

03/0045-NA-AC

JEA

Air Quality Permit Application PSD-FL-010C

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

MAY 06 1999

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AIR REGULATION



**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_{10} .

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 then 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 (PM₁₀), 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

4APT-AP/ch

OCT 28 1986

REGION IV

343 COURTLAND STREET
ATLANTA, GEORGIA 30365

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 (Tons/yr)
1 Ship Unloading*	2 Grab Buckets	2,200 Tons/hr	0.0016 lb/Ton*	70.0%	Suppression, Enclosure	0.13
2 Feeders to Con- veyor A*	2 Points	2,200 Tons/hr	0.00039 lb/Ton	85.0%	Suppression, Enclosure	0.02
3 Conveyor Trans- fers, 1 and 2*	2 Points	2,200 Tons/hr	0.00087 lb/Ton**	85.0%	Suppression Enclosure	0.07
4 Conveyor Trans- fers 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 Trans- fers 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 ^a	(90%) ^a	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 ^a	(97%) ^b	Wet Suppression	0.63
11 Coal Handling Transfer Points	2 Points	10,000 Tons/Day	0.2 lb/Ton ^c	(99.9%) ^b	Dry Collection	0.02
12 Coal Handling Transfer Points	2 Points	3,300 Tons/Day	0.2 lb/Ton ^c	(99.9%) ^b	Dry Collection	0.01
13 Coal Handling Transfer Points	6 Points	3,300 Tons/Day	0.2 lb/Ton ^c	(97%) ^b	Wet Suppression	0.62
14 Coal Handling Transfer Points	7 Points	5,000 Tons/Day	0.2 lb/Ton ^c	(99.9%) ^b	Dry Collection	0.04
15 Coal Storage At Plant*	Active	10 Acres	13 lb/Acre/day ^a	(90%) ^a	Wetting Agent	0.07
16 Coal Storage At Plant*	2 Inactive Piles	13 Acres	3.5 lb/Acre/day ^a	(99%) ^a	Wetting Agent	0.00
17 Limestone Unloading	Rail Dumper	750 Tons/Day	0.4 lb/ton ^a	(97%) ^b	Wet Suppression	0.05
18 Limestone Transfer	1 Point	750 Tons/Day	0.2 lb/Ton ^a	(99.9%) ^b	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 Elim- ination	12.66
20 Solid Waste Disposal Area	Active	10 Acres	13 lb/Acre/day ^a	(90%) ^a	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 ₂	NO _x	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

* Revised emission unit. May 1986.

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 ₁₀	PM	PM ₁₀	PM	PM ₁₀	PM	PM ₁₀
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

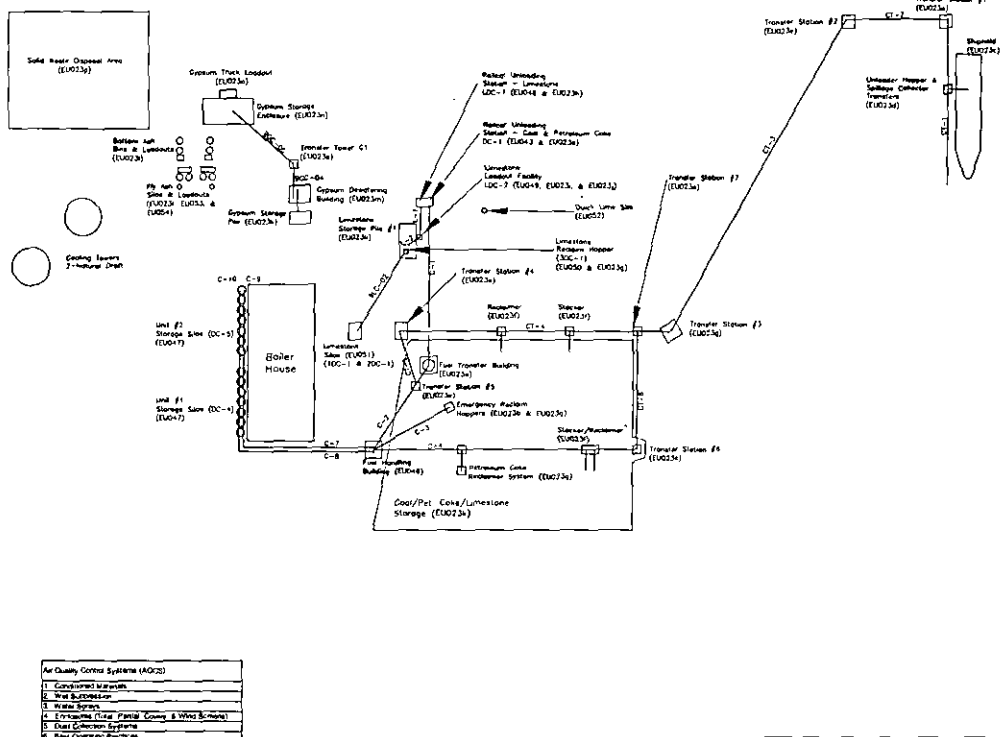
Foster Wheeler Environmental Corporation
EXCEL 7.0 Worksheet

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 ₁₀	PM	PM ₁₀	PM	PM ₁₀	PM	PM ₁₀
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

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

[illegible]

JEA ST JOHN'S RIVER POWER PARK PSO PERMIT UPDATE Materials Handling and Storage Operations Equipment Layout			
 POSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED	DWG	CAS FILE NO. PROJECTING FIGURE NO. SHEET
DATE 04/29/99	CHECKED APPROVED	WAE DWG	

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

Howard L. Rhodes, Director
Division Air Resources Management

SJRPP PSD PERMIT
PSD-FL-010(C)

Table 6 – Part A

Emissions Unit	SO ₂	NO _x	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

Table 6 – Part C

New Materials Handling Operations (May __, 1999)	PM/PM10 (lb/hr)	Opacity (%)
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

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

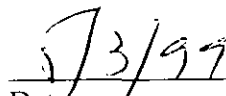
Fax: 904-665-7366

4. Owner/Authorized Representative or Responsible Official Statement:

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



Signature



Date

* Attach letter of authorization if not currently on file.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type
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. Gign
Signature

Date

4-30-99

(seal)

* 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 :	

II. Part 2 - 1

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 Municipal 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

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

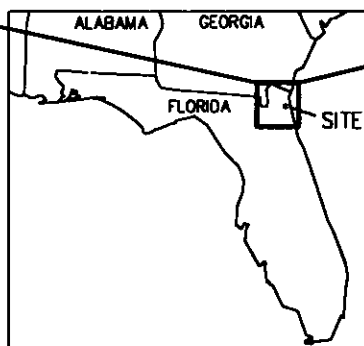
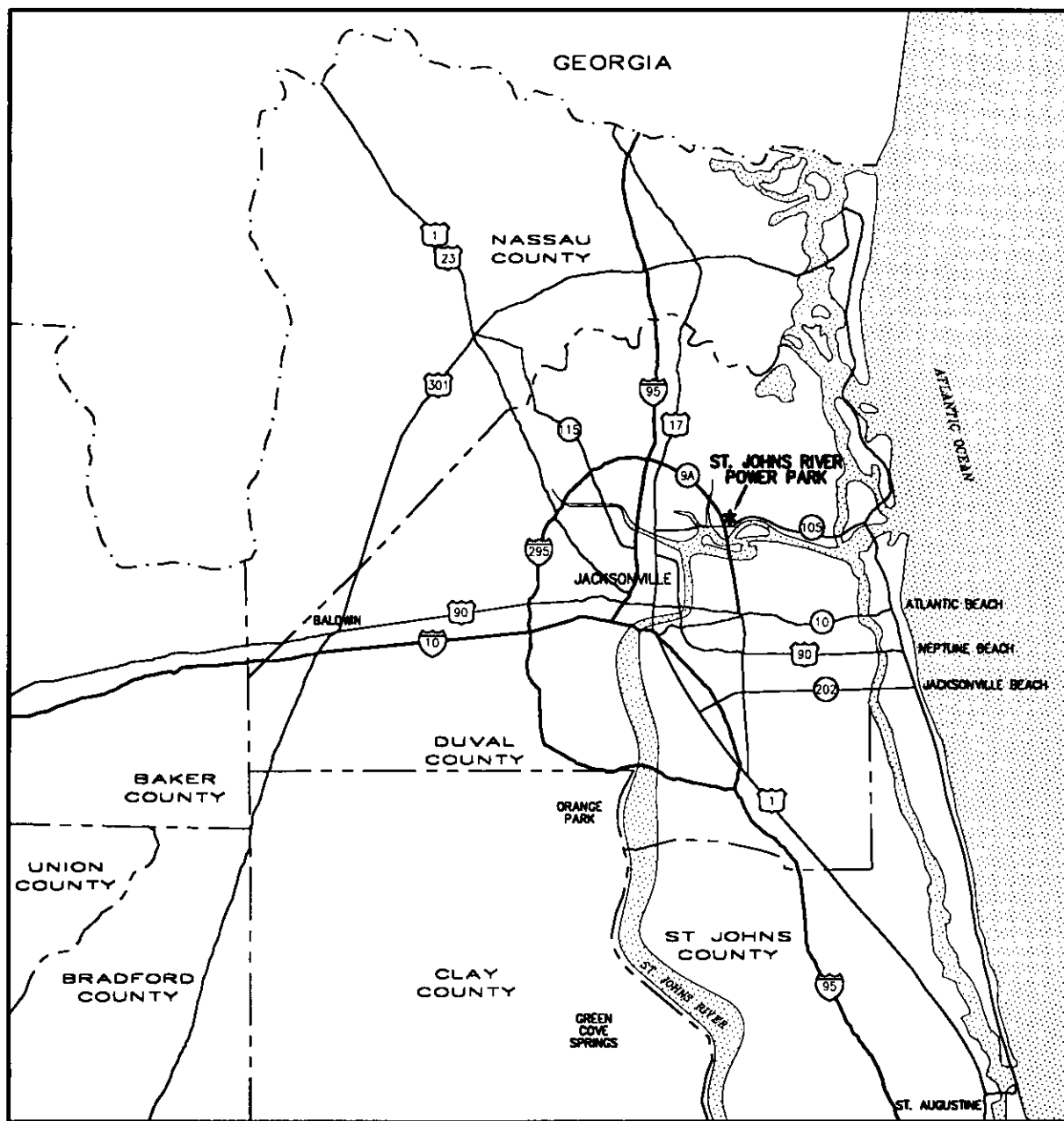
II. Part 5 - 2

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



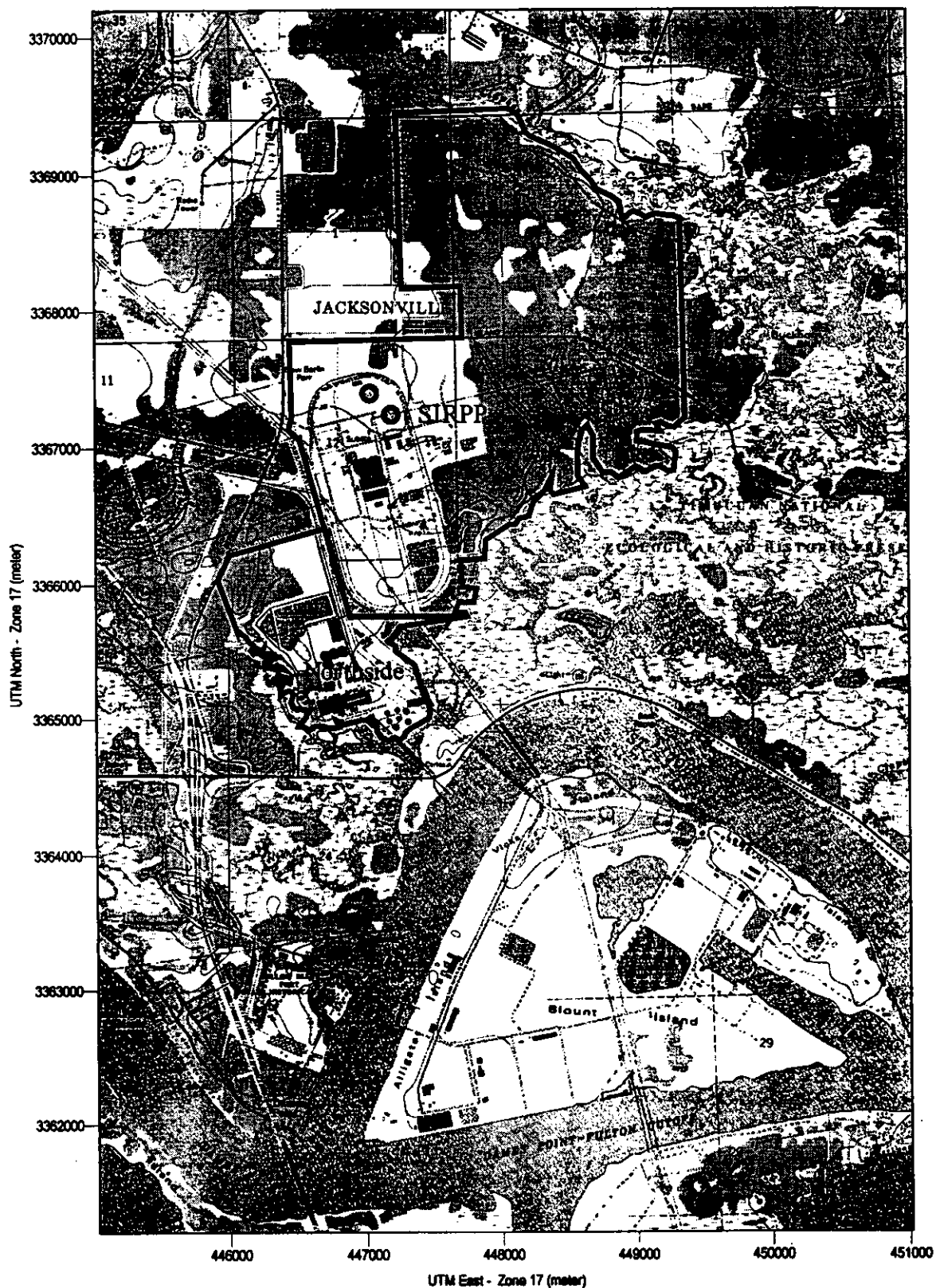
LEGEND

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

0 5 10 20
APPROXIMATE GRAPHIC SCALE IN MILES

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

 FOSTER WHEELER ENVIRONMENTAL CORPORATION		
SCALE AS SHOWN	PREPARED R.P.W.	CAD FILE NO.
DATE 4/29/99	CHECKED APPROVED <i>[Signature]</i>	JEA/REA/DWG
		FIGURE NO. F-1A



SOURCE: FOSTER WHEELER ENVIRONMENTAL CORPORATION

JEA ST. JOHNS RIVER POWER PARK PSD PERMIT UPDATE SITE LOCATION MAP			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE AS SHOWN	PREPARED ALPAW	CAD FILE NO.	
DATE 4/19/99	CHECKED APPROVED	JEA LOC.DWG	
		FIGURE NO.	
		F-18	

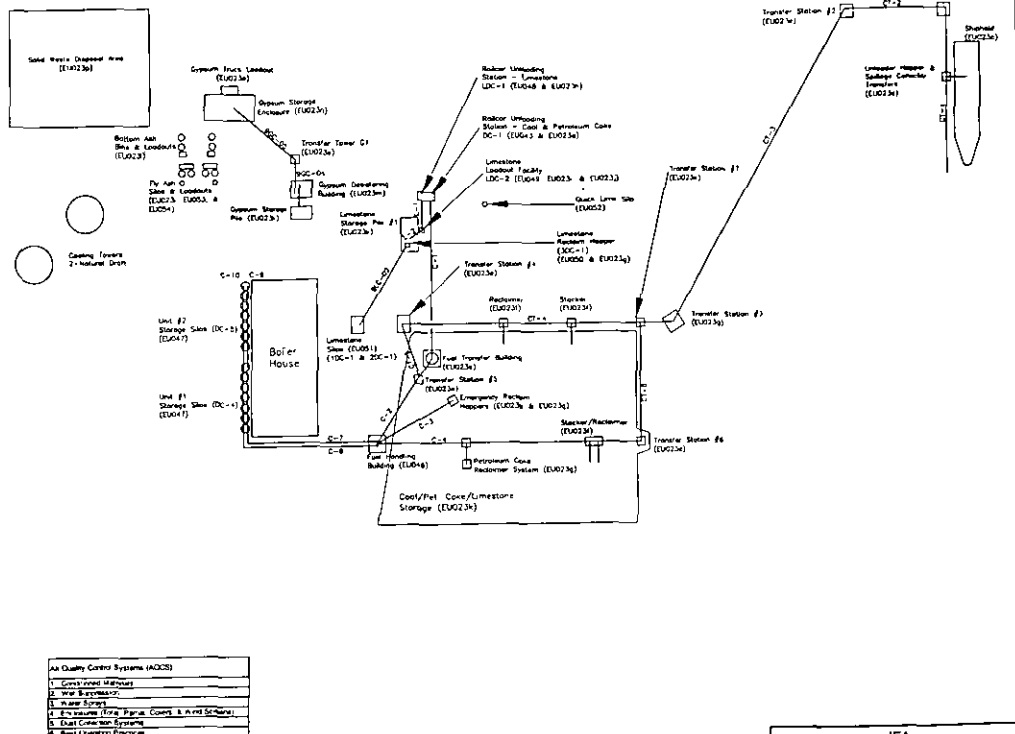
FACILITY SUPPLEMENTAL INFORMATION
St Johns River Power Park

ATTACHMENT F-2
Facility Plot Plan

Figure SJRPP01

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

Equipment/Source	EU	AC	Q	PM10 (lb/yr)	PM10 (lb/yr)	Capacity (%)
Gravel	001	1.4 E 8	75.0%	0.251	0.178	10%
Gravel Transfer and Storage Conveyors	002	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #1	003	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #2	004	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #3	005	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #4	006	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #5	007	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #6	008	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #7	009	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #8	010	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #9	011	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #10	012	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #11	013	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #12	014	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #13	015	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #14	016	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #15	017	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #16	018	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #17	019	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #18	020	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #19	021	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #20	022	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #21	023	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #22	024	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #23	025	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #24	026	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #25	027	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #26	028	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #27	029	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #28	030	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #29	031	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #30	032	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #31	033	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #32	034	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #33	035	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #34	036	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #35	037	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #36	038	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #37	039	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #38	040	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #39	041	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #40	042	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #41	043	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #42	044	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #43	045	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #44	046	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #45	047	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #46	048	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #47	049	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #48	050	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #49	051	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #50	052	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #51	053	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #52	054	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #53	055	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #54	056	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #55	057	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #56	058	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #57	059	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #58	060	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #59	061	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #60	062	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #61	063	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #62	064	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #63	065	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #64	066	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #65	067	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #66	068	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #67	069	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #68	070	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #69	071	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #70	072	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #71	073	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #72	074	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #73	075	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #74	076	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #75	077	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #76	078	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #77	079	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #78	080	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #79	081	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #80	082	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #81	083	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #82	084	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #83	085	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #84	086	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #85	087	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #86	088	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #87	089	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #88	090	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #89	091	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #90	092	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #91	093	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #92	094	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #93	095	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #94	096	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #95	097	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #96	098	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #97	099	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #98	100	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #99	101	1.3 E 8	80.0%	0.150	0.100	10%
Gravel Transfer Station #100	102	1.3 E 8	80.0%	0.150	0.100	10%



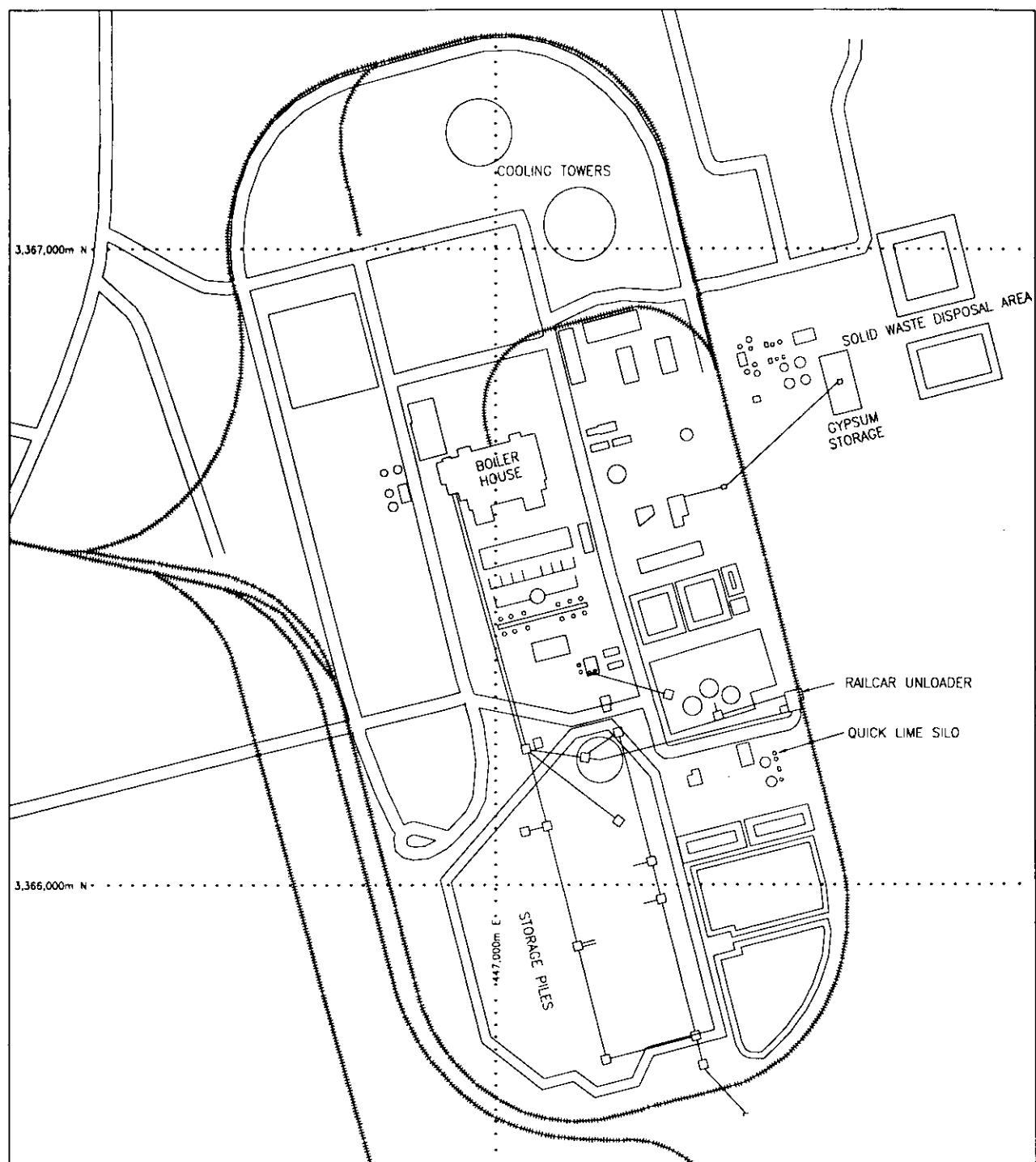
JEA
ST JOHN'S RIVER POWER PARK
PSD PERMIT UPDATE
Materials Handling and Storage Operations
Equipment Layout

FOSTER WHEELER ENVIRONMENTAL CORPORATION

SCALE: N/A
DATE: 04/29/99

PREPARED: DVG
CHECKED: WME
APPROVED: DVG

CAD FILE NO.
PROJECT NO.
SJRPP01



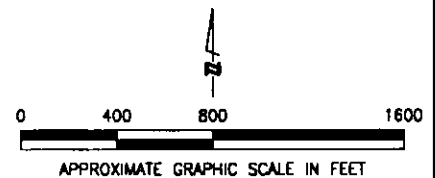
NOTES

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

SEE FIGURE SRPP01 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)



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

FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE AS SHOWN	PREPARED	R.P.A.V.	CAD FILE NO.
DATE 4/29/99	CHECKED		SJREPPM.DWG
	APPROVED		FIGURE NO.
			F-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 Description¹⁻⁴

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 Controls⁵⁻⁷

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.

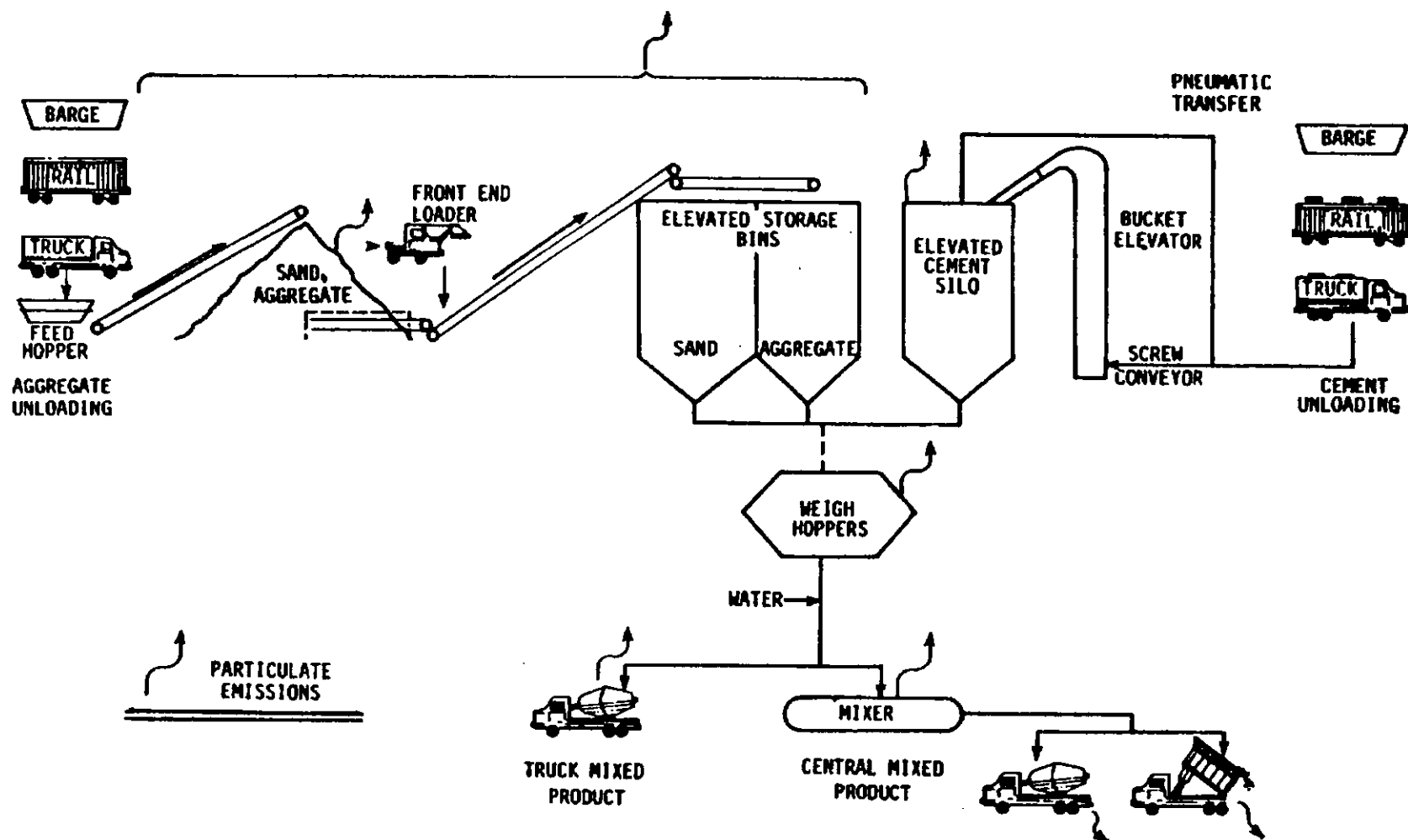


Figure 11.12-1. Typical concrete batching process.

Table 11.12-1 (Metric Units). EMISSION FACTORS FOR CONCRETE BATCHING^a

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

^a Factors represent uncontrolled emissions unless otherwise noted. All emission factors are in kg/Mg of material mixed unless noted. Based on a typical yd³ 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.

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

^c Condensable PM is that PM collected in the impinger portion of a PM sampling train.

^d Reference 6.

^e For uncontrolled emissions measured before filter. Based on 2 tests on pneumatic conveying controlled by a fabric filter.

^f 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.

^g Reference 5. Engineering judgment, based on observations and emissions tests of similar controlled sources.

^h 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 m³/yr (30,000 yd³/yr) of concrete, with average truck load of 6.2 m³ (8 yd³) and plant road length of 161 meters (0.1 mile).

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

^j 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^{a,b}

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

^a Factors represent uncontrolled emissions unless otherwise noted. All emission factors are in lb/ton (lb/yd³) of material mixed unless noted. SCC = Source Classification Code. ND = no data.

^b Based on a typical yd³ 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.

^c Filterable PM is that PM collected on or prior to the filter of an EPA Method 5 (or equivalent) sampling train.

^d Condensable PM is that PM collected in the impinger portion of a PM sampling train.

^e Reference 6.

^f For uncontrolled emissions measured before filter. Based on 2 tests on pneumatic conveying controlled by a fabric filter.

^g 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.

^h Reference 5. Engineering judgment, based on observations and emission tests of similar controlled sources.

ⁱ 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 m³/yr (30,000 yd³/yr) of concrete, with average truck load of 6.2 m³ (8 yd³) and plant road length of 161 meters (0.1 mile).

^j From Section 11.19.1, for emissions <30 micrometers from inactive storage piles.

^k Units of lb/acre/day.

^l Assumes 1,011 m² (1/4 acre) of sand and aggregate storage at plant with production of 23,000 m³/yr (30,000 yd³/yr).

^m 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 [μm] 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.¹ 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^a

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

^a 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:¹¹

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

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

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 Controls¹²⁻¹³

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.¹²

References For Section 13.2.4

1. C. Cowherd, Jr., *et al.*, *Development Of Emission Factors For Fugitive Dust Sources*, EPA-450/3-74-037, U. S. Environmental Protection Agency, Research Triangle Park, NC, June 1974.
2. R. Bohn, *et al.*, *Fugitive Emissions From Integrated Iron And Steel Plants*, EPA-600/2-78-050, U. S. Environmental Protection Agency, Cincinnati, OH, March 1978.
3. C. Cowherd, Jr., *et al.*, *Iron And Steel Plant Open Dust Source Fugitive Emission Evaluation*, EPA-600/2-79-103, U. S. Environmental Protection Agency, Cincinnati, OH, May 1979.
4. *Evaluation Of Open Dust Sources In The Vicinity Of Buffalo, New York*, EPA Contract No. 68-02-2545, Midwest Research Institute, Kansas City, MO, March 1979.
5. C. Cowherd, Jr., and T. Cuscino, Jr., *Fugitive Emissions Evaluation*, MRI-4343-L, Midwest Research Institute, Kansas City, MO, February 1977.

6. T. Cuscino, Jr., *et al.*, *Taconite Mining Fugitive Emissions Study*, Minnesota Pollution Control Agency, Roseville, MN, June 1979.
7. *Improved Emission Factors For Fugitive Dust From Western Surface Coal Mining Sources*, 2 Volumes, EPA Contract No. 68-03-2924, PEDCo Environmental, Kansas City, MO, and Midwest Research Institute, Kansas City, MO, July 1981.
8. *Determination Of Fugitive Coal Dust Emissions From Rotary Railcar Dumping*, TRC, Hartford, CT, May 1984.
9. *PM-10 Emission Inventory Of Landfills In the Lake Calumet Area*, EPA Contract No. 68-02-3891, Midwest Research Institute, Kansas City, MO, September 1987.
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13.2.5 Industrial Wind Erosion

13.2.5.1 General¹⁻³

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_0 = 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.

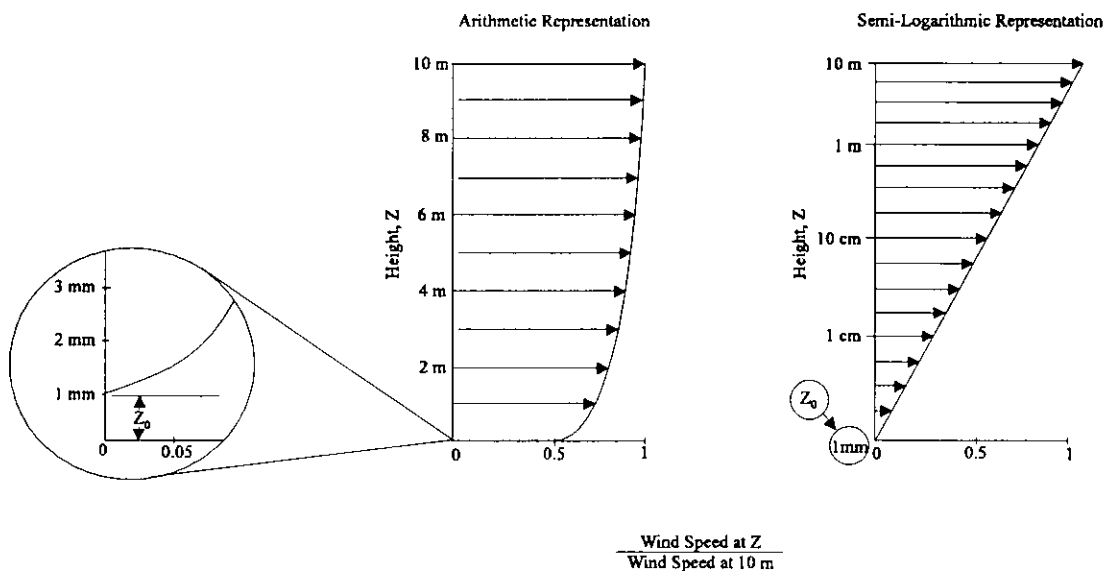


Figure 13.2.5-1. Illustration of logarithmic velocity profile.

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 Equation⁴

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 μm	<15 μm	<10 μm	<2.5 μm
1.0	0.6	0.5	0.2

This distribution of particle size within the under 30 micrometer (μm) 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:

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

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

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.⁵⁻⁶ 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.¹⁰

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 ^a	1.02	0.3	21	19
Scoria (roadbed material) ^a	1.33	0.3	27	25
Ground coal (surrounding coal pile) ^a	0.55	0.01	16	10
Uncrusted coal pile ^a	1.12	0.3	23	21
Scraper tracks on coal pile ^{a,b}	0.62	0.06	15	12
Fine coal dust on concrete pad ^c	0.54	0.2	11	10

^a Western surface coal mine. Reference 2.

^b Lightly crusted.

^c 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.⁷ 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 flat top, 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.⁹ 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 ^a

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

^a 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^+)

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

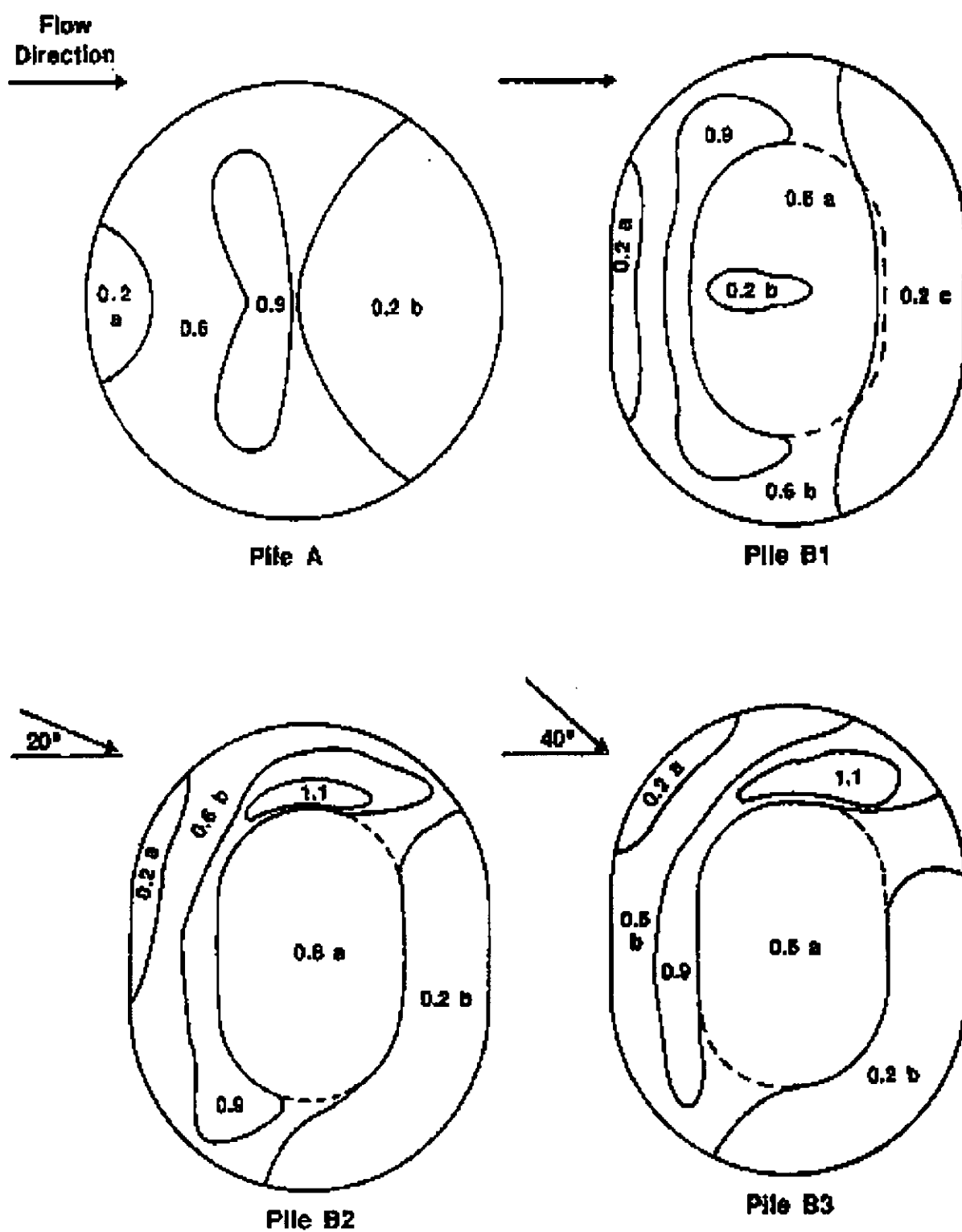


Figure 13.2.5-2. Contours of normalized surface windspeeds, u_s/u_r .

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 (kg/m^3) (50 pounds per cubic feet [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.

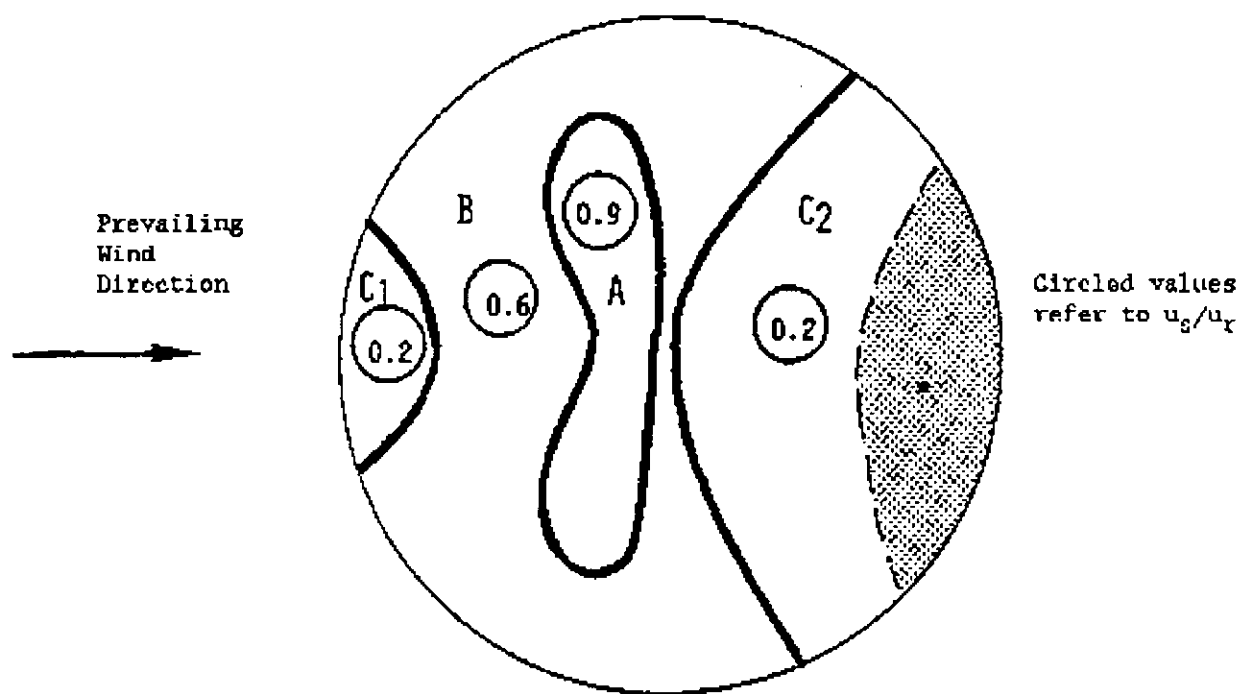
Step 1: In the absence of field data for estimating the threshold friction velocity, a value of 1.12 m/s is obtained from Table 13.2.5-2.

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,

$$\begin{aligned} u_{10}^+ &= u_7^+ \left(\frac{\ln(10/0.005)}{\ln(7/0.005)} \right) \\ u_{10}^+ &= 1.05 u_7^+ \end{aligned}$$

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



* A portion of C_2 is disturbed daily by reclaiming activities.

Area ID	$\frac{u_s}{u_r}$	Pile Surface	
		%	Area (m^2)
A	0.9	12	101
B	0.6	48	402
$C_1 + C_2$	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					Date
Resultant Dir.	Resultant Speed M.P.H.	Average Speed M.P.H.	Fastest Mile		
			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^a

3-Day Period	u^* (m/s)	$u^* - u_t^*$ (m/s)	P (g/m ²)	ID	Pile Surface Area (m ²)	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

^a 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 μ 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 $u^+ \approx 33$ 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:

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

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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 :

- ☒ [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).
- ☐ [] 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.
- ☒ [X] 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.

Emissions Unit Information Section 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 - 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

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).

Emissions Unit Information Section 1
SJRP - Materials Handling & Storage Operations

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

III. Part 6b - 1

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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 Nonmettalic-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

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 :	

III. Part 8 - 6

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

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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 : PM10		
2. Total Percent Efficiency of Control :		%
3. Potential Emissions :		
lb/hour		tons/year
4. Synthetically Limited? ☐ Yes ☒ 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 :		

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

1. Pollutant Emitted :	PM
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 :		
	lb/hour	tons/year
5. Method of Compliance :		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :		

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.

III. Part 10 - 1

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 1
SJRP - 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%;"><tr><td style="text-align: right;">Normal Conditions :</td><td style="text-align: center;">5</td><td style="text-align: right;">%</td></tr><tr><td style="text-align: right;">Exceptional Conditions :</td><td style="text-align: center;">100</td><td style="text-align: right;">%</td></tr><tr><td style="text-align: right;">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

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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.)

