DROPLETS PRESENT NOX YES <input type="checkbox"/>			IF WATER DROPLET PLUME ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>		10	0	0	0	0	0	0	0	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START STOP			11	0	0	0	0	33	0	0	0	0	
DESCRIBE BACKGROUND START SKY - SUPERSTRUCTURE STOP			12	0	0	0	0	34	0	0	0	0	
BACKGROUND COLOR START BLUE STOP ✓			SKY CONDITIONS START CLEAR STOP ✓		13	0	0	0	0	0	0	0	
WIND SPEED START 5-8 STOP ✓			WIND DIRECTION START NE STOP ✓		14	0	0	0	0	0	0	0	
AMBIENT TEMP. START 55 STOP 59			WET BULB TEMP		15	0	0	0	0	0	0	0	
RH. percent			16	0	0	0	0	35	0	0	0	0	
<p>Source Layout Sketch</p> <p>Draw North Arrow</p> <p>Sun Wind → Plume and Stack</p> <p>Observers Position</p> <p>140°</p> <p>Sun Location Line</p>			17	0	0	0	0	36	0	0	0	0	
			18	0	0	0	0	37	0	0	0	0	
			19	0	0	0	0	38	0	0	0	0	0
			20	0	0	0	0	39	0	0	0	0	0
			21	0	0	0	0	40	0	0	0	0	0
			22	0	0	0	0	41	0	0	0	0	0
			23	0	0	0	0	42	0	0	0	0	0
			24	0	0	0	0	43	0	0	0	0	0
			25	0	0	0	0	44	0	0	0	0	0
			26	0	0	0	0	45	0	0	0	0	0
AVERAGE OPACITY FOR HIGHEST PERIOD			NUMBER OF READINGS ABOVE		27	0	0	0	0	0	0	0	
RANGE OF OPACITY READINGS			MINIMUM		28	0	0	0	0	0	0	0	
OBSERVER'S NAME (PRINT)			NORMAN R. CZARNAK		29	0	0	0	0	0	0	0	
OBSERVER'S SIGNATURE			NORMAN R. CZARNAK		30	0	0	0	0	0	0	0	
DATE			12 FEB 89		AVERAGE OPACITY FOR HIGHEST PERIOD		0		NUMBER OF READINGS ABOVE		0 % WERE		
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE			CERTIFIED BY		RANGE OF OPACITY READINGS		MINIMUM		MAXIMUM		0		
TITLE			DATE		OBSERVER'S NAME (PRINT)		NORMAN R. CZARNAK		OBSERVER'S SIGNATURE		DATE		
VERIFIED BY			DATE		OBSERVER'S NAME (PRINT)		NORMAN R. CZARNAK		OBSERVER'S SIGNATURE		DATE		
EASTERN TECH. ASSOC.			30 NOV. 88		OBSERVER'S NAME (PRINT)		NORMAN R. CZARNAK		OBSERVER'S SIGNATURE		DATE		

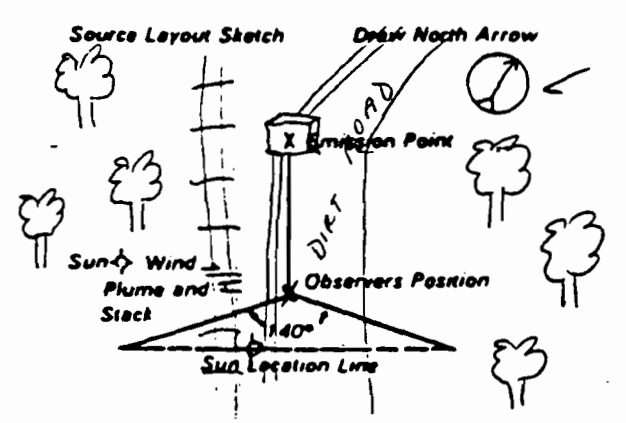
1054  
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SE.

SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME	
ST. JOHNS RIVER COAL TERMINAL POWER PARK N.C.			12 FEB 89				1143		1246	
ADDRESS			SEC		MIN		SEC		MIN	
6020 WILLIAM HILLS ST.			0	15	30	45	0	15	30	45
CITY			1	0	0	0	31	0	0	0
JACKSONVILLE			2	0	0	0	32	0	0	0
STATE			3	0	0	0	33	0	0	0
FLA			4	0	0	0	34	0	0	0
ZIP			5	0	0	0	35	0	0	0
32226			6	0	0	0	36	0	0	0
PHONE			7	0	0	0	37	0	0	0
904 751-7729			8	0	0	0	38	0	0	0
SOURCE ID NUMBER			9	0	0	0	39	0	0	0
PROCESS EQUIPMENT			10	0	0	0	40	0	0	0
CT 3 COAL CONVEYOR			11	0	0	0	41	0	0	0
OPERATING MODE			12	0	0	0	42	0	0	0
NORMAL			13	0	0	0	43	0	0	0
CONTROL EQUIPMENT			14	0	0	0	44	0	0	0
ENCLOSURE/UPSTREAM SUPPRESSION			15	0	0	0	45	0	0	0
OPERATING MODE			16	0	0	0	46	0	0	0
NORMAL			17	0	0	0	47	0	0	0
DESCRIBE EMISSION POINT			18	0	0	0	48	0	0	0
START ENCLOSED CONVEYOR STOP ✓			19	0	0	0	49	0	0	0
HEIGHT ABOVE GROUND LEVEL			20	0	0	0	50	0	0	0
START 7' STOP ✓			21	0	0	0	51	0	0	0
HEIGHT RELATIVE TO OBSERVER			22	0	0	0	52	6	0	0
START 6 Below STOP ✓			23	0	0	0	53	0	0	0
DISTANCE FROM OBSERVER			24	0	0	0	54	0	0	0
START 0-300 STOP ✓			25	0	0	0	55	0	0	0
DIRECTION FROM OBSERVER			26	0	0	0	56	0	0	0
START NNW STOP NNW			27	0	0	0	57	0	0	0
DESCRIBE EMISSIONS			28	0	0	0	58	0	0	0
START STOP			29	0	0	0	59	0	0	0
EMISSION COLOR			30	0	0	0	60	0	0	0
START STOP			AVERAGE OPACITY FOR HIGHEST PERIOD		0		NUMBER OF READINGS ABOVE % WERE 0			
PLUME TYPE CONTINUOUS <input type="checkbox"/>			RANGE OF OPACITY READINGS		MINIMUM 0		MAXIMUM 0			
FUGITIVE <del>✓</del> INTERMITTENT <input type="checkbox"/>			OBSERVER'S NAME (PRINT)		NORMAN R. CZARNIAK					
WATER DROPLETS PRESENT			OBSERVER'S SIGNATURE		Norman R. Czarniak					
NO <del>✓</del> YES <input type="checkbox"/>			DATE		12 FEB 89					
IF WATER DROPLET PLUME ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>			ORGANIZATION		HUNTER ESE					
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE		CERTIFIED BY		DATE			
START STOP			EASTERN TECH. ASSOC.		30 Nov. 88					
DESCRIBE BACKGROUND			TITLE		DATE					
START DIRT ROAD CATWALK STOP ✓										
BACKGROUND COLOR										
START WHITE STOP ✓										
SKY CONDITIONS										
START CLEAR STOP ✓										
WIND SPEED										
START 5-8 STOP ✓										
WIND DIRECTION										
START NE STOP ✓										
AMBIENT TEMP.										
START 62 STOP 68										
WET BULB TEMP										
RH. percent										



1216

SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/12/89				1225		1255			
ADDRESS			SEC				SEC					
6020 WILLIAM MILLS ST.			MIN	0	15	30	45	MIN	0	15	30	45
CITY			1	0	0	0	0	31				
JACKSONVILLE			2	0	0	0	0	32				
STATE			3	0	0	0	0	33				
FL			4	0	0	0	0	34				
ZIP			5	0	0	0	0	35				
32226			6	0	0	0	0	36				
PHONE			7	0	0	0	0	37				
904-751-7729			8	0	0	0	0	38				
SOURCE ID NUMBER			9	0	0	0	0	39				
TRANSFER STN #3			10	0	0	0	0	40				
PROCESS EQUIPMENT			11	0	0	0	0	41				
TRANSFER STATION			12	0	0	0	0	42				
OPERATING MODE			13	0	0	0	0	43				
NORMAL			14	0	0	0	0	44				
CONTROL EQUIPMENT WET			15	0	0	0	0	45				
SUPPRESSION/ENCLOSURE			16	0	0	0	0	46				
OPERATING MODE			17	0	0	0	0	47				
NORMAL			18	0	0	0	0	48				
DESCRIBE EMISSION POINT			19	0	0	0	0	49				
START STOP			20	0	0	0	0	50				
HEIGHT ABOVE GROUND LEVEL			21	0	0	0	0	51				
START 50' STOP ✓			22	0	0	0	0	52				
HEIGHT RELATIVE TO OBSERVER			23	0	0	0	0	53				
START 20' STOP ✓			24	0	0	0	0	54				
DISTANCE FROM OBSERVER			25	0	0	0	0	55				
START 40' STOP ✓			26	0	0	0	0	56				
DIRECTION FROM OBSERVER			27	0	0	0	0	57				
START NW STOP ✓			28	0	0	0	0	58				
DESCRIBE EMISSIONS			29	0	0	0	0	59				
START NONE STOP			30	0	0	0	0	60				
EMISSION COLOR			AVERAGE OPACITY FOR HIGHEST PERIOD 0% WERE 0									
START STOP			RANGE OF OPACITY READINGS MINIMUM 0 MAXIMUM 0									
PLUME TYPE: CONTINUOUS <input type="checkbox"/>			OBSERVER'S NAME (PRINT) THERESA A. BARNARD									
FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>			OBSERVER'S SIGNATURE Theresa A. Barnard									
WATER DROPLETS PRESENT: NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			DATE 2/12/89									
IF WATER DROPLET PLUME ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>			ORGANIZATION HUNTER ESE									
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			CERTIFIED BY PASTEN TECH. ASSOC.									
START 1' ABOVE TRANSFER STATION STOP			DATE 11/30/88									
DESCRIBE BACKGROUND			VERIFIED BY									
START SKY STOP ✓			DATE									
BACKGROUND COLOR			TITLE									
START BLUE STOP ✓			DATE									
SKY CONDITIONS			DATE									
START CLEAR STOP ✓			DATE									
WIND SPEED			DATE									
START 5-10 MPH STOP ✓			DATE									
WIND DIRECTION			DATE									
START NE STOP ✓			DATE									
AMBIENT TEMP.			DATE									
START 69°F STOP ✓			DATE									
WET BULB TEMP.			DATE									
55°F			DATE									
RH. percent			DATE									
47%			DATE									



COMMENTS SE FROM ~~SE~~ SIDE OF TRANSFER STATION

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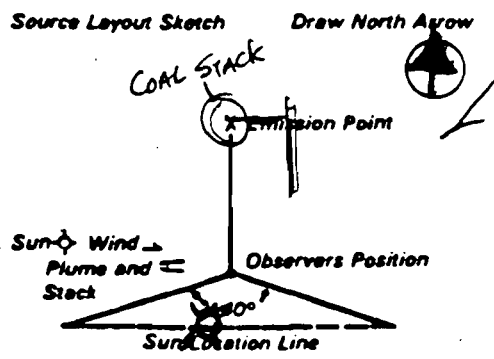
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TITLE

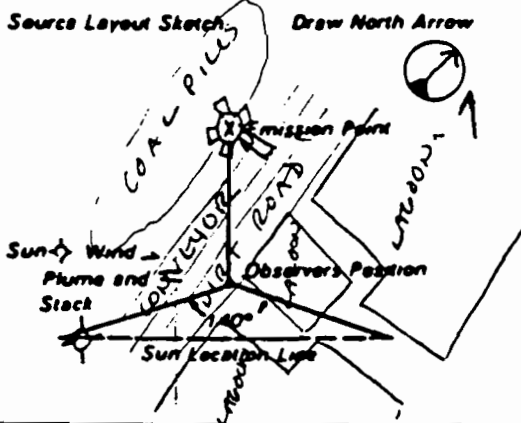
DATE

SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME	
ST. JOHNS RIVER COAL TERMINAL			2/12/89				1300		1330	
ADDRESS			SEC		MIN		SEC		MIN	
0020 WILLIAM MILLS ST.			0		15		0		45	
CITY			STATE		ZIP		1		45	
JACKSONVILLE			FL		32226		31			
PHONE			SOURCE ID NUMBER		OPERATING MODE		2			
704-751-7729			TRANSFER STN #3		NORMAL		32			
PROCESS EQUIPMENT			OPERATING MODE		3		33			
CONVEYER TRANSFER			NORMAL		4		34			
CONTROL EQUIPMENT			OPERATING MODE		5		35			
WET SUPPRESSION ENCLOSURE			NORMAL		6		36			
DESCRIBE EMISSION POINT			7		37					
START STOP			8		38					
HEIGHT ABOVE GROUND LEVEL			HEIGHT RELATIVE TO OBSERVER		9		39			
START 50' STOP ✓			START 50' STOP ✓		10		40			
DISTANCE FROM OBSERVER			DIRECTION FROM OBSERVER		11		41			
START 75' STOP ✓			START SE STOP ✓		12		42			
DESCRIBE EMISSIONS			13		43					
START NONE STOP			14		44					
EMISSION COLOR			PLUME TYPE: CONTINUOUS <input type="checkbox"/>		15		45			
START STOP			FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>		16		46			
WATER DROPLETS PRESENT:			IF WATER DROPLET PLUME		17		47			
NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>		18		48			
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			19		49					
START 1' ABOVE TRANSFER STOP			20		50					
DESCRIBE BACKGROUND			21		51					
START SKY STOP ✓			22		52					
BACKGROUND COLOR			SKY CONDITIONS		23		53			
START BLUE STOP ✓			START CLEAR STOP ✓		24		54			
WIND SPEED			WIND DIRECTION		25		55			
START 5-10 mph STOP ✓			START NE STOP ✓		26		56			
AMBIENT TEMP.			WET BULB TEMP.		27		57			
START 69°F STOP ✓			55°F		28		58			
			RH. percent		29		59			
			47%		30		60			
			24		54					
			25		55					
			26		56					
			27		57					
			28		58					
			29		59					
			30		60					
			AVERAGE OPACITY FOR HIGHEST PERIOD		0%		NUMBER OF READINGS ABOVE 0% WERE 0			
			RANGE OF OPACITY READINGS		MINIMUM 0		MAXIMUM 0			
OBSERVER'S NAME (PRINT)			THERESA A. BARNARD							
OBSERVER'S SIGNATURE			Theresa A. Barnard							
DATE			2/12/89							
ORGANIZATION			HUNTER ESE							
COMMENTS			CERTIFIED BY		DATE					
FROM NE SIDE OF TRANSFER STATION			EASTERN TECH. ASSOC.		11/30/88					
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			VERIFIED BY		DATE					
SIGNATURE										
TITLE										
DATE										



SOURCE NAME St. Johns River <del>Power Park</del> <i>COAL TERMINAL</i>			OBSERVATION DATE 12 FEB. 89				START TIME 1256				STOP TIME 1356									
ADDRESS 6020 WILLIAM MILLS ST.											SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
CITY JACKSONVILLE			STATE FLA.			ZIP 32226			1	0	0	0	0	31	/	/	/	/	/	
PHONE (904) 791-7729			SOURCE ID NUMBER			2	0	0	0	0	0	32	/	0	0	/	/	/	/	
PROCESS EQUIPMENT COAL STACKER			OPERATING MODE NORMAL			3	0	0	0	0	0	33	/	5	5	/	/	/	/	
CONTROL EQUIPMENT WET SUPPRESSION			OPERATING MODE NORMAL			4	0	0	0	0	0	34	5	5	/	/	/	/	/	
DESCRIBE EMISSION POINT END OF CONVEYOR DEPOSIT (7) (7) START COAL IN PILE STOP ✓			HEIGHT ABOVE GROUND LEVEL START 25' STOP ✓			HEIGHT RELATIVE TO OBSERVER START 25' STOP ✓			5	0	0	0	0	35	5	/	/	/	/	
DISTANCE FROM OBSERVER START 100' STOP ✓			DIRECTION FROM OBSERVER START N, STOP ✓			6	0	0	0	0	0	36	0	0	/	/	/	/	/	
DESCRIBE EMISSIONS START Black coal dust STOP ✓			EMISSION COLOR START Black STOP ✓			PLUME TYPE: CONTINUOUS <input type="checkbox"/> FUGITIVE INTERMITTENT <input checked="" type="checkbox"/>			7	0	0	0	0	37	/	/	0	0	/	
WATER DROPLETS PRESENT: NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			IF WATER DROPLET PLUME: ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>			8	0	0	0	0	0	38	/	/	/	/	/	/	/	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START 2' after STOP			DESCRIBE BACKGROUND START SKY STOP SKY			9	0	0	0	0	0	39	/	/	/	/	/	/	/	
BACKGROUND COLOR START BLUE STOP ✓			SKY CONDITIONS START CLEAR STOP			10	0	0	0	0	0	40	/	/	0	/	/	/	/	
WIND SPEED START 6-10 STOP ✓			WIND DIRECTION START NE STOP Variable			11	0	0	0	0	0	41	/	/	/	/	/	/	/	
AMBIENT TEMP. START 67 STOP 70			WET BULB TEMP. RH. percent			12	0	0	0	0	0	42	/	/	/	/	/	/	/	
Source Layout Sketch Draw North Arrow 			AVERAGE OPACITY FOR HIGHEST PERIOD 1.25%			NUMBER OF READINGS ABOVE 5% WERE 0			13	0	0	0	0	43	/	/	/	/	/	
			RANGE OF OPACITY READINGS MINIMUM 0% MAXIMUM 5%			14	0	0	/	/	/	/	/	/	/	/	/	/	/	/
COMMENTS slashes indicate no coal being deposited			OBSERVER'S NAME (PRINT) NORMAN R. CZARNIAK			OBSERVER'S SIGNATURE Norman R. Czarniak			DATE 12 FEB 89			15	0	0	0	/	/	/	/	/
			I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			CERTIFIED BY EASTERN TECH. ASSOC.			DATE 30 NOV. 88			16	/	0	0	5	/	/	/	/
SIGNATURE			TITLE			DATE			17	5	5	/	/	/	/	/	/	/	/	
DATE			DATE			18	/	0	0	0	0	48	/	/	/	/	/	/	/	
DATE			DATE			19	0	0	0	0	0	49	/	/	/	/	/	/	/	
DATE			DATE			20	0	0	0	0	0	50	/	/	/	/	/	/	/	
DATE			DATE			21	0	0	/	0	0	51	/	/	/	/	/	/	/	
DATE			DATE			22	0	0	0	0	0	52	/	/	/	/	/	/	/	
DATE			DATE			23	0	0	0	0	0	53	/	/	/	/	/	/	/	
DATE			DATE			24	/	0	0	0	0	54	/	/	/	5	/	/	/	
DATE			DATE			25	/	5	5	/	/	55	/	/	0	/	/	0	0	
DATE			DATE			26	/	/	/	/	/	56	0	/	/	/	/	/	/	
DATE			DATE			27	/	/	/	/	/	57	/	/	0	/	/	0	0	
DATE			DATE			28	/	/	/	/	/	58	0	/	/	/	/	/	/	
DATE			DATE			29	/	/	/	/	/	59	/	/	/	/	/	/	/	
DATE			DATE			30	/	0	0	0	0	60	/	/	0	/	/	0	0	

SOURCE NAME			OBSERVATION DATE				START TIME				STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/15/89				1423				1525			
ADDRESS			SEC		MIN		SEC		MIN		SEC		MIN	
6020 WILLIAM HILLS ST.			0	15	30	45	0	15	30	45	0	15	30	45
CITY			STATE		ZIP		1		2		3		4	
JACKSONVILLE			FLA		32226		0		0		0		0	
PHONE			SOURCE ID NUMBER		8		31		32		33		34	
(904) 751-7729			RECLAIMER				0		0		0		0	
PROCESS EQUIPMENT			OPERATING MODE		5		35		36		37		38	
COAL RECLAIMER			NORMAL				0		0		0		0	
CONTROL EQUIPMENT			OPERATING MODE		6		39		40		41		42	
WET SUPPRESSION			NORMAL				0		0		0		0	
DESCRIBE EMISSION POINT			HEIGHT ABOVE GROUND LEVEL		HEIGHT RELATIVE TO OBSERVER		7		8		9		10	
RECLAIMER BUCKETS			START 25' STOP ✓		START 25' STOP ✓		0		0		0		0	
START EMPTYING ON STOP CONVEYOR			DISTANCE FROM OBSERVER		DIRECTION FROM OBSERVER		11		12		13		14	
			START 60' STOP ✓		START NW STOP		0		0		0		0	
DESCRIBE EMISSIONS			EMISSION COLOR		PLUME TYPE: CONTINUOUS <input type="checkbox"/>		15		16		17		18	
START NONE STOP			START STOP		FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>		0		0		0		0	
WATER DROPLETS PRESENT:			IF WATER DROPLET PLUME:		ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>		19		20		21		22	
NONE <input checked="" type="checkbox"/> YES <input type="checkbox"/>			START STOP ✓				0		0		0		0	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			BACKGROUND COLOR		SKY CONDITIONS		23		24		25		26	
START 1' ABOVE BUCKET ON TOP			START BLUE STOP ✓		START CLEAR STOP ✓		0		0		0		0	
DESCRIBE BACKGROUND			WIND SPEED		WIND DIRECTION		27		28		29		30	
START SKY STOP ✓			START 4 mph STOP		START SE STOP ✓		0		0		0		0	
BACKGROUND COLOR			AMBIENT TEMP.		WET BULB TEMP.		31		32		33		34	
START BLUE STOP ✓			START 80°F STOP ✓		START 70°F		0		0		0		0	
SKY CONDITIONS			RH. percent		62-70		35		36		37		38	
START CLEAR STOP ✓							0		0		0		0	
WIND SPEED			WIND DIRECTION		START SE STOP ✓		39		40		41		42	
START 4 mph STOP			START SE STOP ✓				0		0		0		0	
WIND DIRECTION			AVERAGE OPACITY FOR HIGHEST PERIOD		NUMBER OF READINGS ABOVE % WERE		43		44		45		46	
START SE STOP ✓			0.90		0 % WERE 0		0		0		0		0	
RANGE OF OPACITY READINGS MINIMUM MAXIMUM			OBSERVER'S NAME (PRINT)		THERESA A. BARNARD		47		48		49		50	
MINIMUM 0 MAXIMUM 0							0		0		0		0	
OBSERVER'S NAME (PRINT)			OBSERVER'S SIGNATURE		DATE		51		52		53		54	
THERESA A. BARNARD			Theresa A. Barnard		2/15/89		55		56		57		58	
OBSERVER'S SIGNATURE			ORGANIZATION		HUNTER ESE		59		60		61		62	
HUNTER ESE			CERTIFIED BY		DATE		63		64		65		66	
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			CERTIFIED BY		DATE		67		68		69		70	
SIGNATURE			VERIFIED BY		DATE		0		0		0		0	
TITLE			DATE		DATE		11/30/88		71		72		73	
									74		75		76	



TEST SERIES #2 - VENEZUELAN COAL

SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME			
ST. Johns River Coal Terminal			2-20-89				15:25		16:25			
ADDRESS			SEC				SEC		MIN			
6020 William Mills St.			MIN				MIN		MIN			
CITY			0				0		0			
Jacksonville			15				15		15			
STATE			30				30		30			
Florida			45				45		45			
ZIP			45				45		45			
32226			MIN				MIN		MIN			
PHONE			MIN				MIN		MIN			
904-751-7729			MIN				MIN		MIN			
SOURCE ID NUMBER			MIN				MIN		MIN			
#1 WET			MIN				MIN		MIN			
PROCESS EQUIPMENT			MIN				MIN		MIN			
Ship Unloader			MIN				MIN		MIN			
OPERATING MODE			MIN				MIN		MIN			
Normal			MIN				MIN		MIN			
CONTROL EQUIPMENT			MIN				MIN		MIN			
Wet Down System			MIN				MIN		MIN			
OPERATING MODE			MIN				MIN		MIN			
Normal			MIN				MIN		MIN			
DESCRIBE EMISSION POINT			MIN				MIN		MIN			
START			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
HEIGHT ABOVE GROUND LEVEL			MIN				MIN		MIN			
START			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
HEIGHT RELATIVE TO OBSERVER			MIN				MIN		MIN			
START			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
DISTANCE FROM OBSERVER			MIN				MIN		MIN			
START			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
DIRECTION FROM OBSERVER			MIN				MIN		MIN			
START			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
DESCRIBE EMISSIONS			MIN				MIN		MIN			
START Coal Dust			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
EMISSION COLOR			MIN				MIN		MIN			
START Black			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
PLUME TYPE CONTINUOUS			MIN				MIN		MIN			
START			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
FUGITIVE INTERMITTENT			MIN				MIN		MIN			
WATER DROPLETS PRESENT:			MIN				MIN		MIN			
NO			MIN				MIN		MIN			
YES			MIN				MIN		MIN			
IF WATER DROPLET PLUME			MIN				MIN		MIN			
ATTACHED			MIN				MIN		MIN			
DETACHED			MIN				MIN		MIN			
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			MIN				MIN		MIN			
START OVER walls 8-10'			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
DESCRIBE BACKGROUND			MIN				MIN		MIN			
START Sky			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
BACKGROUND COLOR			MIN				MIN		MIN			
START White/Grey			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
SKY CONDITIONS			MIN				MIN		MIN			
START Overcast			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
WIND SPEED			MIN				MIN		MIN			
START 2-4			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
WIND DIRECTION			MIN				MIN		MIN			
START NNW			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
AMBIENT TEMP.			MIN				MIN		MIN			
START 64			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
WET BULB TEMP.			MIN				MIN		MIN			
START 58			MIN				MIN		MIN			
RH. percent			MIN				MIN		MIN			
START 71			MIN				MIN		MIN			
STOP			MIN				MIN		MIN			
Source Layout Sketch			MIN				MIN		MIN			
Draw North Arrow			MIN				MIN		MIN			
			MIN				MIN		MIN			
* - wet sprinklers didn't come on.			MIN				MIN		MIN			
COMMENTS			MIN				MIN		MIN			
No Sun; ON ship; unloader went from			MIN				MIN		MIN			
Bens #6-1-#5			MIN				MIN		MIN			
Had to shut down moving loader. To dark			MIN				MIN		MIN			
HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			MIN				MIN		MIN			
SIGNATURE			MIN				MIN		MIN			
TITLE			MIN				MIN		MIN			
DATE			MIN				MIN		MIN			
OBSERVER'S NAME (PRINT)			MIN				MIN		MIN			
Patricia J. McElroy			MIN				MIN		MIN			
OBSERVER'S SIGNATURE			MIN				MIN		MIN			
Patricia J. McElroy			MIN				MIN		MIN			
DATE			MIN				MIN		MIN			
2-20-89			MIN				MIN		MIN			
ORGANIZATION			MIN				MIN		MIN			
Hunter / ESE			MIN				MIN		MIN			
CERTIFIED BY			MIN				MIN		MIN			
Eastern Tech. Assoc.			MIN				MIN		MIN			
DATE			MIN				MIN		MIN			
9-8-88			MIN				MIN		MIN			
VERIFIED BY			MIN				MIN		MIN			
DATE			MIN				MIN		MIN			

SOURCE NAME			OBSERVATION DATE				START TIME				STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/22/89				1100				1200			
ADDRESS			SEC				SEC							
6020 WILLIAM MILLS ST.			MIN	0	15	30	45	MIN	0	15	30	45		
			1	30	0	0	0	31						
CITY			STATE				ZIP							
JACKSONVILLE			FL				32226							
PHONE			SOURCE ID NUMBER											
904-751-7729			HOPPER - DRY											
PROCESS EQUIPMENT			OPERATING MODE											
SHIP UNLOADER			NORMAL											
CONTROL EQUIPMENT			OPERATING MODE											
BAG HOUSE			NORMAL											
DESCRIBE EMISSION POINT			START				STOP							
40' x 40' OPENING														
HEIGHT ABOVE GROUND LEVEL			HEIGHT RELATIVE TO OBSERVER											
START 80' STOP ✓			START 50' STOP ✓											
DISTANCE FROM OBSERVER			DIRECTION FROM OBSERVER											
START 70' STOP ✓			START N STOP ✓											
DESCRIBE EMISSIONS														
START COAL DUST STOP ✓														
EMISSION COLOR			PLUME TYPE: CONTINUOUS <input type="checkbox"/>											
START BLACK STOP ✓			FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>											
WATER DROPLETS PRESENT:			IF WATER DROPLET PLUME											
NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>											
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED														
START 3' ABOVE HOPPER STOP ✓														
DESCRIBE BACKGROUND														
START SKY STOP ✓														
BACKGROUND COLOR			SKY CONDITIONS											
START WHITE STOP ✓			START OVERCAST STOP ✓											
WIND SPEED			WIND DIRECTION											
START 15 MPH STOP ✓			START N STOP ✓											
AMBIENT TEMP.			WET BULB TEMP.		RH. percent									
START 62°F STOP ✓			60 OF		90.70									
Source Layout Sketch			Draw North Arrow											
AVERAGE OPACITY FOR HIGHEST PERIOD			NUMBER OF READINGS ABOVE											
0.670			0.6% WERE				3							
RANGE OF OPACITY READINGS			MINIMUM				MAXIMUM							
			0				5							
OBSERVER'S NAME (PRINT)			OBSERVER'S SIGNATURE				DATE							
THERESA A. BARNARD			Theresa A. Barnard				2/22/89							
COMMENTS HOLD NUMBER IN CORNER INDICATES MOVE TO DIFFERENT HOLD.			ORGANIZATION											
			HUNTER/ES&E											
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE			CERTIFIED BY				DATE							
			EASTON TECH. ASSOC				11/30/88							
TITLE			DATE				VERIFIED BY				DATE			

SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/22/89				12:15		12:30			
ADDRESS			SEC				SEC		TRG			
6020 WILLIAM MILLS ST.			MIN	0	15	30	45	MIN	0	15	30	45
CITY			1				31					
JACKSONVILLE			2				32					
STATE			3				33					
FL			4				34					
ZIP			5				35					
32224			6				36					
PHONE			6				36					
904-751-7729			7				37					
SOURCE ID NUMBER			8				38					
TRANSFER STN #1			9				39					
PROCESS EQUIPMENT			10				40					
TRANSFER STATION			11				41					
OPERATING MODE			12				42					
NORMAL			13				43					
CONTROL EQUIPMENT			14				44					
WET SUPPRESSOR/ENCLOSURE			15				45					
OPERATING MODE			16				46					
NORMAL			17				47					
DESCRIBE EMISSION POINT			18				48					
START STOP			19				49					
HEIGHT ABOVE GROUND LEVEL			20				50					
START 30' STOP ✓			21				51					
HEIGHT RELATIVE TO OBSERVER			22				52					
START 30' STOP ✓			23				53					
DISTANCE FROM OBSERVER			24				54					
START 70' STOP ✓			25				55					
DIRECTION FROM OBSERVER			26				56					
START NE STOP ✓			27				57					
DESCRIBE EMISSIONS			28				58					
START NONE STOP			29				59					
EMISSION COLOR			30				60					
START STOP			AVERAGE OPACITY FOR HIGHEST PERIOD				NUMBER OF READINGS ABOVE 0% WERE 0					
PLUME TYPE: CONTINUOUS <input type="checkbox"/>			0.70									
FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>			RANGE OF OPACITY READINGS									
WATER DROPLETS PRESENT: NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			MINIMUM				MAXIMUM 0					
IF WATER DROPLET PLUME ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>												
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			OBSERVER'S NAME (PRINT)				THERESA A. BARNARD					
START 1' ABOVE TRANSFER STATION			OBSERVER'S SIGNATURE				Theresa A. Barnard					
DESCRIBE BACKGROUND			DATE				2/22/89					
START SKY STOP ✓			ORGANIZATION				HUNTER ESE					
BACKGROUND COLOR			OBSERVER'S NAME (PRINT)				THERESA A. BARNARD					
START WHITE STOP ✓			OBSERVER'S SIGNATURE				Theresa A. Barnard					
SKY CONDITIONS			DATE				2/22/89					
START OVERCAST STOP ✓			ORGANIZATION				HUNTER ESE					
WIND SPEED			CERTIFIED BY				EASTERN TECH. ASSOC					
START 15 mph STOP			DATE				11/30/88					
WIND DIRECTION			VERIFIED BY									
START N NW STOP ✓			TITLE									
AMBIENT TEMP.			DATE									
START 61°F STOP ✓			DATE									
WET BULB TEMP.												
58°F												
RH, percent												
84%												
SOURCE LAYOUT SKETCH												
DRAW NORTH ARROW												
<p>Source Layout Sketch</p> <p>Draw North Arrow</p> <p>X Emission Point</p> <p>Sun ← Wind →</p> <p>Plume and Stack</p> <p>Observers Position</p> <p>Sun Location Line</p>												
COMMENTS												
FROM SOUTH SIDE OF TRANSFER STATION												
HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE												
TITLE												
DATE												

SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME																
ST. JOHNS RIVER COAL TERMINAL			2/22/89				1230		1245																
ADDRESS			SEC		MIN		SEC		MIN		SEC														
6020 WILLIAM MILLS ST.			0	15	30	45	0	15	30	45															
CITY			STATE		ZIP		1		2		3														
JACKSONVILLE			FL		32226		31		32		33														
PHONE			SOURCE ID NUMBER			4			5			6													
904-751-7729			TRANSFER STN #1			34			35			36													
PROCESS EQUIPMENT			OPERATING MODE			7			8			9													
TRANSFER STATION			NORMAL			37			38			39													
CONTROL EQUIPMENT			OPERATING MODE			10			11			12													
SUPPRESSION/ENCLOSURE			NORMAL			40			41			42													
DESCRIBE EMISSION POINT												13		14		15		16		17		18			
START			STOP			38		39		40		41		42		43		44		45					
HEIGHT ABOVE GROUND LEVEL			HEIGHT RELATIVE TO OBSERVER			9		10		11		12		13		14		15		16					
START 30' STOP ✓			START 30' STOP ✓			39		40		41		42		43		44		45		46					
DISTANCE FROM OBSERVER			DIRECTION FROM OBSERVER			10		11		12		13		14		15		16		17					
START 70' STOP ✓			START SE STOP ✓			40		41		42		43		44		45		46		47					
DESCRIBE EMISSIONS												18		19		20		21		22		23			
START NONE			STOP			42		43		44		45		46		47		48		49					
EMISSION COLOR			PLUME TYPE: CONTINUOUS <input type="checkbox"/>			13		14		15		16		17		18		19		20					
START STOP			FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>			43		44		45		46		47		48		49		50					
WATER DROPLETS PRESENT:			IF WATER DROPLET PLUME:			14		15		16		17		18		19		20		21					
NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>			45		46		47		48		49		50		51		52					
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED												22		23		24		25		26		27			
START ABOVE			STOP			46		47		48		49		50		51		52		53					
START TRANSFER STATION			STOP			47		48		49		50		51		52		53		54					
DESCRIBE BACKGROUND												27		28		29		30		31		32			
START SKY			STOP ✓			48		49		50		51		52		53		54		55					
BACKGROUND COLOR			SKY CONDITIONS			19		20		21		22		23		24		25		26					
START WHITE STOP ✓			START OVERCAST STOP ✓			50		51		52		53		54		55		56		57					
WIND SPEED			WIND DIRECTION			21		22		23		24		25		26		27		28					
START 15 mph STOP ✓			START NNW STOP ✓			51		52		53		54		55		56		57		58					
AMBIENT TEMP.			WET BULB TEMP.		RH, percent		22		23		24		25		26		27		28						
START 61°F STOP ✓			58°F		84%		52		53		54		55		56		57		58						
<p>Source Layout Sketch      Draw North Arrow</p>												24		25		26		27		28		29		30	
AVERAGE OPACITY FOR HIGHEST PERIOD												25		26		27		28		29		30			
0%												54		55		56		57		58					
NUMBER OF READINGS ABOVE 0% WERE 0												26		27		28		29		30		31			
RANGE OF OPACITY READINGS												27		28		29		30		31		32			
MINIMUM 0												28		29		30		31		32		33			
MAXIMUM 0												29		30		31		32		33		34			
OBSERVER'S NAME (PRINT)												30		31		32		33		34		35			
THERESA A. BARNARD												31		32		33		34		35		36			
OBSERVER'S SIGNATURE												32		33		34		35		36		37			
Theresa A. Barnard												33		34		35		36		37		38			
DATE												34		35		36		37		38		39			
2/22/89												35		36		37		38		39		40			
ORGANIZATION												36		37		38		39		40		41			
HUNTER/ESG												37		38		39		40		41		42			
COMMENTS												38		39		40		41		42		43			
FROM NORTH SIDE OF												39		40		41		42		43		44			
TRANSFER STATION												40		41		42		43		44		45			
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS												41		42		43		44		45		46			
SIGNATURE												42		43		44		45		46		47			
CERTIFIED BY												43		44		45		46		47		48			
EASTON TECH. ASSOC												44		45		46		47		48		49			
DATE												45		46		47		48		49		50			
11/30/88												46		47		48		49		50		51			
TITLE												47		48		49		50		51		52			
DATE												48		49		50		51		52		53			
VERIFIED BY												49		50		51		52		53		54			
DATE												50		51		52		53		54		55			

SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME					
ST. Johns River Coal Terminal			2-22-89				11:00 / 11:20		11:15 / 11:35					
ADDRESS			SEC	MIN	0	15	30	45	SEC	MIN	0	15	30	45
6020 William Mills ST.			1	0	0	0	0	0	31	0	0	0	0	0
CITY			2	0	0	0	0	0	32					
Jacksonville			3	0	0	0	0	0	33					
STATE			4	0	0	0	0	0	34					
Florida			5	0	0	0	0	0	35					
ZIP			6	0	0	0	0	0	36					
32226			7	0	0	0	0	0	37					
PHONE			8	0	0	0	0	0	38					
904-751-7729			9	0	0	0	0	0	39					
SOURCE ID NUMBER			10	0	0	0	0	0	40					
#3			11	0	0	0	0	0	41					
PROCESS EQUIPMENT			12	0	0	0	0	0	42					
Coal Conveyor CT-2			13	0	0	0	0	0	43					
OPERATING MODE			14	0	0	0	0	0	44					
Normal			15	0	0	0	0	0	45					
CONTROL EQUIPMENT			16						46					
Enclosed / Upstream Super			17	0	0	0	0	0	47					
OPERATING MODE			18	0	0	0	0	0	48					
Normal			19	0	0	0	0	0	49					
DESCRIBE EMISSION POINT			20	0	0	0	0	0	50					
START Covered Conveyor STOP ✓			21	0	0	0	0	0	51					
HEIGHT ABOVE GROUND LEVEL			22	0	0	0	0	0	52					
START 8' STOP ✓			23	0	0	0	0	0	53					
HEIGHT RELATIVE TO OBSERVER			24	0	0	0	0	0	54					
START 4' under STOP ✓			25	0	0	0	0	0	55					
DISTANCE FROM OBSERVER			26	0	0	0	0	0	56					
START 4' under STOP ✓			27	0	0	0	0	0	57					
DIRECTION FROM OBSERVER			28	0	0	0	0	0	58					
START WNW STOP ✓			29	0	0	0	0	0	59					
DESCRIBE EMISSIONS			30	0	0	0	0	0	60					
START None STOP ✓			AVERAGE OPACITY FOR HIGHEST PERIOD		0		NUMBER OF READINGS ABOVE % WERE		0					
EMISSION COLOR			RANGE OF OPACITY READINGS		0		MINIMUM		0		MAXIMUM			
START None STOP ✓			OBSERVER'S NAME (PRINT)		Pamela Jean McElroy		OBSERVER'S SIGNATURE		Pamela J. McElroy		DATE		2-22-89	
PLUME TYPE CONTINUOUS <input type="checkbox"/>			OBSERVER'S ORGANIZATION		Hunter / ESE		CERTIFIED BY		Eastern Tech. Assoc.		DATE		9-8-1988	
FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>			I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS		SIGNATURE		TITLE		DATE					
WATER DROPLETS PRESENT: NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			IF WATER DROPLET PLUME ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>											
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED														
START over outside STOP ✓														
DESCRIBE BACKGROUND														
START Ground / Vegetation STOP ✓														
BACKGROUND COLOR														
START Brownish STOP ✓														
SKY CONDITIONS														
START Overcast STOP ✓														
WIND SPEED														
START 8-10 mph STOP ✓														
WIND DIRECTION														
START NNE STOP ✓														
AMBIENT TEMP.														
START 61 STOP ✓														
WET BULB TEMP.														
START 58														
RH. percent														
START 84														
SOURCE LAYOUT SKETCH														
<p>Source Layout Sketch: A diagram showing a conveyor belt (Dirt Rd.) with an emission point (X) above it. An observer's position is marked with a circle and a line indicating a 140-degree angle from the sun location line. A north arrow is also present.</p>														
COMMENTS														
No Sun														
2-15 minute VE.'s														

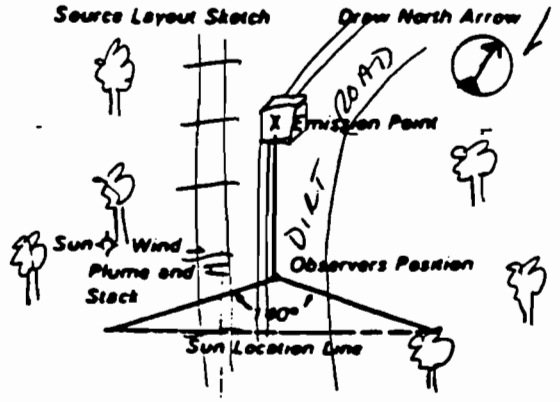


SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME			
ST. Johns River Coal Terminal			2-22-89				11:45		12:00			
ADDRESS			SEC	0	15	30	45	SEC	0	15	30	45
6220 William Mill ST.			MIN	0	15	30	45	MIN	0	15	30	45
CITY			1	0	0	0	0	31				
Jacksonville			2	0	0	0	0	32				
STATE			3	0	0	0	0	33				
Florida			4	0	0	0	0	34				
ZIP			5	0	0	0	0	35				
32226			6	0	0	0	0	36				
PHONE			7	0	0	0	0	37				
904-751-7729			8	0	0	0	0	38				
SOURCE ID NUMBER			9	0	0	0	0	39				
#4 Transfer Station Location #2			10	0	0	0	0	40				
PROCESS EQUIPMENT			11	0	0	0	0	41				
Coal Conveyor Transfer Sta. #2			12	0	0	0	0	42				
OPERATING MODE			13	0	0	0	0	43				
Normal			14	0	0	0	0	44				
CONTROL EQUIPMENT			15	0	0	0	0	45				
Net Suppression			16					46				
OPERATING MODE			17					47				
Normal			18					48				
DESCRIBE EMISSION POINT			19					49				
START COVERED CONVEYOR TRANSFER STATION STOP			20					50				
HEIGHT ABOVE GROUND LEVEL			21					51				
START 30' STOP ✓			22					52				
HEIGHT RELATIVE TO OBSERVER			23					53				
START 30' STOP ✓			24					54				
DISTANCE FROM OBSERVER			25					55				
START 120' STOP ✓			26					56				
DIRECTION FROM OBSERVER			27					57				
START NNW STOP ✓			28					58				
DESCRIBE EMISSIONS			29					59				
START None STOP ✓			30					60				
EMISSION COLOR			AVERAGE OPACITY FOR HIGHEST PERIOD	0				NUMBER OF READINGS ABOVE 0% WERE	0			
START None STOP ✓			RANGE OF OPACITY READINGS	MINIMUM	0			MAXIMUM	0			
PLUME TYPE CONTINUOUS <input type="checkbox"/>			OBSERVER'S NAME (PRINT)	Patricia J. McElroy				OBSERVER'S SIGNATURE	Patricia J. McElroy			
FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>			OBSERVER'S SIGNATURE	Patricia J. McElroy				DATE	2-22-89			
WATER DROPLETS PRESENT: NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			ORGANIZATION	Hunter/ESE				CERTIFIED BY	Eastern Tech. Assoc.			
WATER DROPLET PLUME ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>			HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS	SIGNATURE				DATE	9-8-88			
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			TITLE					DATE				
START Outside of Baghouse STOP ✓			DATE					VERIFIED BY				
DESCRIBE BACKGROUND			DATE					DATE				
START Sky STOP ✓			DATE					DATE				
BACKGROUND COLOR			DATE					DATE				
START Grey STOP			DATE					DATE				
SKY CONDITIONS			DATE					DATE				
START Overcast STOP			DATE					DATE				
WIND SPEED			DATE					DATE				
START 4-6 STOP ✓			DATE					DATE				
WIND DIRECTION			DATE					DATE				
START NNW STOP ✓			DATE					DATE				
AMBIENT TEMP.			DATE					DATE				
START 61 STOP ✓			DATE					DATE				
WET BULB TEMP.			DATE					DATE				
58			DATE					DATE				
RH, percent			DATE					DATE				
84			DATE					DATE				
SOURCE LAYOUT SKETCH			DATE					DATE				
			DATE					DATE				
<p>Draw North Arrow</p> <p>Transfer Station Hopper</p> <p>Emission Point</p> <p>Sun Wind</p> <p>Plume and Stack</p> <p>Observer Position</p> <p>Bushes</p> <p>Sun Location Line</p>			DATE					DATE				
COMMENTS			DATE					DATE				
NO SUN			DATE					DATE				
15 MINUTE V.E.			DATE					DATE				

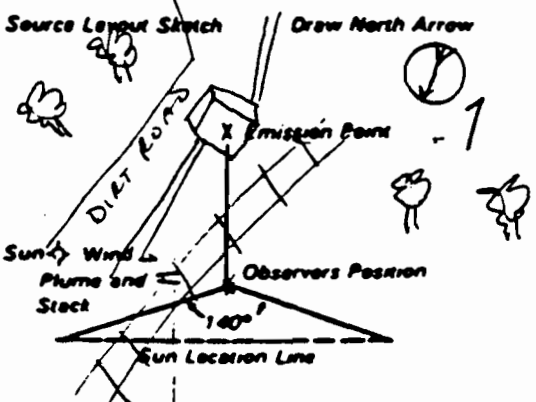
SOURCE NAME			OBSERVATION DATE				START TIME				STOP TIME					
ST. Johns River Coal Terminal			2-22-89				12:10				12:25					
ADDRESS			SEC		MIN		SEC		MIN		SEC		MIN			
6020 William Mills St.			0	15	30	45	0	15	30	45	0	15	30	45		
CITY			STATE		ZIP		1		2		3		4			
Jacksonville			Florida		32226		0		0		0		0			
PHONE			SOURCE ID NUMBER		NORTH		4		5		6		7			
904-751-7729			#4 Transfer Station				0		0		0		0			
PROCESS EQUIPMENT			OPERATING MODE		8		0		0		0		0			
Coal Conveyor Transfer Station			#2 - Normal		9		0		0		0		0			
CONTROL EQUIPMENT			OPERATING MODE		6		0		0		0		0			
Wet Suppression			Normal		7		0		0		0		0			
DESCRIBE EMISSION POINT			START		8		0		0		0		0			
CONVEYOR TRANSFER STATION			STOP ✓		9		0		0		0		0			
HEIGHT ABOVE GROUND LEVEL			HEIGHT RELATIVE TO OBSERVER		10		0		0		0		0			
START 30' STOP ✓			START 30' STOP ✓		11		0		0		0		0			
DISTANCE FROM OBSERVER			DIRECTION FROM OBSERVER		12		0		0		0		0			
START 120' STOP ✓			START NNE STOP ✓		13		0		0		0		0			
DESCRIBE EMISSIONS			START		14		0		0		0		0			
START NONE STOP ✓			STOP ✓		15		0		0		0		0			
EMISSION COLOR			PLUME TYPE CONTINUOUS <input type="checkbox"/>		16											
START NONE STOP ✓			FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>		17											
WATER DROPLETS PRESENT:			WATER DROPLET PLUME		18											
NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>		19											
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			START		20											
START Outside of Bushes STOP			STOP		21											
DESCRIBE BACKGROUND			START		22											
START Sky Superstreaks STOP ✓			STOP ✓		23											
BACKGROUND COLOR			SKY CONDITIONS		24											
START Grey STOP ✓			START Overcast STOP ✓		25											
WIND SPEED <sup>MPH</sup>			WIND DIRECTION		26											
START 4-6 STOP ✓			START NNW STOP ✓		27											
AMBIENT TEMP			WET BULB TEMP.		28											
START 61 STOP			58		29											
			RH, percent		30											
			84		31											
<p>Source Layout Sketch</p> <p>Draw North Arrow</p> <p>Top of Transfer Station</p> <p>Emission Point</p> <p>Sun ← Wind →</p> <p>Plume and Stock</p> <p>Observers Position</p> <p>Sun Location Left</p> <p>Bushes</p> <p>TOWER BLOCK</p>			AVERAGE OPACITY FOR HIGHEST PERIOD		NUMBER OF READINGS ABOVE % WERE		32									
			RANGE OF OPACITY READINGS		MINIMUM		MAXIMUM		33							
			OBSERVER'S NAME (PRINT)			Pamela J. McElroy			34							
			OBSERVER'S SIGNATURE			Pamela J. McElroy			DATE		35		36		37	
			ORGANIZATION			NUNTER/ESE			38							
			CERTIFIED BY			Eastern Tech Assoc.			DATE		39		40		41	
			VERIFIED BY						DATE		42		43		44	
			TITLE						DATE		45		46		47	
			DATE						DATE		48		49		50	
			DATE						DATE		51		52		53	
DATE						DATE		54		55		56				
DATE						DATE		57		58		59				
DATE						DATE		60		61		62				

SOURCE NAME			OBSERVATION DATE				START TIME				STOP TIME			
ST. Johns River Coal Terminal			2-22-89				12:40 / 13:00				12:55 / 13:15			
ADDRESS			SEC				MIN				SEC			
6020 William Mills ST.			0 15 30 45				0 15 30 45				0 15 30 45			
CITY			STATE				ZIP							
Jacksonville			Florida				32206							
PHONE			SOURCE ID NUMBER											
904-751-7729			# 5											
PROCESS EQUIPMENT			OPERATING MODE											
CT-3 Coal Conveyor			Normal											
CONTROL EQUIPMENT			OPERATING MODE											
Enclosed / Upstream Suppressor			Normal											
DESCRIBE EMISSION POINT														
START OUTSIDE COVERED CONVEYOR ✓														
HEIGHT ABOVE GROUND LEVEL			HEIGHT RELATIVE TO OBSERVER											
START 0' STOP ✓			START 4' STOP ✓											
DISTANCE FROM OBSERVER			DIRECTION FROM OBSERVER											
START 4' UNDER STOP ✓			START WNW STOP ✓											
DESCRIBE EMISSIONS														
START None STOP ✓														
EMISSION COLOR			PLUME TYPE CONTINUOUS <input type="checkbox"/>											
START None STOP ✓			FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>											
WATER DROPLETS PRESENT:			WATER DROPLET PLUME											
NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>											
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED														
START OUTSIDE COVERED CONVEYOR ✓														
DESCRIBE BACKGROUND														
START Grey / Sky STOP ✓														
BACKGROUND COLOR			SKY CONDITIONS											
START Grey STOP ✓			START Overcast STOP ✓											
WIND SPEED			WIND DIRECTION											
START 6-8 mph STOP ✓			START NNW STOP ✓											
AMBIENT TEMP.			WET BULB TEMP.				RH Percent							
START 61 STOP ✓			58				84							
<p>AVERAGE OPACITY FOR HIGHEST PERIOD 0</p> <p>RANGE OF OPACITY READINGS MINIMUM 0 MAXIMUM 0</p> <p>NUMBER OF READINGS ABOVE % WERE 0</p>														
OBSERVER'S NAME (PRINT)														
Pamela J. McElroy														
OBSERVER'S SIGNATURE											DATE			
Pamela J. McElroy											2-22-89			
ORGANIZATION														
HUNTER / ESE														
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			CERTIFIED BY				DATE							
SIGNATURE			Eastern Assoc.				September 8, 1988							
TITLE			DATE				DATE							

SOURCE NAME			OBSERVATION DATE				START TIME		STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/22/89				1320		1335			
ADDRESS			SEC				MIN		SEC			
0000 WILLIAM MILLS ST.			MIN	0	15	30	45	MIN	0	15	30	45
			1	0	0	0	0	31				
CITY JACKSONVILLE			2	0	0	0	0	32				
STATE FL			3	0	0	0	0	33				
ZIP 32226			4	0	0	0	0	34				
PHONE 904-751-7729			5	0	0	0	0	35				
SOURCE ID NUMBER 6			6	0	0	0	0	36				
TRANSFER STN #3			7	0	0	0	0	37				
PROCESS EQUIPMENT TRANSFER STATION			8	0	0	0	0	38				
OPERATING MODE NORMAL			9	0	0	0	0	39				
CONTROL EQUIPMENT WET SUPPRESSION/ENCLOSURE			10	0	0	0	0	40				
OPERATING MODE NORMAL			11	0	0	0	0	41				
DESCRIBE EMISSION POINT			12	0	0	0	0	42				
START STOP			13	0	0	0	0	43				
HEIGHT ABOVE GROUND LEVEL START 50 STOP			14	0	0	0	0	44				
HEIGHT RELATIVE TO OBSERVER START 20' STOP ✓			15	0	0	0	0	45				
DISTANCE FROM OBSERVER START 40' STOP ✓			16					46				
DIRECTION FROM OBSERVER START N STOP ✓			17					47				
DESCRIBE EMISSIONS			18					48				
START NONE STOP			19					49				
EMISSION COLOR			20					50				
START STOP			21					51				
PLUME TYPE: CONTINUOUS <input type="checkbox"/>			22					52				
FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>			23					53				
WATER DROPLETS PRESENT: NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			24					54				
IF WATER DROPLET PLUME: ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>			25					55				
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			26					56				
START 1' ABOVE TRANSFER STATION			27					57				
DESCRIBE BACKGROUND			28					58				
START SKY STOP ✓			29					59				
BACKGROUND COLOR			30					60				
START WHITE STOP ✓			AVERAGE OPACITY FOR HIGHEST PERIOD 0% WERE 0									
SKY CONDITIONS			RANGE OF OPACITY READINGS MINIMUM 0 MAXIMUM 0									
START OVERCAST STOP ✓			OBSERVER'S NAME (PRINT) THERESA A. BARNARD									
WIND SPEED			OBSERVER'S SIGNATURE Theresa A. Barnard									
START 15 mph STOP ✓			DATE 2/22/89									
WIND DIRECTION			ORGANIZATION HUNTER/ESE									
START N STOP ✓			I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS									
AMBIENT TEMP. START 64° F STOP ✓			SIGNATURE									
WET BULB TEMP. 60° F			DATE 11/30/88									
RH. percent 84%			TITLE									
			DATE									
			VERIFIED BY									
			DATE									



SOURCE NAME			OBSERVATION DATE				START TIME				STOP TIME						
ST. JOHNS RIVER COAL TERMINAL			2/22/89				1335				1350						
ADDRESS			SEC				SEC				SEC						
6020 WILLIAM MILLS ST.			MIN	0	15	30	45	MIN	0	15	30	45	MIN	0	15	30	45
CITY			1				2				3						
JACKSONVILLE			0 0 0 0 0				31										
STATE			2				3				4						
FL			0 0 0 0 0				32										
ZIP			3				4				5						
32226			0 0 0 0 0				33										
PHONE			4				5				6						
904-751-7729			0 0 0 0 0				34										
SOURCE ID NUMBER			6				7				8						
TRANSFER STN #3			0 0 0 0 0				35										
PROCESS EQUIPMENT			6				7				8						
WITH TRANSFER STATION			0 0 0 0 0				36										
OPERATING MODE			7				8				9						
NORMAL			0 0 0 0 0				37										
CONTROL EQUIPMENT WGT			8				9				10						
SUPPRESSION ENCLOSURE			0 0 0 0 0				38										
OPERATING MODE			9				10				11						
NORMAL			0 0 0 0 0				39										
DESCRIBE EMISSION POINT			10				11				12						
START STOP			0 0 0 0 0				40										
HEIGHT ABOVE GROUND LEVEL			11				12				13						
START 50' STOP ✓			0 0 0 0 0				41										
HEIGHT RELATIVE TO OBSERVER			12				13				14						
START 50' STOP ✓			0 0 0 0 0				42										
DISTANCE FROM OBSERVER			13				14				15						
START 75' STOP ✓			0 0 0 0 0				43										
DIRECTION FROM OBSERVER			14				15				16						
START SE STOP ✓			0 0 0 0 0				44										
DESCRIBE EMISSIONS			15				16				17						
START NONE STOP			0 0 0 0 0				45										
EMISSION COLOR			16				17				18						
START STOP			0 0 0 0 0				46										
PLUME TYPE: CONTINUOUS <input type="checkbox"/>			17				18				19						
FUGITIVE <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/>			0 0 0 0 0				47										
WATER DROPLETS PRESENT:			18				19				20						
NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>			0 0 0 0 0				48										
IF WATER DROPLET PLUME			19				20				21						
ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/>							49										
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			20				21				22						
START 1' ABOVE TRANSFER STATION							50										
DESCRIBE BACKGROUND			21				22				23						
START SKY STOP ✓							51										
BACKGROUND COLOR			22				23				24						
START WHITE STOP ✓							52										
SKY CONDITIONS			23				24				25						
START OVERCAST STOP ✓							53										
WIND SPEED			24				25				26						
START 15 mph STOP ✓							54										
WIND DIRECTION			25				26				27						
START N STOP ✓							55										
AMBIENT TEMP			26				27				28						
START 64°F STOP ✓							56										
WET BULB TEMP.			27				28				29						
60°F							57										
RH, percent			28				29				30						
84%							58										
AVERAGE OPACITY FOR HIGHEST PERIOD			29				30				31						
0%							59										
NUMBER OF READINGS ABOVE			30				31				32						
0% WERE 0							60										
RANGE OF OPACITY READINGS			31				32				33						
MINIMUM 0 MAXIMUM 0																	
OBSERVER'S NAME (PRINT)			32				33				34						
THERESA A. BARNARD							61										
OBSERVER'S SIGNATURE			33				34				35						
Theresa A. Barnard							62										
DATE			34				35				36						
2/22/89							63										
ORGANIZATION			35				36				37						
HUNTER / ESE							64										
COMMENTS			36				37				38						
FROM NW SIDE OF							65										
TRANSFER STATION			37				38				39						
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS							66										
SIGNATURE			38				39				40						
CERTIFIED BY							67										
EASTON TECH. ASSOC							68										
DATE			39				40				41						
11/30/88							69										
TITLE			40				41				42						
DATE			41				42				43						
VERIFIED BY			42				43				44						
DATE			43				44				45						





EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 003-1 Page 1 of 2  
 Continued on VEO Form Number 003-2

Method Method 9 (Circle One) 203A 203B Other: \_\_\_\_\_

Company Name  
ST. JOHNS RIVER POWER PARK

Facility Name  
ST. JOHNS RIVER POWER PARK

Street Address  
11201 NEW BERLIN ROAD

City JACKSONVILLE State FL Zip 32226

Process SHIP UNLOADING LIMESTONE Unit # \_\_\_\_\_ Operating Mode 59% CAPACITY

Control Equipment WET SUPPRESSION Operating Mode 0% CAPACITY

Describe Emission Point  
SHIP UNLOADER HOPPER

Height of Emiss. Pt. Start 80' End 80' Height of Emiss. Pt. Rel. to Observer Start 35' End 35'

Distance to Emiss. Pt. Start 35' End 35' Direction to Emiss. Pt. (Degrees) Start 315° End 315°

Vertical Angle to Obs. Pt. Start 45° End 45° Direction to Obs. Pt. (Degrees) Start 315° End 315°

Distance and Direction to Observation Point from Emission Point Start 0-0 End 0-0

Describe Emissions Start NONE End NONE

Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_

Start NONE End NONE Attached  Detached  None

Describe Plume Background Start OPEN SKY End OPEN SKY

Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_

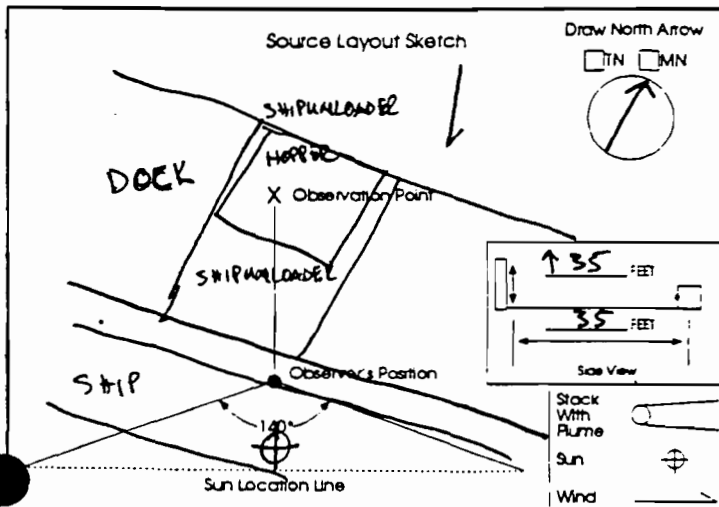
Start BLUE End BLUE Start SCATTERED End SCATTERED

Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_

Start 0-3 End 0-3 Start NAW End NAW

Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_

Start 70°F End 70°F



Longitude N 30° 23' 27" Latitude W 81° 31' 57" Declination \_\_\_\_\_

Additional Information

Observation Date	Time Zone	Start Time	End Time	Comments				
2/6/99	EST	10:00	11:00					
Sec	0	15	30	45				
Min	0	0	0	0				
1	0	0	0	0				
2	0	0	0	0				
3	0	0	0	0				
4	0	0	0	0				
5	0	0	0	0				
6	0	0	0	0				
7	0	0	0	0				
8	0	0	0	0				
9	0	0	0	0				
10	0	0	0	0				
11	0	0	0	0				
12	0	0	0	0				
13	0	0	0	0				
14	0	0	0	0				
15	0	0	0	0				
16	0	0	0	0				
17	0	0	0	0				
18	0	0	0	0				
19	0	0	0	0				
20	0	0	0	0				
21	0	0	0	0				
22	0	0	0	0				
23	0	0	0	0				
24	0	0	0	0				
25	0	0	0	0				
26	0	0	0	0				
27	0	0	0	0				
28	0	0	0	0				
29	0	0	0	0				
30	0	0	0	0				

Observer's Name (Print) MARK K. LOEVELT

Observer's Signature Mark K. Lovelt Date 2/6/99

Organization ST. JOHNS RIVER POWER PARK

Certified By EASTERN TECHNICAL ASSOCIATES Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 003-2 Page 2 of 2  
 Continued on VEO Form Number 003-1

Method used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name  
ST. JOHNS RIVER POWER PARK  
 Facility Name  
ST. JOHNS RIVER POWER PARK  
 Street Address  
11201 NEW BELLAM ROAD  
 City JACKSONVILLE State FL Zip 32226

Process SHIP UNLOADING LIMESTONE Unit # \_\_\_\_\_ Operating Mode \_\_\_\_\_  
 Control Equipment \_\_\_\_\_ Operating Mode \_\_\_\_\_

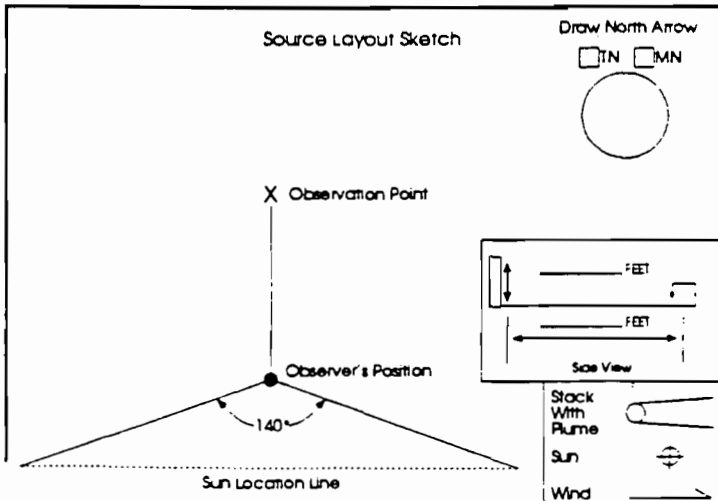
Describe Emission Point  
SHIP UNLOADER HOPPER

Height of Emiss. Pt. \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. \_\_\_\_\_ Direction to Obs. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point \_\_\_\_\_  
 ft \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_



Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_

Additional information

Sec Min	Time Zone				Start Time	End Time	Comments
	0	15	30	45			
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print)  
MARK K. LOECHL  
 Observer's Signature  
Mark K. Loechl Date 2/6/98  
 Organization  
ST. JOHNS RIVER POWER PARK  
 Carried By  
EASTERN TECHNICAL ASSOCIATES Date 12/3/98



EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method used (Circle One) Method 9 203A 2038 Other: \_\_\_\_\_

Company Name  
ST. JOHNS RIVER POWER PARK

Facility Name  
ST. JOHNS RIVER POWER PARK

Street Address  
11201 NEW BERLIN ROAD

City JACKSONVILLE State FL Zip 32226

Process SHIP UNLOADING LIMESTONE Unit # \_\_\_\_\_ Operating Mode 59% CAPACITY

Control Equipment WET SUPPRESSION Operating Mode 0% CAPACITY

Describe Emission Point  
TRANSFER POINT HOPPER TO CONVEYOR CT-1

Height of Emiss. Pt. Start 65' End 65' Height of Emiss. Pt. Rel. to Observer Start 10' End 10'

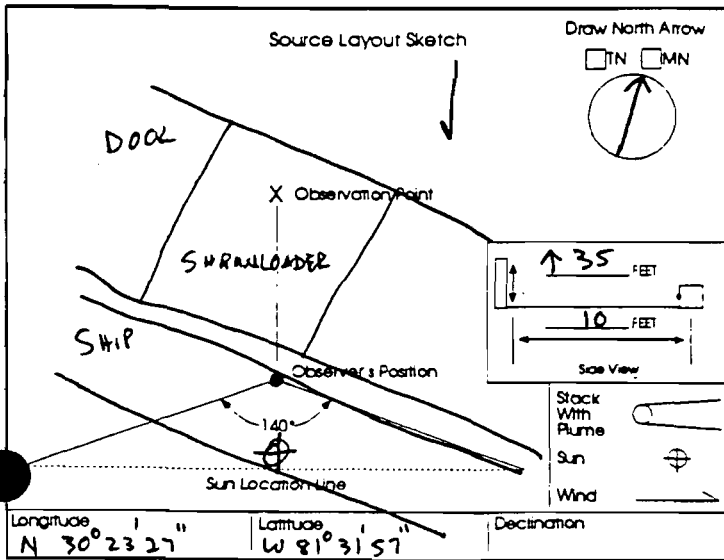
Distance to Emiss. Pt. Start 35' End 35' Direction to Emiss. Pt. (Degrees) Start 315° End 315°

Vertical Angle to Obs. Pt. Start 15° End 15° Direction to Obs. Pt. (Degrees) Start 315° End 315°

Distance and Direction to Observation Point from Emission Point Start 0'-0" End 0'-0"

Describe Emissions  
Start NONE End NONE  
Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
Start NONE End NONE Attached  Detached  None

Describe Plume Background  
Start LIMESTONE HOPPER End LIMESTONE HOPPER  
Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
Start DARK BLUE End DARK BLUE Start SCATTERED End SCATTERED  
Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
Start 0-3 End 0-3 Start NNW End NNW  
Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
Start 70°F End 70°F



Additional Information

Form Number 006-1 Page 1 of 2  
Continued on VEO Form Number 006-2

Observation Date	Time Zone	Start Time	End Time					
<u>2/6/99</u>	<u>EST</u>	<u>10:00</u>	<u>11:00</u>					
Sec	Mn	0	15	30	45	Comments		
1	0	0	0	0	0			
2	0	0	0	0	0			
3	0	0	0	0	0			
4	0	0	0	0	0			
5	0	0	0	0	0			
6	0	0	0	0	0			
7	0	0	0	0	0			
8	0	0	0	0	0			
9	0	0	0	0	0			
10	0	0	0	0	0			
11	0	0	0	0	0			
12	0	0	0	0	0			
13	0	0	0	0	0			
14	0	0	0	0	0			
15	0	0	0	0	0			
16	0	0	0	0	0			
17	0	0	0	0	0			
18	0	0	0	0	0			
19	0	0	0	0	0			
20	0	0	0	0	0			
21	0	0	0	0	0			
22	0	0	0	0	0			
23	0	0	0	0	0			
24	0	0	0	0	0			
25	0	0	0	0	0			
26	0	0	0	0	0			
27	0	0	0	0	0			
28	0	0	0	0	0			
29	0	0	0	0	0			
30	0	0	0	0	0			

Observer's Name (Print) MARK V. LOECHELT

Observer's Signature Mark V. Lochelt Date 2/6/99

Organization ST. JOHNS RIVER POWER PARK

Certified By EASTERN TECHNICAL ASSOCIATES Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 006-2 Page 2 of 2  
 Continued on VEO Form Number 006-1

Method used (Circle One)  
 (Method 9) 203A 203B Other: \_\_\_\_\_

Company Name  
ST. JOHNS RIVER POWER PARK  
 Facility Name  
ST. JOHNS RIVER POWER PARK  
 Street Address  
11201 NEW BERLIN ROAD  
 City State Zip  
JACKSONVILLE FL. 32226

Process Unit # Operating Mode  
SHIP UNLOADING LIMESTONE  
 Control Equipment Operating Mode

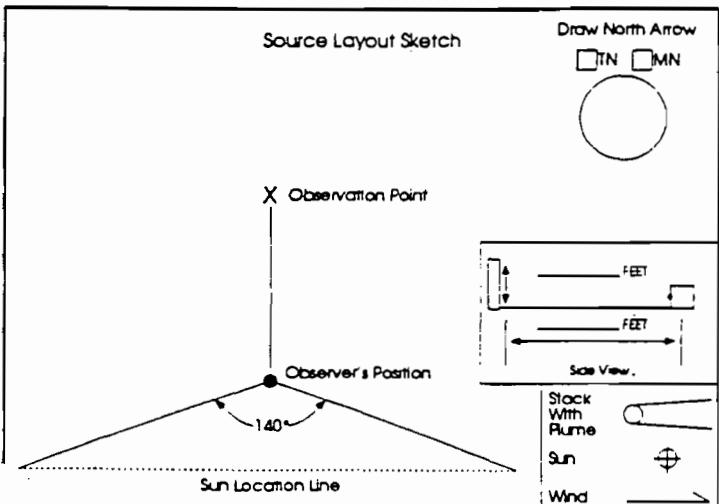
Describe Emission Point  
TRANSFER POINT HOPPER TO CONVEYOR CT-1

Height of Emiss. Pt. Height of Emiss. Pt. Rel. to Observer  
 Start End Start End  
 Distance to Emiss. Pt. Direction to Emiss. Pt. (Degrees)  
 Start End Start End

Vertical Angle to Obs. Pt. Direction to Obs. Pt. (Degrees)  
 Start End Start End  
 Distance and Direction to Observation Point from Emission Point  
 Start End

Describe Emissions  
 Start End  
 Emission Color Water Droplet Plume  
 Start End Attached  Detached  None

Describe Plume background  
 Start End  
 Background Color Sky Conditions  
 Start End Start End  
 Wind Speed Wind Direction  
 Start End Start End  
 Ambient Temp. Wet Bulb Temp. RH Percent  
 Start End



Longitude Latitude Decination

Additional Information

Sec Min	Time Zone				Start Time	End Time	Comments
	0	15	30	45			
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
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25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print)  
MARK V. LOEWELT  
 Observer's Signature  
Mark V. Loewelt Date 2/6/99  
 Organization  
ST. JOHNS RIVER POWER PARK  
 Certified By  
EASTERN TECHNICAL ASSOCIATES Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name  
 ST. JOHNS RIVER POWER PARK  
 Facility Name  
 ST. JOHNS RIVER POWER PARK  
 Street Address  
 11201 NEW BERLIN ROAD  
 City State Zip  
 JACKSONVILLE FL 32226

Process Unit # Operating Mode  
 SHIP UNLOADING LIMESTONE \_\_\_\_\_ 5950 CAPACITY  
 Control Equipment Operating Mode  
 SIDE SHIELDS \_\_\_\_\_ 090 CAPACITY

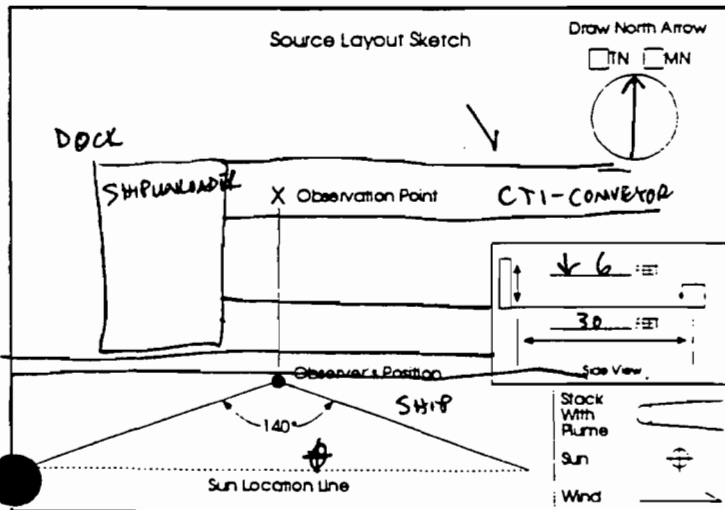
Describe Emission Point  
 CONVEYOR CT-1

Height of Emiss. Pt. Height of Emiss. Pt. Rel. to Observer  
 Start 50' End 50' Start -6' End -6'  
 Distance to Emiss. Pt. Direction to Emiss. Pt. (Degrees)  
 Start 30' End 30' Start 0° End 0°

Vertical Angle to Obs. Pt. Direction to Obs. Pt. (Degrees)  
 Start -15° End -15° Start 0° End 0°  
 Distance and Direction to Observation Point from Emission Point  
 Start 0-0 End 0-0

Describe Emissions  
 Start NONE End NONE  
 Emission Color Water Droplet Plume  
 Start NONE End NONE Attached  Detached  None

Describe Plume Background  
 Start DOCK/WATER End DOCK/WATER  
 Background Color Sky Conditions  
 Start WHITE/BLUE End WHITE/BLUE Start SCATTERED End SCATTERED  
 Wind Speed Wind Direction  
 Start 0-3 End 0-3 Start NNW End NNW  
 Ambient Temp. Wet Bulb Temp. RH Percent  
 Start 70°F End 70°F



Longitude Latitude Declination  
 N 30° 23' 27" W 81° 31' 56"

Additional Information

Form Number 007-1 Page 1 of 2  
 Continued on VEO Form Number 007-2

Observation Date	Time Zone	Start Time	End Time	Comments					
2/6/99	EST	10:00	11:00	Sec	Mn	0	15	30	45
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
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14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
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24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print)  
 MARK K. LOECHELT  
 Observer's Signature  
 Mark K. Loechelt  
 Date  
 2/6/99  
 Organization  
 ST. JOHNS RIVER POWER PARK  
 Certified By  
 EASTERN TECHNICAL ASSOCIATES  
 Date  
 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 007-2 Page 2 of 2  
 Continue on VEO Form Number 007-1

Method Used (Circle One)  
 Method 9 233A 2338 Other: \_\_\_\_\_

Company Name  
ST. JOHNS RIVER POWER PARK  
 Facility Name  
ST. JOHNS RIVER POWER PARK  
 Street Address  
11201 NEW BERLIN ROAD  
 City JACKSONVILLE State FL Zip 32226

Process SHIP UNLOADING LIMESTONE Unit # \_\_\_\_\_ Operating Mode \_\_\_\_\_  
 Control Equipment \_\_\_\_\_ Operating Mode \_\_\_\_\_

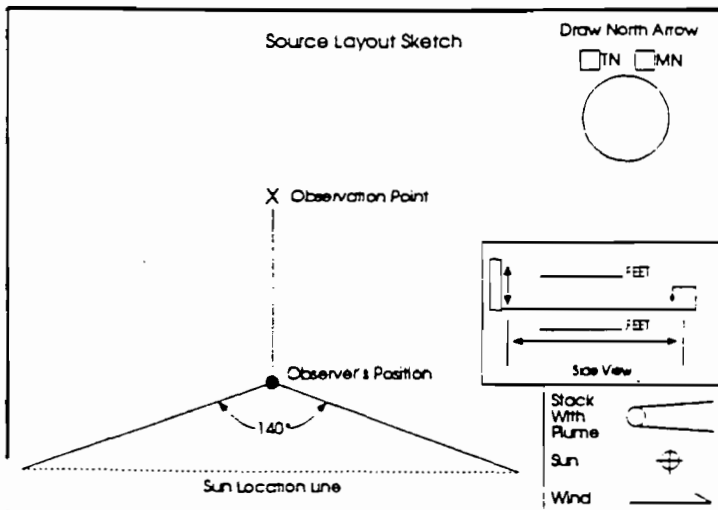
Describe Emission Point  
CONVEYOR CT-1

Height of Emiss. Pt. \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. \_\_\_\_\_ Direction to Obs. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point \_\_\_\_\_  
 "r" \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_



Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_

Additional Information

Sec Min	Time Zone				Start Time	End Time	Comments
	0	15	30	45			
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
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25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print)  
MARK K. LOECHTEL  
 Observer's Signature Mark K. Loechtel Date 2/6/99  
 Organization ST. JOHNS RIVER POWER PARK  
 Certified By EASTERN TECHNICAL ASSOCIATES Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 200A 200B Other: \_\_\_\_\_

Company Name  
 ST. JOHNS RIVER POWER PARK  
 Facility Name  
 ST. JOHNS RIVER POWER PARK  
 Street Address  
 11201 NEW BERLIN ROAD  
 City Jacksonville State FL Zip 32226

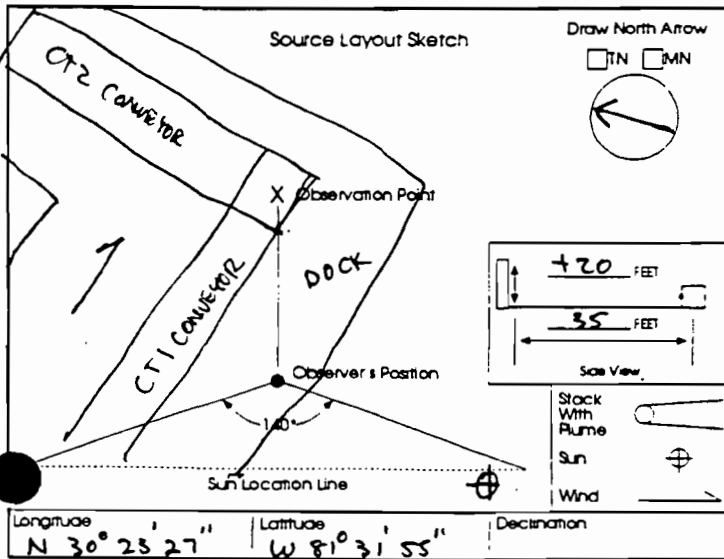
Process SHIP UNLOADING LIMESTONE Unit # Operating Mode 4970 CAPACITY  
 Control Equipment WET SUPPRESSION Operating Mode 090 CAPACITY

Describe Emission Point  
 TRANSFER POINT CONVEYOR CT-1 TO  
 CONVEYOR CT-2  
 Height of Emiss. Pt. Start 25' End 25' Height of Emiss. Pt. Rel. to Observer Start 20' End 20'  
 Distance to Emiss. Pt. Start 35' End 35' Direction to Emiss. Pt. (Degrees) Start 45° End 45°

Vertical Angle to Obs. Pt. Start 15° End 15° Direction to Obs. Pt. (Degrees) Start 045° End 045°  
 Distance and Direction to Observation Point from Emission Point Start 0'-0° End 0'-0°

Describe Emissions  
 Start NONE End NONE  
 Emission Color Water Droplet Plume  
 Start NONE End NONE Attached:  Detached:  None:

Describe Plume Background  
 Start OPEN SKY End OPEN SKY  
 Background Color Sky Conditions  
 Start BLUE End BLUE Start SATTERED End SCATTERED  
 Wind Speed Wind Direction  
 Start 3-5 End 3-5 Start W End NW  
 Ambient Temp. Wet Bulb Temp. RH Percent  
 Start 72°F End 72°F



Additional Information

Form Number 008-1 Page 1 of 2  
 Continued on VEO Form Number 008-2

Observation Date	Time Zone	Start Time	End Time							
2/6/99	EST	1150	1250	Sec	Min	0	15	30	45	Comments
1	0	0	0	0						
2	0	0	0	0						
3	0	0	0	0						
4	0	0	0	0						
5	0	0	0	0						
6	0	0	0	0						
7	0	0	0	0						
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19	0	0	0	0						
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25	0	0	0	0						
26	0	0	0	0						
27	0	0	0	0						
28	0	0	0	0						
29	0	0	0	0						
30	0	0	0	0						

Observer's Name (Print) MARK V. LOECHLIT  
 Observer's Signature [Signature] Date 2/6/99  
 Organization ST. JOHNS RIVER POWER PARK  
 Certified By EASTERN TECHNICAL ASSOCIATES Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 008-2 Page 2 of 2  
 Continued on VEO Form Number 008-1

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name  
 ST. JOHNS RIVER POWER PARK  
 Facility Name  
 ST. JOHNS RIVER POWER PARK  
 Street Address  
 11201 NEW BERLIN ROAD  
 City JACKSONVILLE State FL Zip 32226

Process SHIPUNLOADING LIMESTONE Unit # Operating Mode  
 Control Equipment Operating Mode

