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PSD PERMIT APPLICATION
CRYSTAL RIVER ENERGY COMPLEX
POLLUTION CONTROL PROJECT
UNITS 4 AND 5

Submitted to:

Florida Department of Environmental Protection

Submitted on behalf of:

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1.0 INTRODUCTION

Progress Energy Florida (Progress Energy) is considering numerous environmentally-beneficial upgrades to Units 4 and 5 at the Crystal River Energy Complex. Due to the scheduling of the various upgrades that are under consideration, an application was previously submitted on April 25, 2006 to address the installation of a selective catalytic reduction (SCR) system on Units 4 and 5. Construction on the SCR system is anticipated to commence in September of 2006, thereby becoming the critical path item for permitting.

This application addresses additional upgrades summarized in the paragraphs below, which include the installation of low NO_X burners, flue gas desulfurization systems (FGD) and alkali injection systems on both units, upgrades to the existing ESPs and, finally, a carbon burnout (CBO™) system. In addition, Progress Energy is requesting the flexibility to fire additional fuel blends (i.e., sub-bituminous coal and petroleum coke), as well as a fuel additive that is designed to improve unit performance and reduce emissions. These additional fuel types and blends for Units 4 and 5 will be delivered by either rail or barge. The existing coal storage area has adequate storage capacity for the proposed fuel blends.

Finally, this application requests an increase (approximately eight percent) in the current heat input value referenced in the air permit for both Unit Nos. 4 and 5. Specifically, it is requested that the referenced maximum heat input for both units be revised to 7,200 mmBtu/hr vs. the current 6,665 mmBtu/hr rating provided in the TV permit. Progress Energy proposes to continue monitoring heat input with fuel flow and heating value measurements, as has been done historically. Both of these units have always been capable of achieving this maximum requested value, however, Progress Energy has not pursued a revision to the higher heat input rating due to the protection afforded by the heat input permitting note currently provided in the TV permit. As the Department's policy is to now remove this permitting note during TV renewals, Progress Energy felt this an opportune time to request the heat input revision.

Units 4 and 5 were permitted under the Power Plant Siting Act (PPSA) in 1978 (PA 77-09), and installed the Best Available Control Technology. These units are also subject to New Source Performance Standards (40 CFR Part 60, Subpart D). The Crystal River facility is currently authorized to operate under FDEP Title V Air Operation Permit No. 0170004-011-AV, with an effective date of January 1, 2005 and expiration date of December 31, 2009.

This PSD Report is divided into the following major sections:

- Section 1.0 provides the Project introduction;
- Section 2.0 presents a description of the proposed Project, including air emissions and stack parameters;
- Section 3.0 provides a review of the requirements applicable to the Project;
- Section 4.0 includes a discussion of BACT;
- Section 5.0 discusses the ambient air monitoring analysis (pre-construction monitoring) required by PSD regulations;
- Section 6.0 presents a summary of the air modeling approach and results used in assessing compliance of the proposed facility with ambient air quality standards (AAQS), and PSD increments; and
- Section 7.0 provides the additional impact analyses for soils, vegetation, and visibility.

Finally, this application contains the information required by Rule 62-213.420(3), F.A.C., including FDEP Form No. 62-210.900(1), Effective: 02/02/06, Application for Air Permit – Long Form.

2.0 PROJECT DESCRIPTION

The Crystal River Energy Complex is located North of Crystal River and West of U.S. Highway 19 in Citrus County, Florida. Progress Energy currently operates four solid fuel-fired steam boilers (Emission Units ID Nos. 001, 002, 003 and 004) at the Crystal River Energy Complex. In addition to the four solid fuel-fired boilers, the site's emission sources include natural draft and mechanical draft cooling towers; solid fuel handling and storage activities; and fly ash and bottom ash handling and storage facilities.

Currently under consideration are upgrades to further improve the environmental performance of the existing Units 4 and 5 (EU Nos. 004 and 003, respectively) by installing new/upgraded air emission control devices and a new fly ash beneficiation system. Specifically, Progress Energy is considering the addition of new emission control technologies for each unit, as well as upgrades to existing control equipment, as follows:

- Install low-NO_X burners;
- Add SCR systems for nitrogen oxide (NO_X) removal (addressed in previous application);
- Add alkali injection systems for SO_3 control;
- Add FGD systems for sulfur dioxide (SO_2) control;
- Upgrade existing ESPs;
- Construct a new stack to accommodate the new Project configuration; and
- Install a single carbon burn out (CBO™) unit to reburn fly ash generated, minimizing the onsite landfilling of this fly ash and recovering its available heating value. The CBO™ will also assist in minimizing adverse effects of the SCR systems and burner upgrades, such as elevated ammonia and carbon content in the fly ash.

These proposed activities would accomplish substantial environmental goals, namely: (1) allow for the reduction of NO_X and SO_2 emissions to meet the expected allowance allocations under the Clean Air Interstate Rule (CAIR), effective in 2009 and 2010, (2) allow for the reduction of mercury emissions to meet the expected allowance allocations under the Clean Air Mercury Rule (CAMR), effective in 2010 and (3) maximize the reuse of fly ash, and thereby minimize the landfilling of this material.

Due to the timing of these various upgrades that are under consideration, a previous application, submitted on April 25, 2006, addressed the installation of SCR systems on Units 4 and 5. Construction on the SCR systems is anticipated to commence in September of 2006, thereby becoming the critical path item for permitting. The additional upgrades summarized above are more fully discussed in the following paragraphs.

2.1 Fuels

The primary fuel will be the Illinois Basin bituminous coals, delivered to the plant by rail. In an effort to continue expanding fuel diversity and ultimately enhancing market options through supplier flexibility at the Crystal River facility, Progress Energy requests to fire a blend of up to 50 percent by weight sub-bituminous coal, as well as a blend up to 30 percent by weight petroleum coke. Typical ultimate and proximate analyses of coals and petroleum coke representative of the types of fuels proposed for the Project are shown in Table 2-1. The amounts and qualities of each type and shipment of fuel will vary depending upon availability and economics, and design values are shown for Highland No. 9 coal, and the co-firing of 30 percent by weight petroleum coke with coal and 50 percent by weight co-firing of sub-bituminous coal. No. 2 oil will be used for startup and flame stabilization.

2.1.1 Sub-Bituminous Coal

A test burn of an approximately 20 percent sub-bituminous blend was conducted on Crystal River Unit 5 during May 2006. This test burn was conducted following approval of a modified air permit by the Florida Department of Environmental Protection (FDEP) allowing testing of a sub-bituminous blended product. A test report, included in Appendix A of this application, was submitted to the Department on July 20, 2006.

There were no substantial issues raised during this trial. Full load was achieved and LOI (loss on ignition) was as good as or better than the base line coal performance measurements. Major emissions constituents, such as NO_X, SO_2, and opacity, were equivalent to or better than the same constituents utilizing the baseline coal. In addition, detailed stack testing of CO, PM and ash resistivity testing were conducted to meet the Florida Department of Environmental Protection (FDEP) requirements. PM was basically unaffected by the sub-bituminous blend as compared to the baseline. CO levels were low during both the baseline tests (about 4-6 ppm) and with the 20 percent sub-bituminous blend (about 33 ppm). Even such a small difference (if a real result) can translate into a projected large increase on an annual basis. In other words, although this test represents only a snapshot in time, if projected on an annual as absolute/continuous values, the differences can appear unrealistically large. However, in a statistical comparison of the CO test results (40 CFR 60, Appendix C), the two fuel types yield statistically similar results. Other observations during the trial burn are summarized below:

- **Coal Unloading**: The blend was observed unloading from barge and along conveyors. The large percentage of bituminous coal (~80 percent) in the blend was effective in controlling dust.
- **Handling**: No problems were encountered with coal handling. Performed similar to current Crystal River coal.
- **Fugitive Dust**: Coal blend was not dusty and fugitive dusting was not an issue.
- **Soot blowing**: Routine soot blowing operations were continued during trial. A small ash accumulation was observed in an area where soot blowers were non-operational. Accumulation was removed with air lance and did not reform during trial. Therefore, the accumulation may have been formed prior to the sub-bituminous blend.
- **ESP Performance and Adjustments**: No problems with ESP performance or opacity during the sub-bituminous blend burn.
- **Ash handling and storage**: Ash quality and LOI were well within acceptable limits to be able to utilize ash product.

2.1.2 Petroleum Coke

The characteristics of the petroleum coke and proposed blend are presented in Table 2-1. The sulfur content of the blend is not expected to exceed the maximum level assumed for the Highland No. 9 coal. A trial burn of the proposed fuel blend may be necessary under this requested air construction permit to provide reasonable assurance to the Department that all proposed emission limits will be met.

The maximum annual fuel usage for Units 4 and 5 is estimated to be about 5.08 million tons/year (TPY) based on a 100 percent capacity factor. A conservative capacity factor for projected operation of Units 4 and 5 is estimated at about 85 percent, which is comparable to the highest two-year average established for the baseline. The existing coal storage area has adequate storage capacity for the proposed fuel blends and will maintain sufficient fuel for a targeted 40 to 60 days of operation, with a potential for 90 days of operation.

It is the intention of Progress Energy to utilize the same fuel blends in both Units 4 and 5. Burning the same fuel in both units maximizes the co-use of existing coal handling areas and equipment (for example, rail lines, unloading facilities, storage areas, conveyor systems, etc.), avoiding the need to construct separate facilities dedicated solely to one unit or the other.

2.1.3 Fuel Additive

Finally, Progress Energy requests a permit revision to allow the use of a fuel additive to improve unit performance and reduce emissions, as well as the LOI. The additive is proposed to be applied to the coal as a spray in the gravimetric feeders. The optimum dosage will be measured and determined with respect to fuel quality. Key coal parameters include slag viscosity, ash porosity and iron content. The characteristics of the fuel additive, manufactured by Environmental Energy Services (EES), Inc., are provided in an attachment in Appendix A.

2.2 Heat Input

This application requests an increase (approximately eight percent) in the current heat input value referenced in the air permit for both Unit Nos. 4 and 5. Specifically, it is requested that the referenced maximum heat input for both units be revised to 7,200 MMBtu/hr (vs. the current 6,665 MMBtu/hr rating provided in the TV permit). Both of these units have always been capable of achieving this maximum requested value; however, Progress Energy has not pursued a revision to the higher heat input rating due to the protection afforded by the heat input permitting note currently provided in the TV permit. Specifically, Progress Energy understands that the permitting note was historically included to clarify that the heat input value was not a continuous limit, but was included to ensure that testing was conducted at worst-case (maximum) operating levels. As the Department's policy is to now remove this permitting note during TV renewals, Progress Energy felt this an opportune time to request the heat input revision.

The hourly heat input data (as reported in the AORs) is currently based on the average monthly fuel heating values from an internal report (referred to as the Mooper report) and the fuel heating value. The coal data is from the coal mill feeder scales. As the measurement method proposed for future operation is similar to the current measurement method, Progress Energy does not expect actual heat input levels (and therefore emissions) to increase on an annual basis as a result of this request. As stated previously, both of these units have always been capable of achieving this maximum requested value, however, Progress Energy has not pursued a revision to the higher heat input rating due to the heat input permitting note currently provided in the TV permit.

If the existing permitting note is removed, Progress Energy requests that compliance with the heat input value be based on fuel flow measurements and fuel analysis (as is currently done) on a 30-day rolling average basis. Over a six-month study period, the CEMS heat input readings averaged 15 percent higher than the heat input based on the heating value of coal and the coal tonnage throughput. On an hourly basis, the percent difference between the CEMS and the heat input based on the heating value of coal and the coal tonnage throughput varied considerably. Therefore, it is requested that coal throughput and the coal heating value be used to determine continuous compliance with the revised heat input limit, based on a 30-day rolling average. The CEMs will *not* be used for determining heat input due to the historical inaccuracy.

2.3 Proposed Control Equipment Upgrades and Additions

As mentioned above, Progress Energy is planning specific additions and upgrades to Units 4 and 5, which include burner modifications, the addition of SCR systems, FGD system installations, alkali injection systems, ESP upgrades and a CBO™ unit.

2.3.1 Schedule

The proposed schedule for these modifications was developed to maintain the reliability of Units 4 and 5 and minimize down time, and is proposed (approximately) as follows:

Proposed Modification	Commence Construction	Commence Operation
Unit 4 SCR	September 2006	November 2008
Unit 5 SCR	December 2006	April 2009
Unit 4 Alkali	September 2006	November 2008
Unit 5 Alkali	December 2006	April 2009
Unit 4 LNB	March 2008	November2008
Unit 5 LNB	March 2009	April 2009
Unit 4 FGD	December 2006	November 2009
Unit 5 FGD	December 2006	April 2009
CBO™ Process	June 2007	November 2008

The FGD systems for Units 4 and 5 are anticipated to commence construction as early as December 2006. Therefore, this application is filed within four months of the initial application package to ensure that construction on the remaining items can commence by the December 2006 date. The reason that these additional control systems were not addressed in the initial application for the SCR was due to the lack of specific engineering design data that would allow for the appropriate air quality modeling analysis to be conducted.

2.3.2 Low NO_X Burners

Progress Energy is proposing to install new low NO_X burners, replacing the existing burners. The burners will optimize the fuel and air flows and be of a proven design previously utilized to achieve emissions requirements when firing fuels similar to those currently fired and proposed to be fired at the Crystal River site. The burners will be engineered by The Babcock & Wilcox Company. The burner design specs are provided in Appendix B. The existing burner inlet system will be modified to ensure even airflow distribution with the new burners. Emissions of NO_X will be reduced and other pollutant emissions will be comparable to emissions associated with the existing permit limits.

The low-NO_X burner installation, in addition to the SCR system installation detailed in a previous application, will allow Progress Energy to substantially reduce NO_X emissions from Crystal River. Installation of the SCR system will allow Progress Energy to meet its annual obligation under the Clean Air Interstate Rule by reducing NO_X emissions as opposed to relying on the purchase of allowances. In sum, the NO_X reductions anticipated from the installation of the low NO_X burners and SCR systems will allow Progress Energy to reliably meet its current and pending regulatory obligations.

2.3.3 FGD System

Progress Energy is proposing to install wet limestone FGD systems on both Units 4 and 5. The proposed FGD systems are intended to achieve an FGD removal efficiency of approximately 97 percent. Installation of the FGD system will allow Progress Energy to meet its annual obligation under the Clean Air Interstate Rule by reducing SO_2 emissions as opposed to relying on the purchase of allowances. Progress Energy intends to commence construction on the FGD installations as early as December 2006, and expects the systems to be operational by April 2009 and November 2009 for Units 5 and 4, respectively.

2.3.4 Alkali Injection System

An alkali injection system (e.g., ammonia, SBS or Trona) will be installed on Units 4 and 5 to mitigate the impacts of SO_3 formation resulting from the operation of the boiler and SCR systems. Final vendor selection of the alkali injection system has not yet been made; however, design criteria will be based on a minimum removal efficiency of 85 percent.

2.3.5 ESP Upgrades

When the Unit 4 and 5 electrostatic precipitators are rebuilt to top rapping, the expected particulate removal efficiency will be higher than originally designed. In the top rap configuration, Progress Energy proposes to increase the treatment length from about 87.5 ft to 98 ft. As the collecting plate height will remain at a nominal 49 ft, the total collecting plate area will increase by over 10 percent. In addition, the rebuild arrangement proposed will increase the number of electrical fields in the direction of gas flow. These two modifications will allow the rebuilt ESP to accommodate increased inlet dust loading without increasing emissions. The migration velocity currently correlates to a collection efficiency of 99.82 percent (the original specification). Assuming about 10 percent more collecting plate area in each ESP, the calculated collection efficiency would increase to about 99.91 percent. At this increased collection efficiency, PM emissions are not anticipated to increase over the current levels even if the inlet dust loading is increased (i.e., due to increase in ammonium bisulfate and the installation of the CBO).

2.3.6 New Stack Configuration

As a result of the proposed Project, saturated flue gas from the proposed absorbers will condense on the chimney liner. The droplets are pushed upward by the moving flue gas and pulled downward by gravity. Droplets that collect on rough surfaces can be reintroduced into the gas stream if the force from the exiting gas is larger than gravity and surface tension. The droplets discharge through the top of the chimney. When the drops are large enough they fall back to grade in the area surrounding the chimney. This is commonly referred to as stack rain-out.

The existing stacks have an interior liner diameter of 25'-6" at the discharge point. This would yield an exit velocity of 77 feet per second (for the maximum flue gas flow rate) for the new FGD system. EPRI recommends exit velocities (based on liner material) for brick between 45 and 55 feet per second to avoid liquid discharge from the chimney. Liquid reaching ground levels can have corrosive effects on items, such as roofing, siding, and automobile finishes.

Use of the existing stacks with the FGD systems would result in stack rain-out. Progress Energy has decided to install a new stack with two liners (one per unit) with an interior diameter of 30'-6". The exit velocity will be approximately 50 feet per second. The reason for the new stack is to avoid stack rain-out.

2.3.7 CBO™ Process

The installation of combustion modifications and SCR systems to reduce NO_X emissions from Crystal River Units 4 and 5 has the potential to adversely impact Progress Energy's beneficial reuse of its fly ash. The planned NO_X control systems for Units 4 and 5 will increase the ammonia concentrations to levels that could make the fly ash unusable as a partial replacement for Portland cement. Currently, more than 90 percent of all fly ash generated at the facility is re-used.

CBO™ technology, as described further below, will produce low-carbon, low-ammonia fly ash material suitable for commercial use as a partial replacement for Portland cement. Progress Energy plans to begin construction of the CBO™ project no later than June 2007 in order for the CBO™ to be operational prior to the first SCR going into operation by November 2008.

CBO™ technology will also recover a significant portion of the energy contained in the high-carbon fly ash for beneficial use at Crystal River. More specifically, the heat from the CBO™ system will replace steam currently being extracted from the Units 4 and 5 LP turbines to heat water in the condensate cycle. Although the CBO™ process will cause small collateral increases in PM, VOC and CO emissions, it is an important element of the significant emission reductions of the Crystal River environmental improvement project.

CBO™ technology is a proprietary, patented, environmentally beneficial technology whose primary function is the production of low-carbon, low-ammonia fly ash material suitable for commercial use as a partial replacement for Portland cement. Major components of the CBO™ process planned for the Crystal River facility include a feed fly ash silo, product fly ash storage dome, fluidized bed combustor (FBC), hot cyclones for fly ash recycle to the FBC, heat recovery heat exchanger, cold cyclone and fabric filter bag house for product fly ash recovery, and product fly ash truck loading. A plan view showing the locations of the CBO™ process emission points is provided in Figure 2-1. A flow diagram of the CBO™ process proposed is provided in Figure 2-2. Fly ash will be conveyed pneumatically to the CBO™ feed fly ash silo. The CBO™ feed fly ash silo will vent through a bag house prior to discharging to the atmosphere (CBO-001).

The FBC exhaust stream will be routed through hot cyclones to capture fly ash entrained in the FBC exhaust stream. Fly ash captured by the hot cyclones is returned to the FBC. The hot cyclones' exhaust and FBC low carbon product ash streams are combined and sent to the gas/product cooler heat exchanger for heat recovery. Thermal energy recovered from the CBO™ process will be used to heat condensate from the Units 4 and 5 low-pressure feed water systems. The improvements in Units 4 and 5 heat rates due to the use of recovered energy from the CBO™ process will compensate in part, for the energy penalties associated with the operation of the low NO_X burners, FGD Systems, and SCR systems. The air pollution control equipment representing the majority of the parasitic load includes the wet FGD systems and the SCR systems, at approximately 22 MWs of additional required power per unit.

Following heat recovery, the cooled FBC combustion gases, containing entrained product fly ash, will be routed through a cold cyclone and fabric filter bag house for product fly ash separation. The exhaust from the fabric filter bag house (i.e., the CBO™ return) will be routed back to either Units 4 or 5, upstream of the SCR, FGD, ESP and alkali injection systems, and subsequently discharged to the atmosphere through the existing Units 4 or 5 stacks.

Product fly ash separated by the cold cyclone and fabric filter bag house will be sent to a surge bin. A portion of the cooled, low-carbon product will be recycled to the FBC for temperature control. The remaining product ash is then conveyed pneumatically to the product fly ash storage dome or directly to a truck loadout silo. The product fly ash storage dome will vent through a bag house prior to discharging to the atmosphere (CBO-002). The product fly ash storage dome will be used to provide flexibility in product fly ash marketing. Product fly ash will be conveyed to the truck loadout silo for subsequent transfer to trucks for shipment to offsite customers. The PM_{10} emissions captured during the truck loading process will be routed to the truck loadout silo which will vent through a bag house prior to discharging to the atmosphere (CBO-003).

The product fly ash trucks will travel on paved roads within the Crystal River facility and then exit the plant for delivery to offsite customers. Fugitive particulate matter (PM/PM_{10}) emissions associated with product fly ash truck traffic on the paved roads (CBO-004) will be controlled by periodic watering on an as-needed basis.

2.4 Proposed Source Emissions and Stack Parameters

Tables 2-2 and 2-3 provide a summary of emissions and stack characteristics for Units 4 and 5 in their current and proposed states, respectively. Table 2-4 provides a breakdown of emissions from the CBO and Table 2-5 summarizes emissions due to material handling operations associated with the Project. Table 2-6 presents a comparison of the existing site's baseline emissions to estimated emissions from the proposed project and summarizes the resulting net increase or decrease. The baseline emissions presented in Table 2-6 were derived from a five-year look back (2001 through 2005) at historical emissions, including a summary of the highest two-year average for each pollutant. Baseline data, based on past Annual Operating Reports (AORs) is presented in a series of tables in Appendix A (Tables A-1 through A-12) for each unit for each year. The two-year period from January 2003 through December 2004 was determined to represent the maximum production within the previous five-year period. Table 2-6, a comparison of the net increases to the PSD significant emission thresholds indicates that PSD review is required for emissions of CO, VOCs, H_2SO_4 and PM/PM_{10}.

Crystal River is classified as an existing major facility. A modification to an existing major facility that results in a significant net emissions increase equal to or exceeding the significant emissions rates (SER) listed in Section 62-212.400, Table 212.400-2, F.A.C., is classified as a major modification and will be subject to the PSD New Source Review (NSR) preconstruction permitting program for those pollutants that exceed the PSD SERs. The procedures for determining applicability of the PSD NSR permitting program to the Crystal River Units 4 and 5 control equipment installation project are specified in Rule 62-212.400(2), F.A.C. For each regulated pollutant, PSD is triggered as a result of a modification at an existing unit if the difference between the projected actual emissions and the baseline actual emissions equals or exceeds the significant emissions rate for that pollutant, as defined at Rule 62-210.200(243), F.A.C.

As described previously, the "Project" for PSD review purposes consists of the installation of SCR systems on Units 4 and 5 (the application submitted on April 25, 2006) and low NOx burners to reduce NO_X emissions. The installation of FGD systems on Units 4 and 5 is for SO_2 control. The installation of an SCR system can result in additional SO_3 emissions due to the catalytic effect on the sulfur dioxide contained in the flue gas. If an FGD system is located downstream of the SCR, there is the possibility for increased formation of sulfuric acid mist (H_2SO_4 or SAM), which is a PSD-affected pollutant. Therefore, the addition of an alkali injection system for reducing SO_3 formation in the SCR catalyst and subsequent SAM formation in the FGD is also addressed in this application package. Finally, a CBO unit is proposed as part of the Project, to address the continued saleability of the fly ash after these additional controls are installed.

Projected actual emissions for the project, as shown in Table 2-6, will not exceed the PSD significant emission rates for SO_2 and NO_X. This is because the controls proposed for this Project will have the effect of maintaining these emissions either at or below the current emissions baseline. As a result of modeled air impacts, emissions of SO_2 will be held to the equivalent of 0.27 lb/MMBtu with the use of the FGD system. This is a significant reduction compared to the current baseline number. The SCRs, in addition to the low-NO_X burner installation, will allow Crystal River to substantially reduce NO_X emissions. Progress Energy is requesting a new NO_X limit for the emissions from Units 4 and 5 of 0.47 lb/MMBtu, on an annual average basis, monitored by the existing CEMs. A 0.47 limit will achieve compliance with the Acid Rain NO_X limit and voluntarily lowering this limit to 0.47 will readily demonstrate sufficient NO_X reductions to offset the slight increase in TPY from the CBO. H_2SO_4 will be minimized through the use of an alkali injection system, capable of as much as an 85 percent reduction. A net emissions increase for H_2SO_4 has been estimated due to increased SO_2 oxidation in the SCR catalyst and increased SO_3 formation from the design fuel. An emission rate of 0.012 lb/MMBtu is being proposed for H_2SO_4. In Table 2-6, a comparison of the net increases to the PSD significant emission thresholds indicates that PSD review is required for emissions of CO, VOCs, H_2SO_4 and PM/PM_{10}

2.5 Description of Emissions

2.5.1 CBO™ Emission Characteristics

Emissions associated with the CBO™ process include PM/PM_{10} due to fly ash handling and storage and NO_X, CO, SO_2, PM/PM_{10}, and VOC due to combustion of high-carbon fly ash in the CBO™ FBC. Detailed emission rate calculations are provided in Table 2-4. Each of these CBO™ emission areas is discussed in the following sections.

The CBO^{TM} material handling and storage activities will include four PM_{10} emission points, including a (1) feed fly ash silo (Emission Point CBO-001), (2) product fly ash storage dome (Emission Point CBO-002), (3) product fly ash truck loading operation (Emission Point CBO-003), and (4) fugitive emissions associated with product fly ash truck traffic on paved roads (Emission Point CBO-004).

The feed fly ash silo, product fly ash storage dome, and product fly ash truck loadout silo will each be equipped with fabric filter bag houses designed to achieve an outlet PM_{10} concentration of no more than 0.010 grains per dry standard cubic foot (gr/dscf). The truck loading operation will include a telescoping chute with local ventilation designed to capture the fugitive PM_{10} emissions. The PM_{10} emissions captured during the truck loading process will be routed to the truck loadout silo. Fugitive PM_{10} emissions associated with product fly ash truck traffic on paved roads will be minor due to relatively short travel distances. Potential PM_{10} emissions, based on the conservative premise of continuous operation, total 6.1 tons per year (tpy) for these CBO^{TM} emission sources, including the CBO^{TM} FBC, summarized below.

The CBO^{TM} FBC combustion gases will contain combustion by-products including NO_X, CO, SO_2, PM_{10}, and VOCs and trace quantities of mercury. The CBO^{TM} FBC will utilize good combustion practices to minimize emissions of CO and VOCs. NO_X emissions from the Crystal River CBO^{TM} system will be reduced using the proposed SCR systems for Units 4 and 5. Extensive testing conducted by the CBO^{TM} process vendor, Progress Materials, Inc. (PMI), has confirmed that essentially all of the mercury present in the feed fly ash to the CBO^{TM} process should remain with the CBO^{TM} product fly ash; therefore, mercury emissions are minimal (See Appendix A). Following product fly ash separation by the cold cyclone and fabric filter bag house, this exhaust stream will be routed back to Units 4 and 5, upstream of the SCR, FGD, ESP, and alkali injection systems, prior to discharging to the atmosphere through existing Units 4 and 5 stacks.

Fly ash from the feed silo will then be fed to the CBO's Fluidized Bed Combustor (FBC). The CBO^{TM} technology does not require any auxiliary fuel to operate, with the limited exception of a minimal amount of start up fuel to initiate the combustion process. As with any fossil fuel combustion process, the FBC combustion gases will also contain combustion by-products including NO_X, carbon monoxide (CO), SO_2, particulate matter less than or equal to 10 micrometers (PM_{10}), and volatile organic compounds (VOCs). The CBO^{TM} process includes a forced draft fan to provide fluidization and combustion air to the FBC. An induced draft fan maintains the FBC freeboard pressure slightly below atmospheric pressure.

2.5.2 Material Handling Emissions

PM emissions will also be generated by material handling operations that include fuel handling and storage, limestone handling and storage, and by-product handling and storage. The latter includes bottom and fly ash and FGD by-product. This application only addresses the incremental change in material handling operations as a result of the proposed Project. Table 2-5 presents a summary of emissions from material handling operations.

Fuel (coals and petroleum coke) will be transported to the Crystal River site by rail or barge, resulting in PM emissions. Figure 2-1 presents a layout of the fuel handling system and is one possible design. This arrangement may be altered during detailed design. However, the area for facilities and storage is not expected to increase. In addition, the facilities shown in the flow diagram envelope possible alternate designs so that emissions from dust collection systems, transfer points and other operations will be no greater than those identified in this section.

Limestone used in the wet FGD system will be transported to the site by truck and conveyor and transferred to a storage pile. About 30 days storage will be maintained for the operation of Units 4 and 5. The limestone will be reclaimed from the pile using a reclaim system and conveyed to day bins. Bulldozers and front-end loaders will be used for reclaim and storage pile maintenance.

A control efficiency for each source was based on EPA's fugitive dust background document (EPA, 1992), information about the source and historical fugitive emission factors.

For dust collection systems with fabric filters, an emission rate of 0.01 grain per standard cubic foot (g/scf) was assumed. This was the basis of the fugitive dust calculation. This is a typical guarantee for fabric filters. Annual and maximum daily emissions for these sources were based on their operation (i.e., loading rates and coal usage).

Appendix A (Tables A-13 trough A- 27) presents detailed calculations on emissions from the material handling operations.

2.6 Site Layout, Structures, and Stack Sampling Facilities

A site layout of the proposed project is presented in Figure 2-1. The dimensions of the buildings and structures used to analyze the Good Engineering Practice stack height are presented in Section 6.0. Stack sampling facilities will be constructed and maintained in accordance with Rule 62-297.310(6) F.A.C.

2.7 Excess Emissions

The startup and shutdown of Units 4 and 5 will follow an established startup and shutdown procedure, to be submitted with the Title V application. This procedure will be incorporated into the Unit 4 and 5 operating procedures. Emissions during startup of the proposed unit will be minimized by the use of existing onsite steam and the use of 0.73-percent sulfur distillate oil igniters in the boiler to warm the boiler and steam turbine.

The use of No. 2 fuel, along with the operation of the ESP and wet FGD systems will minimize emissions of those pollutants associated with contaminants in the fuel (PM and SO_2). Because the ignitors and the boiler will be operating at low load conditions and the SCR will not be operating, excess emissions for combustion products, such as CO, VOC and NO_X, may occur. However, the potential emissions for these pollutants will not be greater than the mass emission values at full load. Mass emissions during startup will remain low due to the operation at low loads during the startup process.