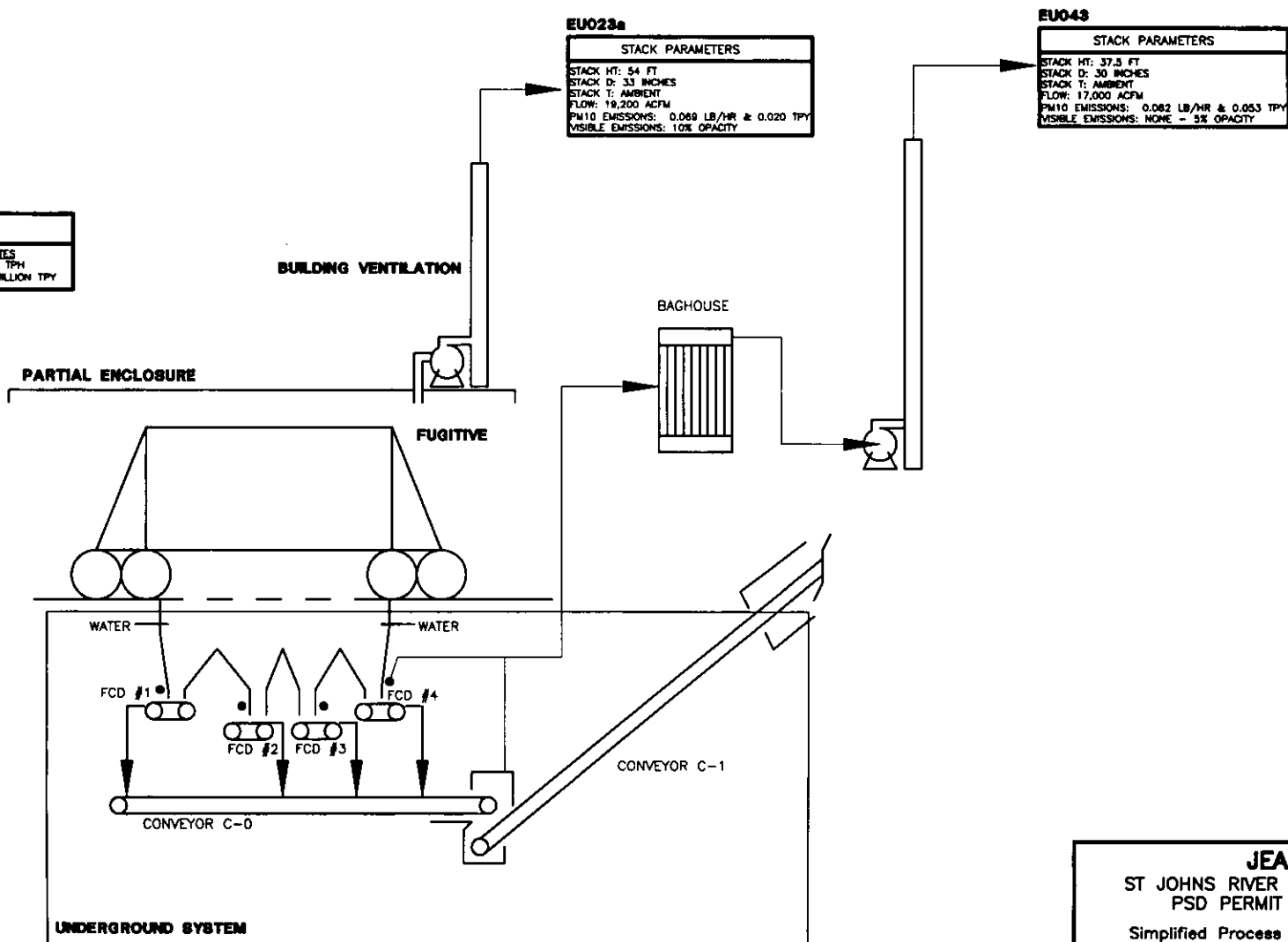
Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

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

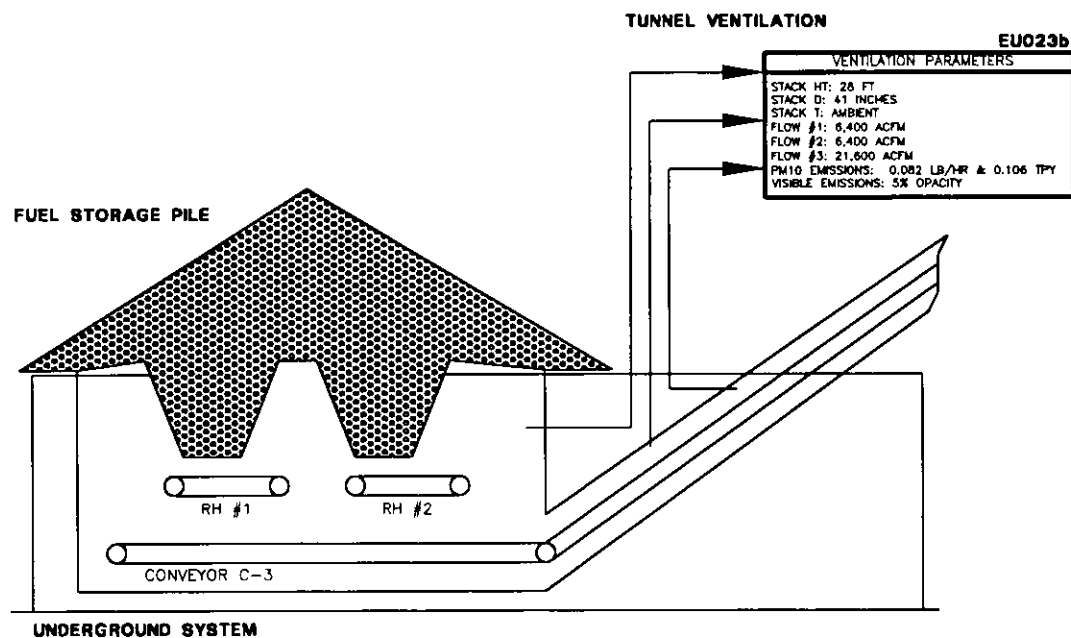
HANDLING RATES
SURF THROUGHPUT RATES
UNLOADING RATE: 4,000 TPH
COAL/PET. COKE: 5.2 MILLION TPY



NOTE: COVERS ON CONVEYORS

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

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



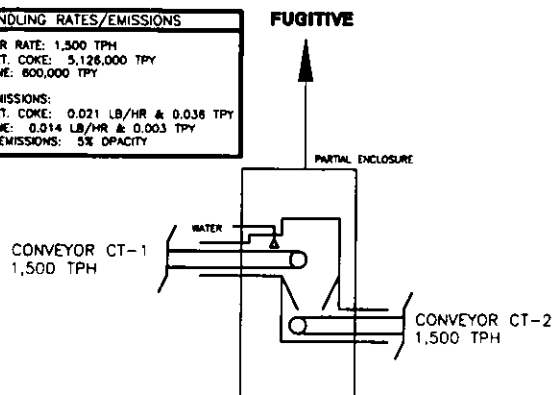
NOTE: COVERS ON CONVEYORS

JEA			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram			
Emissions Unit ID 023b			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED CHECKED DATE: 04/08/99	DJC MAE DJF	CAD FILE NO. EU023bPE.DWG FIGURE NO. EU023b-01

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

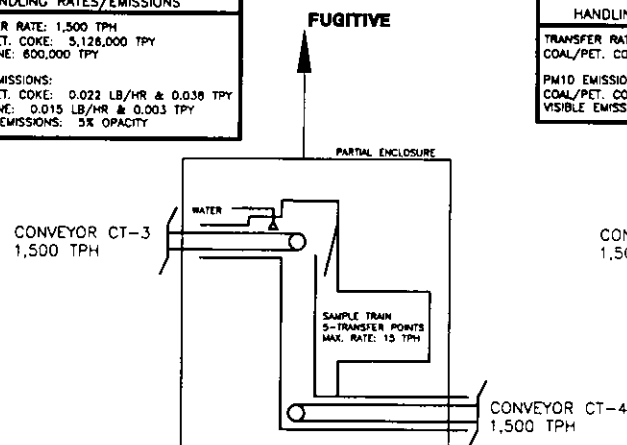
TRANSFER STATION NO. 1

HANDLING RATES/EMISSIONS
TRANSFER RATE: 1,500 TPH
COAL/PET. COKE: 5,126,000 TPY
LIMESTONE: 600,000 TPY
PM10 EMISSIONS:
COAL/PET. COKE: 0.021 LB/HR & 0.036 TPY
LIMESTONE: 0.014 LB/HR & 0.003 TPY
VISIBLE EMISSIONS: 5% OPACITY



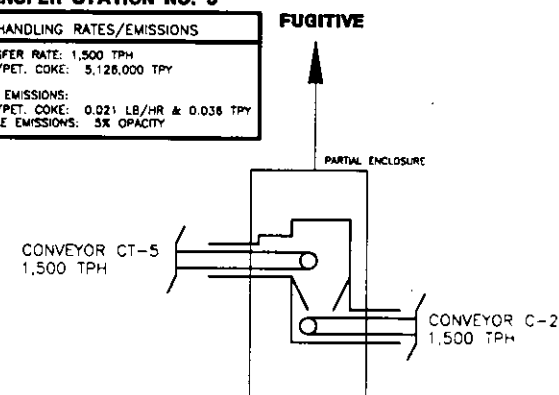
TRANSFER STATION NO. 3

HANDLING RATES/EMISSIONS
TRANSFER RATE: 1,500 TPH
COAL/PET. COKE: 5,126,000 TPY
LIMESTONE: 600,000 TPY
PM10 EMISSIONS:
COAL/PET. COKE: 0.022 LB/HR & 0.036 TPY
LIMESTONE: 0.015 LB/HR & 0.003 TPY
VISIBLE EMISSIONS: 5% OPACITY



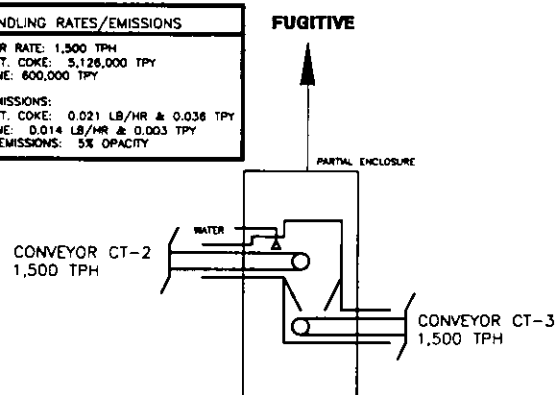
TRANSFER STATION NO. 5

HANDLING RATES/EMISSIONS
TRANSFER RATE: 1,500 TPH
COAL/PET. COKE: 5,126,000 TPY
PM10 EMISSIONS:
COAL/PET. COKE: 0.021 LB/HR & 0.036 TPY
VISIBLE EMISSIONS: 5% OPACITY



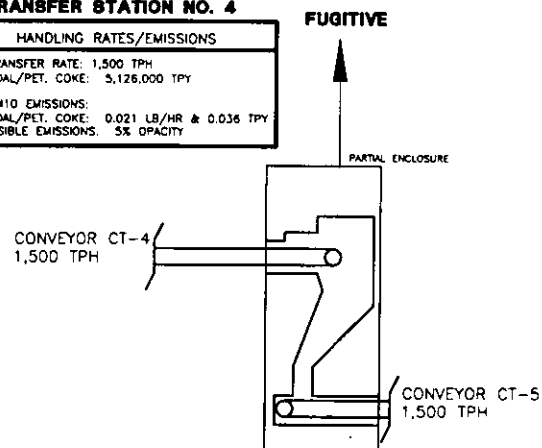
TRANSFER STATION NO. 2

HANDLING RATES/EMISSIONS
TRANSFER RATE: 1,500 TPH
COAL/PET. COKE: 5,126,000 TPY
LIMESTONE: 600,000 TPY
PM10 EMISSIONS:
COAL/PET. COKE: 0.021 LB/HR & 0.036 TPY
LIMESTONE: 0.014 LB/HR & 0.003 TPY
VISIBLE EMISSIONS: 5% OPACITY



TRANSFER STATION NO. 4

HANDLING RATES/EMISSIONS
TRANSFER RATE: 1,500 TPH
COAL/PET. COKE: 5,126,000 TPY
PM10 EMISSIONS:
COAL/PET. COKE: 0.021 LB/HR & 0.036 TPY
VISIBLE EMISSIONS: 5% OPACITY



NOTE: COVERS ON CONVEYORS

JEA
ST JOHNS RIVER POWER PARK
REPOWERING

Simplified Process Flow Diagram
Emissions Unit ID 023e

FOSTER WHEELER ENVIRONMENTAL CORPORATION

SCALE: N/A	PREPARED: DJG	CAD FILE NO.: EU023ePFg.DWG
DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023e-01a
	APPROVED: DJF	

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:	5,128,000 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:	5,128,000 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

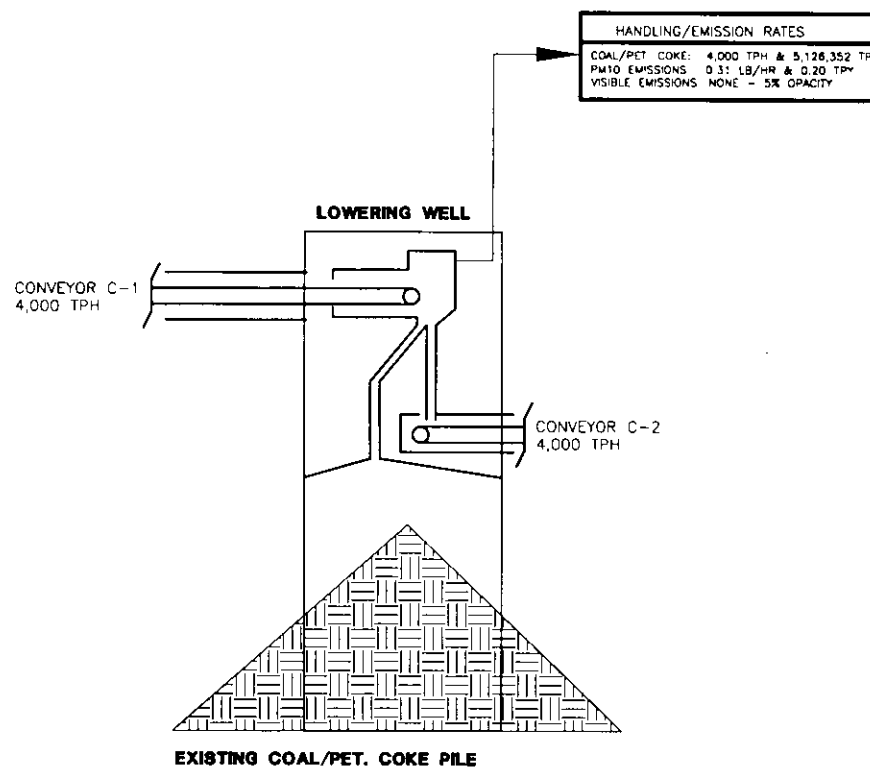
CONVEYOR 9GC-04
144 TPH

CONVEYOR 9GC-05
144 TPH

NOTE: COVERS ON CONVEYORS

JEA ST JOHNS RIVER POWER PARK REPOWERING Simplified Process Flow Diagram Emissions Unit ID 023e			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE: N/A	PREPARED: DJG	CAD FILE NO.: EU023ePFD.DWG	
DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023e-01b	
	APPROVED: DJF		

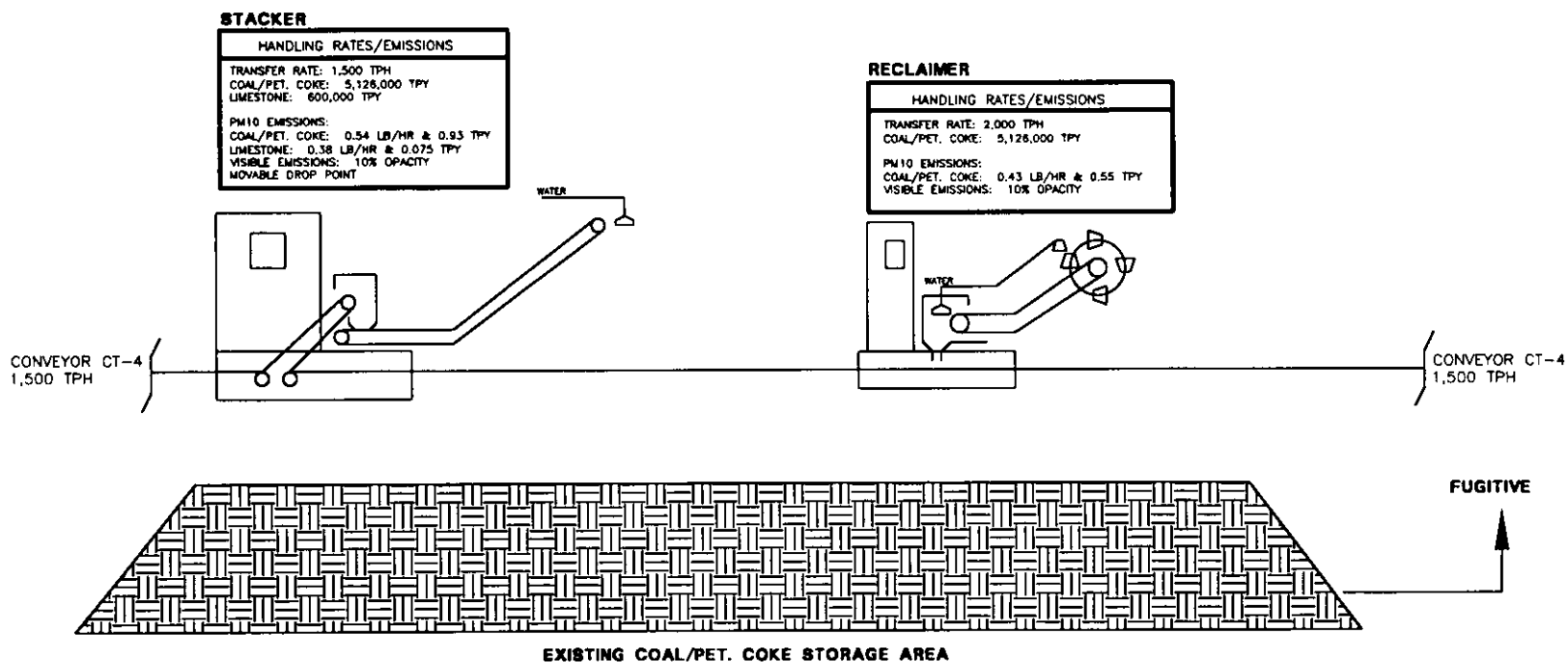
ST JOHNS RIVER POWER PARK FUEL TRANSFER BUILDING ATTACHMENT EU023e-01c



NOTE: COVERS ON CONVEYORS

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

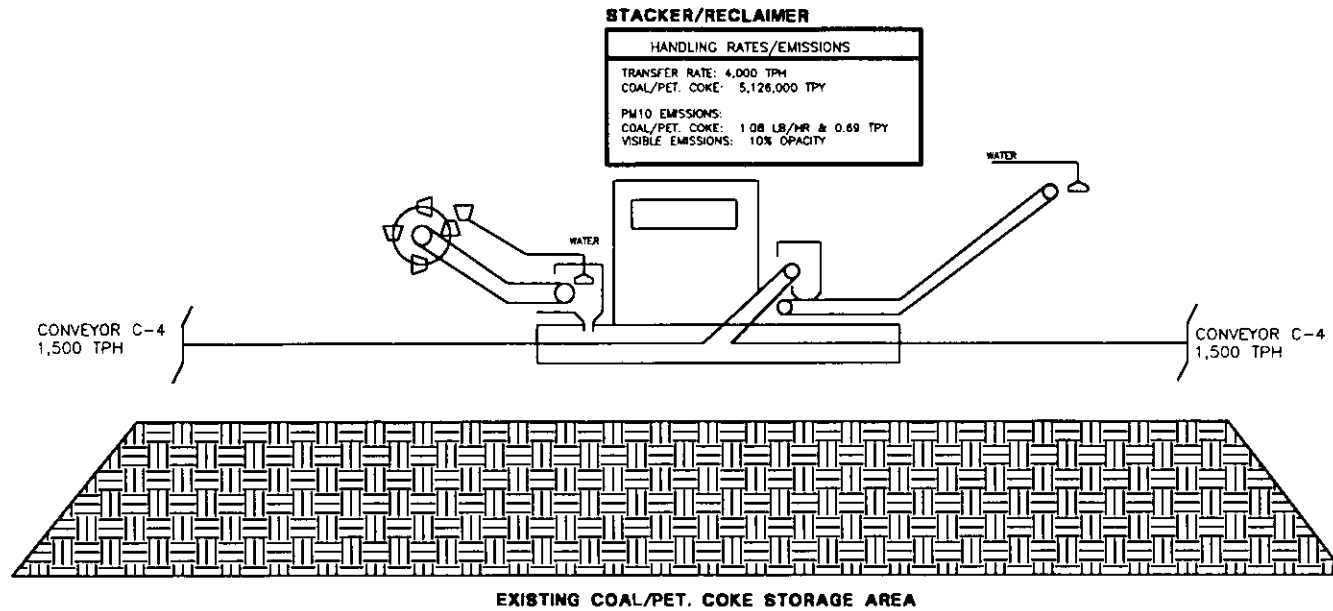
ST JOHNS RIVER POWER PARK STACKER & RECLAIMER ATTACHMENT EU023f-01a



NOTE: WIND SCREENS ON CONVEYORS

JEA			
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. EU023fPFD.DWG	
DATE: 04/08/99	CHECKED MAE	FIGURE NO. EU023f-01a	
	APPROVED DJF		

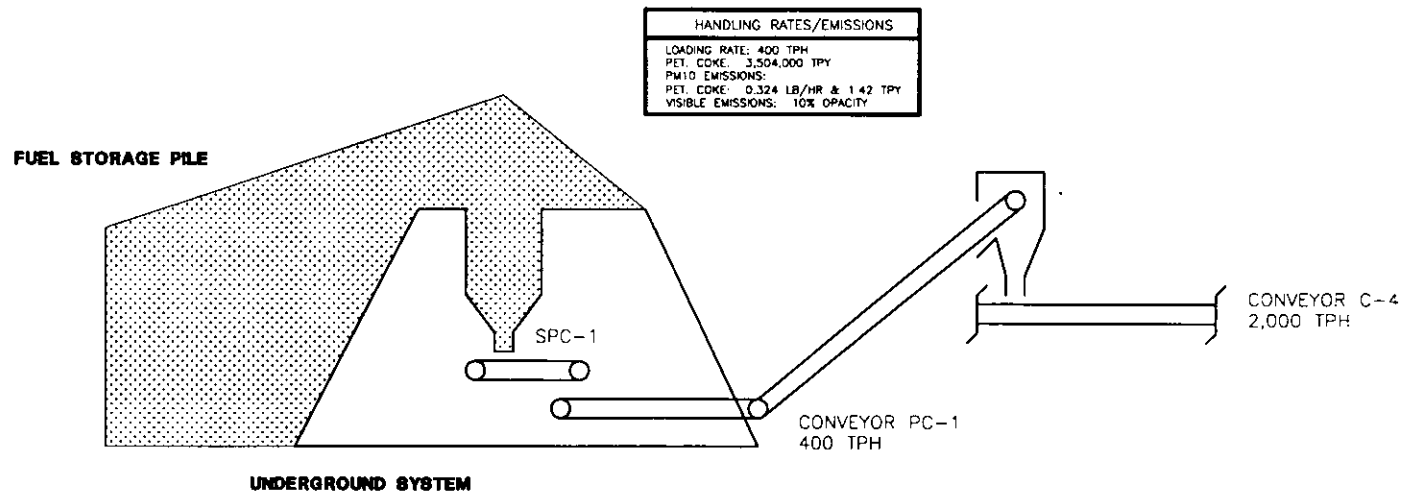
ST JOHNS RIVER POWER PARK STACKER/RECLAIMER ATTACHMENT EU023f-01b



NOTE: WIND SCREENS ON CONVEYORS

JEA			
ST JOHNS RIVER POWER PARK REPOWERING			
Simplified Process Flow Diagram Emissions Unit ID 023f			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED CHECKED APPROVED	DJG MAE DJF	CAD FILE NO. EU023fPFD.DWG FIGURE NO. EU023f-01b
DATE: 04/08/99			

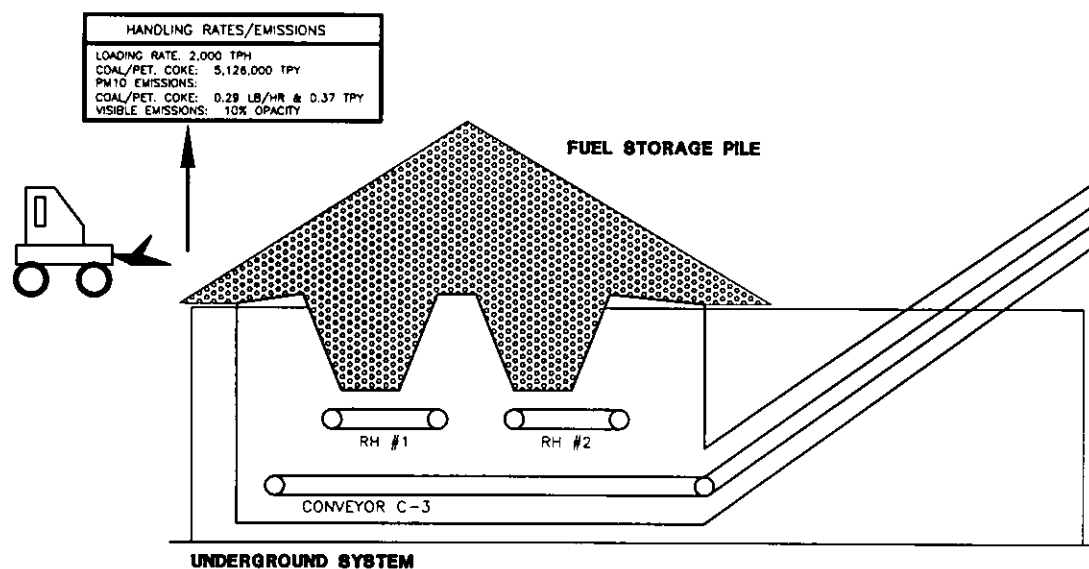
ST JOHNS RIVER POWER PARK PETROLEUM COKE RECLAIM SYSTEM ATTACHMENT EU023g-01a



NOTE: COVERS ON CONVEYORS

JEA		
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE		
Simplified Process Flow Diagram Emissions Unit ID 023g		
FOSTER WHEELER ENVIRONMENTAL CORPORATION		
SCALE: N/A	PREPARED: DJG	CAD FILE NO.: EU023gPFg.DWG
DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023g-01a
	APPROVED: DJF	

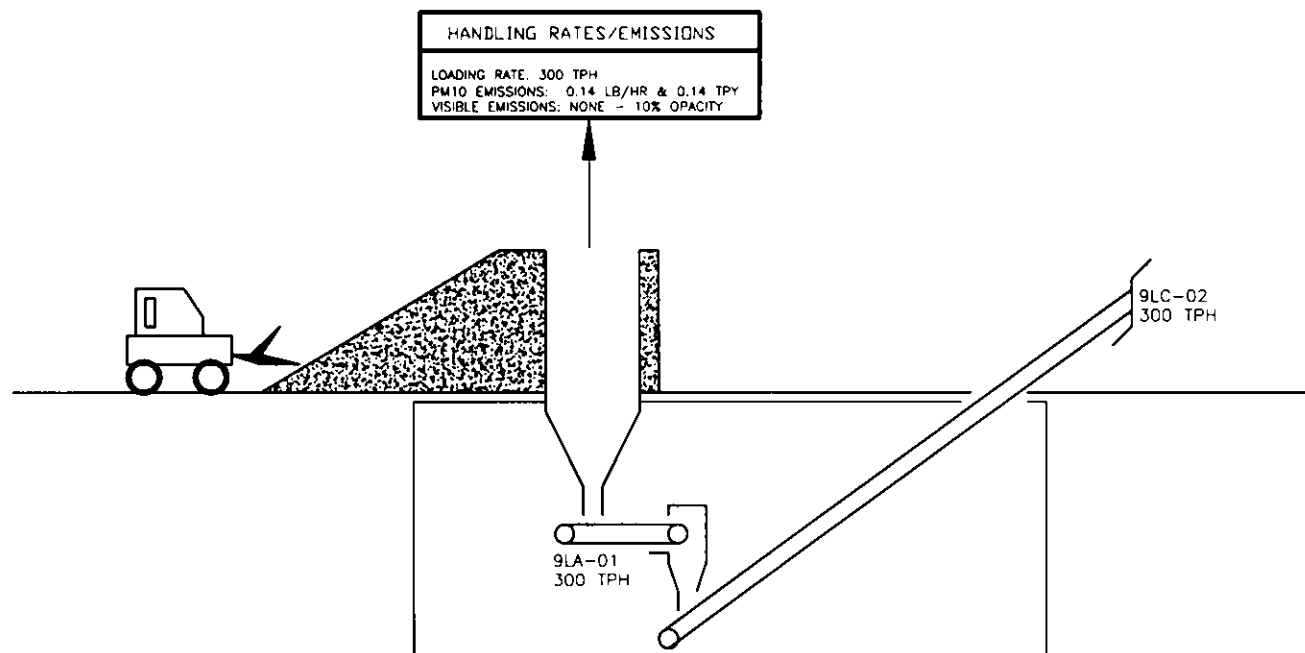
ST JOHNS RIVER POWER PARK EMERGENCY RECLAIM HOPPERS ATTACHMENT EU023g-01b



NOTE: COVERS ON CONVEYORS

JEA			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 023g			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE: N/A	PREPARED: DJG	CAD FILE NO.: EU023gPFD.DWG	
DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023g-01b	
	APPROVED: DJF		

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

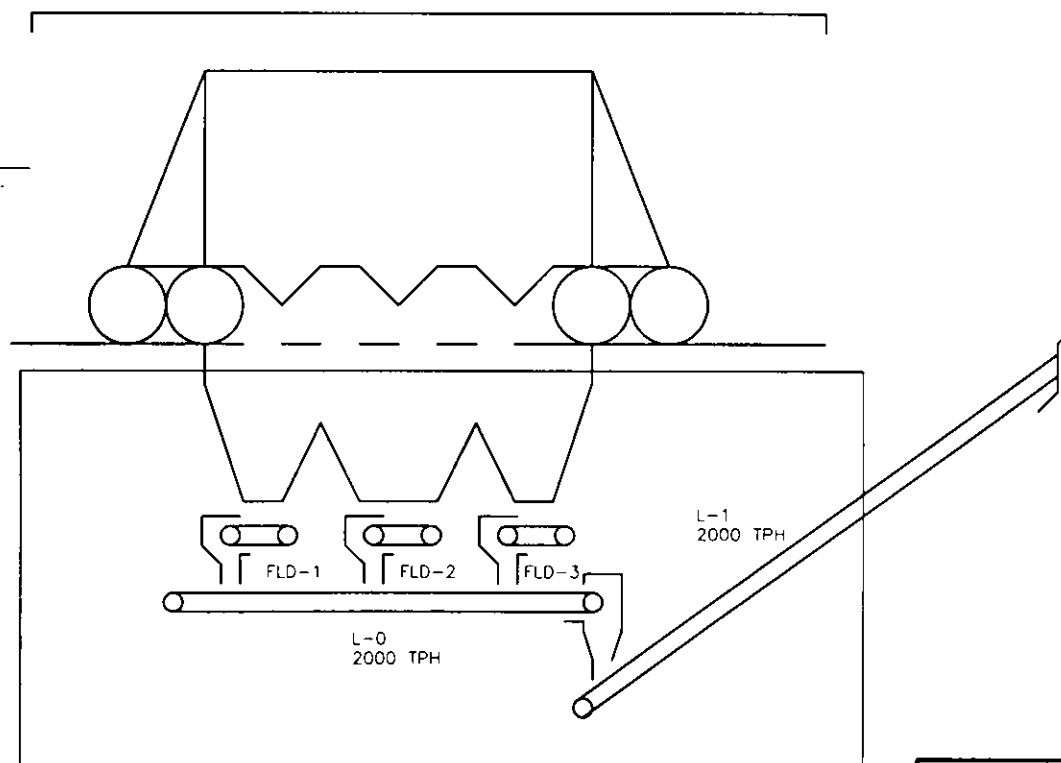


JEA
ST JOHNS RIVER POWER PARK
PSD PERMIT UPDATE
Simplified Process Flow Diagram
Emissions Unit ID 023g

FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE: N/A	PREPARED: DJG	CAD FILE NO.: EU023gPFC.DWG	
DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023g-01c	
	APPROVED: DJF		

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

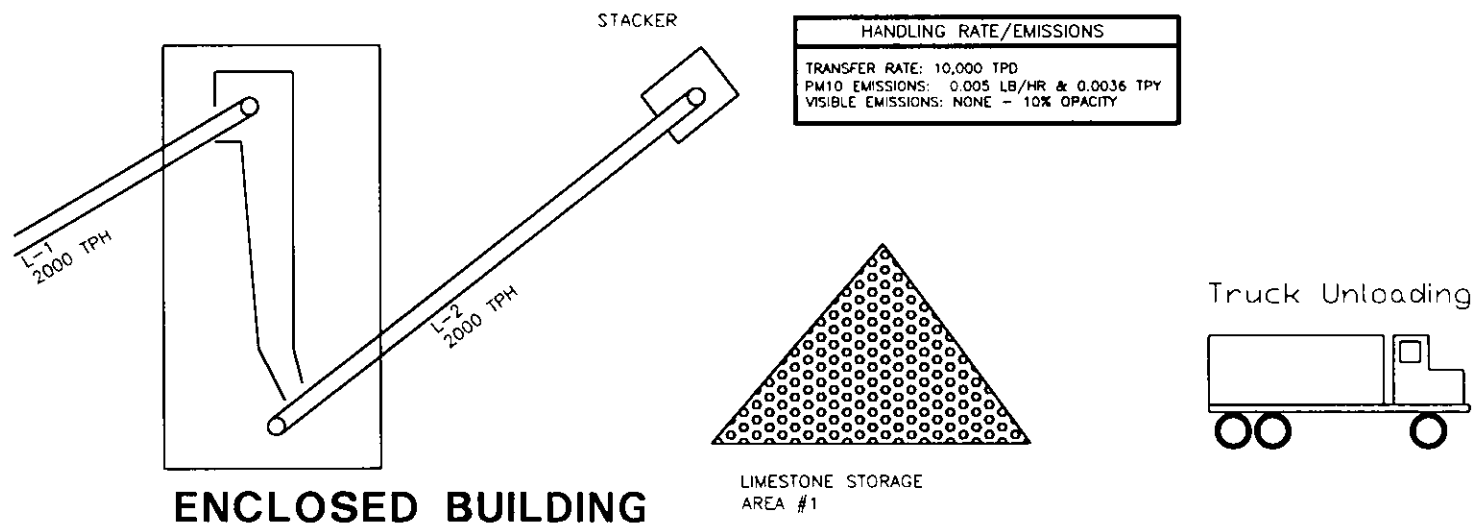
HANDLING RATES/EMISSIONS	
UNLOADING RATE:	10,000 TPD
PM10 EMISSIONS:	0.005 LB/HR & 0.004 TPD
VISIBLE EMISSIONS:	NONE - 10% OPACITY



UNDERGROUND TRANSFER SYSTEM

JEA ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE Simplified Process Flow Diagram Emissions Unit ID 023h			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE: N/A	PREPARED: DJG	CAD FILE NO.: EU023hPF.DWG	
DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023h-01	
	APPROVED: DJF		

ST JOHNS RIVER POWER PARK LIMESTONE LOADOUT ATTACHMENT EU023i-01



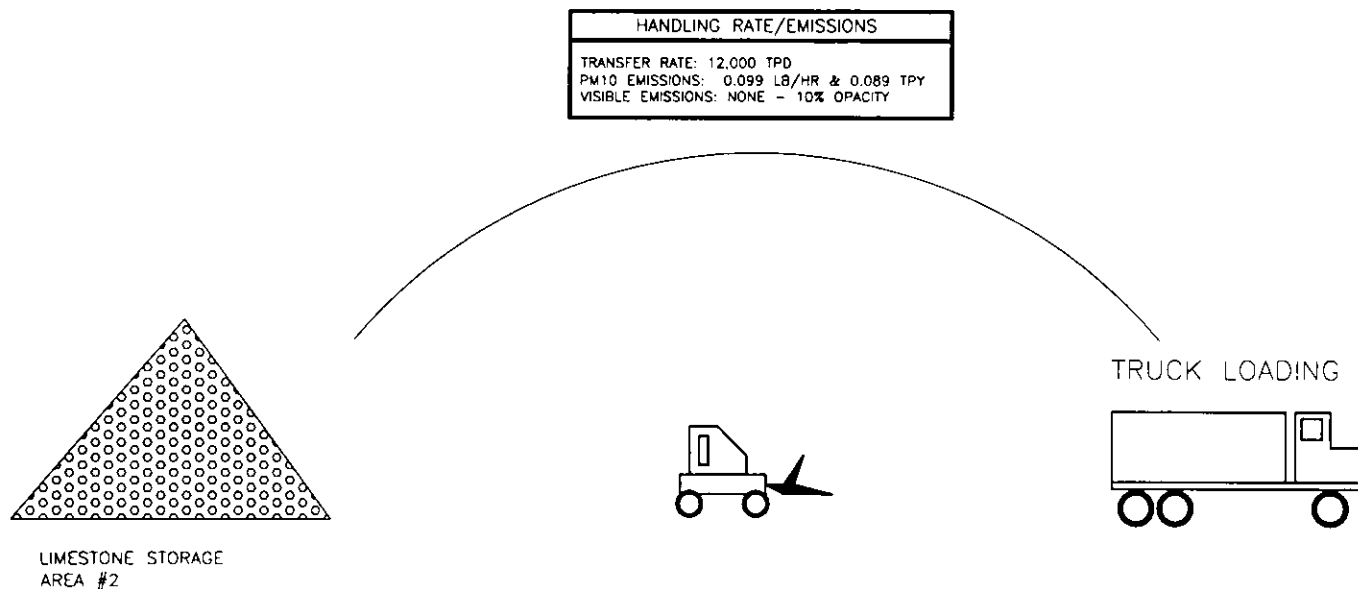
JEA
ST JOHNS RIVER POWER PARK
PSD PERMIT UPDATE

Simplified Process Flow Diagram
Emissions Unit ID 023i

FOSTER WHEELER ENVIRONMENTAL CORPORATION

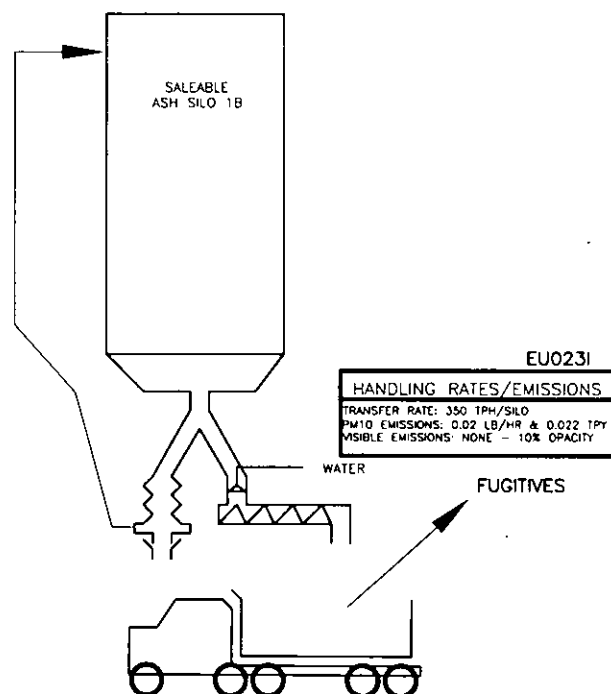
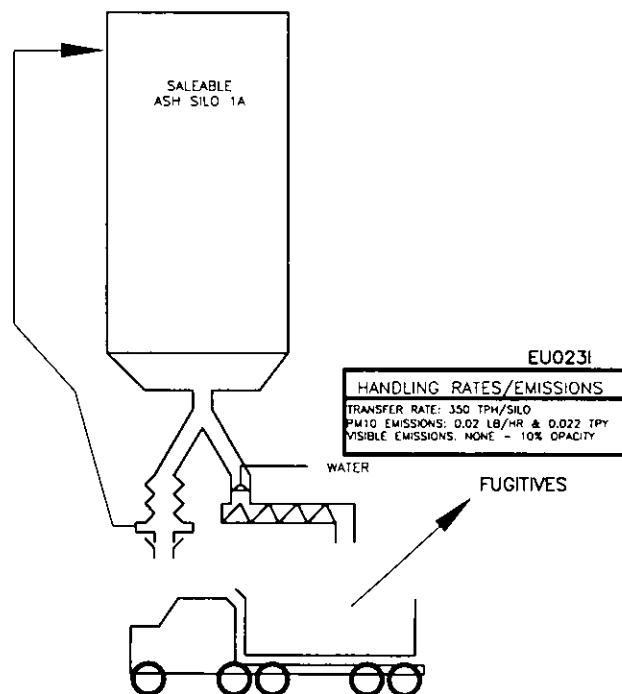
SCALE: N/A	PREPARED: DJG	CAD FILE NO.: EU023iPF.DWG
DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023i-01
	APPROVED: DJF	

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



JEA			
ST JOHNS POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram			
Emissions Unit ID 023j			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED CHECKED APPROVED	DJG MAE DJF	CAD FILE NO. EU023JPF.DWG FIGURE NO. EU023j-01
DATE: 02/18/99			

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

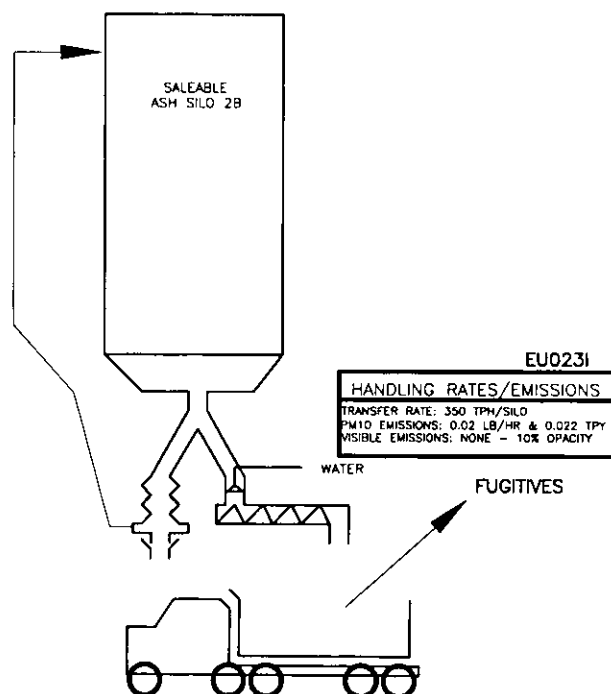
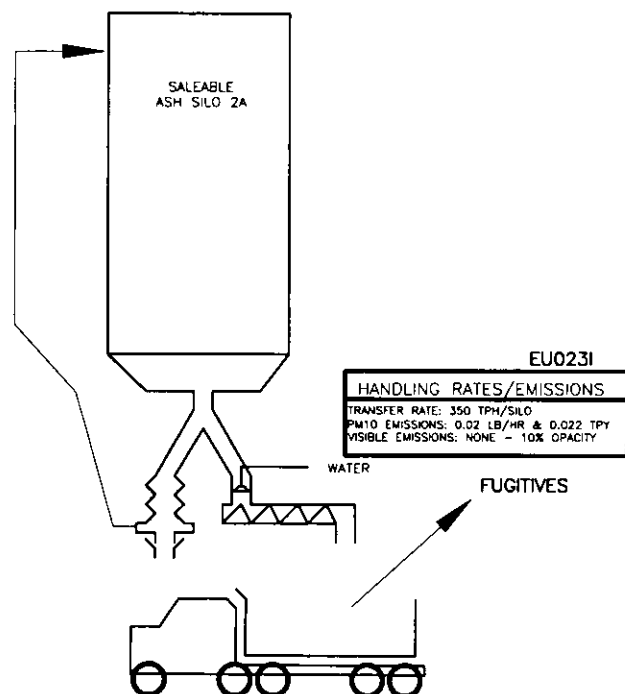


JEA			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 023I			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE: N/A	PREPARED: DJG	CAD FILE NO.: EU023IPFg.DWG	
DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023I-01a	
	APPROVED: DJF		

ST JOHNS RIVER POWER PARK

UNIT 2 SALEABLE ASH SILO LOADOUTS

ATTACHMENT EU023I-01b

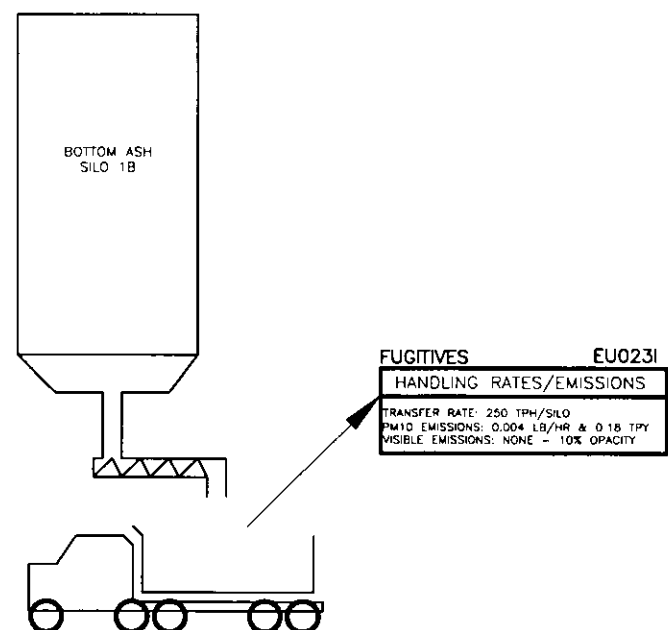
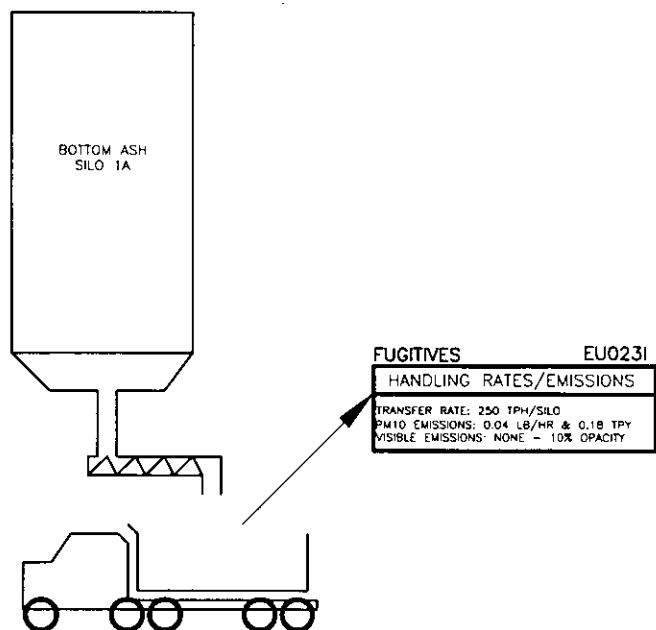


JEA ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE Simplified Process Flow Diagram Emissions Unit ID 023I			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE: N/A	PREPARED: DJG	CAD FILE NO.: EU023IPFD.DWG	
DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023I-01b	
	APPROVED: DJF		

ST JOHNS RIVER POWER PARK

UNIT 1 BOTTOM ASH SILO LOADOUTS

ATTACHMENT EU023L-01c



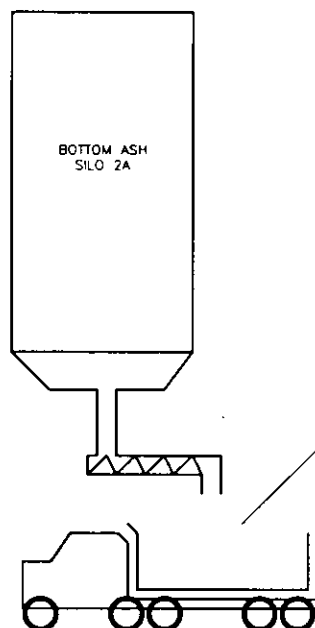
JEA
ST JOHNS RIVER POWER PARK
PSD PERMIT UPDATE
Simplified Process Flow Diagram
Emissions Unit ID Q23I

FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED DJG	CAD FILE NO. EU023IPFg.DWG	
DATE: 04/08/99	CHECKED MAE	FIGURE NO. EU023I-01c	
	APPROVED DJF		