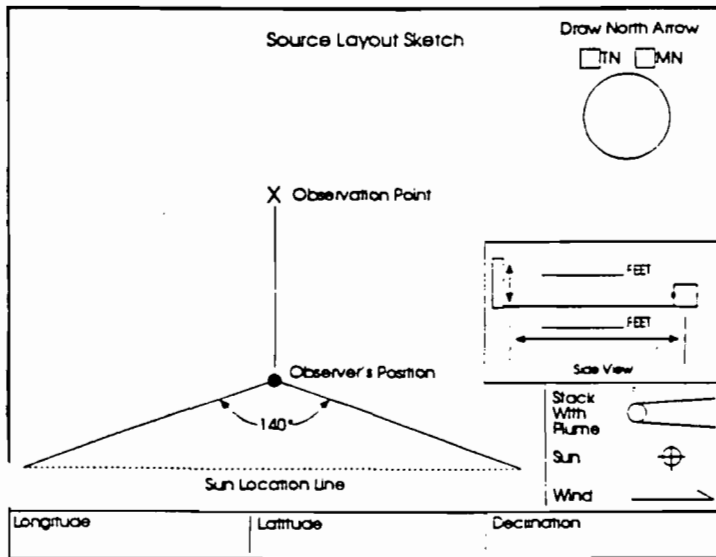
Describe Emission Point  
 TRANSFER POINT CONVEYOR CT-1 TO CONVEYOR CT-2

Height of Emiss. Pt. Height of Emiss. Pt. Rel. to Observer  
 Start End Start End  
 Distance to Emiss. Pt. Direction to Emiss. Pt. (Degrees)  
 Start End Start End

Vertical Angle to Obs. Pt. Direction to Obs. Pt. (Degrees)  
 Start End Start End  
 Distance and Direction to Observation Point from Emission Point  
 Start End

Describe Emissions  
 Start End  
 Emission Color Water Droplet Plume  
 Start End Attached  Detached  None

Describe Plume Background  
 Start End  
 Background Color Sky Conditions  
 Start End Start End  
 Wind Speed Wind Direction  
 Start End Start End  
 Ambient Temp. Wet Bulb Temp. RH Percent  
 Start End Start End



Additional Information

Sec Min	Time Zone EST				Start Time 1150	End Time 1250	Comments
	0	15	30	45			
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
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25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print)  
 MARK V. LOECHTEL  
 Observer's Signature  
 Mark V. Loechtel  
 Date 2/6/99  
 Organization  
 ST. JOHNS RIVER POWER PARK  
 Certified By  
 EASTERN TECHNICAL ASSOCIATES  
 Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 2038 Other: \_\_\_\_\_

Company Name  
 ST. JOHNS RIVER POWER PARK  
 Facility Name  
 ST. JOHNS RIVER POWER PARK  
 Street Address  
 11201 NEW BERLIN ROAD  
 City State Zip  
 JACKSONVILLE FL 32226

Process Unit # Operating Mode  
 SHIP UNLOADING Limestone 4490 CAPACITY  
 Control Equipment Operating Mode  
 WGT SUPPRESSION 0% CAPACITY

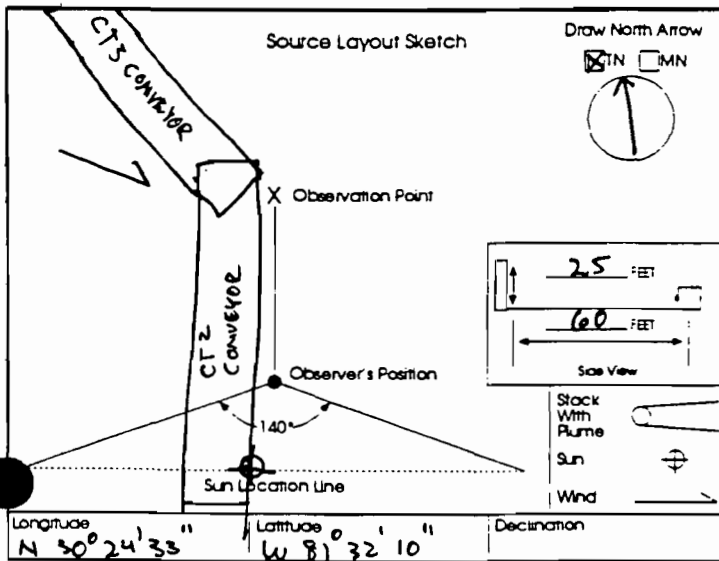
Describe Emission Point  
 TRANSFER POINT CONVEYOR CT-2 TO CONVEYOR CT-3

Height of Emiss. Pt. Height of Emiss. Pt. Rel. to Observer  
 Start 30' End 30' Start 25' End 25'  
 Distance to Emiss. Pt. Direction to Emiss. Pt. (Degrees)  
 Start 60' End 60' Start 345° End 345°

Vertical Angle to Obs. Pt. Direction to Obs. Pt. (Degrees)  
 Start 15° MLL End 15° MLL Start 360° End 360°  
 Distance and Direction to Observation Point from Emission Point  
 Start 5'-90° End 5'-90°

Describe Emissions  
 Start NONE End NONE  
 Emission Color Water Droplet Plume  
 Start NONE End NONE Attached  Detached  None

Describe Plume Background  
 Start OPEN SKY End OPEN SKY  
 Background Color Sky Conditions  
 Start BLUE End BLUE Start CLEAR End CLEAR  
 Wind Speed Wind Direction  
 Start 3-5 End 3-5 Start NW End NW  
 Ambient Temp. Wet Bulb Temp. RH Percent  
 Start 73°F End 74°F



Additional information

Form Number 010-1 Page 1 of 2  
 Continued on VEO Form Number 010-2

Observation Date	Time Zone	Start Time	End Time	Comments					
2/4/99	EST	1310	1410						
Sec	0	15	30	45					
Min	0	15	30	45					
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
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19	0	0	0	0					
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25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print)  
 MARK K. LOECHLT  
 Observer's Signature  
 Mark K. Loechlt  
 Date  
 2/4/99  
 Organization  
 ST. JOHNS RIVER POWER PARK  
 Certified by  
 EASTERN TECHNICAL ASSOCIATES  
 Date  
 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 010-2 Page 2 of 2  
 Continued on VEO Form Number 010-1

Method Used (Circle One)  
 Method 9     203A     203B    Other: \_\_\_\_\_

Company Name  
ST. JOHNS RIVER POWER PARK  
 Facility Name  
ST. JOHNS RIVER POWER PARK  
 Street Address  
11201 NEW BERLIN ROAD  
 City JACKSONVILLE State FL Zip 32226

Process  
SHIP UNLOADING LIMESTONE Unit # \_\_\_\_\_ Operating Mode \_\_\_\_\_  
 Control Equipment \_\_\_\_\_ Operating Mode \_\_\_\_\_

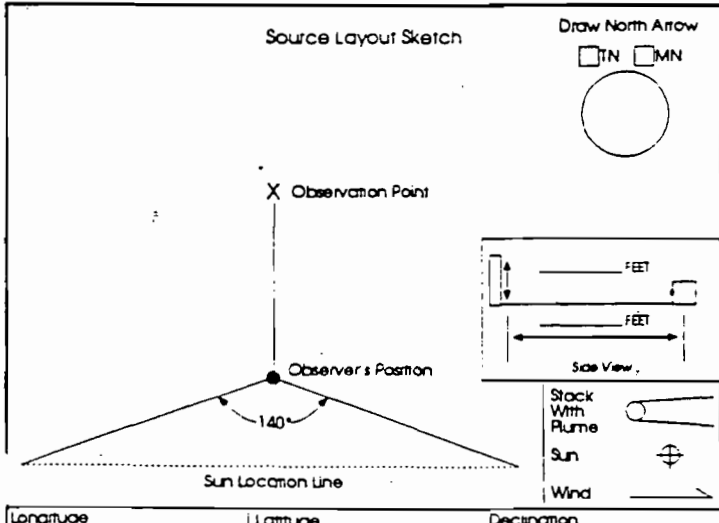
Describe Emission Point  
TRANSFER POINT CONVEYOR CT-2 TO CONVEYOR CT-3

Height of Emus. Pt.    Height of Emus. Pt. Rel. to Observer  
 Start    End    Start    End  
 Distance to Emus. Pt.    Direction to Emus. Pt. (Degrees)  
 Start    End    Start    End

Vertical Angle to Obs. Pt.    Direction to Obs. Pt. (Degrees)  
 Start    End    Start    End  
 Distance and Direction to Observation Point from Emission Point  
 Start    End

Describe Emissions  
 Start    End  
 Emission Color    Water Droplet Plume  
 Start    End    Attached  Detached  None

Describe Plume Background  
 Start    End  
 Background Color    Sky Conditions  
 Start    End    Start    End  
 Wind Speed    Wind Direction  
 Start    End    Start    End  
 Ambient Temp.    Wet Bulb Temp.    RH Percent  
 Start    End



Sec Min	Time Zone				Start Time	End Time	Comments
	0	15	30	45			
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_

Additional Information



EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name  
 ST. JOHNS RIVER POWER PARK  
 Facility Name  
 ST. JOHNS RIVER POWER PARK  
 Street Address  
 11701 NEW BERLIN ROAD  
 City State Zip  
 JACKSONVILLE FL 32226

Process Unit # Operating Mode  
 SHIP UNLOADING LIMESTONE 4670 CAPACITY  
 Control Equipment Operating Mode  
 WBT SUPPRESSION 070 CAPACITY

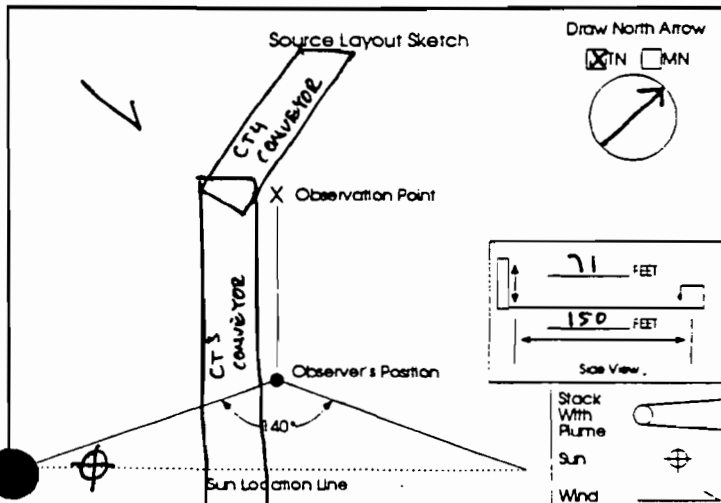
Describe Emission Point  
 TRANSFER POINT CONVERTOR CT-3 TO CONVERTOR CT-4

Height of Emiss. Pt. Height of Emiss. Pt. Rel. to Observer  
 Start 75' End 75' Start 7' End 7'  
 Distance to Emiss. Pt. Direction to Emiss. Pt. (Degrees)  
 Start 150' End 150' Start 288° End 288°

Vertical Angle to Obs. Pt. Direction to Obs. Pt. (Degrees)  
 Start 20° End 20° Start 300° End 300°  
 Distance and Direction to Observation Point from Emission Point  
 20' - 54°

Describe Emissions  
 Start NONE End NONE  
 Emission Color Water Droplet Plume  
 Start NONE End NONE Attached  Detached  None

Describe Plume Background  
 Start OPEN SKY End OPEN SKY  
 Background Color Sky Conditions  
 Start BLUE End BLUE Start CLEAR End CLEAR  
 Wind Speed Wind Direction  
 Start 3-5 End 3-5 Start W End W  
 Ambient Temp. Wet Bulb Temp. RH Percent  
 Start 75°F End 75°F



Longitude N 30° 25' 18" Latitude W 81° 32' 48" Declination

Additional Information

Form Number 012-1 Page 1 of 2  
 Continued on VEO Form Number 012-2

Observation Date	Time Zone	Start Time	End Time						
2/6/99	EST	1430	1530	Sec	0	15	30	45	Comments
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
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17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print)  
 MARK K. LOBEKELT  
 Observer's Signature  
 Mark K. Lobeckelt  
 Date  
 2/6/99  
 Organization  
 ST. JOHNS RIVER POWER PARK  
 Certified By  
 EASTERN TECHNICAL ASSOCIATES  
 Date  
 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 012-2 Page 2 of 2  
 Continued on VEO Form Number 012-1

Method Used (Circle One)  
 Method 9 203A 2038 Other: \_\_\_\_\_

Company Name  
ST. JOHNS RIVER POWER PARK  
 Facility Name  
ST. JOHNS RIVER POWER PARK  
 Street Address  
11201 NEW BERLIN ROAD  
 City JACKSONVILLE State FL Zip 32226

Process  
SHIP UNLOADING LIMESTONE Unit # \_\_\_\_\_ Operating Mode \_\_\_\_\_  
 Control Equipment \_\_\_\_\_ Operating Mode \_\_\_\_\_

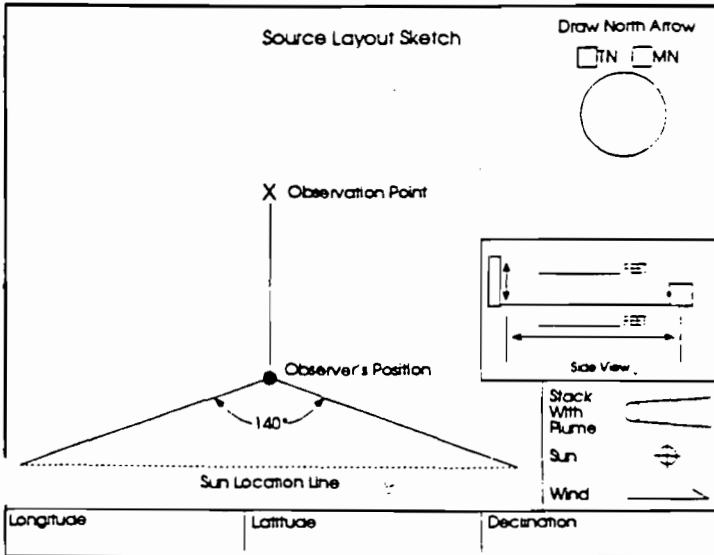
Describe Emission Point  
TRANSFER POINT CONVEYOR CT-3 TO CONVEYOR CT-4

Height of Emiss. Pt. \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. \_\_\_\_\_ Direction to Obs. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_



Additional Information

Observation Date	Time Zone	Start Time	End Time		
<u>2/6/99</u>	<u>EST</u>	<u>1430</u>	<u>1530</u>		
Sec	0	15	30	45	Comments
Mn	0	0	0	0	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print)  
MARK K. LOECHELT  
 Observer's Signature  
Mark K. Loelchelt Date 2/6/99  
 Organization  
ST. JOHNS RIVER POWER PARK  
 Certified by  
EASTERN TECHNICAL ASSOCIATES Date 12/3/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 013-1 Page 1 of 2  
 Continued on VEO Form Number 013-2

Method Used (Circle One)  
 (Method 9) 203A 203B Other: \_\_\_\_\_

Company Name St. Johns River Power Park.  
 Facility Name St. Johns River Power Park.  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32226.

Process Ship unloading limestone Unit # \_\_\_\_\_ Operating Mode 58% CAPACITY  
 Control Equipment Conditioned Material Operating Mode 0% capacity

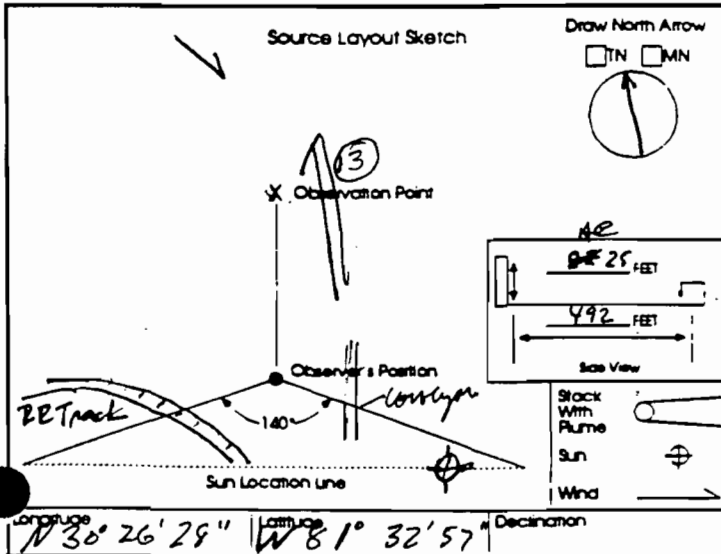
Describe Emission Point Conveyor CT-4

Height of Emis. Pt. Start 25' End 25' Height of Emis. Pt. Rel. to Observer Start 30' End 30'  
 Distance to Emis. Pt. Start 150M End 150M Direction to Emis. Pt. (Degrees) Start 14°NE End 14°NE

Vertical Angle to Obs. Pt. Start 4° End 4° Direction to Obs. Pt. (Degrees) Start 14°NE End 14°NE  
 Distance and Direction to Observation Point from Emission Point Start 5' SW End 5' SW

Describe Emissions Start none End none  
 Emission Color Start none End none Water Droplet Plume Attached  Detached  None

Describe Plume Background Start N/A End \_\_\_\_\_  
 Background Color Start BLUE End BLUE Sky Conditions Start Blue/clear End Blue/clear  
 Wind Speed Start 0-5 End 0-5 Wind Direction Start NW End NW  
 Ambient Temp Start 78°F End 80°F Wet Bulb Temp 65°F RH Percent 46%



Additional Information

Observation Date	Time Zone	Start Time	End Time						
<u>2/6/99</u>		<u>0935</u>	<u>1035</u>						
Sec Min	0	15	30	45	Comments				
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
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24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print) Alvaro Castro  
 Observer's Signature Alvaro Castro Date 2/6/99  
 Organization St. Johns River Power Park.  
 Certified by External Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 013-2 Page 2 of 2  
 Continued on VEO Form Number 013-1

Method (Use or Circle One)  
 Method 9  203A  203B  Other: \_\_\_\_\_

Company Name St. Johns River Power Plant.  
 Facility Name St. Johns River Power Plant.  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32226

Process Ship Unloading Limestone Unit # \_\_\_\_\_ Operating Mode \_\_\_\_\_  
 Control Equipment \_\_\_\_\_ Operating Mode \_\_\_\_\_

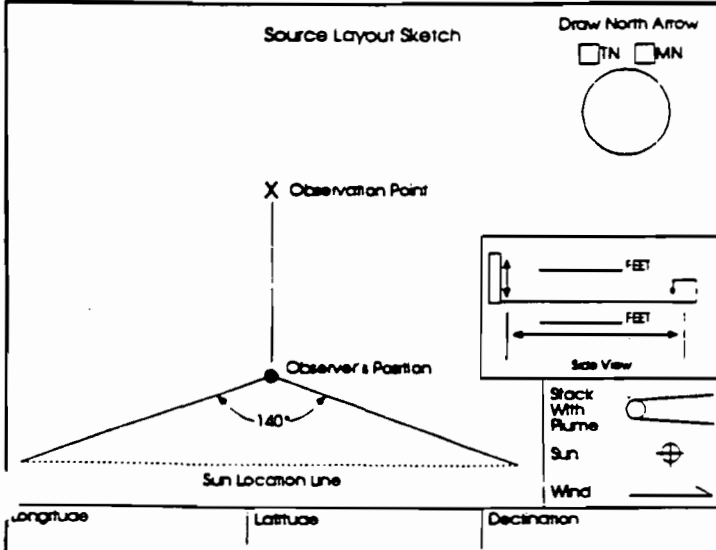
Describe Emission Point CONVEYOR CT-4

Height of Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Obs. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions Start \_\_\_\_\_ End \_\_\_\_\_  
 Emission Color \_\_\_\_\_ Water Droplet Plume Attached  Detached  None

Describe Plume Background Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Wind Speed Start \_\_\_\_\_ End \_\_\_\_\_ Wind Direction Start \_\_\_\_\_ End \_\_\_\_\_  
 Ambient Temp. Start \_\_\_\_\_ End \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_



Additional Information \_\_\_\_\_

Observation Date	Time Zone	Start Time	End Time	Comments				
<u>2/6/99</u>		<u>0935</u>	<u>1035</u>					
Min	Sec	0	15	30	45			
1	0	0	0	0	0			
2	0	0	0	0	0			
3	0	0	0	0	0			
4	0	0	0	0	0			
5	0	0	0	0	0			
6	0	0	0	0	0			
7	0	0	0	0	0			
8	0	0	0	0	0			
9	0	0	0	0	0			
10	0	0	0	0	0			
11	0	0	0	0	0			
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14	0	0	0	0	0			
15	0	0	0	0	0			
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18	0	0	0	0	0			
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23	0	0	0	0	0			
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25	0	0	0	0	0			
26	0	0	0	0	0			
27	0	0	0	0	0			
28	0	0	0	0	0			
29	0	0	0	0	0			
30	0	0	0	0	0			

Observer's Name (Print) ALVIN CASTRO  
 Observer's Signature Alvin Castro Date 2/6/99  
 Organization St. Johns River Power Plant.  
 Certified by Eastern Technical Assoc. Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 016-1 Page 1 of 2  
 Continued on VEO Form Number 016-2

Method Used (Circle One)  
 Method 9  203A  203B  Other: \_\_\_\_\_

Company Name Ft. Johns River Power Plant  
 Facility Name Ft. Johns River Power Plant  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32266

Process Ship Unloading limestone Unit # \_\_\_\_\_ Operating Mode 58% Capacity  
 Control Equipment Conditioned Material Operating Mode 0% Capacity

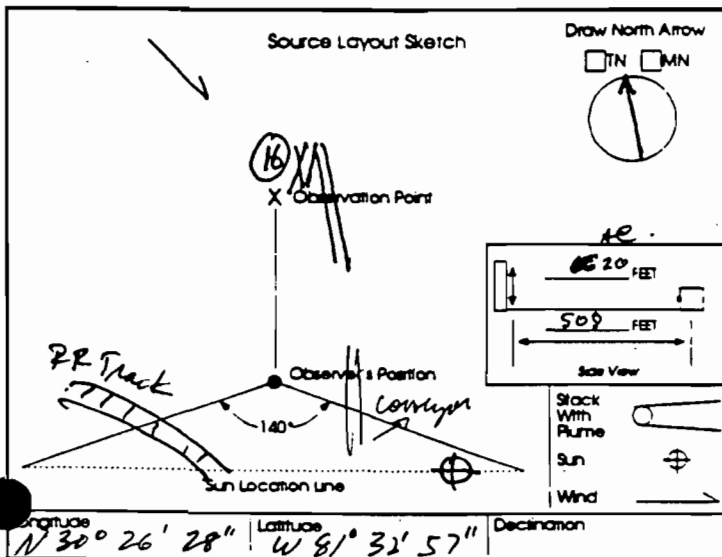
Describe Emission Point  
Transfer Point CT-4 Trailing Conveyor S1

Height of Emiss. Pt. Start 20' End 20' Height of Emiss. Pt. Rel. to Observer Start 25' End 25' NE  
 Distance to Emiss. Pt. Start 155m End 155m Direction to Emiss. Pt. (Degrees) Start 12° NE End 12° NE

Vertical Angle to Obs. Pt. Start 4° End 4° Direction to Obs. Pt. (Degrees) Start 12° NE End 12° NE  
 Distance and Direction to Observation Point from Emission Point Start 4° SW End 4° SW NE

Describe Emissions  
 Start none End none  
 Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start none End none Attached  Detached  None

Describe Plume Background  
 Start N/A End \_\_\_\_\_  
 Background Color Start BLUE End BLUE Sky Conditions Start Blue/clear End Blue/clear  
 Wind Speed Start 0-5 End 0-5 Wind Direction Start NW End NW NE  
 Ambient Temp. Start 78°F End 80°F Wet Bulb Temp. 65°F RH Percent 46%



Observation Date	Time Zone	Start Time	End Time	Comments					
<u>2/6/99</u>		<u>0935</u>	<u>1035</u>	Sec	0	15	30	45	
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
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13	0	0	0	0					
14	0	0	0	0					
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25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Additional Information

Observer's Name (Print) Alvaro Castro  
 Observer's Signature Alvaro Castro Date 2/6/99  
 Organization Ft. Johns River Power Plant  
 Conducted By Eastern Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 200A 200B Other: \_\_\_\_\_

Company Name: *St. Johns River Power Park*  
 Facility Name: *St. Johns River Power Park*  
 Street Address: *11201 New Berlin Del.*  
 City: *Jacksonville* State: *FL* Zip: *32226*

Process: *Ship Unloading Limestone* Unit #: \_\_\_\_\_ Operating Mode: \_\_\_\_\_  
 Control Equipment: \_\_\_\_\_ Operating Mode: \_\_\_\_\_

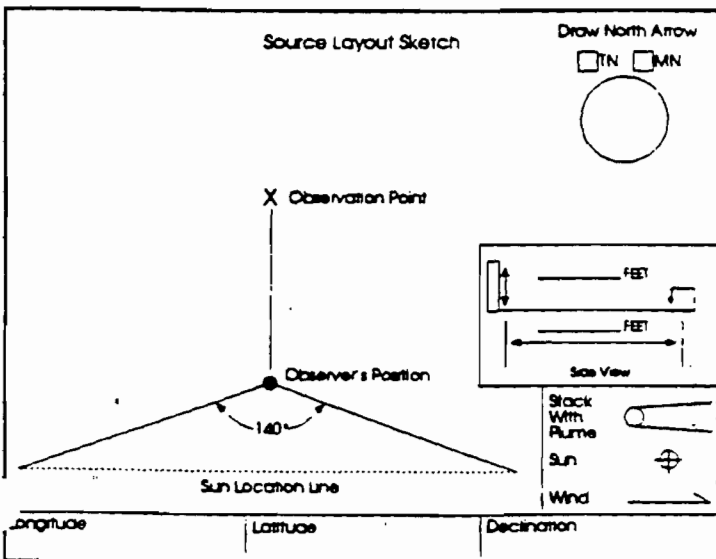
Describe Emission Point:  
*Transfer Point CT-4 Trailing Conveyor SI*

Height of Emiss. Pt. Start: \_\_\_\_\_ End: \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer Start: \_\_\_\_\_ End: \_\_\_\_\_  
 Distance to Emiss. Pt. Start: \_\_\_\_\_ End: \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) Start: \_\_\_\_\_ End: \_\_\_\_\_

Vertical Angle to Obs. Pt. Start: \_\_\_\_\_ End: \_\_\_\_\_ Direction to Obs. Pt. (Degrees) Start: \_\_\_\_\_ End: \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point Start: \_\_\_\_\_ End: \_\_\_\_\_

Describe Emissions  
 Start: \_\_\_\_\_ End: \_\_\_\_\_ Emission Color: \_\_\_\_\_ Water Droplet Plume: \_\_\_\_\_  
 Start: \_\_\_\_\_ End: \_\_\_\_\_ Attached:  Detached:  None:

Describe Plume Background  
 Start: \_\_\_\_\_ End: \_\_\_\_\_ Background Color: \_\_\_\_\_ Sky Conditions: \_\_\_\_\_  
 Start: \_\_\_\_\_ End: \_\_\_\_\_ Wind Speed: \_\_\_\_\_ Wind Direction: \_\_\_\_\_  
 Start: \_\_\_\_\_ End: \_\_\_\_\_ Ambient Temp.: \_\_\_\_\_ Wet Bulb Temp.: \_\_\_\_\_ RH Percent: \_\_\_\_\_  
 Start: \_\_\_\_\_ End: \_\_\_\_\_



Additional Information

Form Number: *016-2* Page: *2 of 2*  
 Continued on VEO Form Number: *016-1*

Observation Date	Time Zone	Start Time	End Time						
<i>2/6/99</i>		<i>0935</i>	<i>1035</i>						
Sec	0	15	30	45	Comments				
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
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26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print): *Alvaro Castro*  
 Observer's Signature: *Alvaro Castro* Date: *2/6/99*  
 Organization: *St. Johns River Power Park*  
 Certified by: *Eastern Technical Associates* Date: *12/2/98*

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 017-1 Page 1 of 2  
 Continued on VEO Form Number 017-2

Method Used (Circle One)  
 Method 9  203A  203B  Other: \_\_\_\_\_

Company Name St. Johns River Power Park.  
 Facility Name St. Johns River Power Park.  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32226

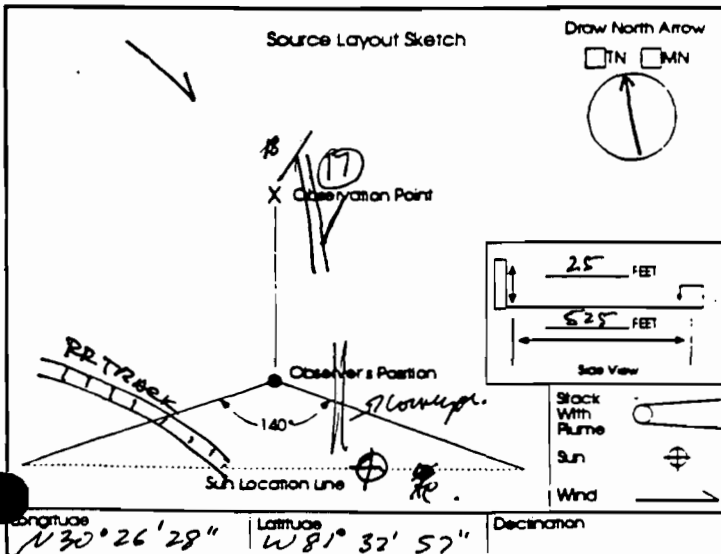
Process Ship Unloading limestone Unit # \_\_\_\_\_ Operating Mode 49% Capacity  
 Control Equipment Conditioned Material Operating Mode 0% capacity

Describe Emission Point  
TRAILING Conveyor S1  
 Height of Emiss. Pt. Start 25' End 25' Height of Emiss. Pt. Rel. to Observer Start 30' End 30' NE  
 Distance to Emiss. Pt. Start 160m End 160m Direction to Emiss. Pt. (Degrees) Start 8° NE End 8° NE

Vertical Angle to Obs. Pt. Start 4° End 4° Direction to Obs. Pt. (Degrees) Start 8° NE End 8° NE  
 Distance and Direction to Observation Point from Emission Point Start 5' SW End 5' SW NE

Describe Emissions  
 Start none End none  
 Emission Color Start none End none Water Droplet Plume Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color Start Blue End Blue Sky Conditions Start Clear End Clear  
 Wind Speed Start 0-5 End 0-5 Wind Direction Start NW End NW  
 Ambient Temp Start 81° F End 84° F Wet Bulb Temp. 70° F RH Percent 60% NE



Additional Information

Observation Date	Time Zone	Start Time	End Time	Comments	
2/6/99		1155	1255	NE	
Sec	0	15	30	45	
Min	0	0	0	0	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
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24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print) Miriam Castro  
 Observer's Signature Miriam Castro Date 2/6/99  
 Organization St. Johns River Power Park.  
 Certified By Eastern Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 017-2 Page 2 of 2  
 Continued on VEO Form Number 017-1

Method Used (Circle One)  
 Method 9  203A  203B  Other: \_\_\_\_\_

Company Name: St. Johns River Power Plant  
 Facility Name: St. Johns River Power Plant  
 Street Address: 11201 New Berlin Rd.  
 City: Jacksonville State: FL Zip: 32226

Process: Shipping Unloading Haulster Unit #: \_\_\_\_\_ Operating Mode: \_\_\_\_\_  
 Control Equipment: \_\_\_\_\_ Operating Mode: \_\_\_\_\_

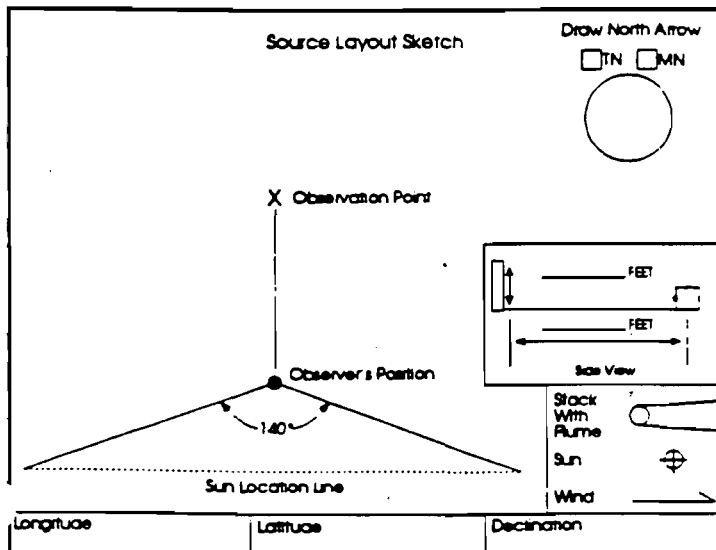
Describe Emission Point  
TRAILING CONVEYOR SI

Height of Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Obs. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions  
 Start \_\_\_\_\_ End \_\_\_\_\_ Emission Color \_\_\_\_\_ Water Droplet Plume Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_ Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_



Additional Information

Sec Min	Time Zone				Start Time	End Time	Comments
	0	15	30	45			
1	0	0	0	0	1155	1255	
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print) ALVARO CASTRO  
 Observer's Signature Alvaro Castro Date 2/6/99  
 Organization St. Johns River Power Plant  
 Certified By Eastern Technical Associates Date 12/2/98



EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 018-1 Page 1 of 2  
 Continued on VEO Form Number 018-2

Method Used (Circle One)  
 Method 9    203A    203B    Other: \_\_\_\_\_

Company Name St. Johns River Power Park.  
 Facility Name St. Johns River Power Park.  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32226

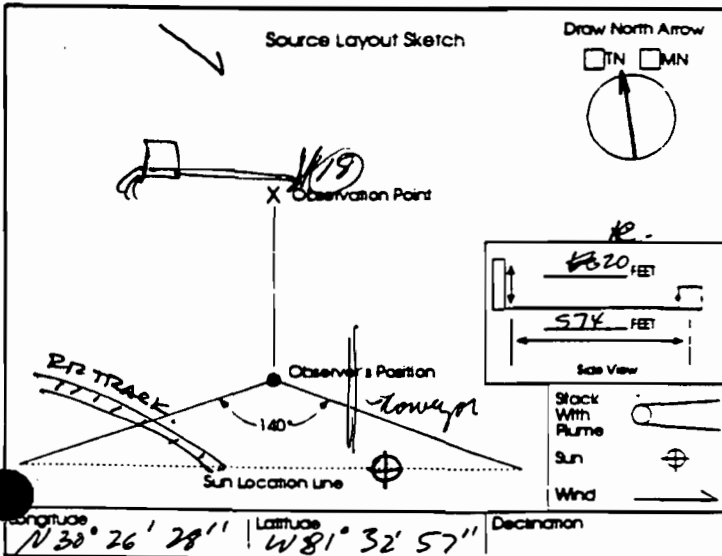
Process Ship Unloading limestone Unit # \_\_\_\_\_ Operating Mode 49% Capacity  
 Control Equipment Conditioned Material Operating Mode 0% Capacity

Describe Emission Point  
TRANSFER POINT: TRAILING CONVEYOR S1 TO BOOM CONVEYOR S2  
 Height of Emis. Pt. Start 20' End 20' Height of Emis. Pt. Rel. to Observer Start 25' End 25'  
 Distance to Emis. Pt. Start 175m End 175m Direction to Emis. Pt. (Degrees) Start 8° NE End 8° NE

Vertical Angle to Obs. Pt. Start 3° End 3° Direction to Obs. Pt. (Degrees) Start 8° NE End 8° NE  
 Distance and Direction to Observation Point from Emission Point Start 10' SW End 10' SW NE

Describe Emissions  
 Start none End none  
 Emission Color Start none End none Water Droplet Plume Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color Start Blue End Blue Sky Conditions Start Clear End Clear  
 Wind Speed Start 0-5 End 0-5 Wind Direction Start NW End NW  
 Ambient Temp. Start 81° F End 81° F Wet Bulb Temp. Start 70° F RH Percent 60%



Longitude N 30° 26' 28" Latitude W 81° 32' 57" Declination \_\_\_\_\_  
 Additional Information \_\_\_\_\_

Observation Date	Time Zone	Start Time	End Time				
<u>2/6/99</u>		<u>1155</u>	<u>1255</u>				
Sec	0	15	30	45	Comments		
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 018-2 Page 2 of 2  
 Continued on VEO Form Number 018-1

Method Used (Circle One) Method 9 203A 203B Other \_\_\_\_\_

Company Name H. Blue River Power Park  
 Facility Name H. Blue River Power Park  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32226

Process Ship Unloading limestone Unit # \_\_\_\_\_ Operating Mode \_\_\_\_\_  
 Control Equipment \_\_\_\_\_ Operating Mode \_\_\_\_\_

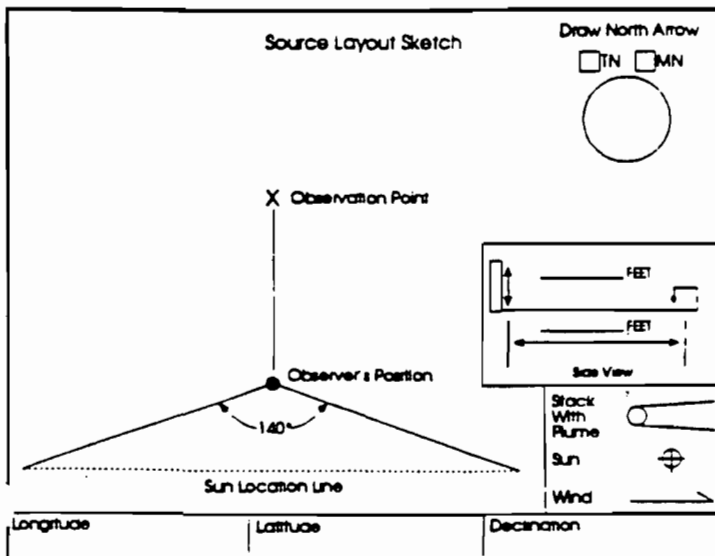
Describe Emission Point  
TRANSFER POINT: TRAILING Conveyor S1  
to Boom Conveyor S2

Height of Emis. Pt. \_\_\_\_\_ Height of Emis. Pt. Rel. to Observer \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emis. Pt. \_\_\_\_\_ Direction to Emis. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. \_\_\_\_\_ Direction to Obs. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_



Additional Information \_\_\_\_\_

Observation Date	Time Zone				Start Time	End Time	Comments
	Sec	Min	0	15			
<u>2/6/99</u>					<u>1155</u>	<u>1255</u>	
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print) Alvaro Castro  
 Observer's Signature Alvaro Castro Date 2/6/99  
 Organization H. Blue River Power Park  
 Called by Eastern Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 019-1 Page 1 of 2  
 Continued on VEO Form Number 019-2

Method Used (Circle One)  
 Method 9 200A 200B Other \_\_\_\_\_

Company Name St. Johns River Power Park  
 Facility Name St. Johns River Power Park  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32226

Process Ship Unloading limestone Unit # \_\_\_\_\_ Operating Mode 49% Capacity  
 Control Equipment Conditioned Material Operating Mode 0% Capacity

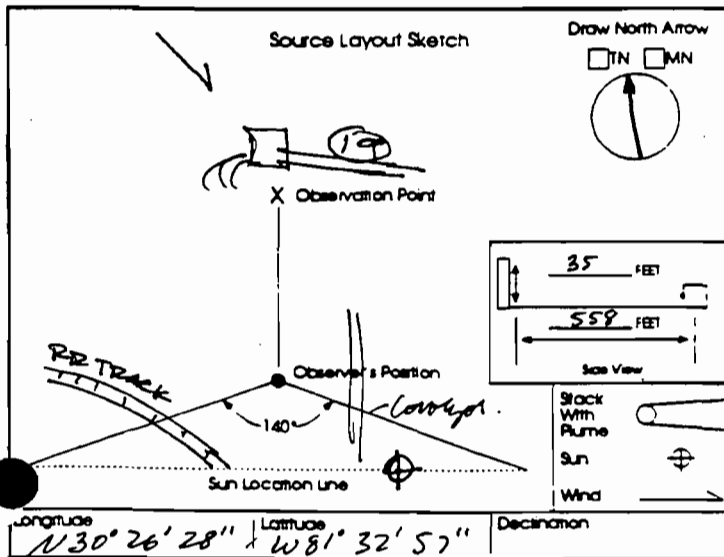
Describe Emission Point  
Boom Conveyor S2

Height of Emis. Pt. Start 35' End 35' Height of Emis. Pt. Rel. to Observer Start 40' End 40'  
 Distance to Emis. Pt. Start 170m End 170m Direction to Emis. Pt. (Degrees) Start 5°NE End 5°NE

Vertical Angle to Obs. Pt. Start 4° End 4° Direction to Obs. Pt. (Degrees) Start 5°NE End 5°NE  
 Distance and Direction to Observation Point from Emission Point Start 10'SW End 10'SW NE

Describe Emissions  
 Start none End none  
 Emission Color Start none End none Water Droplet Plume Attached  Detached  None

Describe Plume Background  
 Start Background Color Blue End Blue Sky Conditions Start Clear End Clear  
 Wind Speed Start 0-5 End 0-5 Wind Direction Start NW End NW  
 Ambient Temp. Start 81° End 81° Wet Bulb Temp. 70° RH Percent 60%



Additional Information

Observation Date	Time Zone	Start Time	End Time	Comments	
2/6/99		11:55	12:55	AC	
Sec	0	15	30	45	
Min	0	0	0	0	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print) Alvaro Castro  
 Observer's Signature Alvaro Castro Date 2/6/99  
 Organization St. Johns River Power Park  
 Checked by Western Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9    203A    203B    Other: \_\_\_\_\_

Company Name: *St. Johns River Power Park*  
 Facility Name: *St. Johns River Power Park*  
 Street Address: *11201 New Berlin Rd.*  
 City: *Jacksonville*    State: *FL*    Zip: *32226*

Process: *Ship Unloading limestone*    Unit #: \_\_\_\_\_    Operating Mode: \_\_\_\_\_  
 Control Equipment: \_\_\_\_\_    Operating Mode: \_\_\_\_\_

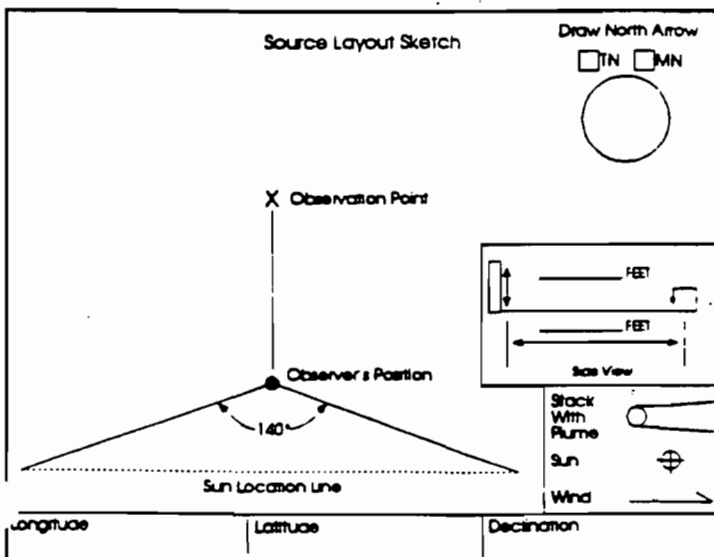
Describe Emission Point:  
*Boom Conveyor S2*

Height of Emiss. Pt.    Height of Emiss. Pt. Rel. to Observer  
 Start    End    Start    End  
 Distance to Emiss. Pt.    Direction to Emiss. Pt. (Degrees)  
 Start    End    Start    End

Vertical Angle to Obs. Pt.    Direction to Obs. Pt. (Degrees)  
 Start    End    Start    End  
 Distance and Direction to Observation Point from Emission Point  
 Start    End

Describe Emissions  
 Start    End    Water Droplet Plume  
 Emission Color    Attached     Detached     None   
 Start    End

Describe Plume Background  
 Start    End    Sky Conditions  
 Background Color    Start    End  
 Wind Speed    Wind Direction  
 Start    End    Start    End  
 Ambient Temp.    Wet Bulb Temp.    RH Percent  
 Start    End



Additional Information

Form Number: *019-2*    Page: *2* of *2*  
 Continued on VEO Form Number: *019-1*

Sec Min	Time Zone				Start Time	End Time	Comments
	0	15	30	45			
1	0	0	0	0	1155	1255	
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print): *Alvaro Castro*  
 Observer's Signature: *Alvaro Castro*    Date: *2/6/99*  
 Organization: *St. Johns River Power Park*  
 Certified By: *Eastern Technical Associates*    Date: *12/2/98*

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 203B Other \_\_\_\_\_

Company Name *St. Johns River Power Park.*  
 Facility Name *St. Johns River Power Park.*  
 Street Address *11201 New Berlin Rd.*  
 City *Jacksonville* State *FL* Zip *32226*

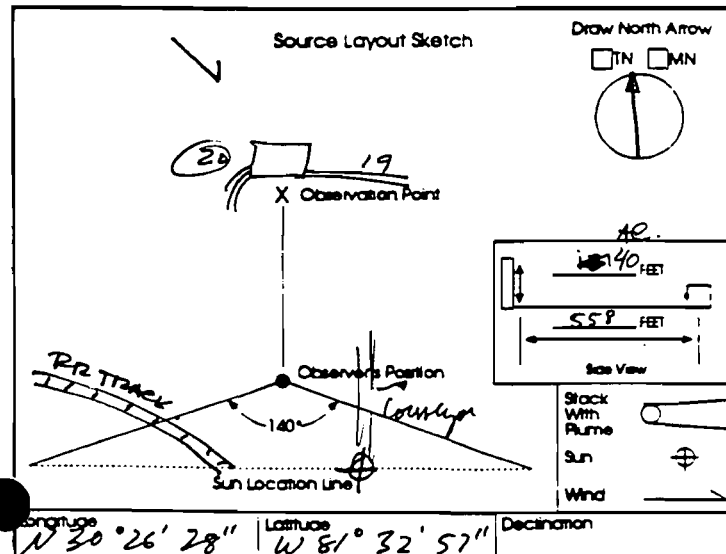
Process *SHIP Unloading limestone* Unit # \_\_\_\_\_ Operating Mode *79% Capacity*  
 Control Equipment *Conditioned Material sprayed* water Operating Mode *0% Capacity*

Describe Emission Point  
*TRANSFER POINT: Boom Conveyor S2 to Storage Piles B+C, CT-4*  
 Height of Emiss. Pt. Start *40'* End *40'* Height of Emiss. Pt. Rel. to Observer Start *45'* End *45'*  
 Distance to Emiss. Pt. Start *170m* End *170m* Direction to Emiss. Pt. (Degrees) Start *3° NE* End *3° NE.*

Vertical Angle to Obs. Pt. Start *5°* End *5°* Direction to Obs. Pt. (Degrees) Start *3° NE* End *3° NE*  
 Distance and Direction to Observation Point from Emission Point Start *10'S* End *10'S* *AE*

Describe Emissions  
 Start *none* End *none*  
 Emission Color Start *none* End *none* Water Droplet Plume Attached  Detached  None

Describe Plume Background  
 Start Background Color *Pale Blue* End *Blue* Sky Conditions Start *Clear* End *Clear.*  
 Wind Speed Start *0-5* End *0-5* Wind Direction Start *NW* End *NW*  
 Ambient Temp. Start *81°F* End *84°F* Wet Bulb Temp. *70°F* RH Percent *60%*



Additional Information

Form Number *020-1* Page *1* of *2*  
 Continued on VEO Form Number *020-2*

Observation Date	Time Zone	Start Time	End Time						
<i>2/6/99</i>		<i>11 55</i>	<i>12 55</i>	Sec	0	15	30	45	Comments
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print) *Alvaro Castro*  
 Observer Signature *Alvaro Castro* Date *2/6/99*  
 Organization *St. Johns River Power Park.*  
 Certified By *Eastern Technical Associates* Date *12/2/98*

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 2038 Other: \_\_\_\_\_

Company Name: *St. Johns River Power Plant*  
 Facility Name: *St. Johns River Power Plant*  
 Street Address: *11201 New Berlin Rd.*  
 City: *Jacksonville* State: *FL* Zip: *32226*

Process: *Ship Unloading Limestone* Unit #: \_\_\_\_\_ Operating Mode: \_\_\_\_\_  
 Control Equipment: \_\_\_\_\_ Operating Mode: \_\_\_\_\_

Describe Emission Point:  
*TRANSFER POINT: From Conveyor S2 to STORAGE Piles B+C, CT 4*  
 Height of Emiss. Pt. Start: \_\_\_\_\_ End: \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer Start: \_\_\_\_\_ End: \_\_\_\_\_  
 Distance to Emiss. Pt. Start: \_\_\_\_\_ End: \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) Start: \_\_\_\_\_ End: \_\_\_\_\_

Vertical Angle to Obs. Pt. Start: \_\_\_\_\_ End: \_\_\_\_\_ Direction to Obs. Pt. (Degrees) Start: \_\_\_\_\_ End: \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point Start: \_\_\_\_\_ End: \_\_\_\_\_

Describe Emissions  
 Start: \_\_\_\_\_ End: \_\_\_\_\_ Emission Color: \_\_\_\_\_ Water Droplet Plume: \_\_\_\_\_  
 Start: \_\_\_\_\_ End: \_\_\_\_\_ Attached  Detached  None

Describe Plume Background  
 Start: \_\_\_\_\_ End: \_\_\_\_\_ Sky Conditions: \_\_\_\_\_  
 Background Color: \_\_\_\_\_ Start: \_\_\_\_\_ End: \_\_\_\_\_  
 Wind Speed: \_\_\_\_\_ Wind Direction: \_\_\_\_\_  
 Start: \_\_\_\_\_ End: \_\_\_\_\_ Ambient Temp.: \_\_\_\_\_ Wet Bulb Temp.: \_\_\_\_\_ RH Percent: \_\_\_\_\_  
 Start: \_\_\_\_\_ End: \_\_\_\_\_

Source Layout Sketch  
 Draw North Arrow  TN  MN  
  
 Longitude: \_\_\_\_\_ Latitude: \_\_\_\_\_ Declination: \_\_\_\_\_

Additional Information

Form Number *020-2* Page *2 of 2*  
 Continue on VEO Form Number *020-1*

Observation Date		Time Zone				Start Time	End Time
2/6/99						1155	1255
Sec	Min	0	15	30	45	Comments	
1		0	0	0	0		
2		0	0	0	0		
3		0	0	0	0		
4		0	0	0	0		
5		0	0	0	0		
6		0	0	0	0		
7		0	0	0	0		
8		0	0	0	0		
9		0	0	0	0		
10		0	0	0	0		
11		0	0	0	0		
12		0	0	0	0		
13		0	0	0	0		
14		0	0	0	0		
15		0	0	0	0		
16		0	0	0	0		
17		0	0	0	0		
18		0	0	0	0		
19		0	0	0	0		
20		0	0	0	0		
21		0	0	0	0		
22		0	0	0	0		
23		0	0	0	0		
24		0	0	0	0		
25		0	0	0	0		
26		0	0	0	0		
27		0	0	0	0		
28		0	0	0	0		
29		0	0	0	0		
30		0	0	0	0		

Observer's Name (Print) *Alvaro Castro*  
 Observer's Signature *Alvaro Castro* Date *2/6/99*  
 Organization *St. Johns River Power Plant*  
 Certified By *Eag Tern Technist Associate* Date *12/2/98*

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 023J1 Page 1 of 2  
 Continued on VEO Form Number 023J2

Method used (Circle One)  
 Method 9 203A 2038 Other: \_\_\_\_\_

Company Name St. Johns River Power Plant  
 Facility Name St. Johns River Power Plant  
 Street Address 11201 New Berlin Rd.  
 City Tacksonville State FL Zip 32226

Process LIMESTONE LOADOUT Unit # \_\_\_\_\_ Operating Mode 12,100 TPD  
 Control Equipment Water sprays Operating Mode 0% Capacity

Describe Emission Point  
LOADER BUCKET GRAB FROM PILE

Height of Emiss. Pt. Start 8' End 8' Height of Emiss. Pt. Rel. to Observer Start 13' End 13'  
 Distance to Emiss. Pt. Start 160m End 160m Direction to Emiss. Pt. (Degrees) Start 356°NW End 356°NW

Vertical Angle to Obs. Pt. Start 4° End 4° Direction to Obs. Pt. (Degrees) Start 356°NW End 356°NW  
 Distance and Direction to Observation Point from Emission Point Start 20' W End 20' W AE

Describe Emissions  
 Start none End none  
 Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start none End none Attached  Detached  None

Describe Plume background  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color Start Blue End Blue Sky Conditions Start Clear End Clear  
 Wind Speed Start 0-5 End 0-5 Wind Direction Start SE End SE  
 Ambient Temp. Start 81°F End 81°F Wet Bulb Temp. 67°F RH Percent 54%

Source Layout Sketch

Draw North Arrow  TN  MN

Longitude N 30° 26' 28" Latitude W 81° 32' 57" Declination \_\_\_\_\_

Additional information \_\_\_\_\_

Observation Date	Time Zone	Start Time	End Time						
<u>2/6/99</u>		<u>1045</u>	<u>1145</u>	Sec	0	15	30	45	Comments
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
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18	0	0	0	0					
19	0	0	0	0					
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21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0	<u>28 Trucks/hour @ 151 on launch.</u>				

Observer's Name (Print) Alvaro Castro  
 Observer's Signature Alvaro Castro Date 2/6/99  
 Organization St. Johns River Power Plant  
 Certified By Baden Technical Associate Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 023J2 Page 2 of 2  
 Continued on VEO Form Number 023J1

Method Used (Circle One)  
 Method 9      203A      2038      Other: \_\_\_\_\_

Company Name St. Johns River Power Park  
 Facility Name St. Johns River Power Park  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32226

Process \_\_\_\_\_ Unit # \_\_\_\_\_ Operating Mode \_\_\_\_\_  
 Control Equipment \_\_\_\_\_ Operating Mode \_\_\_\_\_

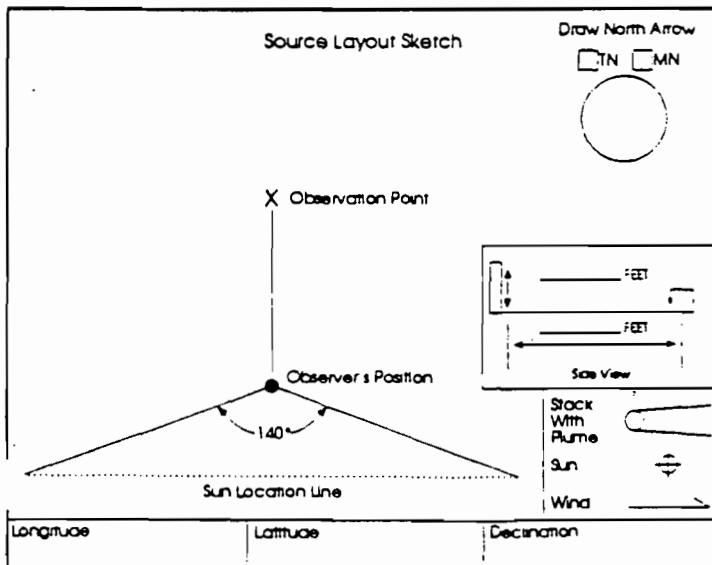
Describe Emission Point

Height of Emiss. Pt. \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. \_\_\_\_\_ Direction to Obs. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point  
 \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_



Additional Information

Observation Date	Time Zone	Start Time	End Time						
<u>2/6/99</u>		<u>1045</u>	<u>1145</u>	Sec	0	15	30	45	Comments
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0	<u>28 Trucks/hr @ 15km/hr</u>				

Observer's Name (Print) Alvaro Castro  
 Observer's Signature Alvaro Castro Date 2/6/99  
 Organization St. Johns River Power Park  
 Certified by Eastern Technical Associates Date 12/2/98



EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 02353 Page 1 of 2  
 Continued on VEO Form Number 02354

Method Used (Circle One) Method 9 203A 203B Other: \_\_\_\_\_

Company Name H. John River Power Plant  
 Facility Name H. John River Power Plant  
 Street Address 11201 New Berlin Rd.  
 City Tacksonville State FL Zip 32226

Process LIMESTONE LOADOUT Unit # \_\_\_\_\_ Operating Mode 12,100 TPD  
 Control Equipment Water sprays Operating Mode 84 Capacity

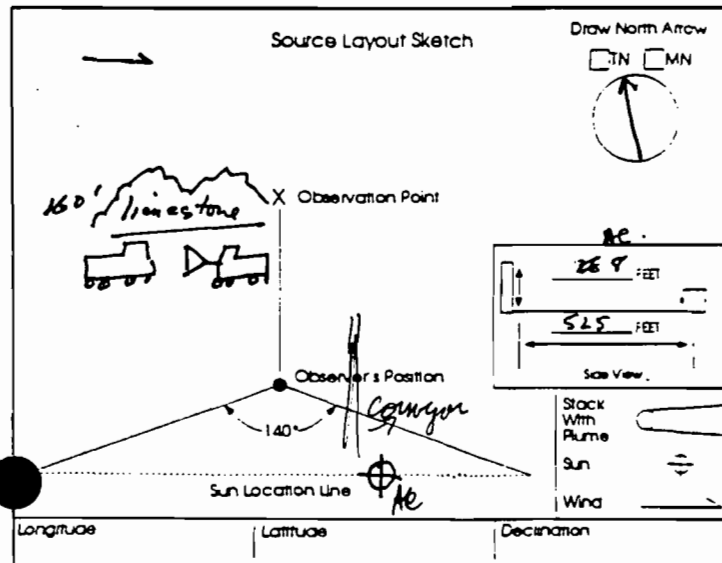
Describe Emission Point  
LOADER BUCKET DUMP TO TRUCK

Height of Emiss. Pt. Start 8' End 8' Height of Emiss. Pt. Rel. to Observer Start 13' End 13'  
 Distance to Emiss. Pt. Start 160 M End 160 M Direction to Emiss. Pt. (Degrees) Start 356 NW End 356 NW

Vertical Angle to Obs. Pt. Start 4° End 4° Direction to Obs. Pt. (Degrees) Start 356 NW End 356 NW  
 Distance and Direction to Observation Point from Emission Point Start 20' W End 20' W NE

Describe Emissions  
 Start none End none Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start none End none Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_ Background Color Start Blue End Blue Sky Conditions Start Clear End Clear  
 Wind Speed Start 0-5 End 0-5 Wind Direction Start SE End SE  
 Ambient Temp Start 81°F End 81°F Wet Bulb Temp 67°F RH Percent 5%



Additional Information

Observation Date	Time Zone	Start Time	End Time						
<u>2/6/98</u>		<u>1045</u>	<u>1145</u>						
Sec	0	15	30	45	Comments				
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0	<u>28 Trucks/hr @ 15 tons/truck</u>				
30	0	0	0	0					

Observer's Name (Print) Alvaro Castro  
 Observer's Signature Alvaro Castro Date 2/6/99  
 Organization H. John River Power Plant  
 Certified By Eastern Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name: *H. John River Power Park*  
 Facility Name: *H. John River Power Park*  
 Street Address: *11201 New Berlin Rd.*  
 City: *Tallahassee* State: *FL* Zip: *32226*

Process: \_\_\_\_\_ Unit #: \_\_\_\_\_ Operating Mode: \_\_\_\_\_  
 Control Equipment: \_\_\_\_\_ Operating Mode: \_\_\_\_\_

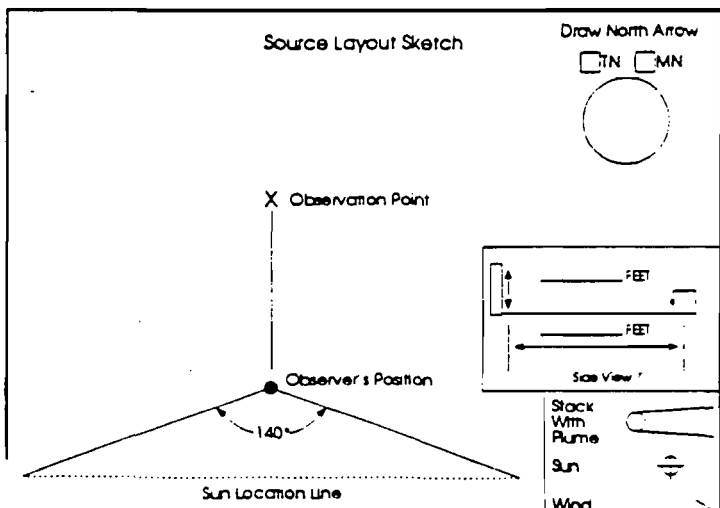
Describe Emission Point

Height of Emiss. Pt. \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. \_\_\_\_\_ Direction to Obs. Pt. (Degrees) \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_  
 Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_



Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_

Additional Information

Form Number 0 2 3 J 4 Page 2 of 2  
 Continued on VEO Form Number 0 2 3 J 3

Observation Date	Time Zone	Start Time	End Time						
2/6/99		1045	1145	Sec	0	15	30	45	Comments
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0	28 Trucks/hr @ 15 min				

Observer's Name (Print) *Alvaro Castro*  
 Observer's Signature *Alvaro Castro* Date *2/6/99*  
 Organization *H. John River Power Park*  
 Certified By *Eastern Technical Associate* Date *12/2/98*

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	04711	Page	1	Of	2
Continued on VEO Form Number			04712		

Method Used (Circle One)  
 Method 9 203A 2038 Other: \_\_\_\_\_

Company Name *St. Johns River Power Plant*  
 Facility Name *St. Johns River Power Park*  
 Street Address *11201 New Berlin Rd.*  
 City *Jacksonville* State *FL* Zip *32226*

Process *Unit #1 Boiler Fuel Loading* Unit # *1* Operating Mode *Fuel Loading*  
 Control Equipment *BAGHOUSE DC 4* Operating Mode *100% CAP.*

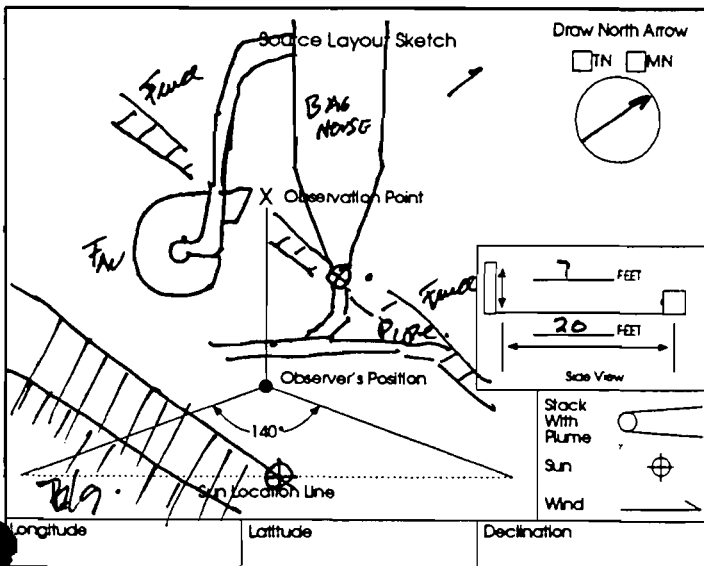
Describe Emission Point  
*Baghouse Effluent.*

Height of Emiss. Pt. Start *7'* End *7'* Height of Emiss. Pt. Rel. to Observer Start *2'* End *2'*  
 Distance to Emiss. Pt. Start *20'* End *20'* Direction to Emiss. Pt. (Degrees) Start *275°* End *275°*

Vertical Angle to Obs. Pt. Start *6°* End *6°* Direction to Obs. Pt. (Degrees) Start *278°* End *278°*  
 Distance and Direction to Observation Point from Emission Point Start *3' 90°* End *3' 90°*

Describe Emissions  
 Start *none* End *none.*  
 Emission Color Start *none* End *none* Attached  Detached  None

Describe Plume Background  
 Start *open sky* End *open sky.*  
 Background Color Start *Blue* End *Blue.* Sky Conditions Start *clear* End *clear*  
 Wind Speed Start *0-3* End *0-3* Wind Direction Start *SW* End *SW*  
 Ambient Temp. Start *82°F* End *82°F* Wet Bulb Temp. *75°F* RH Percent *72%*



Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_  
 Additional Information \_\_\_\_\_

Observation Date	Time Zone	Start Time	End Time				
<i>4/23/99</i>		<i>10:45</i>	<i>11:45</i>				
Sec Min	0	15	30	45	Comments		
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print) *Alvaro Castro*  
 Observer's Signature *Alvaro Castro* Date *4/23/98*  
 Organization *St. Johns River Power Park*  
 Certified by *Eastern Technical Associates* Date *12/2/98*

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name *St. Johns River Power Park.*  
 Facility Name *St. Johns River Power Park.*  
 Street Address *11201 New Berlin Rd.*  
 City *Jacksonville* State *FL* Zip *32226*

Process *Unit #1 Boiler Fuel Loading* Unit # *1* Operating Mode *Fuel Loading*  
 Control Equipment *Boilerhouse, DC-4* Operating Mode *100% CAP.*

Describe Emission Point

Height of Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Obs. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions  
 Start \_\_\_\_\_ End \_\_\_\_\_ Emission Color \_\_\_\_\_ Water Droplet Plume  
 Start \_\_\_\_\_ End \_\_\_\_\_ Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_ Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_

Source Layout Sketch  
 Draw North Arrow  TN  MN  
  
 Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_

Additional Information

Form Number *04712* Page *2* of *2*  
 Continued on VEO Form Number *04711*

Observation Date		Time Zone				Start Time	End Time
4/23/99						10:45	11:45
Min	Sec	0	15	30	45	Comments	
	1	0	0	0	0		
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print) *Alvaro Castro*  
 Observer's Signature *Alvaro Castro* Date *4/23/99*  
 Organization *St. Johns River Power Park*  
 Certified by *Eastern Technical Associates* Date *12/2/98*

VISIBLE EMISSION OBSERVATION FORM 1

Form Number: 04721 Page 1 of 2  
 Continued on VEO Form Number 04722

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name: St. Johns River Power Park.  
 Facility Name: St. Johns River Power Park.  
 Street Address: 11201 New Berlin Rd.  
 City: Jacksonville State: FL Zip: 32226

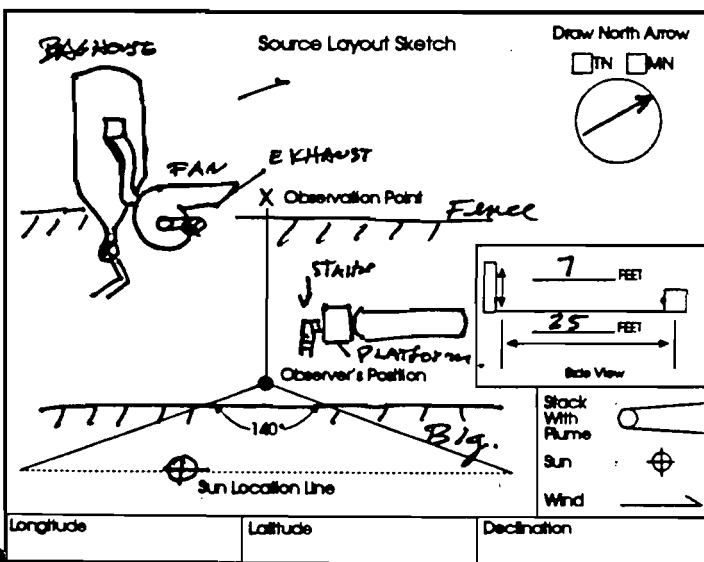
Process: UNIT #2 Boiler Fuel Loading  
 Unit #: 2 Operating Mode: FUEL LOADING  
 Control Equipment: BAGHOUSE DCS Operating Mode: 100% CAP.

Describe Emission Point: BAGHOUSE EFFLUENT.  
 Height of Emis. Pt. Start: 7' End: 7' Height of Emis. Pt. Rel. to Observer Start: 2' End: 2'  
 Distance to Emis. Pt. Start: 25' End: 25' Direction to Emis. Pt. (Degrees) Start: 262° End: 262°

Vertical Angle to Obs. Pt. Start: 5° End: 5° Direction to Obs. Pt. (Degrees) Start: 270° End: 270°  
 Distance and Direction to Observation Point from Emission Point Start: 5' 90° End: 5' 90°

Describe Emissions: Start: NONE End: NONE.  
 Emission Color: Start: NONE End: NONE. Attached:  Detached:  None:

Describe Plume Background: Start: OPEN SKY End: OPEN SKY.  
 Background Color: Start: Blue End: Blue. Sky Conditions: Start: clear End: clear.  
 Wind Speed: Start: 2-5 End: 2-5. Wind Direction: Start: SW End: SW.  
 Ambient Temp.: Start: 77°F End: 77°F. Wet Bulb Temp.: 67°F RH Percent: 59%



Longitude: \_\_\_\_\_ Latitude: \_\_\_\_\_ Declination: \_\_\_\_\_  
 Additional Information: \_\_\_\_\_

Observation Date	Time Zone	Start Time	End Time	Comments	
3/25/99		1150	1250		
Sec	0	15	30	45	
Min	0	0	0	0	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print): Allan Castro  
 Observer's Signature: [Signature] Date: 3/25/99  
 Organization: St. Johns River Power Park.  
 Certified by: Ester Technical Associates Date: 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Scale One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name  
*St. Johns River Power Park*  
 Facility Name  
*St. Johns River Power Park*  
 Street Address  
*11201 New Berlin Rd.*  
 City *Tackernville* State *FL* Zip *32246*

Process  
*Unit #2 Boiler Fuel loading* Unit # *2* Operating Mode  
*Fuel loading*  
 Control Equipment  
*BAE Hovco DC 5* Operating Mode  
*100% CAP.*

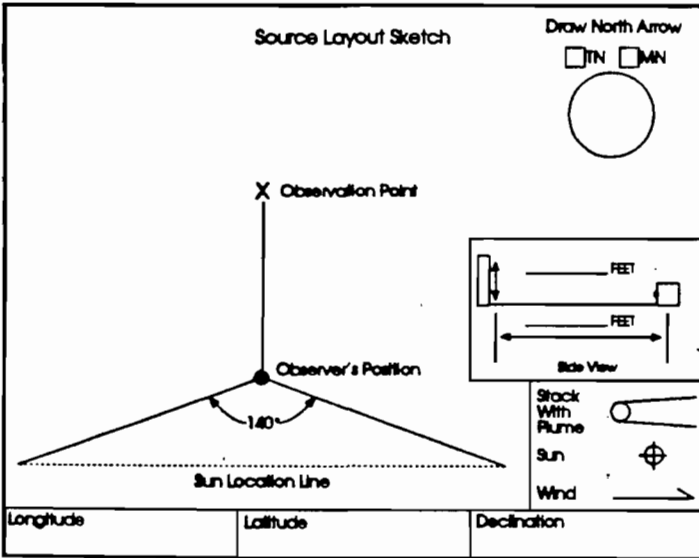
Describe Emission Point

Height of Emiss. Pt. Start End Height of Emiss. Pt. Rel. to Observer Start End  
 Distance to Emiss. Pt. Start End Direction to Emiss. Pt. (Degrees) Start End

Vertical Angle to Obs. Pt. Start End Direction to Obs. Pt. (Degrees) Start End  
 Distance and Direction to Observation Point from Emission Point Start End

Describe Emissions  
 Start End Emission Color Water Droplet Plume  
 Start End Attached  Detached  None

Describe Plume Background  
 Start End Background Color Sky Conditions  
 Start End Wind Speed Start End Wind Direction  
 Start End Ambient Temp. Start End Wet Bulb Temp. RH Percent



Additional Information

Form Number *04722* Page *2* of *2*  
 Continued on VEO Form Number *04721*

Observation Date \_\_\_\_\_ Time Zone \_\_\_\_\_ Start Time *1150* End Time *1250*

Sec Min	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print) *Alvaro Castro*  
 Observer's Signature *Alvaro Castro* Date *3/25/97*  
 Organization *St. Johns River Power Park*  
 Certified By *Eastern Technical Associates* Date *12/2/98*

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name  
 St. Johns River Power Park.  
 Facility Name  
 St. Johns River Power Park.  
 Street Address  
 11201 New Berlin Rd  
 City State Zip  
 Jacksonville FL 32226

Process Unit # Operating Mode  
 SHIP UNLOADING PETROLEUM COM 1400 TPH.  
 Control Equipment Operating Mode  
 WET SUPPRESSION 100% CAP.

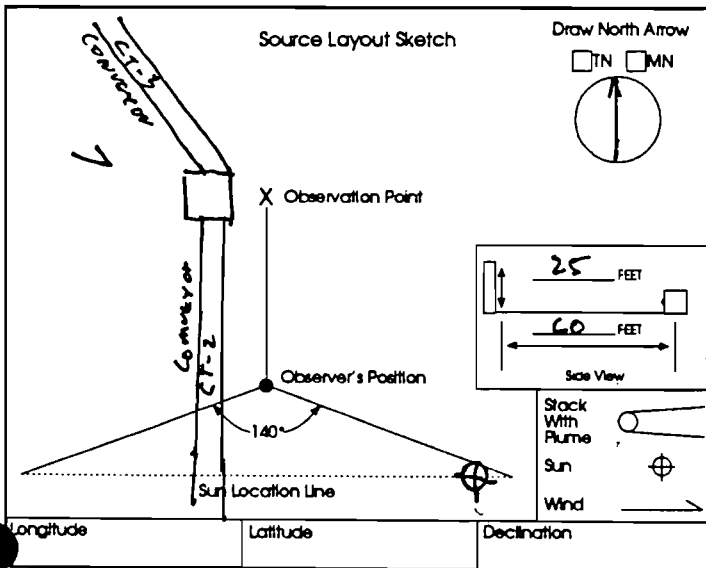
Describe Emission Point  
 TRANSFER POINT CONVEYOR CT-2 TO CONVEYOR CT-3

Height of Emiss. Pt. Height of Emiss. Pt. Rel. to Observer  
 Start 30' End 30' Start 25' End 25'  
 Distance to Emiss. Pt. Direction to Emiss. Pt. (Degrees)  
 Start 60' End 60' Start 344 End 344

Vertical Angle to Obs. Pt. Direction to Obs. Pt. (Degrees)  
 Start 14° End 14° Start 358° End 358°  
 Distance and Direction to Observation Point from Emission Point  
 Start 5' - 90° End 5' 90°

Describe Emissions  
 Start none End none  
 Emission Color Water Droplet Plume  
 Start none End none Attached  Detached  None

Describe Plume Background  
 Start OPEN SKY End OPEN SKY  
 Background Color Sky Conditions  
 Start WHITE End WHITE Start OVERCAST End OVERCAST  
 Wind Speed Wind Direction  
 Start 0-2 End 0-2 Start SW End SW  
 Ambient Temp. Wet Bulb Temp. RH Percent  
 Start 79° End 79° Start 75° RH 80%



Additional Information

Form Number 023E1 Page 1 of 2  
 Continued on VEO Form Number 023E2

Observation Date		Time Zone				Start Time	End Time
4/27/99						0835	0935
Sec	Min	0	15	30	45	Comments	
1	0	0	0	0	0		
2	0	0	0	0	0		
3	0	0	0	0	0		
4	0	0	0	0	0		
5	0	0	0	0	0		
6	0	0	0	0	0		
7	0	0	0	0	0		
8	0	0	0	0	0		
9	0	0	0	0	0		
10	0	0	0	0	0		
11	0	0	0	0	0		
12	0	0	0	0	0		
13	0	0	0	0	0		
14	0	0	0	0	0		
15	0	0	0	0	0		
16	0	0	0	0	0		
17	0	0	0	0	0		
18	0	0	0	0	0		
19	0	0	0	0	0		
20	0	0	0	0	0		
21	0	0	0	0	0		
22	0	0	0	0	0		
23	0	0	0	0	0		
24	0	0	0	0	0		
25	0	0	0	0	0		
26	0	0	0	0	0		
27	0	0	0	0	0		
28	0	0	0	0	0		
29	0	0	0	0	0		
30	0	0	0	0	0		

Observer's Name (Print) Alvaro Castro  
 Observer's Signature Alvaro Castro Date 4/27/99  
 Organization St. Johns River Power Park.  
 Certified By Eastern Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	023	e 2	Page	2	of	2
Continued on VEO Form Number				023	e 1	

Method Used (Circle One)  
 Method 9      203A      203B      Other: \_\_\_\_\_

Company Name  
 St. Johns River Power Park.

Facility Name  
 St. Johns River Power Park

Street Address  
 11201 New Berlin Rd.

City      State      Zip  
 Jacksonville      FL      32226

Process      Unit #      Operating Mode  
 SHIP UNLOADING BELT      COM      1400 TPA

Control Equipment      Operating Mode  
 Wet Suppression      100% CAP.

Describe Emission Point  
 TRANSFER Point Conveyor CT-2 to Conveyor CT-3

Height of Emiss. Pt. Start      End	Height of Emiss. Pt. Rel. to Observer Start      End
Distance to Emiss. Pt. Start      End	Direction to Emiss. Pt. (Degrees) Start      End

Vertical Angle to Obs. Pt. Start      End	Direction to Obs. Pt. (Degrees) Start      End
Distance and Direction to Observation Point from Emission Point Start      End	

Describe Emissions

Start      End	Water Droplet Plume
Start      End	Attached <input type="checkbox"/> Detached <input type="checkbox"/> None <input type="checkbox"/>

Describe Plume Background

Start      End	Sky Conditions
Start      End	Wind Speed      Wind Direction
Start      End	Ambient Temp.      Wet Bulb Temp.      RH Percent

Source Layout Sketch

Draw North Arrow  
 TN     MN

X Observation Point

Observer's Position

140°

Sun Location Line

Stack With Plume

Sun

Wind

Longitude      Latitude      Declination

Observation Date	Time Zone	Start Time	End Time						
4/27/99		08:35	09:35	Sec	0	15	30	45	Comments
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print)      *Alvaro Castro*

Observer's Signature      *Alvaro Castro*      Date      4/27/99

Organization      *St. Johns River Power Park*

Certified by      *Eastern Technical Associates*      Date      12/2/98



EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One) Method 9 203A 2038 Other: \_\_\_\_\_

Company Name St. Johns River Power Park.  
 Facility Name St. Johns River Power Park.  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32226

Process Quick lime silo Unit # COM Operating Mode 16 TPH.  
 Control Equipment BAGHOUSE Operating Mode 100% CAP.