3.0 AIR QUALITY REVIEW REQUIREMENTS AND APPLICABILITY

The following discussion pertains to the federal, state, and local air regulatory requirements and their applicability to the Project. These requirements must be satisfied before the proposed facility can begin construction and/or operation.

3.1 National, State, and Local AAQS

The federal Clean Air Act (CAA) requires that National Ambient Air Quality Standards (NAAQS) be set for "criteria" pollutants, defined as air contaminants that have been demonstrated to have the potential for widespread adverse impacts on human health. In response, EPA has identified six criteria pollutants and established corresponding NAAQS. These pollutants are SO_2, NO_2, PM_{10}, CO, ozone (O_3) and lead (Pb). In addition, the EPA promulgated a new NAAQS for particulate matter sized 2.5 microns and less ($PM_{2.5}$) on July 17, 1997. Compliance with the $PM_{2.5}$ standard at the federal level is not yet required (the EPA policy is to use compliance with PM_{10} as a surrogate). The NAAQS are designed to protect the public health and welfare with an adequate margin of safety. EPA has classified the area that the Crystal River plant is located as an attainment area for all of the criteria pollutants. The FDEP has also established Ambient Air Quality Standards for the criteria pollutants.

The existing applicable national and State of Florida AAQS (ambient air quality standards) are presented in Table 3-1. Primary national AAQS were promulgated to protect the public health with an adequate margin of safety, and secondary national AAQS were promulgated to protect the public welfare from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air. Areas of the country in compliance with AAQS are designated as attainment areas. New sources to be located in or near these areas may be subject to more stringent air permitting requirements.

3.2 PSD Requirements

3.2.1 General Requirements

Under federal and Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed, and a pre-construction permit issued. As Florida's EPA approved State Implementation Plan (SIP) includes PSD regulations, the Florida Department of Environmental Protection (FDEP) has PSD approval authority.

A "major facility" is defined as any 1 of 28 named source categories that have the potential to emit 100 TPY or more or any other stationary facility that has the potential to emit 250 TPY or more of any pollutant regulated under CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment.

EPA has promulgated regulations providing that certain increases above an air quality baseline concentration level of criteria pollutants such as SO_2, PM_{10}, and NO_2 would constitute significant deterioration of air quality. The EPA class designations and allowable PSD increments are presented in Table 3-1. Florida has adopted the EPA class designations and allowable PSD increments for SO_2, PM_{10}, and NO_2.

PSD review is used to determine whether significant air quality deterioration will result from the new or modified facility. Federal PSD requirements are contained in 40 CFR 51.166, *Prevention of Significant Deterioration of Air Quality*. The State of Florida's PSD regulations are found in Rule 62-212.400, F.A.C. Major new facilities are required to undergo the following analyses related to PSD for each pollutant emitted in significant amounts (see Table 3-2):

1. Control technology review,
2. Source impact analysis,
3. Air quality analysis (monitoring),
4. Source information, and
5. Additional impact analyses.

In addition to these analyses, a new facility also must be reviewed with respect to GEP (good engineering practice) stack height regulations. Discussions concerning each of these requirements are presented in the following sections.

3.2.2 Control Technology Review

Per the control technology review PSD requirements, all applicable federal and state emission-limiting standards must be met, and that the Best Achievable Control Technology (BACT) be applied to control emissions from the source (Rule 62-212.400, F.A.C.). The BACT requirements are applicable to all regulated pollutants for which the increase in emissions from the facility or modification exceeds the significant emission rate (see Table 3-2).

BACT is defined in Rule 62-210.200(38), F.A.C., as:

> *(a) An emission limitation, including a visible emissions standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account:*
>
> *1. Energy, environmental and economic impacts, and other costs;*
>
> *2. All scientific, engineering, and technical material and other information available to the Department; and*
>
> *3. The emission limiting standards or BACT determinations of Florida and any other state;*
>
> *determines is achievable through application of production processes and available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant.*
>
> *(b) if the Department determines that technological or economic limitations on the application of measurement methodology to a particular part of an emissions unit or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation.*
>
> *(c) Each BACT determination shall include applicable test methods or shall provide for determining compliance with the standard(s) by means which achieve equivalent results.*
>
> *(d) In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60, 61, and 63.*

BACT requirements were promulgated within the framework of the PSD provisions in the 1977 amendments of the CAA [Public Law 95-95; Part C, Section 165(a)(4)]. The primary purpose of BACT is to optimize consumption of PSD air quality increments and thereby enlarge the potential for future economic growth without significantly degrading air quality (EPA, 1978; 1980). Guidelines for the evaluation of BACT can be found in *Guidelines for Determining Best Available Control*

Technology (BACT) (EPA, 1978) and in the *PSD Workshop Manual* (EPA, 1980). These guidelines were issued by EPA to provide a consistent approach to BACT and to ensure that the impacts of alternative emission control systems are measured by the same set of parameters. However, BACT in one area may not be identical to BACT in another area. According to EPA (1980), "BACT analyses for the same types of emissions unit and the same pollutants in different locations or situations may determine that different control strategies should be applied to the different sites, depending on site-specific factors. Therefore, BACT analyses must be conducted on a case-by-case basis."

The BACT requirements are intended to ensure that the control systems incorporated in the design of a proposed facility reflect the latest in control technologies used in a particular industry and take into consideration existing and future air quality in the vicinity of the proposed facility. BACT must, as a minimum, demonstrate compliance with new source performance standards (NSPS) for a source (if applicable). An evaluation of the air pollution control techniques and systems, including a cost-benefit analysis of alternative control technologies capable of achieving a higher degree of emission reduction than the proposed control technology, is required. The cost-benefit analysis requires the documentation of the materials, energy, and economic penalties associated with the proposed and alternative control systems, as well as the environmental benefits derived from these systems. A decision on BACT is to be based on sound judgment, balancing environmental benefits with energy, economic, and other impacts (EPA, 1978).

Historically, a "bottom-up" approach consistent with the BACT Guidelines and the PSD Workshop Manual was used. With this approach, an initial control level, which is usually NSPS, is evaluated against successively more stringent controls until a BACT level is selected. However, EPA developed a concern that the bottom-up approach was not providing the level of BACT decisions originally intended. As a result, in December 1987, the EPA Assistant Administrator for Air and Radiation mandated changes in the implementation of the PSD program, including the adoption of a new "top-down" approach to BACT decision making.

The top-down BACT approach essentially starts with the most stringent (or top) technology and emission limits that have been applied elsewhere to the same or a similar source category. The applicant must next provide a basis for rejecting this technology in favor of the next most stringent technology or propose using it. Rejection of control alternatives may be based on technical or economic infeasibility. Such decisions are made on the basis of physical differences (e.g., fuel type), locational differences (e.g., availability of water), or significant differences that may exist in the environmental, economic, or energy impacts. The differences between the proposed facility and the facility, for which the control technique was applied previously, must be justified. EPA has issued a draft guidance document on the top-down approach entitled *Top-Down Best Available Control Technology Guidance Document* (EPA, 1990). FDEP utilizes the "top-down" BACT approach.

3.2.3 Source Impact Analysis

A source impact analysis must be performed for a proposed major source subject to PSD review for each pollutant for which emissions exceed the significant emission rate (Table 3-2). The PSD regulations specifically provide for the use of atmospheric dispersion models in performing impact analyses, estimating baseline and future air quality levels, and determining compliance with AAQS and allowable PSD increments. Designated EPA models normally must be used in performing the impact analysis. Specific applications for other than EPA-approved models require EPA's consultation and prior approval. Guidance for the use and application of dispersion models is presented in the EPA publication *Guideline on Air Quality Models (Revised, November 9th, 2005)*. The source impact analysis for criteria pollutants to address compliance with AAQS and PSD Class II increments may be limited to the new source if the impacts as a result of the new source are below significance impact levels, as presented in Table 3-1.

The EPA has proposed significant impact levels for Class I areas, as follows:

Pollutant	Averaging Time	Proposed EPA PSD Class I Significant Impact Levels ($\mu g/m^3$)
SO_2	3-hour	1
	24-hour	0.2
	Annual	0.1
PM_{10}	24-hour	0.3
	Annual	0.2
NO_2	Annual	0.1

[a] $\mu g/m^3$ = micrograms per cubic meter.

Although these levels have not been officially promulgated as part of the federal PSD regulations and may not be binding for states in performing PSD reviews, the levels serve as a guideline in assessing a source's impact in a Class I area. The EPA action to incorporate Class I significant impact levels in the PSD process is part of implementing NSR provisions of the 1990 CAA Amendments. Because the process of developing the regulations will be lengthy, EPA believes that the guidance concerning the significant impact levels is appropriate to assist states in implementing the PSD permit process. The FDEP has accepted the use of these significant impact levels.

Various lengths of meteorological data records can be used for impact analysis. A five-year period can be used with corresponding evaluation of highest, second-highest short-term concentrations for comparison to AAQS or PSD increments. The term "highest, second-highest" (HSH) refers to the highest of the second-highest concentrations at all receptors (i.e., the highest concentration at each receptor is discarded). The second-highest concentration is significant because short-term AAQS specify that the standard should not be exceeded at any location more than once a year. If fewer than five years of meteorological data are used in the modeling analysis, the highest concentration at each receptor normally must be used for comparison to air quality standards.

The term "baseline concentration" refers to a concentration level corresponding to a specified baseline date and certain additional baseline sources. By definition, in the PSD regulations as amended August 7, 1980, baseline concentration means the ambient concentration level that existed in the baseline area at the time of the applicable baseline date. A baseline concentration is determined for each pollutant for which a baseline date is established and includes:

1. The actual emissions representative of facilities in existence on the applicable baseline date; and
2. The allowable emissions of major stationary facilities that commenced construction before January 6, 1975, for SO_2 and PM(TSP) concentrations or February 8, 1988, for NO_2 concentrations, but that were not in operation by the applicable baseline date.

The following emissions are not included in the baseline concentration and, therefore, will affect PSD increment consumption.

1. Actual emissions from any major stationary facility on which construction commenced after January 6, 1975, for SO_2 and PM(TSP) concentrations and after February 8, 1988, for NO_2 concentrations; and
2. Actual emission increases and decreases at any stationary facility occurring after the baseline date.

In reference to the baseline concentration, the term "baseline date" actually includes three different dates:

1. The major facility baseline date, which is January 6, 1975, in the cases of SO_2 and PM (TSP) and February 8, 1988, in the case of NO_2.

2. The minor facility baseline date, which is the earliest date after the trigger date on which a major stationary facility or major modification subject to PSD regulations submits a complete PSD application.

3. The trigger date, which is August 7, 1977, for SO_2 and PM (TSP) and February 8, 1988, for NO_2.

The minor source baseline date for SO_2 and PM (TSP) has been set as December 27, 1977, for the entire State of Florida [Rules 62-204.200(22); 62-204.360, F.A.C.]. The minor source baseline for NO_2 has been set as March 28, 1988 [Rule 62-204.200(22); 62-204.360, F.A.C.]. It should be noted that references to PM (TSP) are also applicable to PM_{10}.

3.2.4 Air Quality Monitoring Requirements

In accordance with requirements of 40 CFR 52.21(m) and Rule 62-212.400(7)(f), F.A.C., any application for a PSD permit must contain an analysis of continuous ambient air quality data in the area affected by the proposed major stationary facility. For a new major facility, the affected pollutants are those that the facility potentially would emit in significant amounts.

Ambient air monitoring for a period of up to one year generally is appropriate to satisfy the PSD monitoring requirements. Data for a minimum of four months are required. Existing data from the vicinity of the proposed source may be used, if it meets certain quality assurance requirements; otherwise, additional data may be needed. Guidance in designing a PSD monitoring network is provided in *Ambient Monitoring Guidelines for Prevention of Significant Deterioration* (EPA, 1987a).

The regulations include an exemption that excludes or limits the pollutants for which an air quality analysis must be conducted. This exemption states that a proposed major stationary facility is exempt from the monitoring requirements with respect to a particular pollutant, if the emissions of the pollutant from the facility would cause, in any area, air quality impacts less than the *de minimis* levels presented in Table 3-2 (Rule 62-212.400-3(e), F.A.C.). If a facility's predicted impacts are less than the *de minimis* levels, then preconstruction monitoring is not required.

3.2.5 Source Information/GEP Stack Height

Source information must be provided to adequately describe the proposed facility. The general information required for this facility is presented in Section 2.0.

The 1977 CAA Amendments require that the degree of emission limitation required for control of any pollutant cannot be affected by a stack height that exceeds GEP or any other dispersion technique. On July 8, 1985, EPA promulgated final stack height regulations (EPA, 1985a). Identical regulations have been adopted by FDEP (Rule 62-210.550, F.A.C.). GEP stack height is defined as the highest of:

1. 65 meters (m); or
2. A height established by applying the formula:

   $$Hg = H + 1.5L$$

   where:

   Hg = GEP stack height,

   H = Height of the structure or nearby structure, and

   L = Lesser dimension (height or projected width) of nearby structure(s); or
3. A height demonstrated by a fluid model or field study.

"Nearby" is defined as a distance up to five times the lesser of the height or width dimensions of a structure or terrain feature, but not greater than 0.8 kilometer (km). Although GEP stack height regulations require that the stack height used in modeling for determining compliance with AAQS and PSD increments not exceed the GEP stack height, the actual stack height may be greater.

The stack height regulations also allow increased GEP stack height beyond that resulting from the above formula in cases where plume impaction occurs. Plume impaction is defined as concentrations measured or predicted to occur when the plume interacts with elevated terrain. Elevated terrain is defined as terrain that exceeds the height calculated by the GEP stack height formula.

3.2.6 Additional Impact Analysis

In addition to air quality impact analyses, PSD regulations require analyses of the impairment to visibility and the impacts on soils and vegetation that would occur as a result of the proposed source [Rule 62-212.400(8), F.A.C.]. Impacts as a result of general commercial, residential, industrial, and other growth associated with the source also must be addressed. These analyses are required for each pollutant emitted in significant amounts (see Table 3-2).

3.2.7 Air Quality Related Values

An Air Quality Related Value (AQRV) analysis is required to assess the potential impact on AQRVs in PSD Class I areas. The Chassahowitzka Wilderness Area is the closest Class I area to the Crystal River site, and is located about 22 km to the south of the site. In addition, the St. Marks National Wilderness Area (NWA) is located about 175 km to the northwest of the plant site.

The U.S. Department of the Interior in 1978 administratively defined AQRVs to be:

> *All those values possessed by an area except those that are not affected by changes in air quality and include all those assets of an area whose vitality, significance, or integrity is dependent in some way upon the air environment. These values include visibility and those scenic, cultural, biological, and recreational resources of an area that are affected by air quality.*
>
> *Important attributes of an area are those values or assets that make an area significant as a national monument, preserve, or primitive area. They are the assets that are to be preserved if the area is to achieve the purposes for which it was set aside (Federal Register, 1978).*

The AQRVs include visibility, freshwater and coastal wetlands, dominant plant communities, unique and rare plant communities, soils and associated periphyton, and the wildlife dependent on these communities for habitat. Rare, endemic, threatened, and endangered species of the national park and bioindicators of air pollution (e.g., lichens) must also be evaluated.

3.3 Nonattainment Rules

FDEP has nonattainment provisions (Rule 62-212.500, F.A.C.) that apply to all major new facilities located in a nonattainment area. In addition, for major facilities that are located in an attainment or unclassifiable area, the nonattainment review procedures apply if the source or modification is located within the area of influence of a nonattainment area. The Crystal River facility is located in Citrus County, which is classified as an attainment area for all criteria pollutants. Therefore, nonattainment new source requirements are not applicable.

3.4 Emission Standards

3.4.1 New Source Performance Standards

The New Source Performance Standards (NSPS) are national emission standards, 40 CFR 60, that apply to specific categories of new sources. As stated in the 1977 Clean Air Act Amendments, these standards "shall reflect the degree of emission limitation and the percentage reduction achievable through application of the best technological system of continuous emission reduction the Administrator determines has been adequately demonstrated."

Crystal River Units 4 and 5 are affected facilities under NSPS Subpart D. The proposed upgrades to Units 4 and 5 do not constitute a modification or reconstruction under the NSPS rules, so applicability of NSPS emission standards to Units 4 and 5 is unchanged by the proposed project. Units 4 and 5, therefore, are not subject to the new mercury emission standard at 40 CFR 60.45Da or to the 0.15 lb/MMBtu NOx limit at 40 CFR 60.44Da(d)(2).

The CBO™ FBC is a steam generating unit and an affected facility under NSPS Subpart Dc. The emissions limits in Subpart Dc that apply to coal combustion do not apply to this system because the high-carbon fly ash does not meet the ASTM definition of "coal."

There are also applicable notification, reporting, and recordkeeping requirements in the general provisions of 40 CFR Subpart A. These are summarized below:

40 CFR 60.7 Notification and Record Keeping

- (a)(1) Notification of the date of construction - 30 days after such date.
- (a)(3) Notification of actual date of initial start-up - within 15 days after such date.
- (a)(5) Notification of date which demonstrates CEM - not less than 30 days prior to date.

60.7 (b) Maintain records of all start-ups, shutdowns, and malfunctions.

- (c) Excess emissions reports – semi-annually by the 30th day following six-month period (required even if no excess emissions occur).
- (d) Maintain file of all measurements for two years.

60.8 Performance Tests

(a) must be performed within 60 days after achieving maximum production rate but no later than 180 days after initial start-up.

(d) Notification of Performance tests at least 30 days prior to them occurring.

3.4.2 Florida Rules

Florida has adopted the NSPS by reference in Rule 62-204.800(8), F.A.C. Therefore, the facility is required to meet the same emissions, performance testing, monitoring, reporting, and record keeping as those described in Section 3.4.1. FDEP has authority for implementing NSPS requirements.

3.4.3 Florida Air Permitting Requirements

The FDEP regulations require any new source to obtain an air permit prior to construction. Major new sources must meet the appropriate requirements as discussed previously. Required permits and approvals for air pollution sources include PSD, NSPS, National Emission Standards for Hazardous Air Pollutants (NESHAP), Permit to Construct, and Permit to Operate. The requirements for construction permits and approvals are contained in Rules 62-4.030, 62-4.050, 62-4.210, 62-210.300(1), and 62-212.400, F.A.C. Specific emission standards are set forth in Chapter 62-296, F.A.C.

3.4.4 Local Air Regulations

Citrus County does not have a local air compliance authority. There are currently no local air quality regulations more stringent than those at the state level.

3.5 Source Applicability

3.5.1 Area Classification

The Project is located in Citrus County, which has been designated by EPA and FDEP as an attainment area (includes unclassifiable) for all criteria pollutants. Citrus County and surrounding counties are designated as PSD Class II areas for SO_2, PM(TSP), and NO_2. The Chassahowitzka National Wilderness Area (NWA) is the closest Class I area to the Crystal River site, and is located about 22 km to the south of the site. In addition, the St. Marks NWA is located about 175 km to the northwest of the plant site.

3.5.2 PSD Review

3.5.2.1 Pollutant Applicability

Crystal River is classified as an existing major facility. A modification to an existing major facility that results in a significant net emissions increase equal to or exceeding the significant emissions rates (SER) listed in Section 62-212.400, Table 212.400-2, F.A.C., is classified as a major modification and will be subject to the PSD New Source Review (NSR) preconstruction permitting program for those pollutants that exceed the PSD SERs. EPA has approved Florida's State Implementation Plan (SIP), which contains PSD regulations; therefore, PSD approval authority has been granted to the FDEP.

The procedures for determining applicability of the PSD NSR permitting program to the Crystal River Units 4 and 5 control equipment installation project are specified in Rule 62-212.400(2), F.A.C. For each regulated pollutant, PSD is triggered as a result of a modification at an existing unit if the difference between the projected actual emissions and the baseline actual emissions equals or exceeds the significant emissions rate for that pollutant, as defined at Rule 62-210.200(243), F.A.C.

As described previously, the "Project" for PSD review purposes consists of the installation of SCR systems on Units 4 and 5 (the application submitted on April 25, 2006) and low NOx burners to reduce NO_X emissions. The installation of FGD systems on Units 4 and 5 is for SO_2 control. The installation of an SCR system can result in additional SO_3 emissions due to the catalytic effect on the sulfur dioxide contained in the flue gas. Since the FGD system is located downstream of the SCR, there is the possibility for increased formation of sulfuric acid mist (H_2SO_4 or SAM), which is a PSD-affected pollutant. Therefore, the addition of an alkali injection system for reducing SO_3 formation resulting combustion and the SCR catalyst and subsequent SAM formation in the FGD is also addressed in this application package. Finally, the installation of a CBO™ unit is planned to address the fly ash carbon and ammonia content that is an ash marketability issue.

Projected actual emissions for the project, as shown in Table 2-6, will not exceed the PSD significant emission rates for SO_2 and NO_X. Therefore, PSD review is not applicable for these pollutants.

The proposed condition offered for consideration related to these pollutants is:

> The applicant shall maintain monthly and submit to the Department on an annual basis for a period of ten years from the date the project is completed, information demonstrating in

accordance with Rule 62-212.300(1)(e)(1), F.A.C. that the modification did not result in significant emissions increases of NO_X, SO_2, and VOCs., as defined in Rule 62-210.200(234). The emissions computation and reporting shall be based on the requirements of Rule 62-210.370 F.A.C. The basis for evaluating an emission increase is on a tons-per-calendar-year basis.

The recent Department rulemaking with respect to new source review (NSR) reform provides for consideration of startup and shutdown emissions, as well as fugitive emissions, in NSR applicability determinations (FDEP Rule 210.200(34)(a)(1), Definitions). Progress Energy does not anticipate that the Units 4 and 5 emissions magnitude during startup and shutdown operations, or the number of startups and shutdowns, post-change will be any different than current operations. An established startup and shutdown procedure is followed by plant personnel. This procedure will continue to guide the post-change operations.

As shown in Table 2-6, potential net emissions increase from the Project will trigger PSD review for CO, VOCs, PM/PM_{10} and H_2SO_4. Impacts of a pollutant predicted to be above the significant impact level requires a modeling analysis incorporating the impacts from other sources. (Note: EPA no longer requires PSD review for HAPs).

3.5.2.2 Emission Standards

Crystal River Units 4 and 5 are affected facilities under NSPS Subpart D. The proposed upgrades to Units 4 and 5 do not constitute a modification or reconstruction under the NSPS rules, so applicability of NSPS emission standards to Units 4 and 5 is unchanged by the proposed project. Units 4 and 5, therefore, are not subject to the new mercury emission standard at 40 CFR 60.45Da or to the 0.15 lb/MMBtu NOx limit at 40 CFR 60.44Da(d)(2).

The CBO™ FBC is a steam generating unit and an affected facility under NSPS Subpart Dc. The emissions limits in Subpart Dc that apply to coal combustion do not apply to this system because the high-carbon fly ash does not meet the ASTM definition of "coal."

3.5.2.3 Ambient Monitoring

Based on the potential emissions increase from the Project (see Table 2-6), pre-construction ambient monitoring analyses are required for CO, and PM_{10}. If the ambient impacts of these pollutants are less than the applicable *de minimis* monitoring concentration (100 TPY in the case of VOC), then an exemption from the pre-construction ambient monitoring requirement is available per Rule 62-

212.400(3)(e), F.A.C. As shown in Table 6-11, the Project's impacts due to stack emissions are predicted to be below the applicable *de minimis* monitoring concentration levels for all pollutants. However, for PM_{10}, the Project's impacts due to stack emissions and material handling operations, including truck traffic, are presumed to exceed the *de minimis* monitoring concentration level. Therefore, pre-construction monitoring data are required to be submitted for PM_{10}.

It should be noted that, although PSD review is triggered for H_2SO_4, ambient monitoring is not required since there is no *de minimis* monitoring concentration level established for this pollutant.

3.5.2.4 GEP Stack Height Impact Analysis

The GEP stack height regulations allow any stack to be at least 65 meters or 213 ft high. The calculated GEP stack height is 690 ft high. The stacks for the Project will be 550 ft, and, therefore, do not exceed the GEP stack height. However, as discussed in Section 6.0, Air Quality Modeling Approach, since the stack height is less than GEP, building downwash effects are considered in the modeling analysis.

3.5.3 <u>Other Clean Air Act Requirements</u>

The 1990 Clean Air Act Amendments established the Acid Rain Program to reduce the release of acidic deposition precursors, SO_2 and NO_X. EPA's final regulations were promulgated on January 11, 1993, and included permit provisions (40 CFR Part 72), allowance system (Part 73), continuous emission monitoring (Part 75), NOx provisions (Part 76), excess emission procedures (Part 77), and appeal procedures (Part 78).

The Acid Rain Program applies to all existing and new utility units except those serving a generator less than 25 MW, existing simple cycle CTs, and certain non-utility facilities; units which fall under the program are referred to as "affected units." The Acid Rain Program regulations will continue to be applicable to the Project.

In addition, on May 12, 2005, EPA promulgated a rule to reduce emissions of SO_2 and NO_X from electric generating units located in 29 eastern states, including Florida. This rule was codified as a revision to Subpart G of 40 CFR Part 51. The stated objective of the Clean Air Interstate Rule (CAIR) is to assist eastern states in achieving attainment with the new, more stringent $PM_{2.5}$ and the 8-hour ozone National Ambient Air Quality Standards (NAAQS) by reducing precursor emissions in upwind areas. Progress Energy is proposing this Project, in part, to allow it to reduce NO_X and SO_2 emissions such that it will not have to buy allowances. Specific compliance of the Crystal River site with Florida's CAIR implementing regulations will be addressed following their finalization, in a separate subsequent application package as required by rules that the Department is planning to promulgate in 2006.

In addition to CAIR, EPA also promulgated a rule to limit mercury emissions from all new and existing coal-fired utility boilers on May 18, 2005. This rule was codified as a revision to Subpart B of 40 CFR Part 60. This Clean Air Mercury Rule (CAMR) will set an initial nation-wide cap on mercury emissions from coal-fired boilers of 38 TPY beginning in 2010, with an additional decrease to 15 TPY by 2018. Progress Energy is proposing to install the SCRs and FGDs, in part, to achieve the co-benefit of reducing mercury emissions to levels that will allow it to not have to buy allowances. Compliance of the Crystal River site with the CAMR rule will be addressed in a separate subsequent application package as required by rules that the Department is planning to promulgate in 2006.

4.0 CONTROL TECHNOLOGY REVIEW

4.1 Applicability

Per the PSD regulations, the Project is required to undergo a control technology review for CO, VOCs, PM/PM_{10} and H_2SO_4 (see Section 3.0). This section presents the applicable NSPS and the proposed BACT for this project. The approach to the BACT analysis is based on the regulatory definitions of BACT, as well as consideration of EPA's current policy guidelines requiring a "top-down" approach. A BACT determination requires an analysis of the economic, environmental, and energy impacts of the proposed and alternative control technologies. The analysis must, by definition, be specific to the Project (i.e., case-by-case).

4.2 New Source Performance Standards

Crystal River Units 4 and 5 are affected facilities under NSPS Subpart D. The proposed upgrades to Units 4 and 5 do not constitute a modification or reconstruction under the NSPS rules, so applicability of NSPS emission standards to Units 4 and 5 is unchanged by the proposed project. Units 4 and 5, therefore, are not subject to the new mercury emission standard at 40 CFR 60.45Da, the 0.03 lb/MMBtu PM limit at 40 CFR 60.42a, or to the 0.15 lb/MMBtu NOx limit at 40 CFR 60.44Da(d)(2). There are no applicable NSPS standards for CO, VOC or H_2SO_4 emissions, which are pollutants addressed by the BACT analyses below.

The CBO™ FBC is a steam generating unit and an affected facility under NSPS Subpart Dc. The emissions limits in Subpart Dc that apply to coal combustion do not apply to this system because the high-carbon fly ash does not meet the ASTM definition of "coal."

4.3 Best Available Control Technology (BACT)

4.3.1 <u>Carbon Monoxide and Volatile Organic Compounds</u>

4.3.1.1 Carbon Monoxide

There are no applicable NSPS for the control of carbon monoxide (CO) from utility boilers. CO emissions result from incomplete combustion of the fuel. CO emissions are controlled by boiler design features and combustion air feed rates. The boiler will be designed and operated for high-combustion efficiency, which will inherently minimize the production of CO.

Theoretically, CO emissions can be reduced by passing the flue gas over an oxidation catalyst at a suitable temperature (900 to 1,000°F). In practice, this technology has several unknowns and disadvantages, including the following:

1. No utility pulverized coal-fired boilers are operating with catalytic CO control systems and it would be difficult to locate an oxidation catalyst in the proper temperature zone in a boiler.
2. Catalyst converts up to 70 percent of SO_2 to SO_3.
3. There is a lack of experience with large-scale operation of this technology using particulate-laden gases from coal-fired boilers. Catalysts can be easily eroded and fouled by silica and trace metals in the flue gas.
4. The temperature profile of the flue gas does not match the temperature requirements of typical catalysts.
5. Use of an undemonstrated catalyst technology would reduce the availability and reliability of the plant (e.g., catalyst plugging).
6. The high costs to install and operate the system (additional pressure drop, catalyst replacement and disposal, etc.) are without corresponding demonstrated needs or benefits. Design and operation of the boiler to efficiently combust the fuel will minimize CO emissions. The additional costs to further lower emissions are not justified.

CO emission limits established *for new units* as BACT over the last several years range from 0.1 to 0.2 lb/MMBtu, with a median average of 0.15 lb/MMBtu. Combustion control is the primary method used to control CO emissions.

4.3.1.2 Volatile Organic Compounds

Similar to CO, there are no applicable NSPS for VOC emission (hydrocarbons) from utility boilers. VOC emissions result from incomplete combustion of the fuel. This incomplete combustion can result from poor air/fuel mixing or insufficient oxygen for combustion. Such emissions are reduced by modifying design features of the boiler and control of the combustion air feed rates. Design of a boiler and combustion air system to efficiently burn the coal represents the control technology with the greatest degree of emissions reduction.

BACT emission limits established *for new units* over the last several years range from 0.0024 to 0.01, with a median average of about 0.0036 lb/MMBtu. The predominant control method is combustion control.