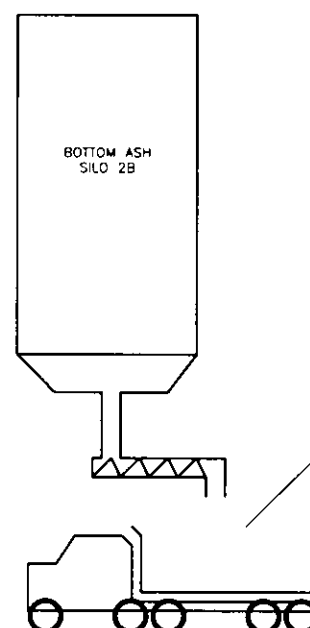
ST JOHNS RIVER POWER PARK

UNIT 2 BOTTOM ASH SILO LOADOUTS

ATTACHMENT EU023I-01d



FUGITIVES	EU023I
HANDLING RATES/EMISSIONS	
TRANSFER RATE: 250 TPH/SILO	
PM10 EMISSIONS: 0.04 LB/HR & 0.18 TPY	
VISIBLE EMISSIONS: NONE - 10% OPACITY	

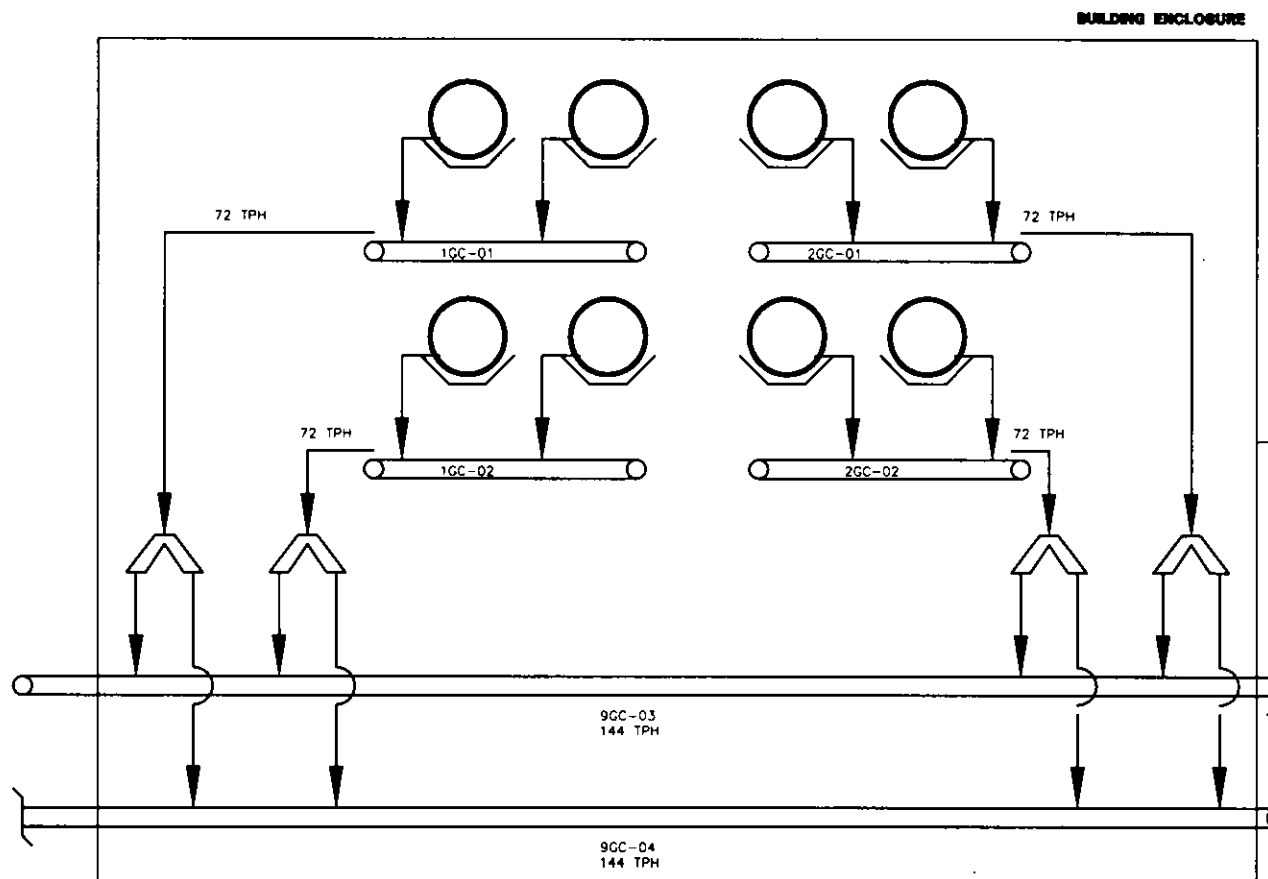


FUGITIVES	EU023I
HANDLING RATES/EMISSIONS	
TRANSFER RATE: 250 TPH/SILO	
PM10 EMISSIONS: 0.04 LB/HR & 0.18 TPY	
VISIBLE EMISSIONS: NONE - 10% OPACITY	

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.: EU023I.PFD.DWG	
DATE: 04/08/99	CHECKED: MAE	FIGURE NO.: EU023I-01d	
	APPROVED: DJF		

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

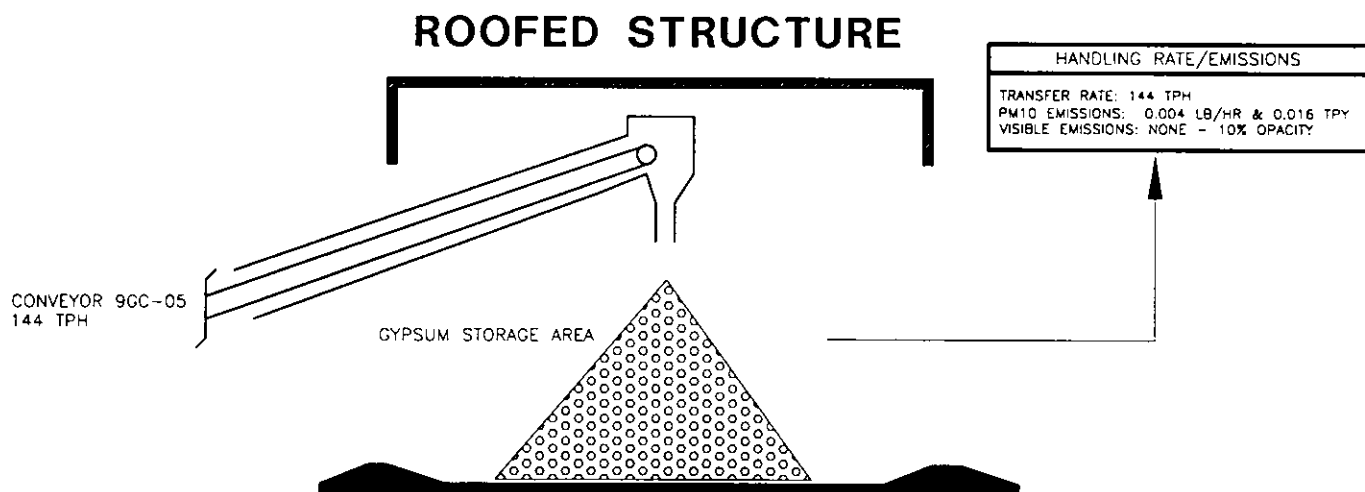
JEA
ST JOHNS RIVER POWER PARK
PSD PERMIT UPDATE
Simplified Process Flow Diagram
Emissions Unit ID 023m

FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED CHECKED APPROVED	DJG MAE DJF	CAD FILE NO. EU023mPFD.DWG FIGURE NO. EU023m-01
DATE: 04/08/99			

ST JOHNS RIVER POWER PARK

GYPSUM STORAGE AREA

ATTACHMENT EU023o-01



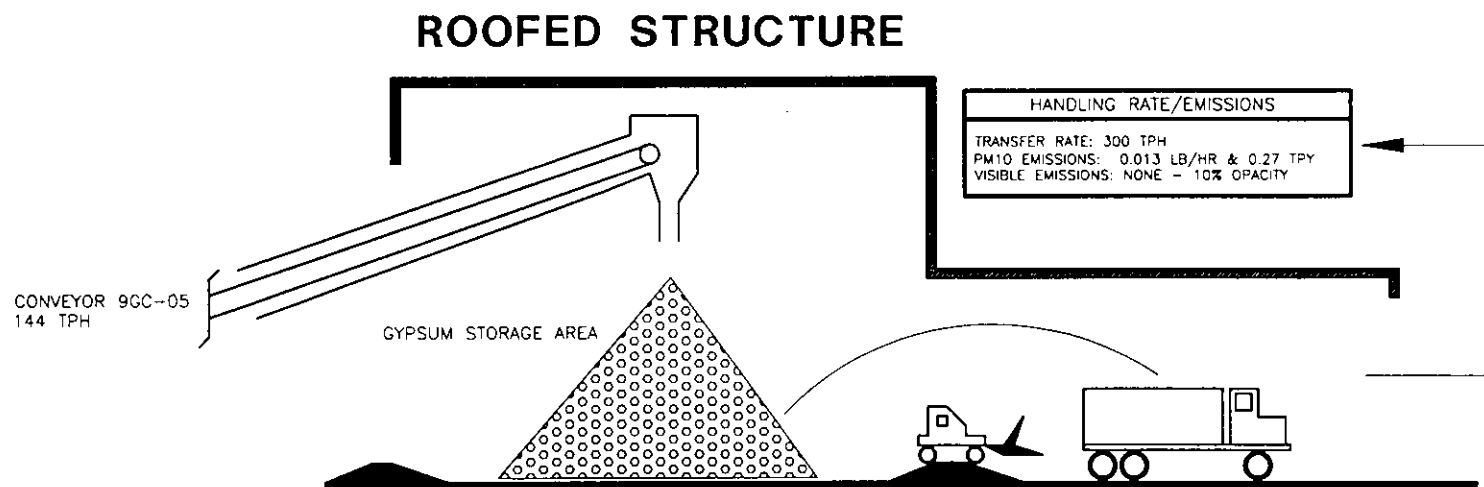
JEA
ST JOHNS RIVER POWER PARK
PSD PERMIT UPDATE

Simplified Process Flow Diagram
Emissions Unit ID 023o

FOSTER WHEELER ENVIRONMENTAL CORPORATION

SCALE N/A	PREPARED DJG	CAD FILE NO. EU023oPF.DWG
DATE: 04/08/99	CHECKED MAE	FIGURE NO. EU023o-01
	APPROVED DJF	

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



JEA			
ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram			
Emissions Unit ID 023p			
Foster Wheeler Environmental Corporation			
SCALE N/A	PREPARED CHECKED DATE: 04/08/99	DJG MAE DJF	CAD FILE NO. EU023pPF.DWG FIGURE NO. 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				SEC							
6020 WILLIAM MILLS ST.			MIN	0	15	30	45	MIN	0	15	30	45		
			1	0	0	0	0	31						
CITY			2	0	0	0	0	32						
JACKSONVILLE			3	0	0	0	0	33						
STATE			4	0	0	0	0	34						
FL			5	0	0	0	0	35						
ZIP			6	0	0	0	0	36						
32226			7	0	0	0	0	37						
PHONE			8	0	0	0	0	38						
904-751-7729			9	0	0	0	0	39						
SOURCE ID NUMBER			10	0	0	0	0	40						
HOPPER-WET			11	0	0	0	0	41						
PROCESS EQUIPMENT			12	0	0	0	0	42						
SHIP UNLOADER			13	0	0	0	0	43						
OPERATING MODE			14	0	0	0	0	44						
NORMAL			15	0	0	0	0	45						
CONTROL EQUIPMENT			16	0	0	0	0	46						
WET SUPPRESSION SYS.			17	0	0	0	0	47						
OPERATING MODE			18	0	0	0	0	48						
NORMAL			19	0	0	0	0	49						
DESCRIBE EMISSION POINT			20	0	0	0	0	50						
40' x 40' OPENING			21	0	0	0	0	51						
START			22	0	0	0	0	52						
STOP			23	0	0	0	0	53						
HEIGHT ABOVE GROUND LEVEL			24	0	0	0	0	54						
START 80' STOP ✓			25	0	0	0	0	55						
HEIGHT RELATIVE TO OBSERVER			26	0	0	0	0	56						
START 50' STOP ✓			27	0	0	0	0	57						
DISTANCE FROM OBSERVER			28	0	0	0	0	58						
START 80' STOP ✓			29	0	0	0	0	59						
DIRECTION FROM OBSERVER			30	0	0	0	0	60						
START N STOP ✓														
DESCRIBE EMISSIONS														
START NONE STOP														
EMISSION COLOR														
START STOP														
PLUME TYPE CONTINUOUS ☐														
FUGITIVE ☒ INTERMITTENT ☐														
WATER DROPLETS PRESENT														
NO ☒ YES ☐														
IF WATER DROPLET PLUME														
ATTACHED ☐ DETACHED ☐														
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED														
START 3' ABOVE HOPPER STOP														
DESCRIBE BACKGROUND														
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 71°F STOP ✓														
WET BULB TEMP.														
56°F														
RH, percent														
40%														
Source Layout Sketch														
Draw North Arrow														
AVERAGE OPACITY FOR HIGHEST PERIOD 0.90			NUMBER OF READINGS ABOVE 0.90 % 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											
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			CERTIFIED BY											
SIGNATURE			EASTERN TECH. ASSOC.											
DATE			11/30/88											
TITLE			VERIFIED BY											
DATE			DATE											

SOURCE NAME ST. JOHNS RIVER COAL TERMINAL			OBSERVATION DATE 2/12/89					START TIME 1100					STOP TIME 1130												
ADDRESS 6020 WILLIAM MILLS ST.													SEC MIN		SEC MIN		SEC MIN								
													0	15	30	45	0	15	30	45					
CITY JACKSONVILLE			STATE FL			ZIP 32226			1	0	0	0	0	31											
PHONE 904-751-7729			SOURCE ID NUMBER TRANSFER STN #1						2	0	0	0	0	32											
PROCESS EQUIPMENT COAL CONVEYOR			OPERATING MODE NORMAL						3	0	0	0	0	33											
CONTROL EQUIPMENT WET SUPPRESSION EXHAUST			OPERATING MODE NORMAL						4	0	0	0	0	34											
DESCRIBE EMISSION POINT													5	0	0	0	0	35							
START STOP													6	0	0	0	0	36							
HEIGHT ABOVE GROUND LEVEL START 30' STOP ✓													7	0	0	0	0	37							
HEIGHT RELATIVE TO OBSERVER START 30' STOP ✓													8	0	0	0	0	38							
DISTANCE FROM OBSERVER START 70' STOP ✓													9	0	0	0	0	39							
DIRECTION FROM OBSERVER START NE STOP ✓													10	0	0	0	0	40							
DESCRIBE EMISSIONS													11	0	0	0	0	41							
START NONE STOP													12	0	0	0	0	42							
EMISSION COLOR			PLUME TYPE CONTINUOUS ☐										13	0	0	0	0	43							
START STOP			FUGITIVE ☐ INTERMITTENT ☐										14	0	0	0	0	44							
WATER DROPLETS PRESENT			IF WATER DROPLET PLUME										15	0	0	0	0	45							
NO ☐ YES ☐			ATTACHED ☐ DETACHED ☐										16	0	0	0	0	46							
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED													17	0	0	0	0	47							
START 1' ABOVE TRANSFER STATION STOP													18	0	0	0	0	48							
DESCRIBE BACKGROUND													19	0	0	0	0	49							
START SKY STOP ✓													20	0	0	0	0	50							
BACKGROUND COLOR			SKY CONDITIONS										21	0	0	0	0	51							
START BLUE STOP ✓			START CLEAR STOP ✓										22	0	0	0	0	52							
WIND SPEED			WIND DIRECTION										23	0	0	0	0	53							
START 5-10 MPH STOP ✓			START NE STOP ✓										24	0	0	0	0	54							
AMBIENT TEMP.			WET BULB TEMP.			RH. percent			25	0	0	0	0	55											
START 63°F STOP ✓			50°F			40%			26	0	0	0	0	56											
													27	0	0	0	0	57							
													28	0	0	0	0	58							
													29	0	0	0	0	59							
													30	0	0	0	0	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. BARWARD												
													OBSERVER'S SIGNATURE												
Theresa A. Barward																									
DATE																									
2/12/89																									
ORGANIZATION																									
HUNTER ESE																									
CERTIFIED BY																									
EASTERN TCH. ASSOC.																									
DATE																									
11/30/88																									
VERIFIED BY																									
DATE																									

SOURCE NAME ST. JOHNS RIVER COAL TERMINAL			OBSERVATION DATE 2/12/89		START TIME 1:20		STOP TIME 1:20	
ADDRESS 10040 WILLIAM MILLS ST.			SEC MIN		SEC MIN			
			0 15 30 45		0 15 30 45			
CITY JACKSONVILLE			STATE FL		ZIP 32226			
PHONE 351-751-7729			SOURCE ID NUMBER TRANSFER STN #1					
PROCESS EQUIPMENT TRANSFER STATION			OPERATING MODE NORMAL					
CONTROL EQUIPMENT SUPPRESSED/ENCLOSURE			OPERATING MODE NORMAL					
DESCRIBE EMISSION POINT START STOP								
HEIGHT ABOVE GROUND LEVEL START 30' STOP ✓			HEIGHT RELATIVE TO OBSERVER START 30' STOP ✓					
DISTANCE FROM OBSERVER START 70' STOP ✓			DIRECTION FROM OBSERVER START SE STOP ✓					
DESCRIBE EMISSIONS START NONE STOP								
EMISSION COLOR START STOP			PLUME TYPE CONTINUOUS ☐ FUGITIVE ☒ INTERMITTENT ☐					
WATER DROPLETS PRESENT NO ☒ YES ☐			IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐					
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START 1' ABOVE TRANSFER STATION STOP								
DESCRIBE BACKGROUND 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 40-70			
Source Layout Sketch Draw North Arrow			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 0 46								
17 0 0 0 0 47								
18 0 0 0 0 48								
19 0 0 0 0 49								
20 0 0 0 0 50								
21 0 0 0 0 51								
22 0 0 0 0 52								
23 0 0 0 0 53								
24 0 0 0 0 54								
25 0 0 0 0 55								
26 0 0 0 0 56								
27 0 0 0 0 57								
28 0 0 0 0 58								
29 0 0 0 0 59								
30 0 0 0 0 60								
AVERAGE OPACITY FOR HIGHEST PERIOD 070			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 I ESE								
CERTIFIED BY EASTERN TECL. ASSOC			DATE 11/30/88					
VERIFIED BY			DATE					
COMMENTS FROM NORTH SIDE OF TRANSFER STATION HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE TITLE			DATE					

VISIBLE EMISSION OBSERVATION FORM

SOURCE NAME ST. JOHNS RIVER COAL TERMINAL				OBSERVATION DATE 12 FEB. 89				START TIME 0855				STOP TIME 1009			
ADDRESS 6020 WILLIAM MILLS ST.				CITY JACKSONVILLE				STATE FLA.				ZIP 32226			
PHONE (904) 751-7729				SOURCE ID NUMBER											
PROCESS EQUIPMENT CT 2 COAL CONVEYOR				OPERATING MODE NORMAL											
CONTROL EQUIPMENT ENCLOSURE/UPSTREAM				OPERATING MODE NORMAL											
DESCRIBE EMISSION POINT START COAL CONVEYOR STOP															
HEIGHT ABOVE GROUND LEVEL START 6' STOP				HEIGHT RELATIVE TO OBSERVER START 6' STOP											
DISTANCE FROM OBSERVER START 0-300 STOP				DIRECTION FROM OBSERVER START NNW STOP											
DESCRIBE EMISSIONS START STOP															
EMISSION COLOR START STOP				PLUME TYPE CONTINUOUS ☐ FUGITIVE ☒ INTERMITTENT ☐											
WATER DROPLETS PRESENT NO ☒ YES ☐				IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐											
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START STOP															
DESCRIBE BACKGROUND STRUCTURE START VEGETATION STOP															
BACKGROUND COLOR START GREEN STOP				SKY CONDITIONS START CLEAR STOP											
WIND SPEED START 5-8 STOP				WIND DIRECTION START NE STOP											
AMBIENT TEMP START 40° STOP 50°				WET BULB TEMP RH. percent											
Source Layout Sketch				1				0				0			
				2				0				0			
				3				0				0			
				4				0				0			
				5				0				0			
				6				0				0			
				7				0				0			
				8				0				0			
				9				0				0			
				10				0				0			
11				0				0							
12				0				0							
13				0				0							
14				0				0							
15				0				0							
16				0				0							
17				0				0							
18				0				0							
19				0				0							
20				0				0							
21				0				0							
22				0				0							
23				0				0							
24				0				0							
25				0				0							
26				0				0							
27				0				0							
28				0				0							
29				0				0							
30				0				0							
COMMENTS				AVERAGE OPACITY FOR HIGHEST PERIOD				0				NUMBER OF READINGS ABOVE 0% WERE 0			
				RANGE OF OPACITY READINGS				MINIMUM 0% MAXIMUM 02							
				OBSERVER'S NAME (PRINT)				NORMAN R. CZARNIAK							
				OBSERVER'S SIGNATURE				Norman R. Czarniak				DATE 12 FEB 89			
				ORGANIZATION				HUNTER/E.S.E							
				CERTIFIED BY				EASTERN TECH. Assoc.				DATE 30 NOV. 88			
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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				1054 Look SC.			
CITY JACKSONVILLE		STATE FLA.		ZIP 32226		1		0		0		0		0	
PHONE (904) 751-7729		SOURCE ID NUMBER		2		0		0		0		0		0	
PROCESS EQUIPMENT Transfer Station		OPERATING MODE NORMAL		3		0		0		0		0		0	
CONTROL EQUIPMENT WET SUPPRESSION/ENCLOSURE		OPERATING MODE NORMAL		4		0		0		0		0		0	
DESCRIBE EMISSION POINT START CONVEYOR TRANSFER STATION STOP ✓				5		0		0		0		0		0	
HEIGHT ABOVE GROUND LEVEL START 30 STOP ✓		HEIGHT RELATIVE TO OBSERVER START 30 STOP ✓		6		0		0		0		0		0	
DISTANCE FROM OBSERVER START 120 STOP ✓		DIRECTION FROM OBSERVER START NNE STOP ✓		7		0		0		0		0		0	
DESCRIBE EMISSIONS START STOP				8		0		0		0		0		0	
EMISSION COLOR START STOP		PLUME TYPE CONTINUOUS ☐ FUGITIVE ☒ INTERMITTENT ☐		9		0		0		0		0		0	
WATER DROPLETS PRESENT NO ☒ YES ☐		IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐		10		0		0		0		0		0	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START STOP				11		0		0		0		0		0	
DESCRIBE BACKGROUND START SKY - SUPERSTRUCTURE STOP				12		0		0		0		0		0	
BACKGROUND COLOR START BLUE STOP ✓		SKY CONDITIONS START CLEAR STOP ✓		13		0		0		0		0		0	
WIND SPEED START 5-8 STOP ✓		WIND DIRECTION START NE STOP ✓		14		0		0		0		0		0	
AMBIENT TEMP START 55 STOP 59		WET BULB TEMP		15		0		0		0		0		0	
		RH. percent		16		0		0		0		0		0	
Source Layout Sketch Draw North Arrow				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					
AVERAGE OPACITY FOR HIGHEST PERIOD				0				NUMBER OF READINGS ABOVE 0 % WERE				9			
RANGE OF OPACITY READINGS				MINIMUM 0				MAXIMUM 0							
OBSERVER'S NAME (PRINT)				NORMAN R. CZARNIAK				OBSERVER'S SIGNATURE				DATE 12 FEB 89			
OBSERVER'S SIGNATURE				NORMAN R. Czarniak				ORGANIZATION				HONOLULU/ESD			
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS				CERTIFIED BY				DATE				30 NOV. 88			
SIGNATURE				EASTERN TECH. ASSOC.				VERIFIED BY				DATE			
TITLE				DATE				DATE				DATE			

SOURCE NAME ST. JOHNS RIVER POWER PARK N.C.		OBSERVATION DATE 12 FEB. 89		START TIME 1143		STOP TIME 1246	
ADDRESS 6020 WILLIAM HILLS ST.		SEC MIN		SEC MIN			
		0 15 30 45		0 15 30 45			
CITY JACKSONVILLE		STATE FLA		ZIP 32226			
PHONE 904 751-7729		SOURCE ID NUMBER					
PROCESS EQUIPMENT CT 3 COAL CONVEYOR		OPERATING MODE NORMAL					
CONTROL EQUIPMENT ENCLOSURE/UPSTREAM SUPPRESSION		OPERATING MODE NORMAL					
DESCRIBE EMISSION POINT START ENCLOSED CONVEYOR STOP ✓							
HEIGHT ABOVE GROUND LEVEL START 7 STOP ✓		HEIGHT RELATIVE TO OBSERVER START 6 Below STOP ✓					
DISTANCE FROM OBSERVER START 0-300 STOP ✓		DIRECTION FROM OBSERVER START NNW STOP NNW					
DESCRIBE EMISSIONS START STOP							
EMISSION COLOR START STOP		PLUME TYPE CONTINUOUS ☐					
		FUGITIVE ☒ INTERMITTENT ☐					
WATER DROPLETS PRESENT NO ☒ YES ☐		IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐					
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START STOP							
DESCRIBE BACKGROUND START DIRT ROAD - Catwalk STOP ✓							
BACKGROUND COLOR START WHITE - GRAY 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			
Source Layout Sketch Draw North Arrow X Emission Point Sun → Wind → Plume and Stack Observers Position 140° Surveillance Line		24		0 0 0 0		54	
		25		0 0 0 0		55	
		26		0 0 0 0		56	
		27		0 0 0 0		57	
		28		0 0 0 0		58	
		29		0 0 0 0		59	
		30		0 0 0 0		60	
		AVERAGE OPACITY FOR HIGHEST PERIOD		0		NUMBER OF READINGS ABOVE % WERE	
		RANGE OF OPACITY READINGS		MINIMUM 0		MAXIMUM 0	
		OBSERVER'S NAME (PRINT)		NORMAN R. CZARNIAK			
OBSERVER'S SIGNATURE		Norman R. Czarniak		DATE 12 FEB 89			
ORGANIZATION		HUNTER ESE					
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TITLE		VERIFIED BY		DATE			

SOURCE NAME			OBSERVATION DATE				START TIME				STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/12/89				1225				1055			
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	STATE	ZIP	2	0	0	0	0	32						
FL		32226	3	0	0	0	0	33						
PHONE			4	0	0	0	0	34						
904-751-7729	SOURCE ID NUMBER		5	0	0	0	0	35						
PROCESS EQUIPMENT			6	0	0	0	0	36						
TRANSFER STATION			7	0	0	0	0	37						
OPERATING MODE			8	0	0	0	0	38						
NORMAL			9	0	0	0	0	39						
CONTROL EQUIPMENT			10	0	0	0	0	40						
WET SUPPRESSION/ENCLOSURE			11	0	0	0	0	41						
OPERATING MODE			12	0	0	0	0	42						
NORMAL			13	0	0	0	0	43						
DESCRIBE EMISSION POINT			14	0	0	0	0	44						
START			15	0	0	0	0	45						
STOP			16	0	0	0	0	46						
HEIGHT ABOVE GROUND LEVEL			17	0	0	0	0	47						
START 50' STOP ✓			18	0	0	0	0	48						
HEIGHT RELATIVE TO OBSERVER			19	0	0	0	0	49						
START 20' STOP ✓			20	0	0	0	0	50						
DISTANCE FROM OBSERVER			21	0	0	0	0	51						
START 40' STOP ✓			22	0	0	0	0	52						
DIRECTION FROM OBSERVER			23	0	0	0	0	53						
START NW STOP ✓			24	0	0	0	0	54						
DESCRIBE EMISSIONS			25	0	0	0	0	55						
START NONE STOP			26	0	0	0	0	56						
EMISSION COLOR			27	0	0	0	0	57						
START STOP			28	0	0	0	0	58						
PLUME TYPE CONTINUOUS ☐			29	0	0	0	0	59						
FUGITIVE ☒ INTERMITTENT ☐			30	0	0	0	0	60						
WATER DROPLETS PRESENT														
NO ☒ YES ☐														
IF WATER DROPLET PLUME														
ATTACHED ☐ DETACHED ☐														
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED														
START 1' ABOVE TRANSFER STATION STOP														
DESCRIBE BACKGROUND														
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 69°F STOP ✓														
WET BULB TEMP.														
55°F														
RH, percent														
41%														
Source Layout Sketch														
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 I/EE														
CERTIFIED BY														
EASTERN TECH. ASSOC.														
DATE														
11/30/88														
VERIFIED BY														
DATE														
TITLE														
DATE														
SIGNATURE														
HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS														
SIGNATURE														
TITLE														
DATE														

SOURCE NAME ST. JOHNS RIVER COAL TERMINAL			OBSERVATION DATE 2/12/89			START TIME 1300			STOP TIME 1330		
ADDRESS 0220 WILLIAM MILLS ST.			SEC MIN			SEC MIN					
			0 15 30 45			0 15 30 45					
CITY JACKSONVILLE			STATE FL			ZIP 32206					
PHONE 724-751-7729			SOURCE ID NUMBER TRANSFER STN #3								
PROCESS EQUIPMENT CONVEYER BELT			OPERATING MODE NORMAL								
CONTROL EQUIPMENT WET SUPPRESSION ENCLOSURE			OPERATING MODE NORMAL								
DESCRIBE EMISSION POINT											
START			STOP								
HEIGHT ABOVE GROUND LEVEL START 50' STOP ✓			HEIGHT RELATIVE TO OBSERVER START 50' STOP ✓								
DISTANCE FROM OBSERVER START 75' STOP ✓			DIRECTION FROM OBSERVER START SE STOP ✓								
DESCRIBE EMISSIONS START NONE STOP											
EMISSION COLOR START STOP			PLUME TYPE CONTINUOUS ☐ FUGITIVE & INTERMITTENT ☐								
WATER DROPLETS PRESENT NO ☐ YES ☐			IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐								
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START 2" ABOVE TRANSFER STOP											
DESCRIBE BACKGROUND 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 69°F STOP ✓			WET BULB TEMP. 55°F			RH. PERCENT 41%					
COMMENTS FROM NW SIDE OF TRANSFER STATION											
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SIGNATURE			VERIFIED BY			DATE					
TITLE											

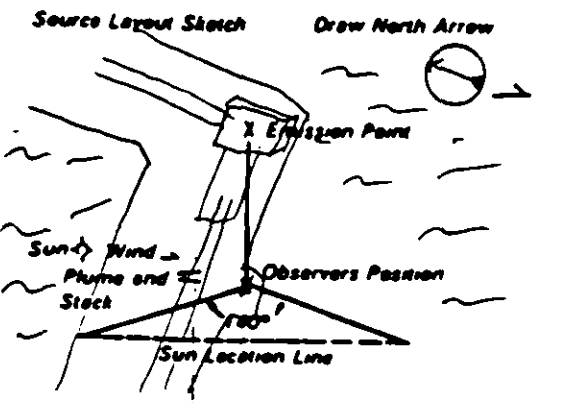
SOURCE NAME ST. JOHNS RIVER POWER PLANT		OBSERVATION DATE 12 FEB. 89		START TIME 1254		STOP TIME 1356	
ADDRESS 6020 WILLIAM HILLS ST.		SEC MIN 0 15 30 45		SEC MIN 0 15 30 45			
CITY JACKSONVILLE	STATE FLA.	ZIP 32226					
PHONE (904) 791-7729	SOURCE ID NUMBER						
PROCESS EQUIPMENT COAL STACKER		OPERATING MODE NORMAL					
CONTROL EQUIPMENT WET SUPPRESSION		OPERATING MODE NORMAL					
DESCRIBE EMISSION POINT END OF CONVEYOR DEPOSIT (7)							
START COAL IN PILE STOP ✓							
HEIGHT ABOVE GROUND LEVEL START 25' STOP ✓		HEIGHT RELATIVE TO OBSERVER START 25' STOP ✓					
DISTANCE FROM OBSERVER START 100' STOP ✓		DIRECTION FROM OBSERVER START N STOP ✓					
DESCRIBE EMISSIONS START BLACK COAL DUST STOP ✓							
EMISSION COLOR START BLACK STOP ✓		PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☒ INTERMITTENT ☐					
WATER DROPLETS PRESENT NO ☒ YES ☐		IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐					
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START 2' after STOP ✓							
DESCRIBE BACKGROUND START SKY STOP SKY							
BACKGROUND COLOR START BLUE STOP ✓		SKY CONDITIONS START CLEAR STOP ✓					
WIND SPEED START 6-10 STOP ✓		WIND DIRECTION START NE STOP Variable					
AMBIENT TEMP. START 67 STOP 70		WET BULB TEMP. RH. percent					
Source Layout Sketch Draw North Arrow		24 ✓ 0 0 0 0 54 ✓ 5 ✓					
		25 ✓ 5 5 ✓ 55 ✓ 0 0					
		26 ✓ ✓ ✓ ✓ 56 0 ✓					
		27 ✓ ✓ ✓ ✓ 57 0 0					
		28 ✓ ✓ ✓ ✓ 58 0 ✓					
		29 ✓ ✓ ✓ ✓ 59 ✓ ✓					
		30 ✓ 0 0 0 0 60 ✓ 0 0					
		AVERAGE OPACITY FOR HIGHEST PERIOD 1.25 NUMBER OF READINGS ABOVE 5% WERE 0					
		RANGE OF OPACITY READINGS MINIMUM 0% MAXIMUM 5%					
		COMMENTS: slashes indicate no coal being deposited		OBSERVER'S NAME (PRINT) NORMAN R. CZARNIAK			
OBSERVER'S SIGNATURE NORMAN R. CZARNIAK							
ORGANIZATION HUNTER/E.S.E.							
CERTIFIED BY EASTERN TECH. ASSOC.				DATE 30 NOV. 88			
TITLE		DATE		VERIFIED BY		DATE	

SOURCE NAME ST. JOHNS RIVER COAL TERMINAL			OBSERVATION DATE 2/15/89				START TIME 1423				STOP TIME 1525			
ADDRESS 6020 WILLIAM HILLS ST.			SEC MIN 0 15 30 45				SEC MIN 0 15 30 45							
CITY JACKSONVILLE			STATE FLA		ZIP 32226		1				31			
PHONE (904) 751-7729			SOURCE ID NUMBER ROLLAIMER (B)				2				32			
PROCESS EQUIPMENT COAL RECLAIMER			OPERATING MODE NORMAL				3				33			
CONTROL EQUIPMENT WET SUPPRESSION			OPERATING MODE NORMAL				4				34			
DESCRIBE EMISSION POINT RECLAIMER BUCKETS START EMPTYING ON STOP CONVEYOR							5				35			
HEIGHT ABOVE GROUND LEVEL START 25' STOP ✓			HEIGHT RELATIVE TO OBSERVER START 25' STOP ✓				6				36			
DISTANCE FROM OBSERVER START 60' STOP ✓			DIRECTION FROM OBSERVER START NW STOP				7				37			
DESCRIBE EMISSIONS START NONE STOP							8				38			
EMISSION COLOR START STOP			PLUME TYPE CONTINUOUS ☐ FUGITIVE ☒ INTERMITTENT ☐				9				39			
WATER DROPLETS PRESENT NO ☒ YES ☐			IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐				10				40			
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START 1' ABOVE BUCKET ON TOP							11				41			
DESCRIBE BACKGROUND START SKY STOP ✓							12				42			
BACKGROUND COLOR START BLUE STOP ✓			SKY CONDITIONS START CLEAR STOP ✓				13				43			
WIND SPEED START 4 mph STOP			WIND DIRECTION START SE STOP ✓				14				44			
AMBIENT TEMP START 80°F STOP ✓			WET BULB TEMP. 70°F		RH. percent 62-70		15				45			
			16				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										
AVERAGE OPACITY FOR HIGHEST PERIOD			090		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			2/15/89											
ORGANIZATION			HUNTER / ESE											
CERTIFIED BY			ETAPROD TCCA ASSOC											
DATE			11/30/88											
VERIFIED BY														
DATE														

TEST SERIES #2 - VENEZUELAN COAL

A-2-1

SOURCE NAME ST. JOHNS RIVER COAL TERMINAL			OBSERVATION DATE 2/22/89				START TIME 1100				STOP TIME 1200			
ADDRESS 6020 WILLIAM MILLS ST.			SEC 0 15 30 45				SEC 0 15 30 45							
CITY JACKSONVILLE			STATE FL		ZIP 32226		1 30 0 0 0 31							
PHONE 904-751-7729			SOURCE ID NUMBER HOPPER - DRY				2 0 0 0 0 32							
PROCESS EQUIPMENT SHIP UNLOADER			OPERATING MODE NORMAL				3 5 0 0 5 33							
CONTROL EQUIPMENT PAG MOUSE			OPERATING MODE NORMAL				4 0 0 0 0 34							
DESCRIBE EMISSION POINT 40' X 40' OPENING			START		STOP		5 0 0 0 0 35							
HEIGHT ABOVE GROUND LEVEL START 80' STOP ✓			HEIGHT RELATIVE TO OBSERVER START 50' STOP ✓				6 0 0 0 0 36							
DISTANCE FROM OBSERVER START 70' STOP ✓			DIRECTION FROM OBSERVER START N STOP ✓				7 0 0 5 0 37							
DESCRIBE EMISSIONS START W/L DUST STOP ✓							8 0 0 0 0 38							
EMISSION COLOR START BLACK STOP ✓			PLUME TYPE CONTINUOUS ☐		FUGITIVE ☒ INTERMITTENT ☐		9 0 0 0 0 39							
WATER DROPLETS PRESENT NO ☒ YES ☐			IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐				10 0 0 0 0 40							
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START 3' ABOVE HOPPER STOP ✓							11 0 0 0 0 41							
DESCRIBE BACKGROUND START SKY STOP ✓							12 0 0 0 0 42							
BACKGROUND COLOR START WHITE STOP ✓			SKY CONDITIONS START OVERCAST STOP ✓				13 0 0 0 0 43							
WIND SPEED START 15 MPH STOP ✓			WIND DIRECTION START N STOP ✓				14 0 0 0 0 44							
AMBIENT TEMP START 62°F STOP ✓			WET BULB TEMP. 60°F		RH. PERCENT 90-70		15 0 0 0 0 45							
Source Layout Sketch			16 0 0 0 0 46											
			17 0 0 0 0 47											
			18 0 0 0 0 48											
			19 0 0 0 0 49											
			20 0 0 0 0 50											
			21 0 0 0 0 51											
			22 0 0 0 0 52											
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			24 0 0 0 0 54											
			25 0 0 0 0 55											
26 0 0 0 0 56														
27 0 0 0 0 57														
28 0 0 0 0 58														
29 0 0 0 0 59														
30 0 0 0 0 60														
AVERAGE OPACITY FOR HIGHEST PERIOD 0.670			NUMBER OF READINGS ABOVE 0.6 % WERE 3			RANGE OF OPACITY READINGS MINIMUM 0 MAXIMUM 5								
OBSERVER'S NAME (PRINT) THERESA A. BARNARD			OBSERVER'S SIGNATURE Theresa A. Barnard			DATE 2/22/89								
COMMENTS HOLD NUMBER IN CORNER INDICATES MOVE TO DIFFERENT HOLD.			ORGANIZATION HUNTER/USE			CERTIFIED BY LASHLEY TECH. ASSOC			DATE 11/30/88					
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			VERIFIED BY			DATE								
SIGNATURE			TITLE			DATE								

SOURCE NAME			OBSERVATION DATE				START TIME				STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/22/89				12:15				12:30			
ADDRESS			SEC				SEC				SEC			
6030 WILLIAM MILLS ST.			MIN				MIN				MIN			
			0				0				0			
			15				15				15			
			30				30				30			
			45				45				45			
CITY			2				31							
JACKSONVILLE			0				32							
STATE			3				33							
FL			0				34							
ZIP			5				35							
32226			0				36							
PHONE			6				37							
904-751-7729			0				38							
SOURCE ID NUMBER			7				39							
TRANSFER STN #1			0				40							
PROCESS EQUIPMENT			8				41							
TRANSFER STATION			0				42							
OPERATING MODE			9				43							
NORMAL			0				44							
CONTROL EQUIPMENT			10				45							
WET SUPPRESSION/ENCLOSURE			0				46							
OPERATING MODE			11				47							
NORMAL			0				48							
DESCRIBE EMISSION POINT			12				49							
START			13				50							
STOP			0				51							
HEIGHT ABOVE GROUND LEVEL			14				52							
START 30' STOP ✓			0				53							
HEIGHT RELATIVE TO OBSERVER			15				54							
START 30' STOP ✓			0				55							
DISTANCE FROM OBSERVER			16				56							
START 70' STOP ✓			0				57							
DIRECTION FROM OBSERVER			17				58							
START NE STOP ✓			0				59							
DESCRIBE EMISSIONS			18				60							
START NONE STOP			0											
EMISSION COLOR			19											
START STOP			0											
PLUME TYPE CONTINUOUS ☐			20											
FUGITIVE ☒ INTERMITTENT ☐			0											
WATER DROPLETS PRESENT			21											
NO ☒ YES ☐			0											
IF WATER DROPLET PLUME			22											
ATTACHED ☐ DETACHED ☐			0											
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			23											
START ABOVE STOP			0											
TRANSFER STATION			17											
DESCRIBE BACKGROUND			18											
START SKY STOP ✓			0											
BACKGROUND COLOR			19											
START WHITE STOP ✓			0											
SKY CONDITIONS			20											
START OVER STOP ✓			0											
WIND SPEED			21											
START 15 mph STOP			0											
WIND DIRECTION			22											
START N NW STOP ✓			0											
AMBIENT TEMP			23											
START 61°F STOP ✓			0											
WET BULB TEMP.			24											
58°F			0											
RH percent			25											
84%			0											
Source Layout Sketch			26											
Draw North Arrow			27											
			28											
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SOURCE NAME St. Johns River Coal Terminal			OBSERVATION DATE 2-22-89				START TIME 11:00 / 11:20				STOP TIME 11:15 / 11:35			
ADDRESS 6020 William Mills St.			SEC MIN 0 15 30 45				SEC MIN 0 15 30 45							
CITY Jacksonville			STATE Florida				ZIP 32226							
PHONE 904-751-7729			SOURCE ID NUMBER #3											
PROCESS EQUIPMENT Coal Conveyor CT-2			OPERATING MODE Normal											
CONTROL EQUIPMENT Enclosed / Upstream Suppressor			OPERATING MODE Normal											
DESCRIBE EMISSION POINT START Covered Conveyor STOP ✓														
HEIGHT ABOVE GROUND LEVEL START 8' STOP ✓			HEIGHT RELATIVE TO OBSERVER START 4' under STOP ✓											
DISTANCE FROM OBSERVER START 4' under STOP ✓			DIRECTION FROM OBSERVER START WNW STOP ✓											
DESCRIBE EMISSIONS START None STOP ✓														
EMISSION COLOR START None STOP ✓			PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☒ INTERMITTENT ☐											
WATER DROPLETS PRESENT: NO ☒ YES ☐			IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐											
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START over gutter 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. 58 RH. percent 84											
Source Location Sketch Draw North Arrow Sun's Wind Plume and Stack Observer's Position Sun Location Line 100° 120° 140° Box & Above Concept			24				0				0			
			25				0				0			
			26				0				0			
			27				0				0			
			28				0				0			
			29				0				0			
			30				0				0			
			AVERAGE OPACITY FOR HIGHEST PERIOD				0				NUMBER OF READINGS ABOVE 0 % WERE 0			
			RANGE OF OPACITY READINGS				MINIMUM 0 MAXIMUM 0							
			COMMENTS No Sun			OBSERVER'S NAME (PRINT) Pamela Jean McElroy								
2-15 minute V.E.'s			OBSERVER'S SIGNATURE Pamela J. McElroy				DATE 2-22-89							
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			ORGANIZATION Monter / ESE											
SIGNATURE TITLE			CERTIFIED BY Eastern Tech. Assoc.				DATE 9-8-1980							
DATE			VERIFIED BY				DATE							

SOURCE NAME <u>St. Johns River Coal Terminal</u>			OBSERVATION DATE <u>2-22-89</u>				START TIME <u>11:45</u>				STOP TIME <u>12:00</u>			
ADDRESS <u>6220 William Mill St.</u>			SEC MIN				SEC MIN				SEC MIN			
			0 15 30 45				0 15 30 45				0 15 30 45			
CITY <u>Jacksonville</u>			STATE <u>Florida</u>				ZIP <u>32226</u>							
PHONE <u>904-751-7729</u>			SOURCE ID NUMBER <u>#4 Transfer Station Location B2</u>											
PROCESS EQUIPMENT <u>Coal Conveyor Transfer Sta.</u>			OPERATING MODE <u>Normal</u>											
CONTROL EQUIPMENT <u>Wet Suppression</u>			OPERATING MODE <u>Normal</u>											
DESCRIBE EMISSION POINT <u>Covered conveyor transfer station</u>														
HEIGHT ABOVE GROUND LEVEL START <u>30'</u> STOP ☒			HEIGHT RELATIVE TO OBSERVER START <u>30'</u> STOP ☒											
DISTANCE FROM OBSERVER START <u>120'</u> STOP ☒			DIRECTION FROM OBSERVER START <u>NNW</u> STOP ☒											
DESCRIBE EMISSIONS START <u>None</u> STOP ☒														
EMISSION COLOR START <u>None</u> STOP ☒			PLUME TYPE CONTINUOUS ☐											
			FUGITIVE ☒ INTERMITTENT ☐											
WATER DROPLETS PRESENT <u>NO</u> YES ☐			WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐											
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START <u>Outside of Baghouse</u> STOP ☒														
DESCRIBE BACKGROUND START <u>Sky</u> STOP ☒														
BACKGROUND COLOR START <u>Grey</u> STOP ☒			SKY CONDITIONS START <u>Overcast</u> STOP ☒											
WIND SPEED START <u>4-6</u> STOP ☒			WIND DIRECTION START <u>NNW</u> STOP ☒											
AMBIENT TEMP. START <u>61</u> STOP ☒			WET BULB TEMP. <u>58</u>				RH, % <u>84</u>							
Source Layout Sketch														
AVERAGE OPACITY FOR HIGHEST PERIOD <u>0</u>			NUMBER OF READINGS ABOVE <u>0</u> % WERE <u>0</u>											
RANGE OF OPACITY READINGS <u>0</u> MINIMUM <u>0</u> MAXIMUM														
OBSERVER'S NAME (PRINT) <u>Pamela J. McElroy</u>			OBSERVER'S SIGNATURE <u>Pamela J. McElroy</u>			DATE <u>2-22-89</u>								
COMMENTS <u>NO SUN</u>			ORGANIZATION <u>Monitor/ESE</u>											
HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			CERTIFIED BY <u>Eastern Tech. Assoc.</u>			DATE <u>9-8-88</u>								
SIGNATURE			VERIFIED BY			DATE								
TITLE			DATE											