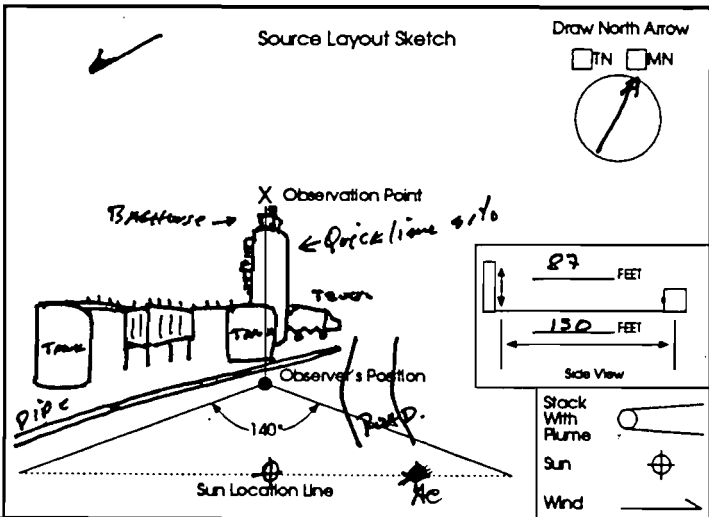
Describe Emission Point BAGHOUSE Effluent on top of <sup>quick</sup> lime silo

Height of Emiss. Pt. Start 87' End 87' Height of Emiss. Pt. Rel. to Observer Start 84' End 84'  
 Distance to Emiss. Pt. Start 150 End 150 Direction to Emiss. Pt. (Degrees) Start 314° End 314°

Vertical Angle to Obs. Pt. Start 30° End 30° Direction to Obs. Pt. (Degrees) Start 314° End 314°  
 Distance and Direction to Observation Point from Emission Point Start S'-180° End S'-180°

Describe Emissions Start none End none  
 Emission Color Start none End none Water Droplet Plume Attached  Detached  None

Describe Plume Background Start OPEN SKY End OPEN SKY.  
 Background Color Start GRAY End GRAY Sky Conditions Start cloudy End cloudy.  
 Wind Speed Start 0-5 End 0-5 Wind Direction Start NE End NE  
 Ambient Temp. Start 68°F End 68°F Wet Bulb Temp. 65°F RH Percent 85%



Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_

Additional Information \_\_\_\_\_

Form Number 0521 Page 1 of 2  
 Continued on VEO Form Number 0522

Observation Date		Time Zone				Start Time	End Time
4/29/99						0945	1045
Sec Min	0	15	30	45	Comments		
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print) Alvaro Castro  
 Observer Signature Alvaro Castro Date 4/29/99  
 Organization St. Johns River Power Park  
 Certified by Eastern Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	0522	Page	2	Of	2
Continued on VEO Form Number			0521		

Method Used (Circle One) Method 9 203A 2038 Other: \_\_\_\_\_

Company Name St. Johns River Power Park.  
 Facility Name St. Johns River Power Park.  
 Street Address 11201 New Berlin Rd.  
 City Vacuumville State FL Zip 32226

Process Quick line sibs Unit # COM. Operating Mode 16TPH.  
 Control Equipment Gas House Operating Mode 100% CAP

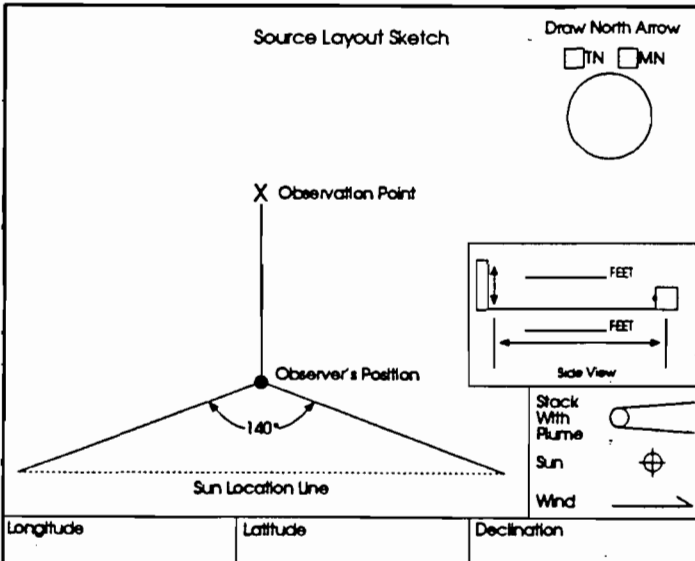
Describe Emission Point

Height of Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Obs. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions Start \_\_\_\_\_ End \_\_\_\_\_  
 Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Attached  Detached  None

Describe Plume Background Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color \_\_\_\_\_ Sky Conditions Start \_\_\_\_\_ End \_\_\_\_\_  
 Wind Speed Start \_\_\_\_\_ End \_\_\_\_\_ Wind Direction Start \_\_\_\_\_ End \_\_\_\_\_  
 Ambient Temp. Start \_\_\_\_\_ End \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_



Additional Information

Observation Date	Time Zone	Start Time	End Time	Comments					
4/29/99		0945	1045	Sec	0	15	30	45	
				Min					
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print) Alvaro Castro.  
 Observer's Signature Alvaro Castro Date 4/29/99  
 Organization St. Johns River Power Park.  
 Certified by Eastern Technical Associates Date 12/2/98

VISIBLE EMISSION OBSERVATION FORM 1

Method used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name  
**ST. JOHNS RIVER POWER PARK**  
 Facility Name  
**11201 NEW BERLIN ROAD**  
 Street Address  
 City **JACKSONVILLE** State **FL** Zip **32226**

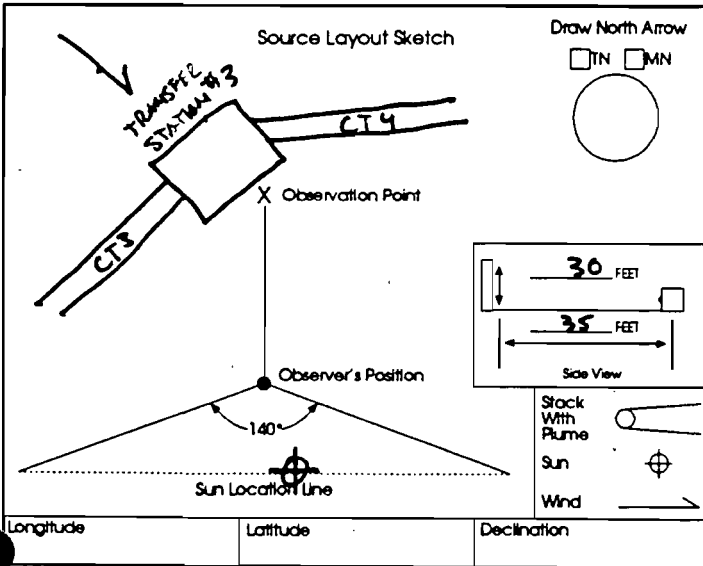
Process **PERCOLE SHIPUNLOADING** Unit # **COM** Operating Mode **66% CAPACITY**  
 Control Equipment **WET SUPPRESSION** Operating Mode **100% CAPACITY**

Describe Emission Point  
**TRANSFER STATION #3 CT3 - CT4 CONV. BELT**  
 Height of Emiss. Pt. Start **30'** End **30'** Height of Emiss. Pt. Rel. to Observer Start **26'** End **26'**  
 Distance to Emiss. Pt. Start **35'** End **35'** Direction to Emiss. Pt. (Degrees) Start **288°** End **288°**

Vertical Angle to Obs. Pt. Start **30°** End **30°** Direction to Obs. Pt. (Degrees) Start **292°** End **292°**  
 Distance and Direction to Observation Point from Emission Point Start **-10'-45°** End **-10'-45°**

Describe Emissions  
 Start **NONE** End **NONE**  
 Emission Color **NONE** Water Droplet Plume   
 Attached  Detached  None

Describe Plume Background  
 Start **SCATTERED - OPEN SKY** End **OVERCAST - OPEN SKY**  
 Background Color **BLUE/WHITE** Sky Conditions **WHITE**  
 Wind Speed **3-5 MPH** Wind Direction **270°**  
 Ambient Temp. **3-5 MPH** Wet Bulb Temp. **270°** RH Percent



Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_  
 Additional Information \_\_\_\_\_

Form Number **23031** Page **1** of **2**  
 Continued on VEO Form Number **23032**

Sec Min	Time Zone				Start Time	End Time	Comments
	0	15	30	45			
	EDT				0835	0935	
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print) **MARK K. LOECHMELT**  
 Observer's Signature **Mark K. Lochmelt** Date **4/27/99**  
 Organization **ST. JOHNS RIVER POWER PARK**  
 Certified by **EASTERN TECHNICAL ASSOCIATES** Date **12/3/98**

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 23e32 Page 2 of 2  
 Continued on VEO Form Number 23e31

Method used (Circle One) Method 9 203A 2038 Other: \_\_\_\_\_

Company Name ST. JOHNS RIVER POWER PARK  
 Facility Name ST. JOHNS RIVER POWER PARK  
 Street Address 11201 NEW BERLIN ROAD  
 City JACKSONVILLE State FL Zip 32226

Process PETROLEUM SHIP UNLOADING Unit # COM Operating Mode \_\_\_\_\_  
 Control Equipment WAT SUPPRESSION Operating Mode 100% CAPACITY

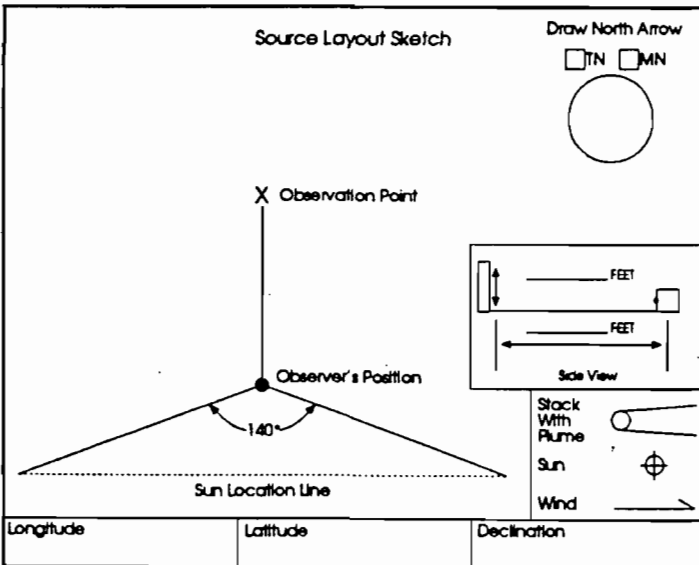
Describe Emission Point \_\_\_\_\_

Height of Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Obs. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions Start \_\_\_\_\_ End \_\_\_\_\_  
 Emission Color \_\_\_\_\_ Water Droplet Plume Attached  Detached  None

Describe Plume Background Start \_\_\_\_\_ End \_\_\_\_\_  
 Background Color \_\_\_\_\_ Sky Conditions Start \_\_\_\_\_ End \_\_\_\_\_  
 Wind Speed Start \_\_\_\_\_ End \_\_\_\_\_ Wind Direction Start \_\_\_\_\_ End \_\_\_\_\_  
 Ambient Temp. Start \_\_\_\_\_ End \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_



Observation Date	Time Zone	Start Time	End Time	Comments				
4/27/99	EST	0735	0935	Sec	0	15	30	45
1	0	0	0	0				
2	0	0	0	0				
3	0	0	0	0				
4	0	0	0	0				
5	0	0	0	0				
6	0	0	0	0				
7	0	0	0	0				
8	0	0	0	0				
9	0	0	0	0				
10	0	0	0	0				
11	0	0	0	0				
12	0	0	0	0				
13	0	0	0	0				
14	0	0	0	0				
15	0	0	0	0				
16	0	0	0	0				
17	0	0	0	0				
18	0	0	0	0				
19	0	0	0	0				
20	0	0	0	0				
21	0	0	0	0				
22	0	0	0	0				
23	0	0	0	0				
24	0	0	0	0				
25	0	0	0	0				
26	0	0	0	0				
27	0	0	0	0				
28	0	0	0	0				
29	0	0	0	0				
30	0	0	0	0				

Observer's Name (Print) MARK K. LOBEHET  
 Observer's Signature Mark K. Lobe Date 4/27/99  
 Organization ST. JOHNS RIVER POWER PARK  
 Certified By BASTERN TECHNICAL ASSOCIATES Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One) Method 2 200A 200B Other: \_\_\_\_\_

Company Name  
**ST. JOHNS RIVER POWER PARK**

Facility Name  
**ST. JOHNS RIVER POWER PARK**

Street Address  
**11201 NEW SPAIN ROAD**

City **JACKSONVILLE** State **FL** Zip **32226**

Process **LIMESTONE RECLAIM** Unit # **COM** Operating Mode \_\_\_\_\_

Control Equipment **BAGHOUSE 3DC-01** Operating Mode **100% CAPACITY**

Describe Emission Point  
**BAGHOUSE EFFLUENT EXHAUST 3DC-01**

Height of Emiss. Pt. Start **20'** End **20'** Height of Emiss. Pt. Rel. to Observer Start **14'** End **14'**

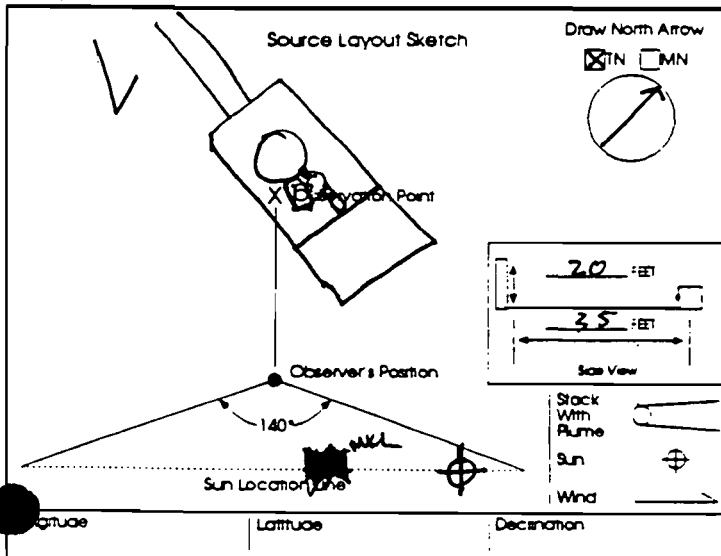
Distance to Emiss. Pt. Start **35'** End **35'** Direction to Emiss. Pt. (Degrees) Start **280°** End **280°**

Vertical Angle to Obs. Pt. Start **17°** End **17°** Direction to Obs. Pt. (Degrees) Start **294°** End **294°**

Distance and Direction to Observation Point from Emission Point Start **1'-196°** End **1'-196°**

Describe Emissions  
Start **NONE** End **NONE**  
Emission Color Start **NONE** End **NONE** Water Droplet Plume Attached  Detached  None

Describe Plume Background  
Start **BAGHOUSE HOUSING** End **BAGHOUSE HOUSING**  
Background Color Start **RUST** End **RUST** Sky Conditions Start **OVERCAST** End **OVERCAST**  
Wind Speed Start **20-25** End **20-25** Wind Direction Start **320°** End **320°**  
Ambient Temp. Start **54°** End **54°** Wet Bulb Temp. **55°** RH Percent **100%**



Additional Information

Form Number **00501** Page **2**  
Continued on VEO Form Number **00502**

Observation Date	Time Zone	Start Time	End Time	Comments					
<b>4/30/99</b>	<b>EST</b>	<b>0750</b>	<b>0850</b>						
Sec Min	0	15	30	45					
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print) **MARK K. LOECHELT**

Observer's Signature *Mark K. Lochelt* Date **4/30/99**

Organization **ST. JOHNS RIVER POWER PARK**

Certified By **EASTERN TECHNICAL ASSOCIATES** Date **12/3/98**

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	00502	Page	2	of	2
Continued on VEO Form Number					
00501					

Method Used (Circle One)  
 Method 9      203A      203B      Other: \_\_\_\_\_

Company Name  
**ST. JOHNS RIVER POWER PARK**

Facility Name  
**ST. JOHNS RIVER POWER PARK**

Street Address  
**11201 NEW BERLIN ROAD**

City      State      Zip  
**JACKSONVILLE      FL      32226**

Process      Unit #      Operating Mode  
**LIMESTONE RECLAIM      COM**

Control Equipment      Operating Mode  
**BAGHOUSE 3DC-01      100% CAPACITY**

Describe Emission Point  
**BAGHOUSE EFFLUENT EXHAUST 3DC-01**

Height of Emiss. Pt.      Height of Emiss. Pt. Rel. to Observer  
 Start      End      Start      End

Distance to Emiss. Pt.      Direction to Emiss. Pt. (Degrees)  
 Start      End      Start      End

Vertical Angle to Obs. Pt.      Direction to Obs. Pt. (Degrees)  
 Start      End      Start      End

Distance and Direction to Observation Point from Emission Point  
 Start      End

Describe Emissions

Emission Color      Water Droplet Plume  
 Start      End      Attached       Detached       None

Describe Plume Background

Background Color      Sky Conditions  
 Start      End      Start      End

Wind Speed      Wind Direction  
 Start      End      Start      End

Ambient Temp.      Wet Bulb Temp.      RH Percent  
 Start      End      Start      End

Source Layout Sketch

Draw North Arrow  
 TN     MN

Observer's Position

Observation Point

140°

Sun Location Line

Stack With Plume

Sun

Wind

Longitude      Latitude      Declination

Observation Date	Time Zone				Start Time	End Time
4/30/99	EOT				0700	0850
Sec Min	0	15	30	45	Comments	
1	0	0	0	0		
2	0	0	0	0		
3	0	0	0	0		
4	0	0	0	0		
5	0	0	0	0		
6	0	0	0	0		
7	0	0	0	0		
8	0	0	0	0		
9	0	0	0	0		
10	0	0	0	0		
11	0	0	0	0		
12	0	0	0	0		
13	0	0	0	0		
14	0	0	0	0		
15	0	0	0	0		
16	0	0	0	0		
17	0	0	0	0		
18	0	0	0	0		
19	0	0	0	0		
20	0	0	0	0		
21	0	0	0	0		
22	0	0	0	0		
23	0	0	0	0		
24	0	0	0	0		
25	0	0	0	0		
26	0	0	0	0		
27	0	0	0	0		
28	0	0	0	0		
29	0	0	0	0		
30	0	0	0	0		

Observer's Name (Print)  
**MARK K. LOEHNELT**

Observer's Signature  
**Mark K. Loehnelt**      Date **4/30/99**

Organization  
**ST. JOHNS RIVER POWER PARK**

Certified by  
**EASTERN TECHNICAL ASSOCIATES**      Date **12/3/98**

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name  
 St. Johns River Power Park  
 Facility Name  
 St. Johns River Power Park.  
 Street Address  
 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32224

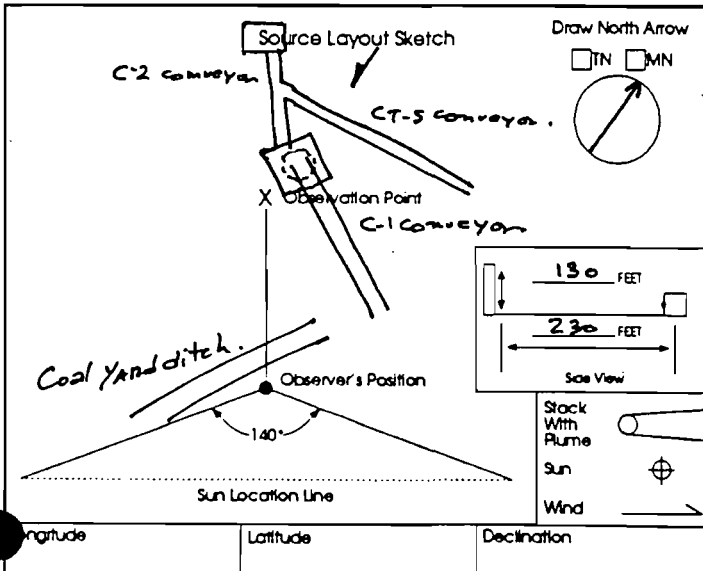
Process Fuel Transfer Building. Unit # Operating Mode 2000 TPH  
 Control Equipment WET suppression Operating Mode 100% CAP.

Describe Emission Point  
 Conveyor C-1 to Conveyor C-2 and lowering Well.  
 Height of Emiss. Pt. Start 130' End 130' Height of Emiss. Pt. Rel. to Observer Start 127' End 121'  
 Distance to Emiss. Pt. Start 230' End 230' Direction to Emiss. Pt. (Degrees) Start 275° End 275°

Vertical Angle to Obs. Pt. Start 16° End 16° Direction to Obs. Pt. (Degrees) Start 270° End 270°  
 Distance and Direction to Observation Point from Emission Point Start 10' 90° End 10' 90°

Describe Emissions  
 Start none End none.  
 Emission Color Water Droplet Plume  
 Start none End none Attached  Detached  None

Describe Plume Background  
 Start open sky End open sky.  
 Background Color Start GRAY End GRAY Sky Conditions Start overcast End overcast  
 Wind Speed Start 20-25 End 20-25 Wind Direction Start N End N  
 Ambient Temp. Start 53°F End 54°F Wet Bulb Temp. 53°F RH Percent 100%



Additional Information  
 Direction estimated - erratic compass readings.

Form Number 23001 Page 1 of 2  
 Continued on VEO Form Number 23002

Observation Date	Time Zone	Start Time	End Time						
5/1/99		0725	0825	Sec	0	15	30	45	Comments
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print) Alvaro Castro  
 Observer's Signature [Signature] Date 5/1/99  
 Organization St. Johns River Power Park.  
 Certified By Eastern Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9      203A      203B      Other: \_\_\_\_\_

Company Name  
*St. Johns River Power Park.*

Facility Name  
*St. Johns River Power Park.*

Street Address  
*11201 New Berlin Rd.*

City      State      Zip  
*Jacksonville      FL      32226*

Process      Unit #      Operating Mode  
*Fuel Transfer Building Com      2000 TCH.*

Control Equipment      Operating Mode  
*WET suppression      100% CAP.*

Describe Emission Point

Height of Emiss. Pt.      Height of Emiss. Pt. Rel. to Observer  
 Start      End      Start      End

Distance to Emiss. Pt.      Direction to Emiss. Pt. (Degrees)  
 Start      End      Start      End

Vertical Angle to Obs. Pt.      Direction to Obs. Pt. (Degrees)  
 Start      End      Start      End

Distance and Direction to Observation Point from Emission Point  
 Start      End

Describe Emissions

Start      End

Emission Color      Water Droplet Plume  
 Start      End      Attached       Detached       None

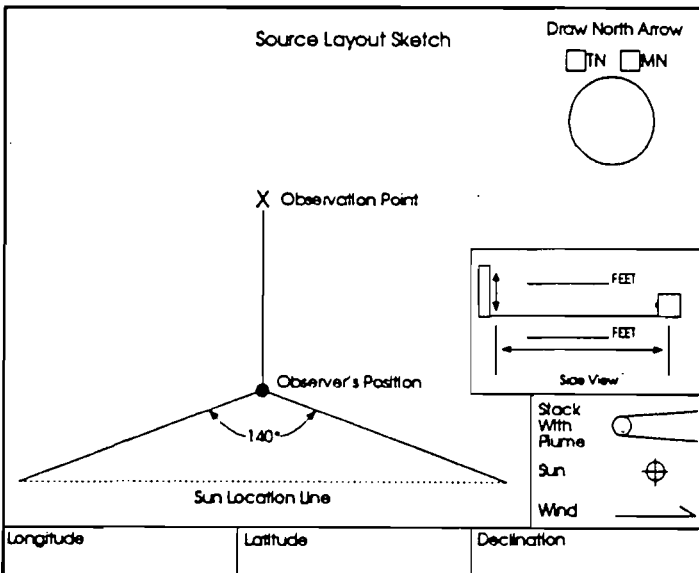
Describe Plume Background

Start      End

Background Color      Sky Conditions  
 Start      End      Start      End

Wind Speed      Wind Direction  
 Start      End      Start      End

Ambient Temp.      Wet Bulb Temp.      RH Percent  
 Start      End      Start      End



Additional Information

Form Number      23002      Page      2 of 2

Continued on VEO Form Number      23001

Observation Date		Time Zone		Start Time	End Time	Comments
Sec	Min	0	15	30	45	
5/1/99				0725	0825	
1	0	0	0	0		
2	0	0	0	0		
3	0	0	0	0		
4	0	0	0	0		
5	0	0	0	0		
6	0	0	0	0		
7	0	0	0	0		
8	0	0	0	0		
9	0	0	0	0		
10	0	0	0	0		
11	0	0	0	0		
12	0	0	0	0		
13	0	0	0	0		
14	0	0	0	0		
15	0	0	0	0		
16	0	0	0	0		
17	0	0	0	0		
18	0	0	0	0		
19	0	0	0	0		
20	0	0	0	0		
21	0	0	0	0		
22	0	0	0	0		
23	0	0	0	0		
24	0	0	0	0		
25	0	0	0	0		
26	0	0	0	0		
27	0	0	0	0		
28	0	0	0	0		
29	0	0	0	0		
30	0	0	0	0		

Observer's Name (Print)      *Alvaro Castro*

Observer's Signature      *Alvaro Castro*      Date      *5/1/99*

Organization      *St. Johns River Power Park.*

Certified By      *Eastern Technical Associates*      Date      *12/2/98*



EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number: 023a1 Page 1 of 2  
 Continued on VEO Form Number: 023a2

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name: ST. JOHNS RIVER POWER PARK  
 Facility Name: ST. JOHNS RIVER POWER PARK  
 Street Address: 11201 NEW BELLW ROAD  
 City: JACKSONVILLE State: FL Zip: 32226

Process: RAILCAR COAL UNLOADING Unit #: COM Operating Mode: 2000 TPH  
 Control Equipment: WBT SUPPRESSION Operating Mode: 100% CAPACITY

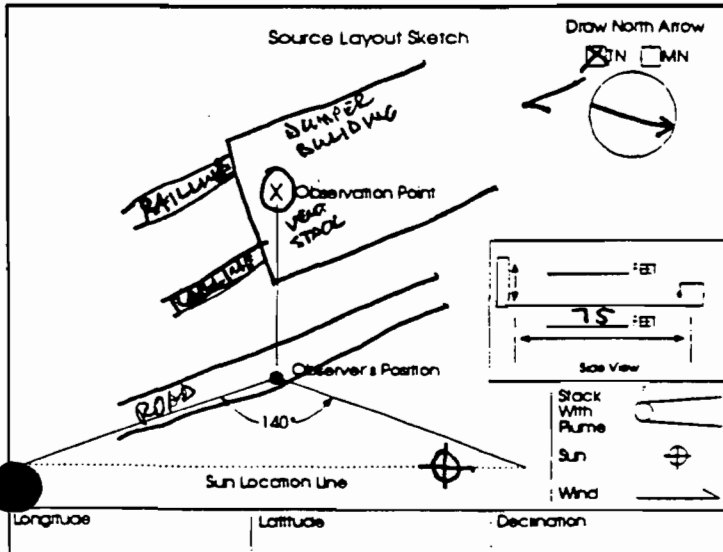
Describe Emission Point  
 BUILDING VENTILATOR - STACK @ TOP OF BUILDING

Height of Emiss. Pt. Start: 60' End: 60' Height of Emiss. Pt. Rel. to Observer Start: 55' End: 55'  
 Distance to Emiss. Pt. Start: 75' End: 75' Direction to Emiss. Pt. (Degrees) Start: 280° End: 280°

Vertical Angle to Obs. Pt. Start: 24° End: 24° Direction to Obs. Pt. (Degrees) Start: 280° End: 280°  
 Distance and Direction to Observation Point from Emission Point Start: 1' ABOVE STACK - 0° End: 1' ABOVE STACK - 0°

Describe Emissions  
 Start: NONE End: NONE  
 Emission Color: Start: NONE End: NONE  
 Water Droplet Plume: Attached:  Detached:  None:

Describe Plume Background  
 Start: OPEN SKY End: OPEN SKY  
 Background Color: Start: GRAY End: GRAY Sky Conditions: Start: OVERCAST End: OVERCAST  
 Wind Speed: Start: 20-25 End: 20-25 Wind Direction: Start: 340° End: 340°  
 Ambient Temp: Start: 53° End: 54° Wet Bulb Temp: Start: 53° RH Percent: 100%



Additional Information  
 DIRECTIONS ESTIMATED - BREAK COMPASS READINGS

Observation Date	Time Zone	Start Time	End Time					
5-1-99	EDT	0730	0830	Sec	15	30	45	Comments
1	0	0	0	0				
2	0	0	0	0				
3	0	0	0	0				
4	0	0	0	0				
5	0	0	0	0				
6	0	0	0	0				
7	0	0	0	0				
8	0	0	0	0				
9	0	0	0	0				
10	0	0	0	0				
11	0	0	0	0				
12	0	0	0	0				
13	0	0	0	0				
14	0	0	0	0				
15	0	0	0	0				
16	0	0	0	0				
17	0	0	0	0				
18	0	0	0	0				
19	0	0	0	0				
20	0	0	0	0				
21	0	0	0	0				
22	0	0	0	0				
23	0	0	0	0				
24	0	0	0	0				
25	0	0	0	0				
26	0	0	0	0				
27	0	0	0	0				
28	0	0	0	0				
29	0	0	0	0				
30	0	0	0	0				

Observer's Name (Print): MARK K. LOECHLIT  
 Observer's Signature: [Signature] Date: 5/1/99  
 Organization: ST. JOHNS RIVER POWER PARK  
 Certified By: EASTERN TECHNICAL ASSOCIATES Date: 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 023a2 Page 2 of 2  
 Continued on VEO Form Number 023a1

Method Used (Circle One)  
 Method 9  203A  203B  Other: \_\_\_\_\_

Company Name  
ST. JOHNS RIVER POWER PARK  
 Facility Name  
ST. JOHNS RIVER POWER PARK  
 Street Address  
11701 NEW BELLIM ROAD  
 City JACKSONVILLE State FL Zip 32226

Process RAILCAR COAL UNLOADING Unit # COM Operating Mode  
 Control Equipment WRT SUPPRESSION Operating Mode 100% CAPACITY

Describe Emission Point  
BUILDING VENTILATOR - STACK @ TOP OF BUILDING

Height of Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Obs. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions  
 Start \_\_\_\_\_ End \_\_\_\_\_ Emission Color \_\_\_\_\_ Water Droplet Plume  
 Start \_\_\_\_\_ End \_\_\_\_\_ Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_ Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_

Source Layout Sketch

Draw North Arrow  TN  MN

Observer's Position

Observation Point

140°

Sun Location Line

Scale View

Stack With Plume

Sun

Wind

Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_

Additional Information

Sec Min	Time Zone				Start Time	End Time	Comments
	0	15	30	45			
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print) MARK K. LOECHELT  
 Observer's Signature Mark K. Loechelt Date 5/1/99  
 Organization ST. JOHNS RIVER POWER PARK  
 Certified by EASTERN TECHNICAL ASSOCIATES Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 00431 Page 1 of 2  
 Continued on VEO Form Number 00432

Method (Circle One) Method 9 203A 203B Other: \_\_\_\_\_

Company Name ST. JOHNS RIVER POWER PARK  
 Facility Name ST. JOHNS RIVER POWER PARK  
 Street Address 11201 NEW BERLIN ROAD  
 City JACKSONVILLE State FL Zip 32226

Process RAILCAR COAL UNLOADING Unit # COM Operating Mode 2000 TPH  
 Control Equipment DC-1 DUST COLLECTOR Operating Mode 100% CAPACITY

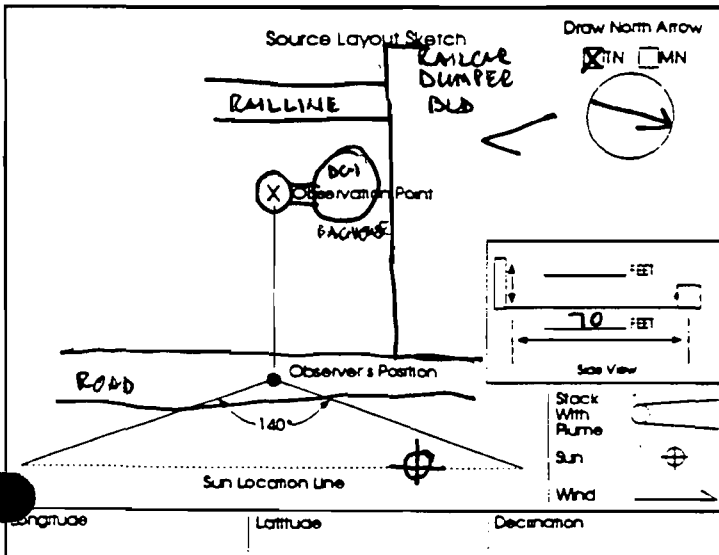
Describe Emission Point DC-1 DUST COLLECTOR EFFLUENT EXHAUST

Height of Emiss. Pt. Start 32' End 32' Height of Emiss. Pt. Rel. to Observer Start 27' End 27'  
 Distance to Emiss. Pt. Start 70' End 70' Direction to Emiss. Pt. (Degrees) Start 256° End 256°

Vertical Angle to Obs. Pt. Start 14° End 14° Direction to Obs. Pt. (Degrees) Start 256° End 256°  
 Distance and Direction to Observation Point from Emission Point Start 1' ABOVE STACK - 0° End 1' ABOVE STACK 0°

Describe Emissions Start NONE End NONE  
 Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start NONE End NONE Attached  Detached  None

Describe Plume Background Start OPEN SKY End OPEN SKY  
 Background Color Start GRAY End GRAY Sky Conditions Start OVERCAST End OVERCAST  
 Wind Speed Start 20-25 End 20-25 Wind Direction Start 340° End 340°  
 Ambient Temp. Start 53° End 54° Wet Bulb Temp. 53° RH Percent 100%



Additional Information DIRECTIONS ESTIMATED - ERRATIC COMPASS READINGS

Observation Date	Time Zone	Start Time	End Time						
<u>5-1-99</u>	<u>EDT</u>	<u>0730</u>	<u>0830</u>						
Sec	0	15	30	45	Comments				
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print) MARK K. LOECHELT  
 Observer's Signature Mark K. Lochelt Date 5/1/99  
 Organization ST. JOHNS RIVER POWER PARK  
 Carried by EASTERN TECHNICAL ASSOCIATES Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One) Method 9 203A 203B Other: \_\_\_\_\_

Company Name  
ST. JOHNS RIVER POWER PARK

Facility Name  
ST. JOHNS RIVER POWER PARK

Street Address  
11701 NEW BERTHA ROAD

City JACKSONVILLE State FL Zip 32226

Process RAILCAR COAL UNLOADING Unit # COM Operating Mode \_\_\_\_\_

Control Equipment DC-1 DUST COLLECTOR Operating Mode 100% CAPACITY

Describe Emission Point  
DC-1 DUST COLLECTOR EFFLUENT EXHAUST

Height of Emis. Pt. \_\_\_\_\_ Height of Emis. Pt. Rel. to Observer \_\_\_\_\_

Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_

Distance to Emis. Pt. \_\_\_\_\_ Direction to Emis. Pt. (Degrees) \_\_\_\_\_

Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. \_\_\_\_\_ Direction to Obs. Pt. (Degrees) \_\_\_\_\_

Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_

Distance and Direction to Observation Point from Emission Point \_\_\_\_\_

Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions

Start \_\_\_\_\_ End \_\_\_\_\_

Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_

Start \_\_\_\_\_ End \_\_\_\_\_ Attached:  Detached:  None:

Describe Plume Background

Start \_\_\_\_\_ End \_\_\_\_\_

Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_

Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_

Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_

Start \_\_\_\_\_ End \_\_\_\_\_ Start \_\_\_\_\_ End \_\_\_\_\_

Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_

Start \_\_\_\_\_ End \_\_\_\_\_

Source Layout Sketch

Draw North Arrow  TN  MN

Observer's Position

Observation Point

140°

Sun Location Line

Scale View

Stack With Plume

Sun

Wind

Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_

Additional Information

Form Number 00432 Page 2 of 2

Continued on VEO Form Number 00431

Observation Date		Time Zone				Start Time	End Time
5/1/99		EST				0730	0830
Min	Sec	0	15	30	45	Comments	
	1	0	0	0	0		
2	0	0	0	0	0		
3	0	0	0	0	0		
4	0	0	0	0	0		
5	0	0	0	0	0		
6	0	0	0	0	0		
7	0	0	0	0	0		
8	0	0	0	0	0		
9	0	0	0	0	0		
10	0	0	0	0	0		
11	0	0	0	0	0		
12	0	0	0	0	0		
13	0	0	0	0	0		
14	0	0	0	0	0		
15	0	0	0	0	0		
16	0	0	0	0	0		
17	0	0	0	0	0		
18	0	0	0	0	0		
19	0	0	0	0	0		
20	0	0	0	0	0		
21	0	0	0	0	0		
22	0	0	0	0	0		
23	0	0	0	0	0		
24	0	0	0	0	0		
25	0	0	0	0	0		
26	0	0	0	0	0		
27	0	0	0	0	0		
28	0	0	0	0	0		
29	0	0	0	0	0		
30	0	0	0	0	0		

Observer's Name (Print) MARK K. LOECHLIT

Observer's Signature Mark K. Lochlit Date 5/1/99

Organization ST. JOHNS RIVER POWER PARK

Certified by EASTERN TECHNICAL ASSOCIATES Date 12/3/98

Visible Emissions Evaluation Data Sheet

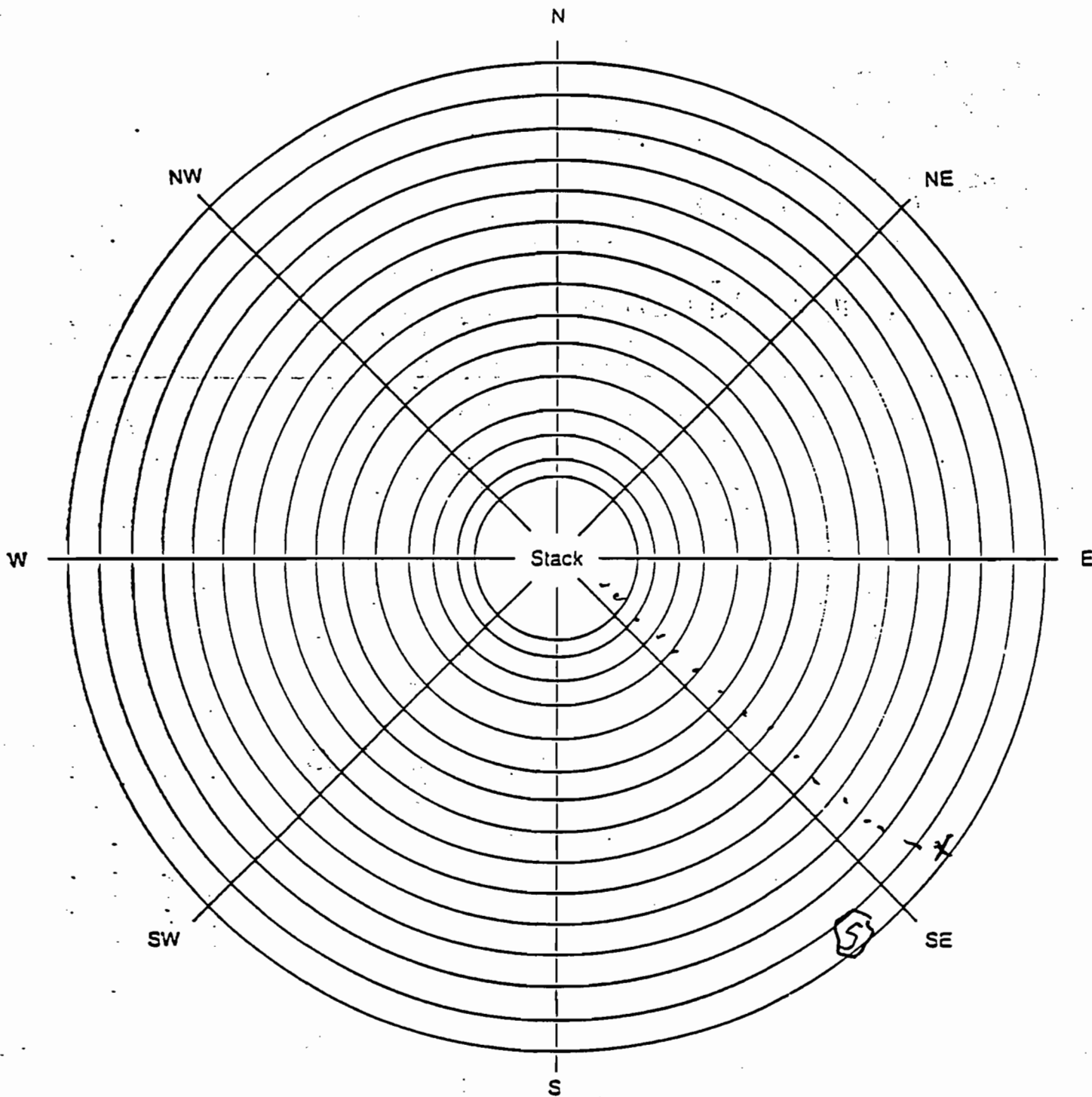
Client TKA Observer Dale Vinograd  
 Project No. 98-18872 Date 10-12-98  
 Plant Name St Johns River Power Pack Observation began 10:15  
 Location Jacksonville FL ended 11:15  
 Type of Facility Power Plant

Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Loader (Duct #1 Top)</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet)	4	0	0	0	0	34	0	0	0	0
Distance from Observer to source <u>350'</u>	5	0	0	0	0	35	0	0	0	0
Height of Source (above ground) <u>50'</u>	6	0	0	0	0	36	0	0	0	0
Weather Conditions	7	0	0	0	0	37	0	0	0	0
Wind Direction <u>NE</u>	8	0	0	0	0	38	0	0	0	0
Wind Speed <u>5 to 10</u>	9	0	0	0	0	39	0	0	0	0
Temperature <u>72</u>	10	0	0	0	0	40	0	0	0	0
Position of Sun <u>SE</u>	11	0	0	0	0	41	0	0	0	0
Sky Condition <u>overcast</u>	12	0	0	0	0	42	0	0	0	0
(clear, overcast, %clouds, color of clouds, etc.)	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
Plume Description	15	0	0	0	0	45	0	0	0	0
Color <u>white</u>	16	0	0	0	0	46	0	0	0	0
Background <u>sky</u>	17	0	0	0	0	47	0	0	0	0
Type (wet or dry) <u>Dry</u> Dist. _____	18	0	0	0	0	48	0	0	0	0
Comments	19	0	0	0	0	49	0	0	0	0
	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	0	0	0	0	53	0	0	0	0
	24	0	0	0	0	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observer's Signature <u>Dale Vinograd</u>	26	0	0	0	0	56	0	0	0	0
Date of Last EPA Method 9 Examination <u>10-7-98</u>	27	0	0	0	0	57	0	0	0	0
Examination Passed in EPA Region <u>Eastern</u>	28	0	0	0	0	58	0	0	0	0
	29	0	0	0	0	59	0	0	0	0

\*If wet, distance (ft.) from plume outlet to point in plume where observations made

0/6





LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



Total Source Analysis, Inc.  
Environmental Testing Consultants

Visible Emissions Evaluation Data Sheet

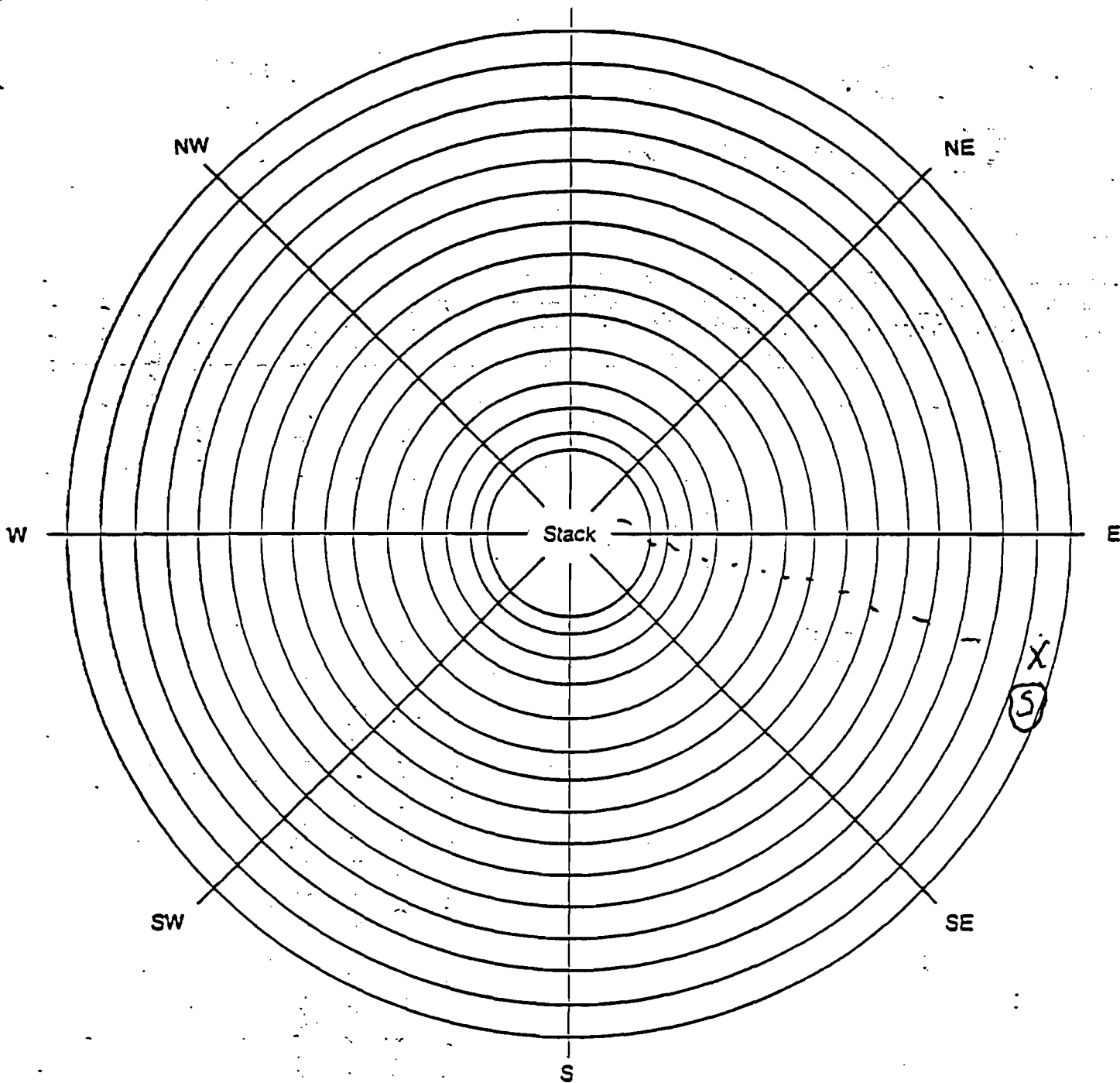
Client JEA Observer Dale Vineyard  
 Project No. 48-1987L Date 10-12-98  
 Plant Name St Louis River Power Plant Observation began 9:00  
 Location St Louis River Power Plant ended 10:00  
 Type of Facility Power Plant

Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Pile of Lime Rock</u>	0	0	0	0	0	30	0	0	0	0
<u>Lime Stone Handling Building</u>	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet)	4	0	0	0	0	34	0	0	0	0
Distance from Observer to source <u>300'</u>	5	0	0	0	0	35	0	0	0	0
Height of Source (above ground) <u>0 to 20'</u>	6	0	0	0	0	36	0	0	0	0
Weather Conditions	7	0	0	0	0	37	0	0	0	0
Wind Direction <u>NW</u>	8	0	0	0	0	38	0	0	0	0
Wind Speed <u>5 to 10</u>	9	0	0	0	0	39	0	0	0	0
Temperature <u>73</u>	10	0	0	0	0	40	0	0	0	0
Position of Sun <u>E</u>	11	0	0	0	0	41	0	0	0	0
Sky Condition <u>overcast</u>	12	0	0	0	0	42	0	0	0	0
(clear, overcast, %clouds, color of clouds, etc.) <u>Dark</u>	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
	15	0	0	0	0	45	0	0	0	0
Plume Description <u>White Dust</u>	16	0	0	0	0	46	0	0	0	0
Color <u>White</u>	17	0	0	0	0	47	0	0	0	0
Background <u>sky</u>	18	0	0	0	0	48	0	0	0	0
Type (wet or dry) <u>dry</u> Dist. _____	19	0	0	0	0	49	0	0	0	0
Comments _____	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	0	0	0	0	53	0	0	0	0
	24	0	0	0	0	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observer's Signature <u>Dale Vineyard</u>	26	0	0	0	0	56	0	0	0	0
Date of Last EPA Method 9 Examination <u>10-7-98</u>	27	0	0	0	0	57	0	0	0	0
Examination Passed in EPA Region <u>Eastern</u>	28	0	0	0	0	58	0	0	0	0
	29	0	0	0	0	59	0	0	0	0

\*\* distance (ft.) from plume outlet to point in plume where observations made



02



LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



Total Source Analysis, Inc.  
Environmental Testing Consultants

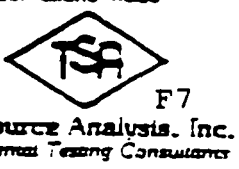


Visible Emissions Evaluation Data Sheet

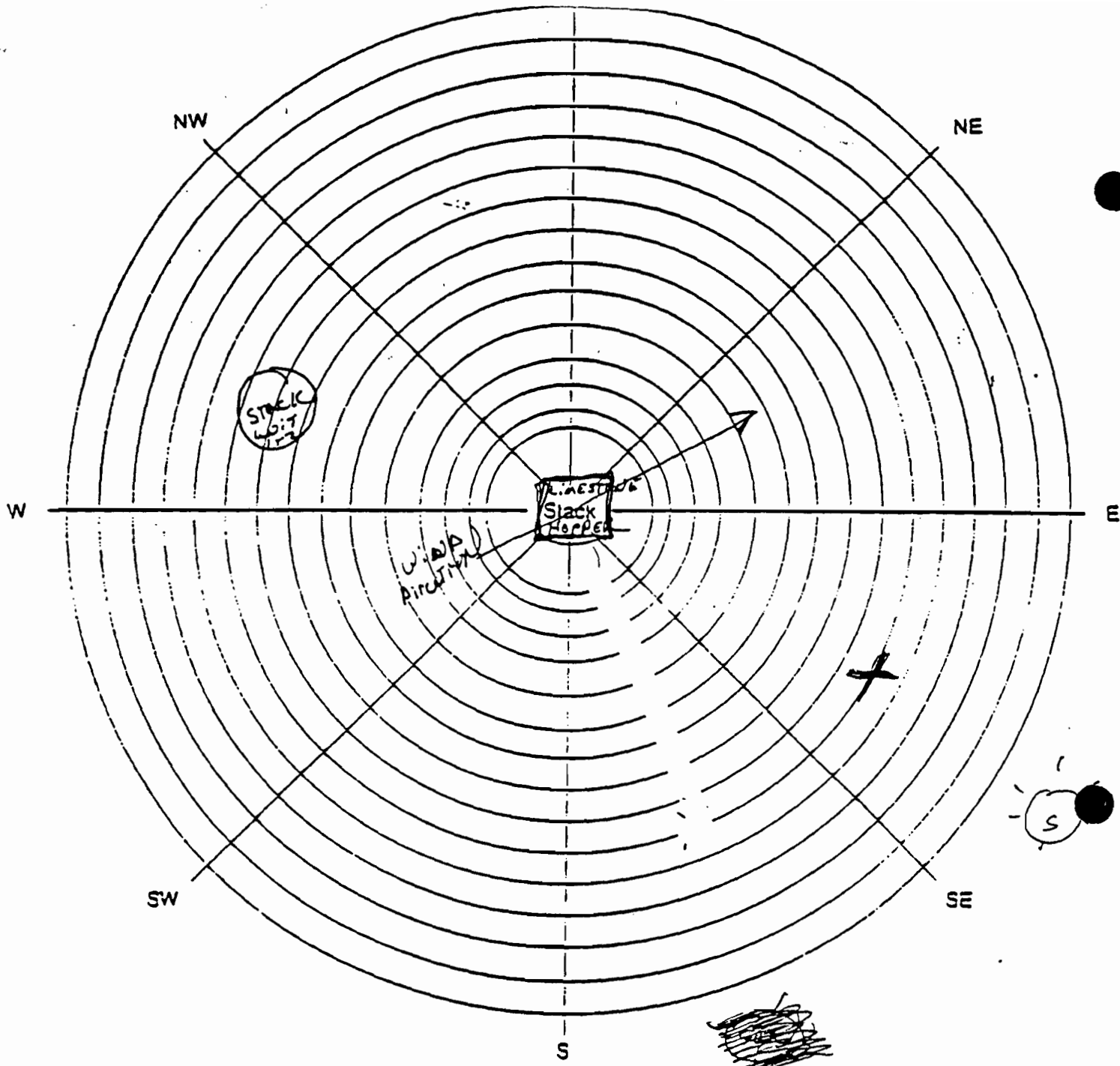
Client J.E.A Best Available Copy Observer John C. Sutton  
 Project No. 97-427 Date 10.3.97  
 Plant Name ST. Johns RIVER POWER PARK Observation began 0905  
 Location JACKSONVILLE FL. ended 1015  
 Type of Facility LIMESTONE HOPPERS (POWER PLANT)

Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>STACK</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	5	31	0	0	0	0
	2	0	0	0	0	32	0	0	5	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet) Distance from Observer to source <u>200 FT</u> Height of Source (above ground) <u>15' 20'</u>	4	0	0	0	0	34	0	0	0	0
	5	0	0	0	0	35	0	0	0	0
Weather Conditions Wind Direction <u>NE</u> Wind Speed <u>0-5</u> Temperature <u>65</u> Position of Sun <u>SOUTH EAST</u> Sky Condition <u>25% CLOUDS</u> (clear, overcast, %clouds, color of clouds, etc.)	6	0	0	0	0	36	0	0	0	0
	7	0	5	0	0	37	0	0	0	0
	8	0	0	0	0	38	0	0	0	0
	9	0	0	0	0	39	0	0	0	0
	10	0	0	0	0	40	0	0	0	0
	11	0	0	0	0	41	0	0	0	0
	12	0	0	0	0	42	5	5	0	0
	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
	15	0	0	0	0	45	0	0	0	0
Plume Description Color _____ Background <u>Blue sky</u> Type (wet or dry) <u>Dry</u> Dist. _____	16	0	0	0	0	46	0	0	0	0
	17	0	0	0	0	47	0	0	0	0
	18	0	0	0	0	48	0	0	0	0
Comments _____	19	0	0	0	0	49	0	0	0	5
	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	0	0	0	0	53	0	0	0	0
	24	0	0	0	0	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observers Signature <u>John C. Sutton</u>	26	0	0	0	0	56	0	0	0	0
Date of last EPA Method 9 Examination <u>October 1997 (ETA)</u>	27	0	0	0	0	57	0	0	0	0
Examination Passed in EPA Region	28	0	0	0	0	58	0	0	0	0
	29	0	0	0	0	59	0	0	0	0

Notes: (1.) from plume outlet to point in plume where observations made



Total Source Analysis, Inc.  
Environmental Testing Consultants



LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



Total Source Analysis, Inc.  
Environmental Testing Consultants

ent TEA Best Available Copy Observer John Suttell  
 object No. 97-422 Date 11.2.97  
 plant Name STRIP Observation began 1025  
 location Jacksonville FL. ended 1125  
 type of facility POWER PLANT (Limestone handling) Ballmill Building

Source Identification (Stack, duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>STACK (Limestone silos)</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
	4	0	0	0	0	34	0	0	0	0
	5	0	0	0	0	35	0	0	0	0
	6	0	0	0	0	36	0	0	0	0
	7	0	0	0	0	37	0	0	0	0
	8	0	0	0	0	38	0	0	0	0
	9	0	0	0	0	39	0	0	0	0
	10	0	0	0	0	40	0	0	0	0
	11	0	0	0	0	41	0	0	0	0
	12	0	0	0	0	42	0	0	0	0
	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
	15	0	0	0	0	45	0	0	0	0
	16	0	0	0	0	46	0	0	0	0
	17	0	0	0	0	47	0	0	0	0
	18	0	0	0	0	48	0	0	0	0
	19	0	0	0	0	49	0	0	0	0
	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	0	0	0	0	53	0	0	0	0
	24	0	0	0	0	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
	26	0	0	0	0	56	0	0	0	0
	27	0	0	0	0	57	0	0	0	0
	28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0	

Observer location  
 (Diagram on back of sheet)  
 Distance from Observer to source 800'  
 Height of Source (above ground) 140'

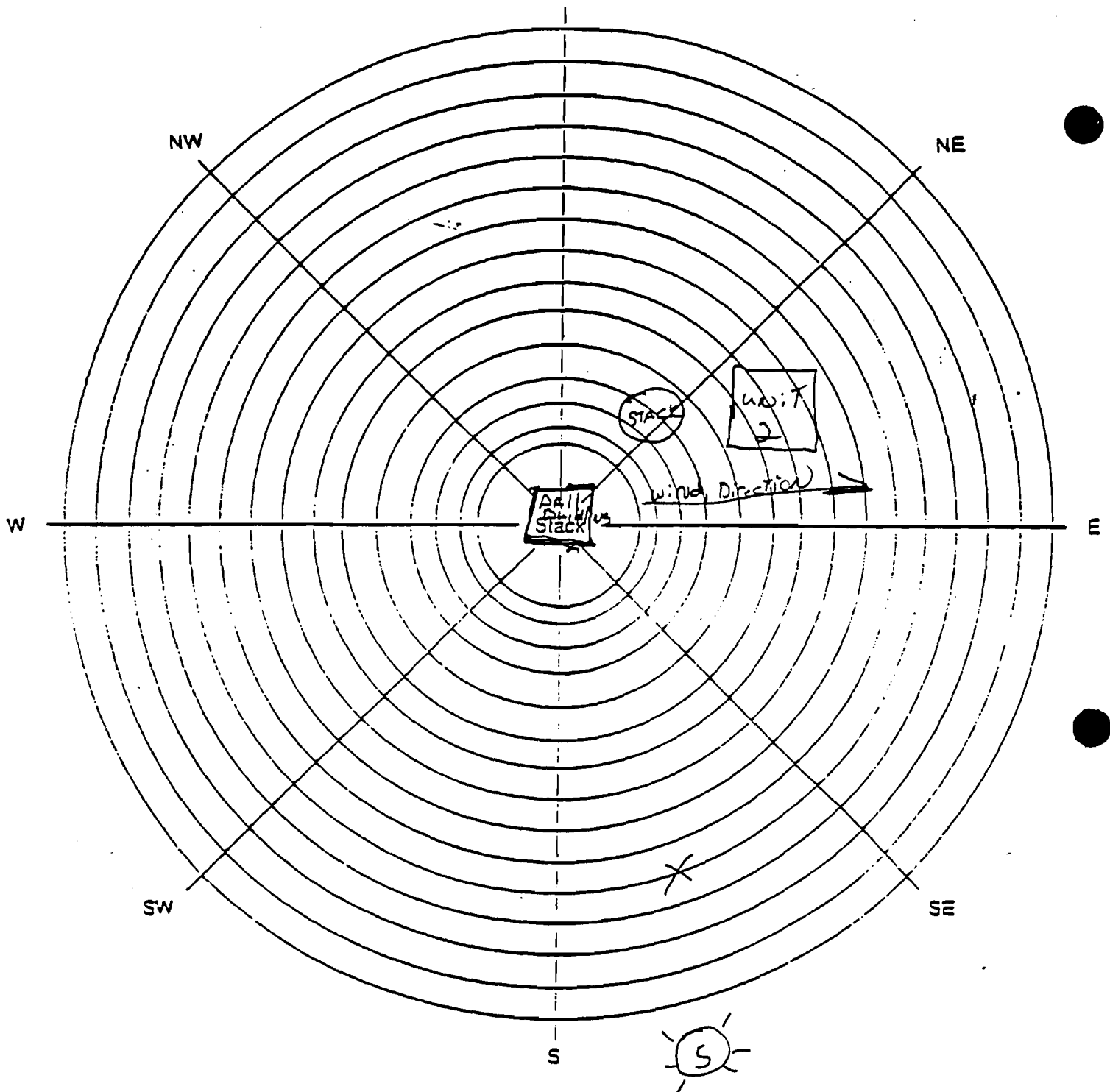
Weather Conditions  
 Wind Direction DE  
 Wind Speed 0-5 MPH  
 Temperature 65  
 Position of Sun SE  
 Sky Condition 25% clouds  
 (clear, overcast, etc.)  
 color of clouds, etc.)  
white clouds

Plume Description  
 Color \_\_\_\_\_  
 Background SKY  
 Type (wet or dry) Dry Dist. \_\_\_\_\_

Comments \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Observers Signature [Signature]  
 Date of last EPA Method 9 Examination  
OCTOBER 1997 (ETA)  
 Examination Passed in EPA Region \_\_\_\_\_





LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



Total Source Analysis, Inc.  
Environmental Testing Consultants

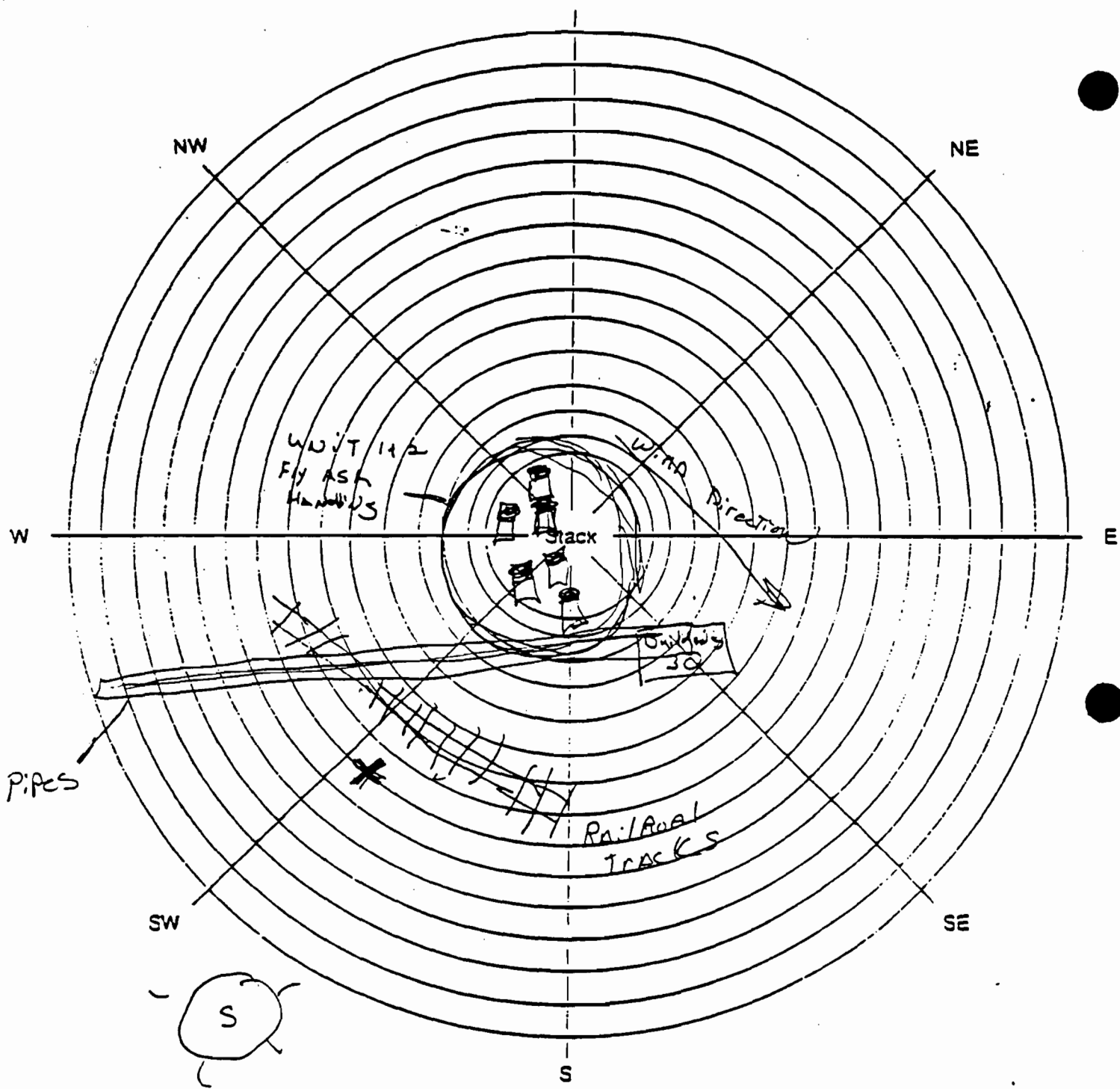
Visible Emissions Evaluation Data Sheet

Client J.E.A. Best Available Copy Observer John Sutton  
 Project No. 97-422 Date 11-4-97  
 Plant Name SJRPP Observation began 1310  
 Location JACKSONVILLE FL. ended 1411  
 Type of Facility POWER PLANT

Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>UNIT 1+2 FLY ASH HANDLING AREA</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet)	4	0	0	0	0	34	0	0	0	0
Distance from Observer to source <u>150'</u>	5	0	0	0	0	35	0	0	0	0
Height of Source (above ground) <u>0-150'</u>	6	0	0	0	0	36	0	0	0	0
Weather Conditions	7	0	0	0	0	37	0	0	0	0
Wind Direction <u>SE</u>	8	0	0	0	0	38	0	0	0	0
Wind Speed <u>0-5</u>	9	0	0	0	0	39	0	0	0	0
Temperature <u>70</u>	10	0	0	0	0	40	0	0	0	0
Position of Sun <u>SOUTH</u>	11	0	0	0	0	41	0	0	0	0
Sky Condition <u>CLEAR</u> (clear, overcast, hazy, etc.)	12	0	0	0	0	42	0	0	0	0
	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
	15	0	0	0	0	45	0	0	0	0
Plume Description	16	0	0	0	0	46	5	5	5	5
Color <u>Brown</u>	17	0	0	0	0	47	0	0	0	0
Background <u>SKY</u>	18	0	0	0	0	48	0	0	0	0
Type (wet or dry) <u>Dry</u> Dist. _____	19	0	0	0	0	49	0	0	0	0
Comments	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	5	5	0	0	53	5	0	0	0
	24	5	5	5	5	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observers Signature	26	0	0	0	0	56	0	0	0	0
<u>John C. Sutton</u>	27	0	0	0	0	57	0	0	0	0
Date of Last EPA Method 9 Examination	28	0	0	0	0	58	0	0	0	0
<u>OCTOBER 1997</u>	29	0	0	0	0	59	0	0	0	0
Examination Passed in EPA Region										
<u>AKRON OH</u>										

Distance (ft.) from plume outlet to point in plume where observations made





LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



Client: JEA  
 Project No.: 97-422  
 Plant Name: SJPPP  
 Location: JACKSONVILLE FL.  
 Type of Facility: POWER PLANT

Observer: John Sutton  
 Date: 11-4-97  
 Observation began: 0840  
 ended: 0940

Source Identification  
 (Stack, Duct, etc.) FLY ASH, Silo (unit 1)  
(SOUTH SIDE)

Observer Location  
 (Diagram on back of sheet)  
 Distance from Observer to source: 200'  
 Height of Source (above ground): 150'

Weather Conditions  
 Wind Direction: SE  
 Wind Speed: 0-5  
 Temperature: 65  
 Position of Sun: SOUTH EAST  
 Sky Condition: CLOUDS  
 (clear, overcast, %clouds,  
 color of clouds, etc.)

Plume Description  
 Color: N/A  
 Background: SKY  
 Type (wet or dry): DRY Dist. \_\_\_\_\_

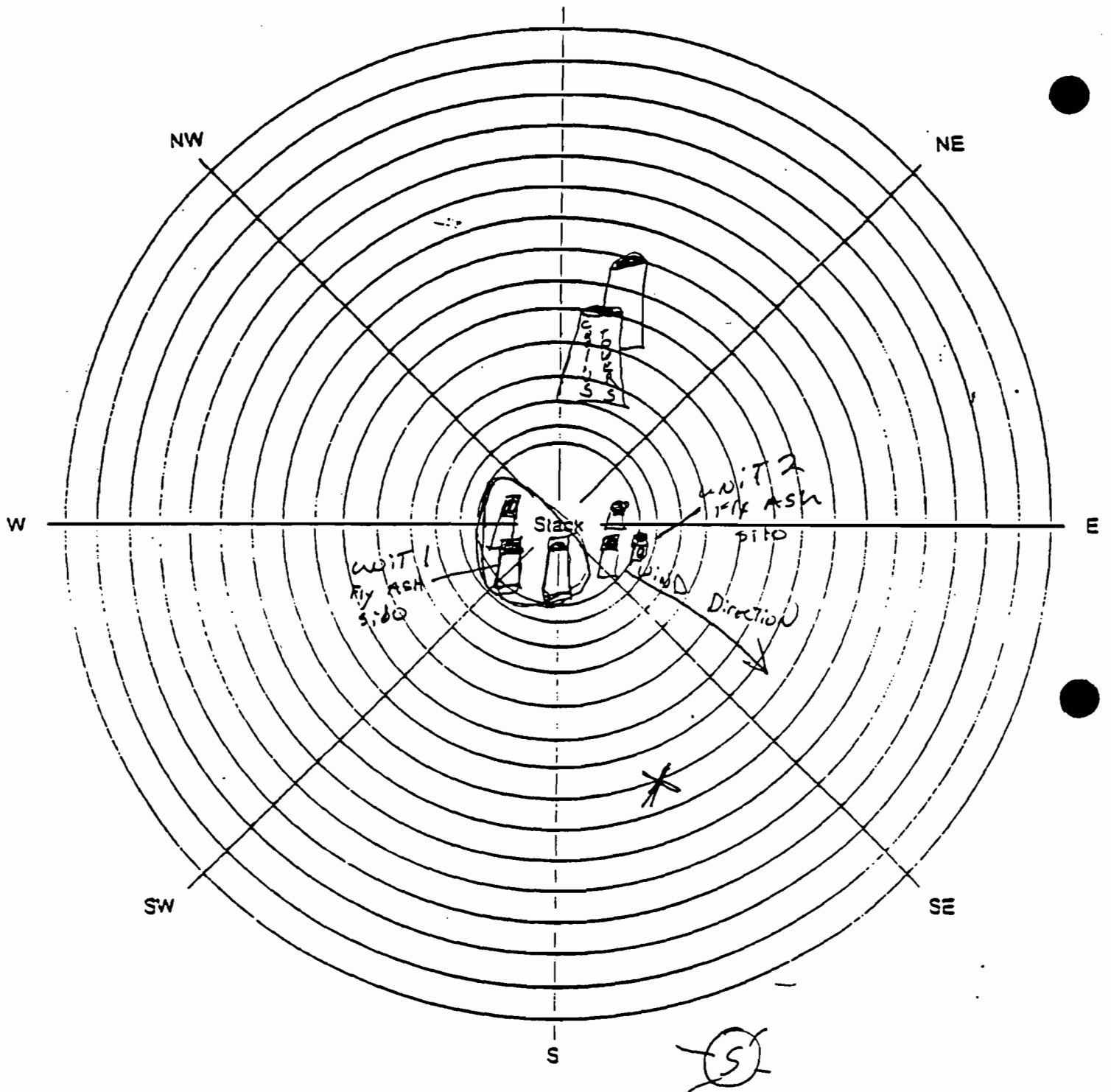
Comments

Observers Signature: [Signature]  
 Date of Last EPA Method 9 Examination: OCTOBER 1997  
 Examination Passed in EPA Region \_\_\_\_\_

Min.	Seconds				Min.	Seconds			
	0	15	30	45		0	15	30	45
0	0	0	0	0	30	0	0	0	0
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	5	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0

Distance (ft.) from plume outlet to point in plume where observations made \_\_\_\_\_





LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.





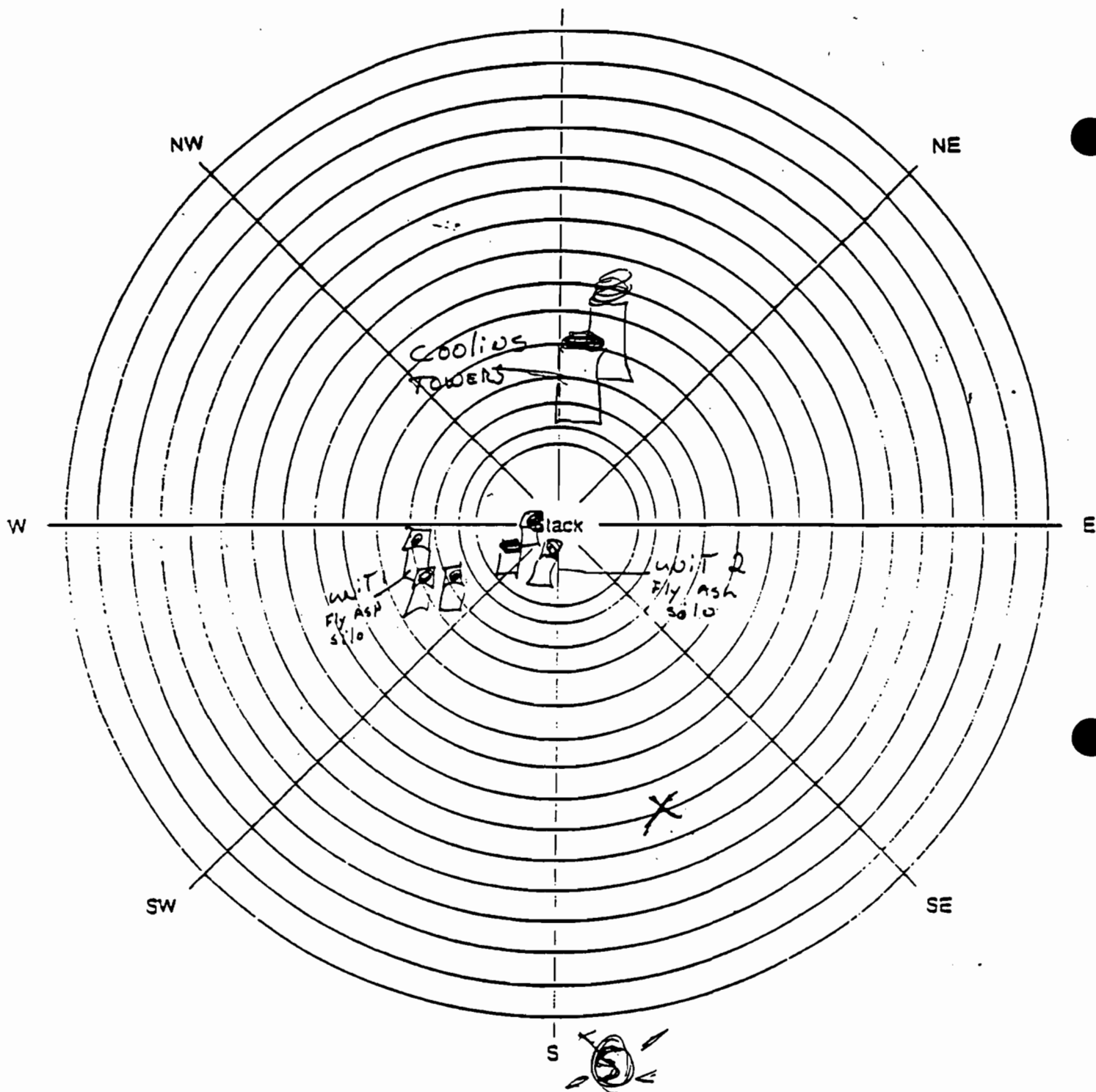
Client J. E. A. Best Available Copy Observer John C. Sutton  
 Project No. 97-422 Date 11-4-97  
 Plant Name SJRPP Observation began 6:45  
 Location JACKSONVILLE FL. ended 10:45  
 Type of Facility POWER PLANT

Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Fly ASH silo (unit 2)</u> <u>NORTH SIDE</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet)	4	0	0	0	0	34	0	0	0	0
Distance from Observer to source <u>225'</u>	5	0	0	0	0	35	0	0	0	0
Height of Source (above ground) <u>150'</u>	6	0	0	0	0	36	0	0	0	0
Weather Conditions	7	0	0	0	0	37	0	0	0	0
Wind Direction <u>SE</u>	8	0	0	0	0	38	0	0	0	0
Wind Speed <u>0-5</u>	9	0	0	0	0	39	0	0	0	0
Temperature <u>65</u>	10	0	0	0	0	40	0	0	0	0
Position of Sun <u>S. EAST</u>	11	0	0	0	0	41	0	0	0	0
Sky Condition <u>25% Cloud</u> (clear, overcast, %clouds, color of clouds, etc.)	12	0	0	0	0	42	0	0	0	0
	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
	15	0	0	0	0	45	0	0	0	0
Plume Description	16	0	0	0	0	46	0	0	0	0
Color <u>N/A</u>	17	0	0	0	0	47	0	0	0	0
Background <u>SKY</u>	18	0	0	0	0	48	0	0	0	0
Type (wet or dry) <u>DRY</u> Dist. _____	19	0	0	0	0	49	0	0	0	0
Comments	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	0	0	0	0	53	0	0	0	0
	24	0	0	0	0	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observers Signature	26	0	0	0	0	56	0	0	0	0
<u>John C. Sutton</u>	27	0	0	0	0	57	0	0	0	0
Date of Last EPA Method 9 Examination	28	0	0	0	0	58	0	0	0	0
<u>OCTOBER 1997</u>	29	0	0	0	0	59	0	0	0	0
Examination Passcode in EPA Region										
<u>AKICU 04</u>										

Distance (ft.) from plume outlet to point in plume where observations made



F15



LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



Total Source Analysis, Inc.  
 Environmental Testing Center  
 F16

**EMISSIONS UNIT EU023**  
**Materials Handling & Storage Operations**

**ATTACHMENT EU023-05**  
**Emissions Estimates**

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.