4.3.1.3 Proposed BACT and Rationale

Good combustion practices are the only technically feasible method of controlling CO and VOC emissions from Units 4 and 5. The use of good combustion controls has been identified as BACT for CO control for every major coal-fired boiler identified in the U.S. EPA's RACT/BACT/LAER clearinghouse database. This control technology is technically feasible, and is identified as BACT for these PC boilers. Therefore, design of a boiler and combustion air system to efficiently burn the coal represents BACT for control of CO and VOC emissions. There are no other control devices demonstrated that are available or feasible for the Project. The CO and VOC emission rates for the Units 4 and 5 boilers of 0.2 lb/MMBtu and 0.004 lb/MMBtu, respectively, are within the range of emission rates recently established as BACT *for new units*. As these are *existing* units, the emission levels proposed meet the intent of the case-by-case BACT provisions.

Because of lower furnace temperatures at low loads, low boiler loads can result in elevated CO and VOC emissions in terms of pounds per million Btu of heat input. However, the overall mass emission rate is relatively constant over the entire boiler operating range from initial ignition at startup to full load. Therefore, the allowable emission limit representing BACT should reflect the constant mass output equal to a full load emission rate of 7,200 MMBtu/hr per unit.

Therefore, Progress Energy proposes the following emission limits as BACT:

- CO and VOC emissions shall be controlled using good combustion practices.
- CO emissions shall be limited to the higher of 0.2 pounds per million Btu of heat input or 1,440 pounds per hour, based on a three-hour test average, whichever is greater.
- VOC emissions shall be limited to the higher of 0.004 pounds per million Btu of heat input or 28.8 pounds per hour, based on a three-hour test average, whichever is greater.

The limitation is stated in terms of the higher of pounds per million Btu or pounds per hour to address low boiler load operations.

4.3.2 Sulfuric Acid Mist (SAM)

4.3.2.1 Technology Description

The formation of SAM is a result of gaseous SO_3 formed in the combustion process and SO_3 formed by oxidation in the SCR catalyst. SO_3 readily reacts with moisture in the flue gas to convert to sulfuric acid (H_2SO_4). As the flue gas temperature drops, the sulfuric acid vapor converts to liquid and becomes extremely corrosive and can cause damage to equipment. Numerous studies have been conducted examining the relationship between the SO_3 concentration and the sulfuric acid dew point, and a range of temperatures has been established for the dew point of sulfuric acid versus SO_3 concentration levels. At a 90-ppmv SO_3 concentration, the sulfuric acid dew point temperature range is between 295 and 340°F. At a much lower SO_3 concentration of 6 ppmv, the estimated dew point range drops to between 260 and 280°F.

SAM contributes to PM_{10} and the visible "blue" plumes in the atmosphere from facilities with FGD systems. When exiting the boiler, SO_3 is difficult to control in standard ESP designs. Some control is obtained in wet FGD systems, but the majority of the SO_3 goes uncontrolled and is condensed into SAM aerosol. These aerosols have a particle size within the wavelength of light and are usually exhibited as a blue haze in plumes. Levels of 10 ppm or less are recommended to reduce the "blue" plume phenomenon.

The formation of SO_3 in the combustion process is highly dependent on the boiler operation (e.g., excess O_2) and fuel sulfur content. The installation of SCR contributes towards the formation of SO_3 from SO_2, by increasing the oxidation of SO_2 to SO_3. Typical oxidation rates are 0.25 percent per catalyst layer. For two catalyst layers, an oxidation rate of 0.5 percent would occur.

Abatement technologies for SAM can be classified as sorbent injection techniques in the furnace, sorbent injection upstream of a particulate control device, but downstream of the SCR system, and add-on pollution control equipment such as a wet ESP.

4.3.2.2 Boiler Injection Technologies

Boiler injection technologies involve the injection of sorbents within the boiler that react with SO_3 and are subsequently collected in the particulate control device. These technologies include:

magnesium hydroxide [$Mg(OH)_2$] slurry injection, dolomitic lime [$Ca(OH)_2$ * $Mg(OH)_2$] injection, limestone injection in the boiler (LIMB), and OmniClear™ injection.

Slurry $Mg(OH)_2$ is a reactive alkali compound that can be used to mitigate SO_3 emissions. The overall chemical reaction can be summarized as follows:

$$Mg(OH)_2 + SO_3 \rightarrow MgSO_4 + H_2O$$

Dolomite ($CaCO_3$ * $MgCO_3$) is a limestone mineral, an alkaline compound, that can react with and remove SO_3 from the flue gas. The overall chemical reactions can be summarized as:

$$CaCO_3 + SO_3 + H_2O \rightarrow CaSO_4 + H_2O + CO_2$$

$$MgCO_3 + SO_3 + H_2O \rightarrow MgSO_4 + H_2O + CO_2$$

Limestone is an alkaline compound that can react with and remove SO_3 from the flue gas. The overall chemical reaction can be summarized as:

$$CaCO_3 + SO_3 + H_2O \rightarrow CaSO_4 + H_2O + CO_2$$

OmniClear™ products include mixtures of calcium and magnesium compounds, custom blended for particular applications. The OmniClear™ blend for furnace injection in a given application is designed to maximize SO_3 removal efficiency, while minimizing increased particulate loading and removal issues. The overall chemical reactions are similar to:

$$CaCO_3 + SO_3 + H_2O \rightarrow CaSO_4 + H_2O + CO_2$$

$$MgCO_3 + SO_3 + H_2O \rightarrow MgSO_4 + H_2O + CO_2$$

An injection system utilizing pumps is used to inject the sorbent into the furnace where they react with SO_3. Slurry $MgCO_3$ and dolomite injection technology will potentially remove up to 90 percent of the combustion generated SO_3. Limestone and OmniClear™ injection have lower efficiencies. While these technologies will remove SO_3 from the combustion process, they will not significantly reduce the SO_3 downstream of the SCR system. Therefore, these technologies are not considered technically feasible as BACT.

4.3.2.3 Post-combustion Injection Technologies

The post-combustion injection SAM-control technologies involve injection of reactants downstream of the SCR and air heater and upstream of a PM control device for removal of SO_3. The injection technologies include sodium bicarbonate ($NaHCO_3$) injection, calcium hydroxide – hydrated lime [$Ca(OH)_2$] injection, Trona injection, dry magnesium oxide (MgO) injection, sodium bisulfite ($NaHSO_3$ or SBS) injection, calcium carbonate ($CaCO_3$) injection, micronized limestone injection, and ammonia (NH_3) injection.

Dry sodium bicarbonate is an alkaline compound that can react with and remove SO_3 from the flue gas. Sodium bicarbonate is injected as a dry fine powder and forms a water-soluble particulate. The overall chemical reaction can be summarized as:

$$NaHCO_3 + SO_3 \rightarrow Na2SO_4 + NaHSO_4 + H_2O + CO_2$$

Hydrated lime or calcium hydroxide is a reactive alkaline compound that can be used to mitigate SO_3 emissions. This sorbent is injected as a dry powder with SO removal in the gas stream and the particulate control device. This technology is similar to that used in spray-dryer absorber systems, when combined with an ESP or fabric filter for SO_2 and SO_3 control using low-sulfur coals. The overall chemical reaction with the SO_3 can be summarized as:

$$Ca(OH)_2 + SO_3 \rightarrow CaSO_4 + H_2O$$

Trona, or hydrated sodium bicarbonate carbonate, is a reactive alkaline compound that can be used to mitigate SO_3 emissions. The overall chemical reaction involving SO_3 can be summarized as:

$$aNaHCO_3\ Na2CO_3{\cdot}2H_2O + bSO_3 \rightarrow cNaHSO_4 + dNa2SO_4 + eCO_2 + fH_2O$$

$Mg(OH)_3$ is a very reactive alkaline compound that can be used to mitigate SO_3 emissions. The overall chemical reaction can be summarized as:

$$MgO_3 + SO_3 \rightarrow MgSO_4$$

$NaHSO_3$ can react with SO_3 in the flue gas to form sodium sulfate and sodium bisulfate. The overall chemical reaction is:

$$2NaHSO_3 + SO_3 \rightarrow Na2SO_4 + 2SO_2 + H_2O$$

Since commercially available $NaHSO_3$ has up to 10 percent by weight of sodium sulfite, the following side reaction occurs:

$$Na2\ SO_3 + SO_2 + H_2O \rightarrow 2NaHSO_3$$

The $NaHSO_3$ generated by the side reaction can react and remove SO_3 in the flue gas. Alternately, it can react directly with SO_3 and remove it as sodium sulfate:

$$Na2SO_3 + SO_3 + O_2 \rightarrow Na2SO_4$$

Micronized dry limestone is an alkaline compound that can provide a large amount of surface area to allow deposition (condensation and adsorption) and removal of the SO_3 on the small limestone particles (large surface area). The adsorption removal mechanism (adsorption of SO_3 on the micronized limestone particles) for SO_3 follows the overall chemical reaction:

$$CaCO_3 + SO_3 + H_2O \rightarrow CaSO_4 + H_2O + CO_2$$

NH_3 injected in the flue gas reacts with SO_3 to form ammonium sulfate and ammonium bisulfate salts. The overall reaction is:

$$NH_3 + H2SO_4 \rightarrow (NH_4)_2SO_4$$

$$2NH_3 + H2SO_4 \rightarrow (NH_4)HSO_4$$

$NaHCO_3$, $NaHSO_3$, and magnesium hydroxide have high reactivities with SO_3 and are predicted to achieve 80- to 90-percent removal of SO_3. $NaHSO_3$ technology is commercially available, and has been installed in over a dozen units for SO_3 control. An advantage of $NaHSO_3$ injection is that a reaction with SO_2 does not occur, as with other alkaline sorbents (e.g., calcium- or magnesium-based compounds). $Ca(OH)_2$ and limestone are not as reactive with SO_3, and would have removal efficiencies of less than 80 percent. Ammonia injection can from ammonium bisulfate or ammonium sulfate depending upon the molar ratio for injection. Ammonia sulfate is desired since it is a solid particle. Ammonia injection has shown removal efficiencies of 90 percent prior to particulate control devices.

Sorbent injection prior to an ESP is considered a commercially available and demonstrated technology for the Project. This technology would also have benefits for downstream components, by reducing potential corrosion in the ductwork, ESP, and FGD System inlet due to the formation of SAM. Sorbent injection has been the technology of choice for projects involving the addition of SCR and FGD systems to existing units.

The FGD will reduce the SAM emitted. As the SO_3 enters the absorber, some of the SO_3 converts to SAM due to the lowering of the temperature and the moisture in the gases, and reacts with the limestone slurry in the FGD absorber. The actual removal efficiencies vary, but are generally in the range of 20 to 40 percent. Since the FGD system is a passive control system for SAM, vendors are reluctant to guarantee SAM-removal efficiencies. For this Project, the FGD removal is based on an efficiency of 30 percent.

4.3.2.4 Add-on Controls

The recognized add-on control after the FGD System for SAM control is wet-ESPs ("WESPs"). WESPs are similar to dry ESPs, except that they are suited for acid mists. They are operated at temperatures less than 190°F. Instead of rapping mechanisms, WESPs typically use water to wash particles from the collectors. The water wash can be either intermittent or continuous. Unlike dry ESPs, resistivity of the particle is not a major factor in performance, since the gas stream has high humidity that reduces the resistivity of most particles. Due to this effect, WESPs can collect smaller particles than dry ESPs, since resistivity is lowered for all particle sizes and there is less re-entrainment. WESPs are available technology, and can provide emission reduction for SAM, but at great cost.

4.3.2.5 Basis of BACT Analysis

The available and demonstrated pollution control technologies applicable to the Project are sorbent injection after or before the air heater, with collection of the particulate in the ESPs and the addition of WESPs after the FGD absorbers. For the purpose of the BACT analysis, the use of ammonia injection technology is being assumed. This technology is commercially available and has been demonstrated.

Because sorbent injection and WESPs are applied in different portions of the exhaust gas train, a method is needed to determine the emission levels that can be achieved as BACT with these technologies, as well as determining the cost effectiveness. To predict the amount of SAM generated in each portion of the unit, from the combustion process to the FGD exhaust, a method currently used by Progress Energy for estimating SAM emissions for the TRI reporting, was used. This method, based on test data from a variety of coal-fired units, was developed by the Southern Company, and is widely accepted within the industry and industry organizations. Table 4-1 presents the calculations of SAM emissions at various points in the exhaust gas stream from the combustion in the boiler to the stack exhaust. The basis of the calculations is the design coal. All the calculations are accounted for as SAM, even though the actual parameter may be SO_3.

The SAM formed (actually SO_3, but accounted for in the calculations as SAM) in the combustion process is 1.1 percent of the total sulfur as SO_2, based on the factors established in the Southern Company method. The SCR oxidation of SO_2 is based on 0.5 percent to account for two catalyst layers. The air heater will remove some SAM. The factor used was based on the Southern Company method for high-sulfur coals and shown in Table 4-1. This factor accounts for a 15-percent reduction in SAM emissions. The removal of SAM using ammonia injection followed by the ESP was based on 85 percent efficiency (a factor of 0.2 in Table 4-1). Higher removal efficiencies are possible with new and clean systems. A control efficiency of 85 percent was selected to account for equipment degradation (e.g., nozzle plugging) during normal operation. The SAM control efficiency for the FGD system was estimated to be 30 percent (or 0.7 factor), which represents a reduction that could possibly be guaranteed by an equipment vendor. Hypothetically, the WESP could be added downstream of the FGD system. The evaluation of WESP technology was based on a 90 percent reduction of SAM emissions.

The economic, environmental and energy impact analyses required under the requirements for a BACT evaluation are presented in the following subsections for the ammonia injection technology and WESP.

4.3.3 Impact Analysis

4.3.3.1 Economic Impact Analysis

The total estimated capital, annualized and incremental costs of $NaHSO_3$ injection are summarized in Table B-2 for Units 4 and 5, based on budgetary cost estimates. Capital cost is about $1.7 million, with an annualized cost of about $1.6 million. The cost effectiveness of the SAM emission reduction is $252 per ton.

The total estimated capital, annualized and incremental costs of WESP are summarized in Table B-3 for Units 4 and 5, based on budgetary cost estimates. Capital cost is estimated to be about $80 million, with an annualized cost of about $18.5 million. The cost effectiveness of the SAM emission reduction is $5,289 per ton of SAM removed; the incremental cost effectiveness over ammonia injection is about $50,200 per ton of SAM removed.

4.3.3.2 Environmental Impact Analysis

The ammonia injection technology will reduce SAM emissions by over 6,000 TPY, while providing downstream protection to equipment (ducts, ESPs, and FGD absorbers). The amount of energy required is minimal, thereby minimizing secondary air emissions from lost efficiency. Some additional fugitive particulate emissions would result due to material handling if urea is used to generate ammonia, but would be minimal with the use of control equipment (bin vent filters on reagent silos).

The addition of WESP will further reduce SAM emissions by about 370 TPY over ammonia injection. Other collateral benefits would be minor, since PM_{10}, $PM_{2.5}$, Hg, and other HAPS would be removed by the ESPs and FGD Systems. The wet FGD Systems are very effective in removing oxidized Hg. A WESP would not provide any significant further removal of elemental Hg.

The electrical energy required to run the WESP and the pressure drop from the WESP will reduce the power that would otherwise be available from the unit by approximately 0.952 MW. The resultant loss of electrical energy will reduce the amount available for distributioin. This electrical energy would have to be generated by other units creating additional emissions. The additional emissions due to the lost generation would be about 30 TPY. The lost energy, which could otherwise be used in the electric system, would have to be replaced by other units. The 30 TPY additional emissions are for all pollutants based on natural fired generation. The WESP may require additional water use of up to about 1,000 gpm.

4.3.3.3 Energy Impact Analysis

The ammonia injection energy requirements are a result of injecting the reagent into the ductwork using numerous lances. Since the lances are relatively small when placed in the ductwork, there is very little pressure loss. The energy use is estimated to be 4,975 MWh per year for ammonia injection. This is about 0.04 percent of the gross generation. The total energy requirements of ammonia injection are equivalent to the electric needs of about 414 residential customers using 1,000 kilowatt-hours (kWh) per month.

In contrast to ammonia injection, there are significant energy penalties with the WESP, since the output is reduced due to the pressure drop and there are considerable energy requirements to operate the system. The energy required to operate the WESP equipment would be about 16,700 MWh per year per unit, while the energy required to overcome the pressure drop requires 10,200 MWh. Taken together, the total energy requirement is about 26,900 MWh. This is about 0.25 percent of the gross generation. The total energy requirements of the WESP per year could supply the electrical needs of about 2,240 residential customers using 1,000 kWh per month.

4.3.3.4 Proposed BACT and Rationale

The proposed technology for reducing SAM emissions is ammonia injection. This technology can achieve the maximum amount of emission reduction, is cost effective, and has been demonstrated and accepted for FGD retrofit conversions. The cost effectiveness of ammonia injection is less than $300 per ton of SAM removed. WESP technology, while technically feasible and demonstrated for new units, has not been applied to projects involving retrofits of FGD systems on existing units. The incremental cost effectiveness of WESP, over that of ammonia injection, is over $50,000 per ton of SAM removed. This is also based on maximum SO_3 generation (i.e., 3 percent sulfur coal) and assuming 100% capacity factor. Under other sulfur coal conditions and lower capacity factors, the cost effectiveness factor will be significantly higher. There are also no substantial collateral environmental benefits for the WESP. While the WESP could remove about 370 TPY more SAM than ammonia injection, the installation of the FGD is estimated to remove over 30,000 TPY of sulfur oxides. Moreover, the ESP upgrades followed by wet FGD will effectively remove PM_{10}. The WESP will not remove additional Hg since the combined air pollution control train consisting of the

SCR, ESP, and FGD System will be sufficiently effective for the removal of Hg. Together, these controls would remove particulate Hg (ESP) and oxidized Hg (primarily due to the co-benefits of the SCR and new FGD System). The WESP would not remove elemental Hg, which would be the primary emission remaining. In addition, the energy requirements for a WESP are significant. About 26,900 MWh per year would be required to operate a WESP, which would otherwise be available to serve approximately 2,240 residential customers. Based on the economic, environmental, and energy impacts, the addition of WESPs for further control of SAM is unreasonable as BACT for the Project. A maximum SAM emission rate of 0.012 lb/MMBtu is proposed as BACT using sorbent injection (ammonia or equivalent).

Progress Energy requests that, once construction is completed, an initial compliance test be conducted, using either EPA Reference Method 8 or 8A.

4.3.4 PM/PM_{10} BACT Analysis

Combustion of coal in a pulverized coal-fired boiler creates ash, which is the non-combustible portion of the fuel. The ash is solid and therefore is classified as PM. A portion of this PM, approximately 20 percent, falls to the bottom of the boiler as bottom ash and is removed by the bottom ash system. The majority of the PM, approximately 80 percent, is fly ash and is entrained by the flue gases leaving the boiler. The majority of this fly ash is then collected by the flue gas PM removal system.

ESPs and fabric filters are the most effective PM-control devices being successfully applied to coal-fired power plants. PM removal efficiencies of these devices can be greater than 99.8 percent. Both devices are also highly effective in controlling PM_{10} emissions. Other technologies, such as mechanical collectors and wet scrubbers, have not demonstrated equivalent levels of control.

4.3.5 ESPs

In an ESP, a high-voltage electric field is produced to impart an electric charge to the solid particles in the flue gas stream. The pulsating direct current voltage in the range of 20,000 to 100,000 volts is used to ionize the gas stream, known as corona. The ions produced using a negative corona, are attracted to the particles while traveling in the ionized gas stream. These particles are then removed from the gas stream by migrating toward the collecting electrode. Rapping mechanisms, that are operated intermittently, dislodge the collected particles, which subsequently fall into a hopper. ESP performance is highly dependent on the electrical characteristics or resistivity of the particle or aerosol to be collected.

ESP performance is dependent on a number of factors, which influence the resistivity of the particle. These factors include the particle composition, flue gas characteristics, particle size distribution, and particle loading. These parameters can vary during normal operation and can influence ESP performance when gas streams come directly from the boiler.

4.3.5.1 Fabric Filters

In a fabric filter, PM is removed from the flue gas as it passes through a fabric filter media such as woven cloths or felts; hence the term "fabric filter." The filters are normally arranged as a number of cylinders or tubes (commonly referred to a "bags") through which the flue gas is directed. The filters are contained in a housing which has gas inlets and outlets. The flue gas enters the cylindrical filter from the bottom and flows upward, from either the inside of the cylinder to the outside or the opposite depending upon the design. Particulate collection occurs through several mechanisms, including gravitational settling, direct impaction, inertial impaction, diffusion, and electrostatic attraction. When the pressure drop reaches a predefined level, a section of the filters is taken offline for cleaning. Various methods are used to clean the bags in the fabric filter. The three general types of cleaning are shaker cleaning, pulse-jet cleaning, and reverse-air cleaning. All three types of cleaning methods ensures the fabric filter achieves the same low emission rates.

4.3.5.2 Proposed BACT and Rationale

A BACT determination was addressed for this project due to an anticipated increase in PM/PM10 emissions that exceeds the threshold for PSD and BACT applicability. However, the increase in PM/PM10 emissions is not directly attributed to the boilers themselves. Rather, the primary increase in PM/PM10 emissions associated with this project is due to the emissions attributed to material handling operations (i.e., limestone, gypsum and fly ash). The emission estimates and controls proposed for those operations are consistent with BACT and best management practices for similar projects.

Regarding Units 4 and 5, the ESP control systems are currently achieving high-efficiency operation (i.e., 99 percent+). As described earlier, ESP upgrades are planned that are expected to increase the control efficiency to greater than 99.9 percent. Progress Energy has not presented a cost-effectiveness comparison of ESPs and fabric filters in this analysis, as controls are currently in service that will achieve greater than 99.9 percent control, when upgrades are complete. Fabric filters will achieve control efficiencies no greater than 99.9. percent and would represent significant additional cost.

Progress Energy proposes a BACT emission limit for the ESP control systems equivalent to the recently promulgated NSPS, Subpart Da for electric utility steam generating units. Crystal River Units 4 and 5 are currently affected facilities under NSPS Subpart D. The proposed upgrades to Units 4 and 5 do not constitute a modification or reconstruction under the NSPS rules, so applicability of NSPS emission standards to Units 4 and 5 is unchanged by the proposed project. However, as the BACT floor is represented by the applicable NSPS standard, the 0.03 lb/MMBtu PM limit at 40 CFR 60.42a (the recently promulgated NSPS, Subpart Da), is proposed as BACT. Progress Energy proposes to demonstrate compliance annually with an EPA Reference Method test.

5.0 AMBIENT MONITORING ANALYSIS

The PSD rules require that an air quality analysis be conducted for each criteria and non-criteria pollutant subject to regulation under the Act before a major stationary source is constructed. Criteria pollutants are those pollutants for which AAQS have been established. Non-criteria pollutants are those pollutants that may be regulated by emission standards, for which AAQS have not been established. This analysis may be performed by the use of modeling and/or by monitoring the air quality. In addition, if EPA has not established an acceptable ambient monitoring method for the pollutant, monitoring is not required.

Based on the potential emissions from the Project (see Table 2-6), pre-construction ambient monitoring analyses for CO and PM_{10} are required as part of the application. Ambient monitoring data are not required to be submitted as part of the application if it can be demonstrated that the proposed project's maximum air quality impacts will not exceed the PSD *de minimis* concentration levels and, for O_3 (based on VOC emissions), VOC emissions of 100 TPY.

As shown in Section 6.9, the Project's maximum impacts are predicted to be below the PSD *de minimis* CO concentration levels but are presumed to be above the PSD *de minimis* PM_{10} concentration levels when PM_{10} impacts from stack emissions and from material handling operations are modeled. As a result, pre-construction ambient monitoring data for PM_{10} are provided as part of the application.

For O_3, EPA has established a PSD *de minimis* monitoring level for a project based on an increase in VOC emissions of 100 TPY or more, which would require a pre-construction ambient monitoring analysis. The Project's VOC emissions increase is estimated to be less than 100 TPY (i.e., 89.2 TPY), however, pre-construction ambient monitoring data for O_3 (based on VOC emissions) is provided as part of the application.

Monitoring data for SO_2 and NO_2 concentrations are also presented to estimate background concentrations from non-modeled sources. Although these pollutants did not trigger PSD review, modeling was performed to demonstrate that the Project's impacts, together with other sources, comply with ambient standards. These background concentrations are added to the modeled impacts from the Crystal River Plant and other background sources to estimate total air quality from all sources.

5.1 PM_{10} Ambient Monitoring Analysis

Ambient PM_{10} monitoring data from existing monitoring stations operated by FDEP are included in this application to satisfy the preconstruction monitoring requirements for PM_{10} (see Table 5-1). Citrus County and adjacent counties are classified as attainment or maintenance areas for PM_{10}. The nearest monitor to the plant site that measures PM_{10} concentrations is located in Tarpon Springs in Pinellas County, approximately 90 km to the south of the plant.

From 2003 through 2005, the second-highest 24-hour and highest annual average PM_{10} concentrations measured at the Tarpon Springs monitor were 26 and 16.7 ug/m^3, respectively. These maximum concentrations are less than the respective 24-hour and annual average PM_{10} AAQS of 150 and 50 ug/m^3.

These PM_{10} monitoring data are proposed as part of this construction permit application to satisfy the preconstruction monitoring requirement for the project. In addition, these maximum concentrations were used to represent the non-modeled background concentration to assess total air quality impacts.

5.2 O_3 Ambient Monitoring Analysis

Ambient O_3 monitoring data from existing monitoring stations operated by FDEP are included in this application (see Table 5-2). As discussed earlier, ambient monitoring data for O_3 are not required, but are included as part of the application. Citrus County and adjacent counties are classified as attainment or maintenance areas for O_3. The nearest monitors to the plant site that measure O_3 concentrations are located in Pinellas and Marion Counties. The monitoring site in Pinellas County is located in Tarpon Springs, approximately 90 km to the south of the plant, while the two monitoring sites in Marion County are located in Ocala, approximately 60 km to the east of the plant.

Since O_3 is a regional pollutant, O_3 monitoring data collected in Pinellas and Marion Counties are considered to be representative of O_3 concentrations for the region and are used to satisfy this requirement. These stations are operated by the FDEP and measure concentrations according to EPA procedures.

From 2003 through 2005, the second-highest 1-hour average O_3 concentration measured from these monitoring sites was 0.094 parts per million (ppm). This maximum concentration is less than the existing one-hour average O_3 AAQS of 0.12 ppm. In addition, the three-year average of the fourth highest eight-hour average O_3 concentrations was 0.074 ppm, and is below the revised 8-hour average O_3 AAQS of 0.08 ppm. These O_3 monitoring data are proposed as part of this construction permit application to satisfy the preconstruction monitoring requirement for the project.

Until recently, the courts had stayed these standards but they will now be implemented by the states in the next several years. FDEP has not yet adopted the revised standards.

5.3 SO_2 and NO_2 Background Analysis

The nearest monitors to the plant site that measure SO_2 and NO_2 concentrations are located in Pinellas County (see Tables 5-3 and 5-4). Two SO_2 monitors are located in Tarpon Springs, approximately 90 km to the south of the plant, and one NO_2 monitor is located in St. Petersburg, approximately 120 km to the south of the plant.

From 2003 through 2005, the second-highest three-hour, 24-hour, and highest annual average SO_2 concentrations measured at the Tarpon Springs monitors were 144, 34 and 5.5 ug/m^3, respectively. These maximum concentrations are less than the respective three-hour, 24-hour, and annual average SO_2 AAQS of 1,300; 260; and 60 ug/m^3.

From 2003 through 2005, the highest annual average NO_2 concentrations measured at the St. Petersburg monitor was 11.2 ug/m^3. This annual average concentration is less than the annual average NO_2 AAQS of 100 ug/m^3.

These maximum SO_2 and NO_2 concentrations were used to represent the non-modeled background concentration to assess total air quality impacts.

6.0 AIR QUALITY IMPACT ANALYSIS

6.1 Significant Impact Analysis Approach

6.1.1 Site Vicinity

The general modeling approach for this Project followed EPA and FDEP modeling guidelines for determining compliance with AAQS and PSD increments. For all criteria pollutants that will be emitted in excess of the PSD significant emission rate due to a proposed project, a significant impact analysis is performed to determine whether the emission and/or stack configuration changes due to the Project alone will result in predicted impacts that are in excess of the EPA significant impact levels at any location beyond the plant's restricted boundaries.

If the Project-only impacts are above the significant impact levels in the vicinity of the facility, then two additional and more detailed air modeling analyses are required. The first analysis demonstrates compliance with federal and Florida AAQS, and the second analysis demonstrates compliance with allowable PSD Class II increments.

6.1.2 PSD Class I Areas

Generally, if a major new facility is located within 200 km of a PSD Class I area, then a significant impact analysis is also performed to evaluate the impact due to the Project alone at the PSD Class I area. The maximum predicted impacts are compared to EPA's proposed significant impact levels for PSD Class I areas. These recommended levels have never been promulgated as rules but are the currently accepted criteria to determine whether a proposed Project will incur a significant impact on a PSD Class I area.

If the Project-only impacts at the PSD Class I area are above the proposed EPA PSD Class I significant impact levels, then an analysis is performed to demonstrate compliance with allowable PSD Class I impacts at the PSD Class I area.

The nearest PSD Class I areas are the Chassahowitzka National Wilderness Area (NWA), located approximately 22 km south of the plant and the St. Marks NWA, located about 175 km to the northwest. As indicated, these PSD Class I areas are within 200 km of the Crystal River Plant Site.

Air impact modeling analyses were performed for these PSD Class I areas. Air impacts were not predicted at other PSD Class I areas since they are located more than 200 km from the Crystal River Plant Site.

In addition, the Project's maximum concentrations are evaluated at the PSD Class I area for pollutants whose emissions are greater than the PSD significant emission rate, to address potential impacts on AQRV. Because the Project's net SO_2 and NO_X emissions increase did not exceed the PSD significant emission rates, regional haze degradation and acid deposition estimates for sulfur and nitrogen compounds were not required.

6.2 Pre-construction Monitoring Analysis Approach

The modeling approach followed EPA and FDEP modeling guidelines for evaluating the Project's impacts relative to the *de minimis* monitoring levels to determine the need to submit ambient monitoring data prior to construction. Current FDEP policies stipulate that the predicted highest annual average and highest short-term concentrations are to be compared to the applicable *de minimis* monitoring levels.