SOURCE NAME ST. Johns River Coal Terminal		OBSERVATION DATE 2-22-89		START TIME 12:10		STOP TIME 12:25	
ADDRESS 6020 William Mills St.		CITY Jacksonville		STATE Florida		ZIP 32226	
PHONE 904-751-7729		SOURCE ID NUMBER #4 TRANSFER STATION		PROCESS EQUIPMENT Coal Conveyor Transfer Station		OPERATING MODE #2 - Normal	
CONTROL EQUIPMENT Wet Suppression		OPERATING MODE Normal		DESCRIBE EMISSION POINT Conveyor Transfer Station		START STOP ✓	
HEIGHT ABOVE GROUND LEVEL START 30' STOP ✓		HEIGHT RELATIVE TO OBSERVER START 30' STOP ✓		DISTANCE FROM OBSERVER START 120' STOP ✓		DIRECTION FROM OBSERVER START NNE STOP ✓	
DESCRIBE EMISSIONS START None STOP ✓		EMISSION COLOR START None STOP ✓		PLUME TYPE CONTINUOUS ☐ FUGITIVE ☒ INTERMITTENT ☐		WATER DROPLETS PRESENT NO YES ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START Outside of Bush STOP		DESCRIBE BACKGROUND START Sky Superstreak STOP ✓		BACKGROUND COLOR START Grey STOP ✓		SKY CONDITIONS START Overcast STOP ✓	
WIND SPEED START 4-6 STOP ✓		WIND DIRECTION START NNW STOP ✓		AMBIENT TEMP START 61 STOP		WET BULB TEMP. 58	
				RH. PERCENT 84			
Source Layout Sketch		AVERAGE OPACITY FOR HIGHEST PERIOD		NUMBER OF READINGS ABOVE % WERE			
		RANGE OF OPACITY READINGS MINIMUM		MAXIMUM			
		OBSERVER'S NAME (PRINT)		DATE			
		OBSERVER'S SIGNATURE		DATE			
		ORGANIZATION		DATE			
		CERTIFIED BY		DATE			
		VERIFIED BY		DATE			
		SIGNATURE		DATE			
		TITLE		DATE			
		DATE		DATE			

SOURCE NAME ST. Johns River Coal Terminal				OBSERVATION DATE 2-22-89				START TIME 12:40 / 13:00				STOP TIME 12:55 / 13:15			
ADDRESS 6020 William Mills ST.				SEC MIN 0 15 30 45				SEC MIN 0 15 30 45							
CITY Jacksonville				STATE Florida				ZIP 32206							
PHONE 904-751-7729				SOURCE ID NUMBER # 5											
PROCESS EQUIPMENT CT-3 Coal Conveyor				OPERATING MODE Normal											
CONTROL EQUIPMENT Enclosed / Upstream Suppressor				OPERATING MODE Normal											
DESCRIBE EMISSION POINT START Outside Covered Concrider ✓															
HEIGHT ABOVE GROUND LEVEL START 8' STOP ✓				HEIGHT RELATIVE TO OBSERVER START 4' Above STOP ✓											
DISTANCE FROM OBSERVER START 4' Under STOP ✓				DIRECTION FROM OBSERVER START WNW STOP ✓											
DESCRIBE EMISSIONS START None STOP ✓															
EMISSION COLOR START None STOP ✓				PLUME TYPE CONTINUOUS ☐ FUGITIVE ☒ INTERMITTENT ☐											
WATER DROPLETS PRESENT NO ☒ YES ☐				WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐											
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START Outside Covered Concrider ✓															
DESCRIBE BACKGROUND START Grey / Sky STOP ✓															
BACKGROUND COLOR START Grey STOP ✓				SKY CONDITIONS START Overcast STOP ✓											
WIND SPEED START 6-8 mph STOP ✓				WIND DIRECTION START NNW STOP ✓											
AMBIENT TEMP. START 61 STOP ✓				WET BULB TEMP. 58				REL. HUMIDITY 84							
Source Layout Sketch Observer's Position Platform 4' Above Conveyor Sun Location Line Direction of Plume Arrow				1				31							
				2				32							
				3				33							
				4				34							
				5				35							
				6				36							
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29				59											
30				60											
AVERAGE OPACITY FOR HIGHEST PERIOD 0				NUMBER OF READINGS ABOVE % WERE 0											
RANGE OF OPACITY READINGS MINIMUM 0 MAXIMUM 0															
OBSERVER'S NAME (PRINT) Pamela J. McElroy															
OBSERVER'S SIGNATURE Pamela J. McElroy				DATE 2-22-89											
ORGANIZATION HUNTER / ESE															
CERTIFIED BY Eastern Assoc.				DATE September 8, 1988											
VERIFIED BY				DATE											
COMMENTS NO SUN 2-15 MINUTE V.E.'S I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS															
SIGNATURE				TITLE											
DATE				DATE											

SOURCE NAME			OBSERVATION DATE				START TIME				STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/22/89				1320				1335			
ADDRESS			SEC				SEC							
6020 WILLIAM MILLS ST.			MIN				MIN							
			0 15 30 45				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							
904-751-7729			8				38							
SOURCE ID NUMBER			9				39							
TRANSFER STN #3			10				40							
PROCESS EQUIPMENT			11				41							
TRANSFER STATION			12				42							
OPERATING MODE			13				43							
NORMAL			14				44							
CONTROL EQUIPMENT			15				45							
WET SUPPRESSION/ENCLOSURE			16				46							
OPERATING MODE			17				47							
NORMAL			18				48							
DESCRIBE EMISSION POINT			19				49							
START STOP			20				50							
HEIGHT ABOVE GROUND LEVEL			21				51							
START 50' STOP			22				52							
HEIGHT RELATIVE TO OBSERVER			23				53							
START 20' STOP ✓			24				54							
DISTANCE FROM OBSERVER			25				55							
START 40' STOP ✓			26				56							
DIRECTION FROM OBSERVER			27				57							
START N STOP ✓			28				58							
DESCRIBE EMISSIONS			29				59							
START NONE STOP			30				60							
EMISSION COLOR			AVERAGE OPACITY FOR HIGHEST PERIOD				NUMBER OF READINGS ABOVE							
START STOP			0.90				0% WERE 0							
PLUME TYPE: CONTINUOUS ☐			RANGE OF OPACITY READINGS											
FUGITIVE ☒ INTERMITTENT ☐			MINIMUM				MAXIMUM							
WATER DROPLETS PRESENT			OBSERVER'S NAME (PRINT)											
NO ☒ YES ☐			THERESA A. BARNARD											
IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐			OBSERVER'S SIGNATURE				DATE							
			Theresa A. Barnard				2/22/89							
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			ORGANIZATION											
START 1' ABOVE TRANSFER STATION			HUNTER/ECG											
DESCRIBE BACKGROUND			CERTIFIED BY				DATE							
START SKY STOP ✓			L. BARNARD				11/30/88							
BACKGROUND COLOR			VERIFIED BY				DATE							
START WHITE STOP ✓														
SKY CONDITIONS														
START CLOUD STOP ✓														
WIND SPEED														
START 15 mph STOP ✓														
WIND DIRECTION														
START N STOP ✓														
AMBIENT TEMP														
START 64°F STOP ✓														
WET BULB TEMP														
60°F														
RH, percent														
84%														

Source Layout Sketch

COMMENTS

FROM DE SIDE OF

TRANSFER STATION

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS

SIGNATURE

TITLE

DATE

SOURCE NAME ST. JOHNS RIVER COAL TERMINAL			OBSERVATION DATE 2/22/89		START TIME 1335		STOP TIME 1350	
ADDRESS 6020 WILLIAM HILLS ST.			SEC 0 15 30 45		SEC 0 15 30 45			
CITY JACKSONVILLE	STATE FL	ZIP 32226	1 0 0 0 0		31			
PHONE 904-751-7729	SOURCE ID NUMBER TRANSFER STN #3		2 0 0 0 0		32			
PROCESS EQUIPMENT WATER TREATMENT STATION		OPERATING MODE NORMAL	3 0 0 0 0		33			
CONTROL EQUIPMENT WGT SUPPRESSION ENCLOSURE		OPERATING MODE NORMAL	4 0 0 0 0		34			
DESCRIBE EMISSION POINT			5 0 0 0 0		35			
START STOP			6 0 0 0 0		36			
HEIGHT ABOVE GROUND LEVEL START 50' STOP ✓			7 0 0 0 0		37			
HEIGHT RELATIVE TO OBSERVER START 50' STOP ✓			8 0 0 0 0		38			
DISTANCE FROM OBSERVER START 75' STOP ✓			9 0 0 0 0		39			
DIRECTION FROM OBSERVER START SE STOP ✓			10 0 0 0 0		40			
DESCRIBE EMISSIONS START NONE STOP			11 0 0 0 0		41			
EMISSION COLOR START STOP			12 0 0 0 0		42			
PLUME TYPE CONTINUOUS ☐ FUGITIVE ☒ INTERMITTENT ☐			13 0 0 0 0		43			
WATER DROPLETS PRESENT NOTE YES ☐			14 0 0 0 0		44			
IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐			15 0 0 0 0		45			
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START 1' ABOVE TRANSFER STATION			16		46			
DESCRIBE BACKGROUND START SKY STOP ✓			17		47			
BACKGROUND COLOR START WHITE STOP ✓			18		48			
SKY CONDITIONS START OVERCAST STOP ✓			19		49			
WIND SPEED START 15 mph STOP ✓			20		50			
WIND DIRECTION START N STOP ✓			21		51			
AMBIENT TEMP START 64°F STOP ✓			22		52			
WET BULB TEMP 60°F			23		53			
RH, % CORN 84%			24		54			
25			25		55			
26			26		56			
27			27		57			
28			28		58			
29			29		59			
30			30		60			
Source Layout Sketch Draw North Arrow Emission Point Observer's Position Wind Sun Plume and Stack Sun Location Line 100'			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) TERESA A. BARNARD					
COMMENTS FROM NW SIDE OF TRANSFER STATION			OBSERVER'S SIGNATURE Teresa A. Barnard		DATE 2/22/89			
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS			ORGANIZATION HUNTER / ESE					
SIGNATURE			CERTIFIED BY GASTON TECH. ASSOC.		DATE 11/30/88			
TITLE			VERIFIED BY		DATE			

SOURCE NAME			OBSERVATION DATE				START TIME				STOP TIME			
ST. JOHNS RIVER COAL TERMINAL			2/22/89				1450				1626			
ADDRESS			SEC				SEC							
0020 WILLIAM MILLS ST.			MIN	0	15	30	45	MIN	0	15	30	45		
CITY			1	0	0	0	0	31	0	0	0	0		
JACKSONVILLE			2	0	0	0	0	32	0	0	0	5		
STATE			3	0	0	0	0	33	0	0	0	0		
FL			4	0	0	0	0	34	5	0	0	5		
ZIP			5	0	0	0	0	35	0	0	0	0		
32226			6	0	0	0	0	36	0	0	0	0		
PHONE			7	0	0	0	0	37	0	0	0	5		
904-751-7729			8	5	5	0	0	38	5	5	5	0		
SOURCE ID NUMBER			9	0	0	0	0	39	0	0	0	0		
STACKER			10	0	0	0	0	40	0	0	0	0		
PROCESS EQUIPMENT			11	0	0	5	5	41	0	0	0	0		
COAL STACKER			12	0	0	0	0	42	0	0	0	0		
OPERATING MODE			13	0	0	0	0	43	0	0	0	0		
NORMAL			14	0	0	0	0	44	5	0	0	0		
CONTROL EQUIPMENT			15	0	0	0	0	45	0	0	0	0		
WET SUPPRESSION			16	0	0	0	0	46	0	0	0	0		
OPERATING MODE			17	5	0	0	5	47	0	0	0	0		
NORMAL			18	5	0	0	0	48	0	0	0	0		
DESCRIBE EMISSION POINT			19	0	0	0	0	49	0	0	0	0		
END OF			20	0	5	0	0	50	5	5	0	0		
START STACKER STOP			21	0	0	0	0	51	0	0	0	0		
HEIGHT ABOVE GROUND LEVEL			22	0	0	0	0	52	0	0	0	0		
START 30' STOP ✓			23	0	0	0	5	53	0	0	0	0		
HEIGHT RELATIVE TO OBSERVER			24	0	5	0	0	54	0	0	0	0		
START 30' STOP ✓			25	5	5	0	0	55	0	0	0	0		
DISTANCE FROM OBSERVER			26	0	0	5	0	56	5	5	5	0		
START 30' STOP ✓			27	0	0	0	0	57	5	5	5	0		
DIRECTION FROM OBSERVER			28	5	5	0	5	58	0	0	0	0		
START N STOP			29	0	0	0	0	59	0	0	0	0		
DESCRIBE EMISSIONS			30	5	5	5	0	60	0	0	0	0		
START COAL DUST STOP ✓			AVERAGE OPACITY FOR HIGHEST PERIOD 2.1%										NUMBER OF READINGS ABOVE 2.1% WERE 11	
EMISSION COLOR			RANGE OF OPACITY READINGS										MINIMUM 0 MAXIMUM 5	
START BLACK STOP ✓			OBSERVER'S NAME (PRINT)										THURSA A. BARNARD	
PLUME TYPE CONTINUOUS ☐			OBSERVER'S SIGNATURE										Thursa A. Barnard	
START BLACK STOP ✓			DATE										2/22/89	
FUGITIVE ☐ INTERMITTENT ☐			ORGANIZATION										HUNTER/ESG	
WATER DROPLETS PRESENT			CERTIFIED BY										EASTERN TECH. ASSOC.	
NO ☐ YES ☐			DATE										11/30/88	
IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐			VERIFIED BY											
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED			DATE											
BETWEEN STACKER AND PILE														
START AS COAL IS STOPPED M.ING OUT														
DESCRIBE BACKGROUND														
START SKY STOP ✓														
BACKGROUND COLOR														
START WHITE STOP ✓														
SKY CONDITIONS														
START OVERCAST STOP ✓														
WIND SPEED														
START 15 mph STOP ✓														
WIND DIRECTION														
START N NW STOP ✓														
AMBIENT TEMP														
START 60°F STOP ✓														
WET BULB TEMP.														
60°F														
RH, percent														
84%														
Source Layout Sketch														
Draw North Arrow														
COMMENTS														
1 STACKER STOPPED														
0 INDICATES PLUG IN SYSTEM														
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS														
SIGNATURE														
TITLE														
DATE														

EPA

VISIBLE EMISSION OBSERVATION FORM 1

 Method Circle One
 Method 9 203A 203B Other: _____

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

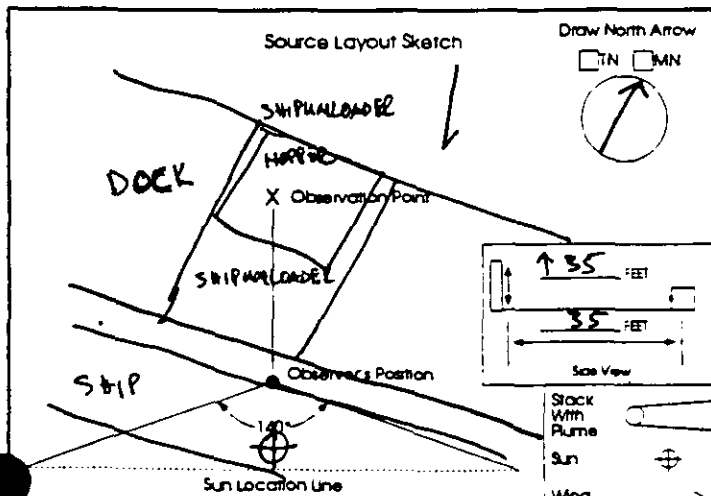
 Process SHIP UNLOADING LIMESTONE Unit # _____ Operating Mode 59% CAPACITY
 Control Equipment WET SUPPRESSION Operating Mode 0% CAPACITY

 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

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

Observation Date		Time Zone		Start Time	End Time
2/6/99		EST		10:00	11:00
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)
MARY K. LOEWELT
 Observer's Signature
Mary K. Loewelt Date 2/6/99
 Organization
ST. JOHN'S RIVER POWER PARK
 Certified By
EASTERN TECHNICAL ASSOCIATES Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method(s) (Circle One)	203A	203B	Other: _____
Method 9			

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

Process	Unit #	Operating Mode
SHIPUNLOADING LIMESTONE		
Control Equipment		Operating Mode

Describe Emission Point	
SHIPUNLOADER 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 _____	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.
Start _____ End _____	RH Percent

Source Layout Sketch		Draw North Arrow
		☐ TN ☐ MN
Longitude	Latitude	Declination

Additional Information	

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

Observation Date	Time Zone	Start Time	End Time	
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)		Date
MARK K. LOECHLI		2/6/99
Observer's Signature		Date
Mark K. Loechli		2/6/99
Organization		Date
ST. JOHNS RIVER POWER PARK		12/3/98
Certified By		Date
EASTERN TECHNICAL ASSOCIATES		12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

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

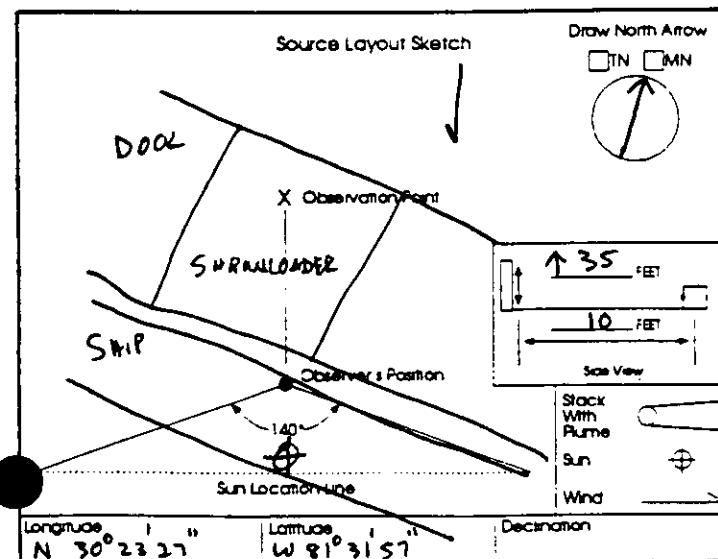
 Process
 SHIP UNLOADING LIMESTONE Unit #
 Operating Mode
 59% CAPACITY
 Control Equipment
 WET SUPPRESSION Operating Mode
 0% CAPACITY

 Describe Emission Point
 TRANSFER POINT NOPPER 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
2/6/99		EST				10:00	11:00
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)
 MARK K. LOECHERT
 Observer's Signature
 Mark K. Lochert 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 (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 HOPPER TO CONVEYOR CT-1
 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
 Distance _____ Direction _____

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

X Observation Point

Observer's Position

140°

Sun Location Line

Stack With Plume

Sun

Wind

Longitude _____ Latitude _____ Declination _____

Additional Information

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

Observation Date	Time Zone	Start Time	End Time	
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) 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 JACKSONVILLE State FL Zip 32226

Process SHIP UNLOADING LIMESTONE Unit # _____ Operating Mode 5920 CAPACITY

Control Equipment SIDE SHIELDS Operating Mode 090 CAPACITY

Describe Emission Point
CONVEYOR CT-1

Height of Emiss. Pt. 1 Height of Emiss. Pt. Rel. to Observer
Start 50' End 50' Start -6' End -6'

Distance to Emiss. Pt. 30' End 30' Direction to Emiss. Pt. (Degrees)
Start 0° End 0°

Vertical Angle to Obs. Pt. -15° End -15° Direction to Obs. Pt. (Degrees)
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 NONE Water Droplet Plume NONE

Start NONE End NONE Attached ☐ Detached ☐ None ☒

Describe Plume Background
Start DOCK/WATER End DOCK/WATER

Background Color WHITE/BLUE End WHITE/BLUE Sky Conditions SCATTERED End SCATTERED

Wind Speed 0-3 End 0-3 Wind Direction MMW End MMW

Ambient Temp. 70°F End 70°F Wet Bulb Temp. _____ RH Percent _____

Source Layout Sketch

Draw North Arrow ☐ TN ☐ MN

Longitude N 30° 23' 27" Latitude W 81° 51' 56" Destination _____

Additional Information

Form Number 1007-1 Page 1 of 2

Continued on VEO Form Number 1007-2

Observation Date			Time Zone		Start Time	End Time
2/6/99			EST		10:00	11:00
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. 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

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
CONVEYER 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 _____

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 _____

Additional Information

Form Number 007-2 Page 2 of 2

Continued on VEO Form Number 007-1

Observation Date	Time Zone	Start Time	End Time	
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)
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 203A 203B Other:

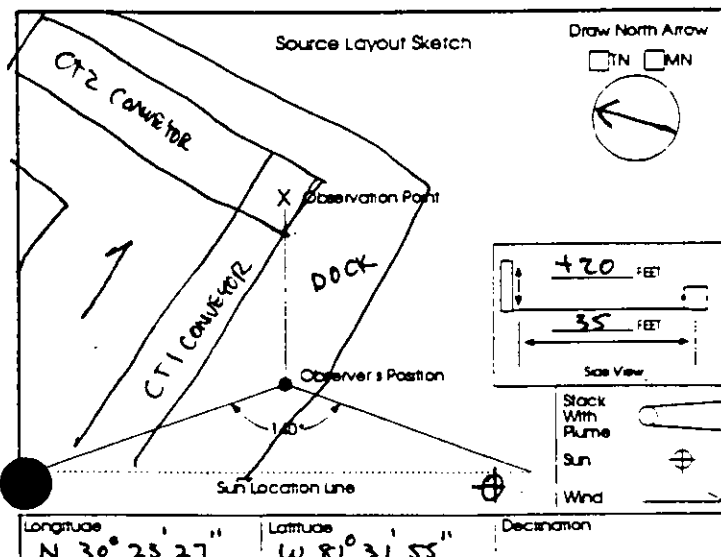
 Company Name
 ST. JOHNS RIVER POWER PARK
 Facility Name
 ST. JOHNS RIVER POWER PARK
 Street Address
 11201 NEW BERLIN ROAD
 City
 JACKSONVILLE State
 FL Zip
 32226

 Process
 SHIP UNLOADING LIMESTONE Unit # Operating Mode
 49% CAPACITY
 Control Equipment
 WET SUPPRESSION Operating Mode
 0% 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
 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 SHATTERED End SHATTERED
 Wind Speed
 Start 3-5 End 3-5 Wind Direction
 Start W End NW
 Ambient Temp.
 Start 72°F End 72°F Wet Bulb Temp.
 RH Percent


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		
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 V. LOECHERT
 Observer's Signature
 Mark V. Loechert 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 Method 9 (Circle One) 2038 Other: _____

 Company Name
ST. JOHNS RIVER POWER PARK
 Facility Name
ST. JOHNS RIVER POWER PARK
 Street Address
11201 NEW AERLIN 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-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 Pume _____
 Start _____ End _____ Attached ☐ Detached ☐ None ☐

 Describe Pume 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

Sun Location Line

140°

Scale View

Stack With Pume

Sun

Wind

Longitude _____ Latitude _____ Declination _____

 Additional Information

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

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		
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 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

Method Method 9 (Circle One) 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
4470 CAPACITY

Control Equipment
WET SUPPRESSION Operating Mode
070 CAPACITY

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

Height of Emiss. Pt.
Start **30'** End **30'** Height of Emiss. Pt. Rel. to Observer
Start **25'** End **25'**

Distance to Emiss. Pt.
Start **60'** End **60'** Direction to Emiss. Pt. (Degrees)
Start **345°** End **345°**

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

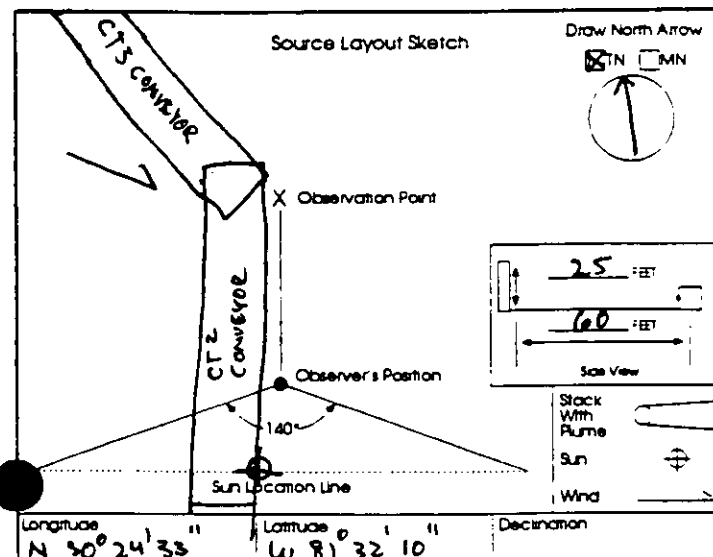
Emission Color
Start **NONE** End **NONE** Water Droplet Plume
Attached ☐ Detached ☐ None ☒

Describe Plume Background
Start **OPEN SKY** End **OPEN SKY**

Background Color
Start **BLUE** End **BLUE** Sky Conditions
Start **CLEAR** End **CLEAR**

Wind Speed
Start **3-5** End **3-5** Wind Direction
Start **NW** End **NW**

Ambient Temp
Start **73°F** End **74°F** Wet Bulb Temp.
RH Percent



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
2/6/99			EST		1310	1410
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		
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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. LOECHLT

Observer's Signature
Mark K. Loechlt 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 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 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 _____

1 _____ 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

Sun Location Line

140°

Stack With Plume

Sun

Wind

Longitude _____ Latitude _____ Declination _____

Additional Information

Form Number 010-2 Page 2 of 2

Continued on VEO Form Number 010-1

Observation Date	Time Zone	Start Time	End Time	
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) 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 9 (Circle One) 203A 203B Other: _____

Company Name
ST. JOHNS RIVER POWER PARK

Facility Name
ST. JOHNS RIVER POWER PARK

Street Address
11301 NEW BELLAN ROAD

City
JACKSONVILLE

State
FL

Zip
32226

Process
SHIP UNLOADING LIMESTONE

Unit #
4670 CAPACITY

Operating Mode
WET SUPPRESSION

Control Equipment
090 CAPACITY

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

Height of Emiss. Pt.
Start 75' End 75'

Height of Emiss. Pt. Rel. to Observer
Start 71' End 71'

Distance to Emiss. Pt.
Start 150' End 150'

Direction to Emiss. Pt. (Degrees)
Start 288° End 288°

Vertical Angle to Obs. Pt.
Start 20° End 20°

Direction to Obs. Pt. (Degrees)
Start 300° End 300°

Distance to Observation Point from Emission Point
Start 20' - 54° End 20' - 54°

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

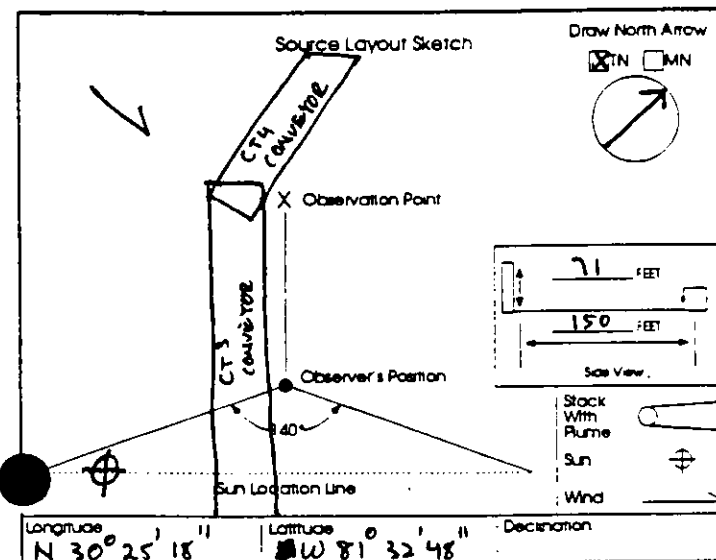
Sky Conditions
Start CLEAR End CLEAR

Wind Speed
Start 3-5 End 3-5

Wind Direction
Start W End W

Ambient Temp.
Start 75°F End 75°F

Wet Bulb Temp.
RH Percent



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 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. LORCHT

Observer's Signature
Mark K. Lorch

Date
2/6/99

Organization
ST. JOHNS RIVER POWER PARK

Confirmed 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
JACKSONVILLE

State
FL

Zip
32226

Process
SKIPUNLOADING Limestone

Unit # _____

Operating Mode _____

Control Equipment _____

Operating Mode _____

Describe Emission Point
TRANSFER POINT CONVEYER CT-3 TO CONVEYER 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
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 _____

Wet Bulb Temp.
Start _____ End _____

RH Percent
Start _____ End _____

Source Layout Sketch

Draw North Arrow
☐ TN ☐ MN

Observer's Position

Observation Point

Sun Location Line

140°

See View

Stack With Plume

Sun

Wind

Longitude _____ Latitude _____ Declination _____

Additional Information

Form Number 1012-2 Page 2 of 2

Continued on VEO Form Number 1012-1

Observation Date		Time Zone		Start Time	End Time
2/6/99		EST		1430	1530
Sec	0	15	30	45	Comments
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)
MARK K. LOECHLT

Observer's Signature
Mark K. Loechlt

Organization
ST. JOHNS RIVER POWER PARK

Certified by
EASTERN TECHNICAL ASSOCIATES

Date
2/6/99

Date
12/3/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)	203A	203B	Other
Method 9			

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 limestone		58% capacity
Control Equipment		Operating Mode
Conditioned material		0% capacity

Describe Emission Point			
Conveyor CT-4			
Height of Emiss. Pt.		Height of Emiss. Pt. Rel. to Observer	
Start 25'	End 25'	Start 30'	End 30' ✓
Distance to Emiss. Pt.		Direction to Emiss. Pt. (Degrees)	
Start 150M	End 150M	Start 14°NE	End 14°NE

Vertical Angle to Obs. Pt.		Direction to Obs. Pt. (Degrees)	
Start 4°	End 4°	Start 14°NE	End 14°NE
Distance and Direction to Observation Point from Emission Point			
Start 5' SW	End 3' SW		

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

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

Source Layout Sketch		Draw North Arrow
		☐ TN ☐ MN ☒ NE
Longitude $N 30^{\circ} 26' 29''$ Latitude $W 81^{\circ} 32' 57''$ Declination		Stack With Plume Sun Wind

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

Observation Date	Time Zone	Start Time	End Time	
2/6/99		0935	1035	
Sec	0	15	30	
Min	45	Comments		
1	0	0	0	
2	0	0	0	
3	0	0	0	
4	0	0	0	
5	0	0	0	
6	0	0	0	
7	0	0	0	
8	0	0	0	
9	0	0	0	
10	0	0	0	
11	0	0	0	
12	0	0	0	
13	0	0	0	
14	0	0	0	
15	0	0	0	
16	0	0	0	
17	0	0	0	
18	0	0	0	
19	0	0	0	
20	0	0	0	
21	0	0	0	
22	0	0	0	
23	0	0	0	
24	0	0	0	
25	0	0	0	
26	0	0	0	
27	0	0	0	
28	0	0	0	
29	0	0	0	
30	0	0	0	

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

EPA

VISIBLE EMISSION OBSERVATION FORM 1

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

Company Name H. Johns River Power Park.
 Facility Name H. 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 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 _____

Source Layout Sketch

Draw North Arrow ☐ TN ☐ MN

X Observation Point

Observer's Position

140°

Sun Location Line

Scale View

Stack With Plume

Sun

Wind

Longitude _____ Latitude _____ Direction _____

Additional Information _____

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

Observation Date		Time Zone		Start Time	End Time	Comments
2/6/99				0935	1035	
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's Signature Alvaro Castro Date 2/6/99
 Organization H. Johns River Power Park.
 Certified By Eastern Technical Assoc. Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

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

Company Name Jt. Blues River Power Park.
 Facility Name Jt. Blues River Power Park.
 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

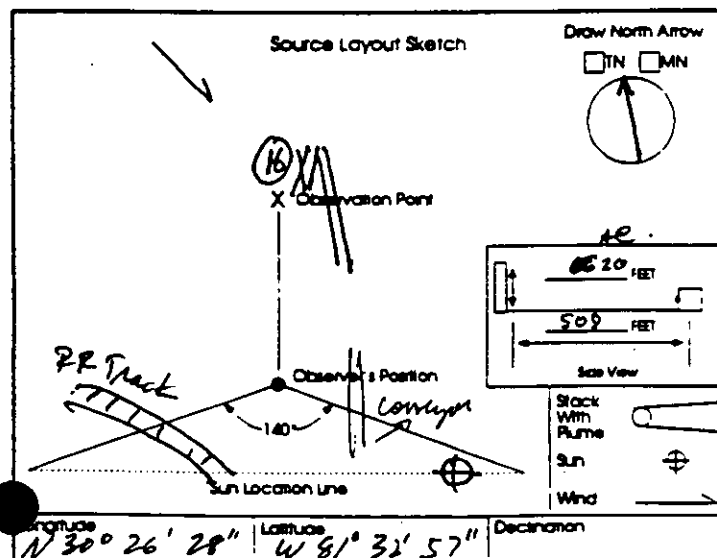
Describe Emission Point
Transfer Point CT-4 Trailing Conveyor S1

Height of Emiss. Pt. Start 20' End 20' Height of Emiss. Pt. Rel. to Observer Start 25' End 25' NE
 Direction to Emiss. Pt. (Degrees) 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 NO

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 N/A
 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 Start 65°F Relative Humidity 46%



Additional Information

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

Observation Date		Time Zone		Start Time	End Time
2/6/99				0935	1035
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 Jt. Blues River Power Park
 Certified By Eastern Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

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

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 limestone		
Control Equipment		Operating Mode

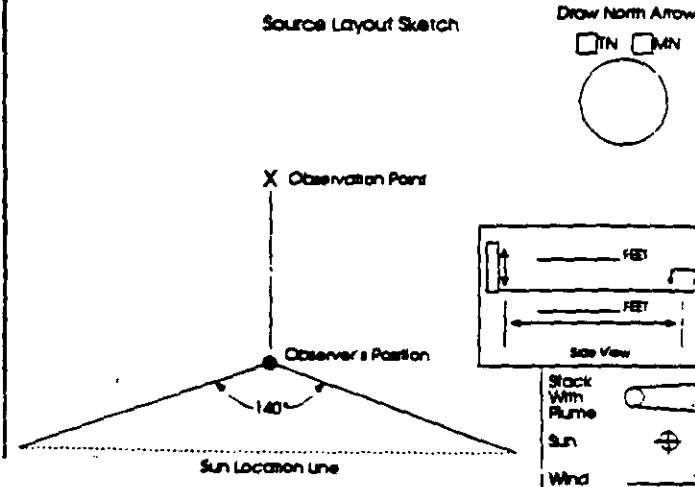
Describe Emission Point
Transfer Point CT-4 Training Conveyor S1

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.
Start _____ End _____	RH Percent

Source Layout Sketch	Draw North Arrow
	☐ TN ☐ MN
Observer's Name (Print)	Observer's Signature
Alvaro Castro	Alvaro Castro
Observer's Title	Date
Observer's Title	2/6/99
Organization	Organization
Eastern Technical Associates	Eastern Technical Associates
Contracted by	Date
Contracted by	12/2/98

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

Observation Date	Time Zone	Start Time	End Time
2/6/99		0935	1035
Sec	0	15	30
Min	0	15	30
Comments			
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0

Observer's Name (Print)	Observer's Signature	Date
Alvaro Castro	Alvaro Castro	2/6/99
Observer's Title	Observer's Title	Date
Observer's Title	Observer's Title	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 49% Capacity
 Control Equipment Conditioned Material Operating Mode 0% Capacity

Describe Emission Point TRAILING Conveyor S2
 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 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

Source Layout Sketch

Draw North Arrow ☐ TN ☐ MN

Observer's Position

140'

25' FEET

525' FEET

Size View

Stack With Plume

Sun

Wind

Longitude N 30° 26' 28" Latitude W 81° 32' 57" Declination _____

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

Observation Date <u>2/6/99</u>		Time Zone _____				Start Time <u>1155</u>	End Time <u>1255</u>
Sec	Min	0	15	30	45	AE	Comments <u>NE</u>
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) Miriam Castro
 Observer's Signature Miriam Castro Date 2/6/99
 Organization St. Johns River Power Park.
 Observed by Eastern Technical Services Date 12/2/98

Additional Information

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (Circle One)	203A	203B	Other
Method 9			

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

Process	Unit #	Operating Mode
Shipping/Loading limestone		
Control Equipment		Operating Mode

Describe Emission Point			
TRAILING CONVEYOR SI			
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	
Start	End	Attached	Detached
			None

Describe Plume Background			
Start	End	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
Longitude	Latitude	Declination

Additional Information

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

Observation Date	Time Zone	Start Time	End Time
2/6/99		1155	1255
Sec	0	15	30
Min	0	15	30
	45		
	Comments		
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0

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

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 Tracyville 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 Emiss. Pt. Start 20' End 20' Height of Emiss. Pt. Rel. to Observer Start 25' End 25'
 Distance to Emiss. Pt. Start 175m End 175m Direction to Emiss. 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 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 70°F RH Percent 60%

Source Layout Sketch

Draw North Arrow
☐ TN ☐ MN

Scale View
 0 574 FEET

Stack With Plume
 Sun
 Wind

Longitude N 30° 26' 28" Latitude W 81° 32' 57" Declination _____

Additional Information

Form Number 018-1 Page 1 of 2
 Continued on VEO Form Number 018-2

Observation Date <u>2/6/99</u>		Time Zone		Start Time <u>1155</u>	End Time <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	

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

EPA

VISIBLE EMISSION OBSERVATION FORM 1

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

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

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

Describe Emission Point			
TRANSFER POINT: TRAILING CONVEYOR S1 To Boom Conveyor S2			
Height of Emiss. Pt.	Start	End	Height of Emiss. Pt. Rel. to Observer
			Start
Distance to Emiss. Pt.	Start	End	Direction to Emiss. Pt. (Degrees)
			Start

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

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

Describe Plume Background			
Start	End	Sky Conditions	
Background Color		Start	End
Wind Speed	Start	Wind Direction	
Start	End	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	018-2	Page	2 of 2
Continued on VEO Form Number		018-1	

Observation Date	Time Zone	Start Time	End Time
2/6/99		1155	1255
Sec	0	15	30
Min	0	15	30
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0

Observer's Name (Print)	Alvaro Castro
Observer's Signature	Alvaro Castro
Date	2/6/99
Organization	Ht. John River Power Park.
Checked 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 Jacksonville State FL Zip 32226

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

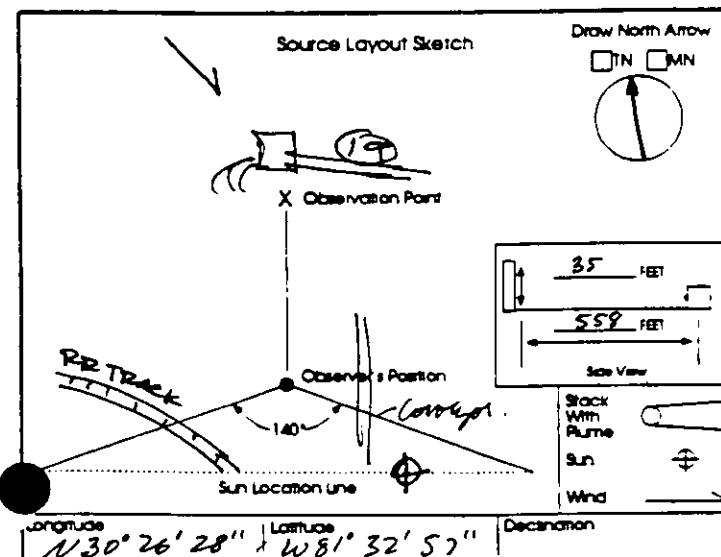
Describe Emission Point
Boom Conveyor S2

Height of Emiss. Pt. Start 35' End 35' Height of Emiss. Pt. Rel. to Observer Start 40' End 40'
 Distance to Emiss. Pt. Start 170m End 170m Direction to Emiss. 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%



Form Number 019-1 Page 1 of 2
 Continued on VEO Form Number 019-2

Observation Date		Time Zone				Start Time	End Time
<u>2/6/99</u>						<u>11:55</u>	<u>12:55</u>
Sec	Min	0	15	30	45	AC	Comments AC
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 2/6/99
 Organization H. John River Power Park
 Checked 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 Bank.
 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:
Broom 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 _____
 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

Sun Location Line

140°

Stack With Plume

Sun

Wind

Longitude _____ Latitude _____ Declination _____

Additional Information _____

Form Number 019-2 Page 2 of 2
 Continued on VEO Form Number 019-1

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	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 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 Bank.
 Facility Name St. Johns River Power Park.
 Street Address 11201 New Berlin Rd.
 City Jacksonville State FL Zip 32026

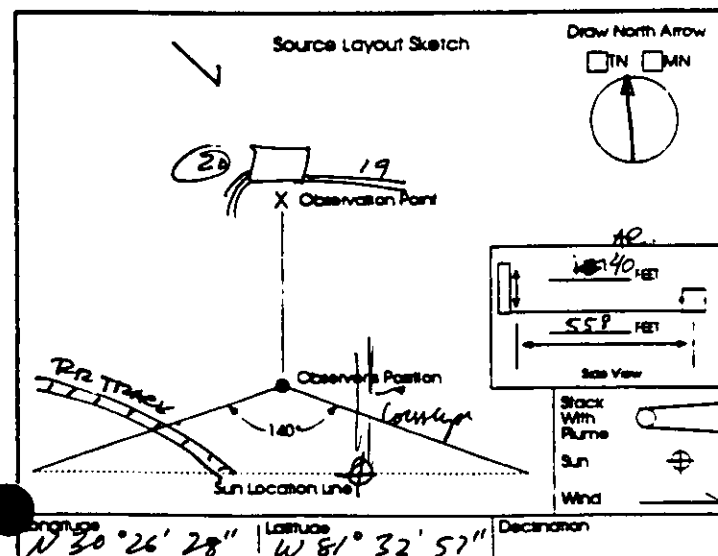
Process Ship Unloading limestone Unit # _____ Operating Mode 79% Capacity
 Control Equipment Condensed Material sprayed w/ water Operating Mode 0% Capacity

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. _____ Direction to Emiss. Pt. (Degrees) Start 3° NE End 3° NE
 Start 170m End 170m Start 3° NE End 3° NE

Vertical Angle to Obs. Pt. _____ Direction to Obs. Pt. (Degrees) AE
 Start 5° End 5° 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 _____ Water Droplet Plume _____
 Start none End none Attached ☐ Detached ☐ None ☒

Describe Plume Background
 Start _____ End _____
 Background Color _____ Sky Conditions _____
 Start Blue End Blue Start Clear End Clear
 Wind Speed _____ Wind Direction _____
 Start 0-5 End 0-5 Start NW End NW
 Ambient Temp. _____ Wet Bulb Temp. _____ RH Percent _____
 Start 81°F End 84°F Start 70°F End 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
2/6/99					11 55	12 55
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 2/6/99
 Organization St. Johns River Power Bank.
 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 <i>St. Johns River Power Park</i>		
Facility Name <i>St. Johns River Power Park</i>		
Street Address <i>11201 New Berlin Rd.</i>		
City <i>Jacksonville</i>	State <i>FL</i>	Zip <i>32226</i>

Process <i>Ship Unloading Limestone</i>	Unit #	Operating Mode
Control Equipment		Operating Mode

Describe Emission Point <i>TRANSFER POINT: From Conveyor S2 to STORAGE PILES B+C, CT 4</i>			
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	
Emission Color		Attached ☐ Detached ☐ None ☐	

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

Source Layout Sketch		Draw North Arrow ☐ TN ☐ MN	
Longitude _____		Latitude _____	
Decanation _____			

Additional Information	

Form Number	020-2	Page	2 of 2
Continued on VEO Form Number		020-1	

Observation Date <i>2/6/99</i>		Time Zone		Start Time <i>1155</i>	End Time <i>1255</i>
Sec	0	15	30	45	Comments
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) <i>Alvaro Castro</i>		Date <i>2/6/99</i>
Observer's Signature <i>Alvaro Castro</i>		Date <i>12/2/98</i>
Organization <i>St. Johns River Power Park</i>		
Carried By <i>Eastern Technical Associates</i>		

EPA

VISIBLE EMISSION OBSERVATION FORM 1

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

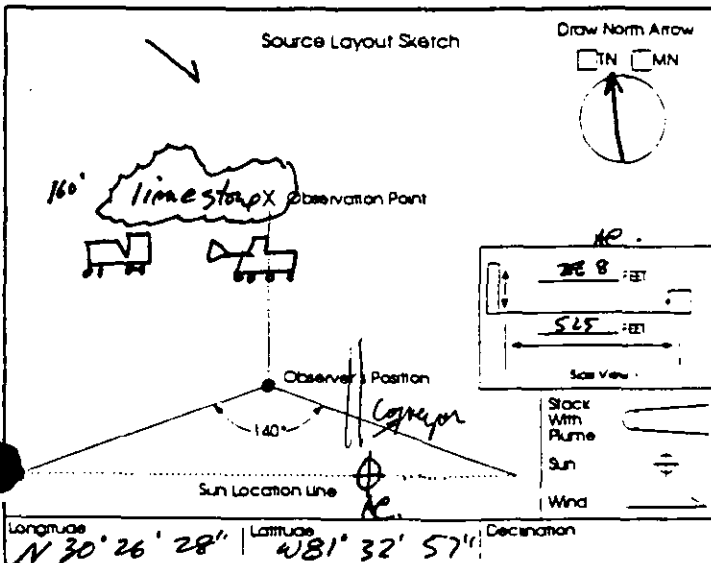
 Process LIMESTONE LOADOUT Unit # 12,100 TPD
 Control Equipment Water sprays Operating Modes 0% capacity

 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 Start none End none Water Droplet Plume Attached ☐ Detached ☐ None ☒

 Describe Plume Background
 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%


Additional Information

 Form Number 023J1 Page 1 of 2
 Continued on VEO Form Number 023J2

Observation Date		Time Zone				Start Time	End Time
<u>2/6/99</u>						<u>1045</u>	<u>1145</u>
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	<u>28 Trucks/hr @ 15 tons/truck.</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

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

Company Name St. Johns River Power Corp.
 Facility Name St. Johns River Power Corp.
 Street Address 11201 New Berlin Rd.
 City Tallahassee State FL Zip 32316

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 _____ Start _____ End _____

Source Layout Sketch

Draw North Arrow
☐ TN ☐ MN

Observer's Position

Observation Point

Sun Location Line

140°

See View

Stack With Plume

Sun

Wind

Longitude _____ Latitude _____ Declination _____

Additional Information _____

Form Number 023J2 Page 2 of 2
 Continued on VEO Form Number 023J1

Observation Date		Time Zone				Start Time	End Time
<u>2/6/99</u>						<u>1045</u>	<u>1145</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		
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. @ 15 mph</u>	

Observer's Name (Print) Alvaro Castro
 Observer's Signature Alvaro Castro Date 2/6/99
 Organization St. Johns River Power Corp.
 Certified By Castro 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 *Tallahassee* State *FL* Zip *32226*

Process *LIMESTONE LOADOUT* Unit # *12,100 TPD* Operating Mode
 Control Equipment *Water spray* Operating Mode *On 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 Start *none* End *none* 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 *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

160' Limestone X Observation Point

Observer's Position

140°

Sun Location Line

Stack With Plume

Wind

Longitude Latitude Declination

Additional Information

Form Number *02353* Page *1* of *2*
 Continued on VEO Form Number *02354*

Observation Date		Time Zone			Start Time	End Time
2/6/98					1045	1145
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	29 Trucks/hr @ 15 tons/truck	
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 *Castro Technical Associates* Date *12/2/98*

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Check One)
Method 9 ☒ 203A ☐ 203B ☐ Other: _____

Company Name H. John Price Power Park
 Facility Name H. John Price Power Park
 Street Address 7701 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 _____
 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

X Observation Point

Observer's Position

140°

Sun Location Line

Stack With Plume

Sun

Wind

Scale View

_____ FEET

_____ FEET

Longitude _____ Latitude _____ Declination _____

Additional Information

Form Number 023J4 Page 2 of 2
 Continued on VEO Form Number 023J3

Observation Date		Time Zone			Start Time	End Time
2/6/99					1045	1145
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	28 Trucks/hr @ 15th	

Observer's Name (Print) Alvaro Castro
 Observer Signature Alvaro Castro Date 2/6/99
 Organization H. John Price Power Park
 Certified By Eastern Technical Assoc. 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 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.