**Date:** 11/3/98

**Ckd. By:** Kim Evans, P.E.

**Date:** 11/10/98

**Cal. No.:** 901103DJG01

**Project No.:** 7830.0020.0056

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update

**Subject:** Emissions Estimates for the Emergency Reclaim Hoppers Four Transfer Points

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	7.38	5	0.74	0.35	0.11	0.00109	0.00052	0.00016
Petroleum Coke	0.0032	7.38	5	0.74	0.35	0.11	0.00109	0.00052	0.00016

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	2000	5126352
Petroleum Coke	2000	5126352

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	8.72	4.12	1.30	1.100	0.520	0.163
Petroleum Coke	8.72	4.12	1.30	1.100	0.520	0.163

**Emission Rates - Controlled 98.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.174	0.082	0.026	0.022	0.010	0.003
Petroleum Coke	0.174	0.082	0.026	0.022	0.010	0.003

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	11.17	5.29	1.66	0.322	0.152	0.048
Petroleum Coke	11.17	5.29	1.66	0.322	0.152	0.048

**Emission Rates - Controlled 98.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.223	0.106	0.033	0.0064	0.0030	0.0010
Petroleum Coke	0.223	0.106	0.033	0.0064	0.0030	0.0010

**References:**

Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles

Belt Speed - JEA Operation Data

Moisture Contents - JEA Operational Data

Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for the Ship Unloading Operations (Shiphold)

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	8	5	0.74	0.35	0.11	0.0012	0.0006	0.0002
Petroleum Coke	0.0032	8	5	0.74	0.35	0.11	0.0012	0.0006	0.0002
Limestone	0.0032	8	6.5	0.74	0.35	0.11	0.0008	0.0004	0.0001

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	1500	5126352
Petroleum Coke	1500	5126352
Limestone	1500	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	1.81	0.86	0.27	0.229	0.108	0.034
Petroleum Coke	1.81	0.86	0.27	0.229	0.108	0.034
Limestone	1.26	0.59	0.19	0.158	0.075	0.024

**Emission Rates - Controlled 70.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.54	0.26	0.08	0.069	0.032	0.010
Petroleum Coke	0.54	0.26	0.08	0.069	0.032	0.010
Limestone	0.38	0.18	0.06	0.048	0.022	0.007

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	3.10	1.47	0.46	0.089	0.042	0.013
Petroleum Coke	3.10	1.47	0.46	0.089	0.042	0.013
Limestone	0.25	0.12	0.04	0.007	0.003	0.001

**Emission Rates - Controlled 70.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.93	0.44	0.14	0.0268	0.0127	0.0040
Petroleum Coke	0.93	0.44	0.14	0.0268	0.0127	0.0040
Limestone	0.08	0.04	0.01	0.0022	0.0010	0.0003

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation

By: D. Graziani, P.E.  
Date: 11/3/98  
Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Revision No.: 1

Project: St. Johns River Power Park PSD Permit Update  
Subject: Emissions Estimates for the Ship Unloader

Emissions Data

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Petroleum Coke	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Limestone	0.0032	9.32	6.5	0.74	0.35	0.11	0.00102	0.00048	0.00015

Operating Data

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	1500	5126352
Petroleum Coke	1500	5126352
Limestone	1500	600000

Emission Rates - Uncontrolled

Raw Materials	Short-Term						
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Coal	6.64	3.14	0.99	0.837	0.396	0.124	3-Transfer Points
Petroleum Coke	6.64	3.14	0.99	0.837	0.396	0.124	3-Transfer Points
Limestone	4.60	2.17	0.68	0.580	0.274	0.086	3-Transfer Points

Emission Rates - Controlled 85.00%

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.996	0.471	0.148	0.126	0.059	0.019
Petroleum Coke	0.996	0.471	0.148	0.126	0.059	0.019
Limestone	0.690	0.326	0.103	0.087	0.041	0.013

Emission Rates - Uncontrolled

Raw Materials	Long-Term						
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Coal	11.344	5.365	1.686	0.327	0.154	0.049	3-Transfer Points
Petroleum Coke	11.344	5.365	1.686	0.327	0.154	0.049	3-Transfer Points
Limestone	0.920	0.435	0.137	0.026	0.013	0.004	3-Transfer Points

Emission Rates - Controlled 85.00%

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	1.7016	0.8048	0.2529	0.0490	0.0232	0.0073
Petroleum Coke	1.7016	0.8048	0.2529	0.0490	0.0232	0.0073
Limestone	0.1379	0.0652	0.0205	0.0040	0.0019	0.0006

References:

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update

**Subject:** Emissions Estimates for the Ship Unloading Operations (Unloader Hopper & Spillage Conveyor (1% Lost))

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	8	5	0.74	0.35	0.11	0.00121	0.000572	0.00018
Petroleum Coke	0.0032	8	5	0.74	0.35	0.11	0.00121	0.000572	0.00018
Limestone	0.0032	8	6.5	0.74	0.35	0.11	0.00084	0.00040	0.00012

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	1500	5126352
Petroleum Coke	1500	5126352
Limestone	1500	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	1.83	0.87	0.27	0.231	0.109	0.034
Petroleum Coke	1.83	0.87	0.27	0.231	0.109	0.034
Limestone	1.27	0.60	0.19	0.160	0.076	0.024

1-Transfer Point at 100%  
1-Transfer Point at 1%

**Emission Rates - Controlled 85.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.27	0.13	0.04	0.035	0.016	0.005
Petroleum Coke	0.27	0.13	0.04	0.035	0.016	0.005
Limestone	0.19	0.09	0.03	0.024	0.011	0.004

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	3.13	1.48	0.47	0.090	0.043	0.013
Petroleum Coke	3.13	1.48	0.47	0.090	0.043	0.013
Limestone	0.25	0.12	0.04	0.007	0.003	0.001

**Emission Rates - Controlled 85.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.47	0.22	0.07	0.0135	0.0064	0.0020
Petroleum Coke	0.47	0.22	0.07	0.0135	0.0064	0.0020
Limestone	0.04	0.02	0.01	0.0011	0.0005	0.0002

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Transfer Station No. 1

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Petroleum Coke	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Limestone	0.0032	9.32	6.5	0.74	0.35	0.11	0.00102	0.00048	0.00015

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	1500	5126352
Petroleum Coke	1500	5126352
Limestone	1500	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	2.21	1.05	0.33	0.279	0.132	0.041
Petroleum Coke	2.21	1.05	0.33	0.279	0.132	0.041
Limestone	1.53	0.72	0.23	0.193	0.091	0.029

**Emission Rates - Controlled 98.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.044	0.021	0.007	0.006	0.003	0.001
Petroleum Coke	0.044	0.021	0.007	0.006	0.003	0.001
Limestone	0.031	0.014	0.005	0.004	0.002	0.001

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	3.78	1.79	0.56	0.1089	0.0515	0.0162
Petroleum Coke	3.78	1.79	0.56	0.1089	0.0515	0.0162
Limestone	0.31	0.14	0.05	0.0088	0.0042	0.0013

**Emission Rates - Controlled 98.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.076	0.036	0.011	0.0022	0.0010	0.0003
Petroleum Coke	0.076	0.036	0.011	0.0022	0.0010	0.0003
Limestone	0.006	0.003	0.001	0.000	0.000	0.000

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data



**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for the Rail Car Rotary Dumper

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	8.00	5	0.74	0.35	0.11	0.00121	0.00057	0.00018
Petroleum Coke	0.0032	8.00	5	0.74	0.35	0.11	0.00121	0.00057	0.00018

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	4000	5126352
Petroleum Coke	4000	5126352

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	4.84	2.29	0.72	0.610	0.289	0.091
Petroleum Coke	4.84	2.29	0.72	0.610	0.289	0.091

**Emission Rates - Controlled 97.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.145	0.069	0.022	0.018	0.009	0.003
Petroleum Coke	0.145	0.069	0.022	0.018	0.009	0.003

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	3.10	1.47	0.46	0.089	0.042	0.013
Petroleum Coke	3.10	1.47	0.46	0.089	0.042	0.013

**Emission Rates - Controlled 97.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.093	0.044	0.014	0.0027	0.0013	0.0004
Petroleum Coke	0.093	0.044	0.014	0.0027	0.0013	0.0004

**References:**

Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles  
Wind Speed - Annual Average  
Moisture Contents - JEA Operational Data  
Transfer Rates - JEA Operational Data

Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

Project: St. Johns River Power Park PSD Permit Update  
Subject: Emissions Estimates for Transfer Station No. 2

Emissions Data

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Petroleum Coke	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Limestone	0.0032	9.32	6.5	0.74	0.35	0.11	0.00102	0.00048	0.00015

Operating Data

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	1500	5126352
Petroleum Coke	1500	5126352
Limestone	1500	600000

Emission Rates - Uncontrolled

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	2.21	1.05	0.33	0.279	0.132	0.041
Petroleum Coke	2.21	1.05	0.33	0.279	0.132	0.041
Limestone	1.53	0.72	0.23	0.193	0.091	0.029

Emission Rates - Controlled 98.00%

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.044	0.021	0.007	0.006	0.003	0.001
Petroleum Coke	0.044	0.021	0.007	0.006	0.003	0.001
Limestone	0.031	0.014	0.005	0.004	0.002	0.001

Emission Rates - Uncontrolled

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	3.78	1.79	0.56	0.109	0.051	0.016
Petroleum Coke	3.78	1.79	0.56	0.109	0.051	0.016
Limestone	0.31	0.14	0.05	0.009	0.004	0.001

Emission Rates - Controlled 98.00%

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.076	0.036	0.011	0.002	0.001	0.000
Petroleum Coke	0.076	0.036	0.011	0.002	0.001	0.000
Limestone	0.006	0.003	0.001	0.000	0.000	0.000

References:

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Transfer Station No. 3 & Sample Train (5X@1%)

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Petroleum Coke	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Limestone	0.0032	9.32	6.5	0.74	0.35	0.11	0.00102	0.00048	0.00015

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	1500	5126352
Petroleum Coke	1500	5126352
Limestone	1500	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	2.32	1.10	0.35	0.293	0.139	0.044
Petroleum Coke	2.32	1.10	0.35	0.293	0.139	0.044
Limestone	1.61	0.76	0.24	0.203	0.096	0.030

**Emission Rates - Controlled 98.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.046	0.022	0.007	0.006	0.003	0.001
Petroleum Coke	0.046	0.022	0.007	0.006	0.003	0.001
Limestone	0.032	0.015	0.005	0.004	0.002	0.001

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	3.97	1.88	0.59	0.114	0.054	0.017
Petroleum Coke	3.97	1.88	0.59	0.114	0.054	0.017
Limestone	0.32	0.15	0.05	0.009	0.004	0.001

**Emission Rates - Controlled 98.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.079	0.038	0.012	0.002	0.001	0.000
Petroleum Coke	0.079	0.038	0.012	0.002	0.001	0.000
Limestone	0.006	0.003	0.001	0.000	0.000	0.000

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Transfer Station No. 4

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Petroleum Coke	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Limestone	0.0032	9.32	6.5	0.74	0.35	0.11	0.00102	0.00048	0.00015

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	1500	5126352
Petroleum Coke	1500	5126352
Limestone	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	2.21	1.05	0.33	0.279	0.132	0.041
Petroleum Coke	2.21	1.05	0.33	0.279	0.132	0.041
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 98.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.044	0.021	0.007	0.006	0.003	0.001
Petroleum Coke	0.044	0.021	0.007	0.006	0.003	0.001
Limestone	0	0	0	0	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	3.78	1.79	0.56	0.109	0.051	0.016
Petroleum Coke	3.78	1.79	0.56	0.109	0.051	0.016
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 98.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.076	0.036	0.011	0.0022	0.0010	0.0003
Petroleum Coke	0.076	0.036	0.011	0.0022	0.0010	0.0003
Limestone	0	0	0	0	0	0

**References:**

Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles  
Belt Speed - JEA Operation Data  
Moisture Contents - JEA Operational Data  
Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Transfer Station No. 5

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Petroleum Coke	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Limestone	0.0032	9.32	6.5	0.74	0.35	0.11	0.00102	0.00048	0.00015

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	1500	5126352
Petroleum Coke	1500	5126352
Limestone	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	2.21	1.05	0.33	0.279	0.132	0.041
Petroleum Coke	2.21	1.05	0.33	0.279	0.132	0.041
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 98.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.044	0.021	0.007	0.006	0.003	0.001
Petroleum Coke	0.044	0.021	0.007	0.006	0.003	0.001
Limestone	0	0	0	0	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	3.78	1.79	0.56	0.109	0.051	0.016
Petroleum Coke	3.78	1.79	0.56	0.109	0.051	0.016
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 98.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.076	0.036	0.011	0.0022	0.0010	0.0003
Petroleum Coke	0.076	0.036	0.011	0.0022	0.0010	0.0003
Limestone	0	0	0	0	0	0

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update (Total Emissions - NGS Alt #1)  
**Subject:** Emissions Estimates for Transfer Station No. 6

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	7.43	5	0.74	0.35	0.11	0.00110	0.00052	0.00016
Petroleum Coke	0.0032	7.43	5	0.74	0.35	0.11	0.00110	0.00052	0.00016
Limestone	0.0032	7.43	6.5	0.74	0.35	0.11	0.00076	0.00036	0.00011

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	2000	5126352
Petroleum Coke	2000	5126352
Limestone	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	2.20	1.04	0.33	0.277	0.131	0.041
Petroleum Coke	2.20	1.04	0.33	0.277	0.131	0.041
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 98.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.044	0.021	0.007	0.006	0.003	0.001
Petroleum Coke	0.044	0.021	0.007	0.006	0.003	0.001
Limestone	0	0	0	0	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	2.82	1.33	0.42	0.081	0.038	0.012
Petroleum Coke	2.82	1.33	0.42	0.081	0.038	0.012
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 98.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.056	0.027	0.008	0.00162	0.00077	0.00024
Petroleum Coke	0.056	0.027	0.008	0.00162	0.00077	0.00024
Limestone	0	0	0	0	0	0

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Transfer Station No. 7

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	7.43	5	0.74	0.35	0.11	0.00110	0.00052	0.00016
Petroleum Coke	0.0032	7.43	5	0.74	0.35	0.11	0.00110	0.00052	0.00016
Limestone	0.0032	7.43	6.5	0.74	0.35	0.11	0.00076	0.00036	0.00011

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	2000	5126352
Petroleum Coke	2000	5126352
Limestone	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	2.20	1.04	0.33	0.277	0.131	0.041
Petroleum Coke	2.20	1.04	0.33	0.277	0.131	0.041
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 98.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.044	0.021	0.007	0.0055	0.0026	0.0008
Petroleum Coke	0.044	0.021	0.007	0.0055	0.0026	0.0008
Limestone	0	0	0	0	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	2.82	1.33	0.42	0.081	0.038	0.012
Petroleum Coke	2.82	1.33	0.42	0.081	0.038	0.012
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 98.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.056	0.027	0.008	0.00162	0.00077	0.00024
Petroleum Coke	0.056	0.027	0.008	0.00162	0.00077	0.00024
Limestone	0	0	0	0	0	0

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for the 9GC-04 to 9GC-05 Transfer Tower (Gypsum System)

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Gypsum	0.0032	1.45	10	0.74	0.35	0.11	5E-05	2.36E-05	7.43E-06

**Operating Data**

Transfer Point	Operating Rates	
	(TPH)	(TPY)
Gypsum	144	1261440

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.01	0.00	0.00	0.00091	0.00043	0.00013

**Emission Rates - Controlled 0.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.00720	0.00340	0.00107	0.00091	0.00043	0.00013

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.03	0.01	0.00	0.00091	0.00043	0.00013

**Emission Rates - Controlled 0.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.03152	0.01491	0.00468	0.00091	0.00043	0.00013

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data



Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

Project: St. Johns River Power Park PSD Permit Update  
Subject: Emissions Estimates for Fuel Transfer Building

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	7.38	5	0.74	0.35	0.11	0.00109	0.00052	0.00016
Petroleum Coke	0.0032	7.38	5	0.74	0.35	0.11	0.00109	0.00052	0.00016

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	4000	5126352
Petroleum Coke	4000	5126352

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	4.36	2.06	0.65	0.550	0.260	0.082
Petroleum Coke	4.36	2.06	0.65	0.550	0.260	0.082

**Emission Rates - Controlled 85.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.6539	0.3093	0.0972	0.0825	0.0390	0.0123
Petroleum Coke	0.6539	0.3093	0.0972	0.0825	0.0390	0.0123

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	2.79	1.32	0.42	0.080	0.038	0.012
Petroleum Coke	2.79	1.32	0.42	0.080	0.038	0.012

**Emission Rates - Controlled 85.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.419	0.198	0.062	0.01207	0.00571	0.00179
Petroleum Coke	0.419	0.198	0.062	0.01207	0.00571	0.00179

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

Project: St. Johns River Power Park PSD Permit Update  
Subject: Emissions Estimates for Stacker - 3 Transfer Points

Emissions Data

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Petroleum Coke	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Limestone	0.0032	9.32	6.5	0.74	0.35	0.11	0.00102	0.00048	0.00015

Operating Data

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	1500	5126352
Petroleum Coke	1500	5126352
Limestone	1500	600000

Emission Rates - Uncontrolled

Raw Materials	Short-Term						
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Coal	6.64	3.14	0.99	0.837	0.396	0.124	3-Transfer Points
Petroleum Coke	6.64	3.14	0.99	0.837	0.396	0.124	3-Transfer Points
Limestone	4.60	2.17	0.68	0.580	0.274	0.086	3-Transfer Points

Emission Rates - Controlled 82.67%

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	1.151	0.544	0.171	0.145	0.069	0.022
Petroleum Coke	1.151	0.544	0.171	0.145	0.069	0.022
Limestone	0.797	0.377	0.118	0.101	0.048	0.015

Emission Rates - Uncontrolled

Raw Materials	Long-Term						
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Coal	11.34	5.37	1.69	0.327	0.154	0.049	3-Transfer Points
Petroleum Coke	11.34	5.37	1.69	0.327	0.154	0.049	3-Transfer Points
Limestone	0.92	0.43	0.14	0.026	0.013	0.004	3-Transfer Points

Emission Rates - Controlled 82.67%

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	1.966	0.930	0.292	0.057	0.027	0.008
Petroleum Coke	1.966	0.930	0.292	0.057	0.027	0.008
Limestone	0.159	0.075	0.024	0.005	0.002	0.001

References:

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

Project: St. Johns River Power Park PSD Permit Update  
Subject: Emissions Estimates for Reclaimer - Three Transfer Points

Emissions Data

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Petroleum Coke	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Limestone	0.0032	9.32	6.5	0.74	0.35	0.11	0.00102	0.00048	0.00015

Operating Data

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	2000	5126352
Petroleum Coke	2000	5126352
Limestone	0	0

Emission Rates - Uncontrolled

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	8.85	4.19	1.32	1.116	0.528	0.166
Petroleum Coke	8.85	4.19	1.32	1.116	0.528	0.166
Limestone	0	0	0	0	0	0

Emission Rates - Controlled 89.67%

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.915	0.433	0.136	0.115	0.055	0.017
Petroleum Coke	0.915	0.433	0.136	0.115	0.055	0.017
Limestone	0	0	0	0	0	0

Emission Rates - Uncontrolled

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	11.34	5.37	1.69	0.327	0.154	0.049
Petroleum Coke	11.34	5.37	1.69	0.327	0.154	0.049
Limestone	0.00	0.00	0.00	0.000	0.000	0.000

Emission Rates - Controlled 89.67%

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	1.172	0.554	0.174	0.0338	0.0160	0.0050
Petroleum Coke	1.172	0.554	0.174	0.0338	0.0160	0.0050
Limestone	0.000	0.000	0.000	0.0000	0.0000	0.0000

References:

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Stacker/Reclaimer - 3 Transfer Points

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	7.43	5	0.74	0.35	0.11	0.00110	0.00052	0.00016
Petroleum Coke	0.0032	7.43	5	0.74	0.35	0.11	0.00110	0.00052	0.00016
Limestone	0.0032	7.43	6.5	0.74	0.35	0.11	0.00076	0.00036	0.00011

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	4000	5126352
Petroleum Coke	4000	5126352
Limestone	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term						3-Transfer Points (in/out)
	PM	PM10	PM2.5	PM	PM10	PM2.5	
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)	
Coal	13.19	6.24	1.96	1.66	0.79	0.25	3-Transfer Points (in/out)
Petroleum Coke	13.19	6.24	1.96	1.66	0.79	0.25	3-Transfer Points (in/out)
Limestone	0	0	0	0	0	0	

**Emission Rates - Controlled 82.67%**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Coal	2.286	1.081	0.340	0.288	0.136	0.043
Petroleum Coke	2.286	1.081	0.340	0.288	0.136	0.043
Limestone	0	0	0	0	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Coal	8.45	4.00	1.26	0.243	0.115	0.036
Petroleum Coke	8.45	4.00	1.26	0.243	0.115	0.036
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 82.67%**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Coal	1.465	0.693	0.218	0.042	0.020	0.006
Petroleum Coke	1.465	0.693	0.218	0.042	0.020	0.006
Limestone	0	0	0	0	0	0

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Petroleum Coke Reclaim - Five Transfer Points

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Petroleum Coke	0.0032	6.14	5	0.74	0.35	0.11	0.00086	0.00041	0.00013
Limestone	0.0032	6.14	6.5	0.74	0.35	0.11	0.000593	0.000281	8.82E-05

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	0	0
Petroleum Coke	400	3504000
Limestone	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	1.71	0.81	0.25	0.216	0.102	0.032
Limestone	0	0	0	0	0	0

5-Transfer Points

**Emission Rates - Controlled 60.00%**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0.685	0.324	0.102	0.086	0.041	0.013
Limestone	0	0	0	0	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	7.51	3.55	1.12	0.216	0.102	0.032
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 60.00%**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	3.002	1.420	0.446	0.086	0.041	0.013
Limestone	0	0	0	0	0	0

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for the Emergency Reclaim Hoppers

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	8.00	5	0.74	0.35	0.11	0.00121	0.000572	0.00018
Petroleum Coke	0.0032	8.00	5	0.74	0.35	0.11	0.00121	0.000572	0.00018
Limestone	0.0032	6.80	6.5	0.74	0.35	0.11	0.00068	0.00032	0.00010

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	2000	5126352
Petroleum Coke	2000	5126352
Limestone	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Coal	2.42	1.14	0.36	0.305	0.144	0.045
Petroleum Coke	2.42	1.14	0.36	0.305	0.144	0.045
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 75.00%**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Coal	0.605	0.286	0.090	0.076	0.036	0.011
Petroleum Coke	0.605	0.286	0.090	0.076	0.036	0.011
Limestone	0	0	0	0	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Coal	3.10	1.47	0.46	0.089	0.042	0.013
Petroleum Coke	3.10	1.47	0.46	0.089	0.042	0.013
Limestone	0	0	0	0	0	0

**Emission Rates - Controlled 75.00%**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Coal	0.775	0.367	0.115	0.022	0.011	0.003
Petroleum Coke	0.775	0.367	0.115	0.022	0.011	0.003
Limestone	0	0	0	0	0	0

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Limestone Reclaim (2-Transfer Points)

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Limestone	0.0032	8.00	6.5	0.74	0.35	0.11	0.00084	0.00040	0.00012

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Limestone	300	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Limestone	0.50	0.24	0.07	0.0634	0.0300	0.0094

**Emission Rates - Controlled 42.50%**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Limestone	0.289	0.137	0.043	0.036	0.017	0.005

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Limestone	0.50	0.24	0.07	0.0145	0.0068	0.0022

**Emission Rates - Controlled 42.50%**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Limestone	0.289	0.137	0.043	0.008	0.004	0.001

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for the Limestone Railcar Dumper

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	6.80	5	0.74	0.35	0.11	0.00098	0.00046	0.00015
Petroleum Coke	0.0032	6.80	5	0.74	0.35	0.11	0.00098	0.00046	0.00015
Limestone	0.0032	8.00	6.5	0.74	0.35	0.11	0.000838	0.000396	0.000125

**Operating Data**

Raw Materials	Operating Rates	
	(TPD)	(TPY)
Coal	0	0
Petroleum Coke	0	0
Limestone	10000	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.35	0.17	0.05	0.044	0.021	0.007

**Emission Rates - Controlled 97.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.010	0.005	0.002	0.001	0.001	0.000

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.25	0.12	0.04	0.0072	0.0034	0.0011

**Emission Rates - Controlled 97.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.008	0.004	0.001	0.00022	0.00010	0.00003

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data



**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Limestone Loadout (Truck or Railcar)

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	7.38	5	0.74	0.35	0.11	0.0011	0.0005	0.0002
Petroleum Coke	0.0032	7.38	5	0.74	0.35	0.11	0.0011	0.0005	0.0002
Limestone	0.0032	8.00	6.5	0.74	0.35	0.11	0.00084	0.00040	0.00012

**Operating Data**

Raw Materials	Operating Rates	
	(TPD)	(TPY)
Coal	0	0
Petroleum Coke	0	0
Limestone	10000	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.35	0.17	0.05	0.0440	0.0208	0.0065

**Emission Rates - Controlled 97.00%**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.010	0.005	0.002	0.0013	0.0006	0.0002

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.25	0.12	0.04	0.0072	0.0034	0.0011

**Emission Rates - Controlled 97.00%**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.0075	0.0036	0.0011	0.00022	0.00010	0.00003

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Limestone Truck Loadout (3-transfer Points)

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	7.38	5	0.74	0.35	0.11	0.00109	0.00052	0.00016
Petroleum Coke	0.0032	7.38	5	0.74	0.35	0.11	0.00109	0.00052	0.00016
Limestone	0.0032	8.00	6.5	0.74	0.35	0.11	0.00084	0.00040	0.00012

**Operating Data**

Raw Materials	Operating Rates	
	(TPD)	(TPY)
Coal	0	0
Petroleum Coke	0	0
Limestone	8000	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.84	0.40	0.12	0.106	0.050	0.016

**Emission Rates - Controlled 75.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.209	0.099	0.031	0.026	0.012	0.004

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.75	0.36	0.11	0.0217	0.0103	0.0032

**Emission Rates - Controlled 75.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.188	0.089	0.028	0.005	0.003	0.001

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 1**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Railcar Limestone Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**  
 Roughness Height (m) **0.005**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain Fall (Inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u'				36% Pile	50% Pile	14% Pile	
	6.1 (mph)	10 (m/s)	10 (mph)	16.1 (m/s)	u <sub>s</sub> /u <sub>*</sub> :0.2	u <sub>s</sub> /u <sub>*</sub> :0.6	u <sub>s</sub> /u <sub>*</sub> :0.9		u <sub>s</sub> /u <sub>*</sub> :0.2	u <sub>s</sub> /u <sub>*</sub> :0.6	u <sub>s</sub> /u <sub>*</sub> :0.9	
01-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
02-Jan	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
03-Jan	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
04-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
05-Jan	22	9.835	23.530	10.519	0.210	0.631	0.947	0.120	0.000	0.000	0.000	0.00
06-Jan	9	4.023	9.626	4.303	0.086	0.258	0.387	0.280	0.000	0.000	0.000	0.00
07-Jan	14	6.259	14.974	6.694	0.134	0.402	0.602	0.030	0.000	0.000	0.000	0.00
08-Jan	17	7.600	18.182	8.128	0.163	0.488	0.732	0.040	0.000	0.000	0.000	0.00
09-Jan	20	8.941	21.391	9.563	0.191	0.574	0.861	0.600	0.000	0.000	0.000	0.00
10-Jan	26	11.623	27.808	12.431	0.249	0.746	1.119	0.000	0.000	0.000	3.790	30.74
11-Jan	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
12-Jan	10	4.470	10.696	4.781	0.096	0.287	0.430	0.000	0.000	0.000	0.000	0.00
13-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
14-Jan	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
15-Jan	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.000	0.00
16-Jan	23	10.282	24.600	10.997	0.220	0.660	0.990	0.330	0.000	0.000	0.000	0.00
17-Jan	24	10.729	25.669	11.475	0.230	0.689	1.033	0.000	0.000	0.000	0.881	7.15
18-Jan	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
19-Jan	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
20-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
21-Jan	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
22-Jan	22	9.835	23.530	10.519	0.210	0.631	0.947	0.000	0.000	0.000	0.000	0.00
23-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.005	0.000	0.000	0.000	0.00
24-Jan	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
25-Jan	18	8.047	19.252	8.606	0.172	0.516	0.775	1.200	0.000	0.000	0.000	0.00
26-Jan	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
27-Jan	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
28-Jan	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
29-Jan	22	9.835	23.530	10.519	0.210	0.631	0.947	0.000	0.000	0.000	0.000	0.00
30-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.310	0.000	0.000	0.000	0.00
31-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
01-Feb	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
02-Feb	10	4.470	10.696	4.781	0.096	0.287	0.430	0.000	0.000	0.000	0.000	0.00
03-Feb	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
04-Feb	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
05-Feb	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
06-Feb	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
07-Feb	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
08-Feb	21	9.388	22.461	10.041	0.201	0.602	0.904	0.030	0.000	0.000	0.000	0.00
09-Feb	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.000	0.00
10-Feb	11	4.917	11.765	5.259	0.105	0.316	0.473	0.005	0.000	0.000	0.000	0.00
11-Feb	10	4.470	10.696	4.781	0.096	0.287	0.430	0.000	0.000	0.000	0.000	0.00
12-Feb	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
13-Feb	18	8.047	19.252	8.606	0.172	0.516	0.775	0.130	0.000	0.000	0.000	0.00
14-Feb	18	8.047	19.252	8.606	0.172	0.516	0.775	0.040	0.000	0.000	0.000	0.00
15-Feb	18	8.047	19.252	8.606	0.172	0.516	0.775	0.400	0.000	0.000	0.000	0.00
16-Feb	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
17-Feb	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
18-Feb	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
19-Feb	14	6.259	14.974	6.694	0.134	0.402	0.602	0.005	0.000	0.000	0.000	0.00
20-Feb	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
21-Feb	24	10.729	25.669	11.475	0.230	0.689	1.033	0.000	0.000	0.000	0.881	7.15
22-Feb	17	7.600	18.182	8.128	0.163	0.488	0.732	0.310	0.000	0.000	0.000	0.00
23-Feb	18	8.047	19.252	8.606	0.172	0.516	0.775	0.005	0.000	0.000	0.000	0.00
24-Feb	18	8.047	19.252	8.606	0.172	0.516	0.775	0.140	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Cl'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 1**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Railcar Limestone Storage Pile**

- Assumptions:**
1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
  2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
  3. Pile is always at maximum capacity which is maximizing emissions.

- References:**
1. AP-42, Section 13.2.5, Industrial Wind Erosion
  2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**  
 Roughness Height (m) **0.005**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain-Fall (inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u*				(g/m^2)			
	6:1	10			u <sub>a</sub> /u <sub>*</sub> :0.2	u <sub>a</sub> /u <sub>*</sub> :0.6	u <sub>a</sub> /u <sub>*</sub> :0.9		36% Pile u <sub>a</sub> /u <sub>*</sub> :0.2	50% Pile u <sub>a</sub> /u <sub>*</sub> :0.6	14% Pile u <sub>a</sub> /u <sub>*</sub> :0.9	
	(mph)	(m/s)	(mph)	(m/s)	(m/s)	(m/s)	(m/s)					
25-Feb	21	9.388	22.461	10.041	0.201	0.602	0.904	0.230	0.000	0.000	0.000	0.00
26-Feb	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
27-Feb	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
28-Feb	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
01-Mar	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
02-Mar	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
03-Mar	22	9.835	23.530	10.519	0.210	0.631	0.947	0.000	0.000	0.000	0.000	0.00
04-Mar	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
05-Mar	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
06-Mar	24	10.729	25.669	11.475	0.230	0.689	1.033	0.005	0.000	0.000	0.881	7.15
07-Mar	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
08-Mar	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
09-Mar	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
10-Mar	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
11-Mar	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.000	0.00
12-Mar	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
13-Mar	29	12.964	31.017	13.866	0.277	0.832	1.248	0.170	0.000	0.000	0.000	0.00
14-Mar	18	8.047	19.252	8.606	0.172	0.516	0.775	0.390	0.000	0.000	0.000	0.00
15-Mar	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
16-Mar	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
17-Mar	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
18-Mar	15	6.706	16.043	7.172	0.143	0.430	0.645	0.005	0.000	0.000	0.000	0.00
19-Mar	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
20-Mar	13	5.812	13.904	6.216	0.124	0.373	0.559	0.030	0.000	0.000	0.000	0.00
21-Mar	14	6.259	14.974	6.694	0.134	0.402	0.602	0.470	0.000	0.000	0.000	0.00
22-Mar	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
23-Mar	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
24-Mar	25	11.176	26.739	11.953	0.239	0.717	1.076	0.005	0.000	0.000	2.228	18.07
25-Mar	24	10.729	25.669	11.475	0.230	0.689	1.033	0.490	0.000	0.000	0.000	0.00
26-Mar	17	7.600	18.182	8.128	0.163	0.488	0.732	0.020	0.000	0.000	0.000	0.00
27-Mar	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
28-Mar	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
29-Mar	22	9.835	23.530	10.519	0.210	0.631	0.947	0.005	0.000	0.000	0.000	0.00
30-Mar	30	13.411	32.087	14.344	0.287	0.861	1.291	0.270	0.000	0.000	0.000	0.00
31-Mar	25	11.176	26.739	11.953	0.239	0.717	1.076	0.005	0.000	0.000	2.228	18.07
01-Apr	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
02-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
03-Apr	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
04-Apr	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
05-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
06-Apr	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.000	0.00
07-Apr	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
08-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
09-Apr	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
10-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
11-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.005	0.000	0.000	0.000	0.00
12-Apr	22	9.835	23.530	10.519	0.210	0.631	0.947	0.050	0.000	0.000	0.000	0.00
13-Apr	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
14-Apr	14	6.259	14.974	6.694	0.134	0.402	0.602	0.550	0.000	0.000	0.000	0.00
15-Apr	20	8.941	21.391	9.563	0.191	0.574	0.861	0.160	0.000	0.000	0.000	0.00
16-Apr	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
17-Apr	24	10.729	25.669	11.475	0.230	0.689	1.033	0.000	0.000	0.000	0.881	7.15
18-Apr	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
19-Apr	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
20-Apr	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 1**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Railcar Limestone Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**  
 Roughness Height (m) **0.005**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain Fall (inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				$u^* = 0.1u^*$				(g/m <sup>2</sup> )			
	6.1		10		$u_s/u_t:0.2$	$u_s/u_t:0.6$	$u_s/u_t:0.9$		$u_s/u_t:0.2$	$u_s/u_t:0.6$	$u_s/u_t:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
21-Apr	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
22-Apr	23	10.282	24.600	10.997	0.220	0.660	0.990	0.010	0.000	0.000	0.00	
23-Apr	43	19.223	45.991	20.560	0.411	1.234	1.850	1.150	0.000	0.000	0.00	
24-Apr	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
25-Apr	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
26-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.049	0.000	0.000	0.00	
27-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	1.810	0.000	0.000	0.00	
28-Apr	32	14.305	34.226	15.300	0.306	0.918	1.377	0.340	0.000	0.000	0.00	
29-Apr	22	9.835	23.530	10.519	0.210	0.631	0.947	0.000	0.000	0.000	0.00	
30-Apr	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
01-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.00	
02-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
03-May	31	13.858	33.156	14.822	0.296	0.889	1.334	0.020	0.000	0.000	0.00	
04-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
05-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
06-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
07-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.00	
08-May	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
09-May	26	11.623	27.808	12.431	0.249	0.746	1.119	0.000	0.000	0.000	3.790	
10-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
11-May	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
12-May	14	6.259	14.974	6.694	0.134	0.402	0.602	0.780	0.000	0.000	0.00	
13-May	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
14-May	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
15-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.005	0.000	0.000	0.00	
16-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
17-May	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.00	
18-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
19-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.00	
20-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.00	
21-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
22-May	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
23-May	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
24-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.300	0.000	0.000	0.00	
25-May	22	9.835	23.530	10.519	0.210	0.631	0.947	0.550	0.000	0.000	0.00	
26-May	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.00	
27-May	26	11.623	27.808	12.431	0.249	0.746	1.119	1.270	0.000	0.000	0.00	
28-May	22	9.835	23.530	10.519	0.210	0.631	0.947	0.050	0.000	0.000	0.00	
29-May	21	9.388	22.461	10.041	0.201	0.602	0.904	0.010	0.000	0.000	0.00	
30-May	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
31-May	21	9.388	22.461	10.041	0.201	0.602	0.904	0.450	0.000	0.000	0.00	
01-Jun	18	8.047	19.252	8.606	0.172	0.516	0.775	0.830	0.000	0.000	0.00	
02-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.030	0.000	0.000	0.00	
03-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
04-Jun	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.00	
05-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.850	0.000	0.000	0.00	
06-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.060	0.000	0.000	0.00	
07-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.005	0.000	0.000	0.00	
08-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
09-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.010	0.000	0.000	0.00	
10-Jun	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
11-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.00	
12-Jun	16	7.153	17.113	7.650	0.153	0.459	0.689	0.320	0.000	0.000	0.00	
13-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.005	0.000	0.000	0.00	
14-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.230	0.000	0.000	0.00	

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Grazlani, P.E.**  
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**Cal. No.: 981023ED01**  
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**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Railcar Limestone Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**

Roughness Height (m) **0.005**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s^*/u_s^*:0.2$	$u_s^*/u_s^*:0.6$	$u_s^*/u_s^*:0.9$		36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)					$u_s^*/u_s^*:0.2$	$u_s^*/u_s^*:0.6$	$u_s^*/u_s^*:0.9$	
15-Jun	23	10.282	24.600	10.997	0.220	0.660	0.990	0.080	0.000	0.000	0.000	0.00
16-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
17-Jun	29	12.964	31.017	13.866	0.277	0.832	1.248	0.520	0.000	0.000	0.000	0.00
18-Jun	26	11.623	27.808	12.431	0.249	0.746	1.119	0.080	0.000	0.000	0.000	0.00
19-Jun	31	13.858	33.156	14.822	0.296	0.889	1.334	0.520	0.000	0.000	0.000	0.00
20-Jun	25	11.176	26.739	11.953	0.239	0.717	1.076	0.005	0.000	0.000	2.228	18.07
21-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
22-Jun	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
23-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
24-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
25-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.030	0.000	0.000	0.000	0.00
26-Jun	24	10.729	25.669	11.475	0.230	0.689	1.033	0.780	0.000	0.000	0.000	0.00
27-Jun	33	14.752	35.295	15.778	0.316	0.947	1.420	1.270	0.000	0.000	0.000	0.00
28-Jun	23	10.282	24.600	10.997	0.220	0.660	0.990	0.010	0.000	0.000	0.000	0.00
29-Jun	15	6.706	16.043	7.172	0.143	0.430	0.645	0.020	0.000	0.000	0.000	0.00
30-Jun	20	8.941	21.391	9.563	0.191	0.574	0.861	3.690	0.000	0.000	0.000	0.00
01-Jul	22	9.835	23.530	10.519	0.210	0.631	0.947	0.040	0.000	0.000	0.000	0.00
02-Jul	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
03-Jul	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
04-Jul	22	9.835	23.530	10.519	0.210	0.631	0.947	0.150	0.000	0.000	0.000	0.00
05-Jul	38	16.988	40.643	18.169	0.363	1.090	1.635	0.610	0.000	0.000	0.000	0.00
06-Jul	29	12.964	31.017	13.866	0.277	0.832	1.248	1.970	0.000	0.000	0.000	0.00
07-Jul	21	9.388	22.461	10.041	0.201	0.602	0.904	0.700	0.000	0.000	0.000	0.00
08-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.000	0.00
09-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.040	0.000	0.000	0.000	0.00
10-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
11-Jul	20	8.941	21.391	9.563	0.191	0.574	0.861	0.900	0.000	0.000	0.000	0.00
12-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.450	0.000	0.000	0.000	0.00
13-Jul	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
14-Jul	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
15-Jul	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
16-Jul	24	10.729	25.669	11.475	0.230	0.689	1.033	0.005	0.000	0.000	0.881	7.15
17-Jul	20	8.941	21.391	9.563	0.191	0.574	0.861	0.020	0.000	0.000	0.000	0.00
18-Jul	28	12.517	29.948	13.388	0.268	0.803	1.205	0.005	0.000	0.000	7.557	61.30
19-Jul	22	9.835	23.530	10.519	0.210	0.631	0.947	0.005	0.000	0.000	0.000	0.00
20-Jul	23	10.282	24.600	10.997	0.220	0.660	0.990	0.010	0.000	0.000	0.000	0.00
21-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.260	0.000	0.000	0.000	0.00
22-Jul	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
23-Jul	22	9.835	23.530	10.519	0.210	0.631	0.947	0.010	0.000	0.000	0.000	0.00
24-Jul	14	6.259	14.974	6.694	0.134	0.402	0.602	0.140	0.000	0.000	0.000	0.00
25-Jul	24	10.729	25.669	11.475	0.230	0.689	1.033	1.060	0.000	0.000	0.000	0.00
26-Jul	23	10.282	24.600	10.997	0.220	0.660	0.990	0.010	0.000	0.000	0.000	0.00
27-Jul	18	8.047	19.252	8.606	0.172	0.516	0.775	0.160	0.000	0.000	0.000	0.00
28-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
29-Jul	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
30-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.160	0.000	0.000	0.000	0.00
31-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	1.000	0.000	0.000	0.000	0.00
01-Aug	21	9.388	22.461	10.041	0.201	0.602	0.904	3.730	0.000	0.000	0.000	0.00
02-Aug	20	8.941	21.391	9.563	0.191	0.574	0.861	0.500	0.000	0.000	0.000	0.00
03-Aug	24	10.729	25.669	11.475	0.230	0.689	1.033	0.160	0.000	0.000	0.000	0.00
04-Aug	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
05-Aug	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
06-Aug	21	9.388	22.461	10.041	0.201	0.602	0.904	0.010	0.000	0.000	0.000	0.00
07-Aug	18	8.047	19.252	8.606	0.172	0.516	0.775	0.010	0.000	0.000	0.000	0.00
08-Aug	20	8.941	21.391	9.563	0.191	0.574	0.861	0.060	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Grazlani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 1**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Railcar Limestone Storage Pile**

- Assumptions:**
1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
  2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
  3. Pile is always at maximum capacity which is maximizing emissions.

- References:**
1. AP-42, Section 13.2.5, Industrial Wind Erosion
  2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**  
 Roughness Height (m) **0.005**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain-Fall (inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				$u^* = 0.1u'$ (m/s)				(g/m <sup>2</sup> )			
	6:1	10	6:1	10	$u_s/u_t:0.2$	$u_s/u_t:0.6$	$u_s/u_t:0.9$		36% Pile $u_s/u_t:0.2$	50% Pile $u_s/u_t:0.6$	14% Pile $u_s/u_t:0.9$	
09-Aug	17	7.600	18.182	8.128	0.163	0.488	0.732	0.020	0.000	0.000	0.000	0.00
10-Aug	17	7.600	18.182	8.128	0.163	0.488	0.732	0.220	0.000	0.000	0.000	0.00
11-Aug	15	6.706	16.043	7.172	0.143	0.430	0.645	0.005	0.000	0.000	0.000	0.00
12-Aug	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
13-Aug	15	6.706	16.043	7.172	0.143	0.430	0.645	0.450	0.000	0.000	0.000	0.00
14-Aug	13	5.812	13.904	6.216	0.124	0.373	0.559	0.010	0.000	0.000	0.000	0.00
15-Aug	23	10.282	24.600	10.997	0.220	0.660	0.990	0.005	0.000	0.000	0.000	0.00
16-Aug	30	13.411	32.087	14.344	0.287	0.861	1.291	0.710	0.000	0.000	0.000	0.00
17-Aug	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
18-Aug	26	11.623	27.808	12.431	0.249	0.746	1.119	0.270	0.000	0.000	0.000	0.00
19-Aug	16	7.153	17.113	7.650	0.153	0.459	0.689	0.240	0.000	0.000	0.000	0.00
20-Aug	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
21-Aug	21	9.388	22.461	10.041	0.201	0.602	0.904	0.160	0.000	0.000	0.000	0.00
22-Aug	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
23-Aug	21	9.388	22.461	10.041	0.201	0.602	0.904	0.020	0.000	0.000	0.000	0.00
24-Aug	29	12.964	31.017	13.866	0.277	0.832	1.248	1.590	0.000	0.000	0.000	0.00
25-Aug	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
26-Aug	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
27-Aug	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
28-Aug	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
29-Aug	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
30-Aug	21	9.388	22.461	10.041	0.201	0.602	0.904	0.080	0.000	0.000	0.000	0.00
31-Aug	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
01-Sep	21	9.388	22.461	10.041	0.201	0.602	0.904	0.005	0.000	0.000	0.000	0.00
02-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	0.130	0.000	0.000	0.000	0.00
03-Sep	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
04-Sep	26	11.623	27.808	12.431	0.249	0.746	1.119	0.005	0.000	0.000	3.790	30.74
05-Sep	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
06-Sep	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
07-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
08-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
09-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
10-Sep	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.000	0.00
11-Sep	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
12-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
13-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
14-Sep	20	8.941	21.391	9.563	0.191	0.574	0.861	0.030	0.000	0.000	0.000	0.00
15-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
16-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
17-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
18-Sep	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
19-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
20-Sep	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
21-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
22-Sep	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
23-Sep	20	8.941	21.391	9.563	0.191	0.574	0.861	0.180	0.000	0.000	0.000	0.00
24-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	1.000	0.000	0.000	0.000	0.00
25-Sep	23	10.282	24.600	10.997	0.220	0.660	0.990	0.280	0.000	0.000	0.000	0.00
26-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	1.080	0.000	0.000	0.000	0.00
27-Sep	7	3.129	7.487	3.347	0.067	0.201	0.301	2.250	0.000	0.000	0.000	0.00
28-Sep	15	6.706	16.043	7.172	0.143	0.430	0.645	0.010	0.000	0.000	0.000	0.00
29-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
30-Sep	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
01-Oct	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
02-Oct	23	10.282	24.600	10.997	0.220	0.660	0.990	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
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1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
  2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
  3. Pile is always at maximum capacity which is maximizing emissions.

- References:**
1. AP-42, Section 13.2.5, Industrial Wind Erosion
  2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**  
 Roughness Height (m): **0.005**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain Fall (inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u*				(g/m^2)			
	6.1	10	10	10	u*/u <sub>t</sub> :0.2	u*/u <sub>t</sub> :0.6	u*/u <sub>t</sub> :0.9		36% Pile	50% Pile	14% Pile	
(mph)	(m/s)	(mph)	(m/s)					u <sub>s</sub> /u <sub>t</sub> :0.2	u <sub>s</sub> /u <sub>t</sub> :0.6	u <sub>s</sub> /u <sub>t</sub> :0.9		
03-Oct	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.000	0.00
04-Oct	21	9.388	22.461	10.041	0.201	0.602	0.904	0.005	0.000	0.000	0.000	0.00
05-Oct	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
06-Oct	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
07-Oct	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
08-Oct	21	9.388	22.461	10.041	0.201	0.602	0.904	0.005	0.000	0.000	0.000	0.00
09-Oct	23	10.282	24.600	10.997	0.220	0.660	0.990	0.170	0.000	0.000	0.000	0.00
10-Oct	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
11-Oct	20	8.941	21.391	9.563	0.191	0.574	0.861	0.090	0.000	0.000	0.000	0.00
12-Oct	20	8.941	21.391	9.563	0.191	0.574	0.861	0.050	0.000	0.000	0.000	0.00
13-Oct	15	6.706	16.043	7.172	0.143	0.430	0.645	0.005	0.000	0.000	0.000	0.00
14-Oct	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
15-Oct	15	6.706	16.043	7.172	0.143	0.430	0.645	0.240	0.000	0.000	0.000	0.00
16-Oct	16	7.153	17.113	7.650	0.153	0.459	0.689	0.050	0.000	0.000	0.000	0.00
17-Oct	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
18-Oct	14	6.259	14.974	6.694	0.134	0.402	0.602	0.050	0.000	0.000	0.000	0.00
19-Oct	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
20-Oct	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
21-Oct	10	4.470	10.696	4.781	0.096	0.287	0.430	0.000	0.000	0.000	0.000	0.00
22-Oct	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
23-Oct	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
24-Oct	20	8.941	21.391	9.563	0.191	0.574	0.861	0.290	0.000	0.000	0.000	0.00
25-Oct	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
26-Oct	22	9.835	23.530	10.519	0.210	0.631	0.947	0.580	0.000	0.000	0.000	0.00
27-Oct	22	9.835	23.530	10.519	0.210	0.631	0.947	2.640	0.000	0.000	0.000	0.00
28-Oct	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
29-Oct	10	4.470	10.696	4.781	0.096	0.287	0.430	0.000	0.000	0.000	0.000	0.00
30-Oct	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
31-Oct	13	5.812	13.904	6.216	0.124	0.373	0.559	0.680	0.000	0.000	0.000	0.00
01-Nov	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
02-Nov	21	9.388	22.461	10.041	0.201	0.602	0.904	0.180	0.000	0.000	0.000	0.00
03-Nov	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
04-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
05-Nov	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
06-Nov	11	4.917	11.765	5.259	0.105	0.316	0.473	0.005	0.000	0.000	0.000	0.00
07-Nov	17	7.600	18.182	8.128	0.163	0.488	0.732	0.150	0.000	0.000	0.000	0.00
08-Nov	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
09-Nov	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
10-Nov	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
11-Nov	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
12-Nov	15	6.706	16.043	7.172	0.143	0.430	0.645	0.280	0.000	0.000	0.000	0.00
13-Nov	16	7.153	17.113	7.650	0.153	0.459	0.689	0.650	0.000	0.000	0.000	0.00
14-Nov	28	12.517	29.948	13.388	0.268	0.803	1.205	0.000	0.000	0.000	7.557	61.30
15-Nov	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
16-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.005	0.000	0.000	0.000	0.00
17-Nov	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
18-Nov	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
19-Nov	8	3.576	8.556	3.825	0.077	0.230	0.344	0.005	0.000	0.000	0.000	0.00
20-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
21-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
22-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
23-Nov	13	5.812	13.904	6.216	0.124	0.373	0.559	0.005	0.000	0.000	0.000	0.00
24-Nov	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
25-Nov	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
26-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00



**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By:** E. Deken, PE  
**Date:** 10/23/98  
**Ch'd By:** Darrel J. Graziani, P.E.  
**Date:** 11/07/98

**Cal. No.:** 981023ED01  
**Rev. No.:** SJRPP 1  
**OPS:** 7830.0020.0054

**Project:** JEA St. Johns Power Park

**Subject:** Fugitive Emission Estimates - Wind Erosion Railcar Limestone Storage Pile

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: 1

Roughness Height (m) 0.005

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain Fall (inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u* (m/s)				(g/m^2)			
	6:1	10:			u <sub>c</sub> /u <sub>c</sub> :0.2	u <sub>c</sub> /u <sub>c</sub> :0.6	u <sub>c</sub> /u <sub>c</sub> :0.9		36% Pile u <sub>c</sub> /u <sub>c</sub> :0.2	50% Pile u <sub>c</sub> /u <sub>c</sub> :0.6	14% Pile u <sub>c</sub> /u <sub>c</sub> :0.9	
27-Nov	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
28-Nov	9	4.023	9.626	4.303	0.086	0.258	0.387	0.005	0.000	0.000	0.00	
29-Nov	25	11.176	26.739	11.953	0.239	0.717	1.076	1.130	0.000	0.000	0.00	
30-Nov	21	9.388	22.461	10.041	0.201	0.602	0.904	0.020	0.000	0.000	0.00	
01-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
02-Dec	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
03-Dec	15	6.706	16.043	7.172	0.143	0.430	0.645	0.100	0.000	0.000	0.00	
04-Dec	21	9.388	22.461	10.041	0.201	0.602	0.904	0.100	0.000	0.000	0.00	
05-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
06-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
07-Dec	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.00	
08-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.060	0.000	0.000	0.00	
09-Dec	11	4.917	11.765	5.259	0.105	0.316	0.473	0.110	0.000	0.000	0.00	
10-Dec	37	16.540	39.574	17.691	0.354	1.061	1.592	2.860	0.000	0.000	0.00	
11-Dec	15	6.706	16.043	7.172	0.143	0.430	0.645	0.005	0.000	0.000	0.00	
12-Dec	21	9.388	22.461	10.041	0.201	0.602	0.904	2.720	0.000	0.000	0.00	
13-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.300	0.000	0.000	0.00	
14-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	1.370	0.000	0.000	0.00	
15-Dec	26	11.623	27.808	12.431	0.249	0.746	1.119	1.590	0.000	0.000	0.00	
16-Dec	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
17-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
18-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.00	
19-Dec	7	3.129	7.487	3.347	0.067	0.201	0.301	0.000	0.000	0.000	0.00	
20-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.00	
21-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
22-Dec	16	7.153	17.113	7.650	0.153	0.459	0.689	0.010	0.000	0.000	0.00	
23-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.030	0.000	0.000	0.00	
24-Dec	15	6.706	16.043	7.172	0.143	0.430	0.645	0.190	0.000	0.000	0.00	
25-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.090	0.000	0.000	0.00	
26-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.170	0.000	0.000	0.00	
27-Dec	25	11.176	26.739	11.953	0.239	0.717	1.076	0.040	0.000	0.000	0.00	
28-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.00	
29-Dec	26	11.623	27.808	12.431	0.249	0.746	1.119	0.030	0.000	0.000	0.00	
30-Dec	26	11.623	27.808	12.431	0.249	0.746	1.119	0.000	0.000	0.000	3.790	
31-Dec	25	11.176	26.739	11.953	0.239	0.717	1.076	0.000	0.000	0.000	18.07	
<b>Totals:</b>								0.00	0.00	43.59	353.62	
<b>Worst Case Day</b>								0.000	0.000	7.557		

**Storage Pile Calculations**

Control Efficiency 90.00%  
Rain Days (>0.01") 120 AP42, Section 13.2.2  
Storage Pile Surface Area 26304.59  
Uncontrolled (TPY) 0.18  
Controlled (TPY) 0.02  
Worst Case Day (lb/24 6 PM10 - AP42 Section 13.2.5  
Worst Case Day (gps) 0.032 Per AP42, Section 13.2.5  
#Days Winds > 12 MPH 343  
#Days Rain > 0.01 " 130  
Worst Case Day (gps) 0.024 Per EPA Background Document

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 2**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Limestone Storage Pile - Fuel Yard**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**

Roughness Height (m) **0.005**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^*=0.1u^*$ (m/s)			Rain Fall (Inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s/u_r:0.2$	$u_s/u_r:0.6$	$u_s/u_r:0.9$		36% Pile $u_s/u_r:0.2$	50% Pile $u_s/u_r:0.6$	14% Pile $u_s/u_r:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
01-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
02-Jan	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
03-Jan	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
04-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
05-Jan	22	9.835	23.530	10.519	0.210	0.631	0.947	0.120	0.000	0.000	0.00	
06-Jan	9	4.023	9.626	4.303	0.086	0.258	0.387	0.280	0.000	0.000	0.00	
07-Jan	14	6.259	14.974	6.694	0.134	0.402	0.602	0.030	0.000	0.000	0.00	
08-Jan	17	7.600	18.182	8.128	0.163	0.488	0.732	0.040	0.000	0.000	0.00	
09-Jan	20	8.941	21.391	9.563	0.191	0.574	0.861	0.600	0.000	0.000	0.00	
10-Jan	26	11.623	27.808	12.431	0.249	0.746	1.119	0.000	0.000	0.000	3.790	
11-Jan	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
12-Jan	10	4.470	10.696	4.781	0.096	0.287	0.430	0.000	0.000	0.000	0.00	
13-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
14-Jan	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
15-Jan	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.00	
16-Jan	23	10.282	24.600	10.997	0.220	0.660	0.990	0.330	0.000	0.000	0.00	
17-Jan	24	10.729	25.669	11.475	0.230	0.689	1.033	0.000	0.000	0.000	0.881	
18-Jan	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.00	
19-Jan	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
20-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
21-Jan	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
22-Jan	22	9.835	23.530	10.519	0.210	0.631	0.947	0.000	0.000	0.000	0.00	
23-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.005	0.000	0.000	0.00	
24-Jan	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.00	
25-Jan	18	8.047	19.252	8.606	0.172	0.516	0.775	1.200	0.000	0.000	0.00	
26-Jan	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
27-Jan	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.00	
28-Jan	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
29-Jan	22	9.835	23.530	10.519	0.210	0.631	0.947	0.000	0.000	0.000	0.00	
30-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.310	0.000	0.000	0.00	
31-Jan	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
01-Feb	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.00	
02-Feb	10	4.470	10.696	4.781	0.096	0.287	0.430	0.000	0.000	0.000	0.00	
03-Feb	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.00	
04-Feb	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
05-Feb	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
06-Feb	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
07-Feb	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.00	
08-Feb	21	9.388	22.461	10.041	0.201	0.602	0.904	0.030	0.000	0.000	0.00	
09-Feb	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.00	
10-Feb	11	4.917	11.765	5.259	0.105	0.316	0.473	0.005	0.000	0.000	0.00	
11-Feb	10	4.470	10.696	4.781	0.096	0.287	0.430	0.000	0.000	0.000	0.00	
12-Feb	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
13-Feb	18	8.047	19.252	8.606	0.172	0.516	0.775	0.130	0.000	0.000	0.00	
14-Feb	18	8.047	19.252	8.606	0.172	0.516	0.775	0.040	0.000	0.000	0.00	
15-Feb	18	8.047	19.252	8.606	0.172	0.516	0.775	0.400	0.000	0.000	0.00	
16-Feb	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
17-Feb	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
18-Feb	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
19-Feb	14	6.259	14.974	6.694	0.134	0.402	0.602	0.005	0.000	0.000	0.00	
20-Feb	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
21-Feb	24	10.729	25.669	11.475	0.230	0.689	1.033	0.000	0.000	0.000	0.881	
22-Feb	17	7.600	18.182	8.128	0.163	0.488	0.732	0.310	0.000	0.000	0.00	
23-Feb	18	8.047	19.252	8.606	0.172	0.516	0.775	0.005	0.000	0.000	0.00	
24-Feb	18	8.047	19.252	8.606	0.172	0.516	0.775	0.140	0.000	0.000	0.00	

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By:** E. Deken, PE  
**Date:** 10/23/98  
**Ch'd By:** Darrel J. Graziani, P.E.  
**Date:** 11/07/98

**Cal. No.:** 981023ED01  
**Rev. No.:** SJRPP 2  
**OFS:** 7830.0020.0054

**Project:** JEA St. Johns Power Park  
**Subject:** Fugitive Emission Estimates - Wind Erosion Limestone Storage Pile - Fuel Yard

- Assumptions:**
1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
  2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
  3. Pile is always at maximum capacity which is maximizing emissions.

- References:**
1. AP-42, Section 13.2.5, Industrial Wind Erosion
  2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**  
Roughness Height (m) **0.005**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1 u^*$ (m/s)			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s/u_*:0.2$	$u_s/u_*:0.6$	$u_s/u_*:0.9$		36% Pile $u_s/u_*:0.2$	50% Pile $u_s/u_*:0.6$	14% Pile $u_s/u_*:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
25-Feb	21	9.388	22.461	10.041	0.201	0.602	0.904	0.230	0.000	0.000	0.000	0.00
26-Feb	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
27-Feb	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
28-Feb	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
01-Mar	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
02-Mar	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
03-Mar	22	9.835	23.530	10.519	0.210	0.631	0.947	0.000	0.000	0.000	0.000	0.00
04-Mar	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
05-Mar	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
06-Mar	24	10.729	25.669	11.475	0.230	0.689	1.033	0.005	0.000	0.000	0.881	3.30
07-Mar	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
08-Mar	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
09-Mar	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
10-Mar	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
11-Mar	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.000	0.00
12-Mar	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
13-Mar	29	12.964	31.017	13.866	0.277	0.832	1.248	0.170	0.000	0.000	0.000	0.00
14-Mar	18	8.047	19.252	8.606	0.172	0.516	0.775	0.390	0.000	0.000	0.000	0.00
15-Mar	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
16-Mar	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
17-Mar	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
18-Mar	15	6.706	16.043	7.172	0.143	0.430	0.645	0.005	0.000	0.000	0.000	0.00
19-Mar	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
20-Mar	13	5.812	13.904	6.216	0.124	0.373	0.559	0.030	0.000	0.000	0.000	0.00
21-Mar	14	6.259	14.974	6.694	0.134	0.402	0.602	0.470	0.000	0.000	0.000	0.00
22-Mar	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
23-Mar	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
24-Mar	25	11.176	26.739	11.953	0.239	0.717	1.076	1.076	0.000	0.000	2.228	8.34
25-Mar	24	10.729	25.669	11.475	0.230	0.689	1.033	0.490	0.000	0.000	0.000	0.00
26-Mar	17	7.600	18.182	8.128	0.163	0.488	0.732	0.020	0.000	0.000	0.000	0.00
27-Mar	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
28-Mar	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
29-Mar	22	9.835	23.530	10.519	0.210	0.631	0.947	0.005	0.000	0.000	0.000	0.00
30-Mar	30	13.411	32.087	14.344	0.287	0.861	1.291	0.270	0.000	0.000	0.000	0.00
31-Mar	25	11.176	26.739	11.953	0.239	0.717	1.076	0.005	0.000	0.000	2.228	8.34
01-Apr	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
02-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
03-Apr	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
04-Apr	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
05-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
06-Apr	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.000	0.00
07-Apr	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
08-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
09-Apr	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
10-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
11-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.005	0.000	0.000	0.000	0.00
12-Apr	22	9.835	23.530	10.519	0.210	0.631	0.947	0.050	0.000	0.000	0.000	0.00
13-Apr	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
14-Apr	14	6.259	14.974	6.694	0.134	0.402	0.602	0.550	0.000	0.000	0.000	0.00
15-Apr	20	8.941	21.391	9.563	0.191	0.574	0.861	0.160	0.000	0.000	0.000	0.00
16-Apr	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
17-Apr	24	10.729	25.669	11.475	0.230	0.689	1.033	0.000	0.000	0.000	0.881	3.30
18-Apr	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
19-Apr	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
20-Apr	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 2**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Limestone Storage Pile - Fuel Yard**

- Assumptions:**
1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
  2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
  3. Pile is always at maximum capacity which is maximizing emissions.

- References:**
1. AP-42, Section 13.2.5, Industrial Wind Erosion
  2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**  
 Threshold Friction Velocity: **1**  
 Roughness Height (m) **0.005**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u'$ (m/s)			Rain-Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s/u_t:0.2$	$u_s/u_t:0.6$	$u_s/u_t:0.9$		36% Pile $u_s/u_t:0.2$	50% Pile $u_s/u_t:0.6$	14% Pile $u_s/u_t:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
21-Apr	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
22-Apr	23	10.282	24.600	10.997	0.220	0.660	0.990	0.010	0.000	0.000	0.00	
23-Apr	43	19.223	45.991	20.560	0.411	1.234	1.850	1.150	0.000	0.000	0.00	
24-Apr	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
25-Apr	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
26-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.049	0.000	0.000	0.00	
27-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	1.810	0.000	0.000	0.00	
28-Apr	32	14.305	34.226	15.300	0.306	0.918	1.377	0.340	0.000	0.000	0.00	
29-Apr	22	9.835	23.530	10.519	0.210	0.631	0.947	0.000	0.000	0.000	0.00	
30-Apr	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
01-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.00	
02-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
03-May	31	13.858	33.156	14.822	0.296	0.889	1.334	0.020	0.000	0.000	0.00	
04-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
05-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
06-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
07-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.00	
08-May	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
09-May	26	11.623	27.808	12.431	0.249	0.746	1.119	0.000	0.000	0.000	3.79	
10-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
11-May	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
12-May	14	6.259	14.974	6.694	0.134	0.402	0.602	0.780	0.000	0.000	0.00	
13-May	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
14-May	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
15-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.005	0.000	0.000	0.00	
16-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
17-May	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.00	
18-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
19-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.00	
20-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.00	
21-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
22-May	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
23-May	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
24-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.300	0.000	0.000	0.00	
25-May	22	9.835	23.530	10.519	0.210	0.631	0.947	0.550	0.000	0.000	0.00	
26-May	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.00	
27-May	26	11.623	27.808	12.431	0.249	0.746	1.119	1.270	0.000	0.000	0.00	
28-May	22	9.835	23.530	10.519	0.210	0.631	0.947	0.050	0.000	0.000	0.00	
29-May	21	9.388	22.461	10.041	0.201	0.602	0.904	0.010	0.000	0.000	0.00	
30-May	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
31-May	21	9.388	22.461	10.041	0.201	0.602	0.904	0.450	0.000	0.000	0.00	
01-Jun	18	8.047	19.252	8.606	0.172	0.516	0.775	0.830	0.000	0.000	0.00	
02-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.030	0.000	0.000	0.00	
03-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
04-Jun	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.00	
05-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.850	0.000	0.000	0.00	
06-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.060	0.000	0.000	0.00	
07-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.005	0.000	0.000	0.00	
08-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
09-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.010	0.000	0.000	0.00	
10-Jun	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
11-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.00	
12-Jun	16	7.153	17.113	7.650	0.153	0.459	0.689	0.320	0.000	0.000	0.00	
13-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.005	0.000	0.000	0.00	
14-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.230	0.000	0.000	0.00	

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 2**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Limestone Storage Pile - Fuel Yard**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**  
 Roughness Height (m) **0.005**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain Fall (inches)	Erosion Potential			Emissions (lb.)
	Anemometer Height (m)				$u^* = 0.1 u^*$				(g/m <sup>2</sup> )			
	6:1	10	6:1	10	$u_a/u_t:0.2$	$u_a/u_t:0.6$	$u_a/u_t:0.9$		36% Pile $u_a/u_t:0.2$	50% Pile $u_a/u_t:0.6$	14% Pile $u_a/u_t:0.9$	
(mph)	(m/s)	(mph)	(m/s)	(m/s)								
15-Jun	23	10.282	24.600	10.997	0.220	0.660	0.990	0.080	0.000	0.000	0.000	0.00
16-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
17-Jun	29	12.964	31.017	13.866	0.277	0.832	1.248	0.520	0.000	0.000	0.000	0.00
18-Jun	26	11.623	27.808	12.431	0.249	0.746	1.119	0.080	0.000	0.000	0.000	0.00
19-Jun	31	13.858	33.156	14.822	0.296	0.889	1.334	0.520	0.000	0.000	0.000	0.00
20-Jun	25	11.176	26.739	11.953	0.239	0.717	1.076	0.005	0.000	0.000	2.228	8.34
21-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
22-Jun	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
23-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
24-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
25-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.030	0.000	0.000	0.000	0.00
26-Jun	24	10.729	25.669	11.475	0.230	0.689	1.033	0.780	0.000	0.000	0.000	0.00
27-Jun	33	14.752	35.295	15.778	0.316	0.947	1.420	1.270	0.000	0.000	0.000	0.00
28-Jun	23	10.282	24.600	10.997	0.220	0.660	0.990	0.010	0.000	0.000	0.000	0.00
29-Jun	15	6.706	16.043	7.172	0.143	0.430	0.645	0.020	0.000	0.000	0.000	0.00
30-Jun	20	8.941	21.391	9.563	0.191	0.574	0.861	3.690	0.000	0.000	0.000	0.00
01-Jul	22	9.835	23.530	10.519	0.210	0.631	0.947	0.040	0.000	0.000	0.000	0.00
02-Jul	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
03-Jul	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
04-Jul	22	9.835	23.530	10.519	0.210	0.631	0.947	0.150	0.000	0.000	0.000	0.00
05-Jul	38	16.988	40.643	18.169	0.363	1.090	1.635	0.610	0.000	0.000	0.000	0.00
06-Jul	29	12.964	31.017	13.866	0.277	0.832	1.248	1.970	0.000	0.000	0.000	0.00
07-Jul	21	9.388	22.461	10.041	0.201	0.602	0.904	0.700	0.000	0.000	0.000	0.00
08-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.000	0.00
09-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.040	0.000	0.000	0.000	0.00
10-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
11-Jul	20	8.941	21.391	9.563	0.191	0.574	0.861	0.900	0.000	0.000	0.000	0.00
12-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.450	0.000	0.000	0.000	0.00
13-Jul	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
14-Jul	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
15-Jul	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
16-Jul	24	10.729	25.669	11.475	0.230	0.689	1.033	0.005	0.000	0.000	0.881	3.30
17-Jul	20	8.941	21.391	9.563	0.191	0.574	0.861	0.020	0.000	0.000	0.000	0.00
18-Jul	28	12.517	29.948	13.388	0.268	0.803	1.205	0.005	0.000	0.000	7.557	28.29
19-Jul	22	9.835	23.530	10.519	0.210	0.631	0.947	0.005	0.000	0.000	0.000	0.00
20-Jul	23	10.282	24.600	10.997	0.220	0.660	0.990	0.010	0.000	0.000	0.000	0.00
21-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.260	0.000	0.000	0.000	0.00
22-Jul	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
23-Jul	22	9.835	23.530	10.519	0.210	0.631	0.947	0.010	0.000	0.000	0.000	0.00
24-Jul	14	6.259	14.974	6.694	0.134	0.402	0.602	0.140	0.000	0.000	0.000	0.00
25-Jul	24	10.729	25.669	11.475	0.230	0.689	1.033	1.060	0.000	0.000	0.000	0.00
26-Jul	23	10.282	24.600	10.997	0.220	0.660	0.990	0.010	0.000	0.000	0.000	0.00
27-Jul	18	8.047	19.252	8.606	0.172	0.516	0.775	0.160	0.000	0.000	0.000	0.00
28-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
29-Jul	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
30-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	0.160	0.000	0.000	0.000	0.00
31-Jul	16	7.153	17.113	7.650	0.153	0.459	0.689	1.000	0.000	0.000	0.000	0.00
01-Aug	21	9.388	22.461	10.041	0.201	0.602	0.904	3.730	0.000	0.000	0.000	0.00
02-Aug	20	8.941	21.391	9.563	0.191	0.574	0.861	0.500	0.000	0.000	0.000	0.00
03-Aug	24	10.729	25.669	11.475	0.230	0.689	1.033	0.160	0.000	0.000	0.000	0.00
04-Aug	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
05-Aug	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
06-Aug	21	9.388	22.461	10.041	0.201	0.602	0.904	0.010	0.000	0.000	0.000	0.00
07-Aug	18	8.047	19.252	8.606	0.172	0.516	0.775	0.010	0.000	0.000	0.000	0.00
08-Aug	20	8.941	21.391	9.563	0.191	0.574	0.861	0.060	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ch'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 2**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Limestone Storage Pile - Fuel Yard**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**  
 Roughness Height (m): **0.005**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u				36% Pile	50% Pile	14% Pile	
	6.1	10	10	10	u <sub>s</sub> /u <sub>*</sub> :0.2	u <sub>s</sub> /u <sub>*</sub> :0.6	u <sub>s</sub> /u <sub>*</sub> :0.9		u <sub>s</sub> /u <sub>*</sub> :0.2	u <sub>s</sub> /u <sub>*</sub> :0.6	u <sub>s</sub> /u <sub>*</sub> :0.9	
	(mph)	(m/s)	(mph)	(m/s)				(inches)				
09-Aug	17	7.600	18.182	8.128	0.163	0.488	0.732	0.020	0.000	0.000	0.000	0.00
10-Aug	17	7.600	18.182	8.128	0.163	0.488	0.732	0.220	0.000	0.000	0.000	0.00
11-Aug	15	6.706	16.043	7.172	0.143	0.430	0.645	0.005	0.000	0.000	0.000	0.00
12-Aug	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
13-Aug	15	6.706	16.043	7.172	0.143	0.430	0.645	0.450	0.000	0.000	0.000	0.00
14-Aug	13	5.812	13.904	6.216	0.124	0.373	0.559	0.010	0.000	0.000	0.000	0.00
15-Aug	23	10.282	24.600	10.997	0.220	0.660	0.990	0.005	0.000	0.000	0.000	0.00
16-Aug	30	13.411	32.087	14.344	0.287	0.861	1.291	0.710	0.000	0.000	0.000	0.00
17-Aug	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
18-Aug	26	11.623	27.808	12.431	0.249	0.746	1.119	0.270	0.000	0.000	0.000	0.00
19-Aug	16	7.153	17.113	7.650	0.153	0.459	0.689	0.240	0.000	0.000	0.000	0.00
20-Aug	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
21-Aug	21	9.388	22.461	10.041	0.201	0.602	0.904	0.160	0.000	0.000	0.000	0.00
22-Aug	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
23-Aug	21	9.388	22.461	10.041	0.201	0.602	0.904	0.020	0.000	0.000	0.000	0.00
24-Aug	29	12.964	31.017	13.866	0.277	0.832	1.248	1.590	0.000	0.000	0.000	0.00
25-Aug	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
26-Aug	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
27-Aug	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
28-Aug	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
29-Aug	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
30-Aug	21	9.388	22.461	10.041	0.201	0.602	0.904	0.080	0.000	0.000	0.000	0.00
31-Aug	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
01-Sep	21	9.388	22.461	10.041	0.201	0.602	0.904	0.005	0.000	0.000	0.000	0.00
02-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	0.130	0.000	0.000	0.000	0.00
03-Sep	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
04-Sep	26	11.623	27.808	12.431	0.249	0.746	1.119	0.005	0.000	0.000	3.790	14.19
05-Sep	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
06-Sep	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
07-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
08-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
09-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
10-Sep	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.000	0.00
11-Sep	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
12-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
13-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
14-Sep	20	8.941	21.391	9.563	0.191	0.574	0.861	0.030	0.000	0.000	0.000	0.00
15-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
16-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
17-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
18-Sep	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
19-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
20-Sep	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
21-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
22-Sep	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
23-Sep	20	8.941	21.391	9.563	0.191	0.574	0.861	0.180	0.000	0.000	0.000	0.00
24-Sep	14	6.259	14.974	6.694	0.134	0.402	0.602	1.000	0.000	0.000	0.000	0.00
25-Sep	23	10.282	24.600	10.997	0.220	0.660	0.990	0.280	0.000	0.000	0.000	0.00
26-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	1.080	0.000	0.000	0.000	0.00
27-Sep	7	3.129	7.487	3.347	0.067	0.201	0.301	2.250	0.000	0.000	0.000	0.00
28-Sep	15	6.706	16.043	7.172	0.143	0.430	0.645	0.010	0.000	0.000	0.000	0.00
29-Sep	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
30-Sep	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
01-Oct	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
02-Oct	23	10.282	24.600	10.997	0.220	0.660	0.990	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ch'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.:** 981023ED01  
**Rev. No.:** SJRPP 2  
**OFS:** 7830.0020.0054

**Project:** JEA St. Johns Power Park  
**Subject:** Fugitive Emission Estimates - Wind Erosion Limestone Storage Pile - Fuel Yard

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**  
 Roughness Height (m) **0.005**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u*				36% Pile	50% Pile	14% Pile	
	6.1	10			u <sub>a</sub> /u <sub>r</sub> :0.2	u <sub>a</sub> /u <sub>r</sub> :0.6	u <sub>a</sub> /u <sub>r</sub> :0.9		u <sub>a</sub> /u <sub>r</sub> :0.2	u <sub>a</sub> /u <sub>r</sub> :0.6	u <sub>a</sub> /u <sub>r</sub> :0.9	
	(mph)	(m/s)	(mph)	(m/s)								
03-Oct	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.000	0.00
04-Oct	21	9.388	22.461	10.041	0.201	0.602	0.904	0.005	0.000	0.000	0.000	0.00
05-Oct	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
06-Oct	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
07-Oct	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
08-Oct	21	9.388	22.461	10.041	0.201	0.602	0.904	0.005	0.000	0.000	0.000	0.00
09-Oct	23	10.282	24.600	10.997	0.220	0.660	0.990	0.170	0.000	0.000	0.000	0.00
10-Oct	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
11-Oct	20	8.941	21.391	9.563	0.191	0.574	0.861	0.090	0.000	0.000	0.000	0.00
12-Oct	20	8.941	21.391	9.563	0.191	0.574	0.861	0.050	0.000	0.000	0.000	0.00
13-Oct	15	6.706	16.043	7.172	0.143	0.430	0.645	0.005	0.000	0.000	0.000	0.00
14-Oct	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
15-Oct	15	6.706	16.043	7.172	0.143	0.430	0.645	0.240	0.000	0.000	0.000	0.00
16-Oct	16	7.153	17.113	7.650	0.153	0.459	0.689	0.050	0.000	0.000	0.000	0.00
17-Oct	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
18-Oct	14	6.259	14.974	6.694	0.134	0.402	0.602	0.050	0.000	0.000	0.000	0.00
19-Oct	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
20-Oct	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
21-Oct	10	4.470	10.696	4.781	0.096	0.287	0.430	0.000	0.000	0.000	0.000	0.00
22-Oct	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
23-Oct	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
24-Oct	20	8.941	21.391	9.563	0.191	0.574	0.861	0.290	0.000	0.000	0.000	0.00
25-Oct	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
26-Oct	22	9.835	23.530	10.519	0.210	0.631	0.947	0.580	0.000	0.000	0.000	0.00
27-Oct	22	9.835	23.530	10.519	0.210	0.631	0.947	2.640	0.000	0.000	0.000	0.00
28-Oct	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
29-Oct	10	4.470	10.696	4.781	0.096	0.287	0.430	0.000	0.000	0.000	0.000	0.00
30-Oct	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
31-Oct	13	5.812	13.904	6.216	0.124	0.373	0.559	0.680	0.000	0.000	0.000	0.00
01-Nov	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
02-Nov	21	9.388	22.461	10.041	0.201	0.602	0.904	0.180	0.000	0.000	0.000	0.00
03-Nov	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
04-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
05-Nov	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
06-Nov	11	4.917	11.765	5.259	0.105	0.316	0.473	0.005	0.000	0.000	0.000	0.00
07-Nov	17	7.600	18.182	8.128	0.163	0.488	0.732	0.150	0.000	0.000	0.000	0.00
08-Nov	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
09-Nov	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
10-Nov	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
11-Nov	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
12-Nov	15	6.706	16.043	7.172	0.143	0.430	0.645	0.280	0.000	0.000	0.000	0.00
13-Nov	16	7.153	17.113	7.650	0.153	0.459	0.689	0.650	0.000	0.000	0.000	0.00
14-Nov	28	12.517	29.948	13.388	0.268	0.803	1.205	0.000	0.000	0.000	7.557	28.29
15-Nov	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
16-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.005	0.000	0.000	0.000	0.00
17-Nov	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
18-Nov	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
19-Nov	8	3.576	8.556	3.825	0.077	0.230	0.344	0.005	0.000	0.000	0.000	0.00
20-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
21-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
22-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
23-Nov	13	5.812	13.904	6.216	0.124	0.373	0.559	0.005	0.000	0.000	0.000	0.00
24-Nov	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
25-Nov	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
26-Nov	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 2**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Limestone Storage Pile - Fuel Yard**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1**  
 Roughness Height (m) **0.005**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s/u_t, 0.2$	$u_s/u_t, 0.6$	$u_s/u_t, 0.9$		36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)					$u_s/u_t, 0.2$	$u_s/u_t, 0.6$	$u_s/u_t, 0.9$	
27-Nov	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.00	
28-Nov	9	4.023	9.626	4.303	0.086	0.258	0.387	0.005	0.000	0.000	0.00	
29-Nov	25	11.176	26.739	11.953	0.239	0.717	1.076	1.130	0.000	0.000	0.00	
30-Nov	21	9.388	22.461	10.041	0.201	0.602	0.904	0.020	0.000	0.000	0.00	
01-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
02-Dec	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.00	
03-Dec	15	6.706	16.043	7.172	0.143	0.430	0.645	0.100	0.000	0.000	0.00	
04-Dec	21	9.388	22.461	10.041	0.201	0.602	0.904	0.100	0.000	0.000	0.00	
05-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
06-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.00	
07-Dec	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.00	
08-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.060	0.000	0.000	0.00	
09-Dec	11	4.917	11.765	5.259	0.105	0.316	0.473	0.110	0.000	0.000	0.00	
10-Dec	37	16.540	39.574	17.691	0.354	1.061	1.592	2.860	0.000	0.000	0.00	
11-Dec	15	6.706	16.043	7.172	0.143	0.430	0.645	0.005	0.000	0.000	0.00	
12-Dec	21	9.388	22.461	10.041	0.201	0.602	0.904	2.720	0.000	0.000	0.00	
13-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.300	0.000	0.000	0.00	
14-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	1.370	0.000	0.000	0.00	
15-Dec	26	11.623	27.808	12.431	0.249	0.746	1.119	1.590	0.000	0.000	0.00	
16-Dec	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.00	
17-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
18-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.00	
19-Dec	7	3.129	7.487	3.347	0.067	0.201	0.301	0.000	0.000	0.000	0.00	
20-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.00	
21-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.00	
22-Dec	16	7.153	17.113	7.650	0.153	0.459	0.689	0.010	0.000	0.000	0.00	
23-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.030	0.000	0.000	0.00	
24-Dec	15	6.706	16.043	7.172	0.143	0.430	0.645	0.190	0.000	0.000	0.00	
25-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.090	0.000	0.000	0.00	
26-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.170	0.000	0.000	0.00	
27-Dec	25	11.176	26.739	11.953	0.239	0.717	1.076	0.040	0.000	0.000	0.00	
28-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.00	
29-Dec	26	11.623	27.808	12.431	0.249	0.746	1.119	0.030	0.000	0.000	0.00	
30-Dec	26	11.623	27.808	12.431	0.249	0.746	1.119	0.000	0.000	0.000	3.790	
31-Dec	25	11.176	26.739	11.953	0.239	0.717	1.076	0.000	0.000	0.000	14.19	
<b>Totals:</b>									0.00	0.00	43.59	163.21
<b>Worst Case Day</b>									0.000	0.000	7.557	

**Storage Pile Calculations**

Control Efficiency 90.00%  
 Rain Days (>0.01") 120 AP42, Section 13.2.2  
 Storage Pile Surface Area 12140.58  
 Uncontrolled (TPY) 0.08  
 Controlled (TPY) 0.01  
 Worst Case Day (lb/24) 3 PM10 - AP42 Section 13.2.5  
 Worst Case Day (gps) 0.015 Per AP42, Section 13.2.5  
 #Days Winds > 12 MPH 343  
 #Days Rain > 0.01 " 130  
 Worst Case Day (gps) 0.024 Per EPA Background Document



**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 3**  
**Ofs: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Coal Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.12**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s/u_{*0.2}$	$u_s/u_{*0.6}$	$u_s/u_{*0.9}$		36% Pile $u_s/u_{*0.2}$	50% Pile $u_s/u_{*0.6}$	14% Pile $u_s/u_{*0.9}$	
	(mph)	(m/s)	(mph)	(m/s)								
01-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
02-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
03-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
04-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
05-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.120	0.000	0.000	0.000	0.00
06-Jan	9	4.023	9.584	4.284	0.086	0.257	0.386	0.280	0.000	0.000	0.000	0.00
07-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.030	0.000	0.000	0.000	0.00
08-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.040	0.000	0.000	0.000	0.00
09-Jan	20	8.941	21.298	9.521	0.190	0.571	0.857	0.600	0.000	0.000	0.000	0.00
10-Jan	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	0.000	0.000	0.00
11-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
12-Jan	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
13-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
14-Jan	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
15-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
16-Jan	23	10.282	24.492	10.949	0.219	0.657	0.985	0.330	0.000	0.000	0.000	0.00
17-Jan	24	10.729	25.557	11.425	0.229	0.686	1.028	0.000	0.000	0.000	0.000	0.00
18-Jan	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
19-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
20-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
21-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
22-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.000	0.00
23-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
24-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
25-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	1.200	0.000	0.000	0.000	0.00
26-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
27-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
28-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
29-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.000	0.00
30-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.310	0.000	0.000	0.000	0.00
31-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
01-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
02-Feb	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
03-Feb	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
04-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
05-Feb	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
06-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
07-Feb	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
08-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.030	0.000	0.000	0.000	0.00
09-Feb	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
10-Feb	11	4.917	11.714	5.237	0.105	0.314	0.471	0.005	0.000	0.000	0.000	0.00
11-Feb	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
12-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
13-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.130	0.000	0.000	0.000	0.00
14-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.040	0.000	0.000	0.000	0.00
15-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.400	0.000	0.000	0.000	0.00
16-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
17-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
18-Feb	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
19-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.000	0.00
20-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
21-Feb	24	10.729	25.557	11.425	0.229	0.686	1.028	0.000	0.000	0.000	0.000	0.00
22-Feb	17	7.600	18.103	8.093	0.162	0.486	0.728	0.310	0.000	0.000	0.000	0.00
23-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.005	0.000	0.000	0.000	0.00
24-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.140	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Grazlani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 3**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Coal Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.12**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain Fall (Inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u*				[g/m <sup>2</sup> ]			
	6.1 (mph)	10 (m/s)	10 (mph)	10 (m/s)	u <sub>s</sub> /u <sub>r</sub> :0.2	u <sub>s</sub> /u <sub>r</sub> :0.6	u <sub>s</sub> /u <sub>r</sub> :0.9		36% Pile u <sub>s</sub> /u <sub>r</sub> :0.2	50% Pile u <sub>s</sub> /u <sub>r</sub> :0.6	14% Pile u <sub>s</sub> /u <sub>r</sub> :0.9	
25-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.230	0.000	0.000	0.000	0.00
26-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
27-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
28-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
01-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
02-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
03-Mar	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.000	0.00
04-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
05-Mar	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
06-Mar	24	10.729	25.557	11.425	0.229	0.686	1.028	0.005	0.000	0.000	0.000	0.00
07-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-Mar	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
09-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
10-Mar	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
12-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
13-Mar	29	12.964	30.882	13.805	0.276	0.828	1.242	0.170	0.000	0.000	0.000	0.00
14-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.390	0.000	0.000	0.000	0.00
15-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
16-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
17-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
18-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
19-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
20-Mar	13	5.812	13.844	6.189	0.124	0.371	0.557	0.030	0.000	0.000	0.000	0.00
21-Mar	14	6.259	14.908	6.665	0.133	0.400	0.600	0.470	0.000	0.000	0.000	0.00
22-Mar	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
23-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
24-Mar	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	0.000	0.00
25-Mar	24	10.729	25.557	11.425	0.229	0.686	1.028	0.490	0.000	0.000	0.000	0.00
26-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.020	0.000	0.000	0.000	0.00
27-Mar	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
28-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
29-Mar	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.000	0.00
30-Mar	30	13.411	31.947	14.281	0.286	0.857	1.285	0.270	0.000	0.000	0.000	0.00
31-Mar	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	0.000	0.00
01-Apr	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
02-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
03-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
04-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
05-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
06-Apr	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
07-Apr	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
09-Apr	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
10-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
11-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
12-Apr	22	9.835	23.428	10.473	0.209	0.628	0.943	0.050	0.000	0.000	0.000	0.00
13-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
14-Apr	14	6.259	14.908	6.665	0.133	0.400	0.600	0.550	0.000	0.000	0.000	0.00
15-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.160	0.000	0.000	0.000	0.00
16-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
17-Apr	24	10.729	25.557	11.425	0.229	0.686	1.028	0.000	0.000	0.000	0.000	0.00
18-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
19-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
20-Apr	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Cl'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 3**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Coal Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.12**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u				36% Pile	50% Pile	14% Pile	
	6:1	10			u <sub>1</sub> /u <sub>1</sub> :0.2	u <sub>1</sub> /u <sub>1</sub> :0.6	u <sub>1</sub> /u <sub>1</sub> :0.9		u <sub>1</sub> /u <sub>1</sub> :0.2	u <sub>1</sub> /u <sub>1</sub> :0.6	u <sub>1</sub> /u <sub>1</sub> :0.9	
21-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
22-Apr	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
23-Apr	43	19.223	45.790	20.470	0.409	1.228	1.842	1.150	0.000	0.000	0.000	0.00
24-Apr	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
25-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
26-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.049	0.000	0.000	0.000	0.00
27-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	1.810	0.000	0.000	0.000	0.00
28-Apr	32	14.305	34.076	15.234	0.305	0.914	1.371	0.340	0.000	0.000	0.000	0.00
29-Apr	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.000	0.00
30-Apr	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
01-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
02-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
03-May	31	13.858	33.012	14.758	0.295	0.885	1.328	0.020	0.000	0.000	0.000	0.00
04-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
05-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
06-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
07-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-May	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
09-May	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	0.000	0.000	0.00
10-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
12-May	14	6.259	14.908	6.665	0.133	0.400	0.600	0.780	0.000	0.000	0.000	0.00
13-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
14-May	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
15-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.005	0.000	0.000	0.000	0.00
16-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
17-May	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
18-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
19-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
20-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
21-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
22-May	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
23-May	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
24-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.300	0.000	0.000	0.000	0.00
25-May	22	9.835	23.428	10.473	0.209	0.628	0.943	0.550	0.000	0.000	0.000	0.00
26-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
27-May	26	11.623	27.687	12.377	0.248	0.743	1.114	1.270	0.000	0.000	0.000	0.00
28-May	22	9.835	23.428	10.473	0.209	0.628	0.943	0.050	0.000	0.000	0.000	0.00
29-May	21	9.388	22.363	9.997	0.200	0.600	0.900	0.010	0.000	0.000	0.000	0.00
30-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
31-May	21	9.388	22.363	9.997	0.200	0.600	0.900	0.450	0.000	0.000	0.000	0.00
01-Jun	18	8.047	19.168	8.569	0.171	0.514	0.771	0.830	0.000	0.000	0.000	0.00
02-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.030	0.000	0.000	0.000	0.00
03-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
04-Jun	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
05-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.850	0.000	0.000	0.000	0.00
06-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.060	0.000	0.000	0.000	0.00
07-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.000	0.00
08-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
09-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.010	0.000	0.000	0.000	0.00
10-Jun	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
11-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
12-Jun	16	7.153	17.038	7.617	0.152	0.457	0.686	0.320	0.000	0.000	0.000	0.00
13-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.000	0.00
14-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.230	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 3**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Coal Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.12**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain-Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	Anemometer Height (m)				u* = 0.1 u*				36% Pile	50% Pile	14% Pile	
	6:1 (mph)	10 (m/s)	10 (mph)	10 (m/s)	u <sub>z</sub> /u <sub>r</sub> :0.2	u <sub>z</sub> /u <sub>r</sub> :0.6	u <sub>z</sub> /u <sub>r</sub> :0.9		u <sub>z</sub> /u <sub>r</sub> :0.2	u <sub>z</sub> /u <sub>r</sub> :0.6	u <sub>z</sub> /u <sub>r</sub> :0.9	
15-Jun	23	10.282	24.492	10.949	0.219	0.657	0.985	0.080	0.000	0.000	0.000	0.00
16-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
17-Jun	29	12.964	30.882	13.805	0.276	0.828	1.242	0.520	0.000	0.000	0.000	0.00
18-Jun	26	11.623	27.687	12.377	0.248	0.743	1.114	0.080	0.000	0.000	0.000	0.00
19-Jun	31	13.858	33.012	14.758	0.295	0.885	1.328	0.520	0.000	0.000	0.000	0.00
20-Jun	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	0.000	0.00
21-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
22-Jun	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
23-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
24-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
25-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.030	0.000	0.000	0.000	0.00
26-Jun	24	10.729	25.557	11.425	0.229	0.686	1.028	0.780	0.000	0.000	0.000	0.00
27-Jun	33	14.752	35.141	15.710	0.314	0.943	1.414	1.270	0.000	0.000	0.000	0.00
28-Jun	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
29-Jun	15	6.706	15.973	7.141	0.143	0.428	0.643	0.020	0.000	0.000	0.000	0.00
30-Jun	20	8.941	21.298	9.521	0.190	0.571	0.857	3.690	0.000	0.000	0.000	0.00
01-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.040	0.000	0.000	0.000	0.00
02-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
03-Jul	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
04-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.150	0.000	0.000	0.000	0.00
05-Jul	38	16.988	40.466	18.090	0.362	1.085	1.628	0.610	0.000	0.000	0.000	0.00
06-Jul	29	12.964	30.882	13.805	0.276	0.828	1.242	1.970	0.000	0.000	0.000	0.00
07-Jul	21	9.388	22.363	9.997	0.200	0.600	0.900	0.700	0.000	0.000	0.000	0.00
08-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
09-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.040	0.000	0.000	0.000	0.00
10-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-Jul	20	8.941	21.298	9.521	0.190	0.571	0.857	0.900	0.000	0.000	0.000	0.00
12-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.450	0.000	0.000	0.000	0.00
13-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
14-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
15-Jul	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
16-Jul	24	10.729	25.557	11.425	0.229	0.686	1.028	0.005	0.000	0.000	0.000	0.00
17-Jul	20	8.941	21.298	9.521	0.190	0.571	0.857	0.020	0.000	0.000	0.000	0.00
18-Jul	28	12.517	29.817	13.329	0.267	0.800	1.200	0.005	0.000	0.000	2.359	63.29
19-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.000	0.00
20-Jul	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
21-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.260	0.000	0.000	0.000	0.00
22-Jul	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
23-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.010	0.000	0.000	0.000	0.00
24-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.140	0.000	0.000	0.000	0.00
25-Jul	24	10.729	25.557	11.425	0.229	0.686	1.028	1.060	0.000	0.000	0.000	0.00
26-Jul	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
27-Jul	18	8.047	19.168	8.569	0.171	0.514	0.771	0.160	0.000	0.000	0.000	0.00
28-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
29-Jul	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
30-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.160	0.000	0.000	0.000	0.00
31-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	1.000	0.000	0.000	0.000	0.00
01-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	3.730	0.000	0.000	0.000	0.00
02-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.500	0.000	0.000	0.000	0.00
03-Aug	24	10.729	25.557	11.425	0.229	0.686	1.028	0.160	0.000	0.000	0.000	0.00
04-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
05-Aug	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
06-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.010	0.000	0.000	0.000	0.00
07-Aug	18	8.047	19.168	8.569	0.171	0.514	0.771	0.010	0.000	0.000	0.000	0.00
08-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.060	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By:** E. Deken, PE  
**Date:** 10/23/98  
**Cl'd By:** Darrel J. Graziani, P.E.  
**Date:** 11/07/98

**Cal. No.:** 981023ED01  
**Rev. No.:** SJRPP 3  
**OFS:** 7830.0020.0054

**Project:** JEA St. Johns Power Park  
**Subject:** Fugitive Emission Estimates - Wind Erosion Coal Storage Pile

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.12**  
Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain Fall (Inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s/u_{*0.2}$	$u_s/u_{*0.6}$	$u_s/u_{*0.9}$		36% Pile			
	(mph)	(m/s)	(mph)	(m/s)					$u_s/u_{*0.2}$	$u_s/u_{*0.6}$	$u_s/u_{*0.9}$	
09-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.020	0.000	0.000	0.000	0.00
10-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.220	0.000	0.000	0.000	0.00
11-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
12-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
13-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.450	0.000	0.000	0.000	0.00
14-Aug	13	5.812	13.844	6.189	0.124	0.371	0.557	0.010	0.000	0.000	0.000	0.00
15-Aug	23	10.282	24.492	10.949	0.219	0.657	0.985	0.005	0.000	0.000	0.000	0.00
16-Aug	30	13.411	31.947	14.281	0.286	0.857	1.285	0.710	0.000	0.000	0.000	0.00
17-Aug	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
18-Aug	26	11.623	27.687	12.377	0.248	0.743	1.114	0.270	0.000	0.000	0.000	0.00
19-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.240	0.000	0.000	0.000	0.00
20-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
21-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.160	0.000	0.000	0.000	0.00
22-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
23-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.020	0.000	0.000	0.000	0.00
24-Aug	29	12.964	30.882	13.805	0.276	0.828	1.242	1.590	0.000	0.000	0.000	0.00
25-Aug	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
26-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
27-Aug	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
28-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
29-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
30-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.080	0.000	0.000	0.000	0.00
31-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
01-Sep	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
02-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.130	0.000	0.000	0.000	0.00
03-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
04-Sep	26	11.623	27.687	12.377	0.248	0.743	1.114	0.005	0.000	0.000	0.000	0.00
05-Sep	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
06-Sep	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
07-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
08-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
09-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
10-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
11-Sep	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
12-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
13-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
14-Sep	20	8.941	21.298	9.521	0.190	0.571	0.857	0.030	0.000	0.000	0.000	0.00
15-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
16-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
17-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
18-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
19-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
20-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
21-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
22-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
23-Sep	20	8.941	21.298	9.521	0.190	0.571	0.857	0.180	0.000	0.000	0.000	0.00
24-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	1.000	0.000	0.000	0.000	0.00
25-Sep	23	10.282	24.492	10.949	0.219	0.657	0.985	0.280	0.000	0.000	0.000	0.00
26-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	1.080	0.000	0.000	0.000	0.00
27-Sep	7	3.129	7.454	3.332	0.067	0.200	0.300	2.250	0.000	0.000	0.000	0.00
28-Sep	15	6.706	15.973	7.141	0.143	0.428	0.643	0.010	0.000	0.000	0.000	0.00
29-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
30-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
01-Oct	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
02-Oct	23	10.282	24.492	10.949	0.219	0.657	0.985	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Cl'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 3**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Coal Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.12**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$			Rain Fall (Inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6:1		10		$u_{*0.2}$	$u_{*0.6}$	$u_{*0.9}$		36% Pile $u_{*0.2}$	50% Pile $u_{*0.6}$	14% Pile $u_{*0.9}$	
	(mph)	(m/s)	(mph)	(m/s)	(m/s)	(m/s)	(m/s)		(m/s)	(m/s)	(m/s)	
03-Oct	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
04-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
05-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
06-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
07-Oct	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
09-Oct	23	10.282	24.492	10.949	0.219	0.657	0.985	0.170	0.000	0.000	0.000	0.00
10-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
11-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.090	0.000	0.000	0.000	0.00
12-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.050	0.000	0.000	0.000	0.00
13-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
14-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
15-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.240	0.000	0.000	0.000	0.00
16-Oct	16	7.153	17.038	7.617	0.152	0.457	0.686	0.050	0.000	0.000	0.000	0.00
17-Oct	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
18-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.050	0.000	0.000	0.000	0.00
19-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
20-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
21-Oct	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
22-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
23-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
24-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.290	0.000	0.000	0.000	0.00
25-Oct	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
26-Oct	22	9.835	23.428	10.473	0.209	0.628	0.943	0.580	0.000	0.000	0.000	0.00
27-Oct	22	9.835	23.428	10.473	0.209	0.628	0.943	2.640	0.000	0.000	0.000	0.00
28-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
29-Oct	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
30-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
31-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.680	0.000	0.000	0.000	0.00
01-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
02-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.180	0.000	0.000	0.000	0.00
03-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
04-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
05-Nov	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
06-Nov	11	4.917	11.714	5.237	0.105	0.314	0.471	0.005	0.000	0.000	0.000	0.00
07-Nov	17	7.600	18.103	8.093	0.162	0.486	0.728	0.150	0.000	0.000	0.000	0.00
08-Nov	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
09-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
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12-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.280	0.000	0.000	0.000	0.00
13-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	0.650	0.000	0.000	0.000	0.00
14-Nov	28	12.517	29.817	13.329	0.267	0.800	1.200	0.000	0.000	0.000	2.359	63.29
15-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
16-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.000	0.00
17-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
18-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
19-Nov	8	3.576	8.519	3.808	0.076	0.229	0.343	0.005	0.000	0.000	0.000	0.00
20-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
21-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
22-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
23-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.005	0.000	0.000	0.000	0.00
24-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
25-Nov	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
26-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date:** 10/23/98  
**Ch'd By:** Darrel J. Graziani, P.E.  
**Date:** 11/07/98

**Cal. No.:** 981023ED01  
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**Project:** JEA St. Johns Power Park  
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- Assumptions:**
- The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
  - Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
  - Pile is always at maximum capacity which is maximizing emissions.