6.3 Air Modeling Analysis Approach

6.3.1 General Procedures

As stated in the previous sections, air modeling analyses are required to determine if the Project's impacts are predicted to be greater than the significant impact levels and *de minimis* monitoring levels for each pollutant that is emitted above the significant emission rate. These analyses consider the Project's impacts alone. Air quality impacts are predicted using five years of meteorological data and selecting the highest predicted ground-level concentrations for comparison to the significant impact levels and *de minimis* monitoring levels.

To predict the maximum annual and short-term concentrations for the Project, the modeling approach was divided into screening and refined phases. Concentrations are predicted for the screening phase using a coarse receptor grid and a 5-year meteorological data record. If the highest concentration is predicted at a receptor that lies in an area where the receptor spacing is more than 100 m, then a refined analysis is performed in that area using a receptor grid of greater resolution. Modeling refinements are performed using a receptor spacing of 100 m with a receptor grid centered on the screening receptor at which the maximum concentration was predicted. The air dispersion model is then executed with the refined grid for the entire year of meteorology during which the screening concentration occurred.

If the Project's impacts are greater than the significant impact levels, the air modeling analyses must consider other nearby sources and background concentrations to predict a total concentration for comparison to AAQS.

Generally, when using 5 years of meteorological data for the analysis, the highest annual and the highest, second-highest (HSH) short-term (i.e., 24 hours or less) concentrations are compared to the applicable AAQS and allowable PSD increments. The HSH concentration is calculated each year for a receptor field by:

1. Eliminating the highest concentration predicted at each receptor;
2. Identifying the second-highest concentration at each receptor; and
3. Selecting the highest concentration among these second-highest concentrations.

The HSH approach is consistent with AAQS and allowable PSD increments, which permit a short-term average concentration to be exceeded once per year at each receptor.

It should be noted that for determining compliance with the 24-hour AAQS for PM_{10}, the highest of the sixth-highest concentration predicted in five years (i.e., H6H), instead of the HSH concentration predicted for each year, is used to compare to the applicable 24-hour AAQS.

The AAQS analysis is a cumulative source analysis that evaluates whether the concentrations from all sources will comply with the AAQS. These concentrations include the modeled impacts from sources at the Project Site and from other nearby facility sources added to a background concentration. The background concentration accounts for sources not included in the modeling analysis.

The PSD Class II analysis is a cumulative source analysis that evaluates whether the concentrations for increment-affecting sources will comply with the allowable PSD Class II increments. These concentrations include the modeled impacts from PSD increment-affecting sources at the Project Site, plus nearby PSD increment-affecting sources at other facilities.

Because the Project's impacts were predicted to be below the PSD significant impact levels for CO, cumulative source modeling analyses were not required addressing compliance with the AAQS. However, because the Project's PM_{10} impacts due to stack emissions, material handling operations, and fugitive PM emissions sources, were above the PSD significant impact levels for PM_{10}, cumulative source modeling analyses to address compliance with the AAQS and PSD Class II increments were performed. In addition, although SO_2 and NO_X emissions from the Project did not trigger PSD review, cumulative source modeling was performed to ensure that the proposed stack design for Units 4 and 5 would comply with AAQS and allowable PSD increments.

6.3.2 PSD Class I Analysis

For each pollutant for which a significant impact is predicted at the PSD Class I area, a PSD Class I analysis is required. The PSD Class I analysis is a cumulative source analysis that evaluates whether the concentrations for increment-affecting sources located within 200 km of the PSD Class I area will comply with the allowable PSD Class I increments. These concentrations include the impacts from PSD increment-affecting sources at the Project Site, plus the impacts from PSD increment-affecting sources at other facilities.

For the Chassahowitzka NWA, the Project's impacts were predicted to be above the PSD Class I significant impact levels for PM_{10} using the CALPUFF model. As a result, cumulative source modeling analyses to address compliance with the PSD Class I increments were required. In addition, although SO_2 and NO_X emissions from the Project did not trigger PSD review, the Project's impacts were estimated at the Chassahowitzka PSD Class I area. Since the project's impacts were predicted to be above the PSD Class I significant impact levels, cumulative source modeling analyses were performed to address compliance with the PSD Class I increments for SO_2 and NO_2.

For the St. Marks NWA, the Project's impacts were predicted to be below the PSD Class I significant impact levels for PM_{10}. As a result, cumulative source modeling analyses to address compliance with the PSD Class I increments were not required. In addition, similar to the analyses for the Chassahowitzka PSD Class I area, although SO_2 and NO_X emissions from the Project did not trigger

PSD review, the Project's impacts were estimated at the PSD Class I area and were also predicted to be below the PSD Class I significant impact levels.

6.4 Model Selection

The selection of an air quality model to predict air quality impacts for the proposed projects was based on the ability of the model to simulate impacts in areas surrounding the projects as well as at the PSD Class I areas. Two air quality dispersion models were selected and used in these analyses to address air quality impacts for these projects. These models were:

- The American Meteorological Society and EPA Regulatory Model (AERMOD) dispersion model, and
- The California Puff model (CALPUFF).

The AERMOD dispersion model (Version 04300) is available on the EPA's Internet web site, Support Center for Regulatory Air Models (SCRAM), within the Technology Transfer Network (TTN). A listing of AERMOD model features is presented in Table 6-1.

On November 9, 2005, the EPA implemented AERMOD into its *Guideline of Air Quality Models (Appendix W to 40 CFR Part 51)* as the recommended model for regulatory modeling applications. The FDEP is allowing the use of AERMOD for air permitting projects as a replacement for the Industrial Source Complex Short-Term Model (ISCST3), which will no longer be in effect as of December 2006.

The EPA and FDEP recommend that the AERMOD model be used to predict pollutant concentrations at receptors located within 50 km from a source. The AERMOD model calculates hourly concentrations based on hourly meteorological data. The AERMOD model is applicable for most applications since it is recognized as containing the latest scientific algorithms for simulating plume behavior in all types of terrain. For evaluating plume behavior within the building wake of structures, the AERMOD model incorporates the Plume Rise Model Enhancement (PRIME) downwash algorithm developed by the Electric Power Research Institute (EPRI). AERMOD can predict pollutant concentrations for averaging times of annual and 24, 8, 3, and 1 hour.

The AERMOD model was used to predict the maximum pollutant concentrations due to the Crystal River Plant Project in nearby areas surrounding the plant. The AERMOD model was also used to predict the maximum pollutant concentrations due to the Project's emissions together with appropriate background sources. The predicted concentrations were then compared to the applicable AAQS and PSD Class II increments.

It should be noted that the Crystal River Plant is located within 50 km of the Chassahowitzka PSD Class I area. As a result, pollutant concentrations for the project were predicted at the area using AERMOD. However, for cumulative source modeling, in which the majority of background sources are located more than 50 km from the Class I area, the CALPUFF model was used as discussed in the following section.

For this analysis, the EPA regulatory default options were used to predict all maximum impacts.

These options include:

- Final plume rise at all receptor locations,
- Stack-tip downwash,
- Buoyancy-induced dispersion,
- Default wind speed profile coefficients,
- Default vertical potential temperature gradients, and
- Calm wind processing.

At distances beyond 50 km from a source, the CALPUFF model, Version 5.711a (EPA, 2004), is recommended for use by the EPA and the Federal Land Manager (FLM). The CALPUFF model is a long-range transport model applicable for estimating the air quality impacts in areas that are more than 50 km from a source. The CALPUFF model is maintained by the EPA on the SCRAM internet website. A listing of CALPUFF model features is presented in Table 6-2.

The methods and assumptions used in the CALPUFF model are based on the latest recommendations for modeling analysis as presented in the following reports:

- The Interagency Workgroup on Air Quality Models (IWAQM), *Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* (EPA, 1998); and

- The *Federal Land Manager's Air Quality Relative Values Workgroup (FLAG) Phase I Report* (December, 2000).

In addition, updates to the modeling methods and assumptions were followed based on discussion with the FLM.

It should be noted that the CALPUFF model was used to predict impacts at both PSD Class I areas even though the Chassahowitzka NWA is about 22 km from the Crystal River Plant site. As discussed previously, this model was used, instead of AERMOD, since cumulative source impact modeling was performed to assess PSD Class I increment consumption and included background sources. Since the majority of these background sources were located more than 50 km from the Class I area, it is appropriate to assess PSD Class I increment with the CALPUFF model.

6.5 Meteorological Data

Meteorological data used in the AERMOD model to determine air quality impacts consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) offices located at the Tampa International Airport and in Ruskin, respectively. Concentrations were predicted using five years of hourly meteorological data from 2001 through 2005. The NWS office at Tampa is located approximately 110 km (66 miles) south of the site. The FDEP consider this station to have surface meteorological data representative of the project site.

The data for these stations were processed into a format that can be input to the AERMOD model using the meteorological preprocessor program AERMET. The data were processed using the Lakes Environmental graphical interface using the latest version of AERMET (04300). The hourly surface data were obtained from the Solar and Meteorological Observation Network (SAMSON) CD. Upper air sounding data were obtained in the required NCDC TD-6201 format from the Lakes website (www.webmet.com).

A unique feature of AERMOD is its incorporation of land use parameters for the processing of boundary layer parameters used for the dispersion. Based on the most recent regulatory guidance, the land use parameters should be representative of the data measurement site (i.e., NWS at Tampa). Land use data, representing the average surface roughness, albedo, and Bowen ratio that exist within a 3-km radius of the NWS station at Tampa were extracted from 1-degree land use files from the U.S. Geographical Survey (USGS) using the AERSURFACE program. AERSURFACE currently extracts land use data in 12 wind direction sectors covering 360 degrees. The land use values for each wind direction sector were input into Stage 3 of the AERMET preprocessor program to create the surface and profile meteorological files that AERMOD requires.

For CALPUFF, the air modeling analysis was conducted using the latest meteorological and geophysical databases which have been developed for use with the most recent versions of CALPUFF. These datasets were prepared by the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) for the purpose of conducting visibility impairment analyses under the Best Available Retrofit Technology (BART) Rule. A discussion of these databases can be found in Section 4.0 of the document entitled, *Protocol for the Application of the CALPUFF Model for Analyses of BART* (revised March 9, 2006).

For the proposed project, the VISTAS Florida CALMET domain with 4-km spacing (VISTA refined Domain 2) will be used. The data cover the period from 2001 to 2003. Golder obtained these datasets from the FDEP. The FDEP and FLM have recommended their use for PSD projects.

6.6 Emission Inventory

6.6.1 Significant Impact Analysis for Applicable PSD Pollutants

A summary of the criteria pollutant emission rates, physical stack, and stack operating parameters for the Project that were used in the air modeling analysis are presented in Section 2 and in more detail in Appendix A. In an effort to obtain the maximum air quality impacts for a range of possible operating conditions, the air modeling was initially performed for the proposed stack for Units 4 and 5 considered operating loads at 100 percent (i.e., at a heat input of 7,200 MMBtu/hr per unit), 75 percent, and 50 percent. Subsequent modeling was performed with Units 4 and 5 operating at 100 percent load since this operating load generally produced the overall highest impacts. The Project impacts were based on the difference between the proposed configuration for the new stack for Units 4 and 5 and current operations (modeled as negative emissions).

For CO, the project's impacts were predicted to be less than the PSD Class II significant impact levels. Therefore, additional modeling was not required for CO.

For PM_{10}, it was presumed that the project's PM_{10} impacts, including impacts from the Unit 4 and 5's stack emissions, material handling operations, and fugitive PM_{10} emission sources, would be greater than the PSD Class II significant impact levels. Therefore, additional modeling was performed for PM_{10}. The PM_{10} significant impact distance was predicted to extend to 10 km from the facility.

6.6.2 Modeling Analysis for Project's Non-PSD Pollutants

Although SO_2 and NO_2 did not trigger PSD review, modeling was performed for these pollutants to demonstrate that the Project's impacts, together with other sources, comply with ambient standards. For these pollutants, impacts were predicted at distances that extended to 10 km from the facility to be consistent with the modeling area for PM_{10} impact analyses.

6.6.3 AAQS And PSD Class II Analyses

The maximum pollutant impacts for the proposed Project are predicted to be less than the significant impact levels for CO, but above the significant impact levels for PM_{10}. As a result, a cumulative source analysis is not required to demonstrate compliance with the CO AAQS. However, cumulative source impact analyses are required to demonstrate compliance with the 24-hour and annual average PM_{10} AAQS and PSD Class II increments. In addition, cumulative source modeling analyses for SO_2 and NO_2 were performed to address compliance with the AAQS and PSD Class II increments, even though SO_2 and NO_X emissions from the Project did not trigger PSD review.

Air quality concentrations were predicted within the area of significant impact for individual pollutants due to the project. A significant impact area (SIA) and the radius of the SIA were determined for each pollutant and averaging time combination for which the Project's impact is predicted to be significant. The radius of impact is used as the basis for determining inventory of background sources to be included in the air impact analyses.

The Project's SIA for PM_{10} concentrations are predicted to extend out to 10 km from the Project Site. Since PSD review was not triggered for either SO_2 or NO_2, the SIA for each pollutant was not determined. However, the modeling area for both pollutants was extended out to 10 km for consistency with the PM_{10} modeling.

To address PM_{10} impacts from the Project, the PM_{10} sources were modeled explicitly using the maximum PM_{10} emission rates. These sources included Units 4 and 5; change in emissions from the coal yard operations; the proposed FGD material handling system; the CBO unit material handling system; and truck traffic. In addition, other PM_{10} emission sources at the site were also modeled, including the cooling towers, flyash and bottom ash handling systems. It should be noted that the cooling towers for Units 4 and 5 were modeled separately due to the large diameter for each tower. With the stack-tip downwash option, the modeled impacts were predicted to be anomalously high since the plume height for each tower is reduced by the stack diameter. As a result, the stack-tip downwash option was not used to address impacts for these cooling towers. The maximum 24-hour and annual average PM_{10} impacts for these towers were predicted to be low (0.1 ug/m^3 or less). Detailed descriptions of these sources are presented in Appendix A.

Facilities located within the SIA for PM_{10} were modeled explicitly (considered to be the modeling area). Facilities within the SIA plus 50 km were considered to be in the screening area. All facilities in the screening area were evaluated using the *North Carolina Screening Technique*. Based on this technique, facilities whose annual emissions (i.e., TPY) are less than the threshold quantity, Q, are eliminated from the modeling analysis. Q is equal to 20 x (D-SIA), where D is the distance in km from the facility to the Project Site. In addition, sources with annual emissions greater than 500 TPY and located beyond the screening area but within 100 km of the site were also modeled.

A similar approach was used to model SO_2 and NO_2 sources. However, since the SIA was not determined for either pollutant, it was assumed that 10 km was the equivalent to the SIA for these pollutants.

Listings of background PM, SO_2, and NO_2 sources that were used in the AAQS and PSD Class II analyses and their locations relative to the Crystal River site are provided in Tables 6-3 to 6-5. Data for background sources were obtained from FDEP and were supplemented with current and historical information available within Golder. It should be noted that more sources were potentially included in the analyses by estimating Q based on subtracting a value of 15 km from D (if 10 km were used, the value of Q would be higher yielding a higher emission threshold to exclude sources from modeling).

Detailed background source data that were used for the AAQS and PSD Class II increment analyses are presented in Appendix D.

6.6.4 PSD Class I Analysis

For the Chassahowitzka NWA, cumulative source modeling analyses for PM_{10} were required to address compliance with the PSD Class I increments since the Project's impacts were predicted using the CALPUFF model to be above the PSD Class I significant impact levels for PM_{10}. In addition, for SO_2 and NO_x, although there will not be an increase in SO_2 and NO_X emissions due to the Project, cumulative source modeling analyses were performed to address compliance with the PSD Class I increments.

Listings of background PM_{10}, SO_2 and NO_X sources that were used in the PSD Class I analyses and their locations relative to the PSD Class I areas are provided in Tables 6-6 to 6-8. PSD sources located within 200 km of the Class I areas were included in the PSD Class I modeling analysis. Detailed background source data that were used for the PSD Class I analyses are presented in Appendix D.

For the St. Marks NWA, the Project's impacts were predicted to be below the PSD Class I significant impact levels for PM_{10}, SO_2, and NO_2, except for the three-hour average SO_2 impacts. As discussed in Section 6.9, since the current Units 4 and 5 configuration produces higher three-hour average SO_2 impacts than those for the proposed configuration and the distance from the Crystal River Plant and the St. Marks NWA is 175 km, no additional modeling was performed at the PSD Class I area of the St. Marks NWA.

As a result, cumulative source modeling analyses to address compliance with the PSD Class I increments at the St. Marks NWA were not performed.

6.7 Building Downwash Effects

All significant building structures in the Project area were identified by the site plot plan. The building structures were processed in the EPA Building Profile Input Program [(BPIP), Version 95086] to determine direction-specific building heights and widths for each 10-degree azimuth direction for each source that was included in the modeling analysis. A listing of dimensions for each structure is presented in Table 6-9. See Appendix D for plots of these building structures.

Based on this evaluation, the GEP stack height for the proposed stack for Units 4 and 5 was determined to be 690 ft. Since the proposed stack for Units 4 and 5 is 550 ft, building downwash effects for that emission unit were included in the air modeling analyses. For other emission units with stack releases, building downwash effects were included.

6.8 Receptor Locations

6.8.1 Site Vicinity

To determine the maximum impact for all pollutants and averaging times in the vicinity of the Project, concentrations were predicted at receptors located in detailed Cartesian receptor grids centered on the Crystal River plant site, and extended out to 10 km from the proposed stack for Units 4 and 5.

Along the plant boundary, a Cartesian receptor grid was used to predict concentrations for the Project at 527 receptors spaced at 50-m intervals.

In addition, a general Cartesian grid was used to predict concentrations beyond the plant property out to 10 km. Receptors were located at the following intervals and distances from the origin:

- Every 100 m from the plant property to 2,000 m;
- Every 250 m from 2,250 to 3,500 m;
- Every 500 m from 4,000 to 5,000 m; and
- Every 1,000 m from 6,000 to 10,000 m.

More than 2,500 receptors were used in the analysis to determine the maximum impacts for the Project.

6.8.2 Class I Area

For determining the Project's impacts at the PSD Class I areas, pollutant concentrations were predicted in an array of 214 discrete receptors located at the PSD Class I areas of the Chassahowitzka NWA and St. Marks NWA. These receptors were provided by the National Park Service (NPS).

6.9 Model Results

6.9.1 PSD Class II Significant Impact Analysis

The maximum pollutant concentrations predicted for the Project are given in Tables 6-10 and 6-11. The maximum PM_{10}, CO, SO_2, and NO_2 concentrations predicted for Units 4 and 5 with the proposed stack configuration and operating for three loads are presented in Table 6-10. The maximum PM_{10}, SO_2, and NO_2 concentrations predicted for the Project, with the current Units 4 and 5 stack configuration (emissions modeled as negative) are presented in Table 6-11.

Summaries of the maximum PM_{10} and CO concentrations predicted for Units 4 and 5 and the Project for comparison to the PSD Class II significant impact levels are presented in both tables. Although SO_2 and NO_2did not trigger PSD review, the maximum concentrations predicted for these pollutants were also compared to the PSD Class II significant impact levels.

Based on these modeling results in Table 6-10, the maximum CO concentrations due to Units 4 and 5 are predicted to be less than the PSD significant impact levels while the maximum PM_{10}, SO_2, and NO_2 concentrations are predicted to be greater than the PSD significant impact levels.

From Table 6-11, although the maximum PM_{10} concentrations are predicted to be less than the PSD Class II significant impact levels, the project's impacts, including impacts from the Unit 4 and 5's stack emissions, material handling operations, and fugitive PM emission sources, were presumed to be greater than the PSD Class II significant impact levels.

The maximum 3-hour and 24-hour average SO_2, concentrations for the Project are also predicted to be greater than the PSD significant impact levels. Although the NO_2 impacts for the project were predicted to be less than the significant impact levels, additional modeling was performed.

As a result, the Project's CO impacts are predicted to comply with the AAQS while additional modeling was performed to assess the Project's compliance with PM_{10}, SO_2, and NO_2 AAQS and PSD Class II increments.

6.9.2 PSD Class I Significant Impact Analysis

The maximum PM_{10}, SO_2, and NO_2 concentrations predicted for Units 4 and 5 alone and for the Project at the PSD Class I areas of the Chassahowitzka NWA using AERMOD are given in Tables 6-12 and 6-13.

The maximum PM_{10}, SO_2, and NO_2 concentrations predicted for Units 4 and 5 with the proposed stack configuration and operating for three loads are presented in Table 6-12. The maximum PM_{10}, SO_2, and NO_2 concentrations predicted for the Project, with the current Units 4 and 5 stack configuration (emissions modeled as negative), are presented in Table 6-13. Summaries of the pollutant concentrations predicted for Units 4 and 5 and the Project for comparison to the PSD Class I significant impact levels are presented in both tables.

Based on these modeling results in Table 6-12, the maximum PM_{10} concentrations for Units 4 and 5 are predicted to be greater than the PSD significant impact levels. Similar to the AAQS and PSD Class II increment consumption analyses, the maximum SO_2 and NO_2 concentrations are also compared to the PSD significant impact levels even though PSD review was not triggered for those pollutants. As shown in Table 6-12, maximum SO_2 and NO_2 concentrations for Units 4 and 5 are predicted to be greater than the PSD significant impact levels.

From Table 6-13, the maximum PM_{10}, SO_2, and NO_2 concentrations for the Project are predicted to be less than the PSD significant impact levels. Although the results using AERMOD showed that the project's impacts are less than the significant impact levels, additional modeling was performed with the CALPUFF model.

The maximum PM_{10}, SO_2, and NO_2 concentrations predicted for Units 4 and 5 alone and for the Project at the PSD Class I areas of the Chassahowitzka NWA and St. Marks NWA using CALPUFF are given in Tables 6-14 and 6-15. The maximum PM_{10}, SO_2, and NO_2 concentrations predicted for Units 4 and 5 with the proposed stack configuration and 100 percent load are presented in Table 6-14. The maximum PM_{10}, SO_2, and NO_2 concentrations predicted for the Project, with the current Units 4 and 5 stack configuration (emissions modeled as negative), are presented in Table 6-15.

Summaries of the pollutant concentrations predicted for Units 4 and 5 and the Project for comparison to the PSD Class I significant impact levels are presented in both tables.

Based on these modeling results in Table 6-14, the maximum 24-hour average PM_{10}; 3-hour, 24-hour, and annual average SO_2; and annual average NO_2 concentrations for Units 4 and 5 are predicted to be greater than the PSD significant impact levels at the Chassahowitzka NWA. The maximum 24-hour average PM_{10}, and 3-hour and 24-hour average SO_2 concentrations are predicted to be greater than significant impact levels at the St. Marks NWA. At the Chassahowitzka NWA, the maximum impacts for Units 4 and 5 are actually predicted to be higher with CALPUFF than with AERMOD.

From Table 6-15, the maximum PM_{10}, SO_2, and NO_2 concentrations for the Project are also predicted to be greater than the PSD significant impact levels at the Chassahowitzka NWA, except for the annual average PM_{10} and SO_2 concentrations. For the St. Marks NWA, maximum PM_{10}, SO_2, and NO_2 concentrations for the Project are predicted to be less than the PSD significant impact levels, except for the three-hour average SO_2 concentrations. However, as shown in Table 6-16, the maximum three-hour average SO_2 concentrations due to the current Units 4 and 5 configuration produces higher impacts than those for the proposed configuration. Given that the distance from the Crystal River Plant and the St. Marks NWA is 175 km, no additional modeling is proposed to demonstrate compliance with the PSD Class I increments at the St. Marks NWA.

As a result, additional modeling at the Chassahowitzka NWA with background sources is needed to assess the Project's compliance with the annual and 24-hour average PM_{10}; 3-hour and 24-hour average SO_2; and annual average NO_2 PSD Class I increments. This includes assessing the impacts of Units 4 and 5 with the CALPUFF model.

6.9.3 Cumulative AAQS Analysis

A summary of the results of the cumulative source modeling for demonstrating compliance with the PM_{10}, SO_2, and NO_2 AAQS (i.e., impacts due to sources at the Crystal River Plant modeled with background sources added to non-modeled background concentrations) are presented in Table 6-17.

As shown in Table 6-17, the maximum 24-hour and annual average PM_{10} concentrations due to the Project and other AAQS sources are predicted to be below the 24-hour and annual AAQS of 150 and 50 $\mu g/m^3$, respectively.

The maximum 3-hour, 24-hour, and annual average SO_2 concentrations due to the Project and other AAQS sources are predicted to be below the 3-hour, 24-hour, and annual AAQS of 1,300; 260; and 60 $\mu g/m^3$, respectively.

The maximum annual average NO_2 concentrations due to the Project and other AAQS sources are predicted to be below the annual AAQS of 100 $\mu g/m^3$.

6.9.4 Cumulative PSD Class II Increment Analysis

A summary of the results of the cumulative source modeling for demonstrating compliance with the PM_{10}, SO_2, and NO_2 PSD Class II increments (i.e., impacts due to PSD increment-affecting sources) are presented in Table 6-18.

As shown in Table 6-18, the maximum 24-hour and annual average PM_{10} concentrations due to the Project and other PSD sources are predicted to be below the allowable 24-hour and annual PSD Class II increments of 30 and 17 $\mu g/m^3$, respectively.

The maximum three-hour, 24-hour, and annual average SO_2 concentrations due to the Project and other PSD sources are predicted to be below the allowable three-hour, 24-hour, and annual PSD Class II increments of 512, 91, and 20 $\mu g/m^3$, respectively.

The maximum annual average NO_2 concentrations due to the Project and other PSD sources are predicted to be below the allowable PSD Class II increment of 25 $\mu g/m^3$.

6.9.5 Cumulative PSD Class I Increment Analysis

A summary of the results of the cumulative source modeling for demonstrating compliance with the PM_{10}, SO_2, and NO_2 PSD Class I increments at the Chassahowitzka NWA (i.e., impacts due to PSD increment-affecting sources) are presented in Table 6-19.

As shown in Table 6-19, the maximum 24-hour and annual average PM_{10} concentrations due to the Project and other PSD sources are predicted to be below the allowable 24-hour and annual PSD Class I increments of 8 and 4 $\mu g/m^3$, respectively.

The maximum three-hour, 24-hour, and annual average SO_2 concentrations due to the Project and other PSD sources are predicted to be below the allowable three-hour, 24-hour, and annual PSD Class I increments of 25, 5, and 2 $\mu g/m^3$, respectively, except for the 24-hour averaging period for 2002 and 2003.

The maximum 24-hour average SO_2 impacts that were predicted to exceed the PSD Class I increment is presented in Table 6-20, along with the contribution from the Crystal River Plant, including the proposed SO_2 emission rates for Units 4 and 5 and baseline emission reductions from Units 1 and 2 (modeled as negative emissions). The Crystal River Plant's contribution is predicted to be less than the PSD Class I significant impact levels. Therefore, the potential Units 4 and 5 emissions are not predicted to significantly impact any predicted exceedances at the Chassahowitzka NWA.

The maximum annual average NO_2 concentrations due to the Project and other PSD sources are predicted to be below the allowable PSD Class I increment of 2.5 $\mu g/m^3$.

6.10 Conclusions

Based on these air quality modeling analyses, the maximum pollutant concentrations due to the Crystal River Plant Project, together with background sources, are predicted to comply with AAQS and allowable PSD Class II increments. In addition, the maximum pollutant concentrations due to the Crystal River Plant Project, together with PSD sources, are predicted to comply with allowable PSD Class I increments at the Chassahowitzka NWA and St. Marks NWA. The results of the modeling analysis demonstrate the Project will comply with all applicable AAQS and PSD increments.

7.0 ADDITIONAL IMPACT ANALYSIS

This section presents the impacts the Project will have on vegetation, soils, visibility, and direct growth resulting from the Project, both in the vicinity of the Crystal River plant site and at the PSD Class I areas under consideration.

7.1 Impacts Due to Associated Direct Growth

7.1.1 Introduction

Rule 62-212.400(3)(h)(5), F.A.C., states that an application must include information relating to the air quality impacts of, and the nature and extent of all general, residential, commercial, industrial, and other growth that has occurred since August 7, 1977, in the area the facility or modification would affect. This growth analysis considers air quality impacts due to emissions resulting from the industrial, commercial, and residential growth associated with the construction and operation of the Project. This information is consistent with the EPA Guidance related to this requirement in the *Draft New Source Review Workshop Manual* (EPA, 1990).

The project is being constructed to meet current and projected electric demands. Progress Energy has an obligation to meet this increase in electric demand. Additional growth as a direct result of the additional electric power provided by the Crystal River Plant is not expected.

Construction of the project will occur over a five-year period requiring an average of approximately 350 workers during that time. It is anticipated that many of these construction personnel will commute to the Site.

The project will employ a total of about 30 additional operations employees at build-out. The operational workforce will also include annual contracted maintenance workers to be hired for periodic routine services. The workforce needed to operate the plant represents a small fraction of the population already present in the immediate area. Therefore, while there would be a small increase in vehicular traffic in the area, the effect on air quality levels would be minimal.

There are also expected to be no air quality impacts due to associated commercial and industrial growth given the location of the plant site. The existing commercial and industrial infrastructure should be adequate to provide any support services that might be required and would not increase with the operation of the modified units. The modification of the existing units will have little effect on the increase or growth in the area.

The following discussion presents general trends in residential, commercial, industrial, and other growth that has occurred since August 7, 1977, in Citrus County. As such, the information presented is available from a variety of sources (i.e., Florida Statistical Abstract, FDEP, etc.) that characterize Citrus County as a whole.

7.1.2 Residential Growth

7.1.2.1 Population and Household Trends

As an indicator of residential growth, the trend in the population and number of household units in Citrus County since 1977 are shown in Figure 7-1. The county experienced a 206-percent increase in population for the years 1977 through 2005. During this period, there was an increase in population of about 90,500. Similarly, the number of households in the county increased by about 39,600, or 142 percent, since 1977.

7.1.2.2 Growth Associated with the Operation of the Project

Because there will be about 30 additional operations employees needed to operate the Crystal River Plant, residential growth due to the plant will be minimal.

7.1.3 Commercial Growth

7.1.3.1 Retail Trade and Wholesale Trade

As an indicator of commercial growth in Citrus County, the trends in the number of commercial facilities and employees involved in retail and wholesale trade are presented in Figure 7-2. The retail trade sector comprises establishments engaged in retailing merchandise. The retailing process is the final step in the distribution of merchandise. Retailers are, therefore, organized to sell merchandise in small quantities to the general public. The wholesale trade sector comprises establishments engaged in wholesaling merchandise. This sector includes merchant wholesalers who buy and own the goods they sell; manufacturers' sales branches and offices that sell products manufactured domestically by their own company; and agents and brokers who collect a commission or fee for arranging the sale of merchandise owned by others.