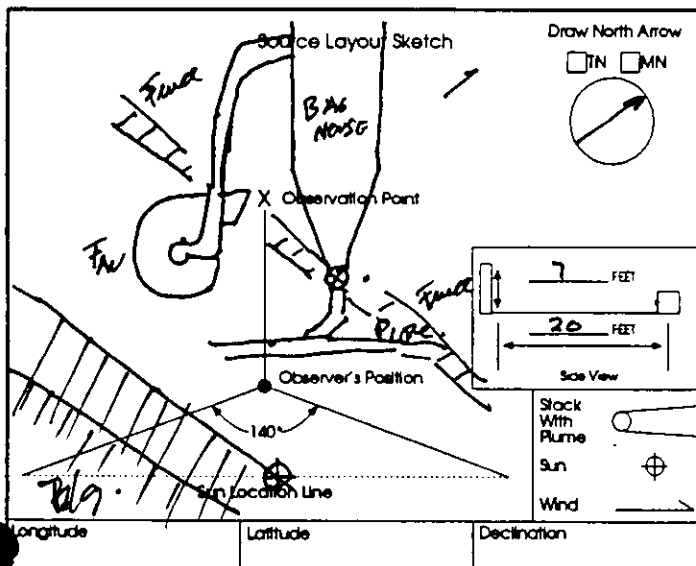
Describe Emission Point Baghouse Effluent.

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%



Additional Information _____

Form Number 04711 Page 1 of 2
 Continued on VEO Form Number 04712

Observation Date		Time Zone			Start Time	End Time
4/23/99					10:45	11:45
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 Plant
 Certified By Eastern Technical Associates Date 12/2/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)	203A	203B	Other: _____

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

Process <i>Unit #1 Boiler Fuel Loading</i>	Unit # <i>1</i>	Operating Mode <i>Fuel Loading</i>
Control Equipment <i>B&B House, DC-4</i>	Operating Mode <i>100% CAP.</i>	

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 _____	Attached ☐ Detached ☐ None ☐

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

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

Observer's Name (Print) <i>Alvaro Castro</i>	Date <i>4/23/99</i>
Observer's Signature <i>Alvaro Castro</i>	Date <i>4/23/99</i>
Organization <i>St. Johns River Power Park</i>	Date <i>12/2/98</i>
Certified by <i>Eastern Technical Associates</i>	Date <i>12/2/98</i>

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 #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 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 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 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%

Source Layout Sketch

Draw North Arrow ☐ TN ☐ MN

Scale View: 7 FEET, 25 FEET

Stack With Plume ☐ Sun ☐ Wind ☐

Longitude _____ Latitude _____ Declination _____

Additional Information

Form Number 04721 Page 1 of 2
 Continued on VEO Form Number 04722

Observation Date 3/25/99 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 3/25/99
 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)	203A	203B	Other: _____

Company Name <i>St. Johns River Power Park</i>		
Facility Name <i>St. Johns River Power Park</i>		
Street Address <i>11201 New Berlin Rd.</i>		
City <i>Tackewille</i>	State <i>FL</i>	Zip <i>32246</i>

Process <i>Unit #2 Boiler Fuel Loading</i>	Unit # <i>2</i>	Operating Mode <i>Fuel Loading</i>
Control Equipment <i>Gas House DC 5</i>	Operating Mode <i>100% Cap.</i>	

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 _____	Water Droplet Plume
Emission Color Start _____ End _____	Attached ☐ Detached ☐ None ☐

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

Source Layout Sketch		Draw North Arrow ☐ TN ☐ MN
Longitude	Latitude	Declination

Additional Information	

Form Number	04722	Page	2	of	2
Continued on VEO Form Number					04721

Observation Date		Time Zone		Start Time	End Time	Comments
				1150	1250	
Sec	Min	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	
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) <i>Alvaro Castro</i>		Date <i>3/25/97</i>
Observer's Signature <i>Alvaro Castro</i>		
Organization <i>St. Johns River Power Park</i>		
Certified by <i>Eastern Technical Associates</i>		Date <i>12/2/98</i>

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 PETROLEUM Unit #
COM Operating Mode
1400 TPH.

Control Equipment
WET SUPPRESSION Operating Mode
100% CAP.

Describe Emission Point
TRANSFER POINT CONVEYOR CT-2 To Conveyor CT-3

Height of Emiss. Pt.
Start *30'* End *30'* Height of Emiss. Pt. Rel. to Observer
Start *25* End *25*

Distance to Emiss. Pt.
Start *60'* End *60'* Direction to Emiss. Pt. (Degrees)
Start *344* End *344*

Vertical Angle to Obs. Pt.
Start *14°* End *14°* Direction to Obs. Pt. (Degrees)
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*

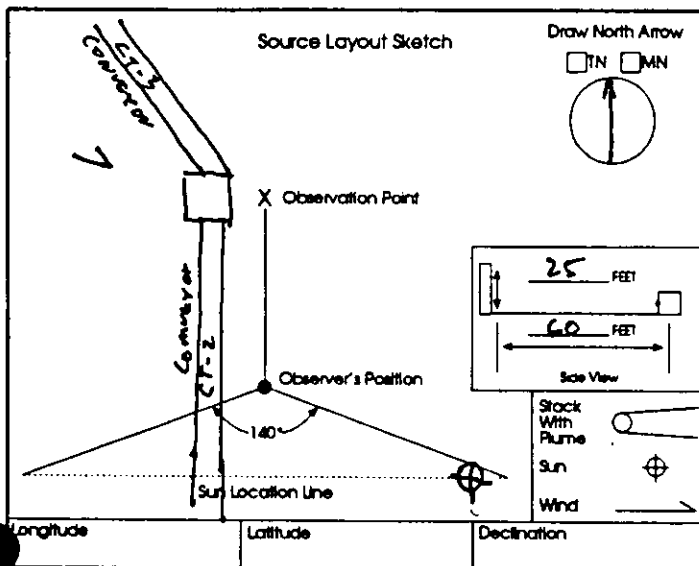
Emission Color
Start *NONE* End *NONE* Water Droplet Plume
Attached ☐ Detached ☐ None ☒

Describe Plume Background
Start *OPEN SKY* End *OPEN SKY*

Background Color
Start *WHITE* End *WHITE* Sky Conditions
Start *OVERCAST* End *OVERCAST*

Wind Speed
Start *0-2* End *0-2* Wind Direction
Start *SW* End *SW*

Ambient Temp.
Start *79°* End *79°* Wet Bulb Temp.
75° RH Percent
80%



Additional Information

Longitude Latitude Declination

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		
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

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 PULP Unit # COM Operating Mode 1400 TPA
 Control Equipment Wet Suppression Operating Mode 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 _____ 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 _____

Source Layout Sketch

Draw North Arrow ☐ TN ☐ MN

X Observation Point

Observer's Position

140°

Sun Location Line

Side View

Stack With Plume

Sun

Wind

Longitude _____ Latitude _____ Destination _____

Additional Information

Form Number 023 2 Page 2 of 2
 Continued on VEO Form Number 023 1

Observation Date: <u>4/27/99</u>		Time Zone		Start Time: <u>08:35</u>	End Time: <u>09:35</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		
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 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.
Start 65°F End 65°F

RH Percent
Start 84% End 84%

Source Layout Sketch

Draw North Arrow
☐ TN ☐ MN

87 FEET

150 FEET

Side View

Stack With Plume

Sun

Wind

Longitude

Latitude

Declination

Additional Information

Form Number 0 5 2 1 Page 1 of 2

Continued on VEO Form Number 0 5 2 2

Observation Date		Time Zone			Start Time	End Time
4/29/99					0945	1045
Sec	0	15	30	45	Comments	
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

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 Quia-line s/b	Unit # COM.	Operating Mode 16 TPH.
Control Equipment SAB 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 _____	Start _____ End _____
Wind Speed	Wind Direction
Start _____ End _____	Start _____ End _____
Ambient Temp.	Wet Bulb Temp.
Start _____ End _____	RH Percent

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 4/29/99		Time Zone		Start Time 0945	End Time 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		Date 4/29/99
Observer's 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 (Circle One)
Method 9 203A 203B Other: _____

Company Name
ST. JOHN'S RIVER POWER PARK

Facility Name
11201 NEW ABERLIN ROAD

Street Address

City
JACKSONVILLE State
FL Zip
32226

Process
PETROLEUM SHIPLOADING 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 **285°** End **285°**

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
Start **NONE** End **NONE** Water Droplet Plume
Attached ☐ Detached ☐ None ☒

Describe Plume Background
Start **SCATTERED-OPEN SKY** End **OVERCAST-OPEN SKY**

Background Color
Start **BLUE/WHITE** End **WHITE** Sky Conditions
Start **SCATTERED** End **OVERCAST**

Wind Speed
Start **3-5 MPH** End **3-5 MPH** Wind Direction
Start **270°** End **270°**

Ambient Temp.
Start _____ End _____ Wet Bulb Temp.
RH Percent

Source Layout Sketch

Draw North Arrow
☐ TN ☐ MN

Observer's Position

Sun Location Line

140°

30 FEET

35 FEET

Scale View

Stack With Plume

Sun

Wind

Longitude _____ Latitude _____ Declination _____

Additional Information

Form Number **23031** Page **1** of **2**

Continued on VEO Form Number **23032**

Observation Date		Time Zone			Start Time	End Time
4/27/99		EDT			0935	0935
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. LOECHLT

Observer's Signature
Mark K. Loechlt Date
4/27/99

Organization
ST. JOHN'S RIVER POWER PARK

Certified By
EASTERN TECHNICAL ASSOCIATES Date
12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (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 JACKSONVILLE	State FL	Zip 32226

Process PETROLEUM SHIPUNLOADING	Unit # COM	Operating Mode 100% CAPACITY
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
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.
Start _____ End _____	RH Percent

Source Layout Sketch		Draw North Arrow ☐ TN ☐ MN
Longitude	Latitude	Declination

Additional Information	

Form Number	23e32	Page	2 of 2
Continued on VEO Form Number		23e31	

Observation Date 4/27/98	Time Zone EST	Start Time 0835	End Time 0935
Sec Min	0	15	30
45	Comments		
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0

Observer's Name (Print) MARK K. LOECHELT	Date 4/27/98
Observer's Signature <i>Mark K. Lochelet</i>	Organization ST. JOHNS RIVER POWER PARK
Certified By EASTERN TECHNICAL ASSOCIATES	Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (Circle One)	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 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	Water Droplet Plume
Start NONE End NONE	Attached ☐ Detached ☐ None ☒

Describe Plume Background	
Start BAGHOUSE HOUSING	End BAGHOUSE HOUSING
Background Color	Sky Conditions
Start RUST End RUST	Start OVERCAST End OVERCAST
Wind Speed	Wind Direction
Start 20-25 End 20-25	Start 320° End 320°
Ambient Temp.	Wet Bulb Temp.
Start 54° End 54°	Start 55° End 100%

Source Layout Sketch		Draw North Arrow ☒ TN ☐ MN
Observer's Position Sun Location 140°		Scale View 20' - 35'
Stack With Plume Sun Wind		
Latitude	Longitude	Declination

Additional Information

Form Number	00501	Page	1 of 2
Continued on VEO Form Number		00502	

Observation Date		Time Zone		Start Time	End Time	
4/30/99		EST		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. LOECHLT		Date 4/30/99
Observer's Signature <i>Mark K. Lochelt</i>		Date 12/3/98
Organization ST. JOHNS RIVER POWER PARK		
Certified by EASTERN TECHNICAL ASSOCIATES		

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
JACKSONVILLE State
FL Zip
32226

Process
LIMESTONE RECLAIM Unit #
COM Operating Mode
BAGHOUSE 3DC-01 Operating Mode
100% CAPACITY

Describe Emission Point
BAGHOUSE EFFLUENT EXHAUST 3DC-01

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 _____ Sky Conditions Start _____ End _____

Background Color _____ Wind Speed Start _____ End _____ Wind Direction Start _____ End _____

Ambient Temp. Start _____ End _____ Wet Bulb Temp. Start _____ End _____ 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 _____

Additional Information

Form Number 00502 Page 2 of 2

Continued on VEO Form Number 00501

Observation Date	Time Zone	Start Time	End Time	Comments
4/30/99	EST	0750	0850	
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. LOEWELT

Observer's Signature
Mark K. Loewelt 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

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 Transfer Building. Unit # _____ Operating Mode
2000 TPH

Control Equipment
wet suppression Operating Mode
100% CAP.

Describe Emission Point
Conveyor C-1 to Conveyor G-2 and.

Lowering Well.

Height of Emiss. Pt.
Start 130' End 130' Height of Emiss. Pt. Rel. to Observer
Start 127' End 127'

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.

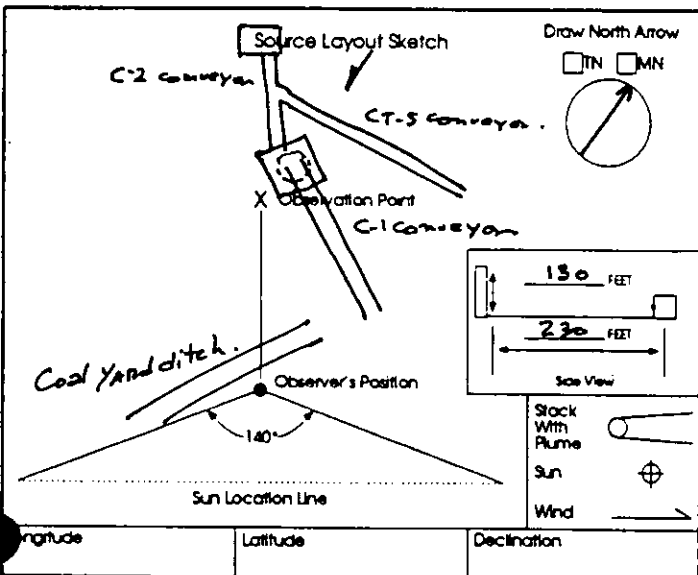
Emission Color
Start none End none Water Droplet Plume
Attached ☐ Detached ☐ None ☒

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 N End N

Ambient Temp.
Start 53°F End 54°F Wet Bulb Temp.
53°F RH Percent
100%



Additional Information
Directions estimated - erratic compass readings.

Form Number 23001 Page 1 of 2

Continued on VEO Form Number 23002

Observation Date 5/1/99		Time Zone			Start Time 0725	End Time 0825
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
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 Jacksonville	State FL	Zip 32226

Process Fuel Transfer Building	Unit # Com	Operating Mode 2000 TON.
Control Equipment WET Suppression	Operating Mode 100% CAP.	

Describe Emission Point	
Height of Emss. Pt. Start End	Height of Emss. Pt. Rel. to Observer Start End
Distance to Emss. Pt. Start End	Direction to Emss. 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
Emission Color Start End	Attached ☐ Detached ☐ None ☐

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

Source Layout Sketch		Draw North Arrow ☐ TN ☐ MN
Longitude	Latitude	Declination

Additional Information

Form Number	23002	Page	2 of 2
Continued on VEO Form Number		23001	

Observation Date 5/1/99	Time Zone	Start Time 0725	End Time 0825
Sec Min	0	15	30
	45	Comments	
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0

Observer's Name (Print) Alvaro Castro	Date 5/1/99
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

Method Used (Circle One)	203A	203B	Other
Method 9			

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°	

Emission Color			
Start NONE	End NONE	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. Start 53°	RH Percent 100%	

Source Layout Sketch		Draw North Arrow ☒ N ☐ MN
Longitude	Latitude	Declination

Additional Information DIRECTIONS ESTIMATED - ERRATIC COMPASS READINGS

Form Number	023a1	Page	1 of 2
Continued on VEO Form Number		023a2	

Observation Date 5-1-99	Time Zone EDT	Start Time 0730	End Time 0830
Sec Min	0	15	30
	45		
Comments			
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0

Observer's Name (Print) MARK K. LOECHLT	Date 5/1/99
Observer's Signature <i>Mark K. Lochlt</i>	
Organization ST. JOHNS RIVER POWER PARK	
Certified by EASTERN TECHNICAL ASSOCIATES	Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (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 JACKSONVILLE State FL Zip 32226

Process RAILCAR COAL UNLOADING Unit # COM Operating Mode _____

Control Equipment WROT SUPPRESSION Operating Mode 100% CAPACITY

Describe Emission Point
BUILDING VENTILATOR - STACK @ TOP OF BUILDING

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 Pume _____

Start _____ End _____ Attached ☐ Detached ☐ None ☐

Describe Pume 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

Sun Location Line

1.40°

Scale View

Stack With Pume

Sun

Wind

Longitude _____ Latitude _____ Direction _____

Additional Information

Form Number 023a2 Page 2 of 2

Continued on VEO Form Number 023a1

Observation Date		Time Zone		Start Time		End Time	
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) MARK V. LOEWELT

Observer's Signature Mark V. Loewelt Date 5/1/99

Organization ST. JOHNS RIVER POWER PARK

Confirmed By EASTERN TECHNICAL ASSOCIATES Date 12/3/98

EPA

VISIBLE EMISSION OBSERVATION FORM 1

 Method 9 203A 203B Other: _____

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

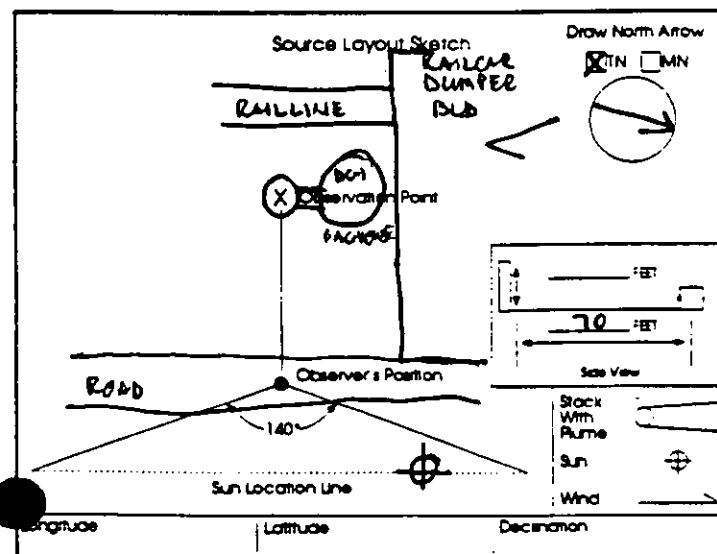
 Process RAILCAR COAL UNLOADING Unit # COM Operating Mode 2800 TPH
 Control Equipment DC-1 DUST COLLECTOR Operating Mode 100% CAPACITY

 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 MOVE End MOVE
 Emission Color Water Droplet Plume
 Start MOVE End MOVE Attached ☐ Detached ☐ None ☒

 Describe Plume Background
 Start OPEN SKY End OPEN SKY
 Background Color GRAY End GRAY Sky Conditions OVERCAST End OVERCAST
 Wind Speed 20-25 End 20-25 Wind Direction 340° End 340°
 Ambient Temp 53° End 54° Wet bulb Temp 53° RH Percent 100%

 Additional Information
DIRECTIONS ESTIMATED - ECCATIC COMPASS READINGS

 Form Number 00431 Page 1 of 2
 Continued on VEO Form Number 00432

Observation Date		Time Zone		Start Time		End Time	
<u>5-1-99</u>		<u>EDT</u>		<u>0730</u>		<u>0830</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			
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. LOECHERT
 Observer's Signature
Mark K. Lochert Date 5/1/99
 Organization
ST. JAMES 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 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 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

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 Decimation

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		EDT			0730	0830
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) MARK E. LOECHTEL

Observer's Signature Mark E. Loechtel 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 TEA Observer Dale Vineyard
 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

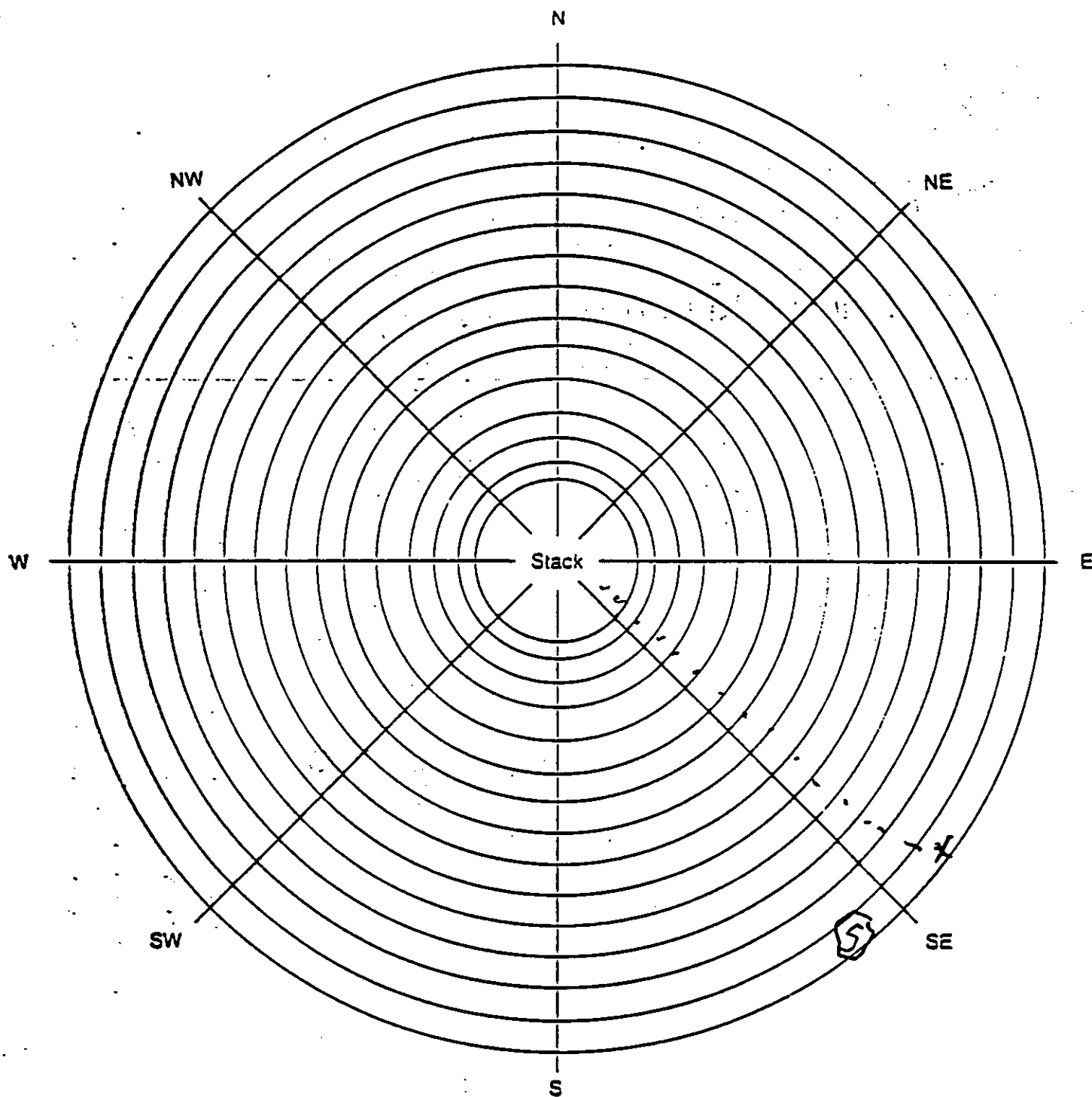
Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Loader (Dust at Top)</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
	4	0	0	0	0	34	0	0	0	0
	5	0	0	0	0	35	0	0	0	0
	6	0	0	0	0	36	0	0	0	0
	7	0	0	0	0	37	0	0	0	0
	8	0	0	0	0	38	0	0	0	0
	9	0	0	0	0	39	0	0	0	0
Observer Location (Diagram on back of sheet) Distance from Observer to source <u>350'</u> Height of Source (above ground) <u>50'</u>	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
Weather Conditions Wind Direction <u>N E</u> Wind Speed <u>5 to 10</u> Temperature <u>72</u> Position of Sun <u>SE</u> Sky Condition <u>overcast</u> (clear, overcast, %clouds, color of clouds, etc.)	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
Plume Description Color <u>White</u> Background <u>Sky</u> Type (wet or dry) <u>Dry</u> Dist. _____	Comments									
Observers Signature <u>Dale Vineyard</u>										
Date of Last EPA Method 9 Examination <u>10-7-98</u>										
Examination Passed in EPA Region <u>Eastern</u>										

*If wet, distance (ft.) from plume outlet to point in plume where observations made



Total Source Analysis, Inc.
Environmental Testing Consultants

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 TEA Observer Dale Vineyard
 Project No. 48-198 FL Date 10-12-98
 Plant Name St. Johns River Power Corp. Observation began 9:00
 Location St. Johns River Power Corp. Plant ended 10:00
 Type of Facility Power Plant

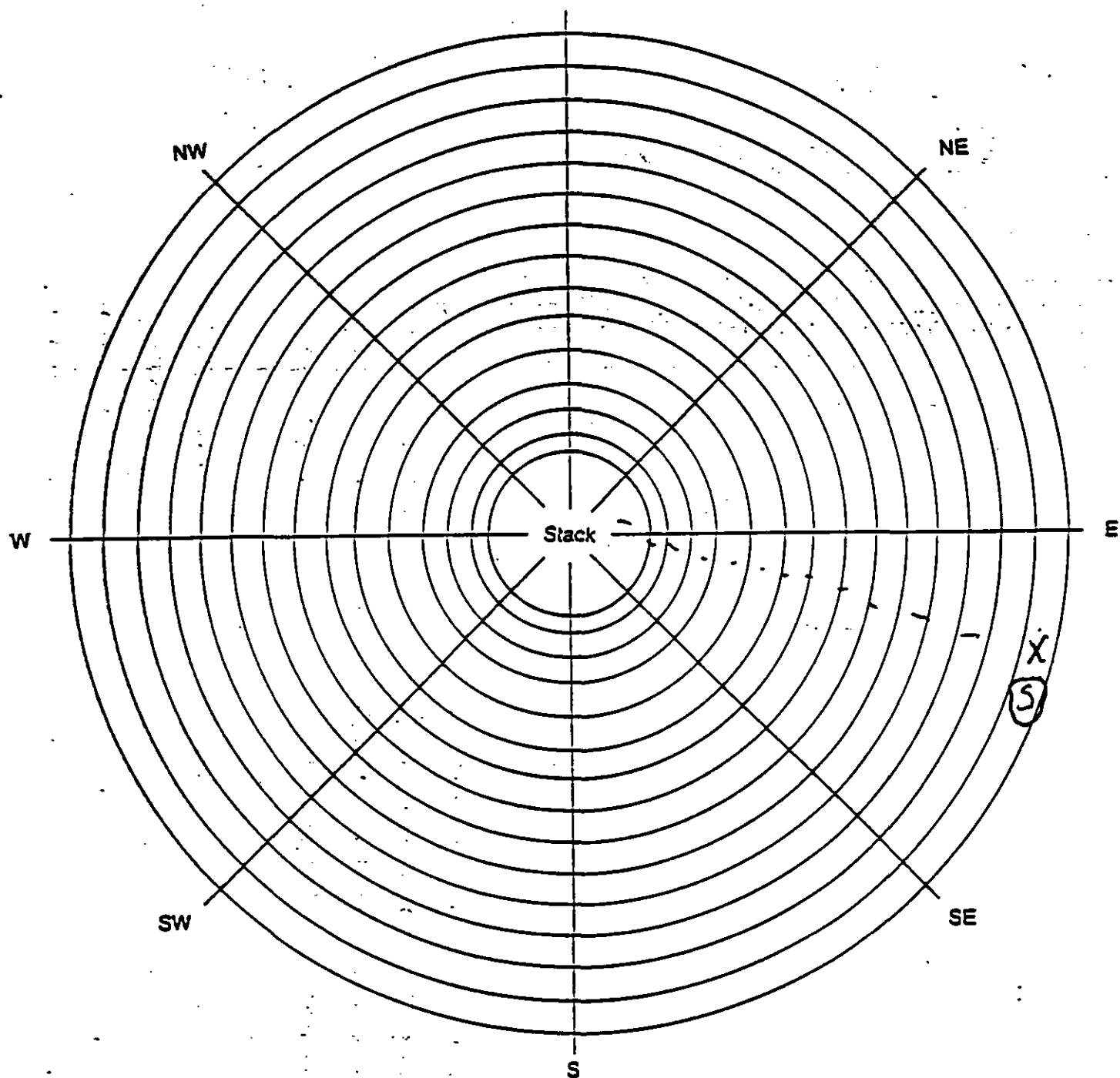
Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Pile of Lime Rock</u>	0	0	0	0	0	30	0	0	0	0
<u>Lime Stone Handling Building</u>	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
	4	0	0	0	0	34	0	0	0	0
Observer Location (Diagram on back of sheet)	5	0	0	0	0	35	0	0	0	0
Distance from Observer to source <u>300'</u>	6	0	0	0	0	36	0	0	0	0
Height of Source (above ground) <u>0 to 20'</u>	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>NW</u>	9	0	0	0	0	39	0	0	0	0
Wind Speed <u>5 to 10</u>	10	0	0	0	0	40	0	0	0	0
Temperature <u>73</u>	11	0	0	0	0	41	0	0	0	0
Position of Sun <u>E</u>	12	0	0	0	0	42	0	0	0	0
Sky Condition <u>overcast</u>	13	0	0	0	0	43	0	0	0	0
(clear, overcast, %clouds, color of clouds, etc.) <u>Dark</u>	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 Dust</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



Total Source Analysis, Inc.
Environmental Testing Consultants

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

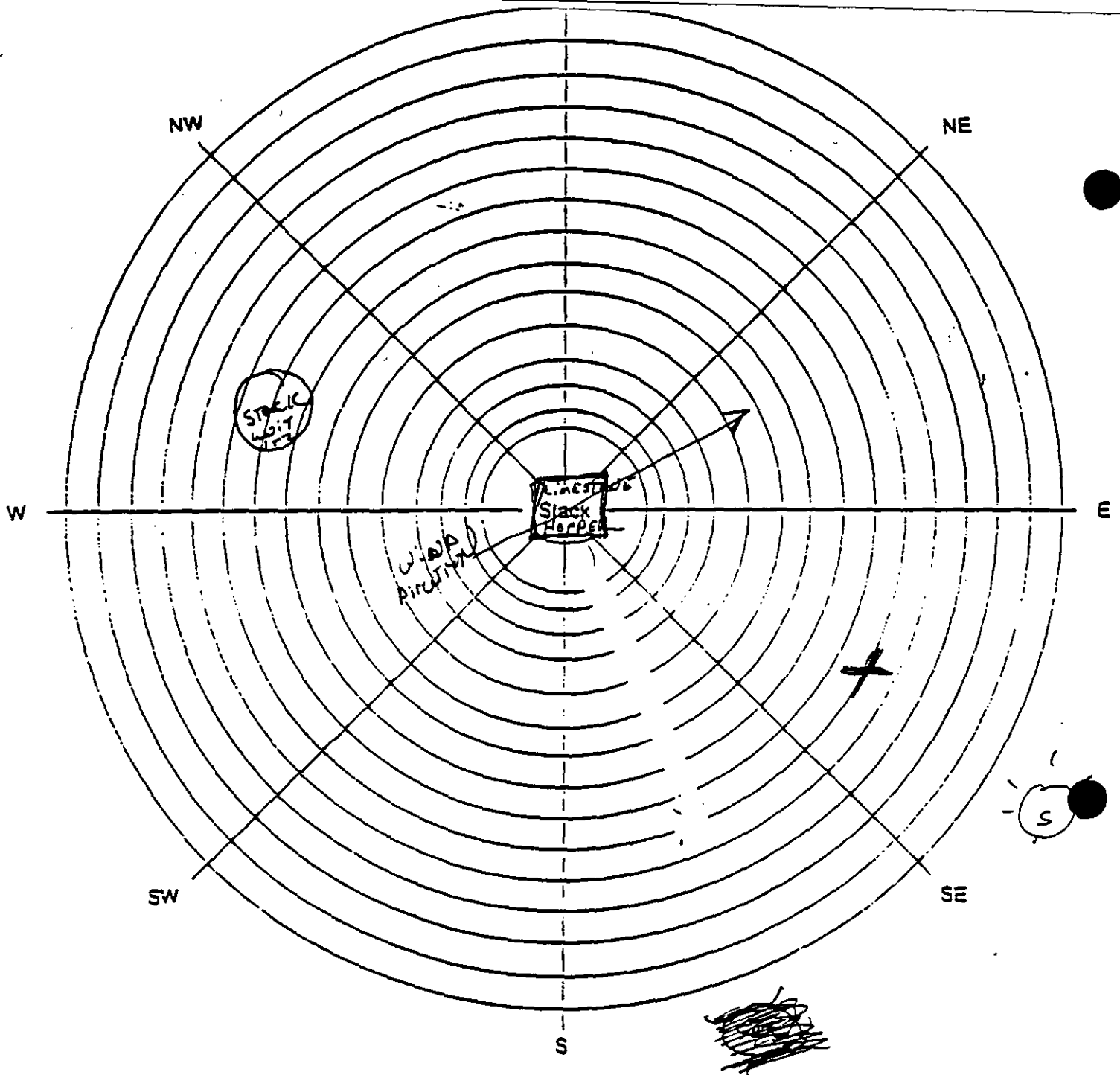
Ident J.E.A Observer John C. Sutton
 Project No. 97-422 Date 10.3.97
 Plant Name ST. Johns RIVER POWER PARK Observation began 0905
 Location JACKSONVILLE FL. ended 1015
 Type of Facility LIMESTONE HOPPER (POWER PLANT)

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	6	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	4	0	0	0	0	34	0	0	0	0
Diagram on back of sheet	5	0	0	0	0	35	0	0	0	0
Distance from Observer to source <u>200 FT</u>	6	0	0	0	0	36	0	0	0	0
Height of Source (above ground) <u>15' 20'</u>	7	0	5	0	0	37	0	0	0	0
Weather Conditions	8	0	0	0	0	38	0	0	0	0
Wind Direction <u>NE</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>65</u>	11	0	0	0	0	41	0	0	0	0
Position of Sun <u>SOUTH EAST</u>	12	0	0	0	0	42	5	5	0	0
Sky Condition <u>25% CLOUDS</u>	13	0	0	0	0	43	0	0	0	0
(clear, overcast, etc., color of clouds, etc.)	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	17	0	0	0	0	47	0	0	0	0
Background <u>Blue 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	5
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
Date of last EPA Method 9 Examination	27	0	0	0	0	57	0	0	0	0
<u>OCTOBER 957 (ETA)</u>	28	0	0	0	0	58	0	0	0	0
Examination Passed in EPA Region	29	0	0	0	0	59	0	0	0	0

Wet. (etc.) from plume outlet to point in plume where observations made



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 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.

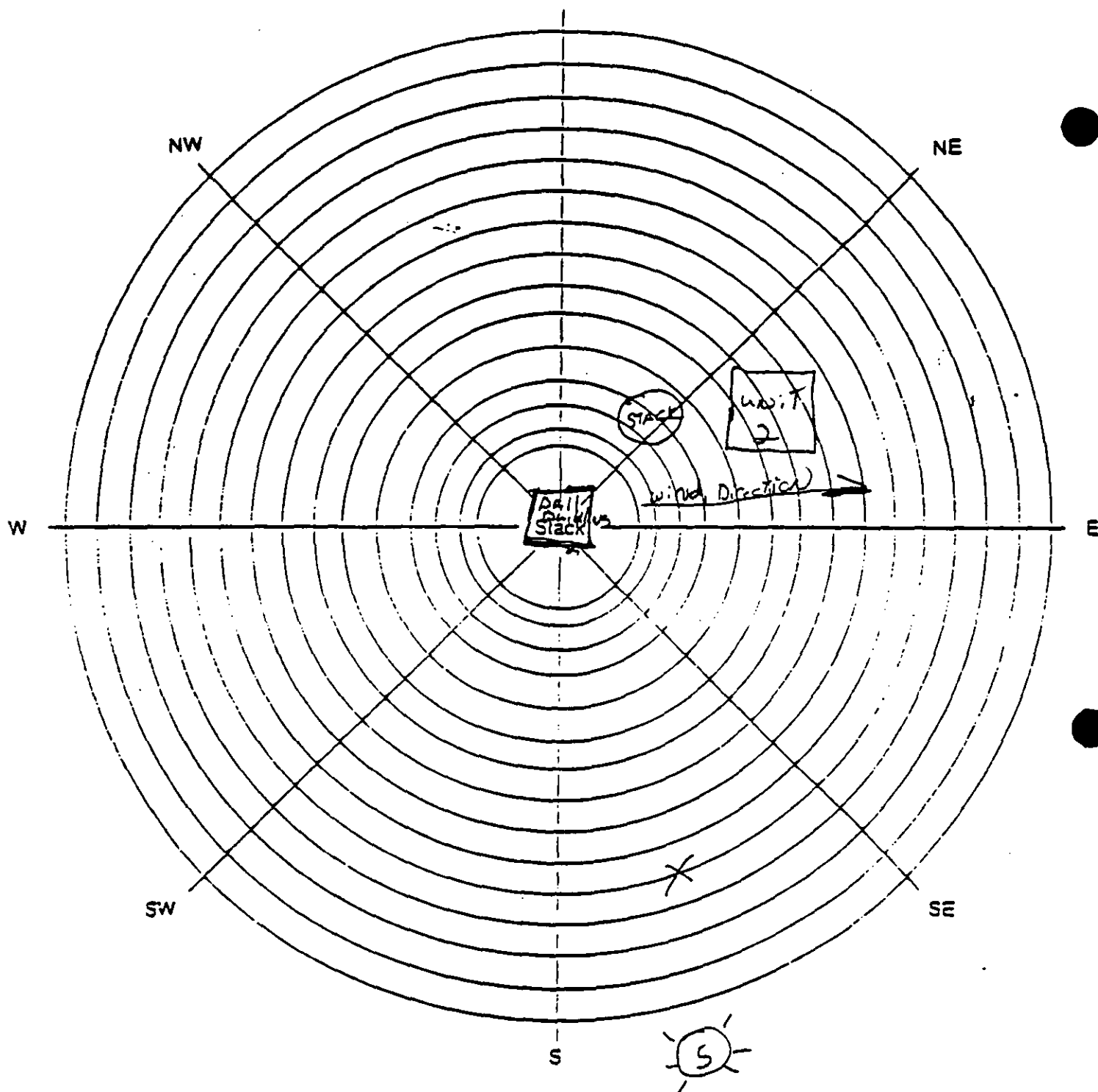


Total Source Analysis, Inc.
Environmental Testing Consultants

ent TEA Observer John Suttell
 Subject No. 97-422 Date 11.3.97
 Plant Name STRPP Observation began 1025
 Location Jacksonville FL. ended 1125
 Facility POWER PLANT Limestone handling / Ballmill Building

Source Identification (Stack, duct, etc.)	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	
Observer Location (Diagram on back of sheet) Distance from Observer to source <u>800'</u> Height of Source (above ground) <u>140'</u>	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	
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, %clouds, color of clouds, etc.) <u>white clouds</u>	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	
Plume Description Color _____ Background <u>SKY</u> Type wet or dry: <u>dry</u> Dist. _____	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	
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	
	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	
Observers Signature <u>[Signature]</u>											
Date of last EPA Method 9 Examination <u>OCTOBER 1997 (ETA)</u>											
Examination Passed in EPA Region											

See (T.) 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.



Total Source Analysis, Inc.
Environmental Testing Consultants
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Visible Emissions Evaluation Data Sheet

Client J.E.A. 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</u>	0	0	0	0	0	30	0	0	0	0
<u>HANDLING AREA</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
	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	5	5	5	5
	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	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
	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 150'
 Height of Source (above ground) 0-150'

Weather Conditions
 Wind Direction SE
 Wind Speed 0-5
 Temperature 70
 Position of Sun SOUTH
 Sky Condition CLEAR
 (clear, overcast, hazy, clouds, color of clouds, etc.)

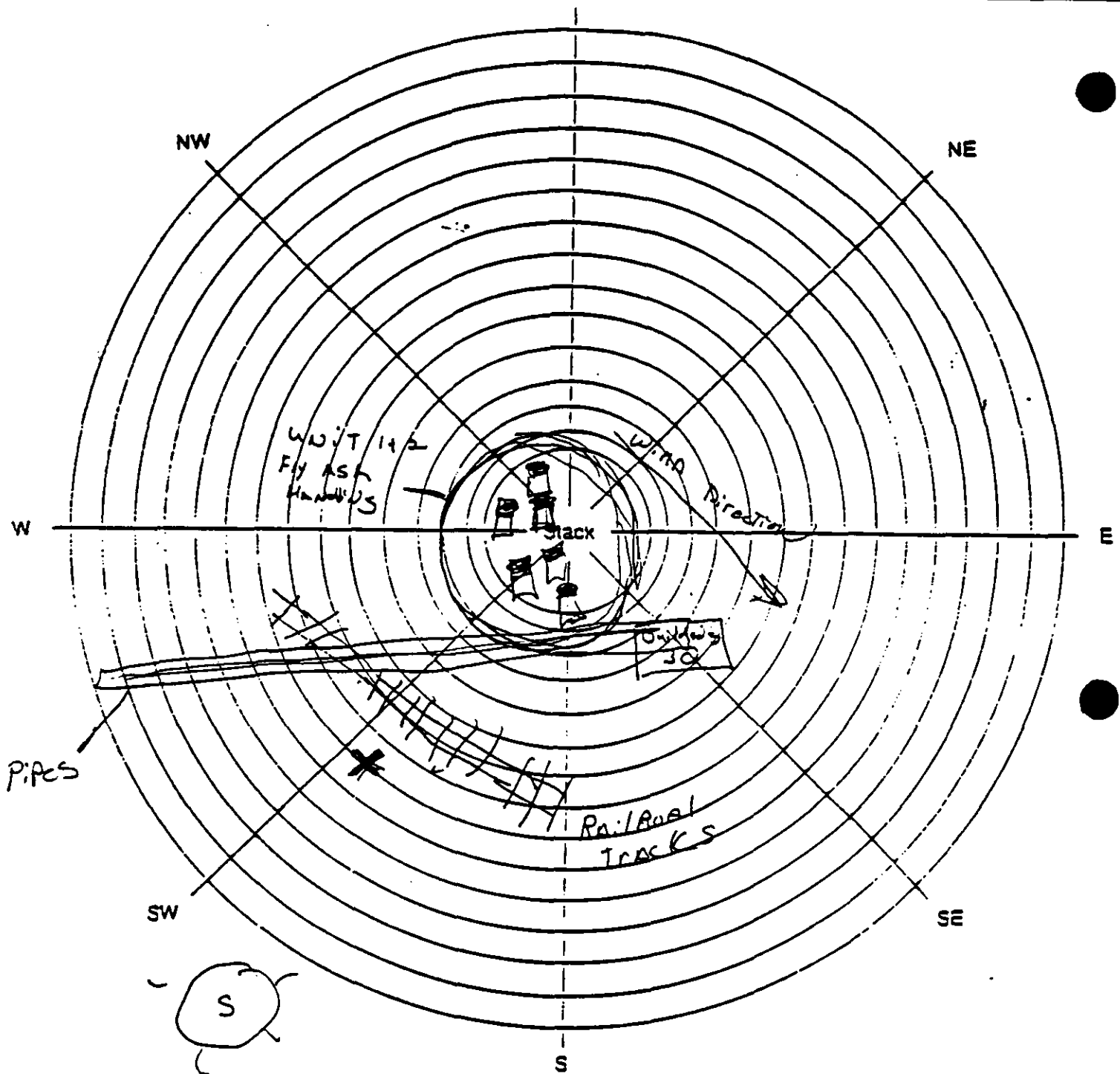
Plume Description
 Color BROWN
 Background SKY
 Type (wet or dry) Dry Dist. _____

Comments _____

Observers Signature John C. Sutton
 Date of Last EPA Method 9 Examination OCTOBER 1997
 Examination Passed in EPA Region AKRON OH



F19
 Total Source Analysis, Inc.
 Environmental Testing Consultant



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.