- References:**
- AP-42, Section 13.2.5, Industrial Wind Erosion
  - 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.12**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^*=0.1u$ (m/s)			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_w/u_t:0.2$	$u_w/u_t:0.6$	$u_w/u_t:0.9$		36% Pile $u_w/u_t:0.2$	50% Pile $u_w/u_t:0.6$	14% Pile $u_w/u_t:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
27-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
28-Nov	9	4.023	9.584	4.284	0.086	0.257	0.386	0.005	0.000	0.000	0.000	0.00
29-Nov	25	11.176	26.622	11.901	0.238	0.714	1.071	1.130	0.000	0.000	0.000	0.00
30-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.020	0.000	0.000	0.000	0.00
01-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
02-Dec	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
03-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.100	0.000	0.000	0.000	0.00
04-Dec	21	9.388	22.363	9.997	0.200	0.600	0.900	0.100	0.000	0.000	0.000	0.00
05-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
06-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
07-Dec	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
08-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.060	0.000	0.000	0.000	0.00
09-Dec	11	4.917	11.714	5.237	0.105	0.314	0.471	0.110	0.000	0.000	0.000	0.00
10-Dec	37	16.540	39.401	17.614	0.352	1.057	1.585	2.860	0.000	0.000	0.000	0.00
11-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
12-Dec	21	9.388	22.363	9.997	0.200	0.600	0.900	2.720	0.000	0.000	0.000	0.00
13-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.300	0.000	0.000	0.000	0.00
14-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	1.370	0.000	0.000	0.000	0.00
15-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	1.590	0.000	0.000	0.000	0.00
16-Dec	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
17-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
18-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
19-Dec	7	3.129	7.454	3.332	0.067	0.200	0.300	0.000	0.000	0.000	0.000	0.00
20-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
21-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
22-Dec	16	7.153	17.038	7.617	0.152	0.457	0.686	0.010	0.000	0.000	0.000	0.00
23-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.030	0.000	0.000	0.000	0.00
24-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.190	0.000	0.000	0.000	0.00
25-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.090	0.000	0.000	0.000	0.00
26-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.170	0.000	0.000	0.000	0.00
27-Dec	25	11.176	26.622	11.901	0.238	0.714	1.071	0.040	0.000	0.000	0.000	0.00
28-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
29-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	0.030	0.000	0.000	0.000	0.00
30-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	0.000	0.000	0.00
31-Dec	25	11.176	26.622	11.901	0.238	0.714	1.071	0.000	0.000	0.000	0.000	0.00
<b>Totals:</b>									0.00	0.00	4.72	126.58
<b>Worst Case Day</b>									0.000	0.000	2.359	

**Storage Pile Calculations**

Control Efficiency 90.00%  
 Rain Days (>0.01") 120 AP42, Section 13.2.2  
 Storage Pile Surface Area 87007.49  
 Uncontrolled (TPY) 0.06  
 Controlled (TPY) 0.01  
 Worst Case Day (lb/24-hr) 6 PM10 - AP42 Section 13.2.5  
 Worst Case Day (gps) 0.033 Per AP42, Section 13.2.5  
 #Days Winds>12 MPH 343  
 #Days Rain >0.01 " 130  
 Worst Case Day (gps) 0.053 Per EPA Background Document

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Cl'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 4**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Petroleum Coke Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain-Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s/u_t:0.2$	$u_s/u_t:0.6$	$u_s/u_t:0.9$		36% Pile $u_s/u_t:0.2$	50% Pile $u_s/u_t:0.6$	14% Pile $u_s/u_t:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
01-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
02-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
03-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
04-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
05-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.120	0.000	0.000	0.000	0.00
06-Jan	9	4.023	9.584	4.284	0.086	0.257	0.386	0.280	0.000	0.000	0.000	0.00
07-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.030	0.000	0.000	0.000	0.00
08-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.040	0.000	0.000	0.000	0.00
09-Jan	20	8.941	21.298	9.521	0.190	0.571	0.857	0.600	0.000	0.000	0.000	0.00
10-Jan	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	0.000	2.861	76.76
11-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
12-Jan	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
13-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
14-Jan	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
15-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
16-Jan	23	10.282	24.492	10.949	0.219	0.657	0.985	0.330	0.000	0.000	0.000	0.00
17-Jan	24	10.729	25.557	11.425	0.229	0.686	1.028	0.000	0.000	0.000	0.211	5.65
18-Jan	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
19-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
20-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
21-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
22-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.000	0.00
23-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
24-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
25-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	1.200	0.000	0.000	0.000	0.00
26-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
27-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
28-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
29-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.000	0.00
30-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.310	0.000	0.000	0.000	0.00
31-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
01-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
02-Feb	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
03-Feb	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
04-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
05-Feb	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
06-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
07-Feb	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
08-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.030	0.000	0.000	0.000	0.00
09-Feb	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
10-Feb	11	4.917	11.714	5.237	0.105	0.314	0.471	0.005	0.000	0.000	0.000	0.00
11-Feb	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
12-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
13-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.130	0.000	0.000	0.000	0.00
14-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.040	0.000	0.000	0.000	0.00
15-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.400	0.000	0.000	0.000	0.00
16-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
17-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
18-Feb	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
19-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.000	0.00
20-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
21-Feb	24	10.729	25.557	11.425	0.229	0.686	1.028	0.000	0.000	0.000	0.211	5.65
22-Feb	17	7.600	18.103	8.093	0.162	0.486	0.728	0.310	0.000	0.000	0.000	0.00
23-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.005	0.000	0.000	0.000	0.00
24-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.140	0.000	0.000	0.000	0.00



**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 4**  
**OPS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Petroleum Coke Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain Fall (Inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6:1		10		$u_s^*/u_r^* 0.2$	$u_s^*/u_r^* 0.6$	$u_s^*/u_r^* 0.9$		36% Pile $u_s^*/u_r^* 0.2$	50% Pile $u_s^*/u_r^* 0.6$	14% Pile $u_s^*/u_r^* 0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
25-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.230	0.000	0.000	0.000	0.00
26-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
27-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
28-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
01-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
02-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
03-Mar	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.000	0.00
04-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
05-Mar	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
06-Mar	24	10.729	25.557	11.425	0.229	0.686	1.028	0.005	0.000	0.000	0.211	5.65
07-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-Mar	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
09-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
10-Mar	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
12-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
13-Mar	29	12.964	30.882	13.805	0.276	0.828	1.242	0.170	0.000	0.000	0.000	0.00
14-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.390	0.000	0.000	0.000	0.00
15-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
16-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
17-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
18-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
19-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
20-Mar	13	5.812	13.844	6.189	0.124	0.371	0.557	0.030	0.000	0.000	0.000	0.00
21-Mar	14	6.259	14.908	6.665	0.133	0.400	0.600	0.470	0.000	0.000	0.000	0.00
22-Mar	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
23-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
24-Mar	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	1.429	38.35
25-Mar	24	10.729	25.557	11.425	0.229	0.686	1.028	0.490	0.000	0.000	0.000	0.00
26-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.020	0.000	0.000	0.000	0.00
27-Mar	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
28-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
29-Mar	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.000	0.00
30-Mar	30	13.411	31.947	14.281	0.286	0.857	1.285	0.270	0.000	0.000	0.000	0.00
31-Mar	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	1.429	38.35
01-Apr	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
02-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
03-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
04-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
05-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
06-Apr	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
07-Apr	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
09-Apr	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
10-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
11-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
12-Apr	22	9.835	23.428	10.473	0.209	0.628	0.943	0.050	0.000	0.000	0.000	0.00
13-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
14-Apr	14	6.259	14.908	6.665	0.133	0.400	0.600	0.550	0.000	0.000	0.000	0.00
15-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.160	0.000	0.000	0.000	0.00
16-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
17-Apr	24	10.729	25.557	11.425	0.229	0.686	1.028	0.000	0.000	0.000	0.211	5.65
18-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
19-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
20-Apr	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Cl'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 4**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Petroleum Coke Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain Fall (Inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u*				(g/m^2)			
	6:1	10	10	10	u <sub>s</sub> /u <sub>*</sub> :0.2	u <sub>s</sub> /u <sub>*</sub> :0.6	u <sub>s</sub> /u <sub>*</sub> :0.9		36% Pile u <sub>s</sub> /u <sub>*</sub> :0.2	50% Pile u <sub>s</sub> /u <sub>*</sub> :0.6	14% Pile u <sub>s</sub> /u <sub>*</sub> :0.9	
21-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
22-Apr	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
23-Apr	43	19.223	45.790	20.470	0.409	1.228	1.842	1.150	0.000	0.000	0.000	0.00
24-Apr	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
25-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
26-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.049	0.000	0.000	0.000	0.00
27-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	1.810	0.000	0.000	0.000	0.00
28-Apr	32	14.305	34.076	15.234	0.305	0.914	1.371	0.340	0.000	0.000	0.000	0.00
29-Apr	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.000	0.00
30-Apr	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
01-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
02-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
03-May	31	13.858	33.012	14.758	0.295	0.885	1.328	0.020	0.000	0.000	0.000	0.00
04-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
05-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
06-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
07-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-May	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
09-May	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	0.000	2.861	76.76
10-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
12-May	14	6.259	14.908	6.665	0.133	0.400	0.600	0.780	0.000	0.000	0.000	0.00
13-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
14-May	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
15-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.005	0.000	0.000	0.000	0.00
16-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
17-May	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
18-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
19-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
20-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
21-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
22-May	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
23-May	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
24-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.300	0.000	0.000	0.000	0.00
25-May	22	9.835	23.428	10.473	0.209	0.628	0.943	0.550	0.000	0.000	0.000	0.00
26-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
27-May	26	11.623	27.687	12.377	0.248	0.743	1.114	1.270	0.000	0.000	0.000	0.00
28-May	22	9.835	23.428	10.473	0.209	0.628	0.943	0.050	0.000	0.000	0.000	0.00
29-May	21	9.388	22.363	9.997	0.200	0.600	0.900	0.010	0.000	0.000	0.000	0.00
30-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
31-May	21	9.388	22.363	9.997	0.200	0.600	0.900	0.450	0.000	0.000	0.000	0.00
01-Jun	18	8.047	19.168	8.569	0.171	0.514	0.771	0.830	0.000	0.000	0.000	0.00
02-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.030	0.000	0.000	0.000	0.00
03-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
04-Jun	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
05-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.850	0.000	0.000	0.000	0.00
06-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.060	0.000	0.000	0.000	0.00
07-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.000	0.00
08-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
09-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.010	0.000	0.000	0.000	0.00
10-Jun	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
11-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
12-Jun	16	7.153	17.038	7.617	0.152	0.457	0.686	0.320	0.000	0.000	0.000	0.00
13-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.000	0.00
14-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.230	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 4**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Petroleum Coke Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6:1		10:1		$u_s/u_t:0.2$	$u_s/u_t:0.6$	$u_s/u_t:0.9$		36% Pile $u_s/u_t:0.2$	50% Pile $u_s/u_t:0.6$	14% Pile $u_s/u_t:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
15-Jun	23	10.282	24.492	10.949	0.219	0.657	0.985	0.080	0.000	0.000	0.000	0.00
16-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
17-Jun	29	12.964	30.882	13.805	0.276	0.828	1.242	0.520	0.000	0.000	0.000	0.00
18-Jun	26	11.623	27.687	12.377	0.248	0.743	1.114	0.080	0.000	0.000	0.000	0.00
19-Jun	31	13.858	33.012	14.758	0.295	0.885	1.328	0.520	0.000	0.000	0.000	0.00
20-Jun	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	1.429	38.35
21-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
22-Jun	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
23-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
24-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
25-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.030	0.000	0.000	0.000	0.00
26-Jun	24	10.729	25.557	11.425	0.229	0.686	1.028	0.780	0.000	0.000	0.000	0.00
27-Jun	33	14.752	35.141	15.710	0.314	0.943	1.414	1.270	0.000	0.000	0.000	0.00
28-Jun	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
29-Jun	15	6.706	15.973	7.141	0.143	0.428	0.643	0.020	0.000	0.000	0.000	0.00
30-Jun	20	8.941	21.298	9.521	0.190	0.571	0.857	3.690	0.000	0.000	0.000	0.00
01-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.040	0.000	0.000	0.000	0.00
02-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
03-Jul	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
04-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.150	0.000	0.000	0.000	0.00
05-Jul	38	16.988	40.466	18.090	0.362	1.085	1.628	0.610	0.000	0.000	0.000	0.00
06-Jul	29	12.964	30.882	13.805	0.276	0.828	1.242	1.970	0.000	0.000	0.000	0.00
07-Jul	21	9.388	22.363	9.997	0.200	0.600	0.900	0.700	0.000	0.000	0.000	0.00
08-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
09-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.040	0.000	0.000	0.000	0.00
10-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-Jul	20	8.941	21.298	9.521	0.190	0.571	0.857	0.900	0.000	0.000	0.000	0.00
12-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.450	0.000	0.000	0.000	0.00
13-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
14-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
15-Jul	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
16-Jul	24	10.729	25.557	11.425	0.229	0.686	1.028	0.005	0.000	0.000	0.211	5.65
17-Jul	20	8.941	21.298	9.521	0.190	0.571	0.857	0.020	0.000	0.000	0.000	0.00
18-Jul	28	12.517	29.817	13.329	0.267	0.800	1.200	0.005	0.000	0.000	6.363	170.72
19-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.000	0.00
20-Jul	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
21-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.260	0.000	0.000	0.000	0.00
22-Jul	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
23-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.010	0.000	0.000	0.000	0.00
24-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.140	0.000	0.000	0.000	0.00
25-Jul	24	10.729	25.557	11.425	0.229	0.686	1.028	1.060	0.000	0.000	0.000	0.00
26-Jul	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
27-Jul	18	8.047	19.168	8.569	0.171	0.514	0.771	0.160	0.000	0.000	0.000	0.00
28-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
29-Jul	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
30-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.160	0.000	0.000	0.000	0.00
31-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	1.000	0.000	0.000	0.000	0.00
01-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	3.730	0.000	0.000	0.000	0.00
02-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.500	0.000	0.000	0.000	0.00
03-Aug	24	10.729	25.557	11.425	0.229	0.686	1.028	0.160	0.000	0.000	0.000	0.00
04-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
05-Aug	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
06-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.010	0.000	0.000	0.000	0.00
07-Aug	18	8.047	19.168	8.569	0.171	0.514	0.771	0.010	0.000	0.000	0.000	0.00
08-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.060	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**CK'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 4**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Petroleum Coke Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_a/u_t: 0.2$	$u_b/u_t: 0.6$	$u_c/u_t: 0.9$		$u_a/u_t: 0.2$	$u_b/u_t: 0.6$	$u_c/u_t: 0.9$	
	(mph)	(m/s)	(mph)	(m/s)	(m/s)	(m/s)	(m/s)					
09-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.020	0.000	0.000	0.000	0.00
10-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.220	0.000	0.000	0.000	0.00
11-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
12-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
13-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.450	0.000	0.000	0.000	0.00
14-Aug	13	5.812	13.844	6.189	0.124	0.371	0.557	0.010	0.000	0.000	0.000	0.00
15-Aug	23	10.282	24.492	10.949	0.219	0.657	0.985	0.005	0.000	0.000	0.000	0.00
16-Aug	30	13.411	31.947	14.281	0.286	0.857	1.285	0.710	0.000	0.000	0.000	0.00
17-Aug	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
18-Aug	26	11.623	27.687	12.377	0.248	0.743	1.114	0.270	0.000	0.000	0.000	0.00
19-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.240	0.000	0.000	0.000	0.00
20-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
21-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.160	0.000	0.000	0.000	0.00
22-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
23-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.020	0.000	0.000	0.000	0.00
24-Aug	29	12.964	30.882	13.805	0.276	0.828	1.242	1.590	0.000	0.000	0.000	0.00
25-Aug	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
26-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
27-Aug	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
28-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
29-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
30-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.080	0.000	0.000	0.000	0.00
31-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
01-Sep	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
02-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.130	0.000	0.000	0.000	0.00
03-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
04-Sep	26	11.623	27.687	12.377	0.248	0.743	1.114	0.005	0.000	0.000	2.861	76.76
05-Sep	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
06-Sep	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
07-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
08-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
09-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
10-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
11-Sep	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
12-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
13-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
14-Sep	20	8.941	21.298	9.521	0.190	0.571	0.857	0.030	0.000	0.000	0.000	0.00
15-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
16-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
17-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
18-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
19-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
20-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
21-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
22-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
23-Sep	20	8.941	21.298	9.521	0.190	0.571	0.857	0.180	0.000	0.000	0.000	0.00
24-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	1.000	0.000	0.000	0.000	0.00
25-Sep	23	10.282	24.492	10.949	0.219	0.657	0.985	0.280	0.000	0.000	0.000	0.00
26-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	1.080	0.000	0.000	0.000	0.00
27-Sep	7	3.129	7.454	3.332	0.067	0.200	0.300	2.250	0.000	0.000	0.000	0.00
28-Sep	15	6.706	15.973	7.141	0.143	0.428	0.643	0.010	0.000	0.000	0.000	0.00
29-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
30-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
01-Oct	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
02-Oct	23	10.282	24.492	10.949	0.219	0.657	0.985	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ch'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 4**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Petroleum Coke Storage Pile**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u_* = 0.1u^*$ (m/s)			Rain-Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_{*c}/u_*:0.2$	$u_{*c}/u_*:0.6$	$u_{*c}/u_*:0.9$		36% Pile $u_{*c}/u_*:0.2$	50% Pile $u_{*c}/u_*:0.6$	14% Pile $u_{*c}/u_*:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
03-Oct	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
04-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
05-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
06-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
07-Oct	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
09-Oct	23	10.282	24.492	10.949	0.219	0.657	0.985	0.170	0.000	0.000	0.000	0.00
10-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
11-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.090	0.000	0.000	0.000	0.00
12-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.050	0.000	0.000	0.000	0.00
13-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
14-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
15-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.240	0.000	0.000	0.000	0.00
16-Oct	16	7.153	17.038	7.617	0.152	0.457	0.686	0.050	0.000	0.000	0.000	0.00
17-Oct	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
18-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.050	0.000	0.000	0.000	0.00
19-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
20-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
21-Oct	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
22-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
23-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
24-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.290	0.000	0.000	0.000	0.00
25-Oct	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
26-Oct	22	9.835	23.428	10.473	0.209	0.628	0.943	0.580	0.000	0.000	0.000	0.00
27-Oct	22	9.835	23.428	10.473	0.209	0.628	0.943	2.640	0.000	0.000	0.000	0.00
28-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
29-Oct	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
30-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
31-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.680	0.000	0.000	0.000	0.00
01-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
02-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.180	0.000	0.000	0.000	0.00
03-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
04-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
05-Nov	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
06-Nov	11	4.917	11.714	5.237	0.105	0.314	0.471	0.005	0.000	0.000	0.000	0.00
07-Nov	17	7.600	18.103	8.093	0.162	0.486	0.728	0.150	0.000	0.000	0.000	0.00
08-Nov	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
09-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
10-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
12-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.280	0.000	0.000	0.000	0.00
13-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	0.650	0.000	0.000	0.000	0.00
14-Nov	28	12.517	29.817	13.329	0.267	0.800	1.200	0.000	0.000	0.000	6.363	170.72
15-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
16-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.000	0.00
17-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
18-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
19-Nov	8	3.576	8.519	3.808	0.076	0.229	0.343	0.005	0.000	0.000	0.000	0.00
20-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
21-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
22-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
23-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.005	0.000	0.000	0.000	0.00
24-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
25-Nov	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
26-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.:** 981023ED01  
**Rev. No.:** SJRPP 4  
**OFS:** 7830.0020.0054

**Project:** JEA St. Johns Power Park

**Subject:** Fugitive Emission Estimates - Wind Erosion Petroleum Coke Storage Pile

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^*=0.1u^*$ (m/s)			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s/u_t:0.2$	$u_s/u_t:0.6$	$u_s/u_t:0.9$		36% Pile $u_s/u_t:0.2$	50% Pile $u_s/u_t:0.6$	14% Pile $u_s/u_t:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
27-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
28-Nov	9	4.023	9.584	4.284	0.086	0.257	0.386	0.005	0.000	0.000	0.000	0.00
29-Nov	25	11.176	26.622	11.901	0.238	0.714	1.071	1.130	0.000	0.000	0.000	0.00
30-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.020	0.000	0.000	0.000	0.00
01-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
02-Dec	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
03-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.100	0.000	0.000	0.000	0.00
04-Dec	21	9.388	22.363	9.997	0.200	0.600	0.900	0.100	0.000	0.000	0.000	0.00
05-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
06-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
07-Dec	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
08-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.060	0.000	0.000	0.000	0.00
09-Dec	11	4.917	11.714	5.237	0.105	0.314	0.471	0.110	0.000	0.000	0.000	0.00
10-Dec	37	16.540	39.401	17.614	0.352	1.057	1.585	2.860	0.000	0.000	0.000	0.00
11-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
12-Dec	21	9.388	22.363	9.997	0.200	0.600	0.900	2.720	0.000	0.000	0.000	0.00
13-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.300	0.000	0.000	0.000	0.00
14-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	1.370	0.000	0.000	0.000	0.00
15-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	1.590	0.000	0.000	0.000	0.00
16-Dec	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
17-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
18-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
19-Dec	7	3.129	7.454	3.332	0.067	0.200	0.300	0.000	0.000	0.000	0.000	0.00
20-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
21-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
22-Dec	16	7.153	17.038	7.617	0.152	0.457	0.686	0.010	0.000	0.000	0.000	0.00
23-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.030	0.000	0.000	0.000	0.00
24-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.190	0.000	0.000	0.000	0.00
25-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.090	0.000	0.000	0.000	0.00
26-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.170	0.000	0.000	0.000	0.00
27-Dec	25	11.176	26.622	11.901	0.238	0.714	1.071	0.040	0.000	0.000	0.000	0.00
28-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
29-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	0.030	0.000	0.000	0.000	0.00
30-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	0.000	2.861	76.76
31-Dec	25	11.176	26.622	11.901	0.238	0.714	1.071	0.000	0.000	0.000	1.429	38.35
<b>Totals:</b>									0.00	0.00	30.94	830.10
<b>Worst Case Day</b>									0.000	0.000	6.363	

**Storage Pile Calculations**

Control Efficiency 90.00%  
 Rain Days (>0.01") 120 AP42, Section 13.2.2  
 Storage Pile Surface Area 87007.49  
 Uncontrolled (TPY) 0.42  
 Controlled (TPY) 0.04  
 Worst Case Day (lb/24-hr) 17 PM10 - AP42 Section 13.2.5  
 Worst Case Day (gps) 0.09 Per AP42, Section 13.2.5  
 #Days Winds>12 MPH 343  
 #Days Rain >0.01 " 130  
 Worst Case Day (gps) 0.107 Per EPA Background Document

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Cl'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 1**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Gypsum Storage Pile, Non-Commercial Materials**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m): **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain Fall (Inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s/u_t \cdot 0.2$	$u_s/u_t \cdot 0.6$	$u_s/u_t \cdot 0.9$		36% Pile $u_s/u_t \cdot 0.2$	50% Pile $u_s/u_t \cdot 0.6$	14% Pile $u_s/u_t \cdot 0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
01-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
02-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
03-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
04-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
05-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.120	0.000	0.000	0.00	
06-Jan	9	4.023	9.584	4.284	0.086	0.257	0.386	0.280	0.000	0.000	0.00	
07-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.030	0.000	0.000	0.00	
08-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.040	0.000	0.000	0.00	
09-Jan	20	8.941	21.298	9.521	0.190	0.571	0.857	0.600	0.000	0.000	0.00	
10-Jan	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	2.861	5.36	
11-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
12-Jan	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.00	
13-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
14-Jan	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
15-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.00	
16-Jan	23	10.282	24.492	10.949	0.219	0.657	0.985	0.330	0.000	0.000	0.00	
17-Jan	24	10.729	25.557	11.425	0.229	0.686	1.028	0.000	0.000	0.211	0.39	
18-Jan	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.00	
19-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
20-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
21-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
22-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.00	
23-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.00	
24-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.00	
25-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	1.200	0.000	0.000	0.00	
26-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
27-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.00	
28-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
29-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.00	
30-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.310	0.000	0.000	0.00	
31-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
01-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.00	
02-Feb	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.00	
03-Feb	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.00	
04-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
05-Feb	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
06-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
07-Feb	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.00	
08-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.030	0.000	0.000	0.00	
09-Feb	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.00	
10-Feb	11	4.917	11.714	5.237	0.105	0.314	0.471	0.005	0.000	0.000	0.00	
11-Feb	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.00	
12-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
13-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.130	0.000	0.000	0.00	
14-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.040	0.000	0.000	0.00	
15-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.400	0.000	0.000	0.00	
16-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
17-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
18-Feb	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
19-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.00	
20-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
21-Feb	24	10.729	25.557	11.425	0.229	0.686	1.028	0.000	0.000	0.211	0.39	
22-Feb	17	7.600	18.103	8.093	0.162	0.486	0.728	0.310	0.000	0.000	0.00	
23-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.005	0.000	0.000	0.00	
24-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.140	0.000	0.000	0.00	

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
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**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain-Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6:1		10:		$u_s/u_r \cdot 0.2$	$u_s/u_r \cdot 0.6$	$u_s/u_r \cdot 0.9$		36% Pile $u_s/u_r \cdot 0.2$	50% Pile $u_s/u_r \cdot 0.6$	14% Pile $u_s/u_r \cdot 0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
25-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.230	0.000	0.000	0.000	0.00
26-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
27-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
28-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
01-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
02-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
03-Mar	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.000	0.00
04-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
05-Mar	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
06-Mar	24	10.729	25.557	11.425	0.229	0.686	1.028	0.005	0.000	0.000	0.211	0.39
07-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-Mar	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
09-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
10-Mar	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
12-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
13-Mar	29	12.964	30.882	13.805	0.276	0.828	1.242	0.170	0.000	0.000	0.000	0.00
14-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.390	0.000	0.000	0.000	0.00
15-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
16-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
17-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
18-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
19-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
20-Mar	13	5.812	13.844	6.189	0.124	0.371	0.557	0.030	0.000	0.000	0.000	0.00
21-Mar	14	6.259	14.908	6.665	0.133	0.400	0.600	0.470	0.000	0.000	0.000	0.00
22-Mar	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
23-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
24-Mar	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	1.429	2.68
25-Mar	24	10.729	25.557	11.425	0.229	0.686	1.028	0.490	0.000	0.000	0.000	0.00
26-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.020	0.000	0.000	0.000	0.00
27-Mar	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
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29-Mar	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.000	0.00
30-Mar	30	13.411	31.947	14.281	0.286	0.857	1.285	0.270	0.000	0.000	0.000	0.00
31-Mar	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	1.429	2.68
01-Apr	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
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10-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
11-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
12-Apr	22	9.835	23.428	10.473	0.209	0.628	0.943	0.050	0.000	0.000	0.000	0.00
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16-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
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19-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
20-Apr	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00



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2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

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**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^*=0.1u^*$ (m/s)			Rain Fall (inches)	Erosion Potential ( $g/m^2$ )			Emissions (lb)
	6.1		10		$u_s/u_r:0.2$	$u_s/u_r:0.6$	$u_s/u_r:0.9$		36% Pile $u_s/u_r:0.2$	50% Pile $u_s/u_r:0.6$	14% Pile $u_s/u_r:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
21-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
22-Apr	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.00	
23-Apr	43	19.223	45.790	20.470	0.409	1.228	1.842	1.150	0.000	0.000	0.00	
24-Apr	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
25-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
26-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.049	0.000	0.000	0.00	
27-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	1.810	0.000	0.000	0.00	
28-Apr	32	14.305	34.076	15.234	0.305	0.914	1.371	0.340	0.000	0.000	0.00	
29-Apr	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.00	
30-Apr	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
01-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.00	
02-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
03-May	31	13.858	33.012	14.758	0.295	0.885	1.328	0.020	0.000	0.000	0.00	
04-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
05-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
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09-May	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	2.861	5.36	
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11-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
12-May	14	6.259	14.908	6.665	0.133	0.400	0.600	0.780	0.000	0.000	0.00	
13-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
14-May	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
15-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.005	0.000	0.000	0.00	
16-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
17-May	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.00	
18-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
19-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.00	
20-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.00	
21-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
22-May	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
23-May	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
24-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.300	0.000	0.000	0.00	
25-May	22	9.835	23.428	10.473	0.209	0.628	0.943	0.550	0.000	0.000	0.00	
26-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.00	
27-May	26	11.623	27.687	12.377	0.248	0.743	1.114	1.270	0.000	0.000	0.00	
28-May	22	9.835	23.428	10.473	0.209	0.628	0.943	0.050	0.000	0.000	0.00	
29-May	21	9.388	22.363	9.997	0.200	0.600	0.900	0.010	0.000	0.000	0.00	
30-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
31-May	21	9.388	22.363	9.997	0.200	0.600	0.900	0.450	0.000	0.000	0.00	
01-Jun	18	8.047	19.168	8.569	0.171	0.514	0.771	0.830	0.000	0.000	0.00	
02-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.030	0.000	0.000	0.00	
03-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
04-Jun	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.00	
05-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.850	0.000	0.000	0.00	
06-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.060	0.000	0.000	0.00	
07-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.00	
08-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
09-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.010	0.000	0.000	0.00	
10-Jun	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
11-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.00	
12-Jun	16	7.153	17.038	7.617	0.152	0.457	0.686	0.320	0.000	0.000	0.00	
13-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.00	
14-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.230	0.000	0.000	0.00	

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By:** E. Deken, PE  
**Date:** 10/23/98  
**Ck'd By:** Darrel J. Graziani, P.E.  
**Date:** 11/07/98

**Cal. No.:** 981023ED01  
**Rev. No.:** SJRPP 1  
**OFS:** 7830.0020.0054

**Project:** JEA St. Johns Power Park  
**Subject:** Fugitive Emission Estimates - Wind Erosion Gypsum Storage Pile, Non-Commercial Materials

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
Roughness Height (m): **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u$			Rain Fall (Inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_w/u_c:0.2$	$u_w/u_c:0.6$	$u_w/u_c:0.9$		36% Pile $u_w/u_c:0.2$	50% Pile $u_w/u_c:0.6$	14% Pile $u_w/u_c:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
15-Jun	23	10.282	24.492	10.949	0.219	0.657	0.985	0.080	0.000	0.000	0.000	0.00
16-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
17-Jun	29	12.964	30.882	13.805	0.276	0.828	1.242	0.520	0.000	0.000	0.000	0.00
18-Jun	26	11.623	27.687	12.377	0.248	0.743	1.114	0.080	0.000	0.000	0.000	0.00
19-Jun	31	13.858	33.012	14.758	0.295	0.885	1.328	0.520	0.000	0.000	0.000	0.00
20-Jun	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	1.429	2.68
21-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
22-Jun	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
23-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
24-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
25-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.030	0.000	0.000	0.000	0.00
26-Jun	24	10.729	25.557	11.425	0.229	0.686	1.028	0.780	0.000	0.000	0.000	0.00
27-Jun	33	14.752	35.141	15.710	0.314	0.943	1.414	1.270	0.000	0.000	0.000	0.00
28-Jun	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
29-Jun	15	6.706	15.973	7.141	0.143	0.428	0.643	0.020	0.000	0.000	0.000	0.00
30-Jun	20	8.941	21.298	9.521	0.190	0.571	0.857	3.690	0.000	0.000	0.000	0.00
01-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.040	0.000	0.000	0.000	0.00
02-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
03-Jul	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
04-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.150	0.000	0.000	0.000	0.00
05-Jul	38	16.988	40.466	18.090	0.362	1.085	1.628	0.610	0.000	0.000	0.000	0.00
06-Jul	29	12.964	30.882	13.805	0.276	0.828	1.242	1.970	0.000	0.000	0.000	0.00
07-Jul	21	9.388	22.363	9.997	0.200	0.600	0.900	0.700	0.000	0.000	0.000	0.00
08-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
09-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.040	0.000	0.000	0.000	0.00
10-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-Jul	20	8.941	21.298	9.521	0.190	0.571	0.857	0.900	0.000	0.000	0.000	0.00
12-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.450	0.000	0.000	0.000	0.00
13-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
14-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
15-Jul	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
16-Jul	24	10.729	25.557	11.425	0.229	0.686	1.028	0.005	0.000	0.000	0.211	0.39
17-Jul	20	8.941	21.298	9.521	0.190	0.571	0.857	0.020	0.000	0.000	0.000	0.00
18-Jul	28	12.517	29.817	13.329	0.267	0.800	1.200	0.005	0.000	0.000	6.363	11.91
19-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.000	0.00
20-Jul	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
21-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.260	0.000	0.000	0.000	0.00
22-Jul	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
23-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.010	0.000	0.000	0.000	0.00
24-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.140	0.000	0.000	0.000	0.00
25-Jul	24	10.729	25.557	11.425	0.229	0.686	1.028	1.060	0.000	0.000	0.000	0.00
26-Jul	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
27-Jul	18	8.047	19.168	8.569	0.171	0.514	0.771	0.160	0.000	0.000	0.000	0.00
28-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
29-Jul	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
30-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.160	0.000	0.000	0.000	0.00
31-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	1.000	0.000	0.000	0.000	0.00
01-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	3.730	0.000	0.000	0.000	0.00
02-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.500	0.000	0.000	0.000	0.00
03-Aug	24	10.729	25.557	11.425	0.229	0.686	1.028	0.160	0.000	0.000	0.000	0.00
04-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
05-Aug	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
06-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.010	0.000	0.000	0.000	0.00
07-Aug	18	8.047	19.168	8.569	0.171	0.514	0.771	0.010	0.000	0.000	0.000	0.00
08-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.060	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 1**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Gypsum Storage Pile, Non-Commercial Materials**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_c/u_*0.2$	$u_c/u_*0.6$	$u_c/u_*0.9$		36% Pile $u_c/u_*0.2$	50% Pile $u_c/u_*0.6$	14% Pile $u_c/u_*0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
09-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.020	0.000	0.000	0.000	0.00
10-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.220	0.000	0.000	0.000	0.00
11-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
12-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
13-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.450	0.000	0.000	0.000	0.00
14-Aug	13	5.812	13.844	6.189	0.124	0.371	0.557	0.010	0.000	0.000	0.000	0.00
15-Aug	23	10.282	24.492	10.949	0.219	0.657	0.985	0.005	0.000	0.000	0.000	0.00
16-Aug	30	13.411	31.947	14.281	0.286	0.857	1.285	0.710	0.000	0.000	0.000	0.00
17-Aug	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
18-Aug	26	11.623	27.687	12.377	0.248	0.743	1.114	0.270	0.000	0.000	0.000	0.00
19-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.240	0.000	0.000	0.000	0.00
20-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
21-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.160	0.000	0.000	0.000	0.00
22-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
23-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.020	0.000	0.000	0.000	0.00
24-Aug	29	12.964	30.882	13.805	0.276	0.828	1.242	1.590	0.000	0.000	0.000	0.00
25-Aug	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
26-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
27-Aug	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
28-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
29-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
30-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.080	0.000	0.000	0.000	0.00
31-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
01-Sep	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
02-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.130	0.000	0.000	0.000	0.00
03-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
04-Sep	26	11.623	27.687	12.377	0.248	0.743	1.114	0.005	0.000	0.000	2.861	5.36
05-Sep	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
06-Sep	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
07-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
08-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
09-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
10-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
11-Sep	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
12-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
13-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
14-Sep	20	8.941	21.298	9.521	0.190	0.571	0.857	0.030	0.000	0.000	0.000	0.00
15-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
16-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
17-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
18-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
19-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
20-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
21-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
22-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
23-Sep	20	8.941	21.298	9.521	0.190	0.571	0.857	0.180	0.000	0.000	0.000	0.00
24-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	1.000	0.000	0.000	0.000	0.00
25-Sep	23	10.282	24.492	10.949	0.219	0.657	0.985	0.280	0.000	0.000	0.000	0.00
26-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	1.080	0.000	0.000	0.000	0.00
27-Sep	7	3.129	7.454	3.332	0.067	0.200	0.300	2.250	0.000	0.000	0.000	0.00
28-Sep	15	6.706	15.973	7.141	0.143	0.428	0.643	0.010	0.000	0.000	0.000	0.00
29-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
30-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
01-Oct	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
02-Oct	23	10.282	24.492	10.949	0.219	0.657	0.985	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By:** E. Deken, PE  
**Date:** 10/23/98  
**Cl'd By:** Darrel J. Graziani, P.E.  
**Date:** 11/07/98

**Cal. No.:** 981023ED01  
**Rev. No.:** SJRPP 1  
**OFS:** 7830.0020.0054

**Project:** JEA St. Johns Power Park

**Subject:** Fugitive Emission Estimates - Wind Erosion Gypsum Storage Pile, Non-Commercial Materials

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
Roughness Height (m): **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1 u$ (m/s)			Rain-Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s/u_r: 0.2$	$u_s/u_r: 0.6$	$u_s/u_r: 0.9$		36% Pile $u_s/u_r: 0.2$	50% Pile $u_s/u_r: 0.6$	14% Pile $u_s/u_r: 0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
03-Oct	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
04-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
05-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
06-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
07-Oct	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
09-Oct	23	10.282	24.492	10.949	0.219	0.657	0.985	0.170	0.000	0.000	0.000	0.00
10-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
11-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.090	0.000	0.000	0.000	0.00
12-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.050	0.000	0.000	0.000	0.00
13-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
14-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
15-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.240	0.000	0.000	0.000	0.00
16-Oct	16	7.153	17.038	7.617	0.152	0.457	0.686	0.050	0.000	0.000	0.000	0.00
17-Oct	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
18-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.050	0.000	0.000	0.000	0.00
19-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
20-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
21-Oct	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
22-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
23-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
24-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.290	0.000	0.000	0.000	0.00
25-Oct	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
26-Oct	22	9.835	23.428	10.473	0.209	0.628	0.943	0.580	0.000	0.000	0.000	0.00
27-Oct	22	9.835	23.428	10.473	0.209	0.628	0.943	2.640	0.000	0.000	0.000	0.00
28-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
29-Oct	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
30-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
31-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.680	0.000	0.000	0.000	0.00
01-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
02-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.180	0.000	0.000	0.000	0.00
03-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
04-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
05-Nov	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
06-Nov	11	4.917	11.714	5.237	0.105	0.314	0.471	0.005	0.000	0.000	0.000	0.00
07-Nov	17	7.600	18.103	8.093	0.162	0.486	0.728	0.150	0.000	0.000	0.000	0.00
08-Nov	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
09-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
10-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
12-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.280	0.000	0.000	0.000	0.00
13-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	0.650	0.000	0.000	0.000	0.00
14-Nov	28	12.517	29.817	13.329	0.267	0.800	1.200	0.000	0.000	0.000	6.363	11.91
15-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
16-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.000	0.00
17-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
18-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
19-Nov	8	3.576	8.519	3.808	0.076	0.229	0.343	0.005	0.000	0.000	0.000	0.00
20-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
21-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
22-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
23-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.005	0.000	0.000	0.000	0.00
24-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
25-Nov	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
26-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Graziani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 1**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Gypsum Storage Pile, Non-Commercial Materials**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.02**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb.)
	6.1		10		$u_s/u_{*0.2}$	$u_s/u_{*0.6}$	$u_s/u_{*0.9}$		36% Pile $u_s/u_{*0.2}$	50% Pile $u_s/u_{*0.6}$	14% Pile $u_s/u_{*0.9}$	
	(mph)	(m/s)	(mph)	(m/s)								
27-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
28-Nov	9	4.023	9.584	4.284	0.086	0.257	0.386	0.005	0.000	0.000	0.000	0.00
29-Nov	25	11.176	26.622	11.901	0.238	0.714	1.071	1.130	0.000	0.000	0.000	0.00
30-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.020	0.000	0.000	0.000	0.00
01-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
02-Dec	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
03-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.100	0.000	0.000	0.000	0.00
04-Dec	21	9.388	22.363	9.997	0.200	0.600	0.900	0.100	0.000	0.000	0.000	0.00
05-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
06-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
07-Dec	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
08-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.060	0.000	0.000	0.000	0.00
09-Dec	11	4.917	11.714	5.237	0.105	0.314	0.471	0.110	0.000	0.000	0.000	0.00
10-Dec	37	16.540	39.401	17.614	0.352	1.057	1.585	2.860	0.000	0.000	0.000	0.00
11-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
12-Dec	21	9.388	22.363	9.997	0.200	0.600	0.900	2.720	0.000	0.000	0.000	0.00
13-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.300	0.000	0.000	0.000	0.00
14-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	1.370	0.000	0.000	0.000	0.00
15-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	1.590	0.000	0.000	0.000	0.00
16-Dec	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
17-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
18-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
19-Dec	7	3.129	7.454	3.332	0.067	0.200	0.300	0.000	0.000	0.000	0.000	0.00
20-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
21-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
22-Dec	16	7.153	17.038	7.617	0.152	0.457	0.686	0.010	0.000	0.000	0.000	0.00
23-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.030	0.000	0.000	0.000	0.00
24-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.190	0.000	0.000	0.000	0.00
25-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.090	0.000	0.000	0.000	0.00
26-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.170	0.000	0.000	0.000	0.00
27-Dec	25	11.176	26.622	11.901	0.238	0.714	1.071	0.040	0.000	0.000	0.000	0.00
28-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
29-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	0.030	0.000	0.000	0.000	0.00
30-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	0.000	2.861	5.36
31-Dec	25	11.176	26.622	11.901	0.238	0.714	1.071	0.000	0.000	0.000	1.429	2.68
<b>Totals:</b>									0.00	0.00	30.94	57.91
<b>Worst Case Day</b>									0.000	0.000	6.363	

**Storage Pile Calculations**

Control Efficiency 85.00%  
 Rain Days (>0.01") 120 AP42, Section 13.2.2  
 Storage Pile Surface Area 6070.29  
 Uncontrolled (TPY) 0.029  
 Controlled (TPY) 0.004  
 Worst Case Day (lb/24") 2 PM10 - AP42 Section 13.2.5  
 Worst Case Day (gps) 0.01 Per AP42, Section 13.2.5  
 #Days Winds>12 MPH 343  
 #Days Rain >0.01 " 130  
 Worst Case Day (gps) 0.036 Per EPA Background Document

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Grazlani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 1**  
**OFS: 7830.0020.0054**

**Project: JEA St. Johns Power Park**

**Subject: Fugitive Emission Estimates - Wind Erosion Ash Disposal Area**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.03**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$			Rain-Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6:1		10:1		$u_r/u_r:0.2$	$u_r/u_r:0.6$	$u_r/u_r:0.9$		36% Pile $u_r/u_r:0.2$	50% Pile $u_r/u_r:0.6$	14% Pile $u_r/u_r:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
01-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
02-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
03-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
04-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
05-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.120	0.000	0.000	0.00	
06-Jan	9	4.023	9.584	4.284	0.086	0.257	0.386	0.280	0.000	0.000	0.00	
07-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.030	0.000	0.000	0.00	
08-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.040	0.000	0.000	0.00	
09-Jan	20	8.941	21.298	9.521	0.190	0.571	0.857	0.600	0.000	0.000	0.00	
10-Jan	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	0.000	2.508	31.29
11-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
12-Jan	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.00	
13-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
14-Jan	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
15-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.00	
16-Jan	23	10.282	24.492	10.949	0.219	0.657	0.985	0.330	0.000	0.000	0.00	
17-Jan	24	10.729	25.557	11.425	0.229	0.686	1.028	0.000	0.000	0.000	0.00	
18-Jan	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.00	
19-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
20-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
21-Jan	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
22-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.00	
23-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.00	
24-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.00	
25-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	1.200	0.000	0.000	0.00	
26-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
27-Jan	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.00	
28-Jan	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
29-Jan	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.00	
30-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.310	0.000	0.000	0.00	
31-Jan	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
01-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.00	
02-Feb	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.00	
03-Feb	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.00	
04-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
05-Feb	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
06-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
07-Feb	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.00	
08-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.030	0.000	0.000	0.00	
09-Feb	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.00	
10-Feb	11	4.917	11.714	5.237	0.105	0.314	0.471	0.005	0.000	0.000	0.00	
11-Feb	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.00	
12-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
13-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.130	0.000	0.000	0.00	
14-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.040	0.000	0.000	0.00	
15-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.400	0.000	0.000	0.00	
16-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
17-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
18-Feb	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
19-Feb	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.00	
20-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
21-Feb	24	10.729	25.557	11.425	0.229	0.686	1.028	0.000	0.000	0.000	0.00	
22-Feb	17	7.600	18.103	8.093	0.162	0.486	0.728	0.310	0.000	0.000	0.00	
23-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.005	0.000	0.000	0.00	
24-Feb	18	8.047	19.168	8.569	0.171	0.514	0.771	0.140	0.000	0.000	0.00	

**FOSTER WHEELER ENVIRONMENTAL CORPORATION**  
**CALCULATION SHEET - EXCEL 5.0**

**By: E. Deken, PE**  
**Date: 10/23/98**  
**Ck'd By: Darrel J. Grazlani, P.E.**  
**Date: 11/07/98**

**Cal. No.: 981023ED01**  
**Rev. No.: SJRPP 1**  
**OFF: 7830.0020.0054**

**Project: JEA St. Johns Power Park**  
**Subject: Fugitive Emission Estimates - Wind Erosion Ash Disposal Area**

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.03**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain Fall (Inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_a/u_t:0.2$	$u_a/u_t:0.6$	$u_a/u_t:0.9$		36% Pile $u_a/u_t:0.2$	50% Pile $u_a/u_t:0.6$	14% Pile $u_a/u_t:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
25-Feb	21	9.388	22.363	9.997	0.200	0.600	0.900	0.230	0.000	0.000	0.000	0.00
26-Feb	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
27-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
28-Feb	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
01-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
02-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
03-Mar	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.000	0.00
04-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
05-Mar	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
06-Mar	24	10.729	25.557	11.425	0.229	0.686	1.028	0.005	0.000	0.000	0.000	0.00
07-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-Mar	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
09-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
10-Mar	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
12-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
13-Mar	29	12.964	30.882	13.805	0.276	0.828	1.242	0.170	0.000	0.000	0.000	0.00
14-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.390	0.000	0.000	0.000	0.00
15-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
16-Mar	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
17-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
18-Mar	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
19-Mar	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
20-Mar	13	5.812	13.844	6.189	0.124	0.371	0.557	0.030	0.000	0.000	0.000	0.00
21-Mar	14	6.259	14.908	6.665	0.133	0.400	0.600	0.470	0.000	0.000	0.000	0.00
22-Mar	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
23-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
24-Mar	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	1.126	14.05
25-Mar	24	10.729	25.557	11.425	0.229	0.686	1.028	0.490	0.000	0.000	0.000	0.00
26-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.020	0.000	0.000	0.000	0.00
27-Mar	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
28-Mar	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
29-Mar	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.000	0.00
30-Mar	30	13.411	31.947	14.281	0.286	0.857	1.285	0.270	0.000	0.000	0.000	0.00
31-Mar	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	1.126	14.05
01-Apr	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
02-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
03-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
04-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
05-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
06-Apr	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
07-Apr	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
09-Apr	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
10-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
11-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
12-Apr	22	9.835	23.428	10.473	0.209	0.628	0.943	0.050	0.000	0.000	0.000	0.00
13-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
14-Apr	14	6.259	14.908	6.665	0.133	0.400	0.600	0.550	0.000	0.000	0.000	0.00
15-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.160	0.000	0.000	0.000	0.00
16-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
17-Apr	24	10.729	25.557	11.425	0.229	0.686	1.028	0.000	0.000	0.000	0.000	0.00
18-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
19-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
20-Apr	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

By: E. Deken, PE  
Date: 10/23/98  
Ck'd By: Darrel J. Graziani, P.E.  
Date: 11/07/98

Cal. No.: 981023ED01  
Rev. No.: SJRPP 1  
OFS: 7830.0020.0054

Project: JEA St. Johns Power Park  
Subject: Fugitive Emission Estimates - Wind Erosion Ash Disposal Area

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.03**  
Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain-Fall (inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u <sup>2</sup>				(g/m <sup>2</sup> )			
	6:1 (mph)	(m/s)	10 (mph)	(m/s)	u <sub>1</sub> <sup>2</sup> /u <sub>t</sub> <sup>2</sup> :0.2	u <sub>2</sub> <sup>2</sup> /u <sub>t</sub> <sup>2</sup> :0.6	u <sub>3</sub> <sup>2</sup> /u <sub>t</sub> <sup>2</sup> :0.9		36% Pile u <sub>1</sub> <sup>2</sup> /u <sub>t</sub> <sup>2</sup> :0.2	50% Pile u <sub>2</sub> <sup>2</sup> /u <sub>t</sub> <sup>2</sup> :0.6	14% Pile u <sub>3</sub> <sup>2</sup> /u <sub>t</sub> <sup>2</sup> :0.9	
21-Apr	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
22-Apr	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.00	
23-Apr	43	19.223	45.790	20.470	0.409	1.228	1.842	1.150	0.000	0.000	0.00	
24-Apr	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
25-Apr	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
26-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	0.049	0.000	0.000	0.00	
27-Apr	21	9.388	22.363	9.997	0.200	0.600	0.900	1.810	0.000	0.000	0.00	
28-Apr	32	14.305	34.076	15.234	0.305	0.914	1.371	0.340	0.000	0.000	0.00	
29-Apr	22	9.835	23.428	10.473	0.209	0.628	0.943	0.000	0.000	0.000	0.00	
30-Apr	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
01-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.00	
02-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
03-May	31	13.858	33.012	14.758	0.295	0.885	1.328	0.020	0.000	0.000	0.00	
04-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
05-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
06-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
07-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.00	
08-May	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
09-May	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	0.000	2.508	
10-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
11-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
12-May	14	6.259	14.908	6.665	0.133	0.400	0.600	0.780	0.000	0.000	0.00	
13-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
14-May	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
15-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.005	0.000	0.000	0.00	
16-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
17-May	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.00	
18-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
19-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.00	
20-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.00	
21-May	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
22-May	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
23-May	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
24-May	18	8.047	19.168	8.569	0.171	0.514	0.771	0.300	0.000	0.000	0.00	
25-May	22	9.835	23.428	10.473	0.209	0.628	0.943	0.550	0.000	0.000	0.00	
26-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.00	
27-May	26	11.623	27.687	12.377	0.248	0.743	1.114	1.270	0.000	0.000	0.00	
28-May	22	9.835	23.428	10.473	0.209	0.628	0.943	0.050	0.000	0.000	0.00	
29-May	21	9.388	22.363	9.997	0.200	0.600	0.900	0.010	0.000	0.000	0.00	
30-May	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
31-May	21	9.388	22.363	9.997	0.200	0.600	0.900	0.450	0.000	0.000	0.00	
01-Jun	18	8.047	19.168	8.569	0.171	0.514	0.771	0.830	0.000	0.000	0.00	
02-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.030	0.000	0.000	0.00	
03-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
04-Jun	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.00	
05-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.850	0.000	0.000	0.00	
06-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.060	0.000	0.000	0.00	
07-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.00	
08-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
09-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.010	0.000	0.000	0.00	
10-Jun	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
11-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.00	
12-Jun	16	7.153	17.038	7.617	0.152	0.457	0.686	0.320	0.000	0.000	0.00	
13-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.00	
14-Jun	22	9.835	23.428	10.473	0.209	0.628	0.943	0.230	0.000	0.000	0.00	



**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By:** E. Deken, PE  
**Date:** 10/23/98  
**Ch'd By:** Darrel J. Graziani, P.E.  
**Date:** 11/07/98

**Cal. No.:** 981023ED01  
**Rev. No.:** SJRPP 1  
**OFF:** 7830.0020.0054

**Project:** JEA St. Johns Power Park  
**Subject:** Fugitive Emission Estimates - Wind Erosion Ash Disposal Area

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.03**  
Roughness Height (m): **0.003**

Number of Disturbances	Fastest Mile Values				Equivalent Friction Velocities			Rain-Fall (Inches)	Erosion Potential (g/m^2)			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u* (m/s)				36% Pile (u <sub>p</sub> /u <sub>*</sub> :0.2)	50% Pile (u <sub>p</sub> /u <sub>*</sub> :0.6)	14% Pile (u <sub>p</sub> /u <sub>*</sub> :0.9)	
	6:1 (mph)	(m/s)	10 (mph)	(m/s)	u <sub>p</sub> /u <sub>*</sub> :0.2	u <sub>p</sub> /u <sub>*</sub> :0.6	u <sub>p</sub> /u <sub>*</sub> :0.9					
15-Jun	23	10.282	24.492	10.949	0.219	0.657	0.985	0.080	0.000	0.000	0.000	0.00
16-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
17-Jun	29	12.964	30.882	13.805	0.276	0.828	1.242	0.520	0.000	0.000	0.000	0.00
18-Jun	26	11.623	27.687	12.377	0.248	0.743	1.114	0.080	0.000	0.000	0.000	0.00
19-Jun	31	13.858	33.012	14.758	0.295	0.885	1.328	0.520	0.000	0.000	0.000	0.00
20-Jun	25	11.176	26.622	11.901	0.238	0.714	1.071	0.005	0.000	0.000	1.126	14.05
21-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
22-Jun	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
23-Jun	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
24-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
25-Jun	17	7.600	18.103	8.093	0.162	0.486	0.728	0.030	0.000	0.000	0.000	0.00
26-Jun	24	10.729	25.557	11.425	0.229	0.686	1.028	0.780	0.000	0.000	0.000	0.00
27-Jun	33	14.752	35.141	15.710	0.314	0.943	1.414	1.270	0.000	0.000	0.000	0.00
28-Jun	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
29-Jun	15	6.706	15.973	7.141	0.143	0.428	0.643	0.020	0.000	0.000	0.000	0.00
30-Jun	20	8.941	21.298	9.521	0.190	0.571	0.857	3.690	0.000	0.000	0.000	0.00
01-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.040	0.000	0.000	0.000	0.00
02-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
03-Jul	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
04-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.150	0.000	0.000	0.000	0.00
05-Jul	38	16.988	40.466	18.090	0.362	1.085	1.628	0.610	0.000	0.000	0.000	0.00
06-Jul	29	12.964	30.882	13.805	0.276	0.828	1.242	1.970	0.000	0.000	0.000	0.00
07-Jul	21	9.388	22.363	9.997	0.200	0.600	0.900	0.700	0.000	0.000	0.000	0.00
08-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.005	0.000	0.000	0.000	0.00
09-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.040	0.000	0.000	0.000	0.00
10-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-Jul	20	8.941	21.298	9.521	0.190	0.571	0.857	0.900	0.000	0.000	0.000	0.00
12-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.450	0.000	0.000	0.000	0.00
13-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
14-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
15-Jul	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
16-Jul	24	10.729	25.557	11.425	0.229	0.686	1.028	0.005	0.000	0.000	0.000	0.00
17-Jul	20	8.941	21.298	9.521	0.190	0.571	0.857	0.020	0.000	0.000	0.000	0.00
18-Jul	28	12.517	29.817	13.329	0.267	0.800	1.200	0.005	0.000	0.000	5.910	73.76
19-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.005	0.000	0.000	0.000	0.00
20-Jul	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
21-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.260	0.000	0.000	0.000	0.00
22-Jul	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
23-Jul	22	9.835	23.428	10.473	0.209	0.628	0.943	0.010	0.000	0.000	0.000	0.00
24-Jul	14	6.259	14.908	6.665	0.133	0.400	0.600	0.140	0.000	0.000	0.000	0.00
25-Jul	24	10.729	25.557	11.425	0.229	0.686	1.028	1.060	0.000	0.000	0.000	0.00
26-Jul	23	10.282	24.492	10.949	0.219	0.657	0.985	0.010	0.000	0.000	0.000	0.00
27-Jul	18	8.047	19.168	8.569	0.171	0.514	0.771	0.160	0.000	0.000	0.000	0.00
28-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
29-Jul	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
30-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	0.160	0.000	0.000	0.000	0.00
31-Jul	16	7.153	17.038	7.617	0.152	0.457	0.686	1.000	0.000	0.000	0.000	0.00
01-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	3.730	0.000	0.000	0.000	0.00
02-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.500	0.000	0.000	0.000	0.00
03-Aug	24	10.729	25.557	11.425	0.229	0.686	1.028	0.160	0.000	0.000	0.000	0.00
04-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
05-Aug	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
06-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.010	0.000	0.000	0.000	0.00
07-Aug	18	8.047	19.168	8.569	0.171	0.514	0.771	0.010	0.000	0.000	0.000	0.00
08-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.060	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By:** E. DeKen, PE  
**Date:** 10/23/98  
**Ch'd By:** Darrel J. Graziani, P.E.  
**Date:** 11/07/98

**Cal. No.:** 981023ED01  
**Rev. No.:** SJRPP 1  
**OFS:** 7830.0020.0054

**Project:** JEA St. Johns Power Park

**Subject:** Fugitive Emission Estimates - Wind Erosion Ash Disposal Area

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.03**  
Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain-Fall (Inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_s/u_t:0.2$	$u_s/u_t:0.6$	$u_s/u_t:0.9$		36% Pile $u_s/u_t:0.2$	50% Pile $u_s/u_t:0.6$	14% Pile $u_s/u_t:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
09-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.020	0.000	0.000	0.000	0.00
10-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.220	0.000	0.000	0.000	0.00
11-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
12-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
13-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.450	0.000	0.000	0.000	0.00
14-Aug	13	5.812	13.844	6.189	0.124	0.371	0.557	0.010	0.000	0.000	0.000	0.00
15-Aug	23	10.282	24.492	10.949	0.219	0.657	0.985	0.005	0.000	0.000	0.000	0.00
16-Aug	30	13.411	31.947	14.281	0.286	0.857	1.285	0.710	0.000	0.000	0.000	0.00
17-Aug	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
18-Aug	26	11.623	27.687	12.377	0.248	0.743	1.114	0.270	0.000	0.000	0.000	0.00
19-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.240	0.000	0.000	0.000	0.00
20-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
21-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.160	0.000	0.000	0.000	0.00
22-Aug	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
23-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.020	0.000	0.000	0.000	0.00
24-Aug	29	12.964	30.882	13.805	0.276	0.828	1.242	1.590	0.000	0.000	0.000	0.00
25-Aug	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
26-Aug	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
27-Aug	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
28-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
29-Aug	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
30-Aug	21	9.388	22.363	9.997	0.200	0.600	0.900	0.080	0.000	0.000	0.000	0.00
31-Aug	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
01-Sep	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
02-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.130	0.000	0.000	0.000	0.00
03-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
04-Sep	26	11.623	27.687	12.377	0.248	0.743	1.114	0.005	0.000	0.000	2.508	31.29
05-Sep	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
06-Sep	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
07-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
08-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
09-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
10-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
11-Sep	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
12-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
13-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
14-Sep	20	8.941	21.298	9.521	0.190	0.571	0.857	0.030	0.000	0.000	0.000	0.00
15-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
16-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
17-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
18-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
19-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
20-Sep	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
21-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
22-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
23-Sep	20	8.941	21.298	9.521	0.190	0.571	0.857	0.180	0.000	0.000	0.000	0.00
24-Sep	14	6.259	14.908	6.665	0.133	0.400	0.600	1.000	0.000	0.000	0.000	0.00
25-Sep	23	10.282	24.492	10.949	0.219	0.657	0.985	0.280	0.000	0.000	0.000	0.00
26-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	1.080	0.000	0.000	0.000	0.00
27-Sep	7	3.129	7.454	3.332	0.067	0.200	0.300	2.250	0.000	0.000	0.000	0.00
28-Sep	15	6.706	15.973	7.141	0.143	0.428	0.643	0.010	0.000	0.000	0.000	0.00
29-Sep	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
30-Sep	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
01-Oct	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
02-Oct	23	10.282	24.492	10.949	0.219	0.657	0.985	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

By: E. Deken, PE  
Date: 10/23/98  
Ck'd By: Darrel J. Graziani, P.E.  
Date: 11/07/98

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1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.03**  
Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^* = 0.1u^*$ (m/s)			Rain-Fall (inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_a^*/u_{*c}^*:0.2$	$u_a^*/u_{*c}^*:0.6$	$u_a^*/u_{*c}^*:0.9$		36% Pile $u_a^*/u_{*c}^*:0.2$	50% Pile $u_a^*/u_{*c}^*:0.6$	14% Pile $u_a^*/u_{*c}^*:0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
03-Oct	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	0.000	0.000	0.000	0.00
04-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
05-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
06-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
07-Oct	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
08-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.005	0.000	0.000	0.000	0.00
09-Oct	23	10.282	24.492	10.949	0.219	0.657	0.985	0.170	0.000	0.000	0.000	0.00
10-Oct	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
11-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.090	0.000	0.000	0.000	0.00
12-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.050	0.000	0.000	0.000	0.00
13-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.000	0.00
14-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
15-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.240	0.000	0.000	0.000	0.00
16-Oct	16	7.153	17.038	7.617	0.152	0.457	0.686	0.050	0.000	0.000	0.000	0.00
17-Oct	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
18-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.050	0.000	0.000	0.000	0.00
19-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.000	0.00
20-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
21-Oct	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
22-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
23-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
24-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.290	0.000	0.000	0.000	0.00
25-Oct	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.000	0.00
26-Oct	22	9.835	23.428	10.473	0.209	0.628	0.943	0.580	0.000	0.000	0.000	0.00
27-Oct	22	9.835	23.428	10.473	0.209	0.628	0.943	2.640	0.000	0.000	0.000	0.00
28-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
29-Oct	10	4.470	10.649	4.760	0.095	0.286	0.428	0.000	0.000	0.000	0.000	0.00
30-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
31-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.680	0.000	0.000	0.000	0.00
01-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
02-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.180	0.000	0.000	0.000	0.00
03-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.000	0.00
04-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
05-Nov	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.000	0.00
06-Nov	11	4.917	11.714	5.237	0.105	0.314	0.471	0.005	0.000	0.000	0.000	0.00
07-Nov	17	7.600	18.103	8.093	0.162	0.486	0.728	0.150	0.000	0.000	0.000	0.00
08-Nov	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
09-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
10-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.000	0.00
11-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
12-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.280	0.000	0.000	0.000	0.00
13-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	0.650	0.000	0.000	0.000	0.00
14-Nov	28	12.517	29.817	13.329	0.267	0.800	1.200	0.000	0.000	0.000	5.910	73.76
15-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
16-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	0.000	0.000	0.000	0.00
17-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
18-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.000	0.00
19-Nov	8	3.576	8.519	3.808	0.076	0.229	0.343	0.005	0.000	0.000	0.000	0.00
20-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
21-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
22-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00
23-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	0.005	0.000	0.000	0.000	0.00
24-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.000	0.00
25-Nov	18	8.047	19.168	8.569	0.171	0.514	0.771	0.000	0.000	0.000	0.000	0.00
26-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	0.00

**FOSTER WHEELER ENVIRONMENTAL CORPORATION  
CALCULATION SHEET - EXCEL 5.0**

**By:** E. Deken, PE  
**Date:** 10/23/98  
**Ck'd By:** Darrel J. Graziani, P.E.  
**Date:** 11/07/98

**Cal. No.:** 981023ED01  
**Rev. No.:** SJRPP 1  
**OFS:** 7830.0020.0054

**Project:** JEA St. Johns Power Park  
**Subject:** Fugitive Emission Estimates - Wind Erosion Ash Disposal Area

**Assumptions:**

1. The threshold friction velocity was selected based on data available in AP-42, Section 13.2.5.
2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
3. Pile is always at maximum capacity which is maximizing emissions.

**References:**

1. AP-42, Section 13.2.5, Industrial Wind Erosion
2. 1997 Local Climatological Data, NOAA, National Climatic Data Center

**Erosion Potential Calculations**

Threshold Friction Velocity: **1.03**  
 Roughness Height (m) **0.003**

Number of Disturbances	Fastest Mile Values Anemometer Height (m)				Equivalent Friction Velocities $u^*=0.1u^*$ (m/s)			Rain Fall (Inches)	Erosion Potential (g/m <sup>2</sup> )			Emissions (lb)
	6.1		10		$u_a/u_r \cdot 0.2$	$u_a/u_r \cdot 0.6$	$u_a/u_r \cdot 0.9$		36% Pile $u_a/u_r \cdot 0.2$	50% Pile $u_a/u_r \cdot 0.6$	14% Pile $u_a/u_r \cdot 0.9$	
	(mph)	(m/s)	(mph)	(m/s)								
27-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.000	0.000	0.000	0.00	
28-Nov	9	4.023	9.584	4.284	0.086	0.257	0.386	0.005	0.000	0.000	0.00	
29-Nov	25	11.176	26.622	11.901	0.238	0.714	1.071	1.130	0.000	0.000	0.00	
30-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.020	0.000	0.000	0.00	
01-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
02-Dec	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
03-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.100	0.000	0.000	0.00	
04-Dec	21	9.388	22.363	9.997	0.200	0.600	0.900	0.100	0.000	0.000	0.00	
05-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
06-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	0.000	0.000	0.000	0.00	
07-Dec	11	4.917	11.714	5.237	0.105	0.314	0.471	0.000	0.000	0.000	0.00	
08-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.060	0.000	0.000	0.00	
09-Dec	11	4.917	11.714	5.237	0.105	0.314	0.471	0.110	0.000	0.000	0.00	
10-Dec	37	16.540	39.401	17.614	0.352	1.057	1.585	2.860	0.000	0.000	0.00	
11-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	0.000	0.000	0.00	
12-Dec	21	9.388	22.363	9.997	0.200	0.600	0.900	2.720	0.000	0.000	0.00	
13-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.300	0.000	0.000	0.00	
14-Dec	20	8.941	21.298	9.521	0.190	0.571	0.857	1.370	0.000	0.000	0.00	
15-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	1.590	0.000	0.000	0.00	
16-Dec	17	7.600	18.103	8.093	0.162	0.486	0.728	0.000	0.000	0.000	0.00	
17-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
18-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.00	
19-Dec	7	3.129	7.454	3.332	0.067	0.200	0.300	0.000	0.000	0.000	0.00	
20-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.00	
21-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
22-Dec	16	7.153	17.038	7.617	0.152	0.457	0.686	0.010	0.000	0.000	0.00	
23-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.030	0.000	0.000	0.00	
24-Dec	15	6.706	15.973	7.141	0.143	0.428	0.643	0.190	0.000	0.000	0.00	
25-Dec	14	6.259	14.908	6.665	0.133	0.400	0.600	0.090	0.000	0.000	0.00	
26-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.170	0.000	0.000	0.00	
27-Dec	25	11.176	26.622	11.901	0.238	0.714	1.071	0.040	0.000	0.000	0.00	
28-Dec	13	5.812	13.844	6.189	0.124	0.371	0.557	0.000	0.000	0.000	0.00	
29-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	0.030	0.000	0.000	0.00	
30-Dec	26	11.623	27.687	12.377	0.248	0.743	1.114	0.000	0.000	2.508	31.29	
31-Dec	25	11.176	26.622	11.901	0.238	0.714	1.071	0.000	0.000	1.126	14.05	
<b>Totals:</b>									0.00	0.00	26.35	328.88
<b>Worst Case Day</b>									0.000	0.000	5.910	

**Storage Pile Calculations**

Control Efficiency 90.00%  
 Rain Days (>0.01") 120 AP42, Section 13.2.2  
 Storage Pile Surface Area 40468.6  
 Uncontrolled (TPY) 0.16  
 Controlled (TPY) 0.02  
 Worst Case Day (lb/24) 7 PM10 - AP42 Section 13.2.5  
 Worst Case Day (gps) 0.039

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98  
  
**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056  
  
**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Unit 1 Flyash Loadouts

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Flyash	0.0032	8.00	0.25	0.74	0.35	0.11	0.080	0.038	0.012

**Operating Data**

Raw Materials	Operating Rates	
	(TPD)	(TPY)
Flyash	600	219000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Flyash	2.00	0.95	0.30	0.253	0.120	0.038

**Emission Rates - Controlled 97.00%**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Flyash	0.060	0.028	0.009	0.008	0.004	0.001

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Flyash	8.78	4.15	1.31	0.253	0.120	0.038

**Emission Rates - Controlled 97.00%**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Flyash	0.263	0.125	0.039	0.008	0.004	0.001

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.

**Date:** 11/3/98

**Ckd. By:** Kim Evans, P.E.

**Date:** 11/10/98

**Cal. No.:** 901103DJG01

**Project No.:** 7830.0020.0056

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update

**Subject:** Emissions Estimates for Unit 2 Flyash Loadouts

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Flyash	0.0032	8.00	0.25	0.74	0.35	0.11	0.080	0.038	0.012

**Operating Data**

Raw Materials	Operating Rates	
	(TPD)	(TPY)
Flyash	600	219000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Flyash	2.00	0.95	0.30	0.253	0.120	0.038

**Emission Rates - Controlled 97.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Flyash	0.060	0.028	0.009	0.008	0.004	0.001

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Flyash	8.78	4.15	1.31	0.253	0.120	0.038

**Emission Rates - Controlled 97.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Flyash	0.263	0.125	0.039	0.008	0.004	0.001

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Unit 1 Bottom Ash Loadouts

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Bottom Ash	0.0032	8.00	12	0.74	0.35	0.11	0.000355	0.000168	5.28E-05

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Bottom Ash	250	2190000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Bottom Ash	0.09	0.04	0.01	0.011	0.005	0.002

**Emission Rates - Controlled 0.00%**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Bottom Ash	0.089	0.042	0.013	0.011	0.005	0.002

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Bottom Ash	0.39	0.18	0.06	0.011	0.005	0.002

**Emission Rates - Controlled 0.00%**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Bottom Ash	0.389	0.184	0.058	0.011	0.005	0.002

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Unit 2 Bottom Ash Loadouts

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Bottom Ash	0.0032	8.00	12	0.74	0.35	0.11	0.000355	0.000168	5.28E-05

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Bottom Ash	250	2190000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Bottom Ash	0.09	0.04	0.01	0.011	0.005	0.002

**Emission Rates - Controlled 0.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Bottom Ash	0.089	0.042	0.013	0.011	0.005	0.002

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Bottom Ash	0.39	0.18	0.06	0.011	0.005	0.002

**Emission Rates - Controlled 0.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Bottom Ash	0.389	0.184	0.058	0.011	0.005	0.002

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data



**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for the Gypsum Dewatering Building (16 Transfer Points)

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Gypsum	0.0032	1.15	10	0.74	0.35	0.11	3.67E-05	1.74E-05	5.46E-06

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Gypsum	72	1261440

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.04	0.02	0.01	0.0053	0.0025	0.0008

**Emission Rates - Controlled 0.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.042	0.020	0.0063	0.0053	0.0025	0.0008

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.05	0.02	0.01	0.00133	0.00063	0.0002

**Emission Rates - Controlled 0.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.046	0.022	0.007	0.0013	0.0006	0.0002

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for the Gypsum Storage Building

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Gypsum	0.0032	1.51	10	0.74	0.35	0.11	5.25E-05	2.48E-05	7.81E-06

**Operating Data**

Transfer Point	Operating Rates	
	(TPH)	(TPY)
Gypsum	144	1261440

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.008	0.004	0.001	0.0010	0.0005	0.0001

**Emission Rates - Controlled 0.00%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.008	0.004	0.001	0.0010	0.0005	0.0001

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.033	0.016	0.005	0.0010	0.0005	0.0001

**Emission Rates - Controlled 0.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.033	0.016	0.005	0.0010	0.0005	0.0001

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for the Gypsum Storage Building Truck Loadout

**Emissions Data**

Raw Materials	Constant	Wind Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Gypsum	0.0032	8.00	10	0.74	0.35	0.11	0.00046	0.00022	0.00007

**Operating Data**

Transfer Point	Operating Rates	
	(TPH)	(TPY)
Gypsum	300	1261440

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term						2 - Transfer Points
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Gypsum	0.27	0.13	0.04	0.0347	0.0164	0.0052	

**Emission Rates - Controlled 0.00%**

Raw Materials	Short-Term						2 - Transfer Points
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Gypsum	0.275	0.130	0.041	0.035	0.016	0.005	

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.58	0.27	0.09	0.0166	0.0079	0.0025

**Emission Rates - Controlled 0.00%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Gypsum	0.578	0.273	0.086	0.017	0.008	0.002

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Wind Speed - Annual Average
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.