Since 1977, retail trade has increased by about 590 establishments and 7,300 employees or 150 and 320 percent, respectively. For the same period, wholesale trade has increased by 119 establishments and 643 employees, or 530 and 750 percent, respectively.

7.1.3.2 Labor Force

The trend in the labor force in Citrus County since 1977 is shown in Figure 7-3. The greatest number of persons employed in Citrus County has been in the manufacturing, government, and retail trade sectors. Between 1977 and 2004, approximately 17,000 persons were added to the available work force, for an increase of 133 percent.

7.1.3.3 Tourism

Another indicator of commercial growth in Citrus County is the tourism industry. As an indicator of tourism growth in the county, the trend in the number of hotels and motels and the number of units at the hotels and motels are presented in Figure 7-4.

This industry comprises establishments primarily engaged in marketing and promoting communities and facilities to businesses and leisure travelers through a range of activities, such as assisting organizations in locating meeting and convention sites; providing travel information on area attractions, lodging accommodations, restaurants; providing maps; and organizing group tours of local historical, recreational, and cultural attractions.

Between 1978 and 2001, there was an increase of 100 percent in the number of hotels and motels, and an increase of 86 percent in the number of units at those establishments in the county.

7.1.3.4 Transportation

As an indicator of transportation growth, the trend in the number of vehicle miles traveled (VMT) by motor vehicles on major roadways in Citrus County is presented in Figure 7-5. The county's main roadways are U.S. Highways 19 and 98.

Between 1977 and 2003, there was an increase of about 2,370,000 VMT, or 132 percent, on major roadways in the county.

7.1.3.5 Growth Associated with the Operation of the Project

The existing commercial and transportation infrastructure should be adequate to provide any support services that might be required during construction and operation of the modified units. The workforce needed to operate the modified units represents a small fraction of the labor force present in the immediate and surrounding areas.

7.1.4 Industrial Growth

7.1.4.1 Manufacturing and Agricultural Industries

As an indicator of industrial growth, the trend in the number of employees in the manufacturing industry in Citrus County since 1977 is shown in Figure 7-6. As shown, the manufacturing industry experienced an increase in employees of about 1,700 or 620 percent from 1977 through 2004.

As another indicator of industrial growth, the trend in the number of employees reported in the agricultural industry in Citrus County since 1977 is also shown in Figure 7-6. As shown, the agricultural industry experienced a decrease from 1977 through 2004.

7.1.4.2 Utilities

The only power plant in Citrus County is Progress Energy's Crystal River Plant. This power plant has an electrical nameplate generating capacity of over 3,140 megawatts (MW).

As an indicator of electrical utility growth, the electrical nameplate generating capacity in Citrus County since 1977 is shown in Figure 7-7. As shown, the electrical nameplate generating capacity has increased by 2,100 MW, or 133 percent since 1977.

7.1.4.3 Growth Associated with the Operation of the Project

Since the PSD baseline date of August 7, 1977, there has been only one major source built within a 35 km radius of the Crystal River Site. This was Progress Energy's Units 4 and 5. There are a limited number of facilities located throughout the 35 km radius area surrounding the Site. Based on the locations of nearby air emission sources, there has not been a concentration of industrial and commercial growth in the vicinity of the Crystal River Plant Site.

7.1.5 Air Quality Discussion

7.1.5.1 Air Emissions and Spatial Distribution of Major Facilities

Besides the Progress Energy's plant, there are no other major air pollutant facilities in Citrus County. Based on actual emissions reported for 1999 (latest year of available data) by EPA on its AIRdata website, total emissions from stationary sources in the county are as follows:

SO_2:	101,842 TPY
PM_{10}:	5,709 TPY
NO_x:	38,833 TPY
CO:	1,374 TPY
VOC:	321 TPY

7.1.5.2 Air Emissions from Mobile Sources

The trends in the air emissions of CO, VOC, and NO_X from mobile sources in Citrus County are presented in Figure 7-8. Between 1977 and 2003, there were significant decreases in CO and VOC emissions, and there was only a slight decrease in NO_X emissions during that same time period. The decrease in CO and VOC emissions were about 112 and 61tons per day, respectively, which represent decreases from 1977 emissions of 57 and 70 percent, respectively. The decrease in NO_X emissions was less than 1 ton per day, which represents a decrease of less than 1 percent since 1977.

7.1.5.3 Air Monitoring Data

Since 1977, Citrus County has been classified as attainment for all criteria pollutants. Air quality monitoring data have not been collected in Citrus County. For this evaluation, the air quality monitoring data collected at the monitoring stations nearest to the Crystal River Plant site were used to assess air quality trends since 1977. Air quality monitoring data were based on the following monitoring stations:

- PM_{10} concentrations – Pinellas County, and
- O_3 concentrations – Pinellas and Marion Counties

Data collected from these stations are considered to be generally representative of air quality in Citrus County. Because the monitoring stations in Pinellas County are located in more urbanized areas than the Crystal River Plant site, the reported concentrations for those stations are likely to be higher than that experienced at the site.

The air monitoring data indicate that the maximum air quality concentrations currently measured in the region comply with and are well below the applicable AAQS. These monitoring stations are located in areas where the highest concentrations of a measured pollutant are expected due to the combined effect of emissions from stationary and mobile sources, as well as the effects of meteorology. Therefore, the ambient concentrations in areas not monitored should have pollutant concentrations less than the monitored concentrations from these sites.

In addition, since 1988, PM in the form of PM_{10} has been collected at the air monitoring stations due to the promulgation of the PM_{10} AAQS. Prior to 1989, the AAQS for PM was in the form of total suspended particulates (TSP) concentrations, and this form was measured at the stations.

7.1.5.4 PM_{10}/TSP Concentrations

The trends in the 24-hour and annual average PM_{10} and TSP concentrations since 1977 are presented in Figures 7-9 and 7-10, respectively. TSP concentrations are presented through 1988 since the AAQS was based on TSP concentrations through that year. In 1988, the TSP AAQS was revoked and the PM standard was revised to PM_{10}.

As shown in these figures, measured TSP concentrations were generally below the TSP AAQS. Since 1988 when PM_{10} concentrations have been measured, the PM_{10} concentrations have been and continue to be below the AAQS.

7.1.5.5 CO Concentrations

The trends in the 1-hour and 8-hour average CO concentrations measured since 1977 in Jacksonville are presented in Figures 7-11 and 7-12, respectively. As shown in these figures, measured CO concentrations have been well below the AAQS for the past several years.

7.1.5.6 O_3 Concentrations

The trends in the 1-hour average O_3 concentrations since 1977 are presented in Figure 7-13. The trends in the 8-hour average O_3 concentrations since 1995 are presented in Figure 7-14. As shown in these figures, even in the more urbanized areas of Pinellas County, the measured O_3 concentrations have primarily been below the one hour average AAQS and the new 8-hour average AAQS.

7.1.5.7 Air Quality Associated with the Operation of the Project

The air quality data measured in the region of the Crystal River Plant site indicate that the maximum air quality concentrations are well below and comply with the AAQS. Also, based on the trends of these maximum concentrations, the air quality has generally improved in the region since the baseline date of August 7, 1977. Because the maximum concentrations for the plant site are predicted to be low and, for certain pollutants, below the significant impact levels, the air quality concentrations in the region are expected to remain below and comply with the AAQS when the modified Units 4 and 5 becomes operational.

7.2 Impacts on Soils, Vegetation, Wildlife, and Visibility in the Project Vicinity

7.2.1 Impacts on Vegetation and Soils

The uses adjacent to the Site are primarily agricultural, associated with citrus production and cattle ranching. Cypress swamp, freshwater marsh, and mixed hardwood forest exist to the north of the Site. To the east` of the Site is a mixture of upland (pasture, scrub, scrubby flatwoods, mesic flatwoods, prairie hammock) and wetland (wet flatwoods, depressional marsh, wet prairie, baygall) habitats in marginal to good condition. Native soils in the area are primarily spodosols, which generally have low buffering capacities.

Air emissions resulting from the construction and operation of the plant site will not result in impacts to any vegetative communities or wildlife habitat within the area. Wildlife habitat has been preserved and is actively utilized by wildlife adjacent to power generation facilities throughout the state of Florida.

The Project's impacts on the local air quality, together with background sources, are predicted to be well below the AAQS. In addition, the Project's VOC emissions represent an insignificant increase in regional VOC emissions. Since the AAQS are also designed to protect the public welfare, including effects on soils and vegetation, no detrimental effects on soils or vegetation should occur in this area due to the Project's operation.

7.2.2 Impacts on Wildlife

Although air pollution impacts to wildlife have been reported in the literature, many of the incidents involved acute exposures to pollutants, usually caused by unusual or highly concentrated releases or unique weather conditions. Generally, there are three ways pollutants may affect wildlife: through inhalation, through exposure with skin, and through ingestion (Newman, 1980). Ingestion is the most common means and can occur through eating or drinking of high concentrations of pollutants. Bioaccumulation is the process of animals collecting and accumulating pollutant levels in their bodies over time. Other animals that prey on these animals would then be ingesting concentrated pollutants levels.

It is unlikely that the Project's emissions will cause injury or death to wildlife based on a review of the available literature on air pollutant effects on wildlife. The Project's impacts are predicted to be very low and dispersed over a large area. Coupled with the mobility of wildlife, the potential for exposure of wildlife to the Project's impacts under weather conditions that lead to high concentrations is extremely unlikely.

7.2.3 Impacts on Visibility

In addition, no visibility impairment in the plant's vicinity is expected due to the types and quantities of emissions proposed for the Project. The opacity of the boiler's emissions will be 10 percent or less under normal operation.

7.3 Impacts to PSD Class I Areas

7.3.1 Identification of AQRVs and Methodology

An AQRV analysis was conducted to assess the potential risk to AQRVs at the Class I areas due to the emissions from the Crystal River Plant.

The U.S. Department of the Interior in 1978 administratively defined AQRVs to be:

All those values possessed by an area except those that are not affected by changes in air quality and include all those assets of an area whose vitality, significance, or integrity is dependent in some way upon the air environment. These values include visibility and those scenic, cultural, biological, and recreational resources of an area that are affected by air quality.

Important attributes of an area are those values or assets that make an area significant as a national monument, preserve, or primitive area. They are the assets that are to be preserved if the area is to achieve the purposes for which it was set aside (Federal Register 1978).

The AQRVs include visibility freshwater and coastal wetlands, dominant plant communities, unique and rare plant communities, soils and associated periphyton, and the wildlife dependent on these communities for habitat. Rare, endemic, threatened, and endangered species of the Class I areas and bioindicators of air pollution (e.g., lichens) are also evaluated.

The maximum predicted atmospheric concentrations due to the increase in emissions resulting from the Project are presented in Table 6-13. As shown, the predicted increase in impacts is very low for all pollutants considered.

7.3.2 Impacts to Soils

For soils, the potential and hypothesized effects of atmospheric deposition include:

- Increased soil acidification,
- Alteration in cation exchange,
- Loss of base cations, and
- Mobilization of trace metals.

The potential sensitivity of specific soils to atmospheric inputs is related to two factors. First, the physical ability of a soil to conduct water vertically through the soil profile is important in influencing the interaction with deposition. Second, the ability of the soil to resist chemical changes, as measured in terms of pH and soil cation exchange capacity (CEC), is important in determining how a soil responds to atmospheric inputs.

The soils of the Class I areas are generally classified as histosols or entisols. Histosols (peat soils) are organic and have extremely high buffering capacities based on their CEC, base saturation, and bulk density. Therefore, they would be relatively insensitive to atmospheric inputs. The entisols are shallow sandy soils overlying limestone, such as the soils found in the pinelands. The direct connection of these soils with subsurface limestone tends to neutralize any acidic inputs. Moreover, the groundwater table is highly buffered due to the interaction with subsurface limestone formations, which results in high alkalinity (as $CaCO_3$).

The relatively low sensitivity of the soils to acid inputs coupled with the extremely low ground-level concentrations of contaminants projected for the Class I areas from the Crystal River Plant emissions precludes any significant impact on soils.

7.3.3 Impacts to Vegetation

In general, the effects of air pollutants on vegetation occur primarily from SO_2, NO_2, O_3, and PM. Effects from minor air contaminants, such as fluoride, chlorine, hydrogen chloride, ethylene, ammonia, hydrogen sulfide, CO, and pesticides, have also been reported in the literature. The effects of air pollutants are dependent both on the concentration of the contaminant and the duration of the exposure. The term "injury," as opposed to damage, is commonly used to describe all plant responses to air contaminants and will be used in the context of this analysis. Air contaminants are thought to interact primarily with plant foliage, which is considered to be the major pathway of exposure. For purposes of this analysis, it was assumed that 100 percent of each air contaminant of concern is accessible to the plants.

Injury to vegetation from exposure to various levels or air contaminants can be termed acute, physiological, or chronic. Acute injury occurs as a result of a short-term exposure to a high contaminant concentration and is typically manifested by visible injury symptoms ranging from chlorosis (discoloration) to necrosis (dead areas). Physiological or latent injury occurs as the result of a long-term exposure to contaminant concentrations below that which results in acute injury symptoms. Chronic injury results from repeated exposure to low concentrations over extended periods of time, often without any visible symptoms, but with some effect on the overall growth and productivity of the plant. In this assessment, 100 percent of the particular air pollutant in the ambient air was assumed to interact with the vegetation, which is a very conservative approach.

The concentrations of the pollutants, duration of exposure and frequency of exposures influence the response of vegetation to atmospheric pollutants. The pattern of pollutant exposure expected from the facility is that of a few episodes of relatively high ground-level concentration, which occur during certain meteorological conditions interspersed with long periods of extremely low ground-level concentrations. If there are any effects of stack emissions on plants, they will be from the short-term, higher doses. A dose is the product of the concentration of the pollutant and duration of the exposure.

7.3.4 Particulate Matter

Although information pertaining to the effects of PM on plants is scarce, baseline concentrations are available (Mandoli and Dubey, 1988). Ten species of native Indian plants were exposed to levels of PM that ranged from 210 to 366 $\mu g/m^3$ for an eight-hour averaging period. Damage in the form of a higher leaf area/dry weight ratio was observed at varying degrees for most plants tested. Concentrations of PM lower than 163 $\mu g/m^3$ did not appear to be injurious to the tested plants.

The maximum eight-hour PM concentration due to the Project at any of the Class I areas is predicted to be 0.24 $\mu g/m^3$. This concentration is about 0.1 percent of the values that affected plant foliage (i.e., 210 $\mu g/m^3$). As a result, no significant effects to vegetative AQRVs are expected from the Project's emissions.

7.3.5 Carbon Monoxide

As with PM, information pertaining to the effects of CO on plants is scarce. The main effect of high concentrations of CO is the inhibition of cytochrome *c* oxidase, the terminal oxidase in the mitochondrial electron transfer chain. Inhibition of cytochrome *c* oxidase depletes the supply of ATP, the principal donor of free energy required for cell functions. However, this inhibition only occurs at extremely high concentrations of CO. Pollok *et al.* (1989) reported that exposure to $CO:O_2$ ratio of 25 (equivalent to an ambient CO concentration of 6.85 x 10^6 $\mu g/m^3$) resulted in stomatal closure in the leaves of the sunflower (*Helianthus annuus*). Naik *et al.* (1992) reported cytochrome *c* oxidase inhibition in corn, sorghum, millet, and Guinea grass at $CO:O_2$ ratios of 2.5 (equivalent to an ambient CO concentration of 6.85 x 10^5 $\mu g/m^3$). These plants were considered the species most sensitive to CO-induced inhibition of cytochrome *c* oxidase.

The maximum 1-hour average concentration due to the Project at any of the Class I areas is 3.0 $\mu g/m^3$ in the Class I area, which is about 1 x 10^6 times lower than the minimum value that caused inhibition in laboratory studies (i.e., 6.85 x 10^6 $\mu g/m^3$). The amount of damage sustained at this level, if any, for

1 hour would have negligible effects over an entire growing season. The maximum annual concentration predicted at any of the Class I areas is 0.037 $\mu g/m^3$ and reflects a more realistic, yet conservative, CO level for the Class I areas. This maximum concentration is predicted to be about 1 x 10^7 times lower than the value that caused cytochrome *c* oxidase inhibition (6.85 x 10^5 $\mu g/m^3$).

7.3.6 VOC Emissions and Impacts to Ozone

It is difficult to predict what effect the proposed increase in emissions of VOC from the Crystal River Plant will have on ambient O_3 concentrations on a regional scale. VOC and NO_X emissions are precursors to the formation of O_3. O_3 is not directly emitted from fuel combustion, but is formed down-wind from emission sources when VOC and NO_X emissions react in the presence of sunlight. Natural (i.e., without man-made sources) ambient concentrations of O_3 are normally in the range of 20 to 39 $\mu g/m^3$ (0.01 to 0.02 ppm) (Heath, 1975).

The nearest monitor to the Project that measures O_3 concentrations is located in Alachua County (Table 5-1). This station measures concentrations according to EPA procedures. Based on the O_3 monitoring concentrations measured over the last several years, the region is in attainment of the existing 1-hour O_3 AAQS as well as the new eight-hour O_3 AAQS.

O_3 can cause various damage to broad-leaved plants including: tissue collapse, interveinal necrosis and markings on the upper surface leaves know as stippling (pigmented yellow, light tan, red brown, dark brown, red, or purple), flecking (silver or bleached straw white), mottling, chlorosis or bronzing, and bleaching. O_3 can also stunt plant growth and bud formation. On certain plants such as citrus, grape, and tobacco, it is common for leaves to wither and drop early.

Total regional VOC and NOX emissions, precursors to O_3 formation (i.e., Citrus County) are more than 28,000 TPY for stationary and mobile sources. The maximum VOC emissions increase due to the Project is 17.5 TPY, with no net increase in NOX emissions. The VOC emission represents less than a one percent increase in regional VOC and NOX emissions. Therefore, the effects of O3, as a result of VOC emissions from the Project, are expected to be insignificant.

7.3.7 Summary

In summary, the phytotoxic effects on the Class I areas from the Project's emissions are expected to be minimal. It is important to note that the substances were evaluated with the assumption that 100 percent was available for plant uptake. This is rarely the case, if ever, in a natural ecosystem.

7.3.8 Impacts to Wildlife

A wide range of physiological and ecological effects to fauna has been reported for gaseous and particulate pollutants (Newman, 1981; Newman and Schreiber, 1988). The most severe of these effects have been observed at concentrations above the secondary AAQS. Physiological and behavioral effects have been observed in experimental animals at or below these standards. No observable effects to fauna are expected at concentrations below the values reported in Table 7-1.

The major air quality risk to wildlife in the United States is from continuous exposure to pollutants above the National AAQS. This occurs in non-attainment areas, e.g., Los Angeles Basin. Risks to wildlife also may occur for wildlife living in the vicinity of an emission source that experiences frequent upsets or episodic conditions resulting from malfunctioning equipment, unique meteorological conditions, or startup operations (Newman and Schreiber, 1988). Under these conditions, chronic effects (e.g., particulate contamination) and acute effects (e.g., injury to health) have been observed (Newman, 1981).

For impacts on wildlife, the lowest threshold values of SO_2, NO_X, and particulates that are reported to cause physiological changes are shown in Table 7-2. These values are up to orders of magnitude larger than maximum predicted concentrations for the Class I areas.

No significant effects on wildlife AQRVs from SO_2, NO_X, and particulates are expected. These results are considered indications of the risk of other air pollutant emissions predicted from the Crystal River Plant, which is also considered to be negligible.

8.0 REFERENCES

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TABLE 2-1

AVERAGE ULTIMATE AND PROXIMATE ANALYSIS OF REPRESENTATIVE FUELS AND DESIGN FUEL BLEND FOR CRYSTAL RIVER ENERGY COMPLEX UNITS 4 AND 5

	Units	HIGHLAND NO. 9	SUB-BITUMINOUS	PET COKE	SUB-BIT BLEND[a]	PET COKE BLEND[b]
Ultimate Analysis						
Carbon	%	63.20	49.97	80.00	56.585	68.24
Sulfur*	%	3.13	0.24	6.06	1.685	3.13
Oxygen	%	6.82	12.83	0.80	9.825	5.01
Hydrogen	%	4.40	3.67	2.80	4.035	3.92
Nitrogen	%	1.30	0.69	1.30	0.995	1.30
Ash	%	8.20	6.12	0.33	7.16	5.84
Moisture	%	12.70	26.47	6.40	19.585	10.81
Proximate Analysis						
Moisture	%	12.70	26.47	6.40	19.585	10.81
Volatile matter	%	36.50	39.47	9.41	37.985	28.37
Fixed Carbon	%	42.60	27.94	83.86	35.27	54.98
Ash	%	8.20	6.12	0.33	7.16	5.84
Gross (Higher) Heating Value	Btu/lb	11,375	8,692	14,127	10,034	12,201

[a] Sub-Bituminous Blend is 50% Sub-Bituminous and 50% Highland No. 9

[b] Petroleum Coke will be co-fired with coal at a maximum amount of 30 percent on a weight basis. Sulfur content of petcoke blend will be limited to 3.13%.

Blends of coals shown are approximately based on equal weight.

Note: Data for the the Ultimate and Proximate Analysis is based on the average of each fuel. These data do not total 100%, since they represent a statistic of the fuel data. Individual shipments of coal can exceed 3.13% and pet coke is limited to 6%.

TABLE 2-2
AIR POLLUTANT EMISSIONS FOR CRITERIA POLLUTANTS FROM CRYSTAL RIVER UNITS 4 & 5
EXISTING STACKS

		Data for Each Unit [a]		
Parameter	**Units**	**100% Load**	**75% Load**	**50% Load**
Performance				
Gross Power Output	MW	760		
Net Heat Rate	Btu/kWhr	8,770		
Heat Input (HHV)	MMBtu/hr	6,665	4,999	3,333
Capacity Factor		100%	75%	50%
Stack Data				
Height	feet	600	600	600
Diameter	feet	25.5	25.5	25.5
Temperature	°F	253	253	253
Velocity	ft/sec	68.9	51.7	34.5
Flow	acfm	2,111,300	1,583,475	1,055,650
Emissions				
SO_2	lb/MMBtu	1.2	1.2	1.2
	lb/hr	8,006	6,005	4,003
PM/PM_{10}	lb/MMBtu	0.1	0.1	0.1
	lb/hr	667	500	333
NO_x	lb/MMBtu	0.5	0.5	0.5
	lb/hr	3,333	2,499	1,666
CO	lb/MMBtu	0.02	0.02	0.02
	lb/hr	133	100	67
VOC	lb/MMBtu	0.002	0.002	0.002
	lb/hr	13.3	10.0	6.7
Sulfuric Acid Mist	lb/MMBtu	0.003	0.003	0.003
	lb/hr	18.7	14.0	9.3

Sources: Progress Energy, 2006

TABLE 2-3
AIR POLLUTANT EMISSIONS FOR CRITERIA POLLUTANTS FROM CRYSTAL RIVER UNITS 4 & 5
NEW STACK (TWO FLUES)

Parameter	Units	Data for Each Nominal 760 MW net Unit 100% Max Load	Base Load [a]	75% Load	50% Load
Performance					
Gross Power Output	kW		760		
Net Heat Rate	Btu/kWhr		8,947		
Heat Input (HHV)	MMBtu/hr	7,200	6,800	5,100	3,400
Capacity Factor		100%	100%	75%	50%
Stack Data					
Height	feet	550	550	550	550
Diameter	feet	30.5	30.5	30.5	30.5
Temperature	°F	130	129	129	129
Velocity	ft/sec	50.3	49.1	36.8	24.5
Flow	acfm	2,205,195	2,150,991	1,613,244	1,075,496
Emissions					
SO_2	lb/MMBtu	0.27	0.27	0.27	0.27
	lb/hr	1,944	1,836	1,377	918
PM/PM_{10}	lb/MMBtu	0.03	0.03	0.03	0.03
	lb/hr	216	204	153	102
NO_x	lb/MMBtu	0.47	0.47	0.47	0.47
	lb/hr	3,384	3,196	2,397	1,598
CO	lb/MMBtu	0.2	0.2	0.2	0.2
	lb/hr	1,440	1,360	1,020	680
VOC	lb/MMBtu	0.004	0.004	0.004	0.004
	lb/hr	28.8	27.2	20.4	13.6
Sulfuric Acid Mist	lb/MMBtu	0.012	0.012	0.012	0.012
	lb/hr	86.4	81.6	61.2	40.8

[a] 6,800 MMBtu/hr represents the base load capability on an annual average basis.
Source: Progress Energy, 2006

Table 2-4 CBO Project

Fluidized Bed Emission Estimates

Pollutant	*Emission Rate (lb/MMBtu)*	*CBO Emission Rate (lb/hr)*	*CBO Emission Rate (TPY) to Units 4 and 5*	*Material Handling Emissions (TPY)*	*Total CBO Uncontrolled Emissions (TPY)* [a]
SO_2	5.200	494.0	2,163.7		2,163.7
NO_x	0.782	74.3	325.4		325.4
CO	0.244	23.2	101.5		101.5
VOCs	0.018	1.8	7.8		7.8
PM [b]	0.028	2.8	12.1	5.8	17.9
PM_{10} [b]	0.028	2.8	12.1	5.8	17.9

[a] See Table 2-6. Projected actual emissions for the CBO will be based on Units 4 & 5 control eficiencies

[b] CBO emissions before Units 4 & 5 ESP. Based on 98% removal, PM/PM10 emissions will be 0.24 TPY (Total = 5.8 + 0.24 = 6.04 TPY)

CBO Material Handling Emissions

Emission Source	*Control Device*	*Exhaust Flow Rate (dscfm)*	*PM/PM10 Emission Rate (gr/dscf)*	*PM/PM10 Emission Rate (lb/hr)*	*PM/PM10 Emission Rate (TPY)*
Feed Fly Ash Silo	Baghouse	3,000	0.01	0.3	1.1
Product Fly Ash Storage Dome	Baghouse	6,000	0.01	0.5	2.3
Product Fly Ash Loadout Silo & Truck Loading	Baghouse	6,000	0.01	0.5	2.3
Fly Ash Fugitives (Truck Traffic)	Paved Roads; Watering	NA		0.1	0.2
Totals				1.4	5.8

TABLE 2-5
SUMMARY OF PM EMISSION CHANGES FOR MATERIAL HANDLING OPERATIONS AND TRUCK TRAFFIC DUE TO THE PROPOSED PROJECT

PM Emission Source	Current Emissions (TPY)		Future Emissions (TPY)		Change in Emissions (TPY)	
	PM	PM_{10}	PM	PM_{10}	PM	PM_{10}
Coal Yard						
Barge to Units 1 & 2	0.06	0.03	0.01	0.00		
Barge to ground to Units 1& 2	1.96	0.94	0.35	0.17		
Barge to Units 4 & 5	1.57	0.76	3.16	1.52		
Barge to ground to Units 4 & 5	1.37	0.66	3.73	1.78		
Rail to Units 1 & 2	0.09	0.04	0.20	0.10		
Rail to ground to Units 1& 2	3.00	1.43	6.82	3.26		
Rail to Units 4 & 5	2.29	1.11	1.19	0.58		
Rail to ground to Units 4 & 5	2.03	0.97	1.43	0.68		
Pyrites	0.00	0.00	0.00	0.00		
COAL YARD	12.37	5.94	16.90	8.10		
PILE TRAFFIC	9.33	2.17	17.84	4.42		
TOTAL	21.70	8.11	34.74	12.52	13.04	4.41
Truck Traffic						
Bottom Ash from Units 1 & 2	0.58	0.11	0.58	0.11		
Fly Ash from Units 1 & 2	10.34	2.01	10.34	2.01		
Bottom Ash from Units 4 & 5	0.29	0.06	0.29	0.06		
Fly Ash from Units 4 & 5	26.62	5.19	26.62	5.19		
Landfill Ash Mining	8.87	1.73	8.87	1.73		
Limestone from Units 4 & 5	NA	NA	17.75	3.46		
TOTAL	46.71	9.10	64.46	12.56	17.75	3.46
FGD Limestone Material Handling						
Truck Unloading	NA	NA	2.67	2.67		
Day Silos	NA	NA	0.25	0.25		
TOTAL	0.00	0.00	2.92	2.92	2.92	2.92
TOTAL ALL SOURCES	68.41	17.21	102.12	28.01	33.71	10.79

Table 2-6 PSD Netting Analysis

Pollutant	*Units 4 and 5 Baseline Actual Emissions [a] (TPY)*	*Emissions Increase due to Material Handling (TPY)*	*Uncontrolled Emissions Increase from CBO (TPY)*	*Emissions Increase/ Decrease with Control Equipment (TPY)*	*Net Emissions Increase (TPY)*	*Projected Actual Emissions with Project (TPY)*	*Net Emissions Increase with Project (TPY)*	*Significant Emission Rates (TPY)*	*PSD Review Required?*
SO_2 [b]	51,031		2,164	216	216	13,671	(37,360)	40	No
NOx [c]	24,069		325	33	32.5	23,797	(272)	40	No
PM	1,442	33.7	17.9	6.0	38.8	1,558	116.5	25	Yes
PM_{10}	966	10.8	17.9	6.0	16.4	1,034	68.3	15	Yes
H_2SO_4 [d]	159			449	449	608	449	7	Yes
VOC	121		7.8	81.5	89.3	210	89.3	40	Yes
CO [e]	1,011		102	9,116	9,813	10,228	9,217	100	Yes

[a] Units 4 and 5 baseline actual emissions are based on Tables A-1 through A-12. The 2003-2004 period was used for all pollutants.

[b] SO2 projected emissions based on 0.27 lb/MMBtu per unit; 85% CF.

[c] NOx projected emissions based on 0.47 lb/MMBtu per unit; 85% CF

[d] H_2SO_4 baseline = test results at 18.7 lb/hr and avg 8,503 hr/yr per unit; projected emissions based on 0.12 lb/MMBtu per unit; 85% CF.

[e] CO projected emissions based on 0.20 lb/MMBtu per unit; 85% CF.