Plant JE A 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, Cuck, etc.) <u>Fly Ash Silo (Unit 1)</u> <u>(South Side)</u>	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

Observer Location
 (Diagram on back of sheet)
 Distance from Observer to source 260'
 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, etc.)
 color of clouds, etc.)

Plume Description
 Color W/A
 Background GRY
 Type (wet or dry) Dry Dist. _____

Comments _____

Observers Signature John C. Sutton

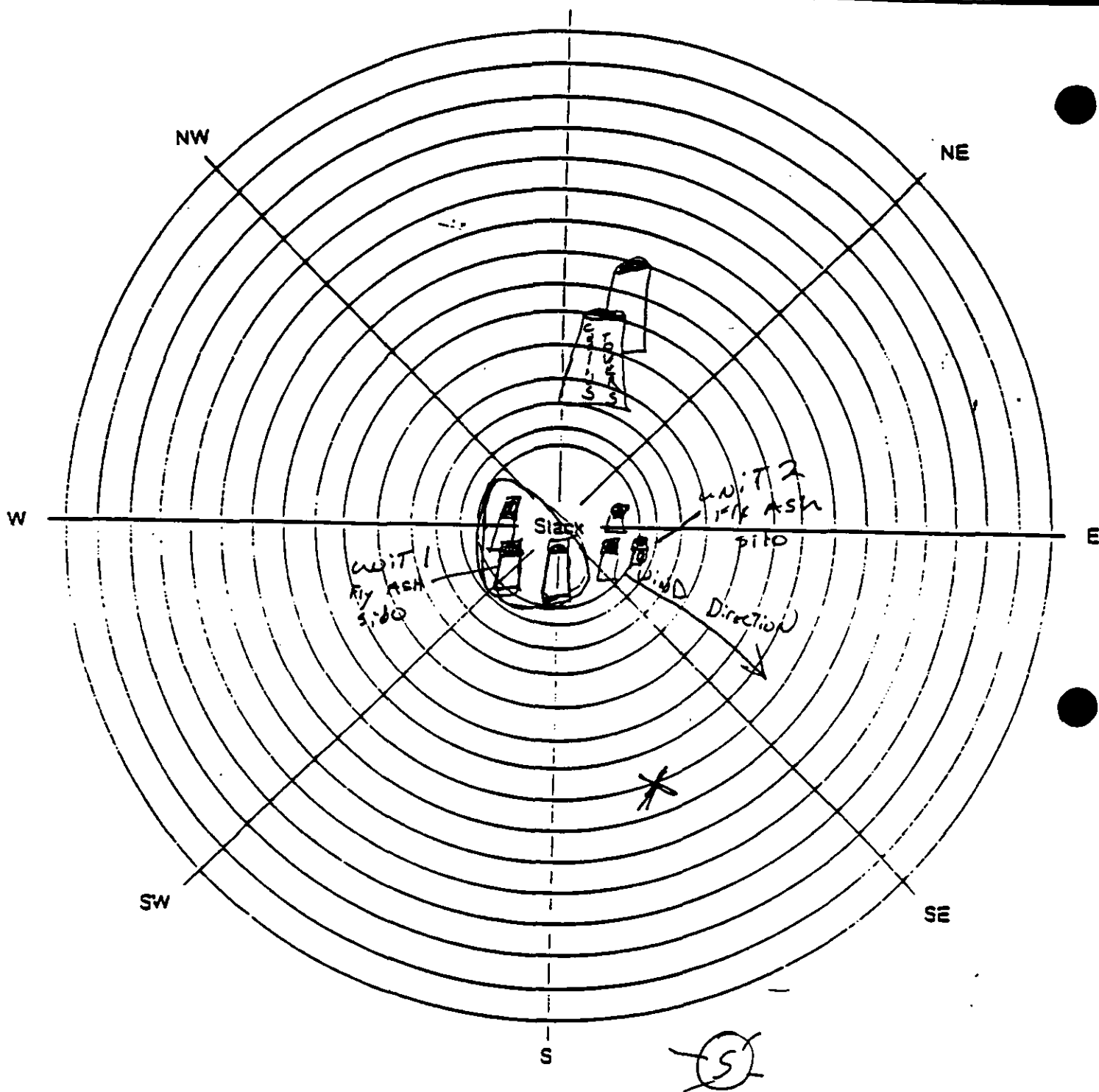
Date of Last EPA Method 9 Examination OCTOBER 1997

Examination Passed in EPA Region _____

Distance (ft.) from plume outlet to point in plume where observations made



F13
 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 Technology

Client J.E.A. Observer John C. Sutton
 Project No. 97-422 Date 11-4-97
 Plant Name STARPP Observation began 6:45
 Location JACKSONVILLE FL. ended 10:45
 Type of Facility POWER PLANT

Source Identification (Stack, Duct, etc.) <u>Fly Ash Silo (unit 2)</u> <u>NORTH SIDE</u>	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	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 225'
 Height of Source (above ground) 150'

Weather Conditions
 Wind Direction SE
 Wind Speed 0-5
 Temperature 65
 Position of Sun S. EAST
 Sky Condition 25% Cloud
 (clear, overcast, hazy, etc.)
 color of clouds, etc.)

Plume Description
 Color N/A
 Background sky
 Type (wet or dry) Dry Dist. _____

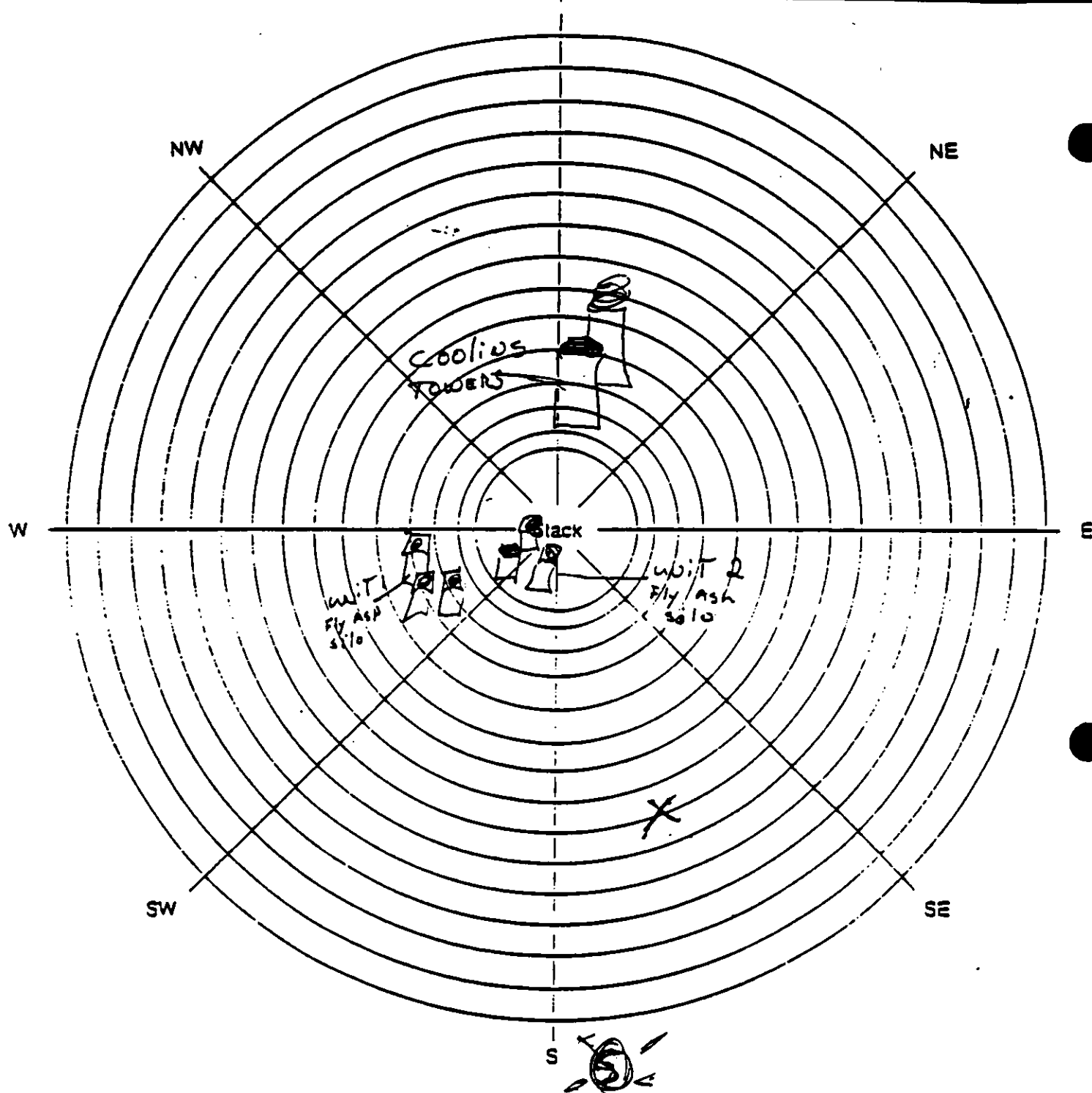
Comments _____

Observers Signature John C. Sutton

Date of Last EPA Method 9 Examination OCTOBER 1997

Examination Passed in EPA Region AK, CN, OH





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 Corporation
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	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(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	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(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	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(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	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(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

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 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

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 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

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 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

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 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

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 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	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(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	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(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	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(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	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(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

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 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	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(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	PM10	PM2.5	PM	PM10	PM2.5
	(lb/hr)	(lb/hr)	(lb/hr)	(g/s)	(g/s)	(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	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(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	PM10	PM2.5	PM	PM10	PM2.5
	(TPY)	(TPY)	(TPY)	(g/s)	(g/s)	(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

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 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

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 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

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 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					
	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
Petroleum Coke	13.19	6.24	1.96	1.66	0.79	0.25
Limestone	0	0	0	0	0	0

3-Transfer Points (in/out)

3-Transfer Points (in/out)

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

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 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 (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	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 (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	0.685	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 (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	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 (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	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 (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (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 (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (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 (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	0	0	0	0	0

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	0.775	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

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 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 (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (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 (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	PM (g/s)	PM10 (g/s)	PM2.5 (g/s)
Limestone	0.289	0.137	0.043	0.036	0.017	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)
Limestone	0.50	0.24	0.07	0.0145	0.0068	0.0022

Emission Rates - Controlled 42.50%

Raw Materials	Long-Term					
	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	PM (g/s)	PM10 (g/s)	PM2.5 (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 (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	0.0440	0.0208	0.0065

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	0.0013	0.0006	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	0.25	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	0.0075	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
 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 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		(m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	u _e /u _t :0.2	u _e /u _t :0.6	u _e /u _t :0.9		u _e /u _t :0.2	u _e /u _t :0.6	u _e /u _t :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
 Ck'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 Anemometer Height (m)				Equivalent Friction Velocities $u^*=0.1u^*$ (m/s)			Rain Fall (Inches)	Erosion Potential (g/m^2)			Emissions (lb)
	6.1		10		$u_a/u_t:0.2$	$u_a/u_t:0.6$	$u_a/u_t:0.9$		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	22.461	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
 Ckd By: Darrel J. Graziani, P.E.
 Date: 11/07/98

Cal. No.: 981023ED01
 Rev. No.: SJRPP I
 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^2)			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)								
21-Apr	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	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	0.000	0.00
23-Apr	43	19.223	45.991	20.560	0.411	1.234	1.850	1.150	0.000	0.000	0.000	0.00
24-Apr	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
25-Apr	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
26-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	0.049	0.000	0.000	0.000	0.00
27-Apr	21	9.388	22.461	10.041	0.201	0.602	0.904	1.810	0.000	0.000	0.000	0.00
28-Apr	32	14.305	34.226	15.300	0.306	0.918	1.377	0.340	0.000	0.000	0.000	0.00
29-Apr	22	9.835	23.530	10.519	0.210	0.631	0.947	0.000	0.000	0.000	0.000	0.00
30-Apr	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
01-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
02-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
03-May	31	13.858	33.156	14.822	0.296	0.889	1.334	0.020	0.000	0.000	0.000	0.00
04-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
05-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
06-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
07-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.000	0.000	0.000	0.000	0.00
08-May	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	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	30.74
10-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	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	0.000	0.00
12-May	14	6.259	14.974	6.694	0.134	0.402	0.602	0.780	0.000	0.000	0.000	0.00
13-May	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
14-May	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
15-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.005	0.000	0.000	0.000	0.00
16-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
17-May	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
18-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
19-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.000	0.00
20-May	16	7.153	17.113	7.650	0.153	0.459	0.689	0.005	0.000	0.000	0.000	0.00
21-May	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	0.000	0.000	0.000	0.00
22-May	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
23-May	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
24-May	18	8.047	19.252	8.606	0.172	0.516	0.775	0.300	0.000	0.000	0.000	0.00
25-May	22	9.835	23.530	10.519	0.210	0.631	0.947	0.550	0.000	0.000	0.000	0.00
26-May	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.000	0.00
27-May	26	11.623	27.808	12.431	0.249	0.746	1.119	1.270	0.000	0.000	0.000	0.00
28-May	22	9.835	23.530	10.519	0.210	0.631	0.947	0.050	0.000	0.000	0.000	0.00
29-May	21	9.388	22.461	10.041	0.201	0.602	0.904	0.010	0.000	0.000	0.000	0.00
30-May	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
31-May	21	9.388	22.461	10.041	0.201	0.602	0.904	0.450	0.000	0.000	0.000	0.00
01-Jun	18	8.047	19.252	8.606	0.172	0.516	0.775	0.830	0.000	0.000	0.000	0.00
02-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.030	0.000	0.000	0.000	0.00
03-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
04-Jun	21	9.388	22.461	10.041	0.201	0.602	0.904	0.000	0.000	0.000	0.000	0.00
05-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.850	0.000	0.000	0.000	0.00
06-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.060	0.000	0.000	0.000	0.00
07-Jun	14	6.259	14.974	6.694	0.134	0.402	0.602	0.005	0.000	0.000	0.000	0.00
08-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
09-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.010	0.000	0.000	0.000	0.00
10-Jun	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
11-Jun	17	7.600	18.182	8.128	0.163	0.488	0.732	0.005	0.000	0.000	0.000	0.00
12-Jun	16	7.153	17.113	7.650	0.153	0.459	0.689	0.320	0.000	0.000	0.000	0.00
13-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.005	0.000	0.000	0.000	0.00
14-Jun	22	9.835	23.530	10.519	0.210	0.631	0.947	0.230	0.000	0.000	0.000	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 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 _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)									
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
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 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^2)			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)								
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
 Ckd 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 Anemometer Height (m)				Equivalent Friction Velocities $u^*=0.1u^*$ (m/s)			Rain Fall (inches)	Erosion Potential (g/m ²)			Emissions (lb)
	6.1		10		$u_a/u_t:0.2$	$u_a/u_t:0.6$	$u_a/u_t:0.9$		(g/m ²)			
	(mph)	(m/s)	(mph)	(m/s)					$u_a/u_t:0.2$	$u_a/u_t:0.6$	$u_a/u_t:0.9$	
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
 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 Anemometer Height (m)				Equivalent Friction Velocities u*=0.1u*			Rain Fall (Inches)	Erosion Potential (g/m^2)			Emissions (lb)
	6.1		10		u*=0.1u* (m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	u _a /u _t :0.2	u _a /u _t :0.6	u _a /u _t :0.9		u _a /u _t :0.2	u _a /u _t :0.6	u _a /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 30.74	
31-Dec	25	11.176	26.739	11.953	0.239	0.717	1.076	0.000	0.000	0.000	2.228 18.07	
Totals:									0.00	0.00	43.59 353.62	
Worst Case Day									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				Equivalent Friction Velocities			Rain Fall (Inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				u* = 0.1u*				(g/m^2)			
	6.1		10		(m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	u _a /u _t :0.2	u _a /u _t :0.6	u _a /u _t :0.9		u _a /u _t :0.2	u _a /u _t :0.6	u _a /u _t :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	14.19
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	3.30
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	3.30
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
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*=0.1u* (m/s)			Rain Fall (inches)	Erosion Potential (g/m^2)			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	22.461	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	0.005	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
Cl'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 $u^*=0.1u^*$			Rain Fall (Inches)	Erosion Potential (g/m^2)			Emissions (lb)
	6.1		10		(m/s)		36% Pile		50% Pile	14% Pile		
	(mph)	(m/s)	(mph)	(m/s)	$u_a/u_t:0.2$	$u_a/u_t:0.6$	$u_a/u_t:0.9$		$u_a/u_t:0.2$	$u_a/u_t:0.6$	$u_a/u_t:0.9$	
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. Craziani, 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'			Rain Fall (inches)	Erosion Potential (g/m^2)			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	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	u _a /u _t :0.2	u _a /u _t :0.6	u _a /u _t :0.9		u _a /u _t :0.2	u _a /u _t :0.6	u _a /u _t :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	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
 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*=0.1u'				(g/m^2)			
	6.1		10		(m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	u _a /u _* :0.2	u _a /u _* :0.6	u _a /u _* :0.9		u _a /u _* :0.2	u _a /u _* :0.6	u _a /u _* :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	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			Emissions (lb)
	Anemometer Height (m)				u*=0.1u'				(g/m^2)			
	6.1		10		(m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	u _a /u _t :0.2	u _a /u _t :0.6	u _a /u _t :0.9		u _a /u _t :0.2	u _a /u _t :0.6	u _a /u _t :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	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
 OPS: 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)				$u^*=0.1u^*$				(g/m^2)			
	6.1		10		(m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	$u_a/u_r:0.2$	$u_a/u_r:0.6$	$u_a/u_r:0.9$		$u_a/u_r:0.2$	$u_a/u_r:0.6$	$u_a/u_r:0.9$	
27-Nov	15	6.706	16.043	7.172	0.143	0.430	0.645	0.000	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	0.000	0.00
29-Nov	25	11.176	26.739	11.953	0.239	0.717	1.076	1.130	0.000	0.000	0.000	0.00
30-Nov	21	9.388	22.461	10.041	0.201	0.602	0.904	0.020	0.000	0.000	0.000	0.00
01-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
02-Dec	16	7.153	17.113	7.650	0.153	0.459	0.689	0.000	0.000	0.000	0.000	0.00
03-Dec	15	6.706	16.043	7.172	0.143	0.430	0.645	0.100	0.000	0.000	0.000	0.00
04-Dec	21	9.388	22.461	10.041	0.201	0.602	0.904	0.100	0.000	0.000	0.000	0.00
05-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
06-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	0.000	0.000	0.000	0.000	0.00
07-Dec	11	4.917	11.765	5.259	0.105	0.316	0.473	0.000	0.000	0.000	0.000	0.00
08-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.060	0.000	0.000	0.000	0.00
09-Dec	11	4.917	11.765	5.259	0.105	0.316	0.473	0.110	0.000	0.000	0.000	0.00
10-Dec	37	16.540	39.574	17.691	0.354	1.061	1.592	2.860	0.000	0.000	0.000	0.00
11-Dec	15	6.706	16.043	7.172	0.143	0.430	0.645	0.005	0.000	0.000	0.000	0.00
12-Dec	21	9.388	22.461	10.041	0.201	0.602	0.904	2.720	0.000	0.000	0.000	0.00
13-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.300	0.000	0.000	0.000	0.00
14-Dec	20	8.941	21.391	9.563	0.191	0.574	0.861	1.370	0.000	0.000	0.000	0.00
15-Dec	26	11.623	27.808	12.431	0.249	0.746	1.119	1.590	0.000	0.000	0.000	0.00
16-Dec	17	7.600	18.182	8.128	0.163	0.488	0.732	0.000	0.000	0.000	0.000	0.00
17-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
18-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
19-Dec	7	3.129	7.487	3.347	0.067	0.201	0.301	0.000	0.000	0.000	0.000	0.00
20-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
21-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.000	0.000	0.000	0.000	0.00
22-Dec	16	7.153	17.113	7.650	0.153	0.459	0.689	0.010	0.000	0.000	0.000	0.00
23-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.030	0.000	0.000	0.000	0.00
24-Dec	15	6.706	16.043	7.172	0.143	0.430	0.645	0.190	0.000	0.000	0.000	0.00
25-Dec	14	6.259	14.974	6.694	0.134	0.402	0.602	0.090	0.000	0.000	0.000	0.00
26-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.170	0.000	0.000	0.000	0.00
27-Dec	25	11.176	26.739	11.953	0.239	0.717	1.076	0.040	0.000	0.000	0.000	0.00
28-Dec	13	5.812	13.904	6.216	0.124	0.373	0.559	0.000	0.000	0.000	0.000	0.00
29-Dec	26	11.623	27.808	12.431	0.249	0.746	1.119	0.030	0.000	0.000	0.000	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	14.19
31-Dec	25	11.176	26.739	11.953	0.239	0.717	1.076	0.000	0.000	0.000	2.228	8.34
Totals:									0.00	0.00	43.59	163.21
Worst Case Day									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
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^2)			Emissions (lb)
	Anemometer Height (m)				u*=0.1u*				36% Pile u _a /u _* :0.2	50% Pile u _a /u _* :0.6	14% Pile u _a /u _* :0.9	
	6.1 (mph)	(m/s)	10 (mph)	(m/s)	u _a /u _* :0.2	u _a /u _* :0.6	u _a /u _* :0.9					
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
 Ch'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			Emissions (lb)
	Anemometer Height (m)				$u^*=0.1u^*$				[g/m^2]			
	6.1		10		(m/s)				36% Pile- $u_a/u_r:0.2$	50% Pile- $u_a/u_r:0.6$	14% Pile- $u_a/u_r:0.9$	
	(mph)	(m/s)	(mph)	(m/s)	$u_a/u_r:0.2$	$u_a/u_r:0.6$	$u_a/u_r:0.9$					
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
Ch'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^2)			Emissions (lb)
	6.1		10		u*/u _* :0.2				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	u _s /u _* :0.2	u _s /u _* :0.6	u _s /u _* :0.9		u _s /u _* :0.2	u _s /u _* :0.6	u _s /u _* :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
Ch'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			Emissions (lb)
	Anemometer Height (m)				$u^*=0.1u^*$ (m/s)				(g/m ²)			
	6.1 (mph)	(m/s)	10 (mph)	(m/s)	$u_a/u_{*0.2}$	$u_a/u_{*0.6}$	$u_a/u_{*0.9}$		36% Pile $u_a/u_{*0.2}$	50% Pile $u_a/u_{*0.6}$	14% Pile $u_a/u_{*0.9}$	
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
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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 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)				$u^*=0.1u^*$ (m/s)				(g/m^2)			
	6.1	10	10	15	$u_a/u_{*0.2}$	$u_a/u_{*0.6}$	$u_a/u_{*0.9}$		36% Pile $u_a/u_{*0.2}$	50% Pile $u_a/u_{*0.6}$	14% Pile $u_a/u_{*0.9}$	
	(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	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
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			Emissions
	Anemometer Height (m)				u* = 0.1u* (m/s)				(g/m^2)			
	6.1 (mph)	10 (m/s)	10 (mph)	10 (m/s)	u _e /u _t 0.2	u _e /u _t 0.6	u _e /u _t 0.9		36% Pile u _e /u _t 0.2	50% Pile u _e /u _t 0.6	14% Pile u _e /u _t 0.9	
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	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
 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^2)			Emissions (lb)
	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)								
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
Totals:								0.00	0.00	4.72	126.58	
Worst Case Day								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
Ch'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				Equivalent Friction Velocities			Rain Fall (inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				$u^*=0.1u^*$				(g/m^2)			
	6.1		10		(m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	$u_a/u_{*0.2}$	$u_a/u_{*0.6}$	$u_a/u_{*0.9}$	$u_a/u_{*0.2}$	$u_a/u_{*0.6}$	$u_a/u_{*0.9}$		
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	2.861 76.76	
11-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.00	
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	0.211 5.65	
18-Jan	21	9.388	22.363	9.997	0.200	0.600	0.900	0.000	0.000	0.000	0.00	
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	0.211 5.65	
22-Feb	17	7.600	18.103	8.093	0.162	0.486	0.728	0.310	0.000	0.000	0.00	
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
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		(m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	u _a /u _* :0.2	u _a /u _* :0.6	u _a /u _* :0.9		u _a /u _* :0.2	u _a /u _* :0.6	u _a /u _* :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	0.211	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
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*			Rain Fall (inches)	Erosion Potential (g/m^2)			Emissions (lb)
	6.1		10		u*/u*:0.2 u*/u*:0.6 u*/u*:0.9				36% Pile u*/u*:0.2	50% Pile u*/u*:0.6	14% Pile u*/u*: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	
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	2.861 76.76	
10-May	16	7.153	17.038	7.617	0.152	0.457	0.686	0.000	0.000	0.000	0.00	
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
 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				Equivalent Friction Velocities			Rain Fall (Inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				u*=0.1u*				(g/m^2)			
	6.1 (mph)	(m/s)	10 (mph)	(m/s)	u _a /u _* 0.2	u _a /u _* 0.6	u _a /u _* 0.9		36% Pile u _a /u _* 0.2	50% Pile u _a /u _* 0.6	14% Pile u _a /u _* 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	1.429	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
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^2)			Emissions (lb)
	6.1		10		$u_a/u_*:0.2$	$u_a/u_*:0.6$	$u_a/u_*:0.9$		36% Pile $u_a/u_*:0.2$	50% Pile $u_a/u_*:0.6$	14% Pile $u_a/u_*:0.9$	
	(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	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 $u^*=0.1u^*$			Rain Fall (Inches)	Erosion Potential (g/m^2)			Emissions (lb)
	6.1		10		$u_a/u_{*0.2}$ $u_a/u_{*0.6}$ $u_a/u_{*0.9}$				36% Pile $u_a/u_{*0.2}$	50% Pile $u_a/u_{*0.6}$	14% Pile $u_a/u_{*0.9}$	
	(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 $u^*=0.1u^*$			Rain Fall (inches)	Erosion Potential (g/m^2)			Emissions (lb)
	6.1		10		$u_a/u_r:0.2$ $u_a/u_r:0.6$ $u_a/u_r:0.9$							
	(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
Totals:								0.00	0.00		30.94	830.10
Worst Case Day								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
 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^2)			Emissions (lb)
	6.1		10		(m/s)		36% Pile		50% Pile	14% Pile		
	(mph)	(m/s)	(mph)	(m/s)	u _a /u _t :0.2	u _a /u _t :0.6	u _a /u _t :0.9		u _a /u _t :0.2	u _a /u _t :0.6	u _a /u _t :0.9	
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	5.36
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	0.39
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	0.39
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 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^2)			Emissions (lb)	
	6.1		10		u*/u_t:0.2		u_t/u_t:0.6		u_t/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)	u_a/u_t:0.2	u_a/u_t:0.6							
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	
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	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	
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	0.39	
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
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 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^2)			Emissions (lb)
	6.1		10		u_a/u_{*c}							
	(mph)	(m/s)	(mph)	(m/s)	0.2	0.6	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	2.861 5.36	
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
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^2)			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)								
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

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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				Equivalent Friction Velocities			Rain Fall (Inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				u*=0.1u*				(g/m^2)			
	6.1		10		(m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	u _a /u _* 0.2	u _a /u _* 0.6	u _a /u _* 0.9		u _a /u _* 0.2	u _a /u _* 0.6	u _a /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	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

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2. Roughness height was estimated based on largest values listed in AP-42, Section 13.2.5
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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/m²)			
	6.1	10					36% Pile		50% Pile	14% Pile		
	(mph)	(m/s)	(mph)	(m/s)	u _a /u _r :0.2	u _a /u _r :0.6	u _a /u _r :0.9	u _a /u _r :0.2	u _a /u _r :0.6	u _a /u _r :0.9		
03-Oct	17	7.600	18.103	8.093	0.162	0.486	0.728	0.005	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	0.00	
05-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	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	0.00	
07-Oct	18	8.047	19.168	8.569	0.171	0.514	0.771	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	0.00	
09-Oct	23	10.282	24.492	10.949	0.219	0.657	0.985	0.170	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	0.00	
11-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	0.090	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	0.00	
13-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.005	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	0.00	
15-Oct	15	6.706	15.973	7.141	0.143	0.428	0.643	0.240	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	0.00	
17-Oct	11	4.917	11.714	5.237	0.105	0.314	0.471	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	0.00	
19-Oct	20	8.941	21.298	9.521	0.190	0.571	0.857	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	0.00	
21-Oct	10	4.470	10.649	4.760	0.095	0.286	0.428	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	0.00	
23-Oct	14	6.259	14.908	6.665	0.133	0.400	0.600	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	0.00	
25-Oct	11	4.917	11.714	5.237	0.105	0.314	0.471	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	0.00	
27-Oct	22	9.835	23.428	10.473	0.209	0.628	0.943	2.640	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	0.00	
29-Oct	10	4.470	10.649	4.760	0.095	0.286	0.428	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	0.00	
31-Oct	13	5.812	13.844	6.189	0.124	0.371	0.557	0.680	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	0.00	
02-Nov	21	9.388	22.363	9.997	0.200	0.600	0.900	0.180	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	0.00	
04-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	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	0.00	
06-Nov	11	4.917	11.714	5.237	0.105	0.314	0.471	0.005	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	0.00	
08-Nov	18	8.047	19.168	8.569	0.171	0.514	0.771	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	0.00	
10-Nov	16	7.153	17.038	7.617	0.152	0.457	0.686	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	0.00	
12-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	0.280	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	0.00	
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	0.00	
16-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	0.005	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	0.00	
18-Nov	13	5.812	13.844	6.189	0.124	0.371	0.557	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	0.00	
20-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	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	0.00	
22-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	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	0.00	
24-Nov	15	6.706	15.973	7.141	0.143	0.428	0.643	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	0.00	
26-Nov	14	6.259	14.908	6.665	0.133	0.400	0.600	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 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				Equivalent Friction Velocities			Rain Fall (inches)	Erosion Potential			Emissions
	Anemometer Height (m)				u*=0.1u*				(g/m^2)			
	6.1		10		(m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	u _s /u _* :0.2	u _s /u _* :0.6	u _s /u _* :0.9	u _s /u _* :0.2	u _s /u _* :0.6	u _s /u _* :0.9	(lb)	
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	0.000	5.36	
31-Dec	25	11.176	26.622	11.901	0.238	0.714	1.071	0.000	0.000	0.000	2.68	
Totals:									0.00	0.00	30.94	57.91
Worst Case Day									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-hr) 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
 Ckd 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^2)			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)								
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	2.508	31.29
11-Jan	14	6.259	14.908	6.665	0.133	0.400	0.600	0.000	0.000	0.000	0.000	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. 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*			(g/m^2)					
	6.1		10		(m/s)			36% Pile		50% Pile	14% Pile		
	(mph)	(m/s)	(mph)	(m/s)	u _a /u _r :0.2	u _a /u _r :0.6	u _a /u _r :0.9		u _a /u _r :0.2	u _a /u _r :0.6	u _a /u _r :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	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 Anemometer Height (m)				Equivalent Friction Velocities u*=0.1u*			Rain Fall (inches)	Erosion Potential (g/m^2)			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)								
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
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^2)			Emissions (lb)
	6.1		10		u*/u_t*							
	(mph)	(m/s)	(mph)	(m/s)	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	
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
 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 $\bar{u}^*=0.1u^*$ (m/s)			Rain Fall (inches)	Erosion Potential (g/m^2)			Emissions (lb)
	6.1		10		$u_a/u_{*0.2}$	$u_a/u_{*0.6}$	$u_a/u_{*0.9}$		36% Pile $u_a/u_{*0.2}$	50% Pile $u_a/u_{*0.6}$	14% Pile $u_a/u_{*0.9}$	
	(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	2.508	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
 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				Equivalent Friction Velocities			Rain Fall (inches)	Erosion Potential			Emissions (lb)
	Anemometer Height (m)				u*=0.1u*				(g/m^2)			
	6.1		10		(m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	u _a /u _t :0.2	u _a /u _t :0.6	u _a /u _t :0.9		u _a /u _t :0.2	u _a /u _t :0.6	u _a /u _t :0.9	
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
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 $u^*=0.1u^*$			Rain Fall (Inches)	Erosion Potential (g/m ²)			Emissions (lb)
	6.1		10		(m/s)				36% Pile	50% Pile	14% Pile	
	(mph)	(m/s)	(mph)	(m/s)	$u_a/u_{*0.2}$	$u_a/u_{*0.6}$	$u_a/u_{*0.9}$		$u_a/u_{*0.2}$	$u_a/u_{*0.6}$	$u_a/u_{*0.9}$	
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	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	0.000	1.126 14.05	
Totals:									0.00	0.00	26.35 328.88	
Worst Case Day									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

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 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

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 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 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

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 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						
	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	2 - Transfer Points

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	0.275	0.130	0.041	0.035	0.016	0.005	2 - Transfer Points

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
Automobiles	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
k	0.38	2.6	10
a	0.8	0.8	0.8
b	0.4	0.4	0.5
c	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.

Emissions Unit Information Section 2

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

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

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

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

Emissions Unit Information Section 2
SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

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

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

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

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

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 : PM		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.1740000 lb/hour	0.1100000 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=0.0011)		
7. Emissions Method Code : 3		
8. Calculations of Emissions : See Attachment EU043-05		
9. Pollutant Potential/Estimated Emissions Comment :		

III. Part 9b - 1

Emissions Unit Information Section 2
SJRPP - Rotary Railcar Dumper, Transfer Points (DC-1)

1. Pollutant Emitted : PM10		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0820000 lb/hour	0.0530000 tons/year
4. Synthetically Limited? ☐ Yes ☒ No		
5. Range of Estimated Fugitive/Other Emissions:		to tons/year
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

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 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.

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 :	NO2 :
4. Baseline Emissions :		
PM :	0.0000 lb/hour	0.0000 tons/year
SO2 :	lb/hour	tons/year
NO2 :		tons/year
5. PSD Comment :		

III. Part 12 - 2

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 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.)

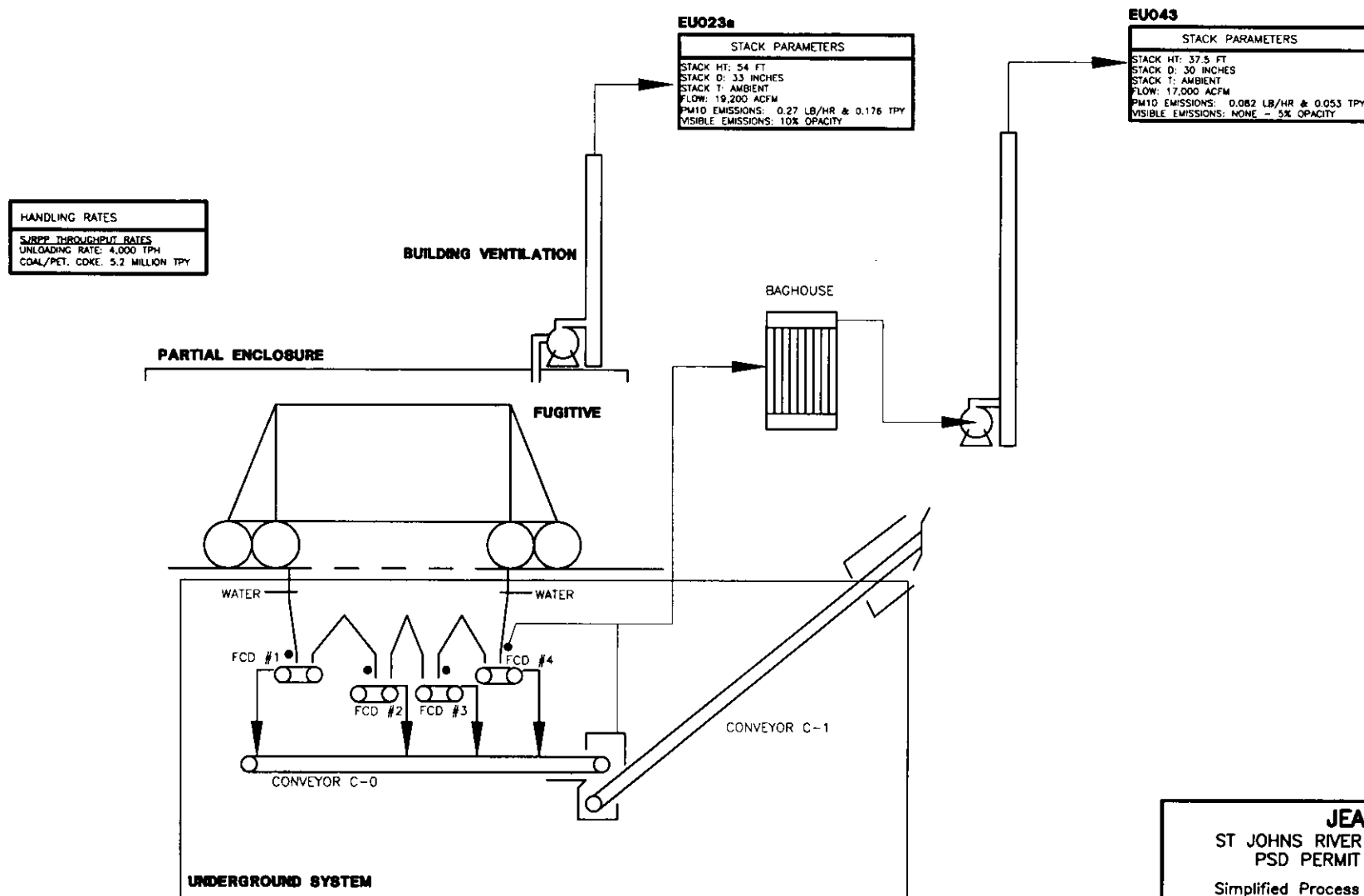
New Unit Exemption (Form No. 62-210.900(1)(a)2.)

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

EMISSIONS UNIT 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



NOTE: COVERS ON CONVEYORS

JEA		
ST JOHNS RIVER POWERPARK PSD PERMIT UPDATE		
Simplified Process Flow Diagram Emissions Unit ID 043		
FOSTER 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

EPA

VISIBLE EMISSION OBSERVATION FORM 1

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

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

Process <i>Fuel Handling Building</i>	Unit # <i>COM</i>	Operating Mode <i>540 TPH</i>
Control Equipment <i>DC-3 Baghouse</i>	Operating Mode <i>100% CAP</i>	

Describe Emission Point <i>DC-3 Baghouse Effluent while loading coal/Pet coke to Railcar</i>	
Height of Emis. Pt. Start <i>197'</i> End <i>197'</i>	Height of Emis. Pt. Rel. to Observer Start <i>5</i> End <i>5</i>
Distance to Emis. Pt. Start <i>20'</i> End <i>20'</i>	Direction to Emis. Pt. (Degrees) Start <i>266°</i> End <i>266°</i>

Vertical Angle to Obs. Pt. Start <i>5°</i> End <i>6°</i>	Direction to Obs. Pt. (Degrees) Start <i>258°</i> End <i>258°</i>
Distance and Direction to Observation Point from Emission Point Start <i>10' - 180°</i> End <i>10' - 180°</i>	

Describe Emissions	
Start <i>NONE</i>	End <i>NONE</i>
Emission Color	Water Droplet Plume
Start <i>NONE</i> End <i>NONE</i>	Attached ☐ Detached ☐ None ☒

Describe Plume Background	
Start <i>OPEN SKY</i>	End <i>OPEN SKY</i>
Background Color	Sky Conditions
Start <i>Blue/gray</i> End <i>Blue</i>	Start <i>clear</i> End <i>clear</i>
Wind Speed	Wind Direction
Start <i>5-10</i> End <i>5-10</i>	Start <i>S</i> End <i>S</i>
Ambient Temp.	Wet Bulb Temp.
Start <i>86°F</i> End <i>88°F</i>	Start <i>81°F</i> End <i>80%</i>

Source Layout Sketch		Draw North Arrow
		☐ TN ☐ MN
Longitude _____ Latitude _____ Direction _____		Scale View: 197 FEET, 20 FEET

Additional Information	

Form Number	0461	Page	1 of 2
Continued on VEO Form Number		0462	

Observation Date <i>5/6/99</i>	Time Zone	Start Time <i>1000</i>	End Time <i>1100</i>
Sec	0	15	30
Min	0	15	30
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0

Observer's Name (Print) <i>Alvaro Castro</i>	Date <i>5/6/99</i>
Observer's Signature <i>Alvaro Castro</i>	Date <i>12/2/98</i>
Organization <i>St Johns River Power Park</i>	
Certified by <i>Kester Technical Associates</i>	

EPA

VISIBLE EMISSION OBSERVATION FORM 1

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

Company Name <i>St. Johns River Power Park.</i>		
Facility Name <i>St. Johns River Power Park.</i>		
Street Address <i>11201 New Berlin Rd.</i>		
City <i>Jacksonville</i>	State <i>FL</i>	Zip <i>32216</i>

Process <i>Fuel Handling Buildup</i>	Unit # <i>COM</i>	Operating Mode
Control Equipment <i>DC-3 Baghouse.</i>		Operating Mode <i>10V 20</i>

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 _____	Start _____ End _____
Wind Speed	Wind Direction
Start _____ End _____	Start _____ End _____
Ambient Temp.	Wet Bulb Temp.
Start _____ End _____	Start _____ End _____
	RH Percent

Source Layout Sketch		Draw North Arrow ☐ TN ☐ MN
Longitude	Latitude	Declination

Additional Information	

Form Number	0462	Page	2 of 2
Continued on VEO Form Number		0461	

Observation Date <i>5/6/99</i>		Time Zone		Start Time <i>100</i>	End Time <i>1100</i>
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) <i>Alvaro Castro</i>	
Observer's Signature <i>Alvaro Castro</i>	Date <i>5/6/99</i>
Organization <i>St. Johns River Power Park.</i>	
Certified by <i>Legera Technical Associates</i>	Date <i>12/2/98</i>

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.

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	7 days/week
52 weeks/year	8,760 hours/year

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Emissions Unit Information Section 3
SJRP - 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

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

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

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

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 1

1. Pollutant Emitted : PM		
2. Total Percent Efficiency of Control : 99.50 %		
3. Potential Emissions : 0.2370000 lb/hour0.1520000 tons/year		
4. Synthetically Limited? [] Yes [X] No		
5. Range of Estimated Fugitive/Other Emissions: totons/year		
6. Emissions Factor 0 Units lb/ton Reference AP-42, (EF=0.00148)		
7. Emissions Method Code : 3		
8. Calculations of Emissions : See Attachment EU046-05		
9. Pollutant Potential/Estimated Emissions Comment :		

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

Emissions Unit Information Section 3

SJRPP - Fuel Handling Building (DC-3)

Pollutant Potential/Estimated Emissions : Pollutant 2

1. Pollutant Emitted : PM10		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.1120000 lb/hour	0.0720000 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=0.0007)		
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).		

III. Part 9c - 1

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

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 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.

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 :		
Item 4 values present increment consumption values		

III. Part 12 - 2

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 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.)

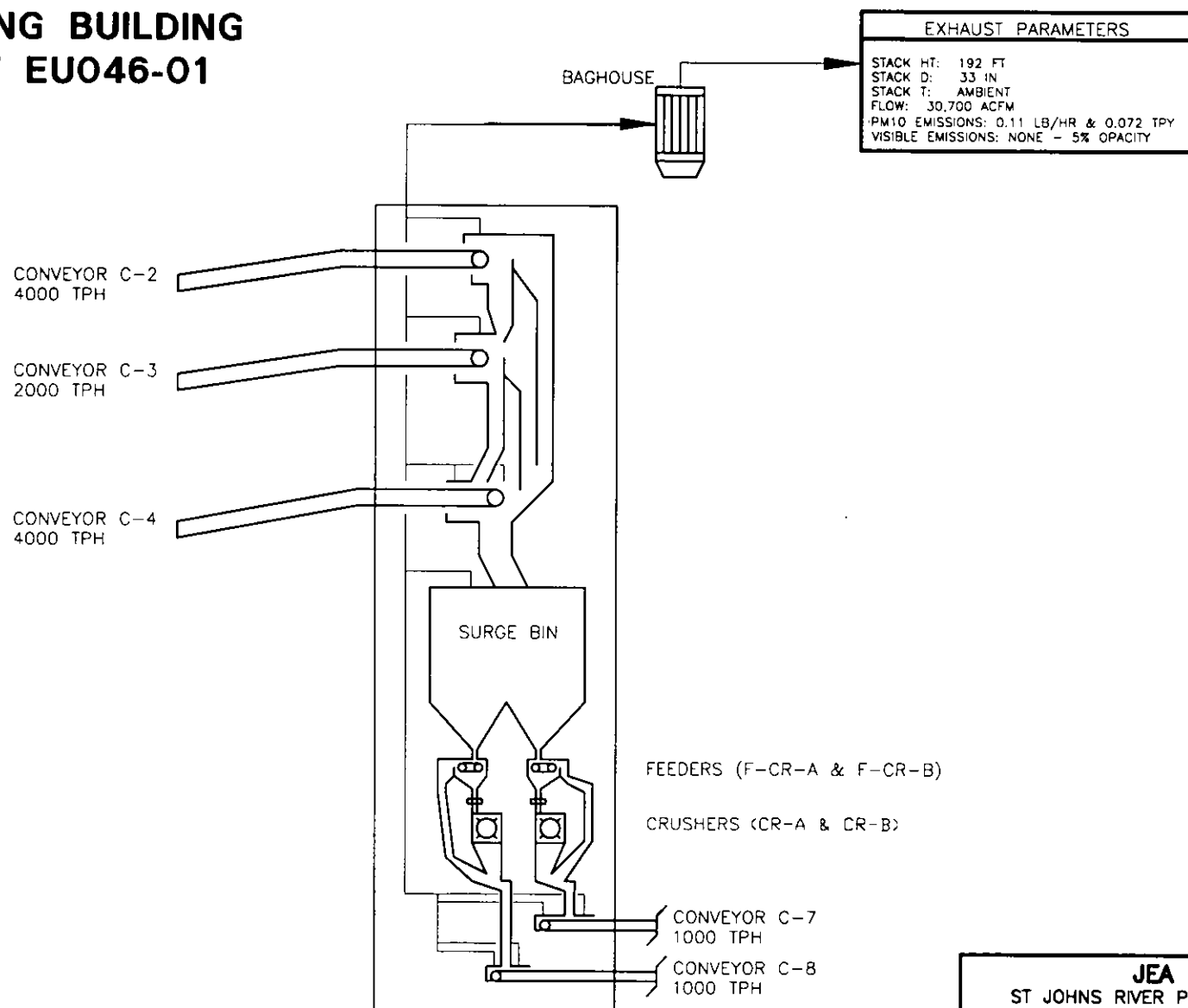
New Unit Exemption (Form No. 62-210.900(1)(a)2.)