**Date:** 11/3/98

**Ckd. By:** Kim Evans, P.E.

**Date:** 11/13/98

**Cal. No.:** 901107DJG01

**Project No.:** 7830.0020.0056

**Revision No.:** 1

**Project:** Northside Repowering Project - Materials Handling & Storage Operations, Base Case

**Subject:** Emissions Estimates for Vehicle Activities - Unpaved Roads

**Vehicles**

Vehicle Type	Weight (Tons)	VMT - Miles			
		Coal	PC	LS	Roads
Tractor	30	0	0	0	0
Haul Trucks	35	0	0	0	0
Water Trucks	45	0	0	0	3920
Automoblies	1.5	0	0	0	456

VMT - Vehicle Miles Traveled

PC - Petroleum Coke

LS - Limestone

**Emission Constants - Table 13.2.2-2, AP-42**

	PM-2.5	PM-10	PM-30
<b>k</b>	0.38	2.6	10
<b>a</b>	0.8	0.8	0.8
<b>b</b>	0.4	0.4	0.5
<b>c</b>	0.3	0.3	0.4

**Uncontrolled Emissions (TPY)**

Area	Moisture (%)	Silt (%)	Uncontrolled Emissions (tpy)		
			PM-2.5	PM-10	PM-30
Unpaved Roads	3	6	0.58	3.95	15.07

**Controlled Emissions (TPY)**

Area	# of Rain Days	Control (%)	Controlled Emissions (tpy)		
			PM-2.5	PM-10	PM-30
Unpaved Roads	120	75.00%	0.10	0.66	2.53

### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section     2    

SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- [ X ] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- [ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- [ X ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

**B. GENERAL EMISSIONS UNIT INFORMATION  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section :  SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)		
2. Emissions Unit Identification Number : 043 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment :  Emissions Unit consists of the transfer points associated with the Railcar Unloading System. (See Attachment EU043-01)		

**Emissions Unit Information Section**      2

SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**Emissions Unit Control Equipment**      1

1. Description : Emissions are controlled by use of a single baghouse.
---

2. Control Device or Method Code :      18
--

**C. EMISSIONS UNIT DETAIL INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      2  
 SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**Emissions Unit Details**

1. Initial Startup Date :	06-Aug-1988
2. Long-term Reserve Shutdown Date :	
3. Package Unit :	
Manufacturer :	Model Number :
4. Generator Nameplate Rating :	MW
5. Incinerator Information :	
Dwell Temperature :	Degrees Fahrenheit
Dwell Time :	Seconds
Incinerator Afterburner Temperature :	Degrees Fahrenheit

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate :	mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr                      tons/day
3. Maximum Process or Throughput Rate :	4000                      tons per hour
4. Maximum Production Rate :	
5. Operating Capacity Comment :	

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year



**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      2    
SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**Rule Applicability Analysis**

Unit was subject to PSD Review including the application of BACT and also subject to 40 CFR Part 60, Subpart Y - Standards of Performance for Coal Preparation Plants while processing coal.

III. Part 6a - 1

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**Emissions Unit Information Section** 2  
SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**List of Applicable Regulations**

Rule 62-204.800(7)(b).31, F.A.C., Adoption of 40 CFR Part 60 Subpart Y

Rule 62-204.800(7)(c), F.A.C., NSPS Controlling Standards

Rule 62-204.800(7)(d), F.A.C., Adoption of the General Provisions (As Noted)

Rule 62-204.800(7)(e), F.A.C., Adoption of the NSPS Appendices (As Noted)

Rule 62-210.300(1), F.A.C., Air Construction Permit

Rule 62-210.550, F.A.C., Stack Height Policy

Rule 62-210.650, F.A.C., Circumvention

Rule 62-210.700(1), (4), & (6), F.A.C., Excess Emissions

Rule 62-297.310, F.A.C., General Test Requirements

Rule 62-212.300, F.A.C., General Preconstruction Review Requirements

Rule 62-297.401 (5) & (9), F.A.C., EPA Methods 5 and 9, 40 CFR Part 60, Appendix A

40 CFR Part 60.7, Notification and Recordkeeping

40 CFR Part 60.8, Performance Tests

III. Part 6b - 1

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**List of Applicable Regulations**

40 CFR Part 60.11, Compliance with Standards and Maintenance Requirements

40 CFR Part 60.12, Circumvention

40 CFR Part 60.13, Monitoring Requirements

40 CFR Part 60.19, General Notifications and Reporting Requirements

40 CFR Part 60 Subpart Y - Standards of Performance for Coal Preparation Plants

40 CFR Part 60.250(a), Applicability and Designation of Affected Facility

40 CFR Part 60.252(c), Standards for Particulate Matter

40 CFR Part 60.254(b)(2), Test Methods and Procedures

Rule 2.201, Adoption of Chapter 62-204, F.A.C. (as noted)

Rule 2.301, Adoption of Chapter 62-210, F.A.C. (as noted)

Rule 2.1101, Adoption of Chapter 62-297, F.A.C. (as noted)

Rule 2.1203, E., Air Pollution Nuisances Prohibited

Rule 2.1301, Adoption of Chapter 62-4, F.A.C. (as noted)

III. Part 6b - 2

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**Emissions Unit Information Section** 2  
SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**List of Applicable Regulations**

Rule 2.105, Maintenance of Air Pollution Control Devices

III. Part 6b - 3

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 2

SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	DC-1
2. Emission Point Type Code :	2
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking : (limit to 100 characters per point)	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :  SJRPP Rail Car Unloading System	
5. Discharge Type Code :	V
6. Stack Height :	38 feet
7. Exit Diameter :	2.5 feet
8. Exit Temperature :	68 °F
9. Actual Volumetric Flow Rate :	17000 acfm
10. Percent Water Vapor :	2.00 %
11. Maximum Dry Standard Flow Rate :	17000 dscfm
12. Nonstack Emission Point Height :	0 feet
13. Emission Point UTM Coordinates :	
Zone : 17	East (km) : 447.500
North (km) : 3366.500	
14. Emission Point Comment :	

III. Part 7a - 1

**F. SEGMENT (PROCESS/FUEL) INFORMATION**

**Emissions Unit Information Section**        2  

SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**Segment Description and Rate :**      Segment   1  

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Coal	
2. Source Classification Code (SCC) :      30501099	
3. SCC Units :      Tons Processed	
4. Maximum Hourly Rate :      4,000.00	5. Maximum Annual Rate :      5,126,000.00
6. Estimated Annual Activity Factor :      0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 1

## F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 2

SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**Segment Description and Rate :** Segment 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Petroleum Coke	
2. Source Classification Code (SCC) : 30501099	
3. SCC Units : Tons Processed	
4. Maximum Hourly Rate : 4,000.00	5. Maximum Annual Rate : 5,126,000.00
6. Estimated Annual Activity Factor : 0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 2

**G. EMISSIONS UNIT POLLUTANTS  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section**     2  
SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM	018		EL
2 - PM10	018		EL

III. Part 9a - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96



**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section** 2  
 SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**Pollutant Potential/Estimated Emissions :** Pollutant 1

1. Pollutant Emitted : <b>PM</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.1740000 lb/hour	0.1100000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <div style="text-align: right;">to                      tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference AP-42, (EF=0.0011)		
7. Emissions Method Code :    3		
8. Calculations of Emissions :  See Attachment EU043-05		
9. Pollutant Potential/Estimated Emissions Comment :		

III. Part 9b - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section** 2  
 SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**Pollutant Potential/Estimated Emissions :** Pollutant 2

1. Pollutant Emitted : <b>PM10</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0820000 lb/hour	0.0530000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <span style="float: right;">to                      tons/year</span>		
6. Emissions Factor	0	Units lb/ton
Reference AP-42, (EF=0.0005)		
7. Emissions Method Code :      3		
8. Calculations of Emissions :  See Attachment EU043-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**Emissions Unit Information Section** 2  
SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**Pollutant Information Section** 1

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	RULE
2. Future Effective Date of Allowable Emissions :	01-Aug-1999
3. Requested Allowable Emissions and Units :	5.00 percent opacity
4. Equivalent Allowable Emissions :	0.17 lb/hour 0.11 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT from 10% opacity to no visible emissions limitation (5% Opacity).

III. Part 9c - 1

**Emissions Unit Information Section** 2  
SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**Pollutant Information Section** 2

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	percent opacity	
4. Equivalent Allowable Emissions :	0.08	lb/hour	0.05 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

III. Part 9c - 2

**I. VISIBLE EMISSIONS INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      2    
SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**Visible Emissions Limitation :** Visible Emissions Limitation      1  

1. Visible Emissions Subtype :	05
2. Basis for Allowable Opacity :	OTHER
3. Requested Allowable Opacity :	Normal Conditions :    5            % Exceptional Conditions :    100        % Maximum Period of Excess Opacity Allowed :                    min/hour
4. Method of Compliance :	EPA Method 9
5. Visible Emissions Comment :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).  Excess Opacity - 2 hours in any 24-hour period

**J. CONTINUOUS MONITOR INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**

III. Part 11 - 1

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**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT  
TRACKING INFORMATION**

**Emissions Unit Information Section**        2  

SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

**PSD Increment Consumption Determination**

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

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2. Increment Consuming for Nitrogen Dioxide?

- ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :			
PM :	C	SO2 :	NO2 :
4. Baseline Emissions :			
PM :	0.0000	lb/hour	0.0000 tons/year
SO2 :		lb/hour	tons/year
NO2 :			tons/year
5. PSD Comment :			



## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 2

SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

### Supplemental Requirements for All Applications

1. Process Flow Diagram :	EU043-01
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	EU043-02
4. Description of Stack Sampling Facilities :	EU043-03
5. Compliance Test Report :	EU043-04
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	EU043-05
9. Other Information Required by Rule or Statute :	NA

### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alternative Modes of Operation (Emissions Trading) :

III. Part 13 - 1

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12. Identification of Additional Applicable Requirements :

13. Compliance Assurance Monitoring  
Plan :

14. Acid Rain Application (Hard-copy Required) :

Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))

Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)

New Unit Exemption (Form No. 62-210.900(1)(a)2.)

Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

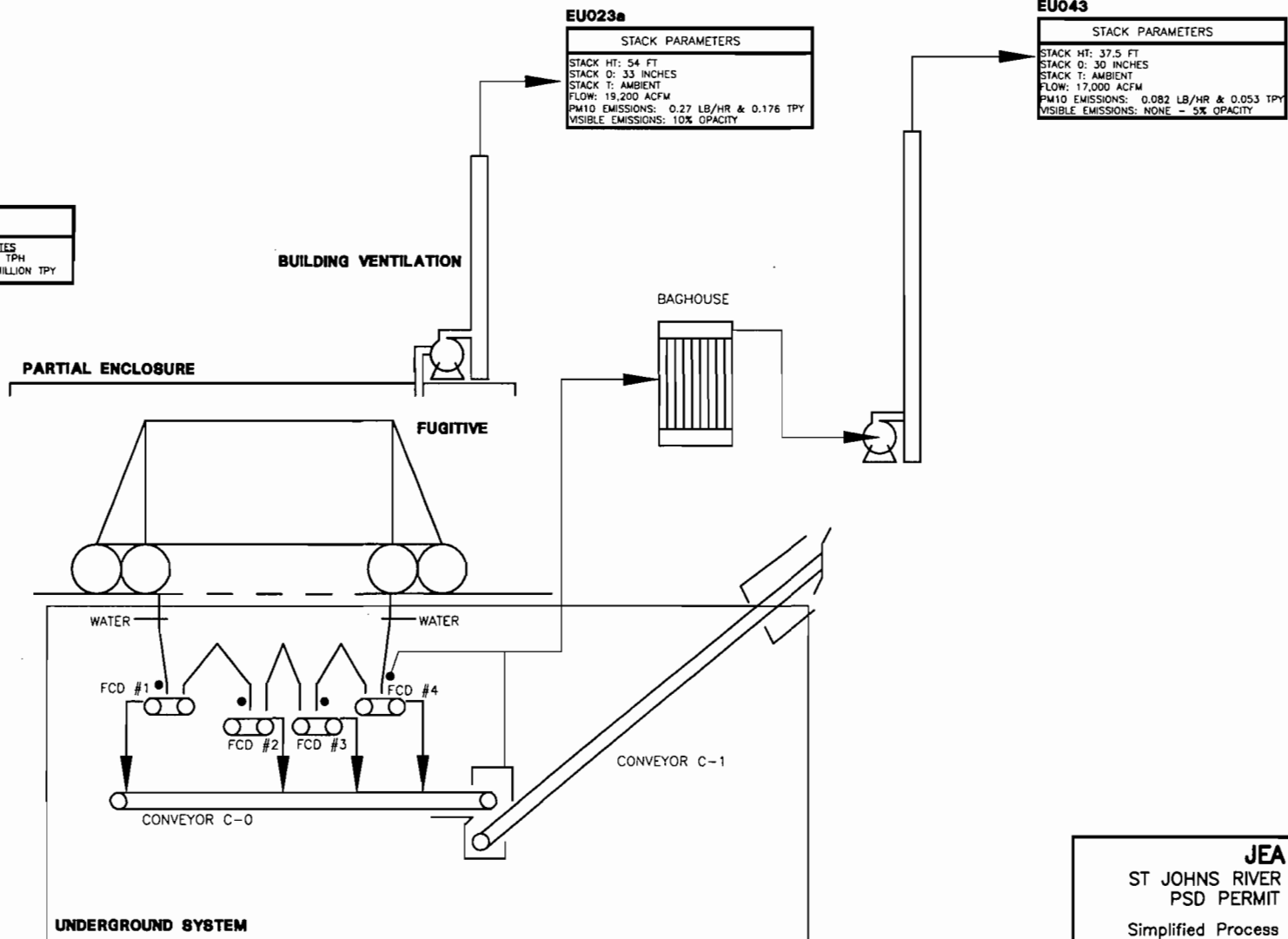
III. Part 13 - 2

**EMISSIONS UNIT EU043**  
**Rotary Railcar Unloader, Fuel Transfer Points**

**ATTACHMENT EU043-01**  
**Process Flow Diagram**

# ST JOHNS RIVER POWER PARK ROTARY RAILCAR UNLOADER, FUEL TRANSFER POINTS (DC-1) ATTACHMENT EU043-01

HANDLING RATES
SJRPP THROUGHPUT RATES UNLOADING RATE: 4,000 TPH COAL/PET. COKE: 5.2 MILLION TPY



NOTE: COVERS ON CONVEYORS

<b>JEA</b>			
ST JOHNS RIVER POWERPARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 043			
<b>F</b> OSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU043PF.DWG	
DATE: 02/16/99	CHECKED MAE	FIGURE NO. EU043-01	
	APPROVED DJF		

**EMISSIONS UNIT EU043**  
**Rotary Railcar Unloader, Fuel Transfer Points**

**ATTACHMENT EU043-02**  
**Control Equipment Description**

**Emissions Unit EU043**

**Rotary Railcar Unloader, Fuel Transfer Points (DC-1)**

**Control Equipment Description**

**Control Equipment**

**Fabric Filter/Baghouse - Existing Equipment**

**Exhaust Parameters**

**Stack Height: 37.5 feet; Stack Diameter: 30 inches; Stack Exhaust Temperature: Ambient; and Stack Flow 17,000 ACFM**

**Reasonable Assurances**

**Emission Limitation - No Visible Emissions (5% Opacity)**

**See Attachment EU043-04, Compliance Test Report**

**EMISSIONS UNIT EU043**  
**Rotary Railcar Unloader, Fuel Transfer Points**

**ATTACHMENT EU043-03**  
**Stack Sampling Facilities Description**

## **STACK SAMPLING FACILITIES DESCRIPTION**

Pursuant to Rule 62-297.310(6), F.A.C. JEA will ensure that the required stack sampling facilities include sampling ports (Rule 62-297.310(6)(c), F.A.C.), work platforms (Rule 62-297.310(6)(d), F.A.C.), access to work platforms (Rule 62-297.310(6)(e), F.A.C.), electrical power (Rule 62-297.310(6)(f), F.A.C.), and sampling equipment support (Rule 62-297.310(6)(g), F.A.C.). All stack sampling facilities will meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

In accordance with Rule 62-297.310(6)(b), F.A.C., JEA will use temporary stack sampling facilities for the existing units which are not required to conduct a compliance test on at least an annual basis may use. When electing to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, JEA will install the temporary facilities on the emissions unit within 5 days of a request by the Department. The temporary sampling facilities will remain on the emissions unit until the test is completed.





**EMISSIONS UNIT EU043**  
**Rotary Railcar Unloader, Fuel Transfer Points**

**ATTACHMENT EU043-04**  
**Compliance Test Report**

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 0461 Page 1 of 2  
 Continued on VEO Form Number 0462

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name St. Johns River Power Park  
 Facility Name St Johns River Power Park.  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32226

Process Fuel Handling Building Unit # COM Operating Mode 540 TPH.  
 Control Equipment DC-3 Baghouse. Operating Mode 100% CAP.

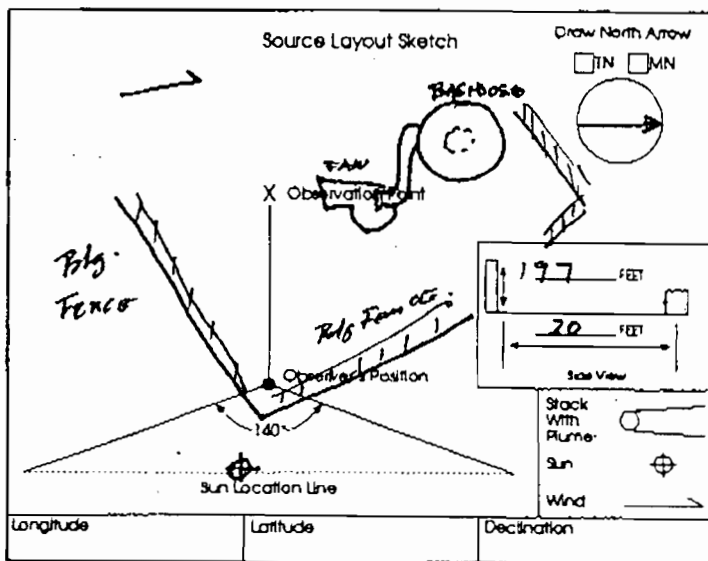
Describe Emission Point  
DC-3 Baghouse Effluent while loading  
coal/Pet coke to Boiler

Height of Emiss. Pt. Start 197' End 197' Height of Emiss. Pt. Rel. to Observer Start 5' End 5'  
 Distance to Emiss. Pt. Start 20' End 20' Direction to Emiss. Pt. (Degrees) Start 266° End 266°

Vertical Angle to Obs. Pt. Start 5° End 6° Direction to Obs. Pt. (Degrees) Start 258° End 258°  
 Distance and Direction to Observation Point from Emission Point Start 10' - 180° End 10' - 180°

Describe Emissions  
 Start NONE. End NONE.  
 Emission Color Start NONE End NONE Water Droplet Plume Attached  Detached  None

Describe Plume Background  
 Start OPEN SKY End OPEN SKY  
 Background Color Start Blue/gray End Blue Sky Conditions Start clear End clear  
 Wind Speed Start 5-10 End 5-10 Wind Direction Start S End S  
 Ambient Temp. Start 86°F End 88°F. Wet Bulb Temp. 81°F RH Percent 80%



Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_  
 Additional Information \_\_\_\_\_

Observation Date	Time Zone	Start Time	End Time	Comments					
5/6/99		1000	1100	Sec	0	15	30	45	
				Mn					
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print) Alvan Castro  
 Observer's Signature Alvan Castro Date 5/6/99  
 Organization St. Johns River Power Park.  
 Certified by Robert Technical Associates Date 12/2/98

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One) Method 9 203A 203B Other: \_\_\_\_\_

Company Name St. Johns River Power Park.  
 Facility Name St. Johns River Power Park.  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32206

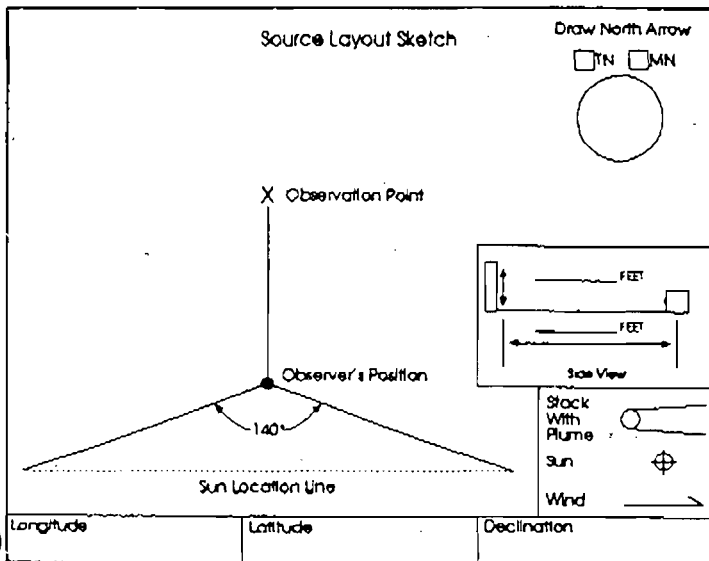
Process Fuel Handling Building Unit # COM Operating Mode \_\_\_\_\_  
 Control Equipment DC-3 Basemouse. Operating Mode 10V 2

Describe Emission Point  
 Height of Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Obs. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions  
 Start \_\_\_\_\_ End \_\_\_\_\_ Emission Color \_\_\_\_\_ Water Droplet Plume \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_ Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_



Additional Information

Form Number 0462 Page 2 of 2  
 Continued on VEO Form Number 0461

Observation Date 5/6/99 Time Zone \_\_\_\_\_ Start Time 100 End Time 1100

Sec Min	Time Zone				Comments
	0	15	30	45	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print) Alvaro Castro  
 Observer's Signature Alvaro Castro Date 5/6/99  
 Organization St. Johns River Power Park.  
 Certified By Eastera Technical Associates Date 12/2/98

**EMISSIONS UNIT EU043**  
**Rotary Railcar Unloader, Fuel Transfer Points**

**ATTACHMENT EU043-05**  
**Emissions Estimates**

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

By: D. Graziani, P.E.  
Date: 11/3/98  
Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056  
Revision No.: 1

Project: St. Johns River Power Park PSD Permit Update  
Subject: Emissions Estimates for Rotary Railcar Unloader, Fuel Transfer Points (DC-1)

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	7.38	5	0.74	0.35	0.11	0.0011	0.0005	0.0002
Petroleum Coke	0.0032	7.38	5	0.74	0.35	0.11	0.0011	0.0005	0.0002

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	4000	5126352
Petroleum Coke	4000	5126352

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term						
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Coal	34.88	16.50	5.18	4.40	2.08	0.65	8 Transfer Points
Petroleum Coke	34.88	16.50	5.18	4.40	2.08	0.65	8 Transfer Points

**Emission Rates - Controlled 99.50%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.174	0.082	0.026	0.0220	0.0104	0.0033
Petroleum Coke	0.174	0.082	0.026	0.0220	0.0104	0.0033

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term						
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Coal	22.35	10.57	3.32	0.643	0.304	0.096	8 Transfer Points
Petroleum Coke	22.35	10.57	3.32	0.643	0.304	0.096	8 Transfer Points

**Emission Rates - Controlled 99.50%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.1117	0.0529	0.0166	0.00322	0.00152	0.00048
Petroleum Coke	0.1117	0.0529	0.0166	0.00322	0.00152	0.00048

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 3

SJRPP - Fuel Handling Building (DC-3)

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- [ X ] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- [ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- [ X ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

III. Part 1 - 1

**B. GENERAL EMISSIONS UNIT INFORMATION  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section :  SJRPP - Fuel Handling Building (DC-3)		
2. Emissions Unit Identification Number : 046 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment :  This emissions unit consists of eight (8) transfer points, a sampling train, and the crushing operations, and is controlled by a dust collection system.		

**Emissions Unit Information Section**      3

SJRPP - Fuel Handling Building (DC-3)

**Emissions Unit Control Equipment**      1

1. Description :	
Emissions are controlled by use of a baghouse.	
2. Control Device or Method Code :	18



**C. EMISSIONS UNIT DETAIL INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**  
 SJRPP - Fuel Handling Building (DC-3)

3

**Emissions Unit Details**

1. Initial Startup Date :	06-Aug-1988
2. Long-term Reserve Shutdown Date :	
3. Package Unit : Manufacturer :	Model Number :
4. Generator Nameplate Rating :	MW
5. Incinerator Information :	
Dwell Temperature :	Degrees Fahrenheit
Dwell Time :	Seconds
Incinerator Afterburner Temperature :	Degrees Fahrenheit

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate :	0	mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate :	4000	tons/hr
4. Maximum Production Rate :		
5. Operating Capacity Comment :	Maximum rate is set by Conveyor C-2. Conveyors C-3 and C-4 feed to the Fuel Handling Building at a Maximum Rate of 2,000 TPH. Emission estimates assumed 4,000 TPH for all Transfer Points.	

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule :		
24 hours/day	52 weeks/year	7 days/week 8,760 hours/year



**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**          3      
SJRPP - Fuel Handling Building (DC-3)

**Rule Applicability Analysis**

Unit was subject to PSD Review including the application of BACT and is also subject to 40 CFR Part 60, Subpart Y - Standards of Performance for Coal Preparation Plants while processing coal.

III. Part 6a - 1

**List of Applicable Regulations**

Rule 62-210.700(1), (4), & (6), F.A.C., Excess Emissions

Rule 62-297.310, F.A.C., General Test Requirements

40 CFR Part 60, Subpart Y, Standards of Performance for Coal Preparation Plants

60 CFR Part 60.250 (a), Applicability and Designation of Affected Facility

40 CFR Part 60.252 (c), Standards for Particulate Matter

40 CFR Part 60.254(b)(2), Test Methods and Procedures

Rule 62-204.800(7)(c), F.A.C., NSPS Controlling Standards

Rule 62-204.800(7)(d), F.A.C., Adoption of the General Provisions (As Noted)

Rule 62-204.800(7)(e), F.A.C., Adoption of the NSPS Appendices (As Noted)

Rule 62-210.300(1), F.A.C., Air Construction Permit

Rule 62-210.550, F.A.C., Stack Height Policy

Rule 62-297.401 (5) & (9)(c), F.A.C., EPA Methods 5 and 9, 40 CFR Part 60, Appendix A

Jacksonville Environmental Protection Board, Rule 2 - Air Pollution (As Noted)

III. Part 6b - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**List of Applicable Regulations**

Rule 2.201, Adoption of Chapter 62-204, F.A.C., (As Noted)

Rule 2.301, Adoption of Chapter 62-210, F.A.C., (As Noted)

Rule 2.1101, Adoption of Chapter 62-297, F.A.C., (As Noted)

Rule 2.105, Maintenance of Air Pollution Control Devices

40 CFR Part 60.7, Notification and Recordkeeping

40 CFR Part 60.8, Performance Tests

40 CFR Part 60.11, Compliance with Standards and Maintenance Requirements

40 CFR Part 60.12, Circumvention

40 CFR Part 60.13, Monitoring Requirements

40 CFR Part 60.19, General Notifications and Reporting Requirements

Rule 62-204.800(7)(b).31, F.A.C., Adoption of 40 CFR Part 60 Subpart Y

Rule 62-210.650, F.A.C., Circumvention

Rule 62-210.300(5), F.A.C., Notification of Start-up

III. Part 6b - 2

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**List of Applicable Regulations**

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 3

SJRPP - Fuel Handling Building (DC-3)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	DC-3
2. Emission Point Type Code :	2
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking : (limit to 100 characters per point)	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :  The Fuel Handling Building includes a dust collection system with pickups at several transfer points.	
5. Discharge Type Code :	H
6. Stack Height :	192 feet
7. Exit Diameter :	2.8 feet
8. Exit Temperature :	68 °F
9. Actual Volumetric Flow Rate :	30700 acfm
10. Percent Water Vapor :	2.00 %
11. Maximum Dry Standard Flow Rate :	30700 dscfm
12. Nonstack Emission Point Height :	0 feet
13. Emission Point UTM Coordinates :	
Zone : 17	East (km) : 447.068
North (km) : 3366.433	
14. Emission Point Comment :	

III. Part 7a - 1

## F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 3

SJRPP - Fuel Handling Building (DC-3)

Segment Description and Rate : Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Coal	
2. Source Classification Code (SCC) : 30501099	
3. SCC Units : Tons Processed	
4. Maximum Hourly Rate : 4,000.00	5. Maximum Annual Rate : 5,126,000.00
6. Estimated Annual Activity Factor : 0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 1



## F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 3

SJRPP - Fuel Handling Building (DC-3)

**Segment Description and Rate :** Segment 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Petroleum Coke	
2. Source Classification Code (SCC) : 30501099	
3. SCC Units : Tons Processed	
4. Maximum Hourly Rate : 4,000.00	5. Maximum Annual Rate : 5,126,000.00
6. Estimated Annual Activity Factor : 0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 2

**G. EMISSIONS UNIT POLLUTANTS**  
**(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section**        3     
SJRPP - Fuel Handling Building (DC-3)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM	018		EL
2 - PM10	018		EL

III. Part 9a - 1



**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section**        3  

SJRPP - Fuel Handling Building (DC-3)

**Pollutant Potential/Estimated Emissions :**      Pollutant        2  

1. Pollutant Emitted : <b>PM10</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.1120000 lb/hour	0.0720000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <div style="text-align: right; margin-right: 100px;">to</div> <div style="text-align: right;">tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference	AP-42, (EF=0.0007)	
7. Emissions Method Code :      3		
8. Calculations of Emissions :  See Attachment EU046-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**Emissions Unit Information Section**      3  
SJRPP - Fuel Handling Building (DC-3)

**Pollutant Information Section**      1

**Allowable Emissions**      1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	Percent Opacity	
4. Equivalent Allowable Emissions :	0.24	lb/hour	0.15 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

**Emissions Unit Information Section**      3  
SJRPP - Fuel Handling Building (DC-3)

**Pollutant Information Section**      2

**Allowable Emissions**      1

1. Basis for Allowable Emissions Code :	OTHER
2. Future Effective Date of Allowable Emissions :	01-Aug-1999
3. Requested Allowable Emissions and Units :	5.00                      percent opacity
4. Equivalent Allowable Emissions :	0.11                      lb/hour                      0.07                      tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).

**I. VISIBLE EMISSIONS INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**   3    
SJRPP - Fuel Handling Building (DC-3)

**Visible Emissions Limitation :** Visible Emissions Limitation   1  

1. Visible Emissions Subtype :           05
2. Basis for Allowable Opacity :       OTHER
3. Requested Allowable Opacity :  Normal Conditions :       5            % Exceptional Conditions :   100        % Maximum Period of Excess Opacity Allowed :                   min/hour
4. Method of Compliance :  Annual EPA Method 9
5. Visible Emissions Comment :  Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).  Maximum Period 2 hours in any 24-hour period

**J. CONTINUOUS MONITOR INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**

III. Part 11 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96



**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION**

**Emissions Unit Information Section**          3    

SJRPP - Fuel Handling Building (DC-3)

**PSD Increment Consumption Determination**

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

- ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :		
PM : C	SO2 : U	NO2 : U
4. Baseline Emissions :		
PM :	0.0000 lb/hour	0.0000 tons/year
SO2 :	lb/hour	tons/year
NO2 :		tons/year
5. PSD Comment :		
Item 4 values present increment consumption values		

## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 3

SJRPP - Fuel Handling Building (DC-3)

### Supplemental Requirements for All Applications

1. Process Flow Diagram :	EU046-01
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	EU046-02
4. Description of Stack Sampling Facilities :	EU046-03
5. Compliance Test Report :	EU046-04
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	EU046-05
9. Other Information Required by Rule or Statute :	NA

### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alternative Modes of Operation (Emissions Trading) :

III. Part 13 - 1

12. Identification of Additional Applicable Requirements :

13. Compliance Assurance Monitoring  
Plan :

14. Acid Rain Application (Hard-copy Required) :

Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))

Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)

New Unit Exemption (Form No. 62-210.900(1)(a)2.)

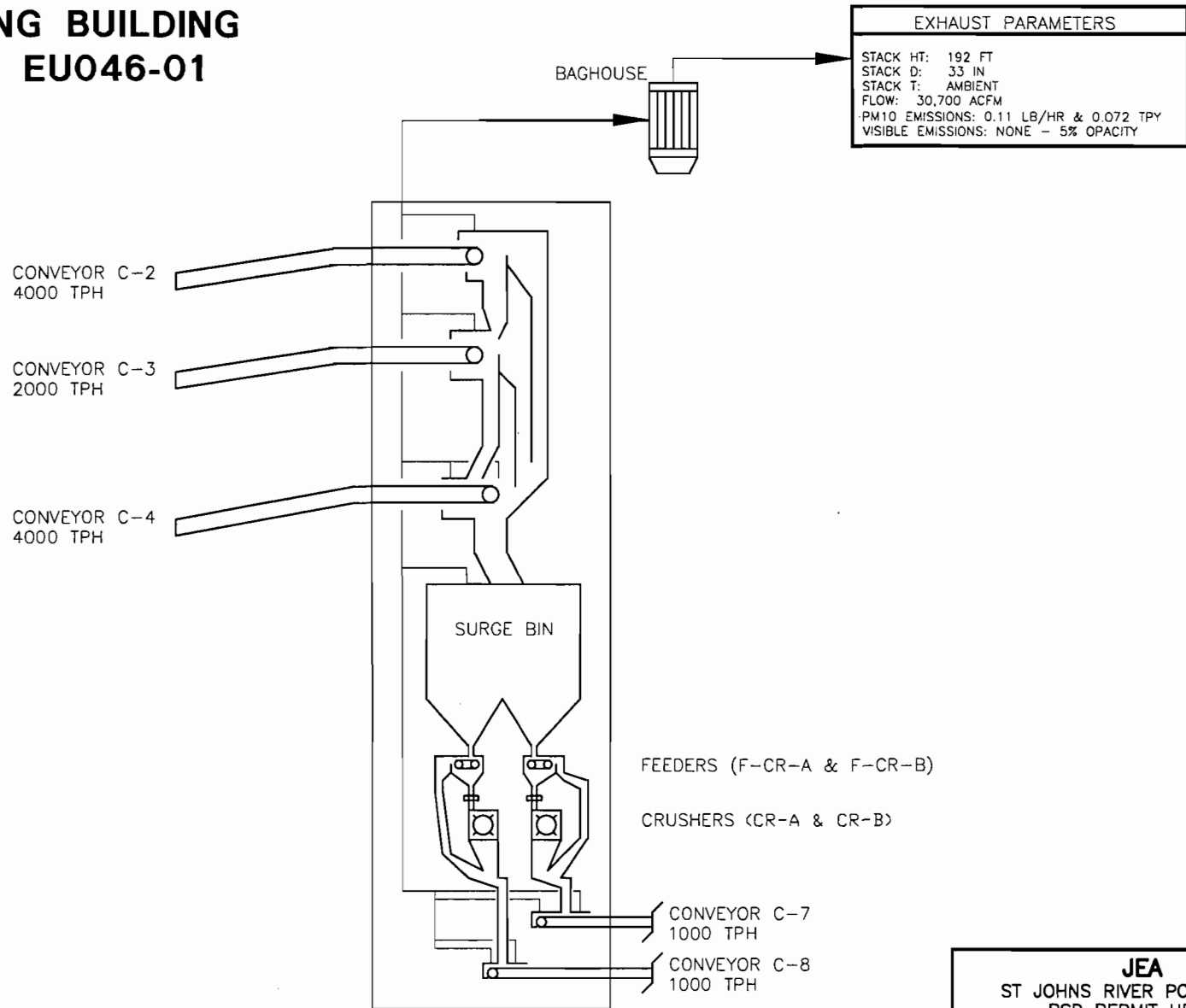
Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

III. Part 13 - 2

**EMISSIONS UNIT EU046  
Fuel Handling Building (DC-3)**

**ATTACHMENT EU046-01  
Process Flow Diagram**

# ST JOHNS RIVER POWER PARK FUEL HANDLING BUILDING ATTACHMENT EU046-01



**JEA**  
ST JOHNS RIVER POWER PARK  
PSD PERMIT UPDATE

Simplified Process Flow Diagram  
Emissions Unit ID 046

**FOSTER WHEELER ENVIRONMENTAL CORPORATION**

SCALE N/A	PREPARED DJG	CAD FILE NO. EU046PF.DWG
DATE: 02/16/99	CHECKED MAE	FIGURE NO. EU048-01
	APPROVED DJF	

**EMISSIONS UNIT EU046  
Fuel Handling Building (DC-3)**

**ATTACHMENT EU046-02  
Control Equipment Description**

**Emissions Unit EU046**  
**SJRPP - Fuel Handling Building (DC-3)**  
**Control Equipment Description**

**Control Equipment**

**Fabric Filter/Baghouse - Existing Equipment**

**Exhaust Parameters**

**Stack Height: 192 feet; Stack Diameter: 33 inches; Stack Exhaust Temperature: Ambient; and Stack Flow 30,700 ACFM**

**Reasonable Assurances**

**Emission Limitation - No Visible Emissions (5% Opacity)**

**See Attachment EU046-04, Compliance Test Report**



**EMISSIONS UNIT EU046  
Fuel Handling Building (DC-3)**

**ATTACHMENT EU046-03  
Stack Sampling Facilities Description**

## **STACK SAMPLING FACILITIES DESCRIPTION**

Pursuant to Rule 62-297.310(6), F.A.C. JEA will ensure that the required stack sampling facilities include sampling ports (Rule 62-297.310(6)(c), F.A.C.), work platforms (Rule 62-297.310(6)(d), F.A.C.), access to work platforms (Rule 62-297.310(6)(e), F.A.C.), electrical power (Rule 62-297.310(6)(f), F.A.C.), and sampling equipment support (Rule 62-297.310(6)(g), F.A.C.). All stack sampling facilities will meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

In accordance with Rule 62-297.310(6)(b), F.A.C., JEA will use temporary stack sampling facilities for the existing units which are not required to conduct a compliance test on at least an annual basis may use. When electing to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, JEA will install the temporary facilities on the emissions unit within 5 days of a request by the Department. The temporary sampling facilities will remain on the emissions unit until the test is completed.

**EMISSIONS UNIT EU046  
Fuel Handling Building (DC-3)**

**ATTACHMENT EU046-04  
Compliance Test Report**

**EMISSIONS UNIT EU046**  
**Fuel Handling Building (DC-3)**

**ATTACHMENT EU046-05**  
**Emissions Estimates**

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98  
**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for the Fuel Handling Building (DC-04)

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Petroleum Coke	0.0032	9.32	5	0.74	0.35	0.11	0.00148	0.00070	0.00022
Limestone	0.0032	9.32	6.5	0.74	0.35	0.11	0.00102	0.00048	0.00015

**Operating Data**

Raw Materials	Operating Rates		
	(TPH)	(TPY)	
Coal	4000	5126352	Maximum Associated with C-4
Petroleum Coke	4000	5126352	Maximum Associated with C-4
Limestone	0	0	

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	47.44	22.44	7.05	5.983	2.830	0.889
Petroleum Coke	47.44	22.44	7.05	5.983	2.830	0.889
Limestone	0	0	0	0	0	0

8 Transfer Points & 4 Sample Train Ports  
8 Transfer Points & 4 Sample Train Ports

**Emission Rates - Controlled 99.50%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.237	0.112	0.035	0.030	0.014	0.004
Petroleum Coke	0.237	0.112	0.035	0.030	0.014	0.004
Limestone	0	0	0	0	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	30.40	14.38	4.52	0.875	0.414	0.130
Petroleum Coke	30.40	14.38	4.52	0.875	0.414	0.130
Limestone	0	0	0	0	0	0

8 Transfer Points & 4 Sample Train Ports  
8 Transfer Points & 4 Sample Train Ports

**Emission Rates - Controlled 99.50%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.152	0.072	0.023	0.00438	0.00207	0.00065
Petroleum Coke	0.152	0.072	0.023	0.00438	0.00207	0.00065
Limestone	0	0	0	0	0	0

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 4

SJRPP - Fuel Storage Bins (DC-4 & DC-5)

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

- This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

III. Part 1 - 1

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Effective : 3-21-96

**B. GENERAL EMISSIONS UNIT INFORMATION  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section :  SJRPP - Fuel Storage Bins (DC-4 & DC-5)		
2. Emissions Unit Identification Number : 047 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment :  Emissions Unit consists of the fourteen (14) fuel storage bins (7 per boiler) and two (2) tripper transfer points.		

**Emissions Unit Information Section**      4

SJRPP - Fuel Storage Bins (DC-4 & DC-5)

**Emissions Unit Control Equipment**      1

1. Description :	
Emissions from each group of storage bins and the associated transfer point are controlled by use of a baghouse.	
2. Control Device or Method Code :	18



**C. EMISSIONS UNIT DETAIL INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**  
 SJRPP - Fuel Storage Bins (DC-4 & DC-5)

4

**Emissions Unit Details**

1. Initial Startup Date :	01-Dec-1986
2. Long-term Reserve Shutdown Date :	
3. Package Unit : Manufacturer :	Model Number :
4. Generator Nameplate Rating :	MW
5. Incinerator Information : Dwell Temperature :	Degrees Fahrenheit
Dwell Time :	Seconds
Incinerator Afterburner Temperature :	Degrees Fahrenheit

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate :	mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr                      tons/day
3. Maximum Process or Throughput Rate :	1000                      tons per hour
4. Maximum Production Rate :	
5. Operating Capacity Comment :	
Maximum rate is set by conveyors C-7 and C-8.	

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      4  
SJRPP - Fuel Storage Bins (DC-4 & DC-5)

**Rule Applicability Analysis**

Unit was subject to PSD Review including the application of BACT and is also subject to 40 CFR Part 60, Subpart Y - Standards of Performance for Coal Preparation Plants while processing coal.

**List of Applicable Regulations**

Rule 62-204.800(7)(b).31, F.A.C., Adoption of 40 CFR Part 60 Subpart Y

Rule 62-204.800(7)(c), F.A.C., NSPS Controlling Standards

Rule 62-204.800(7)(d), F.A.C., Adoption of the General Provisions (As Noted)

Rule 62-204.800(7)(e), F.A.C., Adoption of the NSPS Appendices (As Noted)

Rule 62-210.300(1), F.A.C., Air Construction Permit

Rule 62-210.550, F.A.C., Stack Height Policy

Rule 62-210.650, F.A.C., Circumvention

Rule 62-210.700(1), (4), & (6), F.A.C., Excess Emissions

Rule 62-297.310, F.A.C., General Test Requirements

Rule 62-212.300, F.A.C., General Preconstruction Review Requirements

Rule 62-297.401 (5) & (9), F.A.C., EPA Methods 5 and 9, 40 CFR Part 60, Appendix A

40 CFR Part 60.7, Notification and Recordkeeping

40 CFR Part 60.8, Performance tests

III. Part 6b - 1

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**List of Applicable Regulations**

40 CFR Part 60.11, Compliance with Standards and Maintenance Requirements

40 CFR Part 60.12, Circumvention

40 CFR Part 60.13, Monitoring Requirements

40 CFR Part 60.19, General Notifications and Reporting Requirements

40 CFR Part 60 Subpart Y - Standards of Performance for Coal Preparation Plants

40 CFR Part 60.250(a), Applicability and Designation of Affected Facility

40 CFR Part 60.252(c), Standards for Particulate Matter

40 CFR Part 60.254(b)(2), Test Methods and Procedures

Rule 62-210.300(5), F.A.C., Notification of Start-up

Rule 62-4.040(1), F.A.C., Exemptions

Rule 2.201, Adoption of Chapter 62-204, F.A.C. (as noted)

Rule 2.301, Adoption of Chapter 62-210, F.A.C. (as noted)

Rule 2.1101, Adoption of Chapter 62-297, F.A.C. as noted)

III. Part 6b - 2

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**List of Applicable Regulations**

Rule 2.105, Maintenance of Air Pollution Control Devices

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 4

SJRPP - Fuel Storage Bins (DC-4 & DC-5)

### Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	DC-4 & DC-5
2. Emission Point Type Code :	3
3. Descriptions of Emission Points Comprising this Emissions Unit :	Dust Collector DC-4 - Unit #1 Fuel Storage Bins, Tripper, and the C-8 to C-10 Transfer Point
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :	DC-4: Dust collection system DC-5: Dust collection system
5. Discharge Type Code :	H
6. Stack Height :	171 feet
7. Exit Diameter :	2.71 feet
8. Exit Temperature :	68 °F
9. Actual Volumetric Flow Rate :	25,400 acfm
10. Percent Water Vapor :	2.00 %
11. Maximum Dry Standard Flow Rate :	25,400 dscfm
12. Nonstack Emission Point Height :	feet
13. Emission Point UTM Coordinates :	Zone : 17                      East (km) : 447.044                      North (km) : 3,366.895
14. Emission Point Comment :	

III. Part 7b - 1

III. Part 7b - 2

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## E. EMISSION POINT (STACK/VENT) INFORMATION

**Emissions Unit Information Section**      4

SJRPP - Fuel Storage Bins (DC-4 & DC-5)

**Emission Point Description and Type :**

1. Identification of Point on Plot Plan or Flow Diagram :	DC-4 & DC-5
2. Emission Point Type Code :	3
3. Descriptions of Emission Points Comprising this Emissions Unit :	Dust Collector DC-5 - Unit #2 Fuel Storage Bins, Tripper, and the C-7 to C-9 Transfer Point
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :	DC-4: Dust collection system DC-5: Dust collection system
5. Discharge Type Code :	H
6. Stack Height :	171 feet
7. Exit Diameter :	2.71 feet
8. Exit Temperature :	68 °F
9. Actual Volumetric Flow Rate :	25,400 acfm
10. Percent Water Vapor :	2.00 %
11. Maximum Dry Standard Flow Rate :	25,400 dscfm
12. Nonstack Emission Point Height :	feet
13. Emission Point UTM Coordinates :	Zone : 17      East (km) : 447.044      North (km) : 3,366.895
14. Emission Point Comment :	

III. Part 7b - 3



III. Part 7b - 4

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Effective : 3-21-96

## F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 4

SJRPP - Fuel Storage Bins (DC-4 & DC-5)

**Segment Description and Rate :** Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Coal	
2. Source Classification Code (SCC) : 30501099	
3. SCC Units : Tons Processed	
4. Maximum Hourly Rate : 1,000.00	5. Maximum Annual Rate : 5,126,000.00
6. Estimated Annual Activity Factor : 0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 1

**F. SEGMENT (PROCESS/FUEL) INFORMATION**

**Emissions Unit Information Section**      4

SJRPP - Fuel Storage Bins (DC-4 & DC-5)

**Segment Description and Rate :**      Segment 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Petroleum Coke	
2. Source Classification Code (SCC) :      30501099	
3. SCC Units :      Tons Processed	
4. Maximum Hourly Rate :      1,000.00	5. Maximum Annual Rate :      5,126,000.00
6. Estimated Annual Activity Factor :      0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

**G. EMISSIONS UNIT POLLUTANTS**  
**(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section** 4  
SJRPP - Fuel Storage Bins (DC-4 & DC-5)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM	018		EL
2 - PM10	018		EL

III. Part 9a - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section**      4  
 SJRPP - Fuel Storage Bins (DC-4 & DC-5)

**Pollutant Potential/Estimated Emissions :**      Pollutant      1

1. Pollutant Emitted : <b>PM</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0090000 lb/hour	0.0230000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions:  <div style="text-align: right;">to      tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference AP-42, (EF=0.00148)		
7. Emissions Method Code :      3		
8. Calculations of Emissions :  See Attachment EU047-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section**        4  

SJRPP - Fuel Storage Bins (DC-4 & DC-5)

**Pollutant Potential/Estimated Emissions :**      Pollutant        2  

1. Pollutant Emitted : <b>PM10</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0040000 lb/hour	0.0110000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <span style="float:right">to</span> <span style="float:right">tons/year</span>		
6. Emissions Factor	0	Units lb/ton
Reference	AP-42, (EF=0.0007)	
7. Emissions Method Code :      3		
8. Calculations of Emissions :  See Attachment EU047-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**Emissions Unit Information Section** 4  
SJRPP - Fuel Storage Bins (DC-4 & DC-5)

**Pollutant Information Section** 1

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	percent opacity	
4. Equivalent Allowable Emissions :	0.01	lb/hour	0.02 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

**Emissions Unit Information Section** 4  
SJRPP - Fuel Storage Bins (DC-4 & DC-5)

**Pollutant Information Section** 2

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	percent opacity	
4. Equivalent Allowable Emissions :	0.00	lb/hour	0.01 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

III. Part 9c - 2



I. VISIBLE EMISSIONS INFORMATION  
(Regulated Emissions Units Only)

Emissions Unit Information Section 4  
SJRPP - Fuel Storage Bins (DC-4 & DC-5)

Visible Emissions Limitation : Visible Emissions Limitation 1

1. Visible Emissions Subtype :	05
2. Basis for Allowable Opacity :	OTHER
3. Requested Allowable Opacity :	
	Normal Conditions : 5 %
	Exceptional Conditions : 100 %
	Maximum Period of Excess Opacity Allowed : min/hour
4. Method of Compliance :	
	EPA Method 9
5. Visible Emissions Comment :	
	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).
	Excess Opacity - 2 hours in any 24-hour period

III. Part 10 - 1

**J. CONTINUOUS MONITOR INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**

III. Part 11 - 1

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**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION**

**Emissions Unit Information Section**      4

SJRPP - Fuel Storage Bins (DC-4 & DC-5)

**PSD Increment Consumption Determination**

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

III. Part 12 - 1

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Effective : 3-21-96

2. Increment Consuming for Nitrogen Dioxide?

- ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :			
PM :	C	SO2 :	NO2 :
4. Baseline Emissions :			
PM :	0.0000	lb/hour	0.0000 tons/year
SO2 :		lb/hour	tons/year
NO2 :			tons/year
5. PSD Comment :			
Unit emits only particulate matter.			

## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 4

SJRPP - Fuel Storage Bins (DC-4 & DC-5)

### Supplemental Requirements for All Applications

1. Process Flow Diagram :	EU047-01
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	EU047-02
4. Description of Stack Sampling Facilities :	EU047-03
5. Compliance Test Report :	EU047-04
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	EU047-05
9. Other Information Required by Rule or Statue :	NA

### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alterntive Modes of Operation (Emissions Trading) :

III. Part 13 - 1

12. Identification of Additional Applicable Requirements :

13. Compliance Assurance Monitoring  
Plan :

14. Acid Rain Application (Hard-copy Required) :

Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))

Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)

New Unit Exemption (Form No. 62-210.900(1)(a)2.)

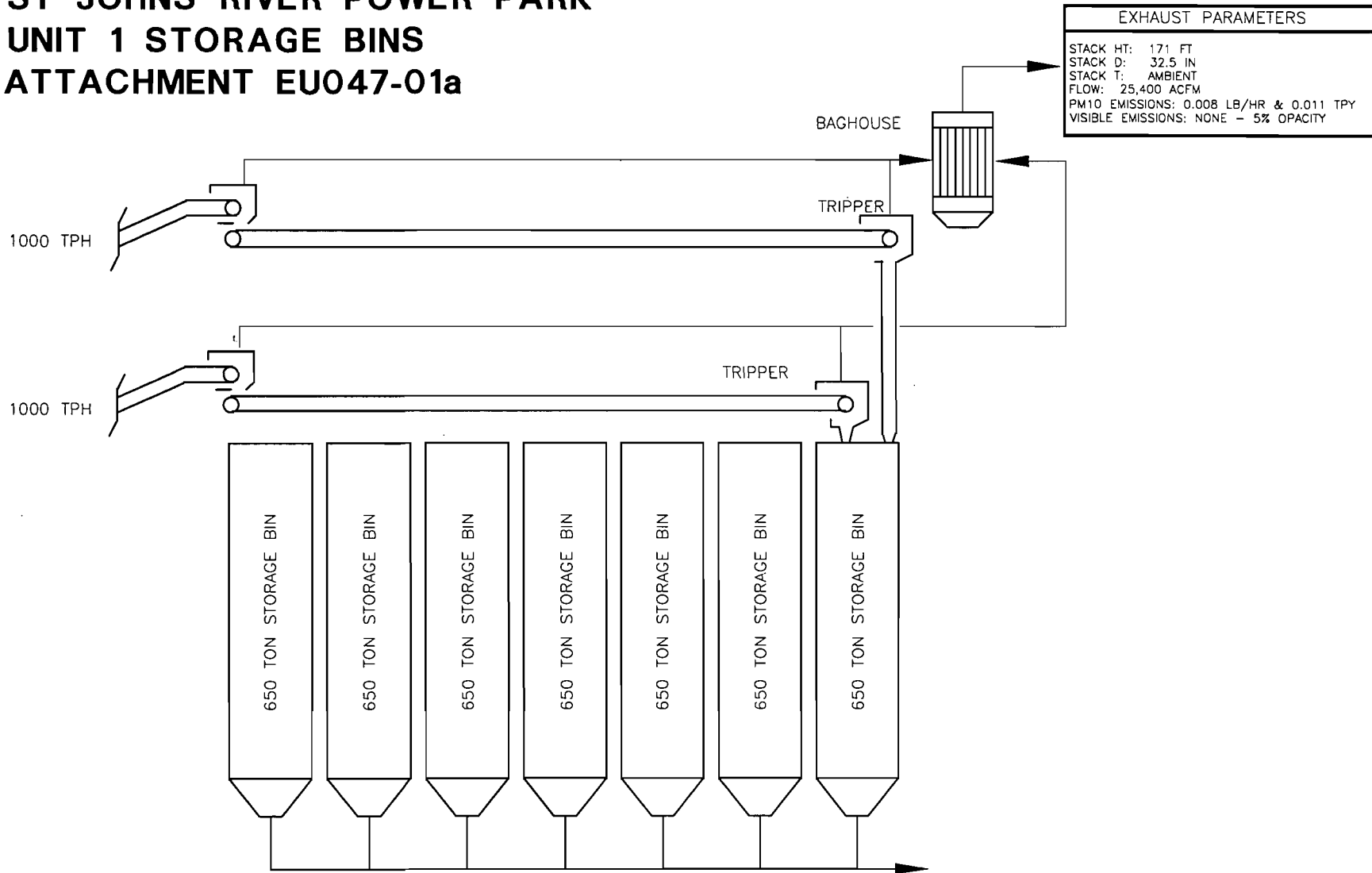
Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

III. Part 13 - 2

**EMISSIONS UNIT EU047**  
**Fuel Storage Bins (DC-4 & DC-5)**

**ATTACHMENT EU047-01**  
**Process Flow Diagram**

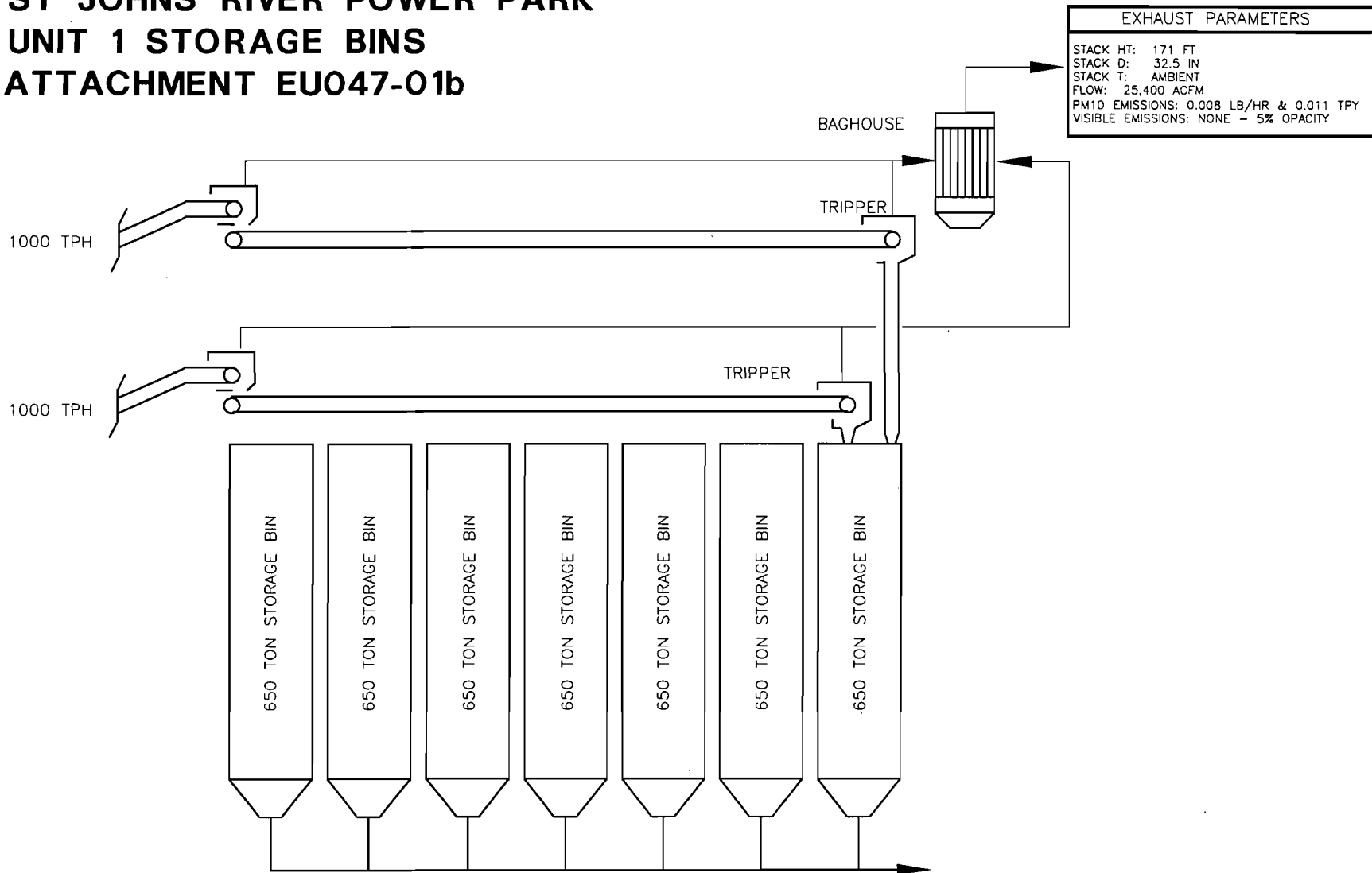
# ST JOHNS RIVER POWER PARK UNIT 1 STORAGE BINS ATTACHMENT EU047-01a



<b>JEA</b>		
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE		
Simplified Process Flow Diagram Emissions Unit ID 047		
<b>W</b> FOSTER WHEELER ENVIRONMENTAL CORPORATION		
SCALE N/A	PREPARED DJG	CAD FILE NO. EU047PEg.DWG
DATE: 04/08/99	CHECKED MAE	FIGURE NO. EU047-01a
	APPROVED DJF	



# ST JOHNS RIVER POWER PARK UNIT 1 STORAGE BINS ATTACHMENT EU047-01b



**JEA**  
ST JOHNS RIVER POWER PARK  
PSD PERMIT UPDATE

Simplified Process Flow Diagram  
Emissions Unit ID 047

**F** FOSTER WHEELER ENVIRONMENTAL CORPORATION

SCALE N/A	PREPARED DJG	CAD FILE NO. EU047PFb.DWG
DATE: 04/08/99	CHECKED MAE	FIGURE NO. EU047-01b
	APPROVED DJF	

**EMISSIONS UNIT EU047  
Fuel Storage Bins (DC-4 & DC-5)**

**ATTACHMENT EU047-02  
Control Equipment Description**

**Emissions Unit EU047**  
**BJRPP - Fuel Storage Bins (DC-4 & DC-5)**  
**Control Equipment Description**

<b>Control Equipment</b>	<b>Two Separate Fabric Filters/Baghouses - Existing Equipment</b>
<b>Exhaust Parameters</b>	<b>Stack Height: 171 feet; Stack Diameter: 32.5 inches; Stack Exhaust Temperature: Ambient; and Stack Flows 25,400 ACFM per stack</b>
<b>Reasonable Assurances</b>	<b>Emission Limitation - No Visible Emissions (5% Opacity)</b> <b>See Attachment EU047-04, Compliance Test Report</b>

**EMISSIONS UNIT EU047  
Fuel Storage Bins (DC-4 & DC-5)**

**ATTACHMENT EU047-03  
Stack Sampling Facilities Description**

## **STACK SAMPLING FACILITIES DESCRIPTION**

Pursuant to Rule 62-297.310(6), F.A.C. JEA will ensure that the required stack sampling facilities include sampling ports (Rule 62-297.310(6)(c), F.A.C.), work platforms (Rule 62-297.310(6)(d), F.A.C.), access to work platforms (Rule 62-297.310(6)(e), F.A.C.), electrical power (Rule 62-297.310(6)(f), F.A.C.), and sampling equipment support (Rule 62-297.310(6)(g), F.A.C.). All stack sampling facilities will meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

In accordance with Rule 62-297.310(6)(b), F.A.C., JEA will use temporary stack sampling facilities for the existing units which are not required to conduct a compliance test on at least an annual basis may use. When electing to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, JEA will install the temporary facilities on the emissions unit within 5 days of a request by the Department. The temporary sampling facilities will remain on the emissions unit until the test is completed.

**EMISSIONS UNIT EU047  
FUEL STORAGE BINS (DC-4 & DC-5)**

**ATTACHMENT EU047-04  
Compliance Test Report**

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 203B Other \_\_\_\_\_

Company Name *St. Johns River Power Plant*  
 Facility Name *St. Johns River Power Plant*  
 Street Address *11201 New Berlin Rd.*  
 City *Jacksonville* State *FL* Zip *32226*

Process *Unit #1 Boiler Fuel Loading* Unit # *1* Operating Mode *Fuel Loading*  
 Control Equipment *Baghouse DC 4* Operating Mode *100% CAP.*

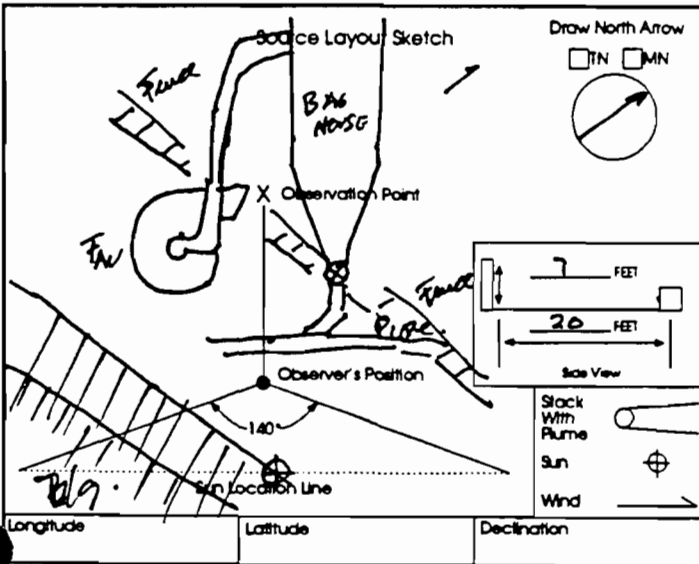
Describe Emission Point  
*Baghouse Effluent.*

Height of Emiss. Pt. Start *7'* End *7'* Height of Emiss. Pt. Rel. to Observer Start *2'* End *2'*  
 Distance to Emiss. Pt. Start *20'* End *20'* Direction to Emiss. Pt. (Degrees) Start *275°* End *275°*

Vertical Angle to Obs. Pt. Start *6°* End *6°* Direction to Obs. Pt. (Degrees) Start *278°* End *278°*  
 Distance and Direction to Observation Point from Emission Point Start *3' 90°* End *3' 90°*

Describe Emissions  
 Start *none* End *none*  
 Emission Color Start *none* End *none* Water Droplet Plume Attached  Detached  None

Describe Plume Background  
 Start *open sky* End *open sky*  
 Background Color Start *Blue* End *Blue* Sky Conditions Start *clear* End *clear*  
 Wind Speed Start *0-3* End *0-3* Wind Direction Start *SW* End *SW*  
 Ambient Temp. Start *82°F* End *82°F* Wet Bulb Temp. *75°F* RH Percent *72%*



Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_  
 Additional Information \_\_\_\_\_

Form Number *04711* Page *1* of *2*  
 Continued on VEO Form Number *04712*

Observation Date	Time Zone	Start Time	End Time	Comments					
<i>4/23/99</i>		<i>10:45</i>	<i>11:45</i>	Sec	0	15	30	45	
Min	0	15	30	45					
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print) *Alvaro Castro*  
 Observer's Signature *Alvaro Castro* Date *4/23/98*  
 Organization *St. Johns River Power Plant*  
 Certified by *Eastern Technical Associates* Date *12/2/98*

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name *St. Johns River Power Park*  
 Facility Name *St. Johns River Power Park*  
 Street Address *11201 New Berlin Rd.*  
 City *Jacksonville* State *FL* Zip *32226*

Process *Unit #1 Boiler Fuel Loading* Unit # *1* Operating Mode *Fuel Loading*  
 Control Equipment *Basinouse, DC-4* Operating Mode *100% CAP.*

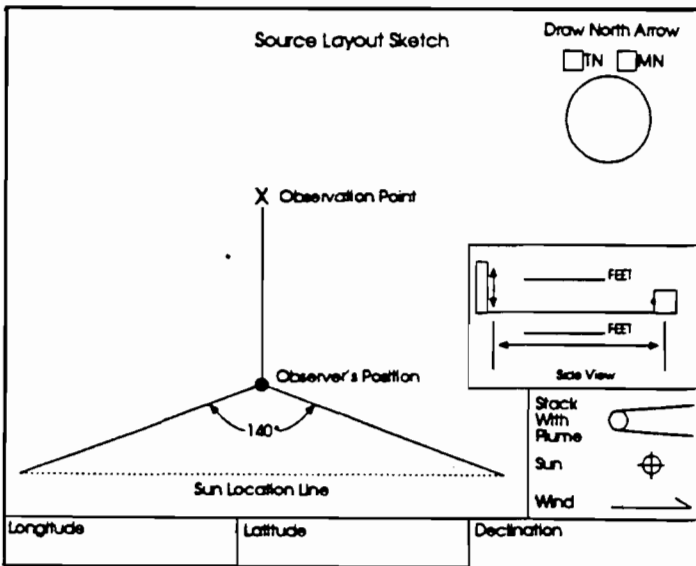
Describe Emission Point

Height of Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Height of Emiss. Pt. Rel. to Observer Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance to Emiss. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Emiss. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_

Vertical Angle to Obs. Pt. Start \_\_\_\_\_ End \_\_\_\_\_ Direction to Obs. Pt. (Degrees) Start \_\_\_\_\_ End \_\_\_\_\_  
 Distance and Direction to Observation Point from Emission Point Start \_\_\_\_\_ End \_\_\_\_\_

Describe Emissions  
 Start \_\_\_\_\_ End \_\_\_\_\_ Emission Color \_\_\_\_\_ Water Droplet Plume Attached  Detached  None

Describe Plume Background  
 Start \_\_\_\_\_ End \_\_\_\_\_ Background Color \_\_\_\_\_ Sky Conditions \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_ Ambient Temp. \_\_\_\_\_ Wet Bulb Temp. \_\_\_\_\_ RH Percent \_\_\_\_\_  
 Start \_\_\_\_\_ End \_\_\_\_\_



Additional Information

Form Number *04712* Page *2* of *2*  
 Continued on VEO Form Number *04711*

Observation Date *4/23/99* Time Zone \_\_\_\_\_ Start Time *10:45* End Time *11:45*

Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print) *Alvaro Castro*  
 Observer's Signature *Alvaro Castro* Date *4/23/99*  
 Organization *St. Johns River Power Park*  
 Certified By *Eastern Technical Associates* Date *12/2/98*



EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 04721 Page 1 of 2  
 Continued on VEO Form Number 04722

Method Used (Circle One)  
 Method 9 203A 203B Other \_\_\_\_\_

Company Name St. Johns River Power Park  
 Facility Name St. Johns River Power Park  
 Street Address 11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32226

Process UNIT #2 Boiler Fuel Loading Unit # 2 Operating Mode FUEL LOADING  
 Control Equipment BAGHOUSE DCS Operating Mode 100% CM.

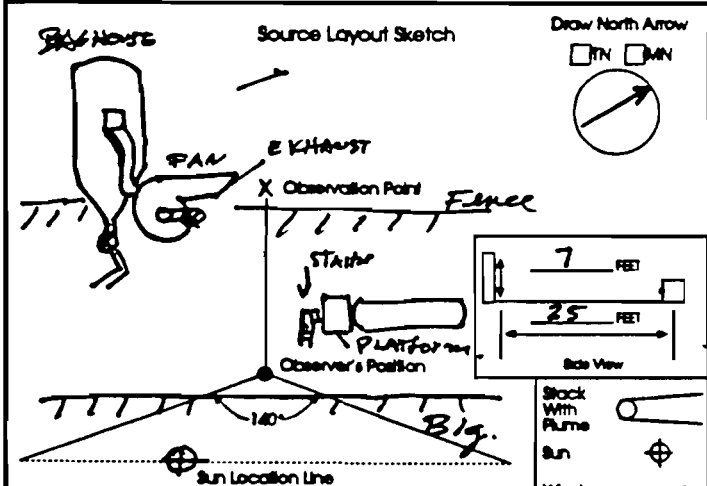
Describe Emission Point  
BAGHOUSE EFFLUENT

Height of Emiss. Pt. Start 7' End 7' Height of Emiss. Pt. Rel. to Observer Start 2' End 2'  
 Distance to Emiss. Pt. Start 25' End 25' Direction to Emiss. Pt. (Degrees) Start 262° End 262°

Vertical Angle to Obs. Pt. Start 5° End 5° Direction to Obs. Pt. (Degrees) Start 270° End 270°  
 Distance and Direction to Observation Point from Emission Point Start 5' 90° End 5' 90°

Describe Emissions  
 Start NONE End NONE  
 Emission Color Start NONE End NONE Attached  Detached  None

Describe Plume Background  
 Start OPEN SKY End OPEN SKY  
 Background Color Start Blue End Blue Sky Conditions Start clear End clear  
 Wind Speed Start 2-5 End 2-5 Wind Direction Start SW End SW  
 Ambient Temp. Start 77°F End 77°F Wet Bulb Temp. 67°F RH Percent 59%



Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_

Additional Information

Observation Date	Time Zone	Start Time	End Time				
<u>3/25/99</u>		<u>1150</u>	<u>1250</u>				
Sec	0	15	30	45	Comments		
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print) Alvaro Castro  
 Observer's Signature Alvaro Castro Date 3/25/99  
 Organization St. Johns River Power Park  
 Certified by Estera Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9      203A      203B      Other: \_\_\_\_\_

Company Name  
*St. Johns River Power Park.*

Facility Name  
*St. Johns River Power Park*

Street Address  
*11201 New Berlin Rd.*

City *Tackerville*      State *FL*      Zip *32206*

Process  
*Unit #2 Boiler Fuel Loading*

Control Equipment  
*Gas Hops DS*

Unit # *2*

Operating Mode  
*Fuel Loading*

Operating Mode  
*100% CAP.*

Describe Emission Point

Height of Emiss. Pt.  
 Start      End

Distance to Emiss. Pt.  
 Start      End

Vertical Angle to Obs. Pt.  
 Start      End

Direction to Obs. Pt. (Degree)  
 Start      End

Distance and Direction to Observation Point from Emission Point  
 Start      End

Describe Emissions

Start      End

Emission Color  
 Start      End

Water Droplet Plume  
 Attached       Detached       None

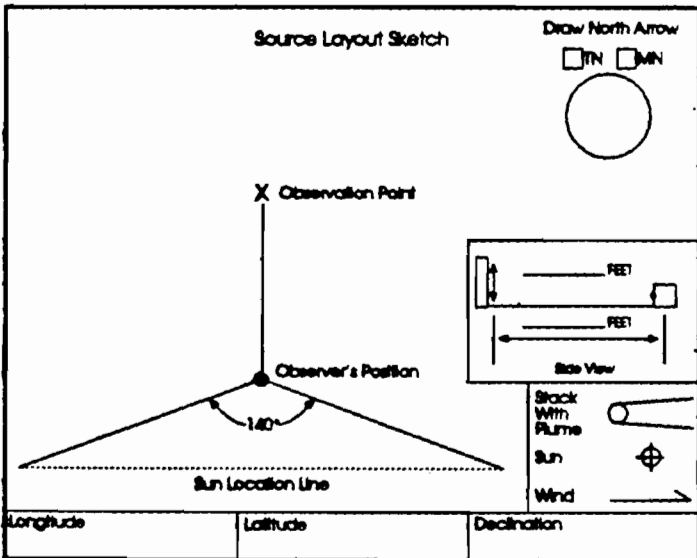
Describe Plume Background

Start      End

Background Color  
 Start      End

Wind Speed  
 Start      End

Ambient Temp.  
 Start      End



Additional Information

Form Number *04722*      Page *2*      of *2*

Continued on VEO Form Number *04721*

Sec Min	Time Zone				Start Time <i>1150</i>	End Time <i>1250</i>	Comments
	0	15	30	45			
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observer's Name (Print)  
*Alvaro Castro*

Observer's Signature  
*Alvaro Castro*

Organization  
*St. Johns River Power Park.*

Company  
*Eastern Technical Services*

Date  
*3/25/97*

Date  
*12/2/98*

**EMISSIONS UNIT EU047  
Fuel Storage Bins (DC-4 & DC-5)**

**ATTACHMENT EU047-05  
Emissions Estimates**

Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

Project: St. Johns River Power Park PSD Permit Update  
Subject: Emissions Estimates for the Head House & Storage Bins (DC-5) with 2 Transfer Points

Emissions Data

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	6.25	5	0.74	0.35	0.11	0.00088	0.00042	0.00013
Petroleum Coke	0.0032	6.25	5	0.74	0.35	0.11	0.00088	0.00042	0.00013
Limestone	0.0032	6.25	6.5	0.74	0.35	0.11	0.00061	0.00029	0.00009

Operating Data

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	2000	5126352
Petroleum Coke	2000	5126352
Limestone	0	0

Emission Rates - Uncontrolled

Raw Materials	Short-Term						2 Transfer Points
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Coal	3.51	1.66	0.52	0.443	0.209	0.066	2 Transfer Points
Petroleum Coke	3.51	1.66	0.52	0.443	0.209	0.066	2 Transfer Points
Limestone	0	0	0	0	0	0	

Emission Rates - Controlled 99.50%

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.018	0.008	0.003	0.00221	0.00105	0.00033
Petroleum Coke	0.018	0.008	0.003	0.00221	0.00105	0.00033
Limestone	0	0	0	0	0	0

Emission Rates - Uncontrolled

Raw Materials	Long-Term						2 Transfer Points
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Coal	4.50	2.13	0.67	0.130	0.061	0.019	2 Transfer Points
Petroleum Coke	4.50	2.13	0.67	0.130	0.061	0.019	2 Transfer Points
Limestone	0.00	0.00	0.00	0.000	0.000	0.000	

Emission Rates - Controlled 99.50%

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.023	0.011	0.003	0.00065	0.00031	0.00010
Petroleum Coke	0.023	0.011	0.003	0.00065	0.00031	0.00010
Limestone	0	0	0	0	0	0

References:

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed = FEA Operational Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for the Unit #1 Storage Bins (DC-4)

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Coal	0.0032	6.25	5	0.74	0.35	0.11	0.00088	0.00042	0.00013
Petroleum Coke	0.0032	6.25	5	0.74	0.35	0.11	0.00088	0.00042	0.00013
Limestone	0.0032	6.25	6.5	0.74	0.35	0.11	0.00061	0.00029	0.00009

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	2000	5126352
Petroleum Coke	2000	5126352
Limestone	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term						2 Transfer Points
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Coal	3.51	1.66	0.52	0.443	0.209	0.066	2 Transfer Points
Petroleum Coke	3.51	1.66	0.52	0.443	0.209	0.066	2 Transfer Points
Limestone	0	0	0	0	0	0	

**Emission Rates - Controlled 99.50%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.018	0.008	0.003	0.00221	0.00105	0.00033
Petroleum Coke	0.018	0.008	0.003	0.00221	0.00105	0.00033
Limestone	0	0	0	0	0	0

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term						2 Transfer Points
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)	
Coal	4.50	2.13	0.67	0.130	0.061	0.019	2 Transfer Points
Petroleum Coke	4.50	2.13	0.67	0.130	0.061	0.019	2 Transfer Points
Limestone	0	0	0	0	0	0	

**Emission Rates - Controlled 99.50%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0.023	0.011	0.003	0.00065	0.00031	0.00010
Petroleum Coke	0.023	0.011	0.003	0.00065	0.00031	0.00010
Limestone	0	0	0	0	0	0

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed = FEA Operational Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 5

SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

- This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

**B. GENERAL EMISSIONS UNIT INFORMATION  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section :  SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)		
2. Emissions Unit Identification Number : 048 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment :  Emissions Unit consists of the underground transfer points associated with the limestone railcar unloader.		

**Emissions Unit Information Section**      5

SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

**Emissions Unit Control Equipment**      1

1. Description :	
Emissions from the transfer points are controlled by use of a baghouse.	
2. Control Device or Method Code :	18



**C. EMISSIONS UNIT DETAIL INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      5  
 SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

**Emissions Unit Details**

1. Initial Startup Date :	01-Dec-1986
2. Long-term Reserve Shutdown Date :	
3. Package Unit : Manufacturer :	Model Number :
4. Generator Nameplate Rating :	MW
5. Incinerator Information :	
Dwell Temperature :	Degrees Fahrenheit
Dwell Time :	Seconds
Incinerator Afterburner Temperature :	Degrees Fahrenheit

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate :	mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr                      tons/day
3. Maximum Process or Throughput Rate :	2000                      tons per hour
4. Maximum Production Rate :	
5. Operating Capacity Comment :	
Maximum rate is limited by Conveyor L-0.	

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**       5    
SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

**Rule Applicability Analysis**

Unit was subject to PSD Review including the application of BACT.

**List of Applicable Regulations**

Rule 62-210.300(1), F.A.C., Air Construction Permits

Rule 62-210.550, F.A.C., Stack Height Policy

Rule 62-210.650, F.A.C., Circumvention

Rule 62-297.310, F.A.C., General Test Requirements

Rule 62-297.401(5) & (9), F.A.C., EPA Method 5 and 9

Rule 62-210.300(5), F.A.C., Notification of Start-up

Jacksonville Environmental Protection Board, Rule 2 - Air Pollution

Rule 2.105, Maintenance of Air Pollution Control Devices

Rule 2.301, Adoption of Chapter 62-210, F.A.C., (As Noted)

Rule 2.1101, Adoption of Chapter 62-297, F.A.C., (As Noted)

Rule 62-204.800(7)(e), F.A.C., Adoption of the NSPS Appendices (As Noted)

Rule 62-210.700(1), (4), & (6), F.A.C., Excess Emissions

III. Part 6b - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 5

SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	LDC-1
2. Emission Point Type Code :	2
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking : (limit to 100 characters per point)	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :  Dust Collector LDC-1 - four (4) Transfer Points	
5. Discharge Type Code :	V
6. Stack Height :	30 feet
7. Exit Diameter :	1.7 feet
8. Exit Temperature :	68 °F
9. Actual Volumetric Flow Rate :	7600 acfm
10. Percent Water Vapor :	2.00 %
11. Maximum Dry Standard Flow Rate :	7600 dscfm
12. Nonstack Emission Point Height :	0 feet
13. Emission Point UTM Coordinates :	
Zone : 17	East (km) : 447.528
	North (km) : 3366.532
14. Emission Point Comment :	

III. Part 7a - 1

**F. SEGMENT (PROCESS/FUEL) INFORMATION**

**Emissions Unit Information Section**      5

SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

**Segment Description and Rate :**      Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Limestone	
2. Source Classification Code (SCC) :      30501099	
3. SCC Units :      Tons Transferred Or Handled	
4. Maximum Hourly Rate :      2,000.00	5. Maximum Annual Rate :      600,000.00
6. Estimated Annual Activity Factor :      0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 1

**G. EMISSIONS UNIT POLLUTANTS**  
**(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section**     5  
SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM	018		EL
2 - PM10	017		EL

III. Part 9a - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section** 5  
 SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

**Pollutant Potential/Estimated Emissions :** Pollutant 1

1. Pollutant Emitted : <b>PM</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0240000 lb/hour	0.0036000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <div style="text-align: right;">to      tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference	AP-42, (EF=0.0006)	
7. Emissions Method Code :    3		
8. Calculations of Emissions :  See Attachment EU048-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section**      5  
 SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

**Pollutant Potential/Estimated Emissions :**      Pollutant      2

1. Pollutant Emitted : <b>PM10</b>		
2. Total Percent Efficiency of Control :      99.50      %		
3. Potential Emissions :		
0.0120000 lb/hour	to	0.0020000 tons/year
4. Synthetically Limited?		
[   ] Yes                      [X ] No		
5. Range of Estimated Fugitive/Other Emissions:		
	to	tons/year
6. Emissions Factor                      0                      Units lb/ton		
Reference AP-42, (EF=0.0.0003)		
7. Emissions Method Code :      3		
8. Calculations of Emissions :		
See Attachment EU048-05		
9. Pollutant Potential/Estimated Emissions Comment :		



**Emissions Unit Information Section** 5  
SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

**Pollutant Information Section** 1

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	percent opacity	
4. Equivalent Allowable Emissions :	0.02	lb/hour	0.00 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

**Emissions Unit Information Section** 5  
SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

**Pollutant Information Section** 2

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER
2. Future Effective Date of Allowable Emissions :	01-Aug-1999
3. Requested Allowable Emissions and Units :	5.00 percent opacity
4. Equivalent Allowable Emissions :	0.01 lb/hour 0.00 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).