TABLE 3-1
National and State AAQS, Allowable PSD Increments, and Significant Impact Levels

Pollutant	Averaging Time	AAQS ($\mu g/m^3$)[a]			PSD Increments ($\mu g/m^3$)[a]		PSD Class II Significant Impact Levels ($\mu g/m^3$) [b]
		Primary Standard	Secondary Standard	Florida	Class I	Class II	
Particulate Matter[c] (PM_{10})	Annual Arithmetic Mean	50	50	50	4	17	1
	24-Hour Maximum	150	150	150	8	30	5
Sulfur Dioxide	Annual Arithmetic Mean	80	NA	60	2	20	1
	24-Hour Maximum	365	NA	260	5	91	5
	3-Hour Maximum	NA	1,300	1,300	25	512	25
Carbon Monoxide	8-Hour Maximum	10,000	10,000	10,000	NA	NA	500
	1-Hour Maximum	40,000	40,000	40,000	NA	NA	2,000
Nitrogen Dioxide	Annual Arithmetic Mean	100	100	100	2.5	25	1
Ozone[c]	1-Hour Maximum	235	235	235	NA	NA	NA
Lead	Calendar Quarter Arithmetic Mean	1.5	1.5	1.5	NA	NA	NA

Note: Particulate matter (PM_{10}) = particulate matter with aerodynamic diameter less than or equal to 10 micrometers.
NA = Not applicable, i.e., no standard exists.

[a] Short-term maximum concentrations are not to be exceeded more than once per year except for the PM_{10} and ozone AAQS. The 24-hour PM_{10} AAQS is attained when the expected number of days per year with a 24-hour concentration above 150 μ/m^3 is equal to or less than 1. For modeling purposes, compliance is based on the sixth highest 24-hour concentration over a 5-year period. For ozone, the daily maximum 1-hour concentration cannot be exceeded an average of more than one per year.

[b] Maximum concentrations are not to be exceeded.

[c] On July 18, 1997, EPA promulgated revised AAQS for particulate matter and ozone. For particulate matter, $PM_{2.5}$ standards were introduced with a 24-hour standard of 65 g/m^3 (3-year average of 98th percentile) and an annual standard of 15 g/m^3 (3-year average at community monitors).
The ozone standard was modified to be 0.08 ppm; achieved when 3-year average of 99th percentile is 0.08 ppm 157 μ/m^3 or less. FDEP has not yet adopted these standards.

Sources: Federal Register, Vol. 43, No. 118, June 19, 1978.
40 CFR 50; 40 CFR 52.21.
Chapter 62-204, F.A.C.

TABLE 3-2
PSD Significant Emission Rates and *De Minimis* Monitoring Concentrations

Pollutant	Regulated Under	Significant Emission Rate (TPY)	*De Minimis* Monitoring Concentration[a] ($\mu g/m^3$)
Sulfur Dioxide	NAAQS, NSPS	40	13, 24-hour
Particulate Matter [PM(TSP)]	NSPS	25	10, 24-hour
Particulate Matter (PM_{10})	NAAQS	15	10, 24-hour
Nitrogen Dioxide	NAAQS, NSPS	40	14, annual
Carbon Monoxide	NAAQS, NSPS	100	575, 8-hour
Volatile Organic Compounds (Ozone)	NAAQS, NSPS	40	100 TPY[b]
Lead	NAAQS	0.6	0.1, 3-month
Sulfuric Acid Mist	NSPS	7	NM
Total Fluorides	NSPS	3	0.25, 24-hour
Total Reduced Sulfur	NSPS	10	10, 1-hour
Reduced Sulfur Compounds	NSPS	10	10, 1-hour
Hydrogen Sulfide	NSPS	10	0.2, 1-hour
Mercury	NESHAP	0.1	0.25, 24-hour

Note: Ambient monitoring requirements for any pollutant may be exempted if the impact of the increase in emissions is below *de minimis* monitoring concentrations.

NAAQS = National Ambient Air Quality Standards.
NM = No ambient measurement method established; therefore, no *de minimis* concentration has been established.
NSPS = New Source Performance Standards.
NESHAP = National Emission Standards for Hazardous Air Pollutants.
g/m^3 = micrograms per cubic meter.

[a] Short-term concentrations are not to be exceeded.
[b] No *de minimis* concentration; an increase in VOC emissions of 100 TPY or more will require monitoring analysis for ozone.

Sources: 40 CFR 52.21; Rule 62-212.400.

TABLE 5-1

SUMMARY OF MAXIMUM PM_{10} CONCENTRATIONS MEASURED NEAR THE PGN CRYSTAL RIVER PLANT

County	AIRS No.	Location	Year	Number of Observations	Units	Measured Concentration 24-Hour Highest	Measured Concentration 24-Hour 2nd Highest	Measured Concentration Annual Average
Florida AAQS					**ug/m³**	**NA**	**150**	**50**
Pinellas	12-103-5002	Tarpon Springs, Brooker Creek Park	2005	60	ug/m³	30	25	15.5
		County Road 77	2004	60	ug/m³	31	25	16.3
			2003	59	ug/m³	34	26	16.7

Note: NA = not applicable.
AAQS = ambient air quality standard.

Source: EPA, 2003-2005 (Quick Look Report, Air Quality Subsystem).

TABLE 5-2

SUMMARY OF MAXIMUM O_3 CONCENTRATIONS MEASURED NEAR THE PGN CRYSTAL RIVER PLANT

County	AIRS No.	Location	Year	Number of Observations	Measured Concentration 1-Hour Highest	1-Hour 2nd Highest	8-Hour 3-year Average 4th Highest
Florida AAQS [a]					**NA**	**0.12**	**0.08**
Pinellas	12-103-5002	Tarpon Springs, Brooker Creek Park	2005	243	0.090	0.090	0.074
		County Road 77	2004	243	0.081	0.072	0.071
			2003	243	0.079	0.078	0.074
Marion	12-083-0003	Ocala, SE 17th Street	2005	223	0.092	0.092	0.072
			2004	220	0.094	0.086	0.073
			2003	243	0.096	0.093	0.074
Marion	12-083-0004	Ocala, 692 NW 30th Avenue	2005	236	0.095	0.094	0.073
			2004	194	0.099	0.088	0.074
			2003	245	0.099	0.092	0.073

Note: NA = not applicable.
AAQS = ambient air quality standard.

[a] On July 18, 1997, EPA promulgated revised AAQS for ozone. The O_3 standard was modified to be 0.08 ppm for the 8-hour average; achieved when the 3-year average of 99th percentile values is 0.08 ppm or less. Florida DEP has not yet adopted the revised standards.

Source: EPA, 2003-2005 (Quick Look Report, Air Quality Subsystem).

TABLE 5-3

SUMMARY OF MAXIMUM SO_2 CONCENTRATIONS MEASURED NEAR THE PGN CRYSTAL RIVER PLANT

County	AIRS No.	Location	Year	Number of Observations	Units	Measured Concentration (μg/m³) 3-Hour Highest	3-Hour 2nd Highest	24-Hour Highest	24-Hour 2nd Highest	Annual Average
Florida AAQS					**ppm**	**NA**	**0.5**	**NA**	**0.1**	**0.02**
Pinellas	12-103-5002	Tarpon Springs, Brooker Creek Park	2005	8666	ppm	0.059	0.048	0.015	0.009	0.0018
		County Road 77	2004	8692	ppm	0.057	0.043	0.013	0.012	0.0020
			2003	8636	ppm	0.076	0.042	0.012	0.012	0.0021
Pinellas	12-103-5003	Tarpon Springs, 40671 US 19 North	2005	8683	ppm	0.058	0.054	0.013	0.011	0.0019
			2004	8605	ppm	0.055	0.051	0.017	0.013	0.0020
			2003	8545	ppm	0.055	0.055	0.012	0.010	0.0019
Florida AAQS					**ug/m³**	**NA**	**1,300**	**NA**	**260**	**60**
Pinellas	12-103-5002	Tarpon Springs, Brooker Creek Park	2005	8666	ug/m³	154	126	39	24	4.7
		County Road 77	2004	8692	ug/m³	149	112	34	31	5.2
			2003	8636	ug/m³	199	110	31	31	5.5
Pinellas	12-103-5003	Tarpon Springs, 40671 US 19 North	2005	8683	ug/m³	152	141	34	29	5.0
			2004	8605	ug/m³	144	133	44	34	5.2
			2003	8545	ug/m³	144	144	31	26	5.0

Note: NA = not applicable.
AAQS = ambient air quality standard.

Source: EPA, 2003-2005 (Quick Look Report, Air Quality Subsystem).

TABLE 5-4
SUMMARY OF MAXIMUM NO_2 CONCENTRATIONS MEASURED NEAR THE PGN CRYSTAL RIVER PLANT

County	AIRS No.	Location	Year	Number of Observations	Units	Measured Concentration (µg/m³) Annual Average
Florida AAQS					**ppm**	**0.053**
Pinellas	12-103-0023	St. Petersburg, 10100 San Martin	2005	8560	ppm	0.0082
		7200 22nd Avenue North	2004	8555	ppm	0.0090
			2003	8318	ppm	0.0098
Florida AAQS					**ug/m³**	**100**
Pinellas	12-103-0023	St. Petersburg, 10100 San Martin	2005	8560	ug/m³	9.4
		7200 22nd Avenue North	2004	8555	ug/m³	10.3
			2003	8318	ug/m³	11.2

Note: NA = not applicable.
AAQS = ambient air quality standard.

Source: EPA, 2003-2005 (Quick Look Report, Air Quality Subsystem).

TABLE 6-1

MAJOR FEATURES OF THE AERMOD MODEL, VERSION 04300

AERMOD Model Features
• Plume dispersion/growth rates are determined by the profile of vertical and horizontal turbulence, vary with height, and use a continuous growth function.
• In a convective atmosphere, uses three separate algorithms to describe plume behavior as it comes in contact with the mixed layer lid; in a stable atmosphere uses a mechanically mixed layer near the surface.
• Polar or Cartesian coordinate systems for receptor locations can be included directly or by an external file reference.
• Urban model dispersion is input as a function of city size and population density; sources can also be modeled individually as urban sources.
• Stable plume rise: uses Briggs equations with winds and temperature gradients at stack top up to half-way up to plume rise. Convective plume rise: plume superimposed on random convective velocities.
• Procedures suggested by Briggs (1974) for evaluating stack-tip downwash.
• Has capability of simulating point, volume, area, and multi-sized area sources.
• Accounts for the effects of vertical variations in wind and turbulence (Brower *et al.*, 1998).
• Uses measured and computed boundary layer parameters and similarity relationships to develop vertical profiles of wind, temperature, and turbulence (Brower *et al.*, 1998).
• Concentration estimates for 1-hour to annual average times.
• Creates vertical profiles of wind, temperature, and turbulence using all available measurement levels.
• Terrain features are depicted by use of a controlling hill elevation and a receptor point elevation.
• Modeling domain surface characteristics are determined by selected direction and month/season values of surface roughness length, Albedo, and Bowen ratio.
• Contains both a mechanical and convective mixed layer height, the latter based on the hourly accumulation of sensible heat flux.
• The method of Pasquill (1976) to account for buoyancy-induced dispersion.
• A default regulatory option to set various model options and parameters to EPA-recommended values.
• Contains procedures for calm-wind and missing data for the processing of short term averages.

Note: AERMOD = The American Meteorological Society and Environmental Protection Agency Regulatory Model.
Source: Paine *et al.*, 2004.

TABLE 6-2

MAJOR FEATURES OF THE CALPUFF MODEL, VERSION 5.711A

CALPUFF Model Features
• Source types: Point, line (including buoyancy effects), volume, area (buoyant, non-buoyant)
• Non-steady-state emissions and meteorological conditions (time-dependent source and emission data; gridded 3-dimensional wind and temperature fields; spatially-variable fields of mixing heights, friction velocity, precipitation, Monin-Obukhov length; vertically and horizontally-varying turbulence and dispersion rates; time-dependent source and emission data for point, area, and volume sources; temporal or wind-dependent scaling factors for emission rates)
• Efficient sampling function (integrated puff formulation; elongated puff (slug) formation)
• Dispersion coefficient options (Pasquill-Gifford (PG) values for rural areas; McElroy-Pooler values (MP) for urban areas; CTDM values for neutral/stable; direct measurements or estimated values)
• Vertical wind shear (puff splitting; differential advection and dispersion)
• Plume rise (buoyant and momentum rise; stack-tip effects; building downwash effects; partial plume penetration above mixing layer)
• Building downwash effects (Huber-Snyder method; Schulman-Scire method)
• Complex terrain effects (steering effects in CALMET wind field; puff height adjustments using ISC model method or plume path coefficient; enhanced vertical dispersion used in CTDMPLUS)
• Subgrid scale complex terrain (CTSG option) (CTDM flow module; dividing streamline as in CTDMPLUS)
• Dry deposition (gases and particles; options for diurnal cycle per pollutant, space and time variations with a resistance model, or none)
• Overwater and coastal interaction effects (overwater boundary layer parameters; abrupt change in meteorological conditions, plume dispersion at coastal boundary; fumigation; option to use Thermal Internal Boundary Layers (TIBL) into coastal grid cells)
• Chemical transformation options (Pseudo-first-order chemical mechanisms for SO_2, SO_4, HNO_3, and NO_3; Pseudo-first-order chemical mechanisms for SO_2, SO_4, NO, NO_2, HNO_3, and NO_3 (RIVAD/ARM3 method); user-specified diurnal cycles of transformation rates; no chemical conversions)
• Wet removal (scavenging coefficient approach; removal rate as a function of precipitation intensity and type)
• Graphical user interface
• Interface utilities (scan ISC-PRIME and AUSPLUME meteorological data files for problems; translate ISC-PRIME and AUSPLUME input files to CALPUFF input files)

Note: CALPUFF = California Puff Model

Source: EPA, 2004.

TABLE 6-3

SUMMARY OF PM_{10} EMITTING FACILITIES INCLUDED IN THE AAQS AND PSD CLASS II COMPLIANCE ANALYSES

Plant ID	Facility Name	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to Crystal River[a] X (km)	Relative to Crystal River[a] Y (km)	Relative to Crystal River[a] Direction (deg.)	Relative to Crystal River[a] Distance (km)	Maximum PM Emissions (TPY)	Q, (TPY) Emission Threshold [b,c] (Dist - SID) x 20	Include in Modeling Analysis ?
Modeling Area [d]											
0170004	Crystal River Power Plant	Citrus	334.3	3204.5	0.0	0.0	--	0.0	13068.3	SIA	Yes
0170022	Progress Materials, Inc.	Citrus	334.1	3204.5	-0.2	0.0	278	0.2	41.8	SIA	Yes
Screening Area [d]											
0170364	Barrow Pit- Homosassa Trail Site	Citrus	351.5	3189.3	17.2	-15.2	131	22.9	30.0	159	No
7775298	Gulf Hammock Asphalt Facility		334.9	3233.5	0.6	29.0	1	29.0	39.4	280	No
	Imc - Agrico Co. (Pierce)		404.1	3,079.0	-16.7	-24.3	214	29.5	-311.4	290	Yes
0830011	Acticarb Tailored Products, Llc	Marion	360.2	3230.0	25.9	25.5	45	36.3	102.2	427	No
0830023	Central Florida Aggregate, Inc.	Marion	375.0	3214.1	40.7	9.6	77	41.8	12.9	536	No
0530010	Cemex	Hernando	357.5	3169.2	23.2	-35.3	147	42.2	879.8	545	Yes
0530050	Brooksville Grinding Plant	Hernando	361.4	3169.5	27.1	-35.0	142	44.3	60.9	585	No
0530044	Gregg Mine	Hernando	359.8	3163.4	25.5	-41.1	148	48.4	92.2	667	No
0530021	Brooksville Cement And Power Plants	Hernando	361.3	3162.4	27.0	-42.1	147	50.1	711.3	701	Yes
0530004	Citrus Service, Inc.	Hernando	364.2	3158.3	29.9	-46.2	147	55.0	29.1	801	No
0530043	Spring Hill Wwtp	Hernando	340.6	3148.6	6.3	-55.9	174	56.3	14.9	825	No
0830043	Golden Flake Snack Foods	Marion	385.9	3228.9	51.6	24.4	65	57.1	25.7	842	No
0830052	Closetmaid	Marion	386.2	3228.9	51.9	24.4	65	57.3	23.6	847	No
0830102	Skyline/Cameron Homes # 538	Marion	387.0	3229.0	52.7	24.5	65	58.1	13.6	863	No
0530357	Plant 2 (Spring Hill)	Hernando	358.5	3151.3	24.2	-53.2	155	58.4	24.0	869	No
0830100	Skyline/Oak Springs # 531	Marion	388.9	3227.4	54.6	22.9	67	59.2	18.9	884	No
0830010	Royal Oak Enterprises	Marion	387.5	3231.1	53.2	26.6	63	59.5	79.4	890	No
7770088	Clifton Mine		386.8	3233.9	52.5	29.4	61	60.2	17.6	903	No
0750085	Watson Construction Borrow Pit		349.0	3264.6	14.7	60.1	14	61.9	32.4	937	No
1010327	Coastal Landfill Disposal, Inc.	Pasco	342.3	3142.9	8.0	-61.6	173	62.1	49.0	942	No
0830091	Cummer Limestone Mine	Marion	386.7	3238.0	52.4	33.5	57	62.2	10.5	944	No
0830039	The Brewer Company	Marion	390.8	3230.8	56.5	26.3	65	62.3	38.2	946	No
0830007	Mark Iv Dayco	Marion	393.3	3226.2	59.0	21.7	70	62.9	107.9	957	No
1010344	J.E. Ausley Construction Inc	Pasco	357.7	3145.4	23.4	-59.1	158	63.6	24.8	972	No
0830016	Franklin Industrial/Lowell	Marion	384.7	3244.2	50.4	39.7	52	64.2	210.9	983	No
0830017	Lowell Processing Plant	Marion	384.5	3245.3	50.2	40.8	51	64.7	87.6	994	No
1010028	Overstreet Paving Co	Pasco	357.4	3143.7	23.1	-60.8	159	65.0	20.0	1001	No
Beyond Screening Area out to 100 km [d]											
1190030	Charlotte Pipe & Foundry/Plastic Div	Sumter	399.0	3197.0	64.7	-7.5	97	65.1	79.8	1003	No
0010007	Maddox Foundry & Machine Works,Inc.	Alachua	352.4	3267.3	18.1	62.8	16	65.4	11.8	1007	No
1190009	Progress Rail Services Corporation	Sumter	399.4	3195.5	65.1	-9.0	98	65.7	57.1	1014	No
1010038	B.E.T.-Er Mix, Inc.	Pasco	334.2	3138.5	-0.1	-66.0	180	66.0	13.0	1020	No
1010056	Pasco County Resource Recovery Facility	Pasco	348.6	3139.0	14.3	-65.5	168	67.0	73.2	1041	No
7774814	Dixie Lime And Stone Mine #2823		397.5	3181.2	63.2	-23.3	110	67.4	17.5	1047	No
1010373	Shady Hills Generating Station	Pasco	348.7	3138.4	14.4	-66.1	168	67.7	61.5	1054	No
0750028	Plant #38		314.7	3272.3	-19.6	67.8	344	70.6	23.7	1112	No

TABLE 6-3
SUMMARY OF PM_{10} EMITTING FACILITIES INCLUDED IN THE AAQS AND PSD CLASS II COMPLIANCE ANALYSES

Plant ID	Facility Name	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to Crystal River[a] X (km)	Relative to Crystal River[a] Y (km)	Relative to Crystal River[a] Direction (deg.)	Relative to Crystal River[a] Distance (km)	Maximum PM Emissions (TPY)	Q, (TPY) Emission Threshold [b,c] (Dist - SID) x 20	Include in Modeling Analysis ?
0530017	E.R. Jahna Industries, Inc. - Mills Mine	Hernando	386.7	3155.8	52.4	-48.7	133	71.5	72.6	1131	No
1190036	C.R.466-A C&D Landfill Facility	Sumter	407.9	3192.7	73.6	-11.8	99	74.6	15.0	1191	No
1190018	Center Hill Mine	Sumter	401.5	3169.5	67.2	-35.0	118	75.8	55.8	1215	No
1190011	Robbins Manufacturing Co.	Sumter	396.7	3158.9	62.4	-45.6	126	77.3	57.7	1246	No
0690032	Asphalt Production/Okahumpka		408.1	3180.8	73.8	-23.7	108	77.5	55.5	1251	No
0010002	Fred Bear Archery Equipment	Alachua	365.7	3276.5	31.4	72.0	24	78.6	29.9	1271	No
7770259	Dab Constructors, Leesburg Plant		412.3	3189.1	78.0	-15.4	101	79.5	25.0	1290	No
0690003	Cemex/Leesburg Fka Southdown		412.5	3185.7	78.2	-18.8	104	80.4	28.0	1309	No
0290003	Georgia-Pacific Corp. Chip/Saw		300.3	3278.8	-34.0	74.3	335	81.7	113.0	1334	No
1010002	Vitality Foodservice Dade City Coffee Pl	Pasco	383.5	3139.2	49.2	-65.3	143	81.8	55.5	1335	No
1010071	Pasco Cogen Limited	Pasco	384.7	3139.1	50.4	-65.4	142	82.6	27.0	1352	No
0010001	U Of Fl Cogen	Alachua	369.4	3279.3	35.1	74.8	25	82.6	13.1	1352	No
0010041	Gainesville	Alachua	369.8	3279.1	35.5	74.6	25	82.6	12.7	1352	No
0690046	Covanta Lake Inc		413.1	3179.3	78.8	-25.2	108	82.7	75.4	1355	No
0830045	Standard Sand & Silica Co	Marion	412.7	3231.3	78.4	26.8	71	82.9	47.7	1357	No
0690002	Cutrale Citrus Juices Usa - Leesburg		415.5	3187.3	81.2	-17.2	102	83.0	185.2	1360	No
0010087	Thompson S. Baker Cement Plant	Alachua	348.4	3287.0	14.1	82.5	10	83.7	1105.6	1375	Yes
1010017	Anclote Power Plant	Pasco	327.4	3120.7	-6.9	-83.8	185	84.1	5490.0	1382	Yes
0010005	John R Kelly Power Plant	Alachua	372.1	3280.1	37.8	75.6	27	84.5	158.2	1390	No
0290008	Cross City Veneer Company, Inc.		295.2	3279.6	-39.1	75.1	332	84.7	24.3	1393	No
1010041	Tampa Branch - Plant 414	Pasco	340.7	3119.5	6.4	-85.0	176	85.2	15.3	1405	No
1010378	Sr 54 Odessa Yard	Pasco	346.6	3120.0	12.3	-84.5	172	85.4	40.8	1409	No
1010027	Ajax Paving Industries	Pasco	342.2	3119.2	7.9	-85.3	175	85.6	20.0	1413	No
0290004	Suwannee Lumber Company		292.4	3279.7	-41.9	75.2	331	86.1	26.0	1422	No
1030063	Florida Rock Industries, Inc.		326.1	3117.3	-8.2	-87.2	185	87.6	15.1	1452	No
1030044	Tarpon Springs Facility		327.7	3116.7	-6.6	-87.8	184	88.1	13.3	1461	No
1010060	Helena Chemical Co./Dade City	Pasco	387.4	3133.6	53.1	-70.9	143	88.6	509.0	1472	No
0010037	V. E. Whitehurst & Sons, Inc.		368.7	3289.0	34.4	84.5	22	91.2	55.9	1525	No
7770001	Acci Plant No. 19		369.5	3288.7	35.2	84.2	23	91.3	37.2	1525	No
0690020	Dura-Stress		425.6	3194.1	91.3	-10.4	96	91.8	20.0	1537	No
7775240	Gainesville Asphalt Plant		380.5	3284.4	46.2	79.9	30	92.3	11.9	1547	No
0010006	Deerhaven Generating Station	Alachua	365.7	3292.6	31.4	88.1	20	93.5	1612.0	1571	Yes
0690014	Silver Springs Citrus Plant		424.4	3176.5	90.1	-28.0	107	94.4	97.9	1588	No
0010064	Southern Pre-Cast, Inc.	Alachua	359.0	3295.7	24.7	91.2	15	94.5	24.9	1590	No
7774808	Hipp Construction No. 2 Asphalt Plant		356.7	3296.5	22.4	92.0	14	94.7	12.1	1594	No
7775271	John C. Hipp Construction Equipment Co.	Alachua	356.7	3296.5	22.4	92.0	14	94.7	46.8	1594	No
1070015	Georgia-Pacific Corp. Plywood Plant		399.6	3273.8	65.3	69.3	43	95.2	232.5	1604	No
7770007	#9 Ashpalt Plant		400.3	3275.5	66.0	71.0	43	96.9	10.1	1639	No
0694801	Lake Cogen C/O Aquila		434.0	3198.8	99.7	-5.7	93	99.9	54.0	1697	No
7775202	The Lane Construction Corporation		393.8	3124.3	59.5	-80.2	143	99.9	50.0	1698	No

[a] The Progress Energy Crystal River facility is located at UTM Coordinates: East 334.3 km, North 3204.5 km

[b] The significant impact distance (SID) for the project is estimated to be 15.0 km

[c] Based on the North Carolina Screening Threshold method, a background facility is included in the modeling analysis if the facility is beyond the modeling area and its emission rate is greater than the product of (Distance-SID) x 20.

[d] "Modeling Area" is the area in which the Project is predicted to have a significant impact EPA recommends that all sources within this area be modeled.
"Screening Area" is the area that is 50 km beyond the modeling area. EPA recommends that sources be modeled that are expected to have a significant impact in the modeling area.
"Beyond Screening Area out to 100 km" is the area beyond the screening area and out to 100 km in which only large sources are included in the modeling.

TABLE 6-4
SUMMARY OF SO_2 EMITTING FACILITIES INCLUDED IN THE AAQS AND PSD CLASS II INCREMENT COMPLIANCE ANALYSES

Plant ID	Facility Name	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to Crystal River [a] X (km)	Relative to Crystal River [a] Y (km)	Relative to Crystal River [a] Distance (km)	Maximum SO2 Emissions (TPY)	Q (TPY) Emission Threshold (Dist-SID) x 20	Include in Modeling Analysis?
Modeling Area [d]										
0170004	Crystal River Power Plant	Citrus	334.3	3204.5	0	0	0.0	--	SIA	SIA
0170007	Crystal River Quarries	Citrus	340.6	3205.3	6.3	0.8	6.4	133.9	SIA	SIA
Screening Areas [d]										
0530010	Cemex	Hernando	357.5	3,169.2	23.2	-35.3	42.2	132.0	545	Yes [e]
	Asphalt Pavers 4	Hernando	361.4	3,168.4	27.1	-36.1	45.1	78.2	603	Yes [e]
	Oman Construction	Hernando	359.8	3,164.9	25.5	-39.6	47.1	72.7	642	Yes [e]
0530021	FL Crushed Stone Kiln 1	Hernando	360.0	3,162.5	25.7	-42	49.2	3,531.8	685	Yes
	Asphalt Pavers 3	Hernando	359.9	3,162.4	25.6	-42.1	49.3	78.2	685	Yes [e]
0530004	Citrus Service, Inc.	Hernando	364.2	3158.3	29.9	-46.2	55.0	137.2	801	Yes [e]
	FDOC Boiler #3	Hernando	382.2	3,166.1	47.9	-38.4	61.4	103.9	928	Yes [e]
	Hospital Corp of America	Hernando	333.4	3,141.0	-0.9	-63.5	63.5	5.6	970	Yes [e]
1010028	Overstreet Paving	Hernando	355.9	3,143.7	21.6	-60.8	64.5	127.6	990	Yes [e]
Beyond Screening Area out to 100 km d										
1010056	Pasco Cty RRF	Pasco	348.6	3139.0	14.3	-65.48	67.0	490.1	1041	Yes
1010373	IPS - Shady Hills	Pasco	348.6	3,138.4	14.3	-66.13	67.7	1,333.7	1053	Yes
1190018	Consolidated Minerals	Pasco	401.5	3169.5	67.2	-35	75.8	98.3	1215	No
	New Pt Richey Hospital	Pasco	331.2	3,124.5	-3.1	-80	80.1	3.1	1301	No
1010071	Pasco Cogen	Pasco	385.6	3,139.0	51.3	-65.5	83.2	175.2	1364	No
	Florida Rock Thompson S. Baker Cement Plant	Alachua	348.4	3,287.0	14.05	82.54	83.7	77.5	1375	No
1010017	Progress Energy Florida, Inc. - Anclote Power Plant	Pasco	327.4	3120.7	-6.89	-83.82	84.1	120,811.0	1382	Yes
1010041	Apac- Southeast, Inc. Central FL Div.	Pasco	340.7	3,119.5	6.4	-85	85.2	157.7	1405	No

[a] The Progress Energy Crystal River Power Plant is located at UTM Coordinates: East 334.3 km, North 3204.5 km — SO LOCATION

[b] The modeling area for the project, based on an estimated significant impact distance (SID), is 15.0 km

[c] *Based on the North Carolina Screening Threshold method, a background facility is included in the modeling analysis if the facility is within the modeling area and its emission rate is greater* than the product of "Distance x 20".

[d] "Modeling Area" is the area in which the Project is estimated to have a significant impact.
"Screening Area" is the area that is 50 km beyond the modeling area.
"Beyond Screening Area out to 100 km" is the area beyond the screening area and out to 100 km in which only large sources are included in the modeling.

[e] Although the facility's emissions were less than the emission threshold, facility was modeled since the facility was modeled in the PSD Class I increment consumption analysis.