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

EMISSIONS UNIT 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 CHECKED DATE: 02/16/99	DWG MAE DJF	CAD FILE NO. EU046PE.DWG FIGURE NO. EU046-01

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
Petroleum Coke	4000	5126352
Limestone	0	0

Maximum Associated with C-4

Maximum Associated with C-4

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 :

- ☒ [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 - 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.

III. Part 6a - 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

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

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

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

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

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

III. Part 7b - 2

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

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

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

III. Part 8 - 2

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

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 : PM		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0090000 lb/hour	0.0230000 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=0.00148)		
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 : PM10		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0040000 lb/hour	0.0110000 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=0.0007)		
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).		

III. Part 9c - 1

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

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 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

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. 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.)

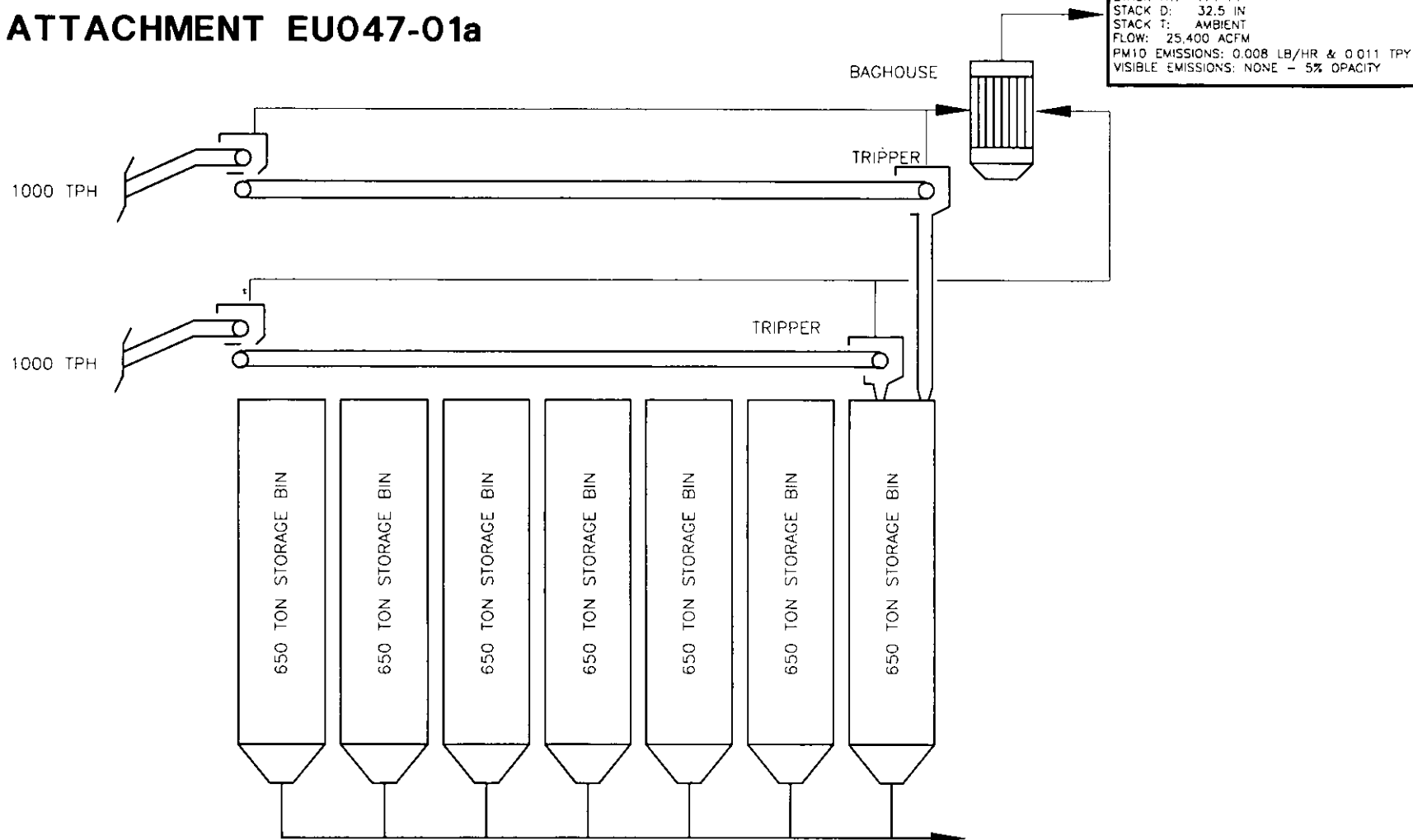
New Unit Exemption (Form No. 62-210.900(1)(a)2.)

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

EMISSIONS UNIT 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



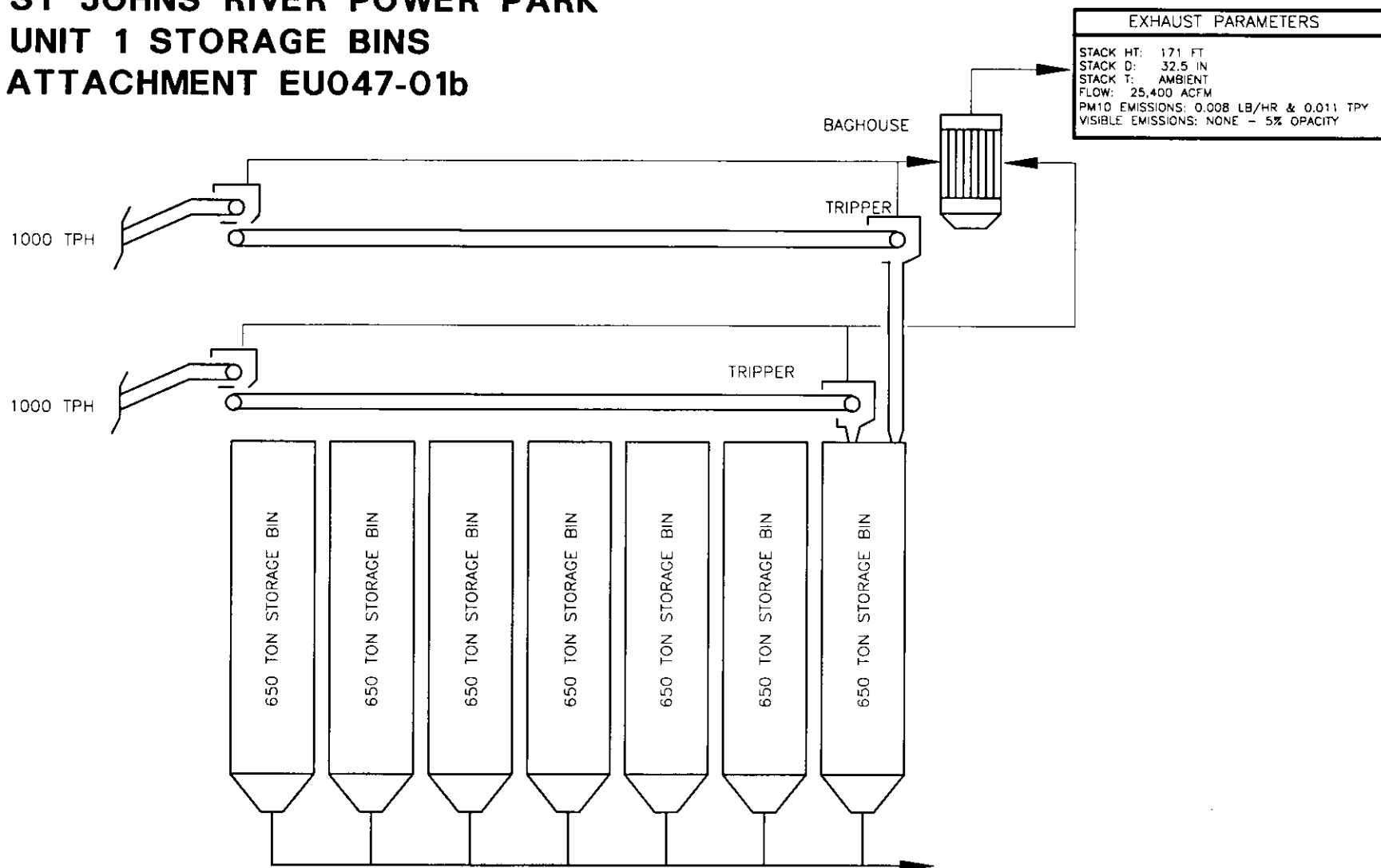
EXHAUST PARAMETERS	
STACK HT:	171 FT
STACK D:	32.5 IN
STACK T:	AMBIENT
FLOW:	25,400 ACFM
PM10 EMISSIONS:	0.008 LB/HR & 0.011 TPY
VISIBLE EMISSIONS:	NONE - 5% OPACITY

JEA ST JOHNS RIVER POWER PARK PSD PERMIT UPDATE Simplified Process Flow Diagram Emissions Unit ID 047			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED CHECKED APPROVED	DJG MAE DJF	CAD FILE NO. EU047Pfa.DWG FIGURE NO. EU047-01a
DATE: 04/08/99			

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			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED	DWG	CAD FILE NO.
DATE: 04/08/99	CHECKED	MAE	EU047PFB.DWG
	APPROVED	DJF	FIGURE NO.
			EU047-01b

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

Control Equipment

Two Separate Fabric Filters/Baghouses - Existing Equipment

Exhaust Parameters

Stack Height: 171 feet; Stack Diameter: 32.5 inches; Stack Exhaust Temperature: Ambient; and Stack Flows 25,400 ACFM per stack

Reasonable Assurances

Emission Limitation - No Visible Emissions (5% Opacity)

See Attachment EU047-04, Compliance Test Report

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	State	Zip
TACSONVILLE	FL	32226

Process UNIT #1 Boiler Fuel Loading	Unit # 1	Operating Mode Fuel Loading
Control Equipment BANKHOUSE 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.	Direction to Obs. Pt. (Degrees)
Start 6° End 6°	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	Water Droplet Plume	
Start none	End none	Attached ☐ Detached ☐ None ☒

Describe Plume Background		End	
Start	open sky	Start	open sky.
Background Color		Sky Conditions	
Start	Blue	Start	clear
End	Blue.	End	clear
Wind Speed		Wind Direction	
Start	0-3	Start	SW
End	0-3	End	SW
Ambient Temp.		Wet Bulb Temp.	
Start	82°F	Start	75°F
End	82°F	End	72%
		RH Percent	

Sketch Map

Draw North Arrow

TN MN

Stack With Plume

Sun

Wind

Observer's Position

Observation Point

Side View

7 FEET

20 FEET

140°

Sun Location Line

Longitude

Latitude

Declination

Additional Information

Form Number	04711	Page	1	of	2
Continued on VEO Form Number			04712		

Observation Date 4/23/99		Time Zone			Start Time 10:45	End Time 11:45
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		
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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) <i>Alvaro Castro</i>	
Observer's Signature <i>Alvaro Castro</i>	Date <i>4/23/98</i>
Organization <i>St. John River Power Park</i>	
Certified by <i>Eastern Technical Associates</i>	Date <i>12/2/98</i>

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)	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
Unit #1 Boiler Fuel Loading	1	Fuel Loading
Control Equipment	Operating Mode	
Boilerhouse, DC-4	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		

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
Sec	0	15	30	45	Comments	
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		
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8	0	0	0	0		
9	0	0	0	0		
10	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	Date	4/23/99
Organization	St. Johns River Power Park	
Certified by	Date	12/2/98
Eastern Technical Associates		

EPA

VISIBLE EMISSION OBSERVATION FORM 1

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

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

Process UNIT #2 Fuel Loading Unit # 2 Operating Mode FUEL LOADING
 Control Equipment BAGHOUSE DCS Operating Mode 100% CM.

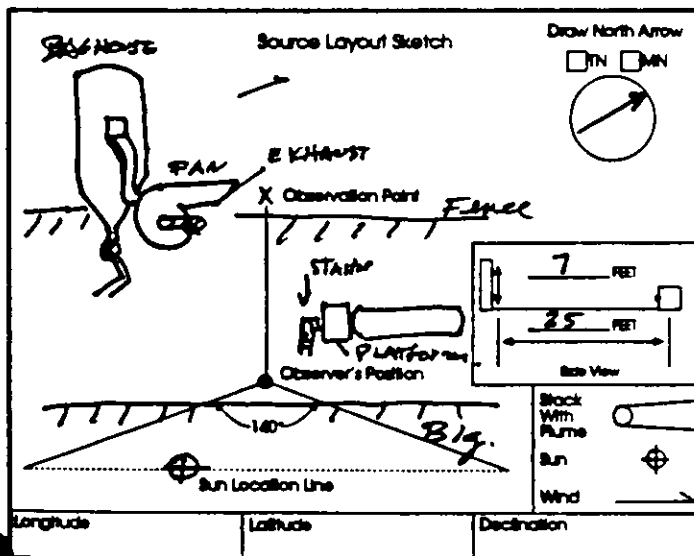
Describe Emission Point
BAGHOUSE EFFLUENT

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 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 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%



Additional Information

Form Number 04721 Page 1 of 2
 Continued on VEO Form Number 04722

Observation Date		Time Zone				Start Time	End Time
3/25/99						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			
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. John Rice Power Park
 Certified by Estera Technical Services Date 12/6/98

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 #2 Boiler Fuel Loading
 Unit #2
 Operating Mode
 Fuel Loading
 Control Equipment
 Gas Meters DC 5
 Operating Mode
 100% CAP.

 Describe Emission Point
 Height of Emiss. Pt.
 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
 Start End
 Attached ☐ Detached ☐ None ☐

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

 Source Layout Sketch
 Draw North Arrow
☐ IN ☐ MIN

 Longitude Latitude Destination

 Additional Information

 Form Number 04722 Page 2 of 2
 Continued on VEO Form Number 04721

Observation Date		Time Zone			Start Time	End Time
					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		
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
 Facility
 St. Johns River Power Park.
 Collected by
 Eastern Technical Associates
 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

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 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						
	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						
	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						
	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						
	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 :

- ☒ [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 - 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 ☒ 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

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

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

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

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 : PM		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0240000 lb/hour	0.0036000 tons/year
4. Synthetically Limited? [] Yes [X] No		
5. Range of Estimated Fugitive/Other Emissions:		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 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 : PM10		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0120000 lb/hour	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 :		

III. Part 9b - 2

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).		

III. Part 9c - 1

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 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.)

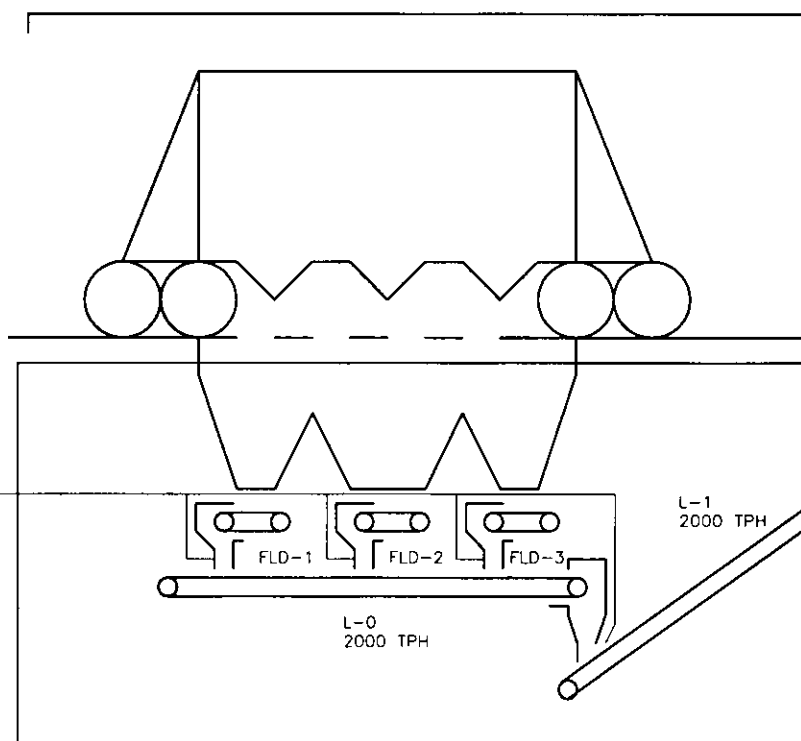
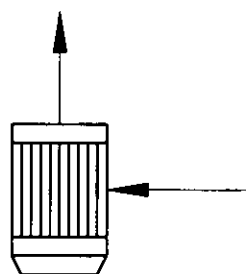
EMISSIONS UNIT EU048
Railcar Unloader, Limestone Transfer Points (LDC-1)

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

JEA

ST JOHNS POWER PARK
PSD PERMIT UPDATE

Simplified Process Flow Diagram

Emissions Unit ID 048

FOSTER WHEELER ENVIRONMENTAL CORPORATION

SCALE N/A

DATE: 02/16/99

PREPARED DJG
CHECKED MAE
APPROVED DJF

CAD FILE NO.
EU048PF.DWG
FIGURE NO.
EU048-01

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
 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 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 (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	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 (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	0.024	0.012	0.004	0.00307	0.00145	0.00046

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	0.73	0.35	0.11	0.0210	0.0099	0.0031

(4 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	0.0036	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 :

- ☒ [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 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

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 6
SJRPP - Limestone Loadout Facility (LDC-2)

Pollutant Potential/Estimated Emissions : Pollutant 1

1. Pollutant Emitted : PM		
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 :		

III. Part 9b - 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 2

1. Pollutant Emitted : PM10		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0060000 lb/hour	0.0004000 tons/year
4. Synthetically Limited? ☐ Yes ☒ No		
5. Range of Estimated Fugitive/Other Emissions: to tons/year		
6. Emissions Factor	0	Units lb/ton
Reference AP-42, (EF=0.14)		
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).		

III. Part 9c - 1

Emissions Unit Information Section 6
SJRP - 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 :	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 allows 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 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.

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 :

III. Part 12 - 2

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 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.)

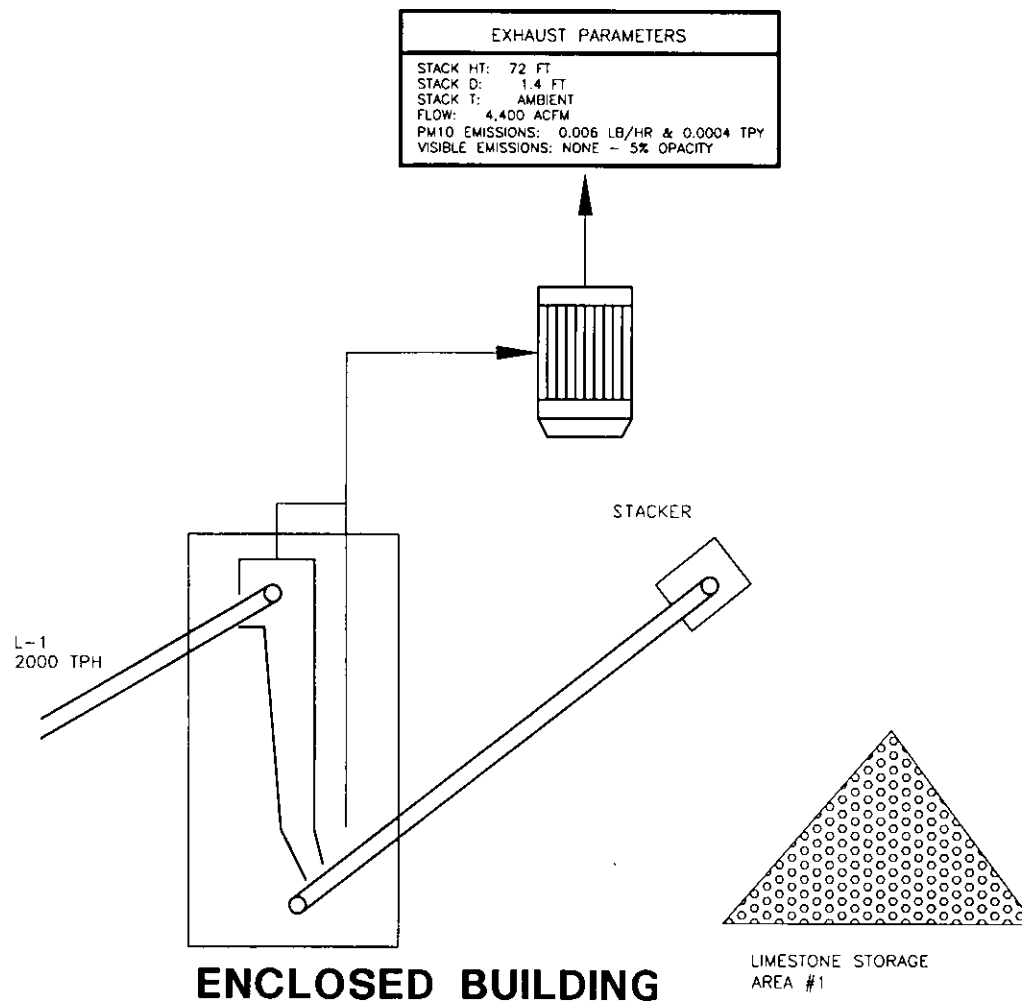
New Unit Exemption (Form No. 62-210.900(1)(a)2.)

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

EMISSIONS UNIT EU049
Limestone Loadout Facility (LDC-2)

ATTACHMENT EU049-01
Process Flow Diagram

ST JOHNS RIVER POWER PARK LIMESTONE LOADOUT FACILITY ATTACHMENT EU049-01



JEA ST JOHNS POWER PARK PSD PERMIT UPDATE Simplified Process Flow Diagram Emissions Unit ID 049			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED CHECKED APPROVED	DWG MAE DJF	CAD FILE NO. EU049PF.DWG FIGURE NO. EU049-01
DATE: 02/16/99			

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.

Emissions Unit Information Section 7

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

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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 :	

III. Part 8 - 1

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

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 : PM		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0006600 lb/hour	0.0006600 tons/year
4. Synthetically Limited? ☐ Yes ☒ 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 : PM10		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0003100 lb/hour	0.0003100 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=0.0001)		
7. Emissions Method Code : 3		
8. Calculations of Emissions : See Attachment EU050-05		
9. Pollutant Potential/Estimated Emissions Comment :		

III. Part 9b - 2

Emissions Unit Information Section7

SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

Pollutant Information Section1**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 Section7

SJRPP - Limestone Reclaim Tunnel, Transfer Points (3DC-01)

Pollutant Information Section2**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

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 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

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 :

III. Part 12 - 2

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 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.)

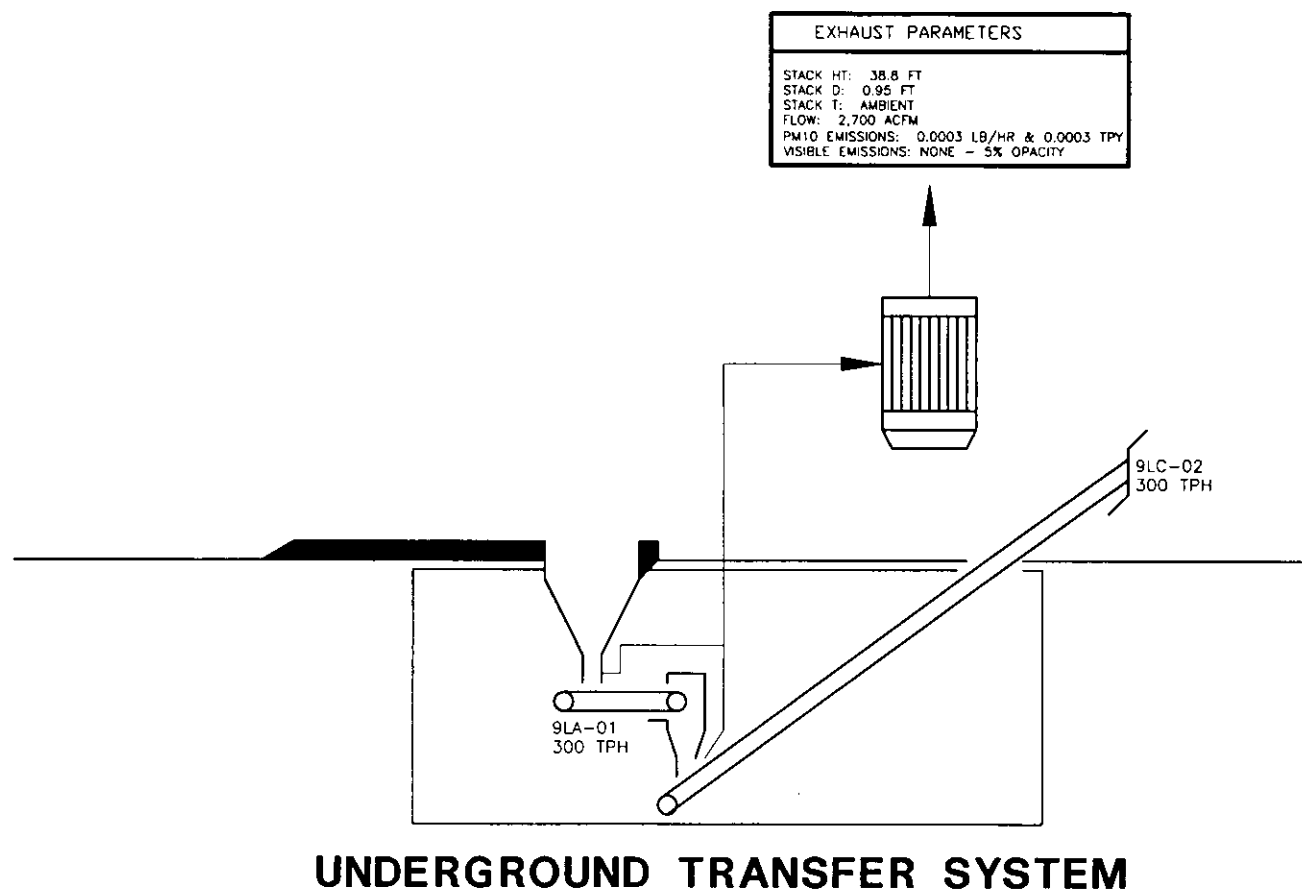
New Unit Exemption (Form No. 62-210.900(1)(a)2.)

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

EMISSIONS UNIT 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**



JEA		
ST JOHNS POWER PARK PSD PERMIT UPDATE		
Simplified Process Flow Diagram Emissions Unit ID 050		
FOSTER WHEELER ENVIRONMENTAL CORPORATION		
SCALE: N/A	PREPARED: DJG CHECKED: MAE APPROVED: DJF	CAD FILE NO.: EU050PF.DWG FIGURE NO.: EU050-01
DATE: 02/16/99		

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

Control Equipment

Fabric Filter/Baghouse - Existing Equipment

Exhaust Parameters

Stack Height: 39 feet; Stack Diameter: 11.5 inches; Stack Exhaust Temperature: Ambient; and Stack Flow 2,700 ACFM

Reasonable Assurances

Emission Limitation - No Visible Emissions (5% Opacity)

See Attachment EU050-04, Compliance Test Report

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

Company Name ST. JOHNS RIVER POWER PARK		
Facility Name ST. JOHNS RIVER POWER PARK		
Street Address 11701 NEW BERLIN 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 _____ 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
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.
Start _____ End _____	Rel Percent

Source Layout Sketch		Draw North Arrow ☐ TN ☐ MN
Longitude	Latitude	Declination

Additional Information	

Form Number	00502	Page	2	of	2
Continued on VEO Form Number					00501

Observation Date 4/30/99		Time Zone EOT		Start Time 0750	End Time 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. LOEWELT		Date 4/30/99
Observer's Signature Mark K. Loewelt		
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 :

- ☒ [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 Silos (1DC-01 & 2DC-01)		
2. Emissions Unit Identification Number : 051 ☐ No Corresponding ID ☐ Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? ☐ Yes ☒ No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment : Emissions Unit consists of 2 silos and the associated transfer points.		

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 : Dwell Time : Incinerator Afterburner Temperature :	Degrees Fahrenheit Seconds Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate :	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

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

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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 :	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 :	

III. Part 7b - 2

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 : PM		
2. Total Percent Efficiency of Control :	99.80	%
3. Potential Emissions :	0.0006600 lb/hour	0.0006600 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=0.00022)		
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 : PM10		
2. Total Percent Efficiency of Control :	99.80	%
3. Potential Emissions :	0.0003000 lb/hour	0.0003000 tons/year
4. Synthetically Limited? ☐ Yes ☒ No		
5. Range of Estimated Fugitive/Other Emissions: to tons/year		
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 :		

III. Part 9b - 2

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).		

III. Part 9c - 2

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.

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.

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	NO2 : U
SO2 :	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.)

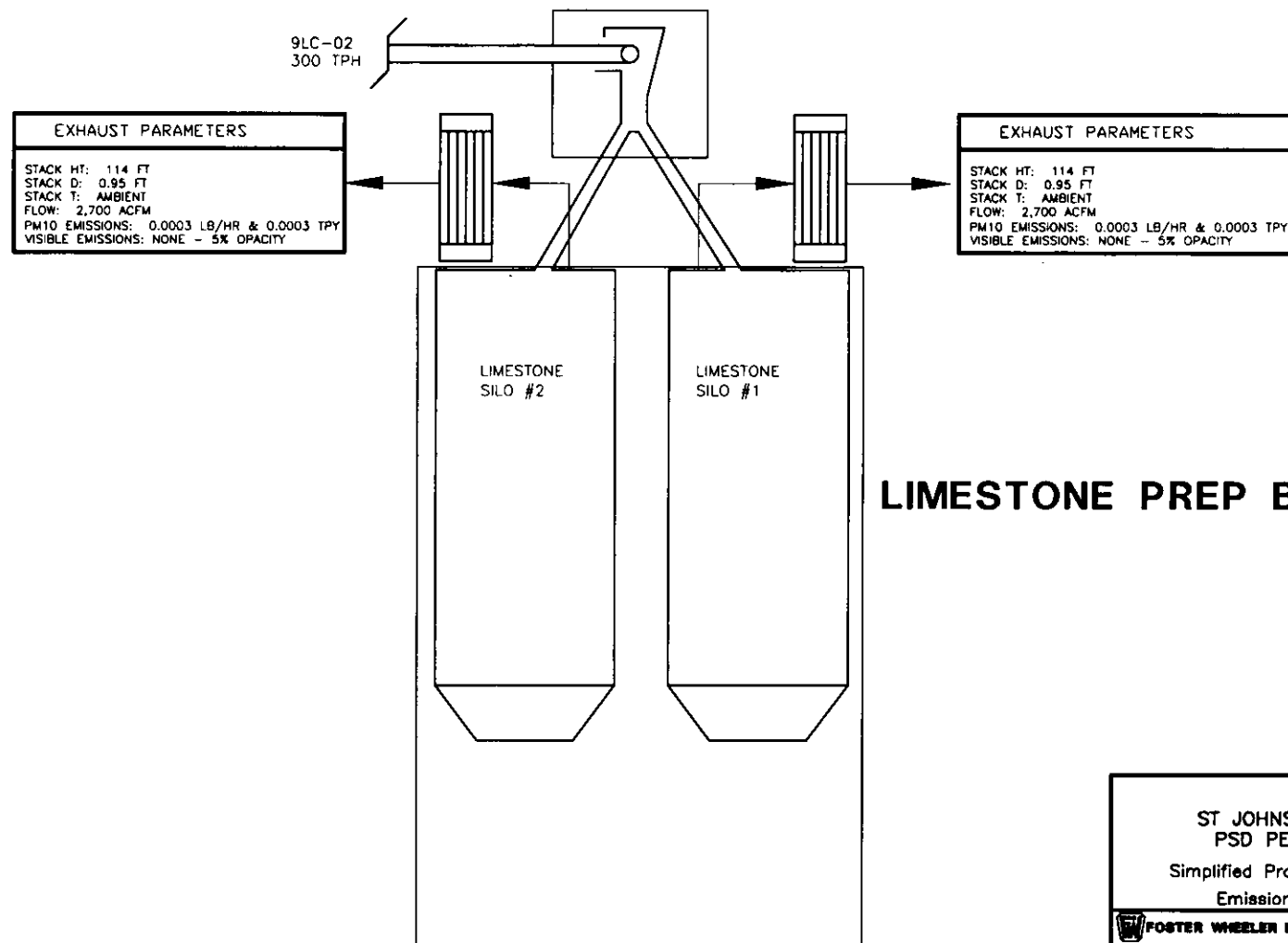
EMISSIONS UNIT EU051
Limestone Silos (1DC-01 & 2DC-01)

ATTACHMENT EU051-01
Process Flow Diagram

ST JOHNS RIVER POWER PARK

LIMESTONE SILOS, TRANSFER POINTS

ATTACHMENT EU051-01



JEA			
ST JOHNS POWER PARK PSD PERMIT UPDATE			
Simplified Process Flow Diagram Emissions Unit ID 051			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED	DWG	CAD FILE NO.
DATE: 02/16/99	CHECKED	MAE	EU051PF.DWG
	APPROVED	DJF	FIGURE NO.
			EU051-01

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
 Subject No. 98-18872
 Plant Name St John River Power Pack
 Location Jacksonville FL
 Type of Facility Power Plant

Observer Dale Vineyard
 Date 10-12-98
 Observation began 10:15
 ended 11:15

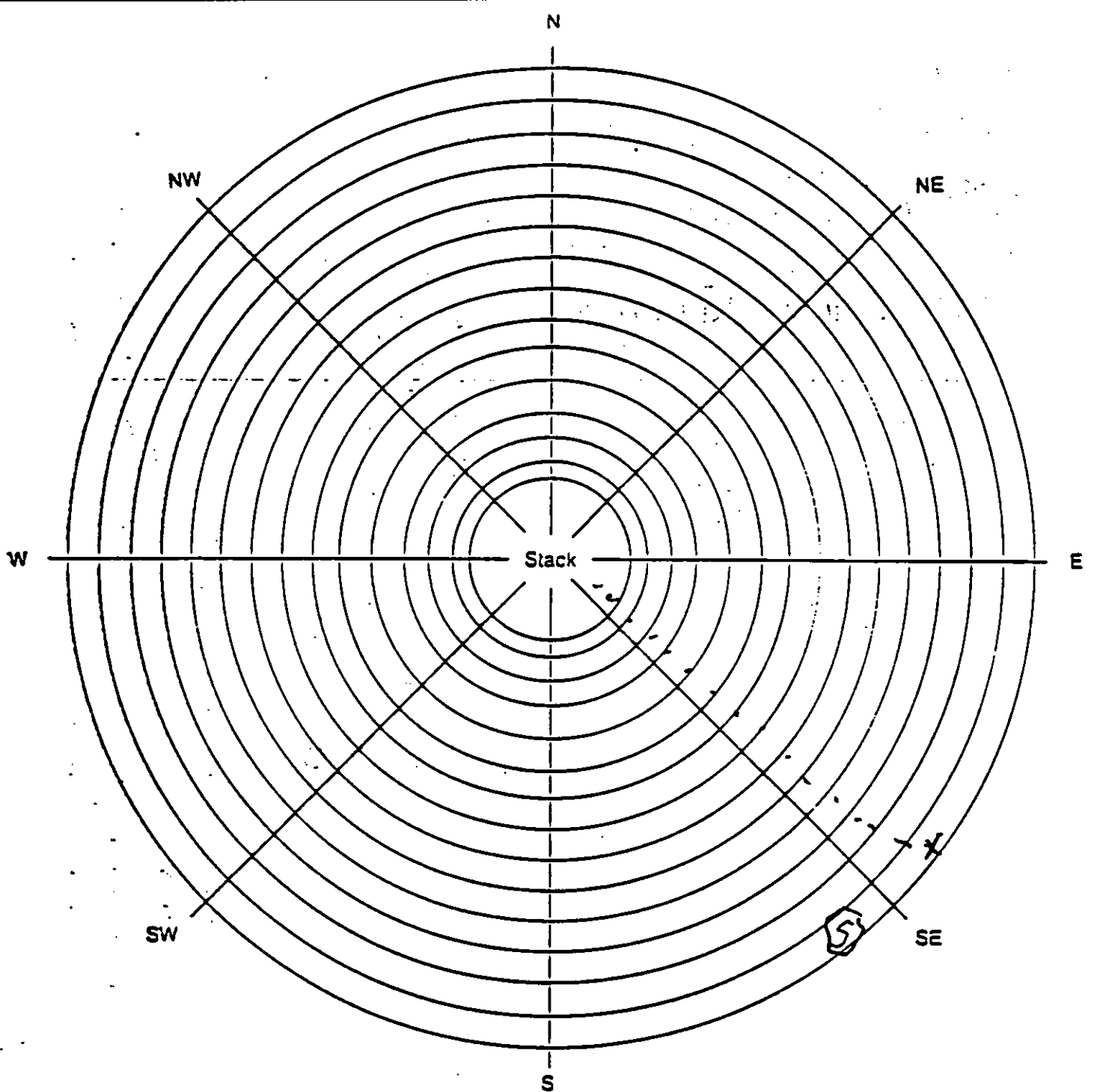
Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Loader (Duct #100)</u>	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
	4	0	0	0	0	34	0	0	0	0
	5	0	0	0	0	35	0	0	0	0
	6	0	0	0	0	36	0	0	0	0
	7	0	0	0	0	37	0	0	0	0
	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
Observer Location (Diagram on back of sheet) Distance from Observer to source <u>350'</u> Height of Source (above ground) <u>50'</u>	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
Weather Conditions Wind Direction <u>NE</u> Wind Speed <u>5 to 10</u> Temperature <u>72</u> Position of Sun <u>SE</u> Sky Condition <u>overcast</u> (clear, overcast, %clouds, color of clouds, etc.)	Plume Description Color <u>White</u> Background <u>Sky</u> Type (wet or dry) <u>Dry</u> Dist. _____									
	Comments _____									
	Comments _____									
Observers Signature <u>Dale Vineyard</u>										
Date of Last EPA Method 9 Examination <u>10-7-98</u>										
Examination Passed in EPA Region <u>Eastern</u>										

*If not, distance (ft.) from plume outlet to point in plume where observations made



Total Source Analysis, Inc.
 Environmental Testing Consultants

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.

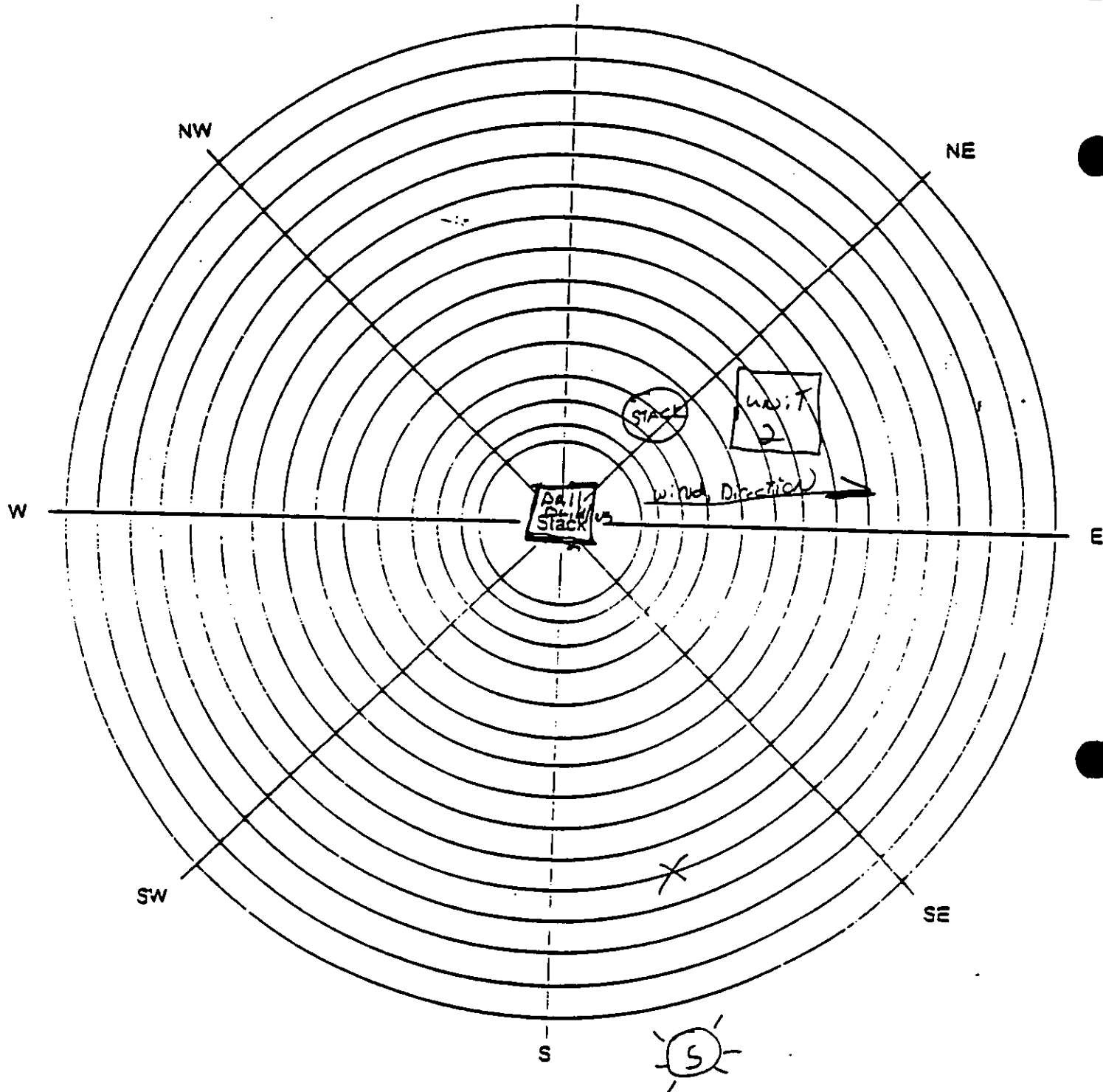


Total Source Analysis, Inc.
Environmental Testing Consultants

ent TEA Observer John Sutter
ject No. 97-422 Date 11-2-97
ant Name STRIP Observation began 1025
can Jacksonville FL ended 1125
pe 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
Observer Location (Diagram on back of sheet) Distance from Observer to source <u>800'</u> Height of Source (above ground) <u>140'</u>	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
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.) <u>white clouds</u>	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
Plume Description Color <u>SKY</u> Background <u>SKY</u> Type wet or dry? <u>Dry</u> Dist. <u></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
	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
	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
Observers Signature <u>[Signature]</u>										
Date of Last EPA Method 9 Examination <u>OCTOBER 1997 (ETA)</u>										
Examination Passed in EPA Region										

Notes: (1) 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.



Total Source Analysis, Inc.
Environmental Testing Consultants
F10

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
 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 #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 : Dwell Time : Incinerator Afterburner Temperature :	Degrees Fahrenheit Seconds Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate :	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.

III. Part 6a - 1

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 : PM		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0230000 lb/hour	0.0990000 tons/year
4. Synthetically Limited? ☐ Yes ☒ 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 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 : PM10		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0230000 lb/hour	0.0990000 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=0.27)		
7. Emissions Method Code : 3		
8. Calculations of Emissions : See Attachment EU052-05		
9. Pollutant Potential/Estimated Emissions Comment :		

III. Part 9b - 2

Emissions Unit Information Section9

SJRPP - Quick Lime Silo

Pollutant Information Section1**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
SJRPP - Quick Lime Silo

9

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

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 9
SJRPP - Quick Lime Silo

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 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.

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 :		

III. Part 12 - 2

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 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.)