**I. VISIBLE EMISSIONS INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section** 5  
SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

**Visible Emissions Limitation :** Visible Emissions Limitation 1

1. Visible Emissions Subtype :	05
2. Basis for Allowable Opacity :	RULE
3. Requested Allowable Opacity :	
	Normal Conditions : 5 %
	Exceptional Conditions : 100 %
	Maximum Period of Excess Opacity Allowed : min/hour
4. Method of Compliance :	
	EPA Method 9
5. Visible Emissions Comment :	
	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).
	Excess Emissions based on 2 hours per 24-hour period

III. Part 10 - 1

**J. CONTINUOUS MONITOR INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**

III. Part 11 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION**

**Emissions Unit Information Section**      5

SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

**PSD Increment Consumption Determination**

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

III. Part 12 - 1

2. Increment Consuming for Nitrogen Dioxide?

- The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :					
PM :	C	SO2 :	U	NO2 :	U
4. Baseline Emissions :					
PM :	0.0000	lb/hour		0.0000	tons/year
SO2 :		lb/hour			tons/year
NO2 :					tons/year
5. PSD Comment :					

## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 5

SJRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)

### Supplemental Requirements for All Applications

1. Process Flow Diagram :	EU048-01
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	EU048-02
4. Description of Stack Sampling Facilities :	EU048-03
5. Compliance Test Report :	EU048-04
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	EU048-05
9. Other Information Required by Rule or Statue :	NA

### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alternative Modes of Operation (Emissions Trading) :

III. Part 13 - 1

12. Identification of Additional Applicable Requirements :

13. Compliance Assurance Monitoring  
Plan :

14. Acid Rain Application (Hard-copy Required) :

Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))

Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)

New Unit Exemption (Form No. 62-210.900(1)(a)2.)

Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)



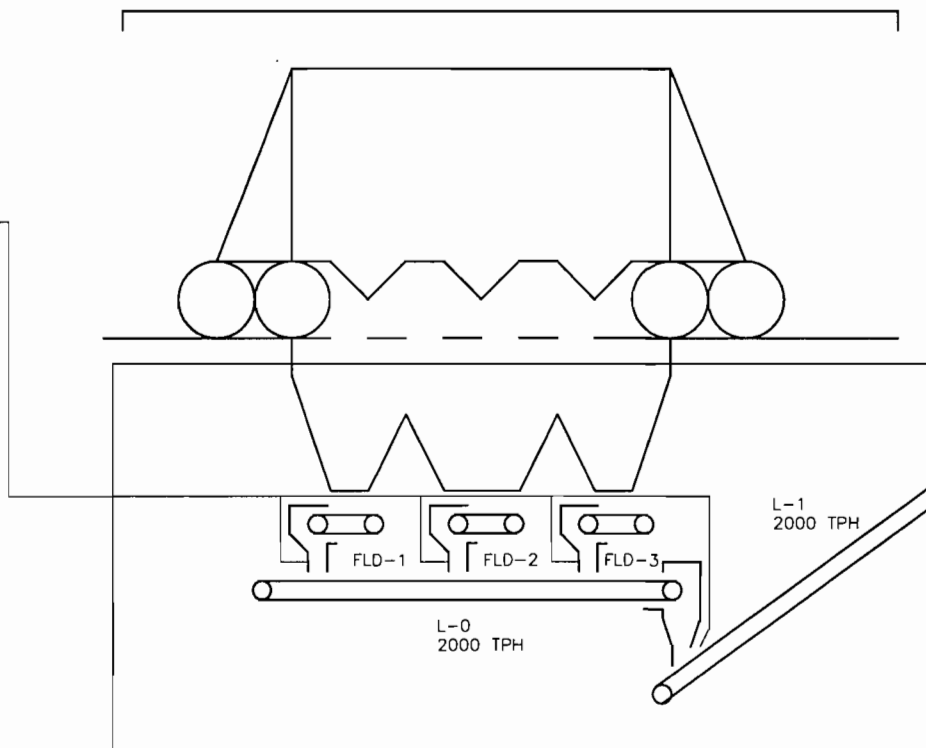
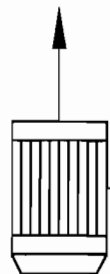
**EMISSIONS UNIT EU048**  
**Railcar Unloader, Limestone Transfer Points (LDC-1)**

**ATTACHMENT EU048-01**  
**Process Flow Diagram**

# ST JOHNS RIVER POWER PARK RAILCAR UNLOADER, LIMESTONE TRANSFER POINTS ATTACHMENT EU048-01

## EXHAUST PARAMETERS

STACK HT: 30 FT  
 STACK D: 1.67 FT  
 STACK T: AMBIENT  
 FLOW: 7,600 ACFM  
 PM10 EMISSIONS: 0.012 LB/HR & 0.002 TPY  
 VISIBLE EMISSIONS: NONE - 5% OPACITY



## UNDERGROUND TRANSFER SYSTEM

<b>JEA</b>			
ST JOHNS POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 048			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU048PF.DWG	
DATE: 02/18/99	CHECKED MAE	FIGURE NO. EU048-01	
	APPROVED DJF		

**EMISSIONS UNIT EU048**  
**Railcar Unloader, Limestone Transfer Points (LDC-1)**

**ATTACHMENT EU048-02**  
**Control Equipment Description**

**Emissions Unit EU048**

**JRPP - Railcar Unloader, Limestone Transfer Points (LDC-1)**

**Control Equipment Description**

**Control Equipment**

**Fabric Filter/Baghouse - Existing Equipment**

**Exhaust Parameters**

**Stack Height: 30 feet; Stack Diameter: 20 inches; Stack Exhaust Temperature: Ambient; and Stack Flow 7,600 ACFM**

**Reasonable Assurances**

**Emission Limitation - No Visible Emissions (5% Opacity)**

**See Attachment EU048-04, Compliance Test Report**

**EMISSIONS UNIT EU048**  
**Railcar Unloader, Limestone Transfer Points (LDC-1)**

**ATTACHMENT EU048-03**  
**Stack Sampling Facilities Description**

## **STACK SAMPLING FACILITIES DESCRIPTION**

Pursuant to Rule 62-297.310(6), F.A.C. JEA will ensure that the required stack sampling facilities include sampling ports (Rule 62-297.310(6)(c), F.A.C.), work platforms (Rule 62-297.310(6)(d), F.A.C.), access to work platforms (Rule 62-297.310(6)(e), F.A.C.), electrical power (Rule 62-297.310(6)(f), F.A.C.), and sampling equipment support (Rule 62-297.310(6)(g), F.A.C.). All stack sampling facilities will meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

In accordance with Rule 62-297.310(6)(b), F.A.C., JEA will use temporary stack sampling facilities for the existing units which are not required to conduct a compliance test on at least an annual basis may use. When electing to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, JEA will install the temporary facilities on the emissions unit within 5 days of a request by the Department. The temporary sampling facilities will remain on the emissions unit until the test is completed.

**EMISSIONS UNIT EU048**  
**Railcar Unloader, Limestone Transfer Points (LDC-1)**

**ATTACHMENT EU048-04**  
**Compliance Test Report**

**ATTACHMENT – EU048-04 - COMPLIANCE TEST REPORT**

**RAILCAR UNLOADER, LIMESTONE TRANSFER POINTS (LDC-1)**

NO TEST DATA AVAILABLE AT THIS TIME. THE OPERATION IS NOT  
CURRENTLY IN USE.



**EMISSIONS UNIT EU048**  
**Railcar Unloader, Limestone Transfer Points (LDC-1)**

**ATTACHMENT EU048-05**  
**Emissions Estimates**

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98

**Cal. No.:** 901103DJG01  
**Project No.:** 7830.0020.0056

**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Railcar Unloader, Transfer Points (LDC-1)

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Limestone	0.0032	6.25	6.5	0.74	0.35	0.11	0.000608	0.000288	9.04E-05

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	0	0
Petroleum Coke	0	0
Limestone	2000	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	4.86	2.30	0.72	0.613	0.290	0.091

(4 Transfer Points)

**Emission Rates - Controlled 99.50%**

Raw Materials	Short-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.024	0.012	0.004	0.00307	0.00145	0.00046

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.73	0.35	0.11	0.0210	0.0099	0.0031

(4 Transfer Points)

**Emission Rates - Controlled 99.50%**

Raw Materials	Long-Term					
	PM	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.0036	0.0017	0.0005	0.000105	0.000050	0.000016

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 6

SJRPP - Limestone Loadout Facility (LDC-2)

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

- This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

III. Part 1 - 1

DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96

**B. GENERAL EMISSIONS UNIT INFORMATION**  
**(Regulated and Unregulated Emissions Units)**

**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section :  SJRPP - Limestone Loadout Facility (LDC-2)		
2. Emissions Unit Identification Number : 049 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment :  Emissions Unit consists of two transfer points.		

**Emissions Unit Information Section**      6

SJRPP - Limestone Loadout Facility (LDC-2)

**Emissions Unit Control Equipment**      1

1. Description :	
Emissions from the transfer points are controlled by a baghouse.	
2. Control Device or Method Code :	18

**C. EMISSIONS UNIT DETAIL INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      6  
 SJRPP - Limestone Loadout Facility (LDC-2)

**Emissions Unit Details**

1. Initial Startup Date :	01-Dec-1986
2. Long-term Reserve Shutdown Date :	
3. Package Unit :	
Manufacturer :	Model Number :
4. Generator Nameplate Rating :	MW
5. Incinerator Information :	
Dwell Temperature :	Degrees Fahrenheit
Dwell Time :	Seconds
Incinerator Afterburner Temperature :	Degrees Fahrenheit

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate :	mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr                      tons/day
3. Maximum Process or Throughput Rate :	2000                      tons per hour
4. Maximum Production Rate :	
5. Operating Capacity Comment :	

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

**List of Applicable Regulations**

Rule 62-210.300(1), F.A.C., Air Construction Permits

Rule 62-210.550, F.A.C., Stack Height Policy

Rule 62-210.650, F.A.C., Circumvention

Rule 62-297.310, F.A.C., General Test Requirements

Rule 62-297.401(5) & (9), F.A.C., EPA Methods 5 and 9

Rule 62-210.700(1), (4), & (6), F.A.C., Excess Emissions

Rule 2.301, Adoption of Chapter 62-210, F.A.C., (As Noted)

Rule 2.1101, Adoption of Chapter 62-297, F.A.C., (As Noted)

Rule 62-210.300(5), F.A.C., Notification of Start-up

Rule 62-204.800(7)(e), F.A.C., Adoption of the NSPS Appendices (As Noted)

Jacksonville Environmental Protection Board, Rule 2 - Air Pollution

Rule 2.105, Maintenance of Air Pollution Control Devices

III. Part 6b - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 6

SJRPP - Limestone Loadout Facility (LDC-2)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	LDC-2		
2. Emission Point Type Code :	2		
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking : (limit to 100 characters per point)			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :  LDC-2			
5. Discharge Type Code :	H		
6. Stack Height :	72	feet	
7. Exit Diameter :	1.4	feet	
8. Exit Temperature :	68	°F	
9. Actual Volumetric Flow Rate :	4400	acfm	
10. Percent Water Vapor :	2.00	%	
11. Maximum Dry Standard Flow Rate :	4400	dscfm	
12. Nonstack Emission Point Height :	0	feet	
13. Emission Point UTM Coordinates :			
Zone :	17	East (km) :	447.399
		North (km) :	3366.481
14. Emission Point Comment :			

III. Part 7a - 1



## F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 6

SJRPP - Limestone Loadout Facility (LDC-2)

**Segment Description and Rate :** Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Limestone	
2. Source Classification Code (SCC) : 30501099	
3. SCC Units : Tons Transferred Or Handled	
4. Maximum Hourly Rate : 2,000.00	5. Maximum Annual Rate : 600,000.00
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 1

**G. EMISSIONS UNIT POLLUTANTS**  
**(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section**    6  
SJRPP - Limestone Loadout Facility (LDC-2)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM	017		EL
2 - PM10	017		EL

III. Part 9a - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section**      6  
 SJRPP - Limestone Loadout Facility (LDC-2)

**Pollutant Potential/Estimated Emissions :**      Pollutant      1

1. Pollutant Emitted : <b>PM</b>		
2. Total Percent Efficiency of Control :      99.50      %		
3. Potential Emissions :		
0.0120000 lb/hour		0.0010000 tons/year
4. Synthetically Limited?		
[ ] Yes      [X] No		
5. Range of Estimated Fugitive/Other Emissions:		
		to      tons/year
6. Emissions Factor      0      Units lb/ton		
Reference AP-42, (EF=0.0006)		
7. Emissions Method Code :      3		
8. Calculations of Emissions :		
See Attachment EU049-05		
9. Pollutant Potential/Estimated Emissions Comment :		



**Emissions Unit Information Section** 6  
SJRPP - Limestone Loadout Facility (LDC-2)

**Pollutant Information Section** 1

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	percent opacity	
4. Equivalent Allowable Emissions :	0.01	lb/hour	0.00 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

**Emissions Unit Information Section** 6  
SJRPP - Limestone Loadout Facility (LDC-2)

**Pollutant Information Section** 2

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	percent opacity	
4. Equivalent Allowable Emissions :	0.01	lb/hour	0.00 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

III. Part 9c - 2

**I. VISIBLE EMISSIONS INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section** 6  
SJRPP - Limestone Loadout Facility (LDC-2)

**Visible Emissions Limitation :** Visible Emissions Limitation 1

1. Visible Emissions Subtype :	05									
2. Basis for Allowable Opacity :	OTHER									
3. Requested Allowable Opacity :	<table><tr><td>Normal Conditions :</td><td>5</td><td>%</td></tr><tr><td>Exceptional Conditions :</td><td>100</td><td>%</td></tr><tr><td>Maximum Period of Excess Opacity Allowed :</td><td></td><td>min/hour</td></tr></table>	Normal Conditions :	5	%	Exceptional Conditions :	100	%	Maximum Period of Excess Opacity Allowed :		min/hour
Normal Conditions :	5	%								
Exceptional Conditions :	100	%								
Maximum Period of Excess Opacity Allowed :		min/hour								
4. Method of Compliance :	EPA Method 9									
5. Visible Emissions Comment :	<p>Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).</p> <p>Excess Emissions allows 2 hours in any 24-hour period</p>									

III. Part 10 - 1

**J. CONTINUOUS MONITOR INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**

III. Part 11 - 1

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Effective : 3-21-96



## K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

Emissions Unit Information Section 6

SJRPP - Limestone Loadout Facility (LDC-2)

### PSD Increment Consumption Determination

#### 1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

- ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :					
PM :	C	SO2 :	U	NO2 :	U
4. Baseline Emissions :					
PM :	0.0000	lb/hour		0.0000	tons/year
SO2 :		lb/hour			tons/year
NO2 :					tons/year
5. PSD Comment :					

## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 6

SJRPP - Limestone Loadout Facility (LDC-2)

### Supplemental Requirements for All Applications

1. Process Flow Diagram :	EU049-01
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	EU049-02
4. Description of Stack Sampling Facilities :	EU049-03
5. Compliance Test Report :	EU049-04
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	EU049-05
9. Other Information Required by Rule or Statute :	NA

### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alternative Modes of Operation (Emissions Trading) :

III. Part 13 - 1

12. Identification of Additional Applicable Requirements :

13. Compliance Assurance Monitoring  
Plan :

14. Acid Rain Application (Hard-copy Required) :

Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))

Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)

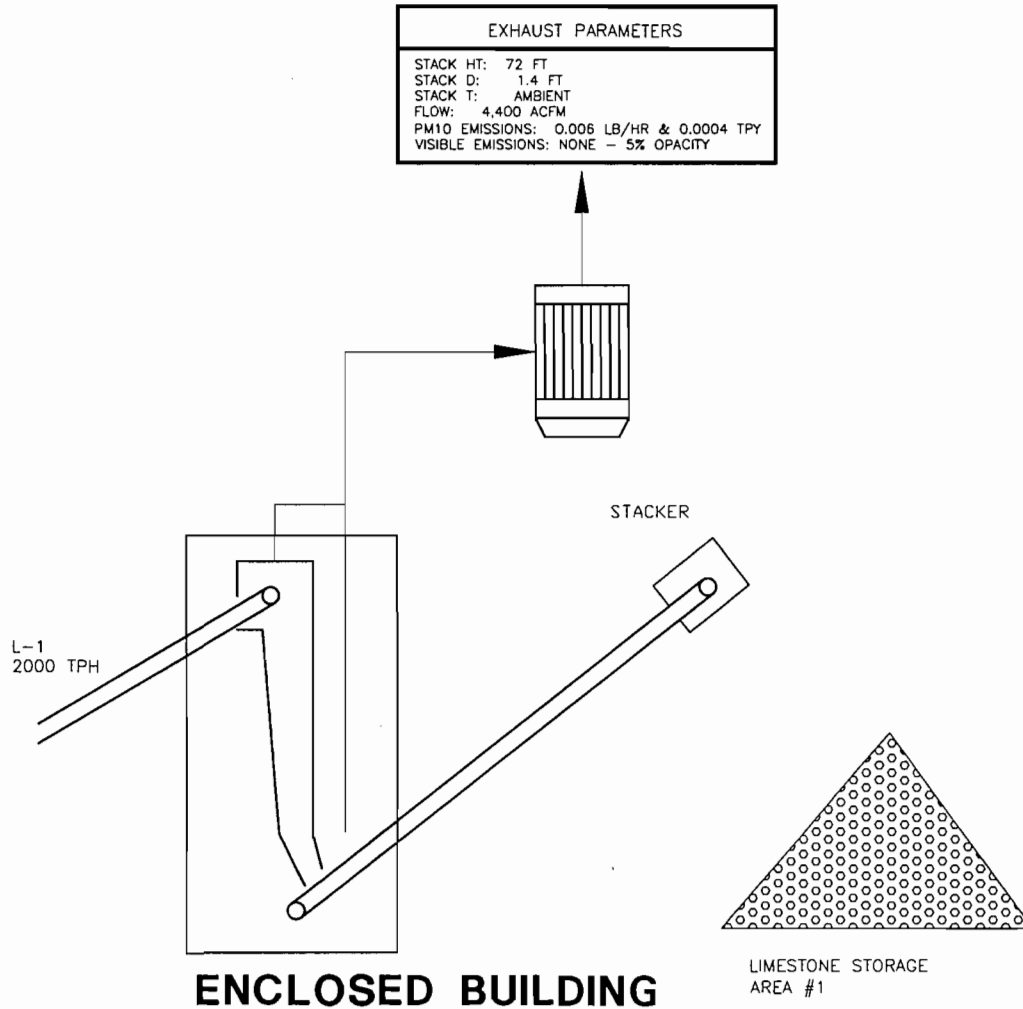
New Unit Exemption (Form No. 62-210.900(1)(a)2.)

Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

**EMISSIONS UNIT EU049**  
**Limestone Loadout Facility (LDC-2)**

**ATTACHMENT EU049-01**  
**Process Flow Diagram**

# ST JOHNS RIVER POWER PARK LIMESTONE LOADOUT FACILITY ATTACHMENT EU049-01



<b>JEA</b>			
ST JOHNS POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 049			
<b>FOSTER WHEELER ENVIRONMENTAL CORPORATION</b>			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU049PF.DWG	
DATE: 02/16/99	CHECKED MAE	FIGURE NO. EU049-01	
	APPROVED DJF		

**EMISSIONS UNIT EU049  
Limestone Loadout Facility (LDC-2)**

**ATTACHMENT EU049-02  
Control Equipment Description**

**Emissions Unit EU049**

**SJRPP - Limestone Loadout Facility (LDC-2)**

**Control Equipment Description**

**Control Equipment**

**Fabric Filter/Baghouse - Existing Equipment**

**Exhaust Parameters**

**Stack Height: 72 feet; Stack Diameter: 17 inches; Stack Exhaust Temperature: Ambient; and Stack Flow 4,400 ACFM**

**Reasonable Assurances**

**Emission Limitation - No Visible Emissions (5% Opacity)**

**See Attachment EU049-04, Compliance Test Report**



**EMISSIONS UNIT EU049**  
**Limestone Loadout Facility (LDC-2)**

**ATTACHMENT EU049-03**  
**Stack Sampling Facilities Description**

## **STACK SAMPLING FACILITIES DESCRIPTION**

Pursuant to Rule 62-297.310(6), F.A.C. JEA will ensure that the required stack sampling facilities include sampling ports (Rule 62-297.310(6)(c), F.A.C.), work platforms (Rule 62-297.310(6)(d), F.A.C.), access to work platforms (Rule 62-297.310(6)(e), F.A.C.), electrical power (Rule 62-297.310(6)(f), F.A.C.), and sampling equipment support (Rule 62-297.310(6)(g), F.A.C.). All stack sampling facilities will meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

In accordance with Rule 62-297.310(6)(b), F.A.C., JEA will use temporary stack sampling facilities for the existing units which are not required to conduct a compliance test on at least an annual basis may use. When electing to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, JEA will install the temporary facilities on the emissions unit within 5 days of a request by the Department. The temporary sampling facilities will remain on the emissions unit until the test is completed.

**EMISSIONS UNIT EU049  
Limestone Loadout Facility (LDC-2)**

**ATTACHMENT EU049-04  
Compliance Test Report**

**ATTACHMENT – EU049-04 - COMPLIANCE TEST REPORT**

**LIMESTONE LOADOUT FACILITY (LDC-2)**

NO TEST DATA AVAILABLE AT THIS TIME. THE OPERATION IS NOT  
CURRENTLY IN USE.

**EMISSIONS UNIT EU049**  
**Limestone Loadout Facility (LDC-2)**

**ATTACHMENT EU049-05**  
**Emissions Estimates**

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Limestone Loadout Facility (LDC-2)

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Limestone	0.0032	6.25	6.5	0.74	0.35	0.11	0.00061	0.00029	9.04E-05

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	0	0
Petroleum Coke	0	0
Limestone	2000	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	2.43	1.15	0.36	0.3067	0.1451	0.0456

(2 Transfer Points)

**Emission Rates - Controlled 99.50%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.012	0.006	0.002	0.0015	0.0007	0.0002

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.18	0.09	0.03	0.00525	0.00248	0.00078

(2 Transfer Points)

**Emission Rates - Controlled 99.50%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.00091	0.00043	0.00014	0.000026	0.000012	0.000004

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operational Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 7

SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- [ X ] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- [ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- [ X ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

**B. GENERAL EMISSIONS UNIT INFORMATION  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section :  SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)		
2. Emissions Unit Identification Number : 050 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment :  Emissions Unit consists of two transfer points.		



**Emissions Unit Information Section**      7

SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

**Emissions Unit Control Equipment**      1

1. Description : Emissions from the transfer points are controlled by a baghouse.
2. Control Device or Method Code :      17

**C. EMISSIONS UNIT DETAIL INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      7  
 SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

**Emissions Unit Details**

1. Initial Startup Date :	01-Dec-1986
2. Long-term Reserve Shutdown Date :	
3. Package Unit : Manufacturer :	Model Number :
4. Generator Nameplate Rating :	MW
5. Incinerator Information :	
Dwell Temperature :	Degrees Fahrenheit
Dwell Time :	Seconds
Incinerator Afterburner Temperature :	Degrees Fahrenheit

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate :	mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr                      tons/day
3. Maximum Process or Throughput Rate :	300                      tons per hour
4. Maximum Production Rate :	
5. Operating Capacity Comment :	

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section** 7  
SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

**Rule Applicability Analysis**

Unit was subject to PSD Review including the application of BACT.

**List of Applicable Regulations**

Rule 62-204.800(7)(e), F.A.C., Adoption of the NSPS Appendices (As Noted)

Rule 62-210.300(5), F.A.C., Notification of Start-up

Jacksonville Environmental Protection Board, Rule 2 - Air Pollution

Rule 2.105, Maintenance of Air Pollution Control Devices

Rule 2.301, Adoption of Chapter 62-210, F.A.C., (As Noted)

Rule 2.1101, Adoption of Chapter 62-297, F.A.C., (As Noted)

Rule 62-210.300(1), F.A.C., Air Construction Permits

Rule 62-210.550, F.A.C., Stack Height Policy

Rule 62-210.650, F.A.C., Circumvention

Rule 62-297.310, F.A.C., General Test Requirements

Rule 62-297.401(5) & (9), F.A.C., EPA Methods 5 and 9

Rule 62-210.700(1), (4), & (6), F.A.C., Excess Emissions

III. Part 6b - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 7

SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	3DC-01		
2. Emission Point Type Code :	2		
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking : (limit to 100 characters per point)			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :  3DC-01			
5. Discharge Type Code :	D		
6. Stack Height :	39	feet	
7. Exit Diameter :	1.0	feet	
8. Exit Temperature :	68	°F	
9. Actual Volumetric Flow Rate :	2700	acfm	
10. Percent Water Vapor :	2.00	%	
11. Maximum Dry Standard Flow Rate :	2700	dscfm	
12. Nonstack Emission Point Height :	0	feet	
13. Emission Point UTM Coordinates :			
Zone :	17	East (km) :	447.265
		North (km) :	3366.538
14. Emission Point Comment :			

III. Part 7a - 1

III. Part 7a - 2

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**F. SEGMENT (PROCESS/FUEL) INFORMATION**

**Emissions Unit Information Section**      7

SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

**Segment Description and Rate :**      Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Limestone	
2. Source Classification Code (SCC) :      30501099	
3. SCC Units :      Tons Transferred Or Handled	
4. Maximum Hourly Rate :      300.00	5. Maximum Annual Rate :      600,000.00
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

**G. EMISSIONS UNIT POLLUTANTS  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section**     7  
SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM	017		EL
2 - PM10	017		EL

III. Part 9a - 1



**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section** 7  
SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

**Pollutant Potential/Estimated Emissions :** Pollutant 1

1. Pollutant Emitted : <b>PM</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0006600 lb/hour	0.0006600 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: to tons/year		
6. Emissions Factor	0	Units lb/ton
Reference AP-42, (EF=0.00022)		
7. Emissions Method Code : 3		
8. Calculations of Emissions : See Attachment EU050-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section** 7  
 SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

**Pollutant Potential/Estimated Emissions :** Pollutant 2

1. Pollutant Emitted : <b>PM10</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0003100 lb/hour	0.0003100 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <div style="text-align: right;">to                      tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference AP-42, (EF=0.0001)		
7. Emissions Method Code :    3		
8. Calculations of Emissions :  See Attachment EU050-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**Emissions Unit Information Section** 7  
SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

**Pollutant Information Section** 1

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	Percent Opacity	
4. Equivalent Allowable Emissions :	0.03	lb/hour	0.12 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

III. Part 9c - 1

**Emissions Unit Information Section** 7  
SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

**Pollutant Information Section** 2

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER
2. Future Effective Date of Allowable Emissions :	01-Aug-1999
3. Requested Allowable Emissions and Units :	5.00 percent opacity
4. Equivalent Allowable Emissions :	0.00 lb/hour 0.00 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).

III. Part 9c - 2

**I. VISIBLE EMISSIONS INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section** 7  
SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

**Visible Emissions Limitation :** Visible Emissions Limitation 1

1. Visible Emissions Subtype :	05
2. Basis for Allowable Opacity :	RULE
3. Requested Allowable Opacity :	
	Normal Conditions : 5 %
	Exceptional Conditions : 100 %
	Maximum Period of Excess Opacity Allowed : min/hour
4. Method of Compliance :	
	EPA Method 9
5. Visible Emissions Comment :	
	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity). Excess Emissions - 2 hours in any 24-hour period

**J. CONTINUOUS MONITOR INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**

III. Part 11 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

Emissions Unit Information Section 7

SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

### PSD Increment Consumption Determination

#### 1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

III. Part 12 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**Emissions Unit Information Section** 10  
SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**Pollutant Information Section** 2

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	Percent Opacity	
4. Equivalent Allowable Emissions :	0.02	lb/hour	0.07 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		



**I. VISIBLE EMISSIONS INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section** 10  
SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**Visible Emissions Limitation :** Visible Emissions Limitation 1

1. Visible Emissions Subtype :	05
2. Basis for Allowable Opacity :	OTHER
3. Requested Allowable Opacity :	
	Normal Conditions : 5 %
	Exceptional Conditions : 100 %
	Maximum Period of Excess Opacity Allowed : min/hour
4. Method of Compliance :	
	EPA Method 9
5. Visible Emissions Comment :	
	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity)..
	Excess Emissions - 2 hours in any 24-hour period

**J. CONTINUOUS MONITOR INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**

III. Part 11 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION**

**Emissions Unit Information Section**      10

SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**PSD Increment Consumption Determination**

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

- The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :					
PM :	C	SO2 :	U	NO2 :	U
4. Baseline Emissions :					
PM :	0.0000	lb/hour	0.0000	tons/year	
SO2 :		lb/hour		tons/year	
NO2 :				tons/year	
5. PSD Comment :					

## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 10

SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

### Supplemental Requirements for All Applications

1. Process Flow Diagram :	EU053-01
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	EU053-02
4. Description of Stack Sampling Facilities :	EU053-03
5. Compliance Test Report :	EU053-04
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	EU053-05
9. Other Information Required by Rule or Statue :	NA

### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alternative Modes of Operation (Emissions Trading) :

III. Part 13 - 1

12. Identification of Additional Applicable Requirements :

13. Compliance Assurance Monitoring  
Plan :

14. Acid Rain Application (Hard-copy Required) :

Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))

Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)

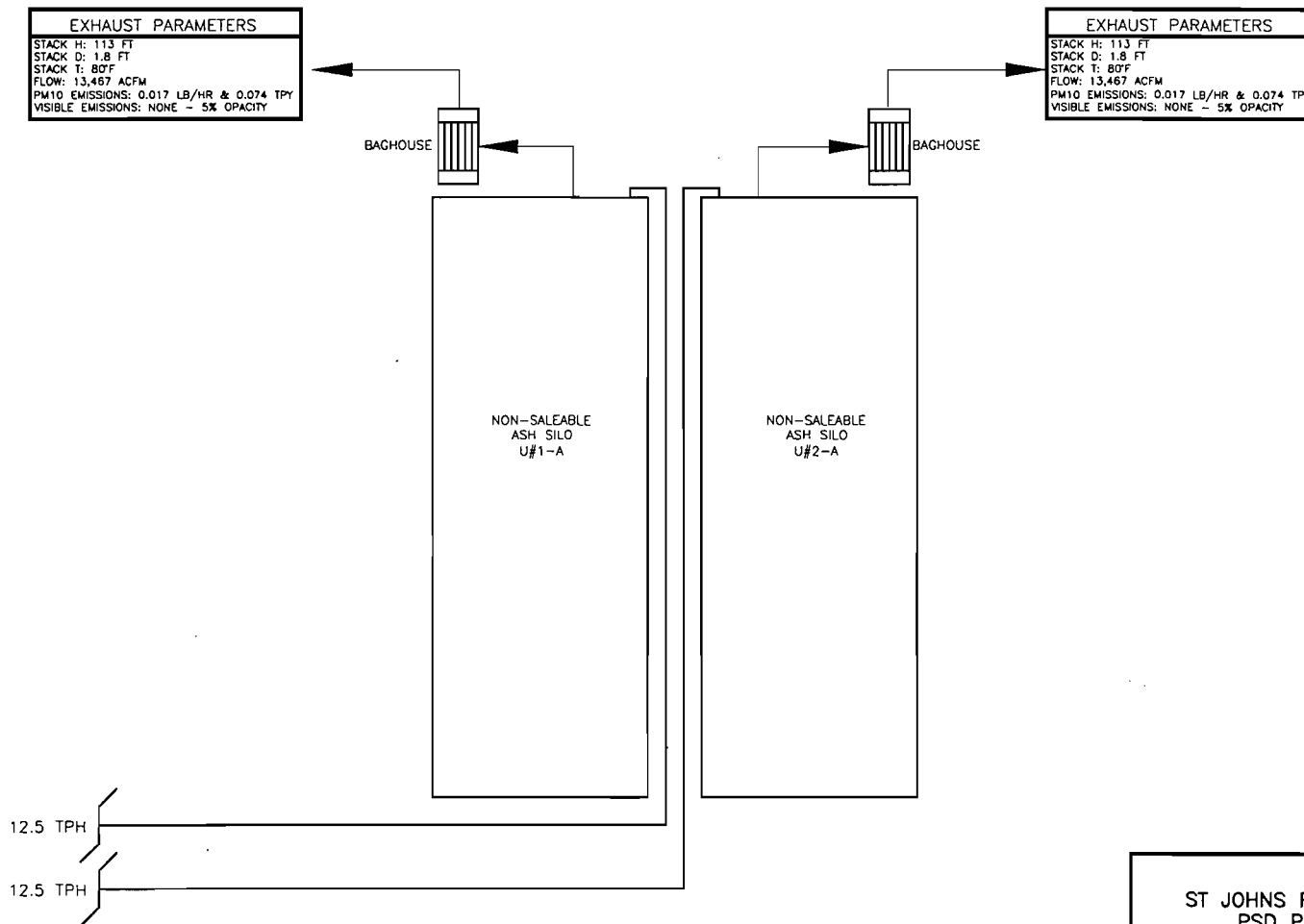
New Unit Exemption (Form No. 62-210.900(1)(a)2.)

Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

**EMISSIONS UNIT EU053**  
**Non-Saleable Ash Silos (U#1-A & U#2-A)**

**ATTACHMENT EU053-01**  
**Process Flow Diagram**

# ST JOHNS RIVER POWER PARK NON-SALEABLE ASH SILOS ATTACHMENT EU053-01



**JEA**  
ST JOHNS RIVER POWER PARK  
PSD PERMIT UPDATE  
Simplified Process Flow Diagram  
Emissions Unit ID 053

<b>FOSTER WHEELER ENVIRONMENTAL CORPORATION</b>			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU053PF.DWG	
DATE: 02/16/99	CHECKED MAE	FIGURE NO. EU053-01	
	APPROVED DJF		



**EMISSIONS UNIT EU053  
Non-Saleable Ash Silos (U#1-A & U#2-A)**

**ATTACHMENT EU053-02  
Control Equipment Description**

**Emissions Unit EU053**

**BJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)**

**Control Equipment Description**

**Control Equipment**

**Two Separate Fabric Filters/Baghouses - Existing Equipment**

**Exhaust Parameters**

**Stack Height: 113 feet; Stack Diameter: 21.6 inches; Stack Exhaust Temperature: Ambient; and Stack Flows 13,467 ACFM per stack**

**Reasonable Assurances**

**Emission Limitation - No Visible Emissions (5% Opacity)**

**See Attachment EU053-04, Compliance Test Report**

**EMISSIONS UNIT EU053**  
**Non-Saleable Ash Silos (U#1-A & U#2-A)**

**ATTACHMENT EU053-03**  
**Stack Sampling Facilities Description**

## **STACK SAMPLING FACILITIES DESCRIPTION**

Pursuant to Rule 62-297.310(6), F.A.C. JEA will ensure that the required stack sampling facilities include sampling ports (Rule 62-297.310(6)(c), F.A.C.), work platforms (Rule 62-297.310(6)(d), F.A.C.), access to work platforms (Rule 62-297.310(6)(e), F.A.C.), electrical power (Rule 62-297.310(6)(f), F.A.C.), and sampling equipment support (Rule 62-297.310(6)(g), F.A.C.). All stack sampling facilities will meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

In accordance with Rule 62-297.310(6)(b), F.A.C., JEA will use temporary stack sampling facilities for the existing units which are not required to conduct a compliance test on at least an annual basis may use. When electing to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, JEA will install the temporary facilities on the emissions unit within 5 days of a request by the Department. The temporary sampling facilities will remain on the emissions unit until the test is completed.

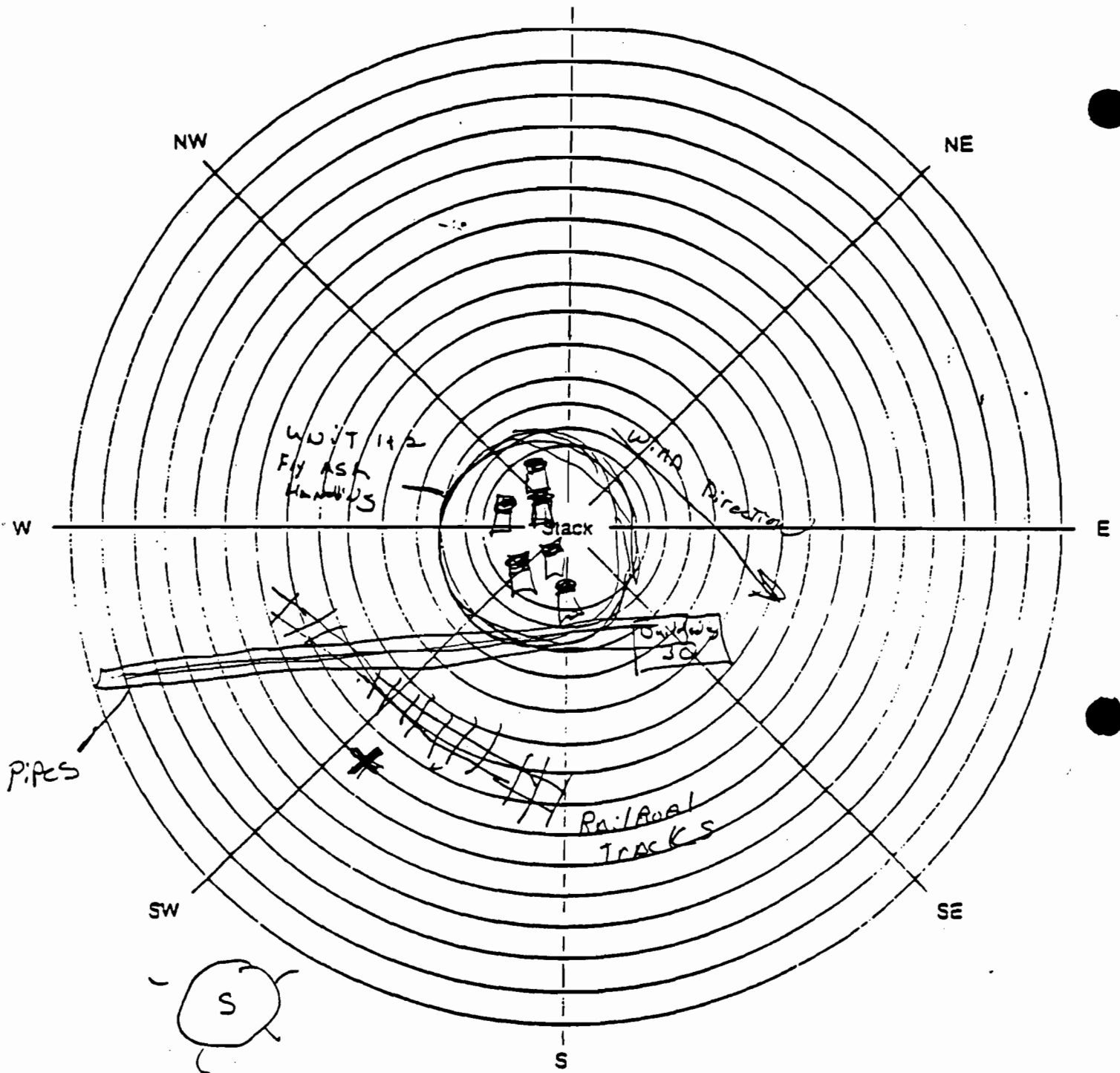
**EMISSIONS UNIT EU053**  
**Non-Saleable Ash Silos (U#1-A & U#2-A)**

**ATTACHMENT EU053-04**  
**Compliance Test Report**

Visible Emissions Evaluation Data Sheet  
Best Available Copy

Client J.E.A. Observer John Sutcliffe  
 Project No. 97-422 Date 11-4-97  
 Plant Name SJRPP Observation began 1310  
 Location JACKSONVILLE FL ended 1411  
 Name of Facility POWER PLANT

Source Identification (Stack, Duct, etc.)	Seconds				Min.	Seconds			
	0	15	30	45		0	15	30	45
<u>UNIT 1+2 FW ASH HANDLING AREA</u>	0	0	0	0	30	0	0	0	0
	1	0	0	0	31	0	0	0	0
	2	0	0	0	32	0	0	0	0
	3	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet)	4	0	0	0	34	0	0	0	0
Distance from Observer to source <u>150'</u>	5	0	0	0	35	0	0	0	0
Height of Source (above ground) <u>0-150'</u>	6	0	0	0	36	0	0	0	0
Weather Conditions	7	0	0	0	37	0	0	0	0
Wind Direction <u>SE</u>	8	0	0	0	38	0	0	0	0
Wind Speed <u>0-5</u>	9	0	0	0	39	0	0	0	0
Temperature <u>70</u>	10	0	0	0	40	0	0	0	0
Position of Sun <u>SOUTH</u>	11	0	0	0	41	0	0	0	0
Sky Condition <u>clear</u> (clear, overcast, %clouds, color of clouds, etc.)	12	0	0	0	42	0	0	0	0
	13	0	0	0	43	0	0	0	0
	14	0	0	0	44	0	0	0	0
	15	0	0	0	45	0	0	0	0
Plume Description	16	0	0	0	46	5	5	5	5
Color <u>white</u>	17	0	0	0	47	0	0	0	0
Background <u>sky</u>	18	0	0	0	48	0	0	0	0
Type (wet or dry) <u>Dry</u> Dist. _____	19	0	0	0	49	0	0	0	0
Comments	20	0	0	0	50	0	0	0	0
	21	0	0	0	51	0	0	0	0
	22	0	0	0	52	0	0	0	0
	23	5	5	0	53	0	0	0	0
	24	5	5	5	54	0	0	0	0
	25	0	0	0	55	0	0	0	0
Observers Signature	26	0	0	0	56	0	0	0	0
<u>John C. Sutcliffe</u>	27	0	0	0	57	0	0	0	0
Date of Last EPA Method 9 Examination	28	0	0	0	58	0	0	0	0
<u>OCTOBER 1997</u>	29	0	0	0	59	0	0	0	0
Examination Passed in EPA Region									
<u>AKR 1111 H</u>									



LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



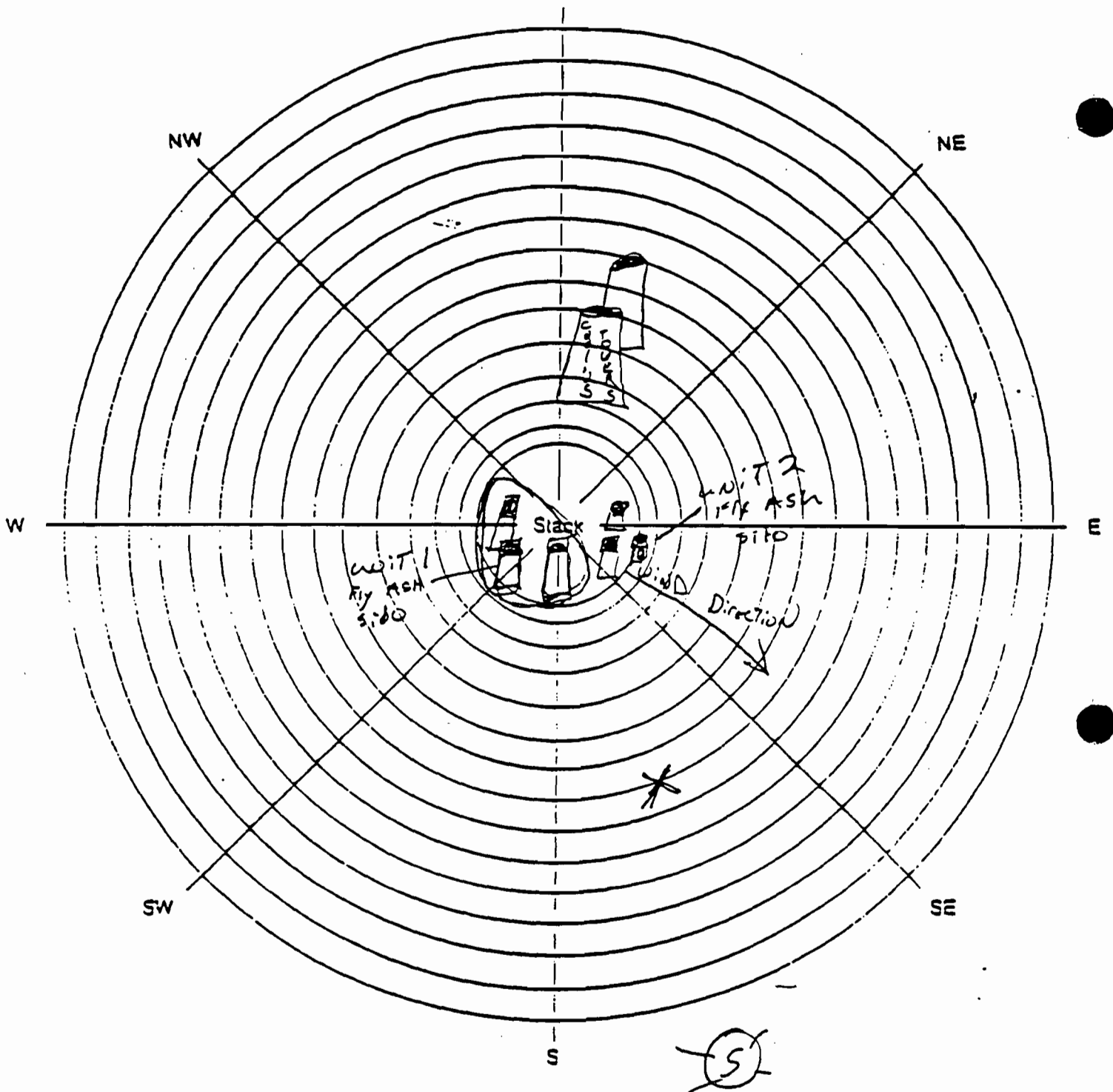
Client JE A Observer John Sutton  
 Project No. 97-422 Date 11-4-97  
 Plant Name SJRRP Observation began 0840  
 Location JACKSONVILLE FL. ended 0940  
 Facility POWER PLANT

Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Fly Ash, Silo (unit 1)</u> <u>(South Side)</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet)	4	0	0	0	0	34	0	0	0	0
Distance from Observer to source <u>260'</u>	5	0	0	0	0	35	0	0	0	0
Height of Source (above ground) <u>150'</u>	6	0	5	0	0	36	0	0	0	0
Weather Conditions	7	0	0	0	0	37	0	0	0	0
Wind Direction <u>SE</u>	8	0	0	0	0	38	0	0	0	0
Wind Speed <u>0-5</u>	9	0	0	0	0	39	0	0	0	0
Temperature <u>65</u>	10	0	0	0	0	40	0	0	0	0
Position of Sun <u>SOUTH EAST</u>	11	0	0	0	0	41	0	0	0	0
Sky Condition <u>Clouds</u> (clear, overcast, hazy, etc.)	12	0	0	0	0	42	0	0	0	0
	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
	15	0	0	0	0	45	0	0	0	0
Plume Description	16	0	0	0	0	46	0	0	0	0
Color <u>W/te</u>	17	0	0	0	0	47	0	0	0	0
Background <u>sky</u>	18	0	0	0	0	48	0	0	0	0
Type (wet or dry) <u>Dry</u> Dist. _____	19	0	0	0	0	49	0	0	0	0
Comments	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	0	0	0	0	53	0	0	0	0
	24	0	0	0	0	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observers Signature	26	0	0	0	0	56	0	0	0	0
<u>John Sutton</u>	27	0	0	0	0	57	0	0	0	0
Date of Last EPA Method 9 Examination	28	0	0	0	0	58	0	0	0	0
<u>October 1997</u>	29	0	0	0	0	59	0	0	0	0
Examination Passed in EPA Region										

Dist. (ft.) from plume center to point in plume where observations made







LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



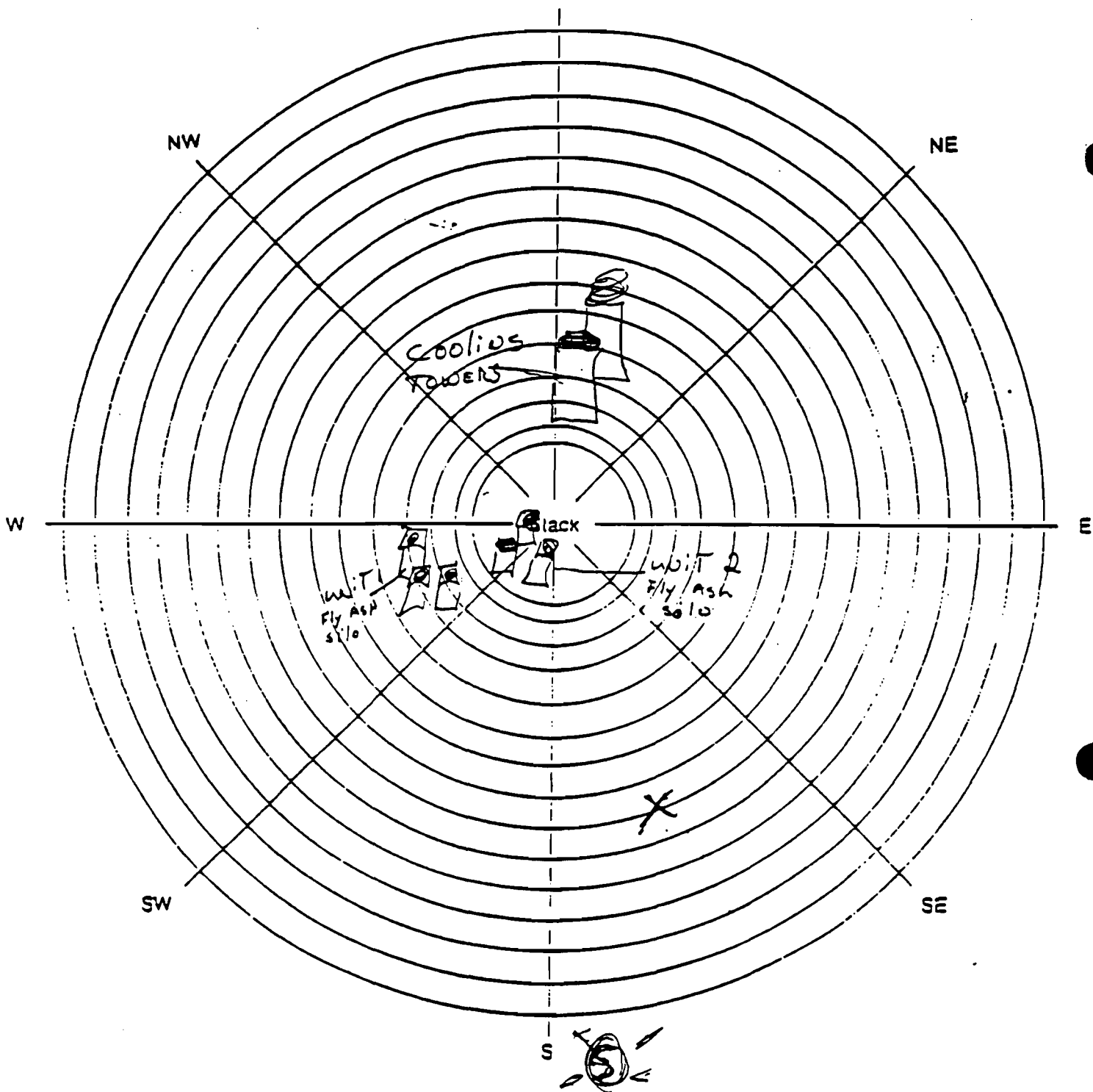
Total Source Analysis, Inc.  
Environmental Testing Consultants

Client J. E. A. Observer John C Sutter  
 Project No. 97-422 Date 11-4-97  
 Plant Name SJRPP Observation began 0945  
 Location JACKSONVILLE FL. ended 1045  
 Name of Facility POWER PLANT

Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Fly Ash silo (unit 2)</u> <u>NORTH SIDE</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet)	4	0	0	0	0	34	0	0	0	0
Distance from Observer to source <u>225'</u>	5	0	0	0	0	35	0	0	0	0
Height of Source (above ground) <u>150'</u>	6	0	0	0	0	36	0	0	0	0
Weather Conditions	7	0	0	0	0	37	0	0	0	0
Wind Direction <u>SE</u>	8	0	0	0	0	38	0	0	0	0
Wind Speed <u>0-5</u>	9	0	0	0	0	39	0	0	0	0
Temperature <u>05</u>	10	0	0	0	0	40	0	0	0	0
Position of Sun <u>S. EAST</u>	11	0	0	0	0	41	0	0	0	0
Sky Condition <u>25% Cloud</u> clear, overcast, %clouds, color of clouds, etc.)	12	0	0	0	0	42	0	0	0	0
	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
	15	0	0	0	0	45	0	0	0	0
Plume Description	16	0	0	0	0	46	0	0	0	0
Color <u>W/A</u>	17	0	0	0	0	47	0	0	0	0
Background <u>sky</u>	18	0	0	0	0	48	0	0	0	0
Type (wet or dry) <u>Dry</u> Dist. _____	19	0	0	0	0	49	0	0	0	0
Comments	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	0	0	0	0	53	0	0	0	0
	24	0	0	0	0	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observers Signature	26	0	0	0	0	56	0	0	0	0
<u>John C Sutter</u>	27	0	0	0	0	57	0	0	0	0
Date of Last EPA Method 9 Examination	28	0	0	0	0	58	0	0	0	0
<u>OCTOBER 1997</u>	29	0	0	0	0	59	0	0	0	0
Examination Passed in EPA Region										
<u>AKCIV JH</u>										

Distance (ft.) from plume outlet to point in plume where observations made





LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



**EMISSIONS UNIT EU053**  
**Non-Saleable Ash Silos (U#1-A & U#2-A)**

**ATTACHMENT EU053-05**  
**Emissions Estimates**

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.

**Date:** 11/3/98

**Ckd. By:** Kim Evans, P.E.

**Date:** 11/10/98

**Cal. No.:** 901103DJG69

**Project No.:** 7830.0020.0056

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update

**Subject:** Emissions Estimates for Pneumatic Transfer Systems

Emissions for the silos are based on a pneumatic Transfer Emission Factor of 0.27 lb/ton (Cement Transfer)

Silo	Transfer Rate (TPH)	Emission Factor (lb/ton)	
Unit 1 Non-Saleable Ash	12.5	0.27	lb/ton
Unit 1 Saleable Ash 1A	25	0.27	lb/ton
Unit 1 Saleable Ash 1B	25	0.27	lb/ton
Unit 2 Non-Saleable Ash	12.5	0.27	lb/ton
Unit 2 Saleable Ash 2A	25	0.27	lb/ton
Unit 2 Saleable Ash 2B	25	0.27	lb/ton
Quick Lime Silo	400.0	0.27	lb/ton

**Control Efficiency (%)**      99.50%

Silo	Emissions - Uncontrolled			Emissions - Controlled		
	lb/hr	tpy	g/s	lb/hr	tpy	g/s
Unit 1 Non-Saleable Ash	3.375	0.616	0.043	0.017	0.074	0.0021
Unit 1 Saleable Ash 1A	6.750	1.232	0.085	0.034	0.148	0.0043
Unit 1 Saleable Ash 1B	6.750	1.232	0.085	0.034	0.148	0.0043
Unit 2 Non-Saleable Ash	3.375	0.616	0.043	0.017	0.074	0.0021
Unit 2 Saleable Ash 2A	6.750	1.232	0.085	0.034	0.148	0.0043
Unit 2 Saleable Ash 2B	6.750	1.232	0.085	0.034	0.148	0.0043
Quick Lime Silo	4.500	0.821	0.057	0.023	0.099	0.0028

**References:**

AP42 Section 11.2 Concrete Batching  
Flows - Vendor Data

### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 11

SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

- This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

III. Part 1 - 1

DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96

**B. GENERAL EMISSIONS UNIT INFORMATION  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section :  SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)		
2. Emissions Unit Identification Number : 054 <input type="checkbox"/> No Corresponding ID <input type="checkbox"/> Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment :  Emissions Unit consists of the four fly ash storage silos and the pneumatic transfer system.		

**Emissions Unit Information Section**      11

SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

**Emissions Unit Control Equipment**      1

1. Description : Fly Ash Baghouses
2. Control Device or Method Code :      18



**C. EMISSIONS UNIT DETAIL INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section** 11  
 SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

**Emissions Unit Details**

1. Initial Startup Date :	25-Jan-1986
2. Long-term Reserve Shutdown Date :	
3. Package Unit : Manufacturer :	Model Number :
4. Generator Nameplate Rating :	MW
5. Incinerator Information : Dwell Temperature :	Degrees Fahrenheit
Dwell Time :	Seconds
Incinerator Afterburner Temperature :	Degrees Fahrenheit

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate :	mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr                      tons/day
3. Maximum Process or Throughput Rate :	25                      tons per hour
4. Maximum Production Rate :	
5. Operating Capacity Comment :	

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section** 11  
SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

**Rule Applicability Analysis**

Units were subject to PSD Review including the application of BACT.

III. Part 6a - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**List of Applicable Regulations**

Rule 62-210.300(1), F.A.C., Air Construction Permits

Rule 62-210.550, F.A.C., Stack Height Policy

Rule 62-210.650, F.A.C., Circumvention

Rule 62-297.310, F.A.C., General Test Requirements

Rule 62-297.401(5) & (9), F.A.C., EPA Methods 5 and 9

Rule 62-210.700(1), (4), & (6), F.A.C., Excess Emissions

Rule 62-4.130, F.A.C., Plant Operations - Problems

Rule 62-204.800(7)(e), F.A.C., Adoption of the NSPS Appendices (As Noted)

Rule 62-210.300(5), F.A.C., Notification of Start-up

Jacksonville Environmental Protection Board, Rule 2 - Air Pollution (as noted)

Rule 2.105, Maintenance of Air Pollution Control Devices

Rule 2.301, Adoption of Chapter 62-210, F.A.C., (As Noted)

Rule 2.1101, Adoption of Chapter 62-297, F.A.C., (As Noted)

III. Part 6b - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**List of Applicable Regulations**

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 11

SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

### Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	FAS-1, -2, -3, & -4
2. Emission Point Type Code :	3
3. Descriptions of Emission Points Comprising this Emissions Unit :	Four Discharge Points - Baghouse Exhaust Stacks
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :	FAS-1: Fly Ash Silo 1A Baghouse FAS-2: Fly Ash Silo 1B Baghouse FAS-3: Fly Ash Silo 2A Baghouse FAS-4: Fly Ash Silo 2B Baghouse
5. Discharge Type Code :	H
6. Stack Height :	120 feet
7. Exit Diameter :	1.80 feet
8. Exit Temperature :	80 °F
9. Actual Volumetric Flow Rate :	13,467 acfm
10. Percent Water Vapor :	0.50 %
11. Maximum Dry Standard Flow Rate :	13,467 dscfm
12. Nonstack Emission Point Height :	feet
13. Emission Point UTM Coordinates :	Zone : 17      East (km) : 447.490      North (km) : 3,367.050
14. Emission Point Comment :	

III. Part 7b - 1.



**F. SEGMENT (PROCESS/FUEL) INFORMATION**

**Emissions Unit Information Section**      11

SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

**Segment Description and Rate :**      Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Fly Ash	
2. Source Classification Code (SCC) :      30501222	
3. SCC Units :      Tons Transferred Or Handled	
4. Maximum Hourly Rate :      25.00	5. Maximum Annual Rate :      219,000.00
6. Estimated Annual Activity Factor :      0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 1

**G. EMISSIONS UNIT POLLUTANTS  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section** 11  
SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM	018		EL
2 - PM10	018		EL

III. Part 9a - 1



**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section** 11  
 SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

**Pollutant Potential/Estimated Emissions :** Pollutant 1

1. Pollutant Emitted : <b>PM</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0340000 lb/hour	0.1480000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <div style="text-align: right;">to                      tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference	AP-42, (EF=0.27)	
7. Emissions Method Code :    3		
8. Calculations of Emissions :  See Attachment EU054-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section** 11

SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

**Pollutant Potential/Estimated Emissions :** Pollutant 2

1. Pollutant Emitted : <b>PM10</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0340000 lb/hour	0.1480000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions:  <div style="text-align: right;">to                      tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference	AP-42, (EF=0.27)	
7. Emissions Method Code :    3		
8. Calculations of Emissions :  See Attachment EU054-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**Emissions Unit Information Section** 11  
SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

**Pollutant Information Section** 1

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	Percent Opacity	
4. Equivalent Allowable Emissions :	0.03	lb/hour	0.15 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

**Emissions Unit Information Section** 11  
SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

**Pollutant Information Section** 2

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	Percent Opacity	
4. Equivalent Allowable Emissions :	0.03	lb/hour	0.15 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

**I. VISIBLE EMISSIONS INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section** 11  
SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

**Visible Emissions Limitation :** Visible Emissions Limitation 1

1. Visible Emissions Subtype :	05
2. Basis for Allowable Opacity :	OTHER
3. Requested Allowable Opacity :	
	Normal Conditions : 5 %
	Exceptional Conditions : 100 %
Maximum Period of Excess Opacity Allowed :	min/hour
4. Method of Compliance :	
	EPA Method 9
5. Visible Emissions Comment :	
	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).
	Excess Emissions - 2 hours in any 24-hour period

**J. CONTINUOUS MONITOR INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**

III. Part 11 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION**

**Emissions Unit Information Section**      11

SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

**PSD Increment Consumption Determination**

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

III. Part 12 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

2. Increment Consuming for Nitrogen Dioxide?

- ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :					
PM :	C	SO2 :	U	NO2 :	U
4. Baseline Emissions :					
PM :	0.0000	lb/hour		0.0000	tons/year
SO2 :		lb/hour			tons/year
NO2 :					tons/year
5. PSD Comment :					



## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 11

SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

### Supplemental Requirements for All Applications

1. Process Flow Diagram :	EU054-01
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	EU054-02
4. Description of Stack Sampling Facilities :	EU054-03
5. Compliance Test Report :	EU054-04
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	EU054-05
9. Other Information Required by Rule or Statue :	NA

### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alerntive Modes of Operation (Emissions Trading) :

III. Part 13 - 1

12. Identification of Additional Applicable Requirements :

13. Compliance Assurance Monitoring  
Plan :

14. Acid Rain Application (Hard-copy Required) :

Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))

Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)

New Unit Exemption (Form No. 62-210.900(1)(a)2.)

Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

III. Part 13 - 2

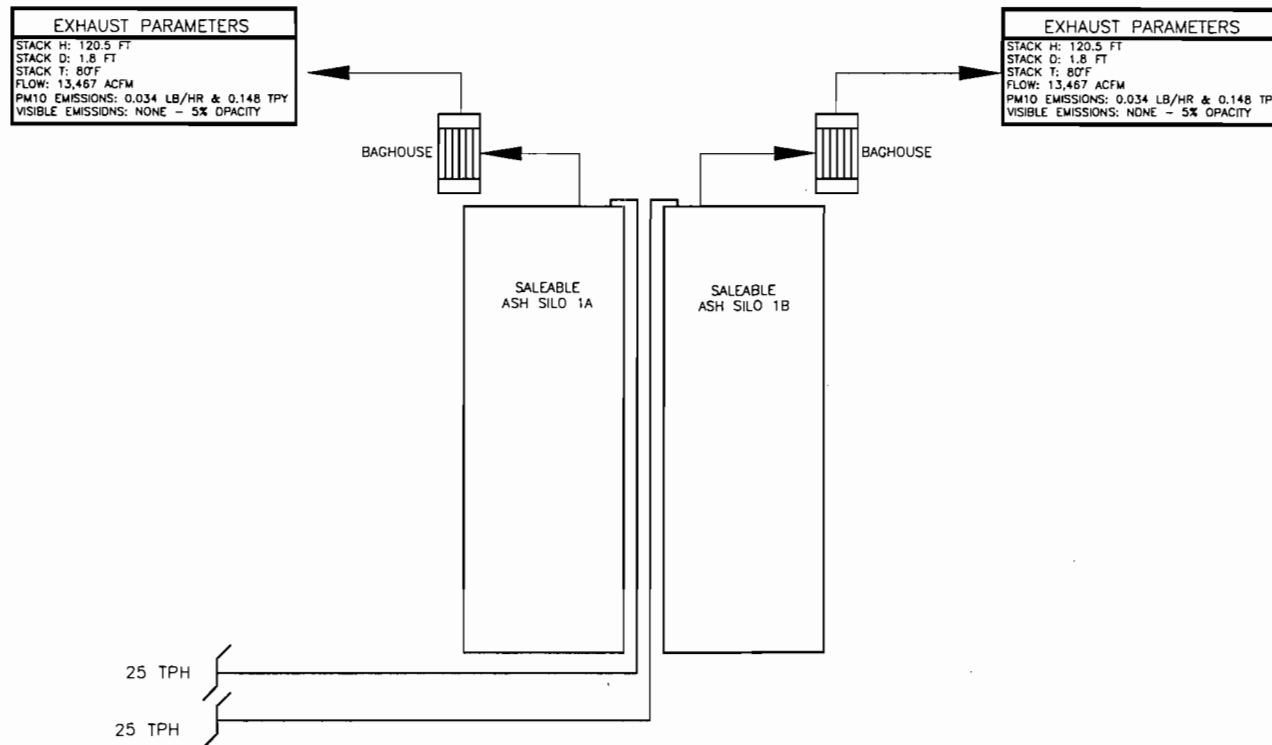
DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96

**EMISSIONS UNIT EU054**  
**Saleable Ash Silos (1A, 1B, 2A & 2B)**

**ATTACHMENT EU054-01**  
**Process Flow Diagram**

# ST JOHNS RIVER POWER PARK UNIT 1 SALEABLE ASH SILOS ATTACHMENT EU054-01a



**EXHAUST PARAMETERS**  
 STACK H: 120.5 FT  
 STACK D: 1.8 FT  
 STACK T: 80°F  
 FLOW: 13,467 ACFM  
 PM10 EMISSIONS: 0.034 LB/HR & 0.148 TPY  
 VISIBLE EMISSIONS: NONE - 5% OPACITY

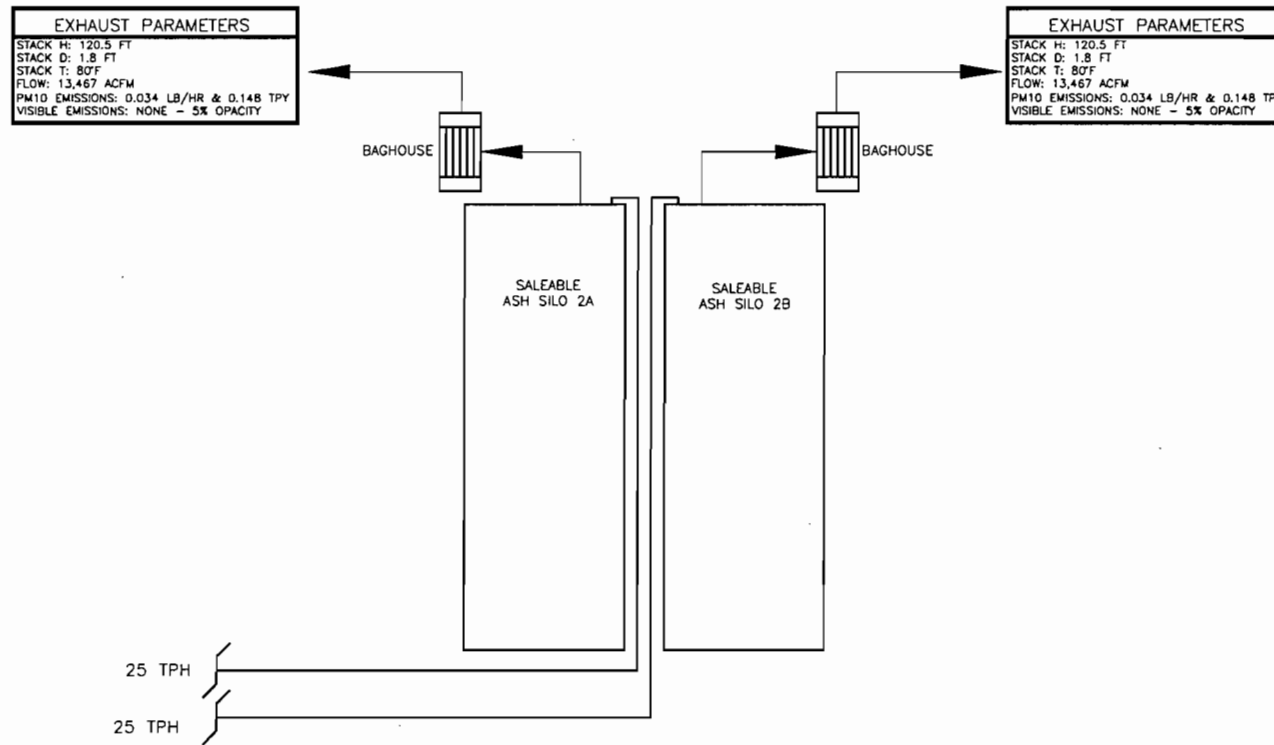
**EXHAUST PARAMETERS**  
 STACK H: 120.5 FT  
 STACK D: 1.8 FT  
 STACK T: 80°F  
 FLOW: 13,467 ACFM  
 PM10 EMISSIONS: 0.034 LB/HR & 0.148 TPY  
 VISIBLE EMISSIONS: NONE - 5% OPACITY

**JEA**  
 ST JOHNS RIVER POWER PARK  
 PSD PERMIT UPDATE  
 Simplified Process Flow Diagram  
 Emissions Unit ID 054

**FOSTER WHEELER ENVIRONMENTAL CORPORATION**

SCALE N/A	PREPARED DJG	CAD FILE NO. EU054gPF.DWG
DATE: 02/16/99	CHECKED MAE	FIGURE NO. EU054-01a
	APPROVED DJF	

# ST JOHNS RIVER POWER PARK UNIT 2 SALEABLE ASH SILOS ATTACHMENT EU054-01b



**JEA**  
ST JOHNS RIVER POWER PARK  
PSD PERMIT UPDATE  
Simplified Process Flow Diagram  
Emissions Unit ID 054

**FOSTER WHEELER ENVIRONMENTAL CORPORATION**

SCALE N/A	PREPARED DJG	CAD FILE NO. EU054bPF.DWG
DATE: 02/16/99	CHECKED MAE	FIGURE NO. EU054-01b
	APPROVED DJF	

**EMISSIONS UNIT EU054**  
**Saleable Ash Silos (1A, 1B, 2A & 2B)**

**ATTACHMENT EU054-02**  
**Control Equipment Description**

**Emissions Unit EU054**

**JRPP - Saleable Ash Silos (1A, 1b, 2A, & 2B)**

**Control Equipment Description**

**Control Equipment**

**Four Separate Fabric Filters/Baghouses - Existing Equipment**

**Exhaust Parameters**

**Stack Height: 120 feet; Stack Diameter: 21.6 inches; Stack Exhaust Temperature: Ambient; and Stack Flows 13,467 ACFM per stack**

**Reasonable Assurances**

**Emission Limitation - No Visible Emissions (5% Opacity)**

**See Attachment EU054-04, Compliance Test Reports**

**EMISSIONS UNIT EU054**  
**Saleable Ash Silos (1A, 1B, 2A & 2B)**

**ATTACHMENT EU054-03**  
**Stack Sampling Facilities Description**



## **STACK SAMPLING FACILITIES DESCRIPTION**

Pursuant to Rule 62-297.310(6), F.A.C. JEA will ensure that the required stack sampling facilities include sampling ports (Rule 62-297.310(6)(c), F.A.C.), work platforms (Rule 62-297.310(6)(d), F.A.C.), access to work platforms (Rule 62-297.310(6)(e), F.A.C.), electrical power (Rule 62-297.310(6)(f), F.A.C.), and sampling equipment support (Rule 62-297.310(6)(g), F.A.C.). All stack sampling facilities will meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

In accordance with Rule 62-297.310(6)(b), F.A.C., JEA will use temporary stack sampling facilities for the existing units which are not required to conduct a compliance test on at least an annual basis may use. When electing to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, JEA will install the temporary facilities on the emissions unit within 5 days of a request by the Department. The temporary sampling facilities will remain on the emissions unit until the test is completed.