TABLE 6-5
SUMMARY OF NOX EMITTING FACILITIES INCLUDED IN THE AAQS AND PSD CLASS II COMPLIANCE ANALYSES

Plant ID	Facility Name	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to Crystal River[a] X (km)	Relative to Crystal River[a] Y (km)	Relative to Crystal River[a] Direction (deg.)	Relative to Crystal River[a] Distance (km)	Maximum NOx Emissions (TPY)	Q, (TPY) Emission Threshold [b,c] (Dist - SID) x 20	Include in Modeling Analysis ?
Modeling Area [d]											
0170004	Progress Energy Florida-Crystal River Power Plant	Citrus	334.3	3,204.5	0.0	0.0	--	0.0	63,326	SIA	Yes
Screening Area [d]											
0170035	Florida Gas Transmission Company	Citrus	353.2	3,194.0	18.9	-10.5	119.1	21.6	49	133	No
0170021	Central Materials Company, Inc.	Citrus	355.5	3,188.5	21.2	-16.0	127.0	26.6	17	231	No
0530010	Southdown, Inc. (Cemex)	Hernando	355.9	3,169.1	21.6	-35.4	148.6	41.5	2,335	529	Yes
0530044	Florida Crushed Stone, Gregg Mine	Hernando	359.8	3,163.4	25.5	-41.1	148.2	48.4	24	667	No
0530351	Grubbs Construction Company	Hernando	359.8	3,163.0	25.5	-41.5	148.4	48.7	20	674	No
0530021	Florida Crushed Stone Co., Inc.	Hernando	360.0	3,162.5	25.7	-42.0	148.5	49.2	6,873	685	Yes
0530020	Columbia Reg Medical Center Oak Hill	Hernando	352.6	3,157.3	18.3	-47.2	158.8	50.6	20	712	No
0830066	Emergency One, Inc.	Marion	384.9	3,227.2	50.6	22.7	65.8	55.5	15	809	No
0830052	Closetmaid FKA Clairson Intl	Marion	386.2	3,228.9	51.9	24.4	64.8	57.3	17	847	No
0830010	Royal Oak Enterprises	Marion	387.5	3,231.1	53.2	26.6	63.4	59.5	90	890	No
7770088	Steven Counts, Inc.		386.8	3,233.9	52.5	29.4	60.8	60.2	17	903	No
0750085	Freebee Landholdings, LTD	Levy	349.0	3,264.6	14.7	60.1	13.7	61.9	44	937	No
0830007	Dayco Products Inc	Marion	393.3	3,226.2	59.0	21.7	69.8	62.9	18	957	No
0830016	Franklin Industrial Minerals	Marion	384.7	3,244.2	50.4	39.7	51.8	64.2	110	983	No
0830017	MFM Industries Inc	Marion	384.5	3,245.3	50.2	40.8	50.9	64.7	36	994	No
1010028	Overstreet Paving Co	Pasco	357.4	3,143.7	23.1	-60.8	159.2	65.0	38	1001	No
Beyond Screening Area out to 100 km [d]											
0830124	Marion County Board of CO Commissioners	Marion	397.7	3,222.1	63.4	17.6	74.5	65.8	12	1015	No
7775176	C.W. Roberts Contracting, Inc.		400.3	3,197.3	66.0	-7.3	96.3	66.4	14	1028	No
1010373	Ips Avon Park Corp.	Pasco	347.0	3,139.0	12.7	-65.5	169.0	66.7	756	1034	Yes
1010056	Pasco County Resource Recovery	Pasco	348.8	3,138.8	14.5	-65.7	167.6	67.3	1,008	1046	Yes
1190018	Consolidated Minerals, Inc.		401.5	3,169.5	67.2	-35.0	117.5	75.8	35	1215	No
0830094	Bedrock Resources	Marion	393.5	3,252.0	59.2	47.5	51.2	75.9	23	1218	No
1190011	Robbins Manufacturing Co.		396.7	3,158.9	62.4	-45.6	126.2	77.3	25	1246	No
0410004	Florida Gas Transmission Company		321.3	3,282.8	-13.0	78.3	350.6	79.4	75	1287	No
7770259	DAB Constructors, Inc.		412.3	3,189.1	78.0	-15.4	101.2	79.5	25	1290	No
7770245	Limerock Industries, Inc.		348.9	3,284.4	14.6	79.9	10.4	81.2	36	1324	No
0290003	Georgia-Pacific Corp. Chip/Saw		300.3	3,278.8	-34.0	74.3	335.4	81.7	28	1334	No
1010002	Pasco Beverage Company	Pasco	383.5	3,139.2	49.2	-65.3	143.0	81.8	233	1335	No
0010001	Florida Power Corporation D/B/A Progress	Alachua	369.4	3,279.3	35.1	74.8	25.1	82.6	166	1352	No
0010041	N. Fla/South Ga Veterans Health System	Alachua	369.8	3,279.1	35.5	74.6	25.4	82.6	30	1352	No
0690046	Covanta Lake, Inc.	Lake	413.1	3,179.3	78.8	-25.2	107.7	82.7	476	1355	No
0830045	Standard Sand & Silica Co	Marion	412.7	3,231.3	78.4	26.8	71.1	82.9	87	1357	No
1010071	Pasco Cogen Limited	Pasco	385.1	3,139.0	50.8	-65.5	142.2	82.9	405	1357	No
0690002	Cutrale Citrus Juices USA Inc	Lake	415.5	3,187.3	81.2	-17.2	102.0	83.0	157	1360	No

TABLE 6-5
SUMMARY OF NOX EMITTING FACILITIES INCLUDED IN THE AAQS AND PSD CLASS II COMPLIANCE ANALYSES

Plant ID	Facility Name	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to Crystal River[a] X (km)	Relative to Crystal River[a] Y (km)	Relative to Crystal River[a] Direction (deg.)	Relative to Crystal River[a] Distance (km)	Maximum NOx Emissions (TPY)	Q, (TPY) Emission Threshold[b,c] (Dist - SID) x 20	Include in Modeling Analysis ?
0010087	Florida Rock Industries, Inc.	Alachua	348.4	3,287.0	14.1	82.5	9.7	83.7	2,048	1375	Yes
1010017	Progress Energy-Anclote Power Plant	Pasco	327.4	3,120.7	-6.9	-83.8	184.7	84.1	13,292	1382	Yes
0010005	Gainesville Regional Utilities	Alachua	372.1	3,280.1	37.8	75.6	26.6	84.5	133	1390	No
1010378	Paw Materials, Inc.	Pasco	346.6	3,120.0	12.3	-84.5	171.7	85.4	45	1409	No
1030044	Suncoast Paving, Inc.	Pinellas	327.7	3,116.7	-6.6	-87.8	184.3	88.1	27	1461	No
0690008	Eagle-Picher Ind. (Wolverine Gasket Div.)	Lake	424.2	3,194.1	89.9	-10.4	96.6	90.5	19	1510	No
0010037	V. E. Whitehurst & Sons, Inc.	Alachua	368.7	3,289.0	34.4	84.5	22.2	91.2	18	1525	No
0830070	Florida Gas Transmission Company	Marion	418.8	3,240.9	84.5	36.4	66.7	92.0	900	1540	Yes
0690001	Florida Select Citrus, Inc.	Lake	416.2	3,159.6	81.9	-44.9	118.7	93.4	52	1568	No
0010006	City of Gainesville, GRU	Alachua	365.7	3,292.6	31.4	88.1	19.6	93.5	5,556	1571	Yes
0690014	Silver Springs Citrus Inc.	Lake	424.4	3,176.5	90.1	-28.0	107.2	94.4	64	1588	No
7775271	John C. Hipp Construction Equipment Co.		356.7	3,296.5	22.4	92.0	13.7	94.7	15	1594	No
0694801	Lake Investment, L.P.	Lake	434.0	3,198.8	99.7	-5.7	93.3	99.9	809	1697	No
7775202	The Lane Construction Corporation		393.8	3,124.3	59.5	-80.2	143.4	99.9	50	1698	No

[a] The Progress Energy Crystal River facility is located at UTM Coordinates: East 334.3 km, North 3204.5 km

[b] The modeling area for the project, based on an estimated significant impact distance (SID), is 15.0 km

[c] Based on the North Carolina Screening Threshold method, a background facility is included in the modeling analysis if the facility is within the modeling area and its emission rate is greater than the product of "Distance x 20".

[d] "Modeling Area" is the area in which the Project is estimated to have a significant impact.
"Screening Area" is the area that is 50 km beyond the modeling area.
"Beyond Screening Area out to 100 km" is the area beyond the screening area and out to 100 km in which only large sources are included in the modeling.

TABLE 6-6
SUMMARY OF PM_{10} EMITTING FACILITIES INCLUDED IN THE PSD CLASS I INCREMENT CONSUMPTION ANALYSIS AT THE CHASSAHOWITZKA NWA

Plant ID	Facility Name	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to CNWA[a] X (km)	Relative to CNWA[a] Y (km)	Direction (deg.)	Distance (km)	Maximum PM Emissions (TPY)	PSD Increment Affecting Emissions (CON/EXP)
Modeling Area[b]										
0530010	Cemex	Hernando	357.5	3169.2	19.7	-6.0	107	20.6	879.8	CON
0530021	Brooksville Cement And Power Plants	Hernando	361.3	3162.4	23.5	-12.8	119	26.8	711.3	CON
	Imc - Agrico Co. (Pierce)		404.1	3079.0	-16.7	-24.3	214	29.5	-311.4	EXP
0170004	Crystal River Power Plant	Citrus	334.3	3204.5	-3.5	29.3	353	29.5	13,068.3	CON
1010056	Pasco County Resource Recovery Facility	Pasco	348.6	3139.0	10.8	-36.2	163	37.8	73.2	CON
1010373	Shady Hills Generating Station	Pasco	348.7	3138.4	10.9	-36.8	163	38.4	61.5	CON
	Stauffer Tarpon Springs	Pinellas	325.6	3116.7	-12.2	-58.5	192	59.8	-455.3	EXP
0570005	CF Industries--Plant City	Hillsborough	388.0	3116.0	50.2	-59.2	140	77.6	424.9	CON
									-109.2	EXP
0570127	Mckay Bay Refuse-To-Energy Facility	Hillsborough	360.2	3092.2	22.4	-83.0	165	86.0	172.2	CON
0570038	TECO, Hookers Point	Hillsborough	358.0	3091.0	20.2	-84.2	167	86.6	32.9	CON
									-1,536.4	EXP
0570261	Hillsborough Cty. RRF	Hillsborough	368.2	3092.7	30.4	-82.5	160	87.9	92.0	CON
0570040	TECO Bayside Power Station	Hillsborough	360.1	3087.5	22.3	-87.7	166	90.5	352.6	CON
									-6,267.5	EXP
1030117	Pinellas Co. Resource Recovery Facility	Pinellas	335.2	3084.1	-2.6	-91.1	182	91.1	657.0	CON
0570008	Mosaic Riverview Facility	Hillsborough	362.9	3082.5	25.1	-92.7	165	96.0	283.8	CON
									-1795.1	EXP
1050004	C.D. Mcintosh, Jr. Power Plant	Polk	409.0	3106.2	71.2	-69.0	134	99.1	2,883.7	CON
0570094	Mosaic - Big Bend Terminal	Hillsborough	361.0	3076.2	23.2	-99.0	167	101.7	10.0	CON
1050003	Lakeland Electric, Larsen Power Plant	Polk	408.9	3102.5	71.1	-72.7	136	101.7	487.6	CON
									-34.8	EXP
0570039	TECO, Big Bend Station	Hillsborough	361.9	3075.0	24.1	-100.2	166	103.1	5,942.0	CON
1050047	Agrifos Mining, L.L.C. - Nichols	Polk	398.7	3085.3	60.9	-89.9	146	108.6	557.1	CON
1050057	Mosaic Phosphates (Nichols)	Polk	398.4	3084.2	60.6	-91.0	146	109.3	-488.0	EXP
0010087	Thompson S. Baker Cement Plant	Alachua	348.4	3287.0	10.6	111.8	5	112.3	1,105.6	CON
1050059	Mosaic Phosphates (New Wales)	Polk	396.7	3079.4	58.9	-95.8	148	112.5	1,521.0	CON
1050046	Mosaic - Bartow Facility	Polk	409.8	3086.6	72.0	-88.6	141	114.2	281.1	CON
									-275.7	EXP
1050034	Mosaic Phosphates (CFMO)	Polk	398.2	3075.7	60.4	-99.5	149	116.4	1,148.1	CON
	Bartow Phosphate Cnt. (Imc Uranium Rec.)	Polk	408.4	3082.2	70.6	-93.0	143	116.8	-827.8	EXP
1050034	Mosaic Phosphates, Ft. Lonesome	Polk	389.5	3068.0	51.7	-107.2	154	119.0	-443.3	EXP
1050053	Mosaic - Green Bay Facility	Polk	409.5	3080.1	71.7	-95.1	143	119.1	191.0	CON
									-709.7	EXP
0970014	Progress Energy- Intercession City Plant	Osceola	446.3	3126.0	108.5	-49.2	114	119.1	1,228.5	CON

TABLE 6-6
SUMMARY OF PM_{10} EMITTING FACILITIES INCLUDED IN THE PSD CLASS I INCREMENT CONSUMPTION ANALYSIS AT THE CHASSAHOWITZKA NWA

Plant ID	Facility Facility Name	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to CNWA[a] X (km)	Relative to CNWA[a] Y (km)	Direction (deg.)	Distance (km)	Maximum PM Emissions (TPY)	PSD Increment Affecting Emissions (CON/EXP)
0010006	Deerhaven Generating Station	Alachua	365.7	3292.6	27.9	117.4	13	120.7	1,612.0	CON
1050217	Polk Power Partners - Mulberry Cogen Facility	Polk	413.6	3080.6	75.8	-94.6	141	121.2	39.4	CON
0810010	FPL - Manatee Power Plant	Manatee	367.3	3054.2	29.5	-121.1	166	124.6	9,471.8	CON
1050233	TECO, Polk Power Station	Polk	402.5	3067.4	64.7	-107.9	149	125.7	92.5	CON
1050234	Progress Energy Florida - Hines	Polk	414.3	3073.9	76.5	-101.3	143	127.0	91.0	CON
1270028	FPC - Debary Facility	Volusia	467.5	3197.2	129.7	22.0	80	131.6	1,067.1	CON
1270020	FPC - Turner Plant	Volusia	473.4	3193.3	135.6	18.1	82	136.8	-636.9	EXP
1070005	Georgia-Pacific Corp. Pulp/Paper Mill	Putnam	434.0	3283.4	96.2	108.2	42	144.8	871.3	CON
									-6,736.2	EXP
0950137	Stanton Energy Center	Orange	483.5	3150.6	145.7	-24.6	100	147.8	576.5	CON
1070025	SECI Seminole Generating Station	Putnam	438.9	3289.3	101.1	114.1	42	152.4	1884.0	CON

[a] The approximate center of the Chassahowitzka NWA is located at UTM Coordinates: East 337.8 km, North 3175.2 km

[b] The modeling area for the project is estimated to be 210.0 km

TABLE 6-7
SUMMARY OF SO_2 EMITTING FACILITIES INCLUDED IN THE PSD CLASS I INCREMENT CONSUMPTION ANALYSIS
AT THE CHASSAHOWITZKA NWA

Facility Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Maximum SO2 Emissions [a] (TPY)	PSD Increment Affecting Emissions (CON/EXP) b
Florida Power & Light (FPL)- Putnam Plant	443.3	3277.6	4,053.2	CON
Florida Power & Light (FPL)- Palatka Plant	442.8	3277.6	-8,934.9	CON
Georgia Pacific, Palatka Mill b	433.9	3283.5	11,416.6	CON
			13,537.3	EXP
Gerdau Ameristeel	405.7	3350.0	141.1	CON
			49.6	EXP
JEA Brandy Branch	408.8	3354.5	429.8	CON
Gainesville Regional Utilities- Deerhaven	365.7	3292.6001	12,995.4	CON
CF Industries, Plant City	388.0	3,116.0	6,740.6	CON
			-6,265.0	EXP
Cargill Fertilizer, Inc.--Riverview	362.9	3,082.5	6,552.8	CON
			-21,312.7	EXP
Natonal Gypsum - Apollo Beach	363.3	3,075.6	238.0	CON
Big Bend Transfer Co. L.L.C.	361.1	3,076.2	15.7	CON
TECO - Big Bend	361.9	3,075.0	15,662.9	CON
			-127,020.0	EXP
Tampa Bay Shipbuiding & Repair Co.	358.0	3,089.0	12.0	CON
McKay Bay Refuse-to-Energy Facility	360.2	3,092.2	716.0	CON
Hillsborough Cty. Resource Recovery Fac.	368.2	3,092.7	770.9	CON
Yuengling Brewing Co.	362.0	3,103.2	39.4	CON
Pinellas Co. Resource Recovery Facility	335.2	3,084.1	3,044.1	CON
IMC PhosphateS Company - New Wales	396.7	3,079.4	14,624.9	CON
			-6,266.5	EXP
TECO - Polk Power Station	402.5	3,067.4	2,925.8	CON
Cargill Mulberry (Formerly Mulberry Phosphates, Inc.)	406.8	3,085.1	1,241.0	CON
			-8,954.5	EXP
CF Industries, Inc. - Bartow	408.3	3,082.5	1,825.6	CON
			-29,546.6	EXP
IMC Phosphates Company - South Pierce	407.5	3,071.4	3,942.0	CON
			-2,628.0	EXP
Cargill Green Bay (Formerly Farmland Hydro, L.P. - Green Bay)	409.5	3,080.1	6,895.0	CON
			-9,726.5	EXP
Cargill Fertilizer - Bartow	409.8	3,086.6	6,753.8	CON
Hardee Power Station	404.8	3,057.4	9,673.2	CON
Lakeland Electric, Larsen Power Plant	408.9	3,102.5	925.9	CON

TABLE 6-7
SUMMARY OF SO_2 EMITTING FACILITIES INCLUDED IN THE PSD CLASS I INCREMENT CONSUMPTION ANALYSIS
AT THE CHASSAHOWITZKA NWA

Facility Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Maximum SO2 Emissions [a] (TPY)	PSD Increment Affecting Emissions (CON/EXP) b
Lakeland Electric, McIntosh Power Plant	409.0	3,106.2	19,686.8	CON
U.S. Agri-Chemicals - Ft. Meade	416.0	3,069.0	4,383.2	CON
			-3,374.3	EXP
Cutrale Citrus Juices USA, Inc.	421.6	3,103.7	1,676.7	CON
Auburndale Power Partners, LP	420.8	3,103.3	598.3	CON
Florida Distillers - Auburndale	421.4	3,102.9	0.3	CON
FPC - Intercession City Plant	446.3	3,126.0	17,025.9	CON
IPS - Shady Hills	347.2	3,138.8	1,333.7	CON
Estech/Swift Polk	411.5	3,074.2	-4,853.1	EXP
FL Crushed Stone Kiln 1	360.0	3,162.5	3,531.8	CON
FPC Polk County Site	414.3	3,073.9	858.6	CON
General Portland Cement #4	358.0	3,090.6	-2,189.7	EXP
General Portland Cement #5	358.0	3,090.6	-2,409.0	EXP
IMC-Agrico Pierce	404.1	3,079.0	-1,644.9	EXP
Imperial Phosphates (Brewer)	404.8	3,069.5	-669.5	EXP
Mobil Electrophos Division	405.6	3,079.4	-3,334.4	EXP
Stauffer (Shutdown)	325.6	3,116.7	-2,263.0	EXP
US Agri-Chem Bartow	413.2	3,086.3	-1,578.5	EXP
Asphalt Pavers 3	359.9	3,162.4	78.2	CON
Asphalt Pavers 4	361.4	3,168.4	78.2	CON
Borden Hillsborough	394.6	3,069.6	-225.3	EXP
Borden Polk	414.5	3,109.0	-183.9	EXP
Couch Const-Zephyrhills (Asphalt)	390.3	3,129.4	123.1	CON
Couch Const-Odessa (Asphalt)	340.7	3,119.5	252.0	CON
Dris Paving (Asphalt)	340.6	3,119.2	8.0	CON
Dolime	404.8	3,069.5	-354.6	EXP
Evans Packing	383.3	3,135.8	7.0	CON
E R Jahna (Lime Dryer)	386.7	3,155.8	28.5	CON
FDOC Boiler #3	382.2	3,166.1	103.9	CON
FL Mining and Materials Kiln	356.2	3,169.9	50.4	CON
FPC - Crystal River	334.2	3,204.5	-75,537.6	EXP
			70,135.6	CON
FPC Debary	467.5	3,197.2	16,213.0	CON
Hospital Corp of America	333.4	3,141.0	5.6	CON
Kissimmee Utilities	447.7	3,127.9	1,022.0	CON
Kissimmee Utilites Exist	460.1	3,129.3	1,115.9	CON
Lake Cogen	434.0	3,198.8	175.2	CON
Mulberry Cogeneration	413.6	3,080.6	464.1	CON
New Pt Richey Hospital	331.2	3,124.5	3.1	CON

TABLE 6-7
SUMMARY OF SO_2 EMITTING FACILITIES INCLUDED IN THE PSD CLASS I INCREMENT CONSUMPTION ANALYSIS
AT THE CHASSAHOWITZKA NWA

Facility Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Maximum SO2 Emissions [a] (TPY)	PSD Increment Affecting Emissions (CON/EXP) b
Oman Construction	359.8	3,164.9	72.7	CON
Orlando Utilities Commission - Stanton	483.5	3,150.6	24,083.0	CON
Overstreet Paving	355.9	3,143.7	127.6	CON
Pasco Cty RRF	347.1	3,139.2	490.1	CON
Pasco Cogen	385.6	3,139.0	175.2	CON
Reedy Creek Energy Services- EPCOT	442.0	3,139.0	127.2	CON
Reedy Creek Energy Services	443.1	3,144.3	5.2	CON
Ridge Cogeneration	416.7	3,100.4	479.7	CON
PCS	328.3	3,368.8	10,000.0	CON
			-13,213.0	EXP
Suwannee American Cement	321.4	3,315.9	124.4	CON
Florida Rock Thompson S. Baker Cement Plant	348.4	3,287.0	77.5	CON

[b] Comsuming (CON) sources are sources that were constructed or modified after the PSD baseline date.
Expanding (EXP) sources are sources that have shutdown or have been modified since the baseline date.

TABLE 6-8
SUMMARY OF NO_X EMITTING FACILITIES INCLUDED IN THE PSD CLASS I INCREMENT CONSUMPTION ANALYSIS
AT THE CHASSAHOWITZKA NWA

Plant ID	Facility Facility Name	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to CNWA[a] X (km)	Relative to CNWA[a] Y (km)	Relative to CNWA[a] Direction (deg.)	Relative to CNWA[a] Distance (km)	Maximum NO_x Emissions (TPY)	PSD Increment Affecting Emissions (CON/EXP)
Modeling Area[b]										
0530021	Brooksville Cement And Power Plants	Hernando	361.3	3162.4	23.5	-12.8	119	26.8	6,873.2	CON
0170004	Crystal River Power Plant	Citrus	334.3	3204.5	-3.5	29.3	353	29.5	31,536.0	CON
1010056	Pasco County Resource Recovery Facility	Pasco	348.6	3139.0	10.8	-36.2	163	37.8	1008.1	CON
1010373	Shady Hills Generating Station	Pasco	348.7	3138.4	10.9	-36.8	163	38.4	756.3	CON
0570005	CF Industries--Plant City	Hillsborough	388.0	3116.0	50.2	-59.2	140	77.6	312.1	CON
0570127	Mckay Bay Refuse-To-Energy Facility	Hillsborough	360.2	3092.2	22.4	-83.0	165	86.0	679.0	CON
									-1316.0	EXP
0570038	TECO, Hookers Point	Hillsborough	358.0	3091.0	20.2	-84.2	167	86.6	582.0	CON
									-4,558.0	EXP
0570261	Hillsborough Cty. RRF	Hillsborough	368.2	3092.7	30.4	-82.5	160	87.9	768.0	CON
0570040	TECO Bayside Power Station	Hillsborough	360.1	3087.5	22.3	-87.7	166	90.5	708.4	CON
									-79,088.0	EXP
0570008	Mosaic Riverview Facility	Hillsborough	362.9	3082.5	25.1	-92.7	165	96.0	313.1	CON
									-110.9	EXP
1050004	C.D. Mcintosh, Jr. Power Plant	Polk	409.0	3106.2	71.2	-69.0	134	99.1	17,829.0	CON
1050003	Lakeland Electric, Larsen Power Plant	Polk	408.9	3102.5	71.1	-72.7	136	101.7	3825.0	CON
									-639.0	EXP
1050057	Mosaic Phosphates (Nichols)	Polk	398.4	3084.2	60.6	-91.0	146	109.3	-208.5	EXP
0010087	Thompson S. Baker Cement Plant	Alachua	348.4	3287.0	10.6	111.8	5	112.3	2,047.6	CON
1050059	Mosaic Phosphates (New Wales)	Polk	396.7	3079.4	58.9	-95.8	148	112.5	781.4	CON
1050046	Mosaic - Bartow Facility	Polk	409.8	3086.6	72.0	-88.6	141	114.2	215.3	CON
1050034	Mosaic Phosphates (CFMO)	Polk	398.2	3075.7	60.4	-99.5	149	116.4	244.0	CON
1050053	Mosaic - Green Bay Facility	Polk	409.5	3080.1	71.7	-95.1	143	119.1	254.9	CON
0970014	Progress Energy- Intercession City Plant	Osceola	446.3	3126.0	108.5	-49.2	114	119.1	15,155.9	CON
0010006	GRU - Deerhaven Generating Station	Alachua	365.7	3292.6	27.9	117.4	13	120.7	6,873.5	CON
1050217	Polk Power Partners - Mulberry Cogen Facility	Polk	413.6	3080.6	75.8	-94.6	141	121.2	353.0	CON
0810010	FPL - Manatee Power Plant	Manatee	367.3	3054.2	29.5	-121.1	166	124.6	23,145.6	CON
1050233	TECO, Polk Power Station	Polk	402.5	3067.4	64.7	-107.9	149	125.7	2290.2	CON
1050234	Progress Energy Florida - Hines	Polk	414.3	3073.9	76.5	-101.3	143	127.0	1348.8	CON
1270028	FPC - Debary Facility	Volusia	467.5	3197.2	129.7	22.0	80	131.6	7,162.6	CON
1270020	FPC - Turner Plant	Volusia	473.4	3193.3	135.6	18.1	82	136.8	-1826.1	EXP
1070005	Georgia-Pacific Corp. Pulp/Paper Mill	Putnam	434.0	3283.4	96.2	108.2	42	144.8	2,691.7	CON
									-1,677.6	EXP
0950137	Stanton Energy Center	Orange	483.5	3150.6	145.7	-24.6	100	147.8	11826.0	CON
1070025	SECI Seminole Generating Station	Putnam	438.9	3289.3	101.1	114.1	42	152.4	33731.4	CON

TABLE 6-8
SUMMARY OF NO_X EMITTING FACILITIES INCLUDED IN THE PSD CLASS I INCREMENT CONSUMPTION ANALYSIS AT THE CHASSAHOWITZKA NWA

Plant ID	Facility Facility Name	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to CNWA[a] X (km)	Relative to CNWA[a] Y (km)	Relative to CNWA[a] Direction (deg.)	Relative to CNWA[a] Distance (km)	Maximum NO_x Emissions (TPY)	PSD Increment Affecting Emissions (CON/EXP)
0490043	Vandolah Power Co. LLC	Hardee	408.8	3044.5	71.0	-130.7	152	148.7	1008.4	CON
0810007	Tropicana Products, Inc.	Manatee	346.8	3,040.9	9.0	-134.3	176	134.6	1331.9	CON

[a] *The approximate center of the Chassahowitzka NWA is located at UTM Coordinates:* East 337.8 km, North 3175.2 km

[b] The modeling area for the project is estimated to be 210.0 km

TABLE 6-9
PROJECT BUILDING DIMENSIONS USED IN THE MODELING ANALYSIS

Stucture	Height ft	Height m	Length ft	Length m	Width ft	Width m
Unit 4 Boiler Structure	277	84.4	185	56.5	152	46.5
Unit 5 Boiler Structure	277	84.4	185	56.5	152	46.5
Turbine Building	97	29.5	105	32.0	573	174.8
Unit 4 Precipitator	91	27.8	118	36.0	204	62.2 [a]
Unit 5 Precipitator	91	27.8	118	36.0	204	62.2
Unit 4 SCR	214	65.3	71	21.7	100	30.4 [a]
Unit 5 SCR	214	65.3	1404	21.7	100	30.4
Unit 4 Absorber	125	38.0	133	40.4	89	27.1
Unit 5 Absorber	125	38.0	133	40.4	89	27.1
Helper Cooling Tower	33	10.0	2590	789.7	51	15.4
Unit 1 Boiler Structure	198	60.4	99	30.1	135	41.3
Unit 2 Boiler Structure	208	63.4	120	36.6	120	36.6
Adm Building	12	3.7	114	34.7	114	34.7
Adm Building	75	22.9	424	129.2	78	23.6
Tank NW	40	12.2	235	71.6 [a]	235	71.6
Tank SW	40	12.2	235	71.6 [a]	235	71.6
Tank NE	40	12.2	190	57.9 [a]	190	57.9
Tank SE	40	12.2	190	57.9 [a]	190	57.9

[a] Diameter

TABLE 6-10

MAXIMUM PM_{10}, CO, SO_2, AND NO_2 CONCENTRATIONS PREDICTED FOR CRYSTAL RIVER UNITS 4 & 5 BY OPERATING LOAD WITH PROPOSED STACK OF 550 FT (SO2 = 0.27 LB/MMBTU/HR)

Pollutant	Emissions (lb/hr) for Operating Load				Averaging Time	Maximum Concentration (ug/m^3) for Operating Load				PSD Class II Significant Impact Levels
	100% Load Excursion	100% Load	75% Load	50% Load		100% Load Excursion	100% Load	75% Load	50% Load	(ug/m^3)
Modeled rate	7.937	NM	7.937	7.937	Annual	0.007	NM	0.010	0.015	NA
					24-Hour	0.097		0.128	0.167	NA
					8-Hour	0.213		0.280	0.418	NA
					3-Hour	0.313		0.409	0.533	NA
					1-Hour	0.393		0.491	0.994	NA
Project PSD Pollutant										
PM_{10}	720.0	NM	510.0	340.0	Annual	0.66	NM	0.63	0.66	1
					24-Hour	8.8		8.2	7.2	5
CO	2,160	NM	1,530	1,020	8-Hour	57.9	NM	54.0	53.7	500
					1-Hour	107		94.7	127.8	2,000
Project Non-PSD Pollutant										
SO_2	3,888.0	NM	2,754.0	1,836.0	Annual	3.58	NM	3.40	3.57	1
					24-Hour	47.4		44.5	38.6	5
					3-Hour	153		142	123.3	25
NO_x/ NO_2	7,200	NM	5,100	3,400	Annual	6.62	NM	6.30	6.61	1

NA= not applicable
NM= not modeled

[a] Concentrations are based on highest concentrations predicted using AERMOD with five years of meteorological data from 2001 to 2005 of surface and upper air data from the National Weather Service stations at Tampa and Ruskin, respectively.