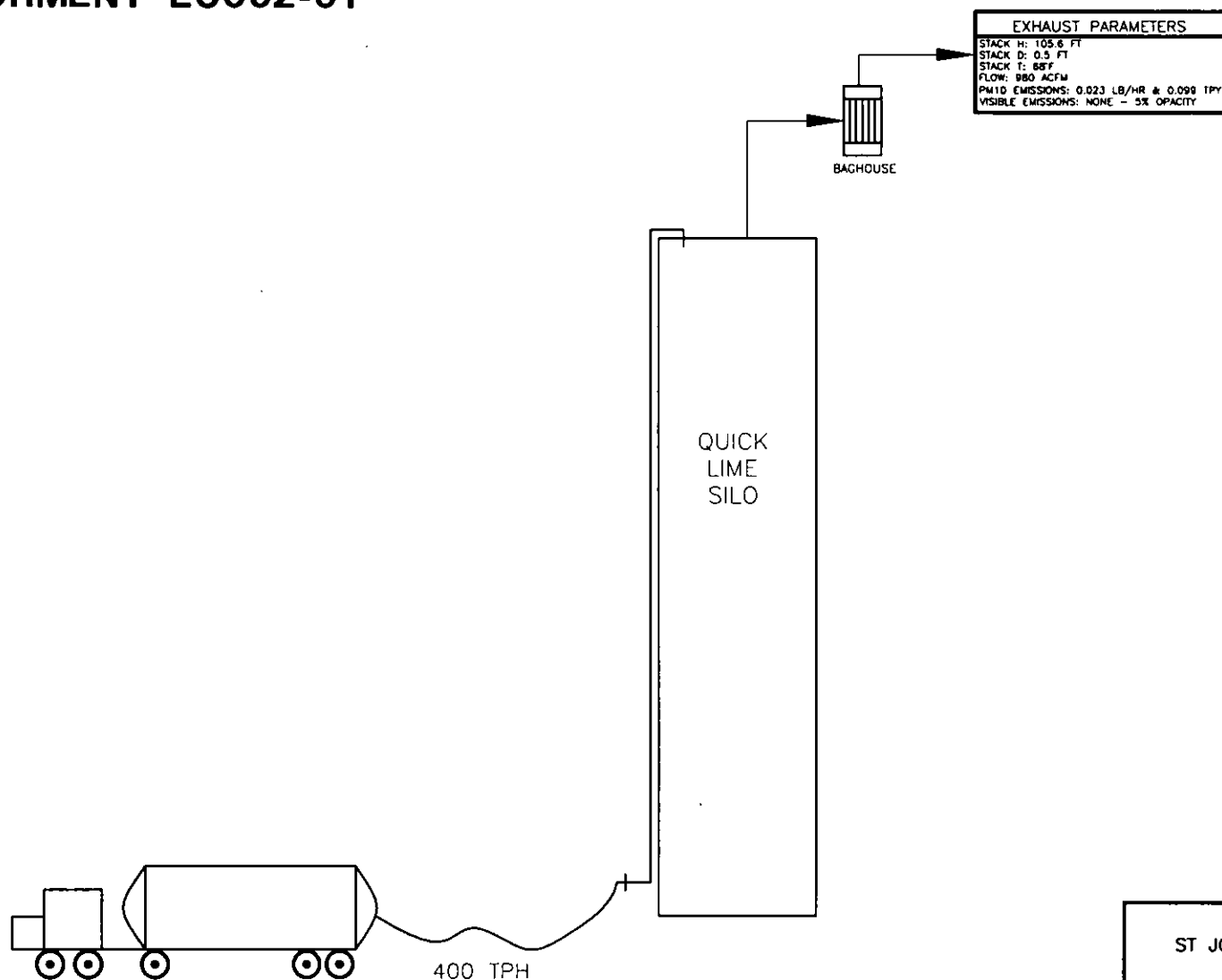
EMISSIONS UNIT EU052
Quick Lime Silo (QLS-1)

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			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
SCALE N/A	PREPARED CHECKED APPROVED	DWG MAE DJF	CAD FILE NO. EU052PE.DWG FIGURE NO. EU052-01
DATE: 02/18/99			

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

Method Used (Circle One)	203A	203B	Other
Method 9			

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
Quick line silo	COM	16 Tph.
Control Equipment		Operating Mode
BAGHOUSE		100% CAP.

Describe Emission Point	
BAGHOUSE Effluent on top of Quick Line Silo.	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start 87' End 87'	Start 84' End 84'
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start 150 End 150	Start 314° End 314°

Vertical Angle to Obs. Pt.	Direction to Obs. Pt. (Degrees)
Start 30° End 30°	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	Water Droplet Plume
Start none End none	Attached ☐ Detached ☐ None ☒

Describe Plume Background	
Start OPEN SKY	End OPEN SKY.
Background Color	Sky Conditions
Start GRAY End GRAY	Start cloudy end cloudy.
Wind Speed	Wind Direction
Start 0-5 End 0-5	Start NE End NE
Ambient Temp.	Wet Bulb Temp.
Start 68°F End 68°F	Start 65°F End 85°F

Source Layout Sketch		Draw North Arrow
		☐ TN ☐ MN
Longitude _____ Latitude _____ Declination _____		Stack With Plume ☐ Sun ☒ Wind ☐

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's 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 Crude line s/o Unit Com. Operating Mode 16 TPH.
 Control Equipment SAS Monitor 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

X Observation Point

Observer's Position

140°

Sun Location Line

Side View

Stack With Plume

Sun

Wind

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 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 4/29/99
 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 : Dwell Time : Incinerator Afterburner Temperature :	Degrees Fahrenheit Seconds Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr tons/day
3. Maximum Process or Throughput Rate :	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
SJRP - 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

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#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

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 10
SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

Pollutant Potential/Estimated Emissions : Pollutant 1

1. Pollutant Emitted : PM		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0170000 lb/hour	0.0740000 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=0.27)	
7. Emissions Method Code :	3	
8. Calculations of Emissions : See Attachment EU053-05		
9. Pollutant Potential/Estimated Emissions Comment :		

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

Emissions Unit Information Section 10
SJRPP - Non-Saleable Ash Silos (U#1-A & U#2-A)

Pollutant Potential/Estimated Emissions : Pollutant 2

1. Pollutant Emitted : PM10		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0170000 lb/hour	0.0740000 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=0.27)	
7. Emissions Method Code :	3	
8. Calculations of Emissions : See Attachment EU053-05		
9. Pollutant Potential/Estimated Emissions Comment :		

III. Part 9b - 2

Emissions Unit Information Section 10
SJRPP - 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).		

III. Part 9c - 1

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).		

III. Part 9c - 2

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

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 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.

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 :

III. Part 12 - 2

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

Effective : 3-21-96

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.)

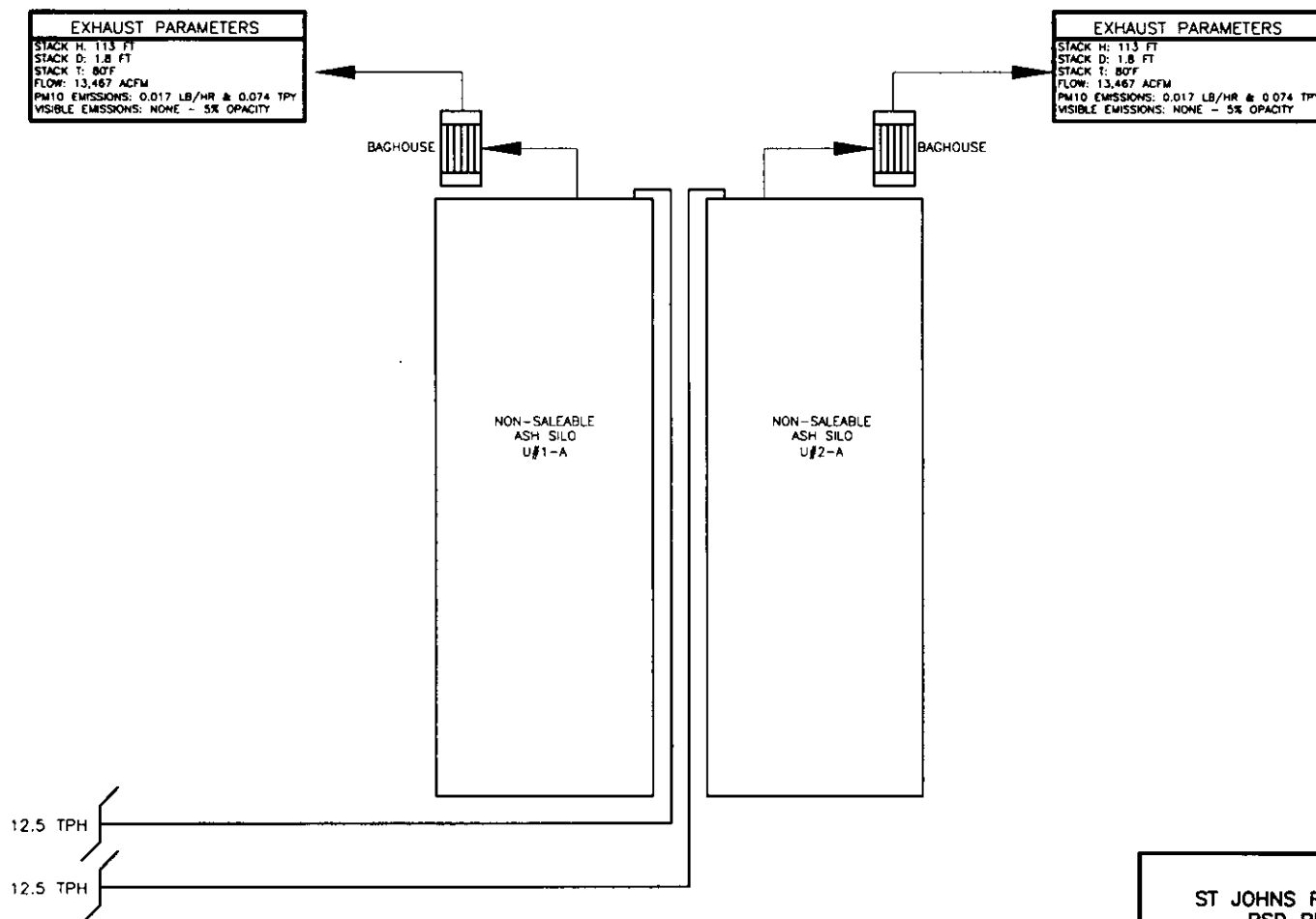
EMISSIONS UNIT EU053
Non-Saleable Ash Silos (U#1-A & U#2-A)

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			
FOSTER WHEELER ENVIRONMENTAL CORPORATION			
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

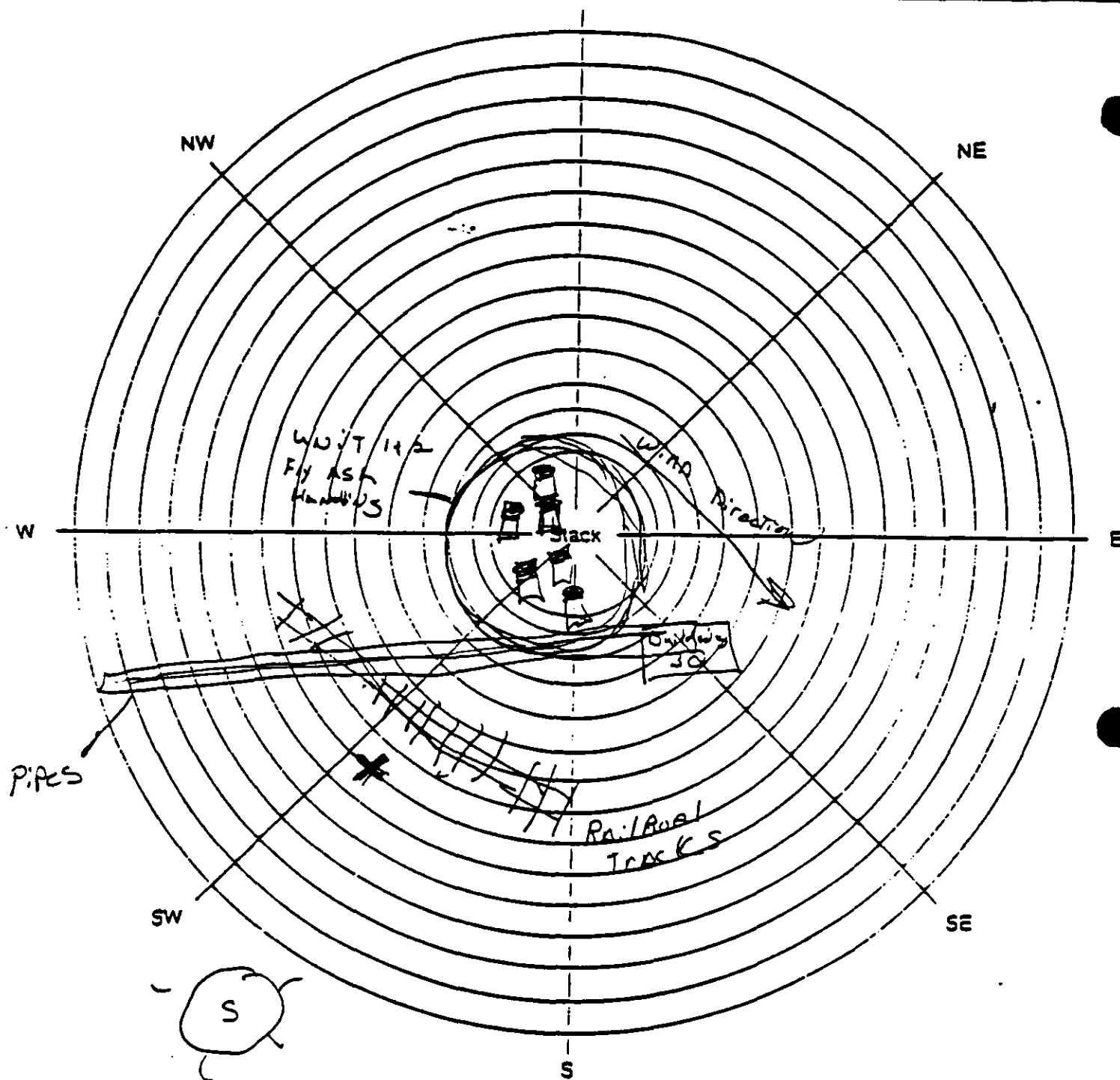
Client J.E.A. Observer John Sullivan
 Project No. 97-422 Date 11-4-97
 Plant Name SJRPP Observation began 1310
 Location JACKSONVILLE FL ended 1411
 Name of Facility POWER PLANT

Source Identification (Stack, duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>UNIT 1+2 FLY ASH</u>	0	0	0	0	0	30	0	0	0	0
<u>HANDLING AREA</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>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>	12	0	0	0	0	42	0	0	0	0
(clear, overcast, hazy, etc.)	13	0	0	0	0	43	0	0	0	0
Color of clouds, etc.)	14	0	0	0	0	44	0	0	0	0
Plume Description	15	0	0	0	0	45	0	0	0	0
Color <u>GRAY</u>	16	0	0	0	0	46	5	5	5	5
Background <u>SE-1</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	5	5	0	0	53	5	5	0	0
	24	5	5	5	5	54	5	5	5	5
	25	0	0	0	0	55	0	0	0	0
Observer's Signature <u>John C. Sullivan</u>	26	0	0	0	0	56	0	0	0	0
Date of Last EPA Method 9 Examination	27	0	0	0	0	57	0	0	0	0
<u>OCTOBER 1997</u>	28	0	0	0	0	58	0	0	0	0
Examination Passed in EPA Region	29	0	0	0	0	59	0	0	0	0
<u>AKRILL H</u>										

Distance (ft) from plume outlet to point in plume where observations made



F19
 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.

Client JEA
 Project No. 97-422
 Plant Name STRPP
 Location JACKSONVILLE FL.
 Facility POWER PLANT

Observer John Sutton
 Date 11-4-97
 Observation began CEXC
 ended C940

Source Identification (Stack, Duct, etc.) <u>FLY ASH, silo (unit 1)</u> <u>(SOUTH SIDE)</u>	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

Observer Location
 (Diagram on back of sheet)
 Distance from Observer to source 260'
 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 WH
 Background CRY
 Type (wet or dry) Dry Dist. _____

Comments _____

Observers Signature John C. Sutton

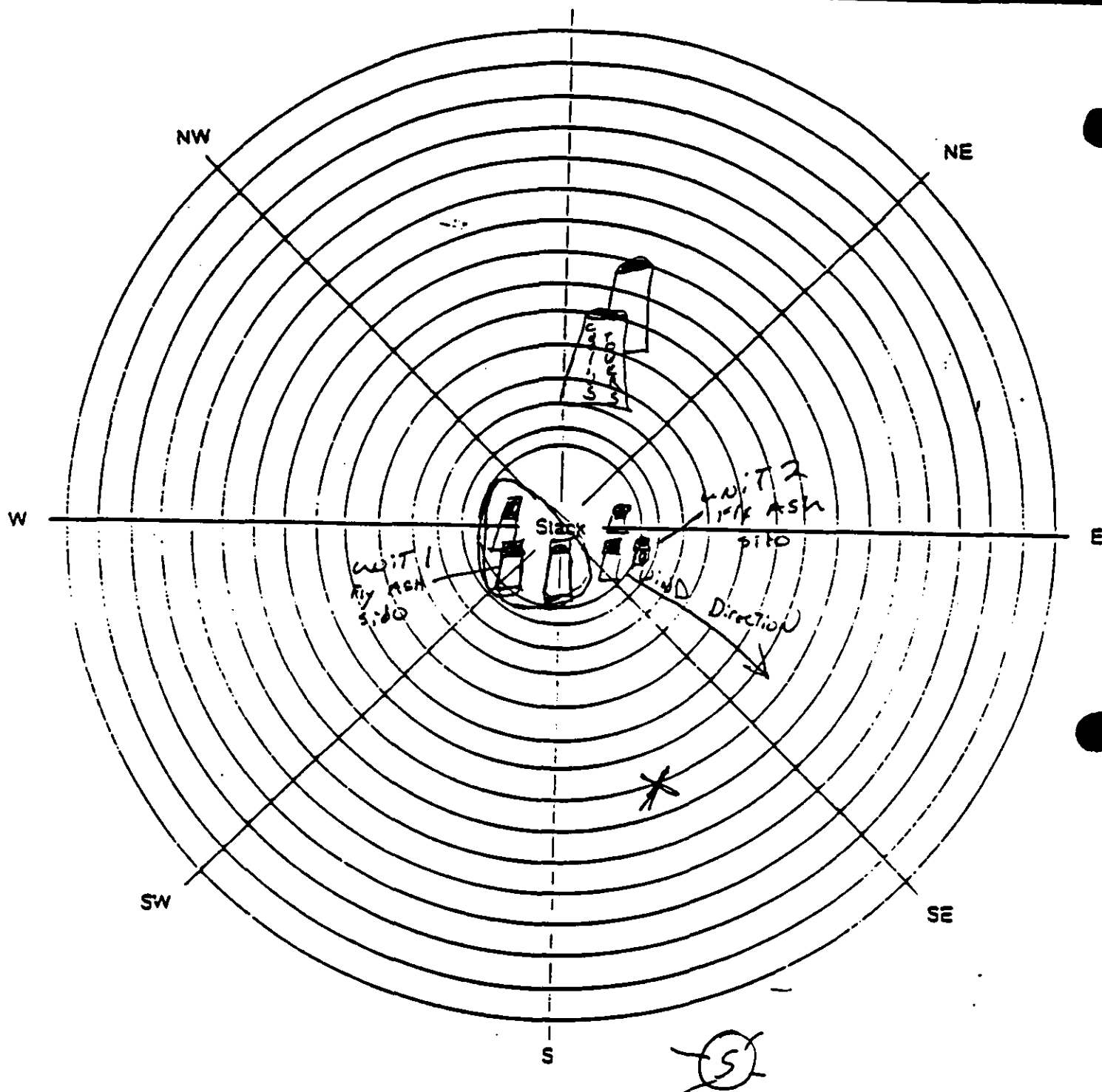
Date of Last EPA Method 9 Examination OCTOBER 1997

Examination Passed in EPA Region _____

REL. DENSITY (R.D.) from plume outlet to point in plume where observations made



F13
 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

Client J.E.A. Observer John C. Sutton
 Project No. 97-422 Date 11.4.97
 Plant Name SJAPP Observation began 0945
 Location JACKSONVILLE FL. ended 1045
 Name of Facility POWER PLANT

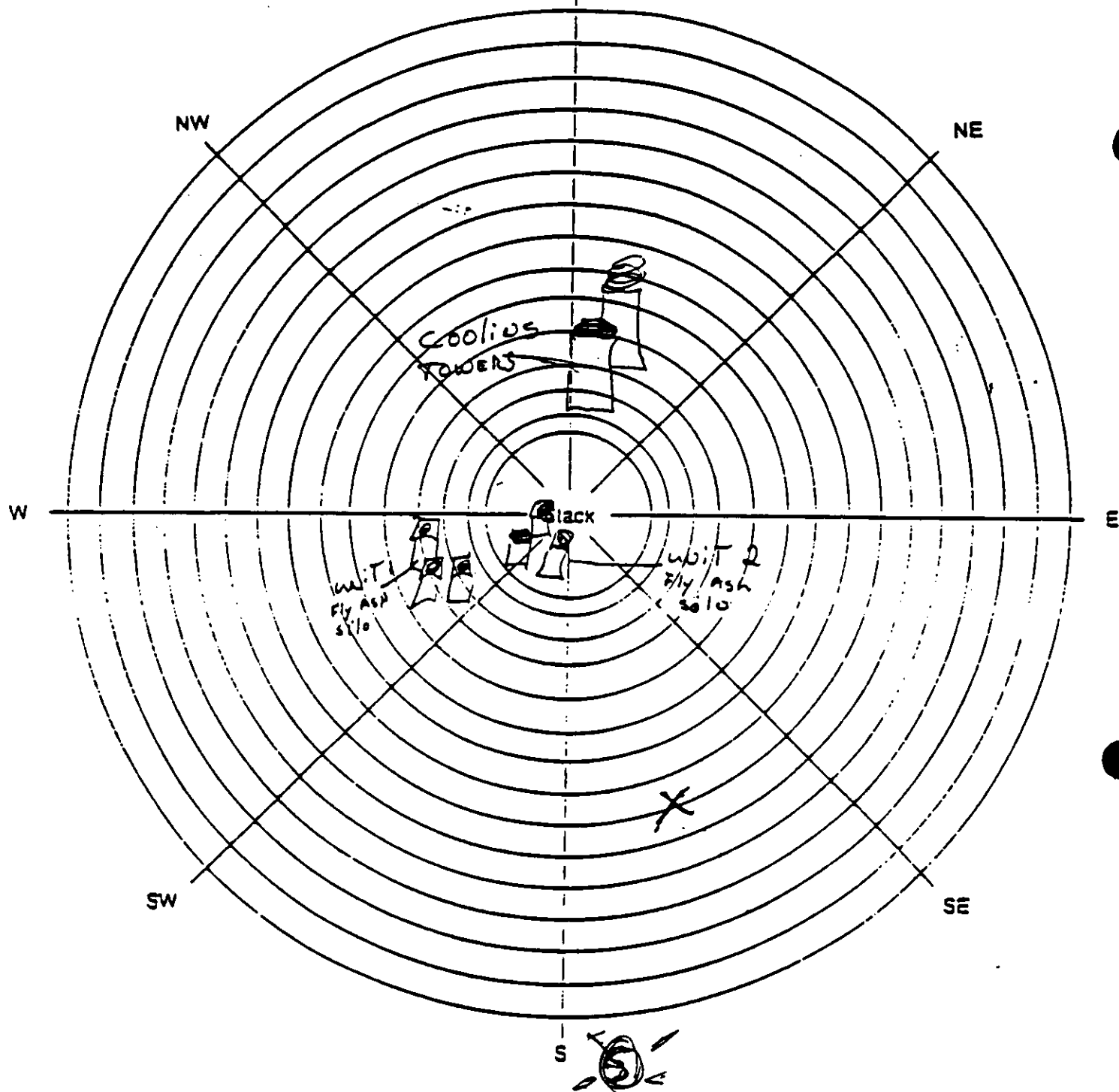
Source Identification (Stack, duct, etc.) <u>Fly Ash Silo (unit 2)</u> <u>NEPTUNE</u>	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
	0	0	0	0	0	30	0	0	0	0
	1	0	0	0	0	31	0	0	0	0
	2	0	0	0	0	32	0	0	0	0
	3	0	0	0	0	33	0	0	0	0
	4	0	0	0	0	34	0	0	0	0
Observer Location (Diagram on back of sheet) Distance from Observer to source <u>225'</u> Height of Source (above ground) <u>150'</u>	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
Weather Conditions Wind Direction <u>SE</u> Wind Speed <u>0-5</u> Temperature <u>65</u> Position of Sun <u>S. EAST</u> Sky Condition <u>25% Cloud</u> clear, overcast, clouds, color of clouds, etc.)	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>W/A</u> 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
	18	0	0	0	0	48	0	0	0	0
	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 <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</u>	27	0	0	0	0	57	0	0	0	0
Examination Passed in EPA Region <u>AK, CN, WA</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



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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 Center
F16

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 :

- ☒ [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

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 [] 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 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

III. Part 3 - 1

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.

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

Emissions Unit Information Section 11
SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

List of Applicable Regulations

III. Part 6b - 2

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

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

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 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
SJRP - 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

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 11

SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

Pollutant Potential/Estimated Emissions : Pollutant 1

1. Pollutant Emitted : PM		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0340000 lb/hour	0.1480000 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=0.27)		
7. Emissions Method Code : 3		
8. Calculations of Emissions : See Attachment EU054-05		
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 11

SJRPP - Saleable Ash Silos (1A, 1B, 2A, & 2B)

Pollutant Potential/Estimated Emissions : Pollutant 2

1. Pollutant Emitted : PM10		
2. Total Percent Efficiency of Control :	99.50	%
3. Potential Emissions :	0.0340000 lb/hour	0.1480000 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=0.27)		
7. Emissions Method Code : 3		
8. Calculations of Emissions : See Attachment EU054-05		
9. Pollutant Potential/Estimated Emissions Comment :		

III. Part 9b - 2

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).		

III. Part 9c - 1

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).		

III. Part 9c - 2

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

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 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.

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 :

III. Part 12 - 2

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. 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.)

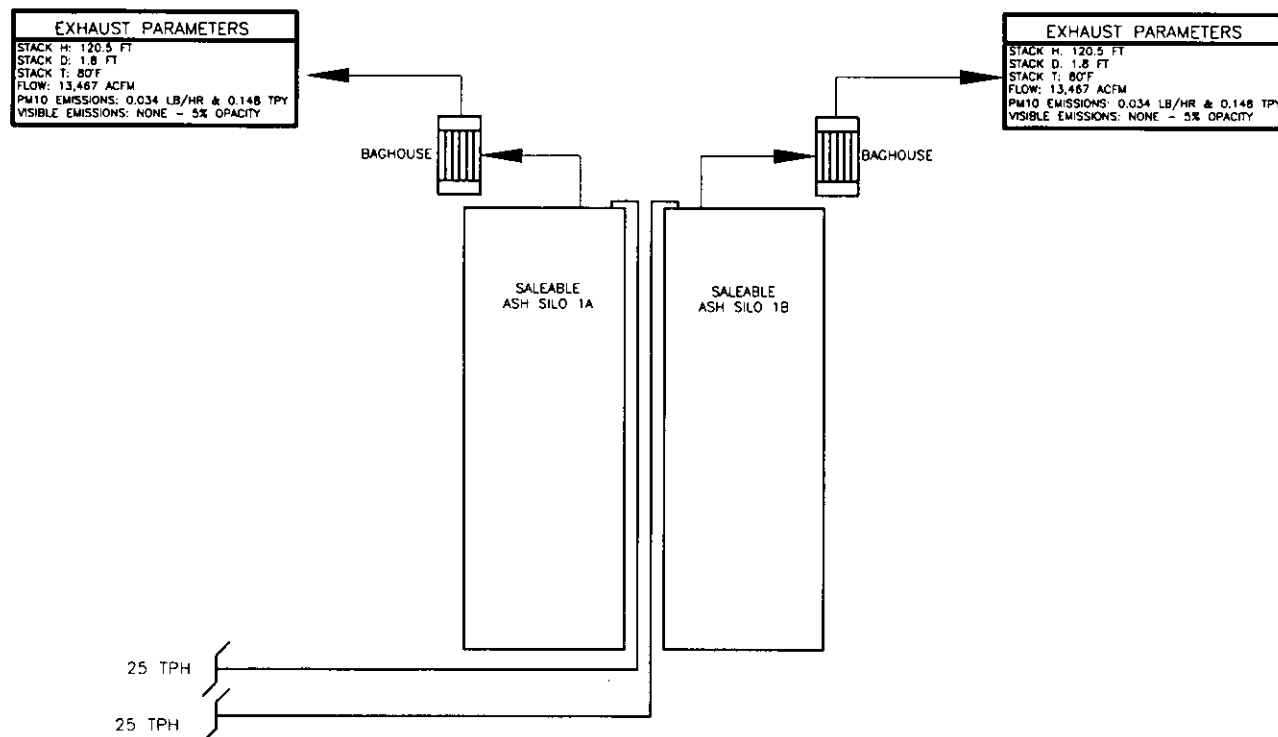
Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

III. Part 13 - 2

EMISSIONS UNIT EU054
Saleable Ash Silos (1A, 1B, 2A & 2B)

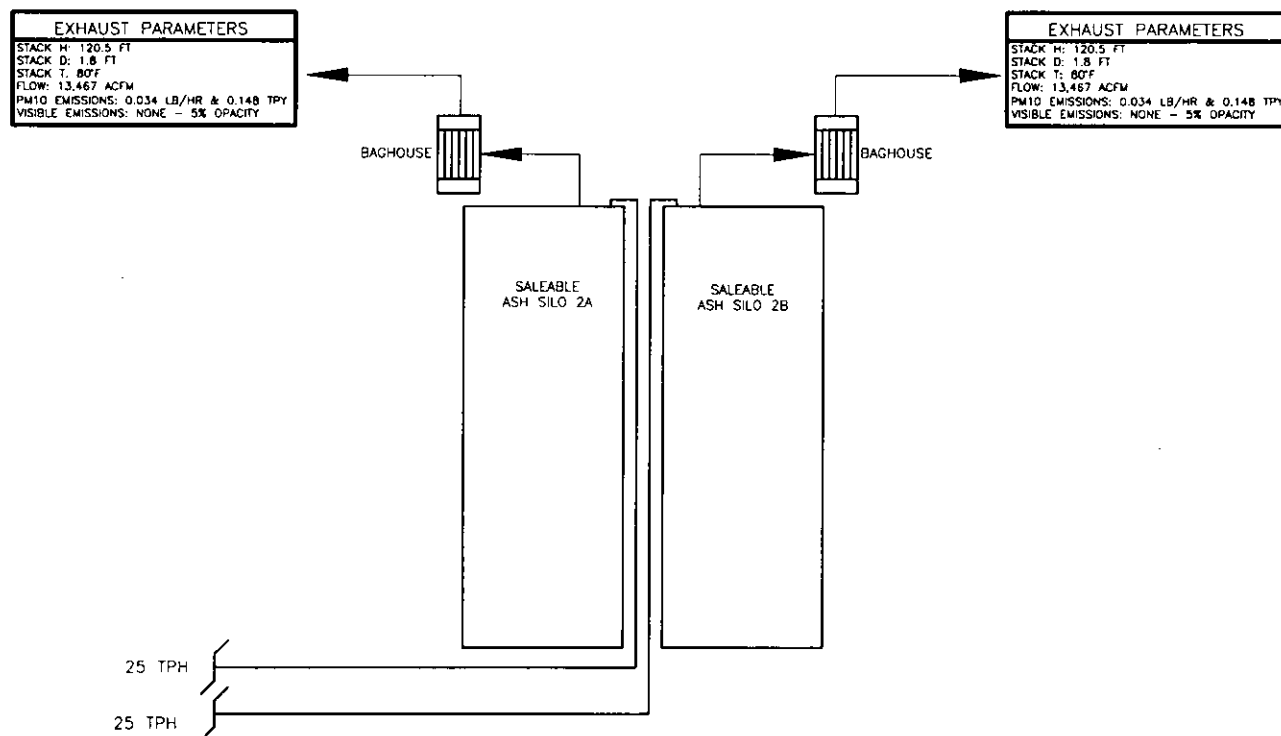
ATTACHMENT EU054-01
Process Flow Diagram

ST JOHNS RIVER POWER PARK UNIT 1 SALEABLE ASH SILOS ATTACHMENT EU054-01a



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 CHECKED APPROVED	DVG MAE DJF	CAD FILE NO. EU054aPF.DWG FIGURE NO. EU054-01a
DATE: 02/16/99			

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

BJRPP - 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.

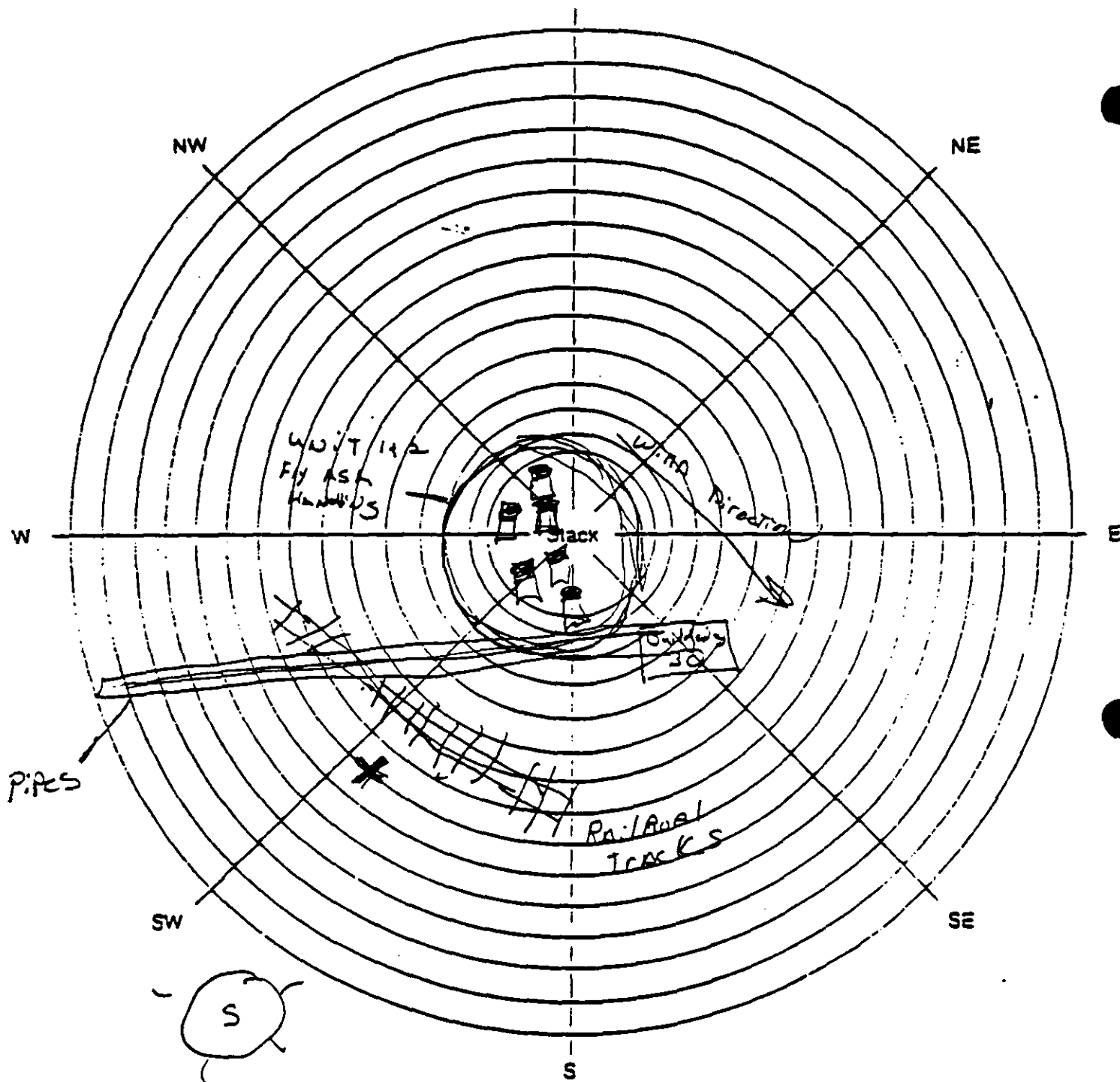
EMISSIONS UNIT EU054
Saleable Ash Silos (1A, 1B, 2A & 2B)

ATTACHMENT EU054-04
Compliance Test Report

Client J.E.A. 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 FW ASH</u>	0	0	0	0	0	30	0	0	0	0
<u>HAULING AREA</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
	4	0	0	0	0	34	0	0	0	0
Observer Location (Diagram on back of sheet)	5	0	0	0	0	35	0	0	0	0
Distance from Observer to source <u>150'</u>	6	0	0	0	0	36	0	0	0	0
Height of Source (above ground) <u>0-150'</u>	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>70</u>	11	0	0	0	0	41	0	0	0	0
Position of Sun <u>SOUTH</u>	12	0	0	0	0	42	0	0	0	0
Sky Condition <u>clear</u>	13	0	0	0	0	43	0	0	0	0
(clear, overcast, clouds, color of clouds, etc.)	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>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	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	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>AKRZ 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.



Total Source Analysis, Inc.

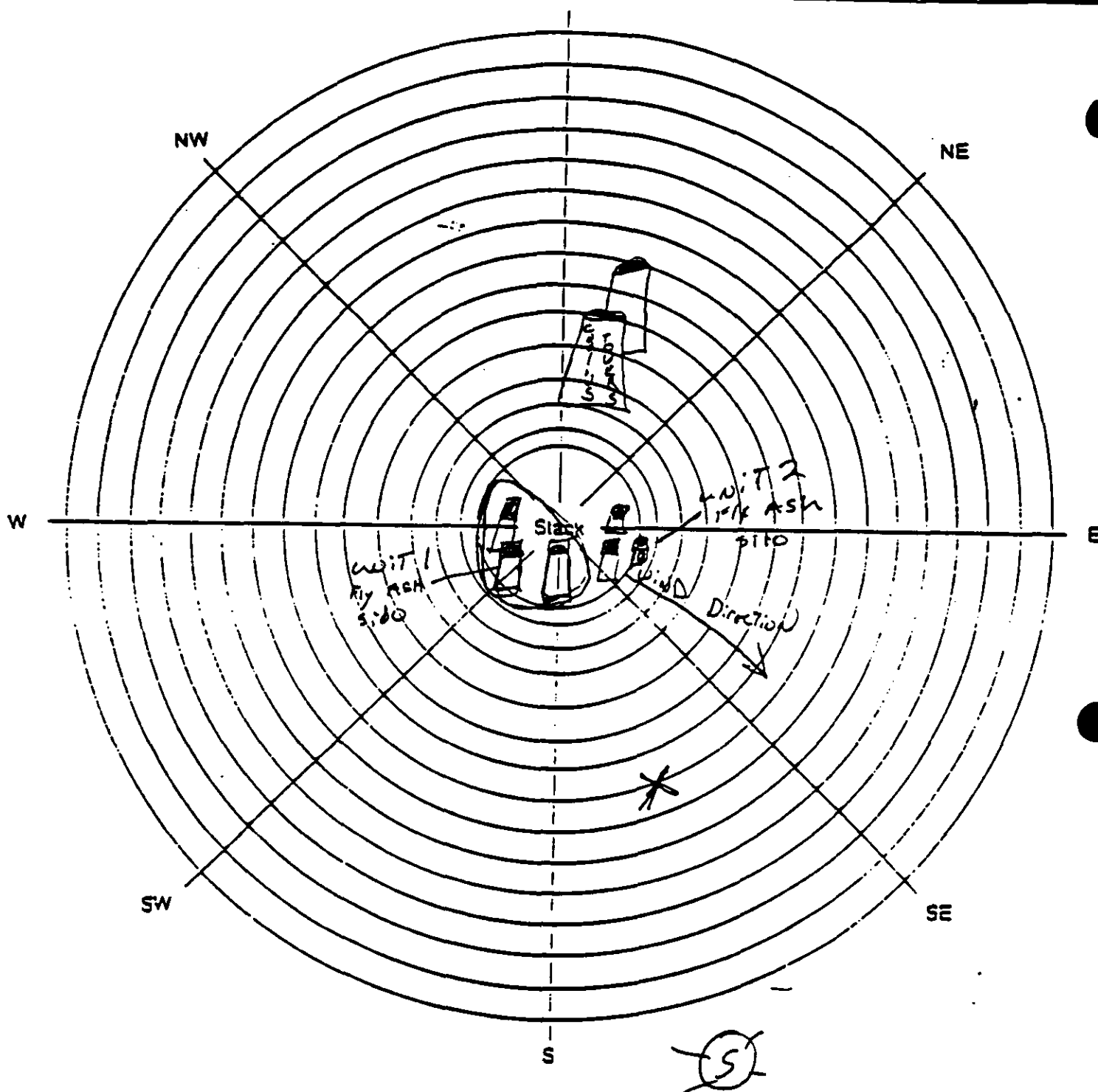
Client JEA Observer John Sutton
 Project No. 97-422 Date 11-4-97
 Plant Name STRPP Observation began 0840
 Location JACKSONVILLE FL. ended 0940
 Type of Facility POWER PLANT

Source Identification (Stack, Duct, etc.) <u>FLY ASH, silo (unit 1)</u> <u>(SOUTH SIDE)</u>	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
Observer Location (Diagram on back of sheet) Distance from Observer to source <u>260'</u> Height of Source (above ground) <u>150'</u>	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
Weather Conditions Wind Direction <u>SE</u> Wind Speed <u>0-5</u> Temperature <u>65</u> Position of Sun <u>SOUTH EAST</u> Sky Condition <u>Clouds</u> (clear, overcast, %clouds, color of clouds, etc.)	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>W/TE</u> 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>[Signature]</u>	26	0	0	0	0	56	0	0	0	0
Date of Last EPA Method 9 Examination <u>0-7-96</u> <u>1997</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 center to point in plume where observations made



F13
 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.



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Environmental Testing Consultants

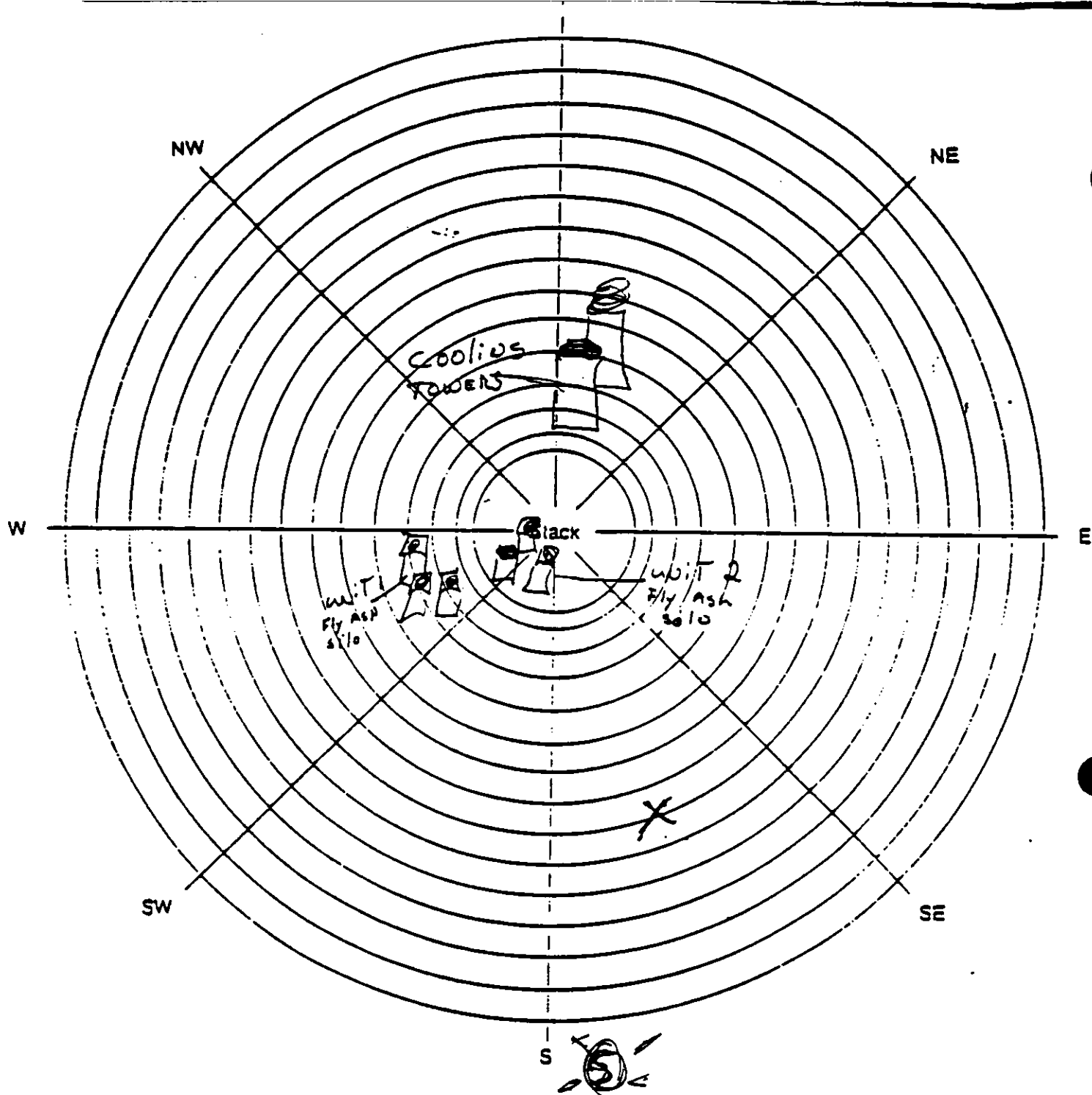
Client J.E.A. Observer John C. Sutton
 Project No. 97-422 Date 11-4-97
 Plant Name SJRPP Observation began 6:45
 Location JACKSONVILLE FL. ended 10:45
 Type of Facility POWER PLANT

Source Identification (Stack, Duct, etc.)	Min.	Seconds				Min.	Seconds			
		0	15	30	45		0	15	30	45
<u>Fly Ash Silo (unit 2)</u>	0	0	0	0	0	30	0	0	0	0
<u>NORTH SIDE</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	4	0	0	0	0	34	0	0	0	0
(Diagram on back of sheet)	5	0	0	0	0	35	0	0	0	0
Distance from Observer to source <u>225'</u>	6	0	0	0	0	36	0	0	0	0
Height of Source (above ground) <u>150'</u>	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>65</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>	13	0	0	0	0	43	0	0	0	0
clear, overcast, clouds.	14	0	0	0	0	44	0	0	0	0
color of clouds, etc.)	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
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>AKRON OH</u>										

Distance (ft.) from plume outlet to point in plume where observations made



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 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 Company
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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