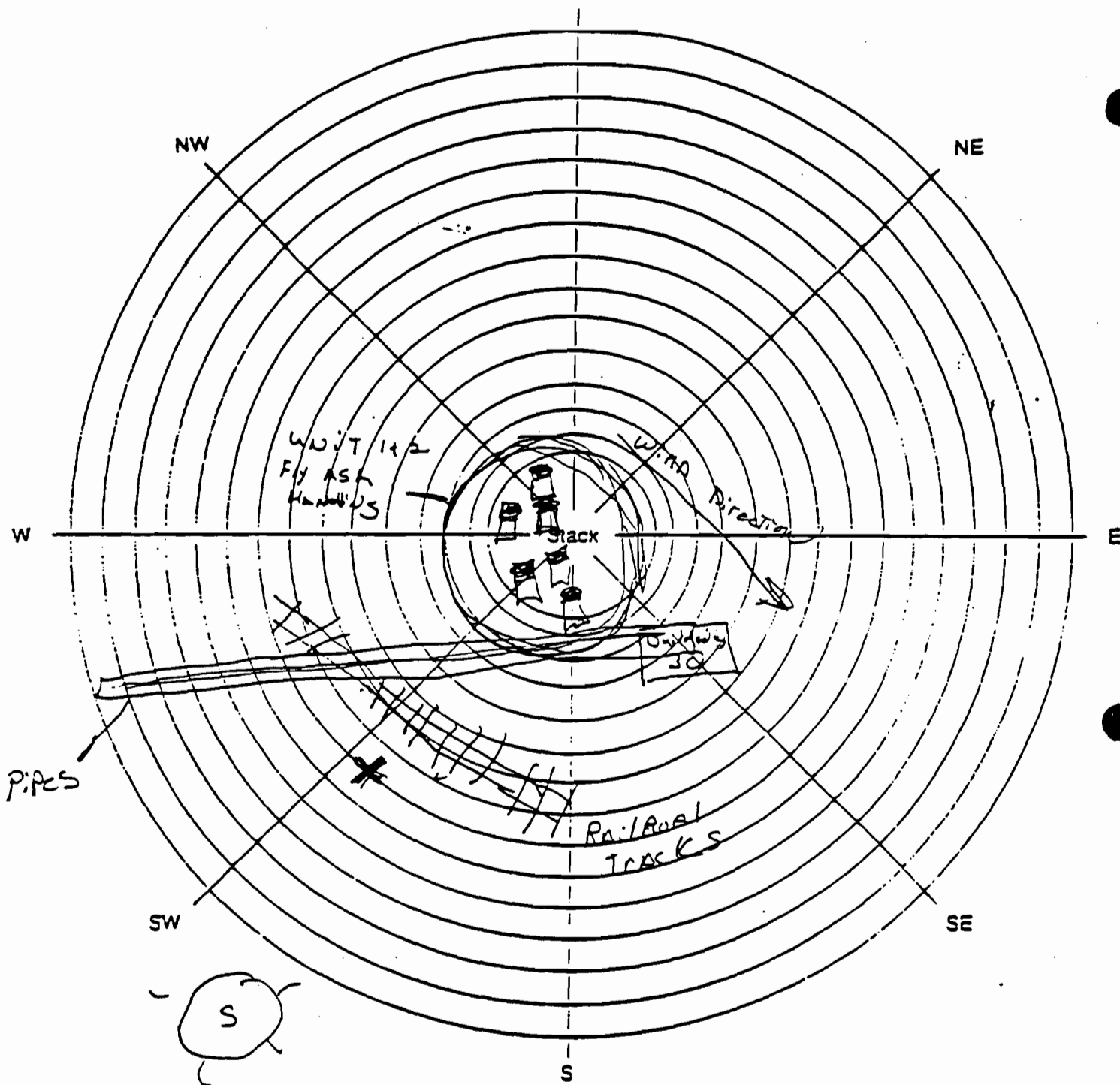
**EMISSIONS UNIT EU054**  
**Saleable Ash Silos (1A, 1B, 2A & 2B)**

**ATTACHMENT EU054-04**  
**Compliance Test Report**

Visible Emissions Evaluation Data Sheet

Client J.E.A. Best Available Copy Observer John Suttell  
 Project No. 97-422 Date 11-4-97  
 Plant Name SJRPP Observation began 1310  
 Location JACKSONVILLE FL ended 1411  
 Name of Facility POWER PLANT

Source Identification (Stack, duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>UNIT 1+2 FLY ASH HANDLING AREA</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet) Distance from Observer to source <u>150'</u> Height of Source (above ground) <u>0-150'</u>	4	0	0	0	0	34	0	0	0	0
	5	0	0	0	0	35	0	0	0	0
	6	0	0	0	0	36	0	0	0	0
Weather Conditions Wind Direction <u>SE</u> Wind Speed <u>0-5</u> Temperature <u>70</u> Position of Sun <u>SOUTH</u> Sky Condition <u>CLEAR</u> (clear, overcast, %clouds, color of clouds, etc.)	7	0	0	0	0	37	0	0	0	0
	8	0	0	0	0	38	0	0	0	0
	9	0	0	0	0	39	0	0	0	0
	10	0	0	0	0	40	0	0	0	0
	11	0	0	0	0	41	0	0	0	0
	12	0	0	0	0	42	0	0	0	0
	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
	15	0	0	0	0	45	0	0	0	0
Plume Description Color <u>Dark Brown</u> Background <u>SKY</u> Type (wet or dry) <u>Dry</u> Dist. _____	16	0	0	0	0	46	5	5	5	5
	17	0	0	0	0	47	0	0	0	0
Comments _____	18	0	0	0	0	48	0	0	0	0
	19	0	0	0	0	49	0	0	0	0
	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	5	5	0	0	53	0	0	0	0
	24	5	5	5	5	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observers Signature <u>John C Suttell</u>	26	0	0	0	0	56	0	0	0	0
Date of Last EPA Method 9 Examination <u>OCTOBER 1997</u>	27	0	0	0	0	57	0	0	0	0
Examination Passed in EPA Region <u>HAZARD H</u>	28	0	0	0	0	58	0	0	0	0
	29	0	0	0	0	59	0	0	0	0



LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



Best Available Copy

Client JEA

Observer John Sutton

Project No. 97-422

Date 11-4-97

Plant Name STRPP

Observation began 0840

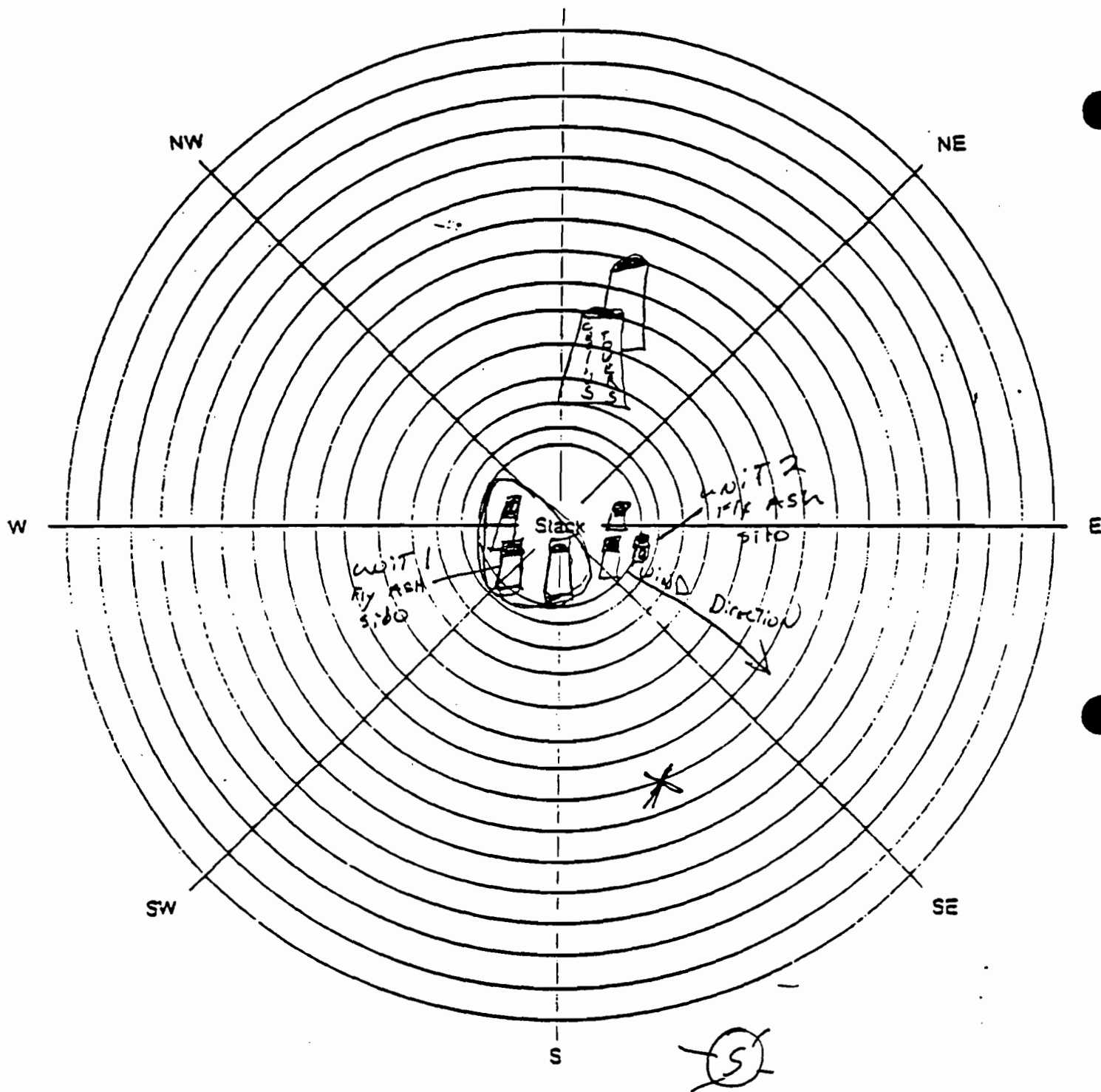
Location JACKSONVILLE FL.

ended 0940

Type of Facility POWER PLANT

Source Identification (Stack, duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Fly Ash Silo (unit 1)</u> <u>(SOUTH SIDE)</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet)	4	0	0	0	0	34	0	0	0	0
Distance from Observer to source <u>200'</u>	5	0	0	0	0	35	0	0	0	0
Height of Source (above ground) <u>150'</u>	6	0	0	0	0	36	0	0	0	0
Weather Conditions	7	0	0	0	0	37	0	0	0	0
Wind Direction <u>SE</u>	8	0	0	0	0	38	0	0	0	0
Wind Speed <u>0-5</u>	9	0	0	0	0	39	0	0	0	0
Temperature <u>65</u>	10	0	0	0	0	40	0	0	0	0
Position of Sun <u>SOUTH EAST</u>	11	0	0	0	0	41	0	0	0	0
Sky Condition <u>clouds</u> (clear, overcast, hazy, etc.) color of clouds, etc.)	12	0	0	0	0	42	0	0	0	0
	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
	15	0	0	0	0	45	0	0	0	0
Plume Description	16	0	0	0	0	46	0	0	0	0
Color <u>white</u>	17	0	0	0	0	47	0	0	0	0
Background <u>sky</u>	18	0	0	0	0	48	0	0	0	0
Type (wet or dry) <u>Dry</u> Dist. _____	19	0	0	0	0	49	0	0	0	0
Comments _____	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	0	0	0	0	53	0	0	0	0
	24	0	0	0	0	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observers Signature	26	0	0	0	0	56	0	0	0	0
<u>John Sutton</u>	27	0	0	0	0	57	0	0	0	0
Date of Last EPA Method 9 Examination	28	0	0	0	0	58	0	0	0	0
<u>October 1997</u>	29	0	0	0	0	59	0	0	0	0
Examination Passed in EPA Region										





LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

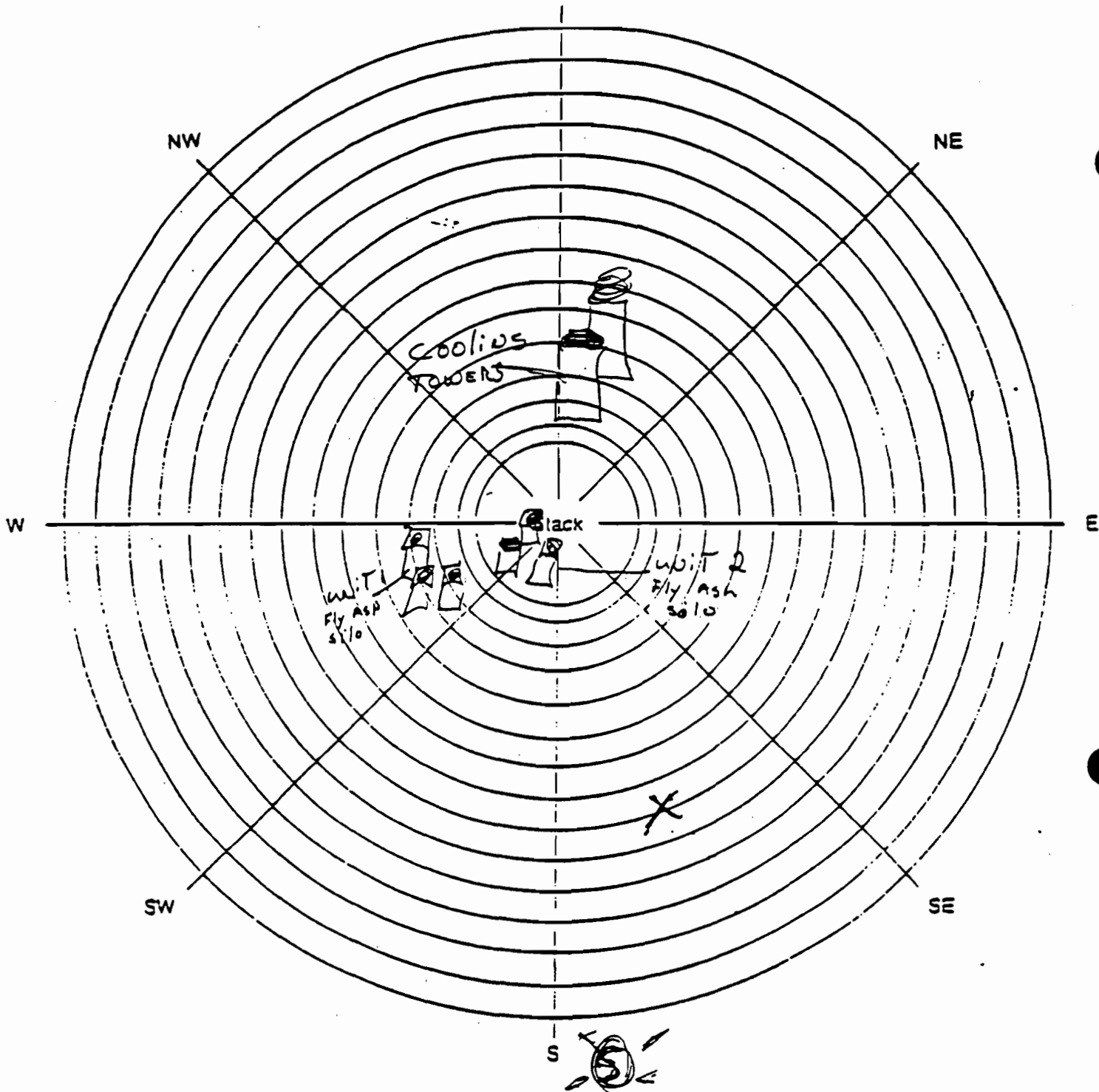
NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



Client J. E. A. Best Available Copy Observer John C Sutton  
 Project No. 97-422 Date 11-4-97  
 Plant Name SJAPP Observation began 0945  
 Location JACKSONVILLE FL. ended 1045  
 Type of Facility POWER PLANT

Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Fly Ash silo (unit 2)</u> <u>NORTH SIDE</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet)	4	0	0	0	0	34	0	0	0	0
Distance from Observer to source <u>225'</u>	5	0	0	0	0	35	0	0	0	0
Height of Source (above ground) <u>150'</u>	6	0	0	0	0	36	0	0	0	0
	7	0	0	0	0	37	0	0	0	0
Weather Conditions	8	0	0	0	0	38	0	0	0	0
Wind Direction <u>SE</u>	9	0	0	0	0	39	0	0	0	0
Wind Speed <u>0-5</u>	10	0	0	0	0	40	0	0	0	0
Temperature <u>05</u>	11	0	0	0	0	41	0	0	0	0
Position of Sun <u>S. EAST</u>	12	0	0	0	0	42	0	0	0	0
Sky Condition <u>25% Cloud</u> clear, overcast, etc. color of clouds, etc.)	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
	15	0	0	0	0	45	0	0	0	0
Plume Description	16	0	0	0	0	46	0	0	0	0
Color <u>N/A</u>	17	0	0	0	0	47	0	0	0	0
Background <u>sky</u>	18	0	0	0	0	48	0	0	0	0
Type (wet or dry) <u>Dry</u> Dist. _____	19	0	0	0	0	49	0	0	0	0
Comments	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	0	0	0	0	53	0	0	0	0
	24	0	0	0	0	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observer's Signature	26	0	0	0	0	56	0	0	0	0
<u>John C Sutton</u>	27	0	0	0	0	57	0	0	0	0
Date of Last EPA Method 9 Examination	28	0	0	0	0	58	0	0	0	0
<u>OCTOBER 1997</u>	29	0	0	0	0	59	0	0	0	0
Examination Passed in EPA Region										
<u>AKICN JA</u>										





LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.





**EMISSIONS UNIT EU054**  
**Saleable Ash Silos (1A, 1B, 2A & 2B)**

**ATTACHMENT EU054-05**  
**Emissions Estimates**

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98  
**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Cal. No.:** 901103DJG69  
**Project No.:** 7830.0020.0056

**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Pneumatic Transfer Systems

Emissions for the silos are based on a pneumatic Transfer Emission Factor of 0.27 lb/ton (Cement Transfer)

Silo	Transfer Rate (TPH)	Emission Factor (lb/ton)	
Unit 1 Non-Saleable Ash	12.5	0.27	lb/ton
Unit 1 Saleable Ash 1A	25	0.27	lb/ton
Unit 1 Saleable Ash 1B	25	0.27	lb/ton
Unit 2 Non-Saleable Ash	12.5	0.27	lb/ton
Unit 2 Saleable Ash 2A	25	0.27	lb/ton
Unit 2 Saleable Ash 2B	25	0.27	lb/ton
Quick Lime Silo	400.0	0.27	lb/ton

**Control Efficiency (%)**      99.50%

Silo	Emissions - Uncontrolled			Emissions - Controlled		
	lb/hr	tpy	g/s	lb/hr	tpy	g/s
Unit 1 Non-Saleable Ash	3.375	0.616	0.043	0.017	0.074	0.0021
Unit 1 Saleable Ash 1A	6.750	1.232	0.085	0.034	0.148	0.0043
Unit 1 Saleable Ash 1B	6.750	1.232	0.085	0.034	0.148	0.0043
Unit 2 Non-Saleable Ash	3.375	0.616	0.043	0.017	0.074	0.0021
Unit 2 Saleable Ash 2A	6.750	1.232	0.085	0.034	0.148	0.0043
Unit 2 Saleable Ash 2B	6.750	1.232	0.085	0.034	0.148	0.0043
Quick Lime Silo	4.500	0.821	0.057	0.023	0.099	0.0028

**References:**

AP42 Section 11.2 Concrete Batching  
Flows - Vendor Data

2. Increment Consuming for Nitrogen Dioxide?

- The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :		
PM : C	SO2 : U	NO2 : U
4. Baseline Emissions :		
PM :	0.0000 lb/hour	0.0000 tons/year
SO2 :	lb/hour	tons/year
NO2 :		tons/year
5. PSD Comment :		

## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 7

SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

### Supplemental Requirements for All Applications

1. Process Flow Diagram :	EU050-01
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	EU050-02
4. Description of Stack Sampling Facilities :	EU050-03
5. Compliance Test Report :	EU050-04
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	EU050-05
9. Other Information Required by Rule or Statute :	NA

### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alternative Modes of Operation (Emissions Trading) :

III. Part 13 - 1

12. Identification of Additional Applicable Requirements :

13. Compliance Assurance Monitoring  
Plan :

14. Acid Rain Application (Hard-copy Required) :

Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))

Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)

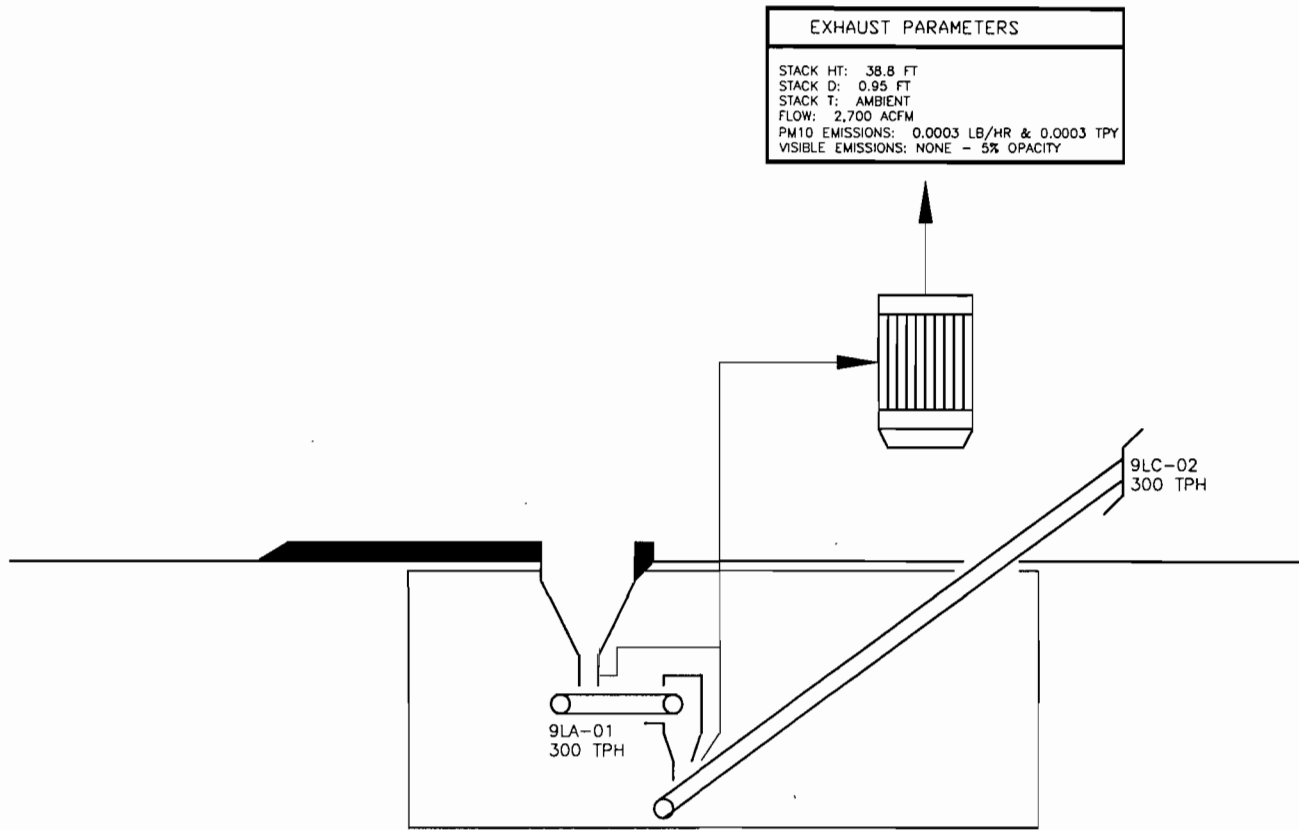
New Unit Exemption (Form No. 62-210.900(1)(a)2.)

Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

**EMISSIONS UNIT EU050**  
**Limestone Reclaim Tunnel (3DC-01)**

**ATTACHMENT EU050-01**  
**Process Flow Diagram**

**ST JOHNS RIVER POWER PARK  
LIMESTONE RECLAIM TUNNEL, TRANSFER POINTS  
ATTACHMENT EU050-01**



**UNDERGROUND TRANSFER SYSTEM**

<b>JEA</b>		
ST JOHNS POWER PARK PSD PERMIT UPDATE		
Simplified Process Flow Diagram Emissions Unit ID 050		
<b>FOSTER WHEELER ENVIRONMENTAL CORPORATION</b>		
SCALE N/A	PREPARED DJG CHECKED MAE APPROVED DJF	CAD FILE NO. EU050PF.DWG FIGURE NO. EU050-01
DATE: 02/18/99		

**EMISSIONS UNIT EU050  
Limestone Reclaim Tunnel (3DC-01)**

**ATTACHMENT EU050-02  
Control Equipment Description**



**Emissions Unit EU050**  
**SJRPP - Limestone Reclaim Tunnel (3DC-01)**  
**Control Equipment Description**

<b>Control Equipment</b>	<b>Fabric Filter/Baghouse - Existing Equipment</b>
<b>Exhaust Parameters</b>	<b>Stack Height: 39 feet; Stack Diameter: 11.5 inches; Stack Exhaust Temperature: Ambient; and Stack Flow 2,700 ACFM</b>
<b>Reasonable Assurances</b>	<b>Emission Limitation - No Visible Emissions (5% Opacity)</b> <b>See Attachment EU050-04, Compliance Test Report</b>

**EMISSIONS UNIT EU050  
Limestone Reclaim Tunnel (3DC-01)**

**ATTACHMENT EU050-03  
Stack Sampling Facilities Description**

## **STACK SAMPLING FACILITIES DESCRIPTION**

Pursuant to Rule 62-297.310(6), F.A.C. JEA will ensure that the required stack sampling facilities include sampling ports (Rule 62-297.310(6)(c), F.A.C.), work platforms (Rule 62-297.310(6)(d), F.A.C.), access to work platforms (Rule 62-297.310(6)(e), F.A.C.), electrical power (Rule 62-297.310(6)(f), F.A.C.), and sampling equipment support (Rule 62-297.310(6)(g), F.A.C.). All stack sampling facilities will meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

In accordance with Rule 62-297.310(6)(b), F.A.C., JEA will use temporary stack sampling facilities for the existing units which are not required to conduct a compliance test on at least an annual basis may use. When electing to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, JEA will install the temporary facilities on the emissions unit within 5 days of a request by the Department. The temporary sampling facilities will remain on the emissions unit until the test is completed.

**EMISSIONS UNIT EU050**  
**Limestone Reclaim Tunnel (3DC-01)**

**ATTACHMENT EU050-04**  
**Compliance Test Report**

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method 2 203A 203B Other \_\_\_\_\_

Company Name  
**ST. JOHN'S RIVER POWER PARK**

Facility Name  
**ST. JOHN'S RIVER POWER PARK**

Street Address  
**11201 NEW BELLW ROAD**

City  
**JACKSONVILLE** State  
**FL** Zip  
**32226**

Process  
**LIMESTONE RECLAIM** Unit #  
**COM** Operating Mode

Control Equipment  
**BAGHOUSE 3DC-D1** Operating Mode  
**100% CAPACITY**

Describe Emission Point  
**BAGHOUSE EFFLUENT EXHAUST 3DC-D1**

Height of Emiss. Pt.  
Start **20'** End **20'** Height of Emiss. Pt. Rel. to Observer  
Start **14'** End **14'**

Distance to Emiss. Pt.  
Start **35'** End **35'** Direction to Emiss. Pt. (Degrees)  
Start **280°** End **280°**

Vertical Angle to Obs. Pt.  
Start **17°** End **17°** Direction to Obs. Pt. (Degrees)  
Start **294°** End **294°**

Distance and Direction to Observation Point from Emission Point  
Start **1'-196°** End **1'-196°**

Describe Emissions  
Start **NONE** End **NONE**

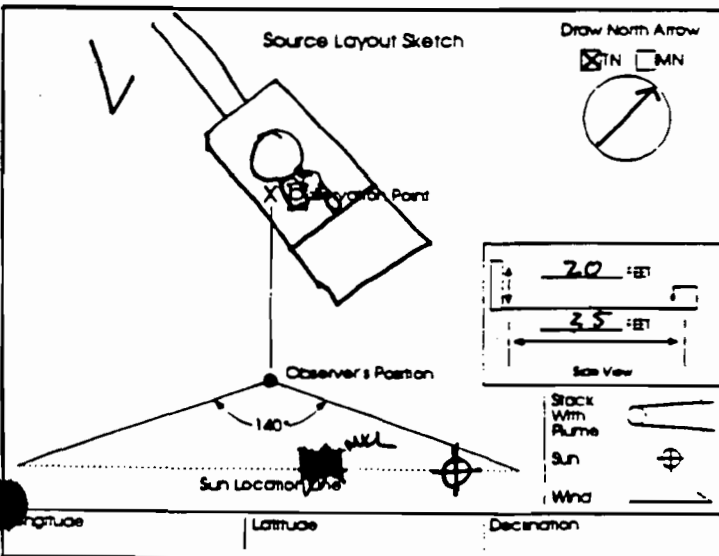
Emission Color  
Start **NONE** End **NONE** Water Droplet Plume  
Attached  Detached  None

Describe Plume Background  
Start **BAGHOUSE HOUSING** End **BAGHOUSE HOUSING**

Background Color  
Start **RUST** End **RUST** Sky Conditions  
Start **OVERCAST** End **OVERCAST**

Wind Speed  
Start **20-25** End **20-25** Wind Direction  
Start **320°** End **320°**

Ambient Temp.  
Start **54°** End **54°** Wet Bulb Temp.  
Start **55°** RH Percent  
Start **100%**



Additional Information

Form Number **00501** Page **1** of **2**  
Continued on VEO Form Number **00502**

Observation Date	Time Zone	Start Time	End Time	Comments					
4/30/99	EST	0750	0850	Sec	0	15	30	45	
				Mn	0	0	0	0	
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print)  
**MARK K. LOEBELT**

Observer's Signature  
*Mark K. Loebelt* Date  
**4/30/99**

Organization  
**ST. JOHN'S RIVER POWER PARK**

Certified by  
**EASTERN TECHNICAL ASSOCIATES** Date  
**12/3/98**

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 203B Other \_\_\_\_\_

Company Name  
**ST. JOHNS RIVER POWER PARK**

Facility Name  
**ST. JOHNS RIVER POWER PARK**

Street Address  
**11201 NEW BERLIN ROAD**

City State Zip  
**JACKSONVILLE FL 32226**

Process Unit # Operating Mode  
**LIMESTONE RECLAIM COM**

Control Equipment Operating Mode  
**BAGHOUSE 3DC-D1 100% CAPACITY**

Describe Emission Point  
**BAGHOUSE EFFLUENT EXHAUST 3DC-D1**

Height of Emiss. Pt. Height of Emiss. Pt. Rel. to Observer  
 Start End Start End

Distance to Emiss. Pt. Direction to Emiss. Pt. (Degrees)  
 Start End Start End

Vertical Angle to Obs. Pt. Direction to Obs. Pt. (Degrees)  
 Start End Start End

Distance and Direction to Observation Point from Emission Point  
 Start End

Describe Emissions  
 Start End

Emission Color Water Droplet Plume  
 Start End Attached  Detached  None

Describe Plume Background  
 Start End

Background Color Sky Conditions  
 Start End Start End

Wind Speed Wind Direction  
 Start End Start End

Ambient Temp. Wet Bulb Temp. RH Percent  
 Start End Start End

Source Layout Sketch

Draw North Arrow  
 TN  MN

X Observation Point

Observer's Position

140°

Sun Location Line

FEET

FEET

Side View

Stack With Plume

Sun

Wind

Longitude Latitude Declination

Additional Information

Form Number 00502 Page 2 of 2  
 Continued on VEO Form Number 00501

Observation Date	Time Zone	Start Time	End Time							
4/30/99	EOT	0750	0850	Sec	Min	0	15	30	45	Comments
1	0	0	0	0						
2	0	0	0	0						
3	0	0	0	0						
4	0	0	0	0						
5	0	0	0	0						
6	0	0	0	0						
7	0	0	0	0						
8	0	0	0	0						
9	0	0	0	0						
10	0	0	0	0						
11	0	0	0	0						
12	0	0	0	0						
13	0	0	0	0						
14	0	0	0	0						
15	0	0	0	0						
16	0	0	0	0						
17	0	0	0	0						
18	0	0	0	0						
19	0	0	0	0						
20	0	0	0	0						
21	0	0	0	0						
22	0	0	0	0						
23	0	0	0	0						
24	0	0	0	0						
25	0	0	0	0						
26	0	0	0	0						
27	0	0	0	0						
28	0	0	0	0						
29	0	0	0	0						
30	0	0	0	0						

Observer's Name (Print)  
**MARK K. LOECHLIT**

Observer's Signature  
**Mark K. Loechlit** Date **4/30/99**

Organization  
**ST. JOHNS RIVER POWER PARK**

Certified by  
**EASTERN TECHNICAL ASSOCIATES** Date **12/3/98**

**EMISSIONS UNIT EU050**  
**Limestone Reclaim Tunnel (3DC-01)**

**ATTACHMENT EU050-05**  
**Emissions Estimates**

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Limestone Reclaim Tunnel (3DC-01)

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Limestone	0.0032	2.87	6.5	0.74	0.35	0.11	0.00022	0.00010	3.29E-05

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	0	0
Petroleum Coke	0	0
Limestone	300	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.13	0.06	0.02	0.0167	0.0079	0.0025

(2 Transfer Points)

**Emission Rates - Controlled 99.50%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.000663	0.000314	0.000099	0.000084	0.000040	0.000012

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.13	0.06	0.02	0.00382	0.00181	0.00057

(2 Transfer Points)

**Emission Rates - Controlled 99.50%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.000663	0.000314	0.000099	0.000019	0.000009	0.000003

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data



### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 8

SJRPP - Limestone Silos (1DC-01 & 2DC-01)

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

- This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

III. Part 1 - 1



**Emissions Unit Information Section**      8

SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**Emissions Unit Control Equipment**      1

1. Description :	
Silo #1	
2. Control Device or Method Code :	18

**Emissions Unit Information Section**      8

SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**Emissions Unit Control Equipment**      2

1. Description : Silo #2
2. Control Device or Method Code :      18

**C. EMISSIONS UNIT DETAIL INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      8  
 SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**Emissions Unit Details**

1. Initial Startup Date :	01-Dec-1986	
2. Long-term Reserve Shutdown Date :		
3. Package Unit :		
Manufacturer :		Model Number :
4. Generator Nameplate Rating :	MW	
5. Incinerator Information :		
Dwell Temperature :		Degrees Fahrenheit
Dwell Time :		Seconds
Incinerator Afterburner Temperature :		Degrees Fahrenheit

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate :	300	tons per hour
4. Maximum Production Rate :		
5. Operating Capacity Comment :		

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule :		
24 hours/day		7 days/week
52 weeks/year		8,760 hours/year

**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section** 8  
SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**Rule Applicability Analysis**

Units were subject to PSD Review including the application of BACT.

**List of Applicable Regulations**

Rule 62-204.800(7)(e), F.A.C., Adoption of the NSPS Appendices (As Noted)

Rule 62-210.300(5), F.A.C., Notification of Start-up

Jacksonville Environmental Protection Board, Rule 2 - Air Pollution (as noted)

Rule 62-210.550, F.A.C., Stack Height Policy

Rule 62-210.650, F.A.C., Circumvention

Rule 62-297.310, F.A.C., General Test Requirements

Rule 62-297.401(5) & (9), F.A.C., EPA Methods 5 and 9

Rule 62-210.700(1), (4), & (6), F.A.C., Excess Emissions

Rule 2.105, Maintenance of Air Pollution Control Devices

Rule 2.301, Adoption of Chapter 62-210, F.A.C., (As Noted)

Rule 2.1101, Adoption of Chapter 62-297, F.A.C., (As Noted)

Rule 62-210.300(1), F.A.C., Air Construction Permits

III. Part 6b - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 8

SJRPP - Limestone Silos (1DC-01 & 2DC-01)

### Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	EU051
2. Emission Point Type Code :	3
3. Descriptions of Emission Points Comprising this Emissions Unit :	1DC-01
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :	1DC-01
5. Discharge Type Code :	H
6. Stack Height :	114 feet
7. Exit Diameter :	0.95 feet
8. Exit Temperature :	68 °F
9. Actual Volumetric Flow Rate :	2,700 acfm
10. Percent Water Vapor :	2.00 %
11. Maximum Dry Standard Flow Rate :	2,700 dscfm
12. Nonstack Emission Point Height :	feet
13. Emission Point UTM Coordinates :	Zone : 17      East (km) : 447.223      North (km) : 3,366.594
14. Emission Point Comment :	

III. Part 7b - 1



## E. EMISSION POINT (STACK/VENT) INFORMATION

**Emissions Unit Information Section**          8    

SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**Emission Point Description and Type :**

1. Identification of Point on Plot Plan or Flow Diagram :	EU051
2. Emission Point Type Code :	3
3. Descriptions of Emission Points Comprising this Emissions Unit :	2DC-01
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :	1DC-01
5. Discharge Type Code :	H
6. Stack Height :	114 feet
7. Exit Diameter :	0.95 feet
8. Exit Temperature :	68 °F
9. Actual Volumetric Flow Rate :	2,700 acfm
10. Percent Water Vapor :	2.00 %
11. Maximum Dry Standard Flow Rate :	2,700 dscfm
12. Nonstack Emission Point Height :	feet
13. Emission Point UTM Coordinates :	
Zone :      17                      East (km) :      447.223                      North (km) :      3,366.594	
14. Emission Point Comment :	

**F. SEGMENT (PROCESS/FUEL) INFORMATION**

**Emissions Unit Information Section**      8

SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**Segment Description and Rate :**      Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Limestone	
2. Source Classification Code (SCC) :      30501099	
3. SCC Units :      Tons Transferred Or Handled	
4. Maximum Hourly Rate :      300.00	5. Maximum Annual Rate :      600,000.00
6. Estimated Annual Activity Factor :      0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 1

**G. EMISSIONS UNIT POLLUTANTS**  
**(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section**      8  
SJRPP - Limestone Silos (1DC-01 & 2DC-01)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM	018		EL
2 - PM10	018		EL

III. Part 9a - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section**      8

SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**Pollutant Potential/Estimated Emissions :**      Pollutant      1

1. Pollutant Emitted : <b>PM</b>		
2. Total Percent Efficiency of Control :	99.80	%
3. Potential Emissions :	0.0006600 lb/hour	0.0006600 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <div style="text-align: right;">to      tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference	AP-42, (EF=0.00022)	
7. Emissions Method Code :      3		
8. Calculations of Emissions :  See Attachment EU051-05		
9. Pollutant Potential/Estimated Emissions Comment :		

III. Part 9b - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section**      8  
 SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**Pollutant Potential/Estimated Emissions :**      Pollutant      2

1. Pollutant Emitted : <b>PM10</b>		
2. Total Percent Efficiency of Control :	99.80	%
3. Potential Emissions :	0.0003000 lb/hour	0.0003000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <div style="text-align: right; margin-right: 100px;">to</div> <div style="text-align: right;">tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference	AP-42, (EF=0.0001)	
7. Emissions Method Code :      3		
8. Calculations of Emissions :  See Attachment EU051-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**Emissions Unit Information Section** 8  
SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**Pollutant Information Section** 1

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	percent opacity	
4. Equivalent Allowable Emissions :	1.92	lb/hour	8.41 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity)..		

III. Part 9c - 1

**Emissions Unit Information Section** 8  
SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**Pollutant Information Section** 2

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	percent opacity	
4. Equivalent Allowable Emissions :	0.22	lb/hour	0.96 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

**I. VISIBLE EMISSIONS INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section** 8  
SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**Visible Emissions Limitation :** Visible Emissions Limitation 1

1. Visible Emissions Subtype :	05
2. Basis for Allowable Opacity :	OTHER
3. Requested Allowable Opacity :	
	Normal Conditions : 5 %
	Exceptional Conditions : 100 %
	Maximum Period of Excess Opacity Allowed : min/hour
4. Method of Compliance :	
	EPA Method 9
5. Visible Emissions Comment :	
	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).
	Excess Emissions - 2 hours in any 24-hour period.

III. Part 10 - 1



**J. CONTINUOUS MONITOR INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**

III. Part 11 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT  
TRACKING INFORMATION**

**Emissions Unit Information Section**          8    

SJRPP - Limestone Silos (1DC-01 & 2DC-01)

**PSD Increment Consumption Determination**

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

III. Part 12 - 1

2. Increment Consuming for Nitrogen Dioxide?

- ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :		
PM : C	SO2 : U	NO2 : U
4. Baseline Emissions :		
PM :	0.0000 lb/hour	0.0000 tons/year
SO2 :	lb/hour	tons/year
NO2 :		tons/year
5. PSD Comment :		

## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 8

SJRPP - Limestone Silos (1DC-01 & 2DC-01)

### Supplemental Requirements for All Applications

1. Process Flow Diagram :	EU051-01
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	EU051-02
4. Description of Stack Sampling Facilities :	EU051-03
5. Compliance Test Report :	EU051-04
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	EU051-05
9. Other Information Required by Rule or Statue :	NA

### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alternative Modes of Operation (Emissions Trading) :

III. Part 13 - 1

12. Identification of Additional Applicable Requirements :

13. Compliance Assurance Monitoring  
Plan :

14. Acid Rain Application (Hard-copy Required) :

Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))

Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)

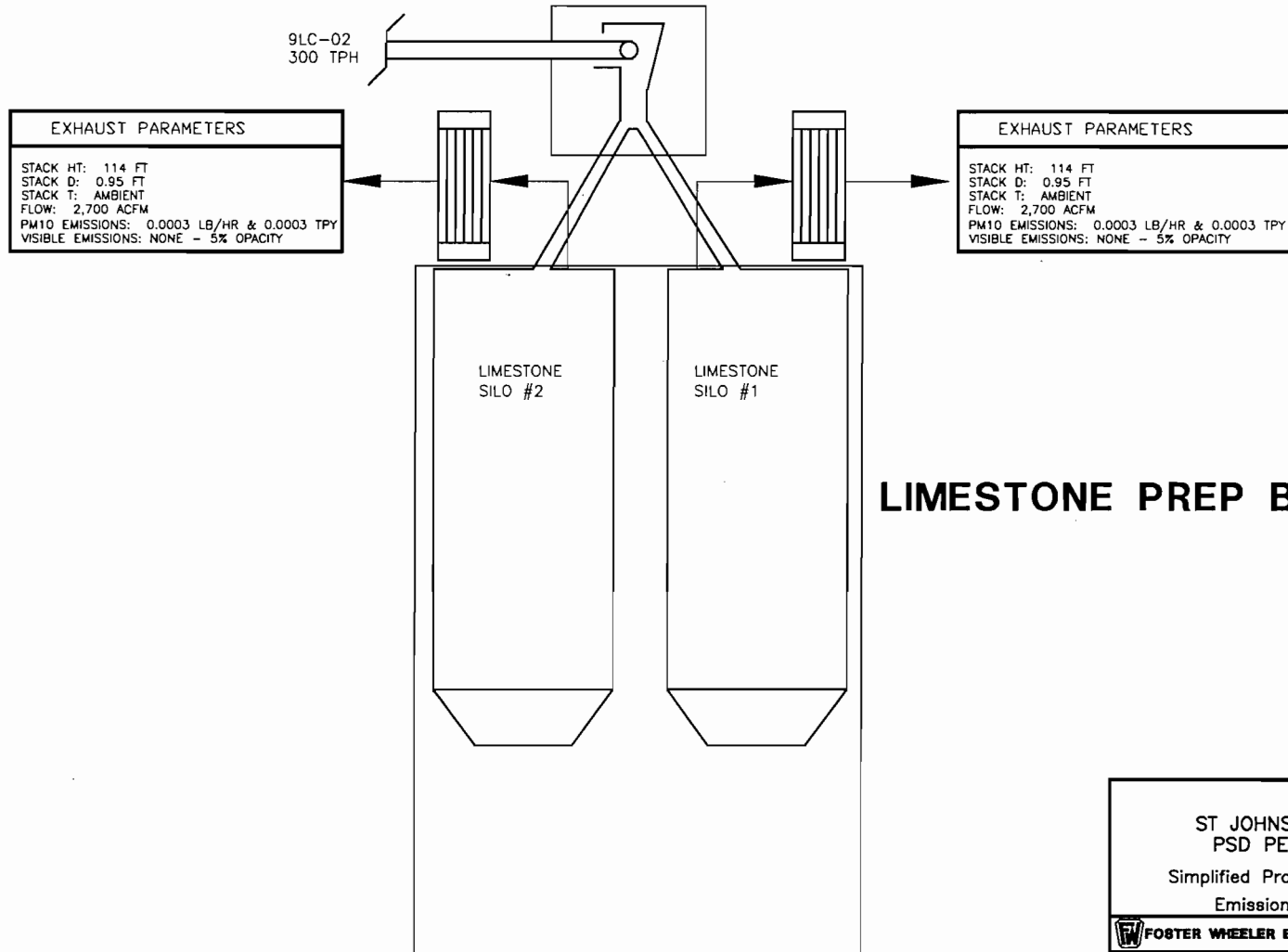
New Unit Exemption (Form No. 62-210.900(1)(a)2.)

Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

**EMISSIONS UNIT EU051  
Limestone Silos (1DC-01 & 2DC-01)**

**ATTACHMENT EU051-01  
Process Flow Diagram**

# ST JOHNS RIVER POWER PARK LIMESTONE SILOS, TRANSFER POINTS ATTACHMENT EU051-01



<b>JEA</b>		
ST JOHNS POWER PARK PSD PERMIT UPDATE		
Simplified Process Flow Diagram Emissions Unit ID 051		
<b>F</b> FOSTER WHEELER ENVIRONMENTAL CORPORATION		
SCALE N/A	PREPARED DJG	CAD FILE NO. EU051PF.DWG
DATE: 02/16/99	CHECKED MAE	FIGURE NO. EU051-01
	APPROVED DJF	

**EMISSIONS UNIT EU051  
Limestone Silos (1DC-01 & 2DC-01)**

**ATTACHMENT EU051-02  
Control Equipment Description**



**Emissions Unit EU051**

**SJRPP - Limestone Silos (1DC-01 & 2DC-01)**

**Control Equipment Description**

**Control Equipment**

**Two Separate Fabric Filters/Baghouses - Existing Equipment**

**Exhaust Parameters**

**Stack Height: 114 feet; Stack Diameter: 11.5 inches; Stack Exhaust Temperature: Ambient; and Stack Flows 2,700 ACFM per stack**

**Reasonable Assurances**

**Emission Limitation - No Visible Emissions (5% Opacity)**

**See Attachment EU051-04, Compliance Test Reports**

**EMISSIONS UNIT EU051**  
**Limestone Silos (1DC-01 & 2DC-01)**

**ATTACHMENT EU051-03**  
**Stack Sampling Facilities Description**

## **STACK SAMPLING FACILITIES DESCRIPTION**

Pursuant to Rule 62-297.310(6), F.A.C. JEA will ensure that the required stack sampling facilities include sampling ports (Rule 62-297.310(6)(c), F.A.C.), work platforms (Rule 62-297.310(6)(d), F.A.C.), access to work platforms (Rule 62-297.310(6)(e), F.A.C.), electrical power (Rule 62-297.310(6)(f), F.A.C.), and sampling equipment support (Rule 62-297.310(6)(g), F.A.C.). All stack sampling facilities will meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

In accordance with Rule 62-297.310(6)(b), F.A.C., JEA will use temporary stack sampling facilities for the existing units which are not required to conduct a compliance test on at least an annual basis may use. When electing to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, JEA will install the temporary facilities on the emissions unit within 5 days of a request by the Department. The temporary sampling facilities will remain on the emissions unit until the test is completed.

**EMISSIONS UNIT EU051  
Limestone Silos (1DC-01 & 2DC-01)**

**ATTACHMENT EU051-04  
Compliance Test Report**

Visible Emissions Evaluation Data Sheet

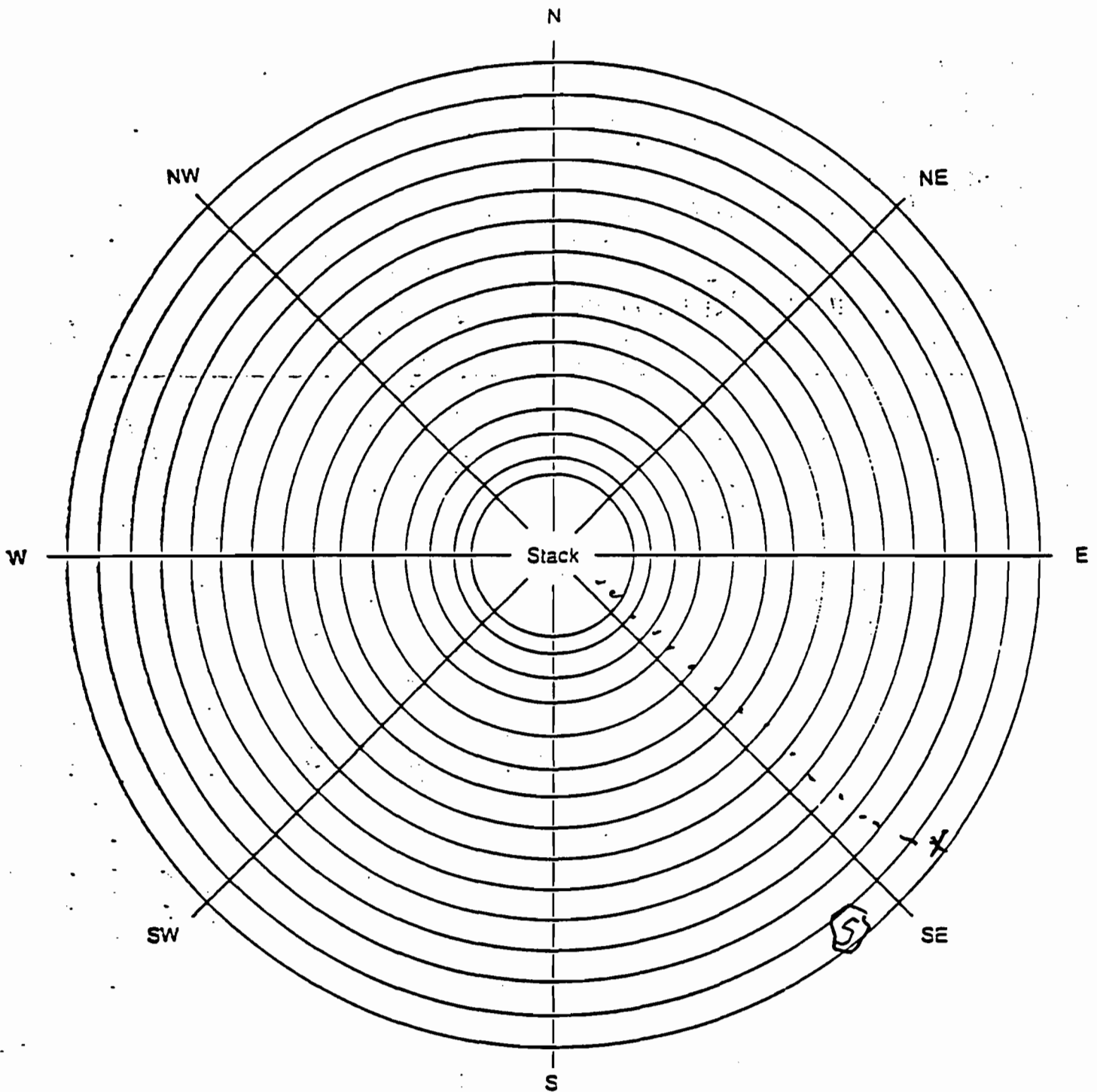
Client TEA Observer Dale Vinograd  
 Project No. 98-18872 Date 10-12-98  
 Plant Name St John River Power Park Observation began 10:15  
 Location Jacksonville FL ended 11:15  
 Type of Facility Power Plant

Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Loader (Duct at Top)</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet)	4	0	0	0	0	34	0	0	0	0
Distance from Observer to source <u>350'</u>	5	0	0	0	0	35	0	0	0	0
Height of Source (above ground) <u>50'</u>	6	0	0	0	0	36	0	0	0	0
Weather Conditions	7	0	0	0	0	37	0	0	0	0
Wind Direction <u>NE</u>	8	0	0	0	0	38	0	0	0	0
Wind Speed <u>5 to 10</u>	9	0	0	0	0	39	0	0	0	0
Temperature <u>72</u>	10	0	0	0	0	40	0	0	0	0
Position of Sun <u>SE</u>	11	0	0	0	0	41	0	0	0	0
Sky Condition <u>overcast</u>	12	0	0	0	0	42	0	0	0	0
(clear, overcast, %clouds, color of clouds, etc.)	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
Plume Description	15	0	0	0	0	45	0	0	0	0
Color <u>White</u>	16	0	0	0	0	46	0	0	0	0
Background <u>sky</u>	17	0	0	0	0	47	0	0	0	0
Type (wet or dry) <u>Dry</u> Dist. _____	18	0	0	0	0	48	0	0	0	0
Comments	19	0	0	0	0	49	0	0	0	0
	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	0	0	0	0	53	0	0	0	0
	24	0	0	0	0	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observer's Signature <u>Dale Vinograd</u>	26	0	0	0	0	56	0	0	0	0
Date of Last EPA Method 9 Examination <u>10-7-98</u>	27	0	0	0	0	57	0	0	0	0
Examination Passed in EPA Region <u>Eastern</u>	28	0	0	0	0	58	0	0	0	0
	29	0	0	0	0	59	0	0	0	0

\*If not, distance (ft.) from plume outlet to point in plume where observations made

0/6





LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.



Total Source Analysis, Inc.  
Environmental Testing Consultants

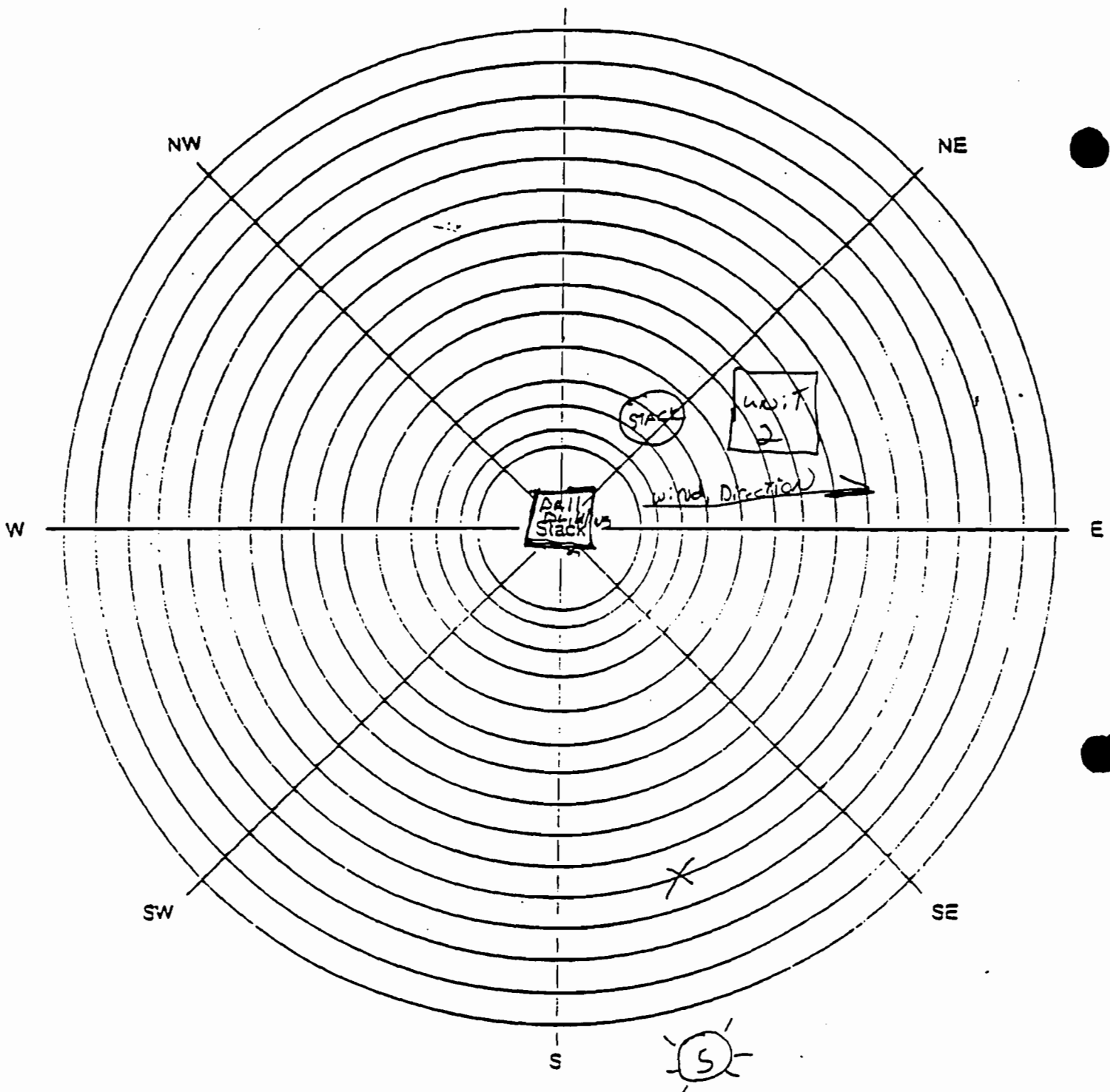
Best Available Copy

ent TEA Observer John Sutton  
 Subject No. 97-422 Date 11.2.97  
 Plant Name STRPP Observation began 1025  
 Location Jacksonville FL. ended 1125  
 Name of Facility POWER PLANT (Limestone Handling) Ballmill Building

Source Identification (Stack, duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>STACK (Limestone silos)</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
Observer Location (Diagram on back of sheet) Distance from Observer to source <u>800'</u> Height of Source (above ground) <u>140'</u>	4	0	0	0	0	34	0	0	0	0
	5	0	0	0	0	35	0	0	0	0
Weather Conditions Wind Direction <u>DE</u> Wind Speed <u>0-5 MPH</u> Temperature <u>65</u> Position of Sun <u>SE</u> Sky Condition <u>25% clouds</u> (clear, overcast, hazy, etc.) color of clouds, etc.) <u>white clouds</u>	6	0	0	0	0	36	0	0	0	0
	7	0	0	0	0	37	0	0	0	0
	8	0	0	0	0	38	0	0	0	0
	9	0	0	0	0	39	0	0	0	0
	10	0	0	0	0	40	0	0	0	0
	11	0	0	0	0	41	0	0	0	0
	12	0	0	0	0	42	0	0	0	0
	13	0	0	0	0	43	0	0	0	0
	14	0	0	0	0	44	0	0	0	0
	15	0	0	0	0	45	0	0	0	0
Plume Description Color _____ Background <u>SKY</u> Type wet or dry: <u>Dry</u> Dist. _____	16	0	0	0	0	46	0	0	0	0
	17	0	0	0	0	47	0	0	0	0
Comments _____	18	0	0	0	0	48	0	0	0	0
	19	0	0	0	0	49	0	0	0	0
	20	0	0	0	0	50	0	0	0	0
	21	0	0	0	0	51	0	0	0	0
	22	0	0	0	0	52	0	0	0	0
	23	0	0	0	0	53	0	0	0	0
	24	0	0	0	0	54	0	0	0	0
	25	0	0	0	0	55	0	0	0	0
Observers Signature <u>John Sutton</u>	26	0	0	0	0	56	0	0	0	0
Date of last EPA Method 9 Examination <u>OCTOBER 1997 (ETA)</u>	27	0	0	0	0	57	0	0	0	0
Examination Passed in EPA Region	28	0	0	0	0	58	0	0	0	0
	29	0	0	0	0	59	0	0	0	0

Distance (ft.) from plume outlet to point in plume where observations made





LOCATE THE FOLLOWING ON THE DIAGRAM

1. The stack configuration with the stack under observation in the center
2. Observer's position using X to indicate position.
3. Arrow pointing direction wind is blowing.
4. Dotted line between observer and plume indicating observers line of sight when making readings.
5. Circle with S in center to indicate sun location.
6. Any large structures or significant topographical features.

NOTE: Stack configuration is not proportional to distances in feet from stack in the diagram.





**EMISSIONS UNIT EU051**  
**Limestone Silos (1DC-01 & 2DC-01)**

**ATTACHMENT EU051-05**  
**Emissions Estimates**

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

By: D. Graziani, P.E.  
Date: 11/3/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056

Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Revision No.: 1

Project: St. Johns River Power Park PSD Permit Update  
Subject: Emissions Estimates for Limestone Silo #1 (1DC-01)

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Limestone	0.0032	2.87	6.5	0.74	0.35	0.11	0.00022	0.00010	0.00003

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	0	0
Petroleum Coke	0	0
Limestone	300	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.13	0.06	0.02	0.0167	0.0079	0.0025

(2 Transfer Points)

**Emission Rates - Controlled 99.50%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.000663	0.000314	0.000099	0.000084	0.000040	0.000012

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.13	0.06	0.02	0.00382	0.00181	0.00057

(2 Transfer Points)

**Emission Rates - Controlled 99.50%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.000663	0.000314	0.000099	0.000019	0.000009	0.000003

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

By: D. Graziani, P.E.  
Date: 11/3/98  
Ckd. By: Kim Evans, P.E.  
Date: 11/10/98

Cal. No.: 901103DJG01  
Project No.: 7830.0020.0056  
Revision No.: 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Limestone Silo #2 (2DC-01)

**Emissions Data**

Raw Materials	Constant	Belt Speed (MPH)	H2O (%)	Particle Size Multipliers			Emission Factors (lb/ton)		
				PM	PM10	PM2.5	PM	PM10	PM2.5
Limestone	0.0032	2.87	6.5	0.74	0.35	0.11	0.00022	0.00010	0.00003

**Operating Data**

Raw Materials	Operating Rates	
	(TPH)	(TPY)
Coal	0	0
Petroleum Coke	0	0
Limestone	300	600000

**Emission Rates - Uncontrolled**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.13	0.06	0.02	0.0167	0.0079	0.0025

(2 Transfer Points)

**Emission Rates - Controlled 99.50%**

Raw Materials	Short-Term					
	PM (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.000663	0.000314	0.000099	0.000084	0.000040	0.000012

**Emission Rates - Uncontrolled**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.13	0.06	0.02	0.00382	0.00181	0.00057

(2 Transfer Points)

**Emission Rates - Controlled 99.50%**

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Coal	0	0	0	0	0	0
Petroleum Coke	0	0	0	0	0	0
Limestone	0.000663	0.000314	0.000099	0.000019	0.000009	0.000003

**References:**

- Emission Factor - AP42 Chapter 13.2.4 Aggregate Handling and Storage Piles
- Belt Speed - JEA Operation Data
- Moisture Contents - JEA Operational Data
- Transfer Rates - JEA Operational Data

### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 9

SJRPP - Quick Lime Silo

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- [ X ] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- [ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

- [ X ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

**B. GENERAL EMISSIONS UNIT INFORMATION  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section :  SJRPP - Quick Lime Silo		
2. Emissions Unit Identification Number : 052 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment :  Emissions Unit consists of the Quick Lime Silo.		

**Emissions Unit Information Section**      9

SJRPP - Quick Lime Silo

**Emissions Unit Control Equipment**      1

1. Description :	
Quick Lime Silo	
2. Control Device or Method Code :	18

**C. EMISSIONS UNIT DETAIL INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      9  
 SJRPP - Quick Lime Silo

**Emissions Unit Details**

1. Initial Startup Date :	01-Aug-1986	
2. Long-term Reserve Shutdown Date :		
3. Package Unit :		
Manufacturer :	Model Number :	
4. Generator Nameplate Rating :	MW	
5. Incinerator Information :		
Dwell Temperature :	Degrees Fahrenheit	
Dwell Time :	Seconds	
Incinerator Afterburner Temperature :	Degrees Fahrenheit	

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate :	400	tons per hour
4. Maximum Production Rate :		
5. Operating Capacity Comment :		

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule :		
24 hours/day	7 days/week	
52 weeks/year	8,760 hours/year	

**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**       9    
SJRPP - Quick Lime Silo

**Rule Applicability Analysis**

Unit was subject to PSD Review including the application of BACT.



**List of Applicable Regulations**

Rule 62-204.800(7)(e), F.A.C., Adoption of the NSPS Appendices (As Noted)

Rule 62-210.300(5), F.A.C., Notification of Start-up

Jacksonville Environmental Protection Board, Rule 2 - Air Pollution (as noted)

Rule 2.105, Maintenance of Air Pollution Control Devices

Rule 2.301, Adoption of Chapter 62-210, F.A.C., (As Noted)

Rule 2.1101, Adoption of Chapter 62-297, F.A.C., (As Noted)

Rule 62-210.300(1), F.A.C., Air Construction Permits

Rule 62-210.550, F.A.C., Stack Height Policy

Rule 62-210.650, F.A.C., Circumvention

Rule 62-297.310, F.A.C., General Test Requirements

Rule 62-297.401(5) & (9), F.A.C., EPA Methods 5 and 9

Rule 62-210.700(1), (4), & (6), F.A.C., Excess Emissions

III. Part 6b - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 9

SJRPP - Quick Lime Silo

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	EU052
2. Emission Point Type Code :	1
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking : (limit to 100 characters per point)	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :  QLS-01	
5. Discharge Type Code :	H
6. Stack Height :	105 feet
7. Exit Diameter :	0.5 feet
8. Exit Temperature :	68 °F
9. Actual Volumetric Flow Rate :	980 acfm
10. Percent Water Vapor :	0.50 %
11. Maximum Dry Standard Flow Rate :	980 dscfm
12. Nonstack Emission Point Height :	0 feet
13. Emission Point UTM Coordinates :	
Zone : 17	East (km) : 447.510
	North (km) : 3366.438
14. Emission Point Comment :	

III. Part 7a - 1

**F. SEGMENT (PROCESS/FUEL) INFORMATION**

**Emissions Unit Information Section**      9

SJRPP - Quick Lime Silo

**Segment Description and Rate :**      Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :  Quick Lime	
2. Source Classification Code (SCC) :      30501222	
3. SCC Units :      Tons Transferred Or Handled	
4. Maximum Hourly Rate :      400.00	5. Maximum Annual Rate :      2,600,000.00
6. Estimated Annual Activity Factor :      0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 1

**G. EMISSIONS UNIT POLLUTANTS  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section**        9     
SJRPP - Quick Lime Silo

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM	018		EL
2 - PM10	018		EL

III. Part 9a - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section**       9  

SJRPP - Quick Lime Silo

**Pollutant Potential/Estimated Emissions :**     Pollutant       1  

1. Pollutant Emitted : <b>PM</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0230000 lb/hour	0.0990000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <div style="text-align: right; margin-right: 100px;">to</div> <div style="text-align: right;">tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference	AP-42, (EF=0.27)	
7. Emissions Method Code :     3		
8. Calculations of Emissions :  See Attachment EU052-05		
9. Pollutant Potential/Estimated Emissions Comment :		

III. Part 9b - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section**      9  
 SJRPP - Quick Lime Silo

**Pollutant Potential/Estimated Emissions :**      Pollutant      2

1. Pollutant Emitted : <b>PM10</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0230000 lb/hour	0.0990000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <div style="text-align: right; margin-right: 100px;">to</div> <div style="text-align: right;">tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference	AP-42, (EF=0.27)	
7. Emissions Method Code :    3		
8. Calculations of Emissions :  See Attachment EU052-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**Emissions Unit Information Section**      9  
SJPPP - Quick Lime Silo

**Pollutant Information Section**      1

**Allowable Emissions**      1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	Percent Opacity	
4. Equivalent Allowable Emissions :	0.02	lb/hour	0.10 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

III. Part 9c - 1

**Emissions Unit Information Section**      9  
SJRPP - Quick Lime Silo

**Pollutant Information Section**      2

**Allowable Emissions**      1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	Percent Opacity	
4. Equivalent Allowable Emissions :	0.02	lb/hour	0.10 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		

III. Part 9c - 2





**J. CONTINUOUS MONITOR INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**

III. Part 11 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT  
TRACKING INFORMATION**

**Emissions Unit Information Section**          9    

SJRPP - Quick Lime Silo

**PSD Increment Consumption Determination**

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

III. Part 12 - 1

2. Increment Consuming for Nitrogen Dioxide?

- ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :			
PM :	C	SO2 :	U
		NO2 :	U
4. Baseline Emissions :			
PM :	0.0000	lb/hour	0.0000 tons/year
SO2 :		lb/hour	tons/year
NO2 :			tons/year
5. PSD Comment :			

## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 9

SJRPP - Quick Lime Silo

### Supplemental Requirements for All Applications

1. Process Flow Diagram :	EU052-01
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	EU052-02
4. Description of Stack Sampling Facilities :	EU052-03
5. Compliance Test Report :	EU052-04
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	EU052-05
9. Other Information Required by Rule or Statute :	NA

### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alternative Modes of Operation (Emissions Trading) :

III. Part 13 - 1

12. Identification of Additional Applicable Requirements :

13. Compliance Assurance Monitoring  
Plan :

14. Acid Rain Application (Hard-copy Required) :

Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))

Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)

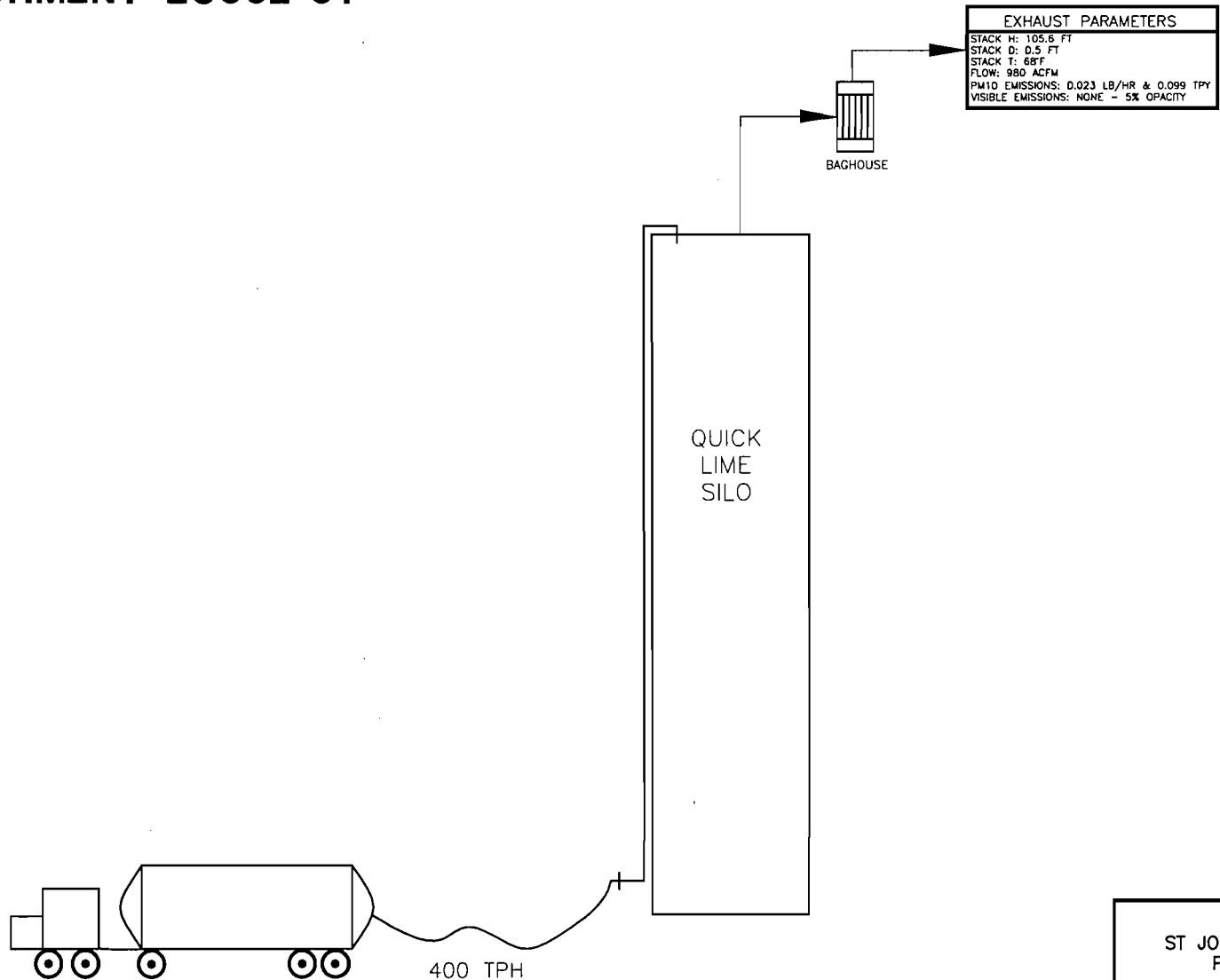
New Unit Exemption (Form No. 62-210.900(1)(a)2.)

Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

**EMISSIONS UNIT EU052**  
**Quick Lime Silo (QLS-1)**

**ATTACHMENT EU052-01**  
**Process Flow Diagram**

# ST JOHNS RIVER POWER PARK QUICK LIME SILO ATTACHMENT EU052-01



**JEA**  
ST JOHNS RIVER POWER PARK  
PSD PERMIT UPDATE

Simplified Process Flow Diagram  
Emissions Unit ID 052

**F** FOSTER WHEELER ENVIRONMENTAL CORPORATION

SCALE N/A	PREPARED CHECKED APPROVED	DJG MAE DJF	CAD FILE NO. EU052PF.DWG FIGURE NO. EU052-01
DATE: 02/16/89			



**EMISSIONS UNIT EU052  
Quick Lime Silo (QLS-1)**

**ATTACHMENT EU052-02  
Control Equipment Description**

**Emissions Unit EU052**  
**JRPP - Quick Lime Silo**  
**Control Equipment Description**

**Control Equipment**

**Fabric Filter/Baghouse - Existing Equipment**

**Exhaust Parameters**

**Stack Height: 105.6 feet; Stack Diameter: 6 inches; Stack Exhaust Temperature: Ambient; and Stack Flows 980 ACFM per stack**

**Reasonable Assurances**

**Emission Limitation - No Visible Emissions (5% Opacity)**

**See Attachment EU052-04, Compliance Test Report**

**EMISSIONS UNIT EU052  
Quick Lime Silo (QLS-1)**

**ATTACHMENT EU052-03  
Stack Sampling Facilities Description**

## **STACK SAMPLING FACILITIES DESCRIPTION**

Pursuant to Rule 62-297.310(6), F.A.C. JEA will ensure that the required stack sampling facilities include sampling ports (Rule 62-297.310(6)(c), F.A.C.), work platforms (Rule 62-297.310(6)(d), F.A.C.), access to work platforms (Rule 62-297.310(6)(e), F.A.C.), electrical power (Rule 62-297.310(6)(f), F.A.C.), and sampling equipment support (Rule 62-297.310(6)(g), F.A.C.). All stack sampling facilities will meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

In accordance with Rule 62-297.310(6)(b), F.A.C., JEA will use temporary stack sampling facilities for the existing units which are not required to conduct a compliance test on at least an annual basis may use. When electing to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, JEA will install the temporary facilities on the emissions unit within 5 days of a request by the Department. The temporary sampling facilities will remain on the emissions unit until the test is completed.

**EMISSIONS UNIT EU052**  
**Quick Lime Silo (QLS-1)**

**ATTACHMENT EU052-04**  
**Compliance Test Report**

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 0521 Page 1 of 2  
 Continued on VEO Form Number 0522

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name  
St. Johns River Power Park.  
 Facility Name  
St. Johns River Power Park.  
 Street Address  
11201 New Berlin Rd.  
 City Jacksonville State FL Zip 32226

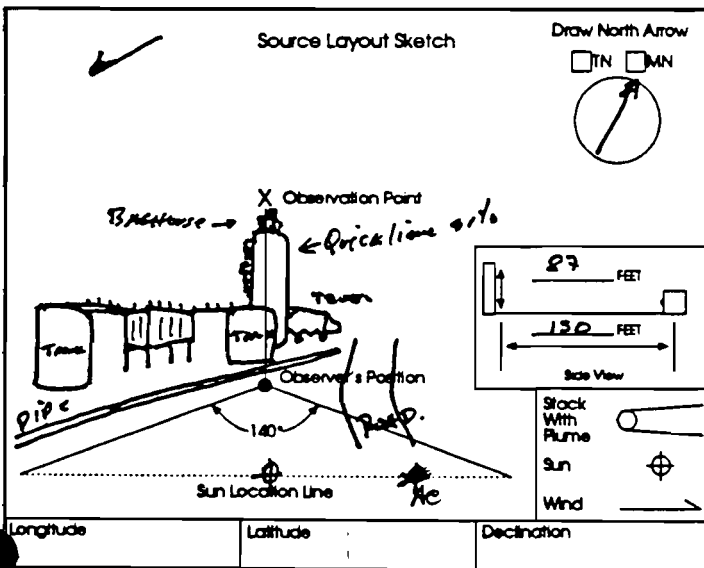
Process Quick lime silo Unit # COM Operating Mode 16 TPH.  
 Control Equipment BAGHOUSE Operating Mode 100% CAP.

Describe Emission Point  
BAGHOUSE EFFLUENT on top of QUICK lime silo.  
 Height of Emiss. Pt. Start 87' End 87' Height of Emiss. Pt. Rel. to Observer Start 84' End 84'  
 Distance to Emiss. Pt. Start 150 End 150 Direction to Emiss. Pt. (Degrees) Start 314° End 314°

Vertical Angle to Obs. Pt. Start 30° End 30° Direction to Obs. Pt. (Degrees) Start 314° End 314°  
 Distance and Direction to Observation Point from Emission Point Start 5' - 180° End 5' - 180°

Describe Emissions  
 Start NONE End NONE  
 Emission Color Start NONE End NONE Water Droplet Plume Attached  Detached  None

Describe Plume Background  
 Start OPEN SKY End OPEN SKY.  
 Background Color Start GRAY End GRAY Sky Conditions Start cloudy End cloudy.  
 Wind Speed Start 0-5 End 0-5 Wind Direction Start NE End NE  
 Ambient Temp. Start 68°F End 68°F Wet Bulb Temp. 65°F RH Percent 84%



Longitude \_\_\_\_\_ Latitude \_\_\_\_\_ Declination \_\_\_\_\_  
 Additional Information \_\_\_\_\_

Observation Date	Time Zone	Start Time	End Time	Comments					
4/29/99		0945	1045	Sec	0	15	30	45	
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print) Alvaro Castro  
 Observer Signature Alvaro Castro Date 4/29/99  
 Organization St. Johns River Power Park  
 Certified By Eastern Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)  
 Method 9 203A 203B Other: \_\_\_\_\_

Company Name  
 St. Johns River Power Park.  
 Facility Name  
 St. Johns River Power Park.  
 Street Address  
 11201 New Berlin Rd.  
 City  
 Jacksonville State  
 FL Zip  
 32226

Process  
 Overline site Unit #  
 Com. Operating Mode  
 16 TPH.  
 Control Equipment  
 SAS House Operating Mode  
 100% CAP

Describe Emission Point  
 Height of Emiss. Pt. Start End  
 Height of Emiss. Pt. Rel. to Observer Start End  
 Distance to Emiss. Pt. Direction to Emiss. Pt. (Degrees) Start End

Vertical Angle to Obs. Pt. Start End  
 Direction to Obs. Pt. (Degrees) Start End  
 Distance and Direction to Observation Point from Emission Point Start End

Describe Emissions  
 Start End  
 Emission Color Water Droplet Plume  
 Start End Attached  Detached  None

Describe Plume Background  
 Start End  
 Background Color Sky Conditions Start End  
 Wind Speed Wind Direction Start End  
 Ambient Temp. Wet Bulb Temp. RH Percent Start End

Source Layout Sketch  
 Draw North Arrow  TN  MN  
  
 Longitude Latitude Declination

Additional Information

Form Number 0522 Page 2 of 2  
 Continued on VEO Form Number 0521

Observation Date	Time Zone	Start Time	End Time						
4/29/99		0945	1045	Sec	0	15	30	45	Comments
1	0	0	0	0					
2	0	0	0	0					
3	0	0	0	0					
4	0	0	0	0					
5	0	0	0	0					
6	0	0	0	0					
7	0	0	0	0					
8	0	0	0	0					
9	0	0	0	0					
10	0	0	0	0					
11	0	0	0	0					
12	0	0	0	0					
13	0	0	0	0					
14	0	0	0	0					
15	0	0	0	0					
16	0	0	0	0					
17	0	0	0	0					
18	0	0	0	0					
19	0	0	0	0					
20	0	0	0	0					
21	0	0	0	0					
22	0	0	0	0					
23	0	0	0	0					
24	0	0	0	0					
25	0	0	0	0					
26	0	0	0	0					
27	0	0	0	0					
28	0	0	0	0					
29	0	0	0	0					
30	0	0	0	0					

Observer's Name (Print)  
 Alberto Castro  
 Observer's Signature  
 Alberto Castro Date  
 4/29/99  
 Organization  
 St. Johns River Power Park.  
 Certified by  
 Eastern Technical Associates Date  
 12/2/98

**EMISSIONS UNIT EU052**  
**Quick Lime Silo (QLS-1)**

**ATTACHMENT EU052-05**  
**Emissions Estimates**



**Foster Wheeler Environmental Corporation  
EXCEL 7.0 Worksheet Calculation**

**By:** D. Graziani, P.E.  
**Date:** 11/3/98  
**Ckd. By:** Kim Evans, P.E.  
**Date:** 11/10/98

**Cal. No.:** 901103DJG69  
**Project No.:** 7830.0020.0056  
**Revision No.:** 1

**Project:** St. Johns River Power Park PSD Permit Update  
**Subject:** Emissions Estimates for Pneumatic Transfer Systems  
Emissions for the silos are based on a pneumatic Transfer Emission Factor of 0.27 lb/ton (Cement Transfer)

Silo	Transfer Rate (TPH)	Emission Factor (lb/ton)	
Unit 1 Non-Saleable Ash	12.5	0.27	lb/ton
Unit 1 Saleable Ash 1A	25	0.27	lb/ton
Unit 1 Saleable Ash 1B	25	0.27	lb/ton
Unit 2 Non-Saleable Ash	12.5	0.27	lb/ton
Unit 2 Saleable Ash 2A	25	0.27	lb/ton
Unit 2 Saleable Ash 2B	25	0.27	lb/ton
Quick Lime Silo	400.0	0.27	lb/ton

**Control Efficiency (%)**      **99.50%**

Silo	Emissions - Uncontrolled			Emissions - Controlled		
	lb/hr	tpy	g/s	lb/hr	tpy	g/s
Unit 1 Non-Saleable Ash	3.375	0.616	0.043	0.017	0.074	0.0021
Unit 1 Saleable Ash 1A	6.750	1.232	0.085	0.034	0.148	0.0043
Unit 1 Saleable Ash 1B	6.750	1.232	0.085	0.034	0.148	0.0043
Unit 2 Non-Saleable Ash	3.375	0.616	0.043	0.017	0.074	0.0021
Unit 2 Saleable Ash 2A	6.750	1.232	0.085	0.034	0.148	0.0043
Unit 2 Saleable Ash 2B	6.750	1.232	0.085	0.034	0.148	0.0043
Quick Lime Silo	4.500	0.821	0.057	0.023	0.099	0.0028

**References:**  
AP42 Section 11.2 Concrete Batching  
Flows - Vendor Data

### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

**Emissions Unit Information Section**      10

SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- [ X ] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- [ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- [ X ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

III. Part 1 - 1

**B. GENERAL EMISSIONS UNIT INFORMATION  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section :  SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)		
2. Emissions Unit Identification Number : 053 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment :  Unit consists of two silos and the pneumatic transfer system.		

**Emissions Unit Information Section**      10

SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**Emissions Unit Control Equipment**      1

1. Description : Non-Saleable Ash Silo U#1-A
2. Control Device or Method Code :      18

**Emissions Unit Information Section**      10

SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**Emissions Unit Control Equipment**      2

1. Description :	
Non-Saleable Ash Silo U#1-B	
2. Control Device or Method Code :	18

**C. EMISSIONS UNIT DETAIL INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      10  
 SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**Emissions Unit Details**

1. Initial Startup Date :	15-Dec-1986	
2. Long-term Reserve Shutdown Date :		
3. Package Unit :		
Manufacturer :		Model Number :
4. Generator Nameplate Rating :	MW	
5. Incinerator Information :		
Dwell Temperature :		Degrees Fahrenheit
Dwell Time :		Seconds
Incinerator Afterburner Temperature :		Degrees Fahrenheit

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate :	12	tons per hour
4. Maximum Production Rate :		
5. Operating Capacity Comment :		

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule :		
24 hours/day		7 days/week
52 weeks/year		8,760 hours/year

**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section** 10  
SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**Rule Applicability Analysis**

Units were subject to PSD Review including the application of BACT.

**List of Applicable Regulations**

Rule 62-204.800(7)(e), F.A.C., Adoption of the NSPS Appendices (As Noted)

Rule 62-210.300(5), F.A.C., Notification of Start-up

Jacksonville Environmental Protection Board, Rule 2 - Air Pollution (as noted)

Rule 2.105, Maintenance of Air Pollution Control Devices

Rule 2.301, Adoption of Chapter 62-210, F.A.C., (As Noted)

Rule 2.1101, Adoption of Chapter 62-297, F.A.C., (As Noted)

Rule 62-210.300(1), F.A.C., Air Construction Permits

Rule 62-210.550, F.A.C., Stack Height Policy

Rule 62-210.650, F.A.C., Circumvention

Rule 62-297.310, F.A.C., General Test Requirements

Rule 62-297.401(5) & (9), F.A.C., EPA Methods 5 and 9

Rule 62-210.700(1), (4), & (6), F.A.C., Excess Emissions

III. Part 6b - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96



## E. EMISSION POINT (STACK/VENT) INFORMATION

**Emissions Unit Information Section**      10

SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**Emission Point Description and Type :**

1. Identification of Point on Plot Plan or Flow Diagram :	U#1-A & U32-A
2. Emission Point Type Code :	3
3. Descriptions of Emission Points Comprising this Emissions Unit :	U#1-A
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :	U#1-A
5. Discharge Type Code :	H
6. Stack Height :	113 feet
7. Exit Diameter :	1.80 feet
8. Exit Temperature :	80 °F
9. Actual Volumetric Flow Rate :	13,467 acfm
10. Percent Water Vapor :	0.50 %
11. Maximum Dry Standard Flow Rate :	13,467 dscfm
12. Nonstack Emission Point Height :	feet
13. Emission Point UTM Coordinates :	
Zone :    17                      East (km) :    447.469                      North (km) :    3,367.010	
14. Emission Point Comment :	

III. Part 7b - 1

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 10

SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

### Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	U#1-A & U32-A
2. Emission Point Type Code :	3
3. Descriptions of Emission Points Comprising this Emissions Unit :	U#2-A
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :	U#1-A
5. Discharge Type Code :	H
6. Stack Height :	113 feet
7. Exit Diameter :	1.80 feet
8. Exit Temperature :	80 °F
9. Actual Volumetric Flow Rate :	13,467 acfm
10. Percent Water Vapor :	0.50 %
11. Maximum Dry Standard Flow Rate :	13,467 dscfm
12. Nonstack Emission Point Height :	feet
13. Emission Point UTM Coordinates :	
Zone : 17              East (km) : 447.469              North (km) : 3,367.010	
14. Emission Point Comment :	

III. Part 7b - 2

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 10

SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**Segment Description and Rate :** Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Fly Ash	
2. Source Classification Code (SCC) : 30501222	
3. SCC Units : Tons Transferred Or Handled	
4. Maximum Hourly Rate : 12.50	5. Maximum Annual Rate : 109,500.00
6. Estimated Annual Activity Factor : 0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

III. Part 8 - 1

**G. EMISSIONS UNIT POLLUTANTS  
(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section** 10  
SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM	018		EL
2 - PM10	018		EL

III. Part 9a - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section** 10  
SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**Pollutant Potential/Estimated Emissions :** Pollutant 1

1. Pollutant Emitted : <b>PM</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0170000 lb/hour	0.0740000 tons/year
4. Synthetically Limited?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive/Other Emissions:	to	tons/year
6. Emissions Factor	0	Units lb/ton
Reference	AP-42, (EF=0.27)	
7. Emissions Method Code :	3	
8. Calculations of Emissions :	See Attachment EU053-05	
9. Pollutant Potential/Estimated Emissions Comment :		

III. Part 9b - 1

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

**Emissions Unit Information Section** 10  
 SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**Pollutant Potential/Estimated Emissions :** Pollutant 2

1. Pollutant Emitted : <b>PM10</b>		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0170000 lb/hour	0.0740000 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <div style="text-align: right;">to                      tons/year</div>		
6. Emissions Factor	0	Units lb/ton
Reference	AP-42, (EF=0.27)	
7. Emissions Method Code :      3		
8. Calculations of Emissions :  See Attachment EU053-05		
9. Pollutant Potential/Estimated Emissions Comment :		

**Emissions Unit Information Section** 10  
SJPPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

**Pollutant Information Section** 1

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	OTHER		
2. Future Effective Date of Allowable Emissions :	01-Aug-1999		
3. Requested Allowable Emissions and Units :	5.00	Percent Opacity	
4. Equivalent Allowable Emissions :	0.02	lb/hour	0.07 tons/year
5. Method of Compliance :	Stack Test Waiver Requested Rule 62-297.310(7)(c), F.A.C.		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Updated BACT revised from 10% opacity to a requested no visible emissions limitation (5% Opacity).		