Pollutant concentrations were based on a modeled or generic concentration predicted using a modeled emission rate. Specific pollutant concentrations were estimated by multiplying the modeled concentration by the ratio of the specific pollutant emission rate to the modeled emission rate.

TABLE 6-11
MAXIMUM PM_{10}, SO_2, AND NO_2 CONCENTRATIONS PREDICTED FOR THE PROJECT WITH PROPOSED STACK OF 550 FT

Averaging Time and Rank	Maximum Concentration [a,c] (µg/m³)	Receptor Location: UTM Coordinates (m) East	North	Local Coordinates (m) [b] x	y	Time Period (YYMMDDHH)	PSD Class II Significant Impact Levels (µg/m³)
Project PSD Pollutant							
PM_{10} IMPACTS							
Annual							
Highest	0.00	NA	NA	NA	NA	1123124	1
	0.00	NA	NA	NA	NA	2123124	
	0.00	NA	NA	NA	NA	3123124	
	0.00	NA	NA	NA	NA	4123124	
	0.00	NA	NA	NA	NA	5123124	
24-Hour							
Highest	0.84	343,800	3,211,400	9,023	6,007	1070624	5
	1.09	344,800	3,210,400	10,023	5,007	2011124	
	0.66	340,800	3,214,400	6,023	9,007	3060924	
	0.76	334,262	3,205,668	-515	275	4051424	
	0.62	334,065	3,205,671	-712	278	5061024	
Project Non-PSD Pollutant							
SO_2 IMPACTS							
Annual							
Highest	0.00	NA	NA	NA	NA	1123124	1
	0.00	NA	NA	NA	NA	2123124	
	0.00	NA	NA	NA	NA	3123124	
	0.00	NA	NA	NA	NA	4123124	
	0.00	NA	NA	NA	NA	5123124	
24-Hour							
Highest	4.2	343,800	3,211,400	9,023	6,007	1070624	5
	5.6	344,800	3,210,400	10,023	5,007	2011124	
	2.7	340,800	3,214,400	6,023	9,007	3060924	
	3.2	337,800	3,215,400	3,023	10,007	4033024	
	2.8	340,800	3,215,400	6,023	10,007	5012124	
3-Hour							
Highest	29.1	340,800	3,214,400	6,023	9,007	1052709	25
	44.4	339,800	3,213,400	5,023	8,007	2021212	
	43.4	339,800	3,213,400	5,023	8,007	3020715	
	33.0	340,800	3,213,400	6,023	8,007	4101212	
	17.3	340,800	3,215,400	6,023	10,007	5012112	
NO_2 IMPACTS							
Annual							
Highest	0.20	334,360	3,205,667	-417	274	1123124	1
	0.27	334,360	3,205,667	-417	274	2123124	
	0.22	334,360	3,205,667	-417	274	3123124	
	0.25	334,311	3,205,667	-466	274	4123124	
	0.11	334,360	3,205,667	-417	274	5123124	

Note: YYMMDDHH = Year, Month, Day, Hour Ending.

[a] Concentrations are based on highest concentrations predicted using AERMOD with five years of meteorological data from 2001 to 2005 of surface and upper air data from the National Weather Service stations at Tampa and Ruskin, respectively.
Concentrations are due to the difference in impacts predicted for the proposed stack and existing stacks for Units 4 and 5.

[b] Relative to the proposed stack for Units 4 and 5 with East and North UTM coordinates (km): 334,776.80 , 3,205,393.42 .

[c] A "0.0" concentration indicates that the impacts were zero or less.

TABLE 6-12
MAXIMUM PM_{10}, SO_2, AND NO_2 CONCENTRATIONS PREDICTED FOR CRYSTAL RIVER UNITS 4 AND 5 BY OPERATING LOAD AT THE PSD CLASS I AREA OF THE CHASSAHOWITZKA NWA USING AERMOD
WITH PROPOSED STACK OF 550 FT (SO2 = 0.27 LB/MMBTU/HR)

Pollutant	Emissions (lb/hr) for Operating Load: 100% Load Excursion	Emissions (lb/hr) for Operating Load: 100% Load	Emissions (lb/hr) for Operating Load: 75% Load	Emissions (lb/hr) for Operating Load: 50% Load	Averaging Time	Maximum Concentration (ug/m^3) for Operating Load: 100% Load Excursion	Maximum Concentration (ug/m^3) for Operating Load: 100% Load	Maximum Concentration (ug/m^3) for Operating Load: 75% Load	Maximum Concentration (ug/m^3) for Operating Load: 50% Load	PSD Class I Significant Impact Levels (ug/m^3)
Modeled rate	7.937	NM	7.937	7.937	Annual	0.001	NM	0.001	0.001	NA
					24-Hour	0.009		0.010	0.012	NA
					8-Hour	0.018		0.021	0.024	NA
					3-Hour	0.028		0.031	0.036	NA
					1-Hour	0.085		0.092	0.100	NA
Project PSD Pollutant										
PM_{10}	720.0	NM	510.0	340.0	Annual	0.068	NM	0.06	0.05	0.2
					24-Hour	0.85		0.6	0.5	0.3
Project Non-PSD Pollutant										
SO_2	3,888.0	NM	2,754.0	1,836.0	Annual	0.37	NM	0.31	0.25	0.1
					24-Hour	4.6		3.5	2.8	0.2
					3-Hour	14		11	8.4	1
NO_x/ NO_2	7,200	NM	5,100	3,400	Annual	0.68	NM	0.58	0.46	0.1

NA= not applicable
NM= not modeled

[a] Concentrations are based on highest concentrations predicted using AERMOD with five years of meteorological data from 2001 to 2005 of surface and upper air data from the National Weather Service stations at Tampa and Ruskin, respectively.

Pollutant concentrations were based on a modeled or generic concentration predicted using a modeled emission rate.
Specific pollutant concentrations were estimated by multiplying the modeled concentration by the ratio of the specific pollutant emission rate to the modeled emission rate.

TABLE 6-13
MAXIMUM PM_{10}, SO_2, AND NO_2 CONCENTRATIONS PREDICTED FOR THE PROJECT
AT THE PSD CLASS I AREA OF THE CHASSAHOWITZKA NWA USING AERMOD
WITH PROPOSED STACK OF 550 FT

Averaging Time and Rank	Maximum Concentration [a, c] (μg/m³)	Receptor Location: UTM Coordinates (m) East	North	Local Coordinates (m) [b] x	y	Time Period (YYMMDDHH)	PSD Class I Significant Impact Levels (μg/m³)
Project PSD Pollutant							
PM_{10} IMPACTS							
Annual							
Highest	0.00	NA	NA	NA	NA	1123124	0.2
	0.00	NA	NA	NA	NA	2123124	
	0.00	NA	NA	NA	NA	3123124	
	0.00	NA	NA	NA	NA	4123124	
	0.00	NA	NA	NA	NA	5123124	
24-Hour							
Highest	0.00	NA	NA	NA	NA	1123124	0.3
	0.00	NA	NA	NA	NA	2123124	
	0.00	NA	NA	NA	NA	3123124	
	0.00	NA	NA	NA	NA	4123124	
	0.00	NA	NA	NA	NA	5123124	
Project Non-PSD Pollutant							
SO_2 IMPACTS							
Annual							
Highest	0.00	NA	NA	NA	NA	1123124	0.1
	0.00	NA	NA	NA	NA	2123124	
	0.00	NA	NA	NA	NA	3123124	
	0.00	NA	NA	NA	NA	4123124	
	0.00	NA	NA	NA	NA	5123124	
24-Hour							
Highest	0.00	NA	NA	NA	NA	1123124	0.2
	0.00	NA	NA	NA	NA	2123124	
	0.00	NA	NA	NA	NA	3123124	
	0.00	NA	NA	NA	NA	4123124	
	0.00	NA	NA	NA	NA	5123124	
3-Hour							
Highest	0.3	335,260	3,183,589	483	-21,804	1032509	1
	0.1	335,260	3,183,589	483	-21,804	2102509	
	0.0	335,143	3,175,279	366	-30,114	3041706	
	0.2	335,260	3,183,589	483	-21,804	4033009	
	0.0	338,502	3,182,620	3,725	-22,773	5022021	
NO_2 IMPACTS							
Annual							
Highest	0.00	NA	NA	NA	NA	1123124	0.1
	0.00	NA	NA	NA	NA	2123124	
	0.00	NA	NA	NA	NA	3123124	
	0.00	NA	NA	NA	NA	4123124	
	0.00	NA	NA	NA	NA	5123124	

Note: YYMMDDHH = Year, Month, Day, Hour Ending.

[a] Concentrations are based on highest concentrations predicted using AERMOD with five years of meteorological data from 2001 to 2005 of surface and upper air data from the National Weather Service stations at Tampa and Ruskin, respectively.
Concentrations are due to the difference in impacts predicted for the proposed stack and existing stacks for Units 4 and 5.

[b] Relative to the proposed stack for Units 4 and 5 with East and North UTM coordinates (km): 334,776.80 , 3,205,393.42 .

[c] A "0.0" concentration indicates that the impacts were zero or less.

TABLE 6-14
MAXIMUM PM_{10}, SO_2, AND NO_2 CONCENTRATIONS PREDICTED FOR UNITS 4 AND 5
AT THE PSD CLASS I AREAS OF THE CHASSAHOWITZKA AND ST. MARKS NWA USING CALPUFF
WITH PROPOSED STACK OF 550 FT

Averaging Time and Rank	Chassahowitzka NWA Maximum Concentration [a] (µg/m³)	Chassahowitzka NWA Time Period (YYMMDDHH)	St. Marks NWA Maximum Concentration [a] (µg/m³)	St. Marks NWA Time Period (YYMMDDHH)	PSD Class I Significant Impact Levels (µg/m³)
Project PSD Pollutant					
PM_{10} IMPACTS					
Annual					
Highest	0.10	1123124	0.02	1123124	0.2
	0.15	2123124	0.02	2123124	
	0.12	3123124	0.02	3123124	
24-Hour					
Highest	2.17	1111524	0.37	1011724	0.3
	5.04	2112724	0.33	2042524	
	2.84	3101824	0.31	3022524	
Project Non-PSD Pollutant					
SO_2 IMPACTS					
Annual					
Highest	0.47	1123124	0.06	1123124	0.1
	0.73	2123124	0.06	2123124	
	0.57	3123124	0.09	3123124	
24-Hour					
Highest	11.6	1111524	1.2	1121224	0.2
	25.0	2112724	0.97	2021924	
	15.0	3101824	1.4	3071324	
3-Hour					
Highest	38.7	1030809	5.3	1011809	1
	63.3	2112703	3.9	2032506	
	40.3	3011406	5.0	3071312	
NO_2 IMPACTS					
Annual					
Highest	0.69	1123124	0.04	1123124	0.1
	1.18	2123124	0.04	2123124	
	0.86	3123124	0.05	3123124	

Note: YYMMDDHH = Year, Month, Day, Hour Ending.

[a] Concentrations are based on highest concentrations predicted using CALPUFF with CALMET meteorological data from 2001 to 2003 provided by VISTAS.

TABLE 6-15
MAXIMUM PM_{10}, SO_2, AND NO_2 CONCENTRATIONS PREDICTED FOR THE PROJECT
AT THE PSD CLASS I AREAS OF THE CHASSAHOWITZKA AND ST. MARKS NWA USING CALPUFF
WITH PROPOSED STACK OF 550 FT

Averaging Time and Rank	Chassahowitzka NWA Maximum Concentration [a, b] (μg/m³)	Chassahowitzka NWA Time Period (YYMMDDHH)	St. Marks NWA Maximum Concentration [a, b] (μg/m³)	St. Marks NWA Time Period (YYMMDDHH)	PSD Class I Significant Impact Levels (μg/m³)
Project PSD Pollutant					
PM_{10} IMPACTS					
Annual					
Highest	0.00	1123124	0.000	1123124	0.2
	0.00	2123124	0.000	2123124	
	0.00	3123124	0.000	3123124	
24-Hour					
Highest	2.06	1111524	0.12	1112224	0.3
	1.91	2112724	0.11	2042524	
	0.47	3012724	0.06	3031224	
Project Non-PSD Pollutant					
SO_2 IMPACTS					
Annual					
Highest	0.00	1123124	0.00	1123124	0.1
	0.00	2123124	0.00	2123124	
	0.00	3123124	0.00	3123124	
24-Hour					
Highest	10.3	1111524	0.20	1112224	0.2
	5.0	2022424	0.15	2091324	
	1.7	3021224	0.18	3012924	
3-Hour					
Highest	30.3	1111524	1.7	1042209	1
	25.4	2022403	1.2	2121809	
	11.9	3120121	1.0	3110415	
NO_2 IMPACTS					
Annual					
Highest	0.35	1123124	0.015	1123124	0.1
	0.46	2123124	0.013	2123124	
	0.31	3123124	0.015	3123124	

Note: YYMMDDHH = Year, Month, Day, Hour Ending.

[a] Concentrations are based on highest concentrations predicted using CALPUFF with CALMET meteorological data from 2001 to 2003 provided by VISTAS.
Concentrations are due to the difference in impacts predicted for the proposed stack and existing stacks for Units 4 and 5.

[b] A "0.0" concentration indicates that the impacts were zero or less.

TABLE 6-16
MAXIMUM 3-HOUR AVERAGE SO_2 CONCENTRATIONS PREDICTED FOR UNITS 4 AND 5 AT THE PSD CLASS I AREA OF THE ST. MARKS NWA USING CALPUFF FOR THE EXISTING STACKS AND PROPOSED STACK OF 550 FT

	St. Marks NWA				PSD Class I
	Existing Stacks		Proposed Stack		
Averaging Time and Rank	Maximum Concentration [a] (µg/m³)	Time Period (YYMMDDHH)	Maximum Concentration [a] (µg/m³)	Time Period (YYMMDDHH)	Significant Impact Levels (µg/m³)
Project Non-PSD Pollutant					
SO_2 IMPACTS					
3-Hour					
Highest	20.4	1011809	5.3	1011809	1
	13.0	2111512	3.9	2032506	
	16.9	3043009	5.0	3071312	

Note: YYMMDDHH = Year, Month, Day, Hour Ending.

[a] Concentrations are based on highest concentrations predicted using CALPUFF with CALMET meteorological data from 2001 to 2003 provided by VISTAS.

TABLE 6-17
MAXIMUM PM_{10}, SO_2, AND NO_2 IMPACTS PREDICTED FOR COMPARISON TO THE AAQS

Averaging Time and Rank	Analysis	Concentration (µg/m³) [a] Total	Modeled Sources	Back ground	Receptor Location UTM Coordinates (m) East	North	Local Coordinates (m) [b] x	y	Time Period (YYMMDDHH)	AAQS (µg/m³)
Project PSD Pollutant										
PM_{10} Concentrations										
Annual										
Highest	Screening	23.6	6.9	17	336,149	3,204,837	1,372	-556	1123124	50
		23.4	6.7	17	336,099	3,204,838	1,322	-555	2123124	
		24.1	7.4	17	336,149	3,204,837	1,372	-556	3123124	
		24.2	7.5	17	336,149	3,204,837	1,372	-556	4123124	
		23.3	6.6	17	336,149	3,204,837	1,372	-556	5123124	
	Refined	24.2	7.5	17	336,149	3,204,837	1,372	-556	4123124	
24-Hour										
Highest, second-highest	Screening	49	23	26	336,697	3,204,828	1,920	-565	1122924	150
		52	26	26	336,049	3,204,839	1,272	-554	2031624	
		54	28	26	339,388	3,204,784	4,611	-609	3010924	
		52	26	26	335,950	3,204,841	1,173	-552	4022124	
		57	31	26	336,049	3,204,839	1,272	-554	5070124	
	Refined	57	31	26	336,049	3,204,839	1,272	-554	5070124	
Project Non-PSD Pollutant										
SO_2 Concentrations										
Annual										
Highest	Screening	18.3	12.8	6	332,319	3,203,398	-2,458	-1,995	1123124	60
		18.4	12.9	6	332,996	3,205,685	-1,781	292	2123124	
		17.4	11.9	6	340,511	3,204,937	5,734	-456	3123124	
		18.2	12.7	6	340,800	3,205,400	6,023	7	4123124	
		19.1	13.6	6	332,663	3,202,963	-2,114	-2,430	5123124	
	Refined	19.1	13.6	6	332,663	3,202,963	-2,114	-2,430	5123124	
24-Hour										
Highest, second-highest	Screening	145.3	111.3	34	333,567	3,202,438	-1,210	-2,955	1041824	260
		129.7	95.7	34	334,664	3,202,438	-113	-2,955	2030424	
		143.1	109.1	34	333,033	3,202,578	-1,744	-2,815	3110924	
		152.2	118.2	34	333,817	3,202,438	-960	-2,955	4092524	
		139.6	105.6	34	333,667	3,202,438	-1,110	-2,955	5041524	
	Refined	152.2	118.2	34	333,817	3,202,438	-960	-2,955	4092524	
3-Hour										
Highest, second-highest	Screening	450	306	144	340,800	3,207,400	6,023	2,007	1072912	1,300
		443	299	144	334,166	3,202,438	-611	-2,955	2021112	
		434	290	144	334,664	3,202,438	-113	-2,955	3090818	
		437	293	144	334,265	3,202,438	-512	-2,955	4092524	
		429	285	144	334,764	3,202,438	-13	-2,955	5050618	
	Refined	450	306	144	340,800	3,207,400	6,023	2,007	1072912	
NO_2 Concentrations										
Annual										
Highest	Screening	18.5	7.3	11	336,500	3,205,200	1,723	-193	1123124	100
		20.3	9.1	11	333,336	3,205,681	-1,441	288	2123124	
		18.9	7.7	11	333,600	3,206,100	-1,177	707	3123124	
		19.0	7.8	11	333,385	3,205,680	-1,392	287	4123124	
		18.9	7.7	11	336,500	3,205,100	1,723	-293	5123124	
	Refined	20.3	9.1	11	333,336	3,205,681	-1441	288	2123124	

Note: YYMMDDHH = Year, Month, Day, Hour Ending.

[a] Concentrations are based on highest concentrations predicted using AERMOD with five years of meteorological data from 2001 to 2005 of surface and upper air data from the National Weather Service station at Tampa.

[b] Relative to the proposed stack for Units 4 and 5 with East and North UTM coordinates (km): 334,776.80 , 3,205,393.42 .

TABLE 6-18
MAXIMUM PM_{10}, SO_2, AND NO_2 IMPACTS PREDICTED FOR COMPARISON TO THE PSD CLASS II INCREMENTS

Averaging Time and Rank	Analysis	Concentration (µg/m³) [a] Modeled Sources	Receptor Location: UTM Coordinates (m) East	UTM Coordinates (m) North	Local Coordinates (m) [b] x	Local Coordinates (m) [b] y	Time Period (YYMMDDHH)	PSD Class II Increment (µg/m³)
Project PSD Pollutant								
PM_{10} Concentrations								
Annual								
Highest	Screening	6.2	336,049	3,204,839	1,272	-554	1123124	17
		5.9	336,049	3,204,839	1,272	-554	2123124	
		6.6	336,099	3,204,838	1,322	-555	3123124	
		6.5	336,099	3,204,838	1,322	-555	4123124	
		5.9	336,099	3,204,838	1,322	-555	5123124	
	Refined	6.6	336,099	3,204,838	1,322	-555	4123124	
24-Hour								
Highest, second-highest	Screening	20.9	335,200	3,205,700	423	307	1071124	30
		22.4	335,100	3,205,700	323	307	2012524	
		25.1	336,498	3,204,832	1,721	-561	3010924	
		23.1	336,348	3,204,834	1,571	-559	4080524	
		26.8	336,099	3,204,838	1,322	-555	5012024	
	Refined	26.8	336,099	3,204,838	1,322	-555	5012024	
Project Non-PSD Pollutant								
SO_2 Concentrations								
Annual								
Highest	Screening	2.3	340,420	3,204,937	5,643	-456	1123124	20
		2.4	340,511	3,204,937	5,734	-456	2123124	
		1.9	340,511	3,204,937	5,734	-456	3123124	
		2.2	340,800	3,205,400	6,023	7	4123124	
		3.3	340,420	3,204,937	5,643	-456	5123124	
	Refined	3.3	340,420	3,204,937	5,643	-456	5123124	
24-Hour								
Highest, second-highest	Screening	30.5	336,600	3,205,500	1,823	107	1071224	91
		34.7	340,511	3,204,937	5,734	-456	2122624	
		30.8	340,420	3,204,937	5,643	-456	3011224	
		29.0	340,420	3,204,937	5,643	-456	4111624	
		38.3	336,300	3,205,100	1,523	-293	5032824	
	Refined	38.3	336,300	3,205,100	1,523	-293	5032824	
3-Hour								
Highest, second-highest	Screening	107	336,600	3,205,400	1,823	7	1071215	512
		108	336,500	3,205,200	1,723	-193	2031312	
		94	336,800	3,205,600	2,023	207	3053018	
		125	336,800	3,205,400	2,023	7	4091718	
		130	336,300	3,205,100	1,523	-293	5052415	
	Refined	130	336,300	3,205,100	1,523	-293	5052415	
NO_2 Concentrations								
Annual								
Highest	Screening	6.3	336,500	3,205,200	1,723	-193	1123124	25
		6.7	333,434	3,205,679	-1,343	286	2123124	
		6.4	336,400	3,205,100	1,623	-293	3123124	
		6.5	336,400	3,205,100	1,623	-293	4123124	
		6.7	336,400	3,205,100	1,623	-293	5123124	
	Refined	6.7	336,400	3,205,100	1,623	-293	5123124	

Note: YYMMDDHH = Year, Month, Day, Hour Ending.

[a] Concentrations are based on highest concentrations predicted using AERMOD with five years of meteorological data from 2001 to 2005 of surface and upper air data from the National Weather Service station at Tampa.

[b] Relative to the proposed stack for Units 4 and 5 with East and North UTM coordinates (km): 334,776.80 3,205,393.42 .

TABLE 6-19
MAXIMUM PM_{10}, SO_2, AND NO_2 PSD CLASS I INCREMENT CONSUMPTION PREDICTED
AT THE PSD CLASS I AREA OF THE CHASSAHOWITZKA NWA USING CALPUFF
WITH PROPOSED STACK OF 550 FT

Averaging Time and Rank	Chassahowitzka NWA Maximum Concentration [a, b] (µg/m³)	Chassahowitzka NWA Time Period (YYMMDDHH)	PSD Class I Increment (µg/m³)
Project PSD Pollutant			
PM_{10} IMPACTS			
Annual			
Highest	0.43	1123124	4
	0.38	2123124	
	0.29	3123124	
24-Hour			
Highest	3.57	1102724	8
	7.33	2101724	
	4.48	3011424	
Project Non-PSD Pollutant			
SO_2 IMPACTS			
Annual			
Highest	0.00	1123124	2
	0.00	2123124	
	0.00	3123124	
24-Hour			
Highest	4.8	1091024	5
	5.4	2121824	
	7.2	3082724	
3-Hour			
Highest	24.8	1111603	25
	24.6	2011509	
	15.6	3082706	
NO_2 IMPACTS			
Annual			
Highest	0.56	1123124	2
	0.99	2123124	
	0.64	3123124	

Note: YYMMDDHH = Year, Month, Day, Hour Ending.

[a] Concentrations are based on highest concentrations predicted using CALPUFF with CALMET meteorological data from 2001 to 2003 provided by VISTAS.
Concentrations are due to the difference in impacts predicted for the proposed stack and existing stacks for Units 4 and 5.

[b] A "0.0" concentration indicates that the impacts were zero or less.

TABLE 6-20
CONTRIBUTION OF CRYSTAL RIVER UNITS 4 AND 5 TO TIME PERIODS PREDICTED TO EXCEED THE 24-HOUR ALLOWABLE SO_2 INCREMENT
AT THE CHASSAHOWITZKA NWA PSD CLASS I AREA

						Maximum Concentration (μg/m³)[a]		Class I Significant Impact Level		Chassahowitzka NWA Receptor[c] Lambert Conformal Coordinates	
Year	Julian Day	Month	Day	Hour Ending for Period	Rank	Modeled Sources	Units 4 & 5[b]	(μg/m³)		x (km)	y (km)
24-Hour Exceedances											
2002	352	12	18	24	2nd	5.03	<0.0	0.2	1	1408.318	-1154.049
2002	352	12	18	24	2nd	5.08	<0.0	0.2	2	1409.13	-1153.92
2002	352	12	18	24	2nd	5.18	<0.0	0.2	3	1409.941	-1153.791
2002	352	12	18	24	2nd	5.28	<0.0	0.2	4	1410.753	-1153.661
2002	352	12	18	24	2nd	5.15	<0.0	0.2	5	1407.359	-1153.254
2002	352	12	18	24	2nd	5.21	<0.0	0.2	6	1408.171	-1153.124
2002	352	12	18	24	2nd	5.29	<0.0	0.2	7	1408.983	-1152.995
2002	352	12	18	24	2nd	5.33	<0.0	0.2	8	1409.794	-1152.866
2002	352	12	18	24	2nd	5.38	<0.0	0.2	9	1410.606	-1152.737
2002	352	12	18	24	2nd	5.14	<0.0	0.2	10	1406.401	-1152.458
2002	352	12	18	24	2nd	5.17	<0.0	0.2	11	1407.212	-1152.329
2002	352	12	18	24	2nd	5.19	<0.0	0.2	12	1408.024	-1152.2
2002	352	12	18	24	2nd	5.21	<0.0	0.2	13	1408.835	-1152.071
2002	352	12	18	24	2nd	5.24	<0.0	0.2	14	1409.647	-1151.941
2002	30	1	30	24	2nd	5.10	<0.0	0.2	15	1410.458	-1151.812
2002	352	12	18	24	2nd	5.10	<0.0	0.2	16	1406.254	-1151.533
2002	352	12	18	24	2nd	5.13	<0.0	0.2	17	1407.065	-1151.404
2002	352	12	18	24	2nd	5.17	<0.0	0.2	18	1407.877	-1151.275
2002	30	1	30	24	2nd	5.24	<0.0	0.2	19	1408.688	-1151.146
2002	30	1	30	24	2nd	5.13	<0.0	0.2	20	1409.5	-1151.017
2002	30	1	30	24	2nd	5.03	<0.0	0.2	21	1410.311	-1150.888
2003	239	8	27	24	2nd	5.65	<0.0	0.2	1	1408.318	-1154.049
2003	239	8	27	24	2nd	5.94	<0.0	0.2	2	1409.13	-1153.92
2003	239	8	27	24	2nd	6.21	<0.0	0.2	3	1409.941	-1153.791
2003	239	8	27	24	2nd	6.48	<0.0	0.2	4	1410.753	-1153.661
2003	239	8	27	24	2nd	5.68	<0.0	0.2	5	1407.359	-1153.254
2003	239	8	27	24	2nd	5.95	<0.0	0.2	6	1408.171	-1153.124
2003	239	8	27	24	2nd	6.22	<0.0	0.2	7	1408.983	-1152.995
2003	239	8	27	24	2nd	6.46	<0.0	0.2	8	1409.794	-1152.866
2003	279	10	6	24	2nd	6.55	<0.0	0.2	9	1410.606	-1152.737
2003	239	8	27	24	2nd	5.69	<0.0	0.2	10	1406.401	-1152.458
2003	239	8	27	24	2nd	5.96	<0.0	0.2	11	1407.212	-1152.329
2003	239	8	27	24	2nd	6.21	<0.0	0.2	12	1408.024	-1152.2
2003	239	8	27	24	2nd	6.45	<0.0	0.2	13	1408.835	-1152.071
2003	239	8	27	24	2nd	6.66	<0.0	0.2	14	1409.647	-1151.941
2003	279	10	6	24	2nd	6.80	<0.0	0.2	15	1410.458	-1151.812
2003	239	8	27	24	2nd	5.94	<0.0	0.2	16	1406.254	-1151.533
2003	239	8	27	24	2nd	6.19	<0.0	0.2	17	1407.065	-1151.404
2003	239	8	27	24	2nd	6.44	<0.0	0.2	18	1407.877	-1151.275
2003	239	8	27	24	2nd	6.65	<0.0	0.2	19	1408.688	-1151.146
2003	239	8	27	24	2nd	6.84	<0.0	0.2	20	1409.5	-1151.017
2003	239	8	27	24	2nd	7.03	<0.0	0.2	21	1410.311	-1150.888
2003	239	8	27	24	2nd	6.39	<0.0	0.2	22	1406.918	-1150.48
2003	239	8	27	24	2nd	6.61	<0.0	0.2	23	1407.73	-1150.351
2003	239	8	27	24	2nd	6.80	<0.0	0.2	24	1408.541	-1150.221
2003	239	8	27	24	2nd	6.98	<0.0	0.2	25	1409.352	-1150.092
2003	239	8	27	24	2nd	7.16	<0.0	0.2	26	1410.164	-1149.963
2003	239	8	27	24	2nd	6.55	<0.0	0.2	27	1406.771	-1149.555
2003	239	8	27	24	2nd	6.74	<0.0	0.2	28	1407.582	-1149.426
2003	239	8	27	24	2nd	6.92	<0.0	0.2	29	1408.394	-1149.297
2003	239	8	27	24	2nd	7.08	<0.0	0.2	30	1409.205	-1149.168
2003	239	8	27	24	2nd	7.25	<0.0	0.2	31	1410.016	-1149.038
2003	239	8	27	24	2nd	6.70	<0.0	0.2	32	1406.624	-1148.631
2003	239	8	27	24	2nd	6.87	<0.0	0.2	33	1407.435	-1148.501
2003	239	8	27	24	2nd	7.02	<0.0	0.2	34	1408.247	-1148.372
2003	239	8	27	24	2nd	7.16	<0.0	0.2	35	1409.058	-1148.243
2003	279	10	6	24	2nd	7.08	<0.0	0.2	36	1409.869	-1148.114
2003	239	10	6	24	2nd	6.84	<0.0	0.2	37	1406.477	-1147.706
2003	279	10	6	24	2nd	6.89	<0.0	0.2	38	1407.288	-1147.577
2003	279	10	6	24	2nd	6.78	<0.0	0.2	39	1408.099	-1147.448
2003	279	10	6	24	2nd	6.60	<0.0	0.2	40	1408.911	-1147.319
2003	279	10	6	24	2nd	6.37	0.0	0.2	41	1409.722	-1147.189
2003	279	10	6	24	2nd	5.65	0.0	0.2	42	1410.385	-1146.136
2003	238	8	26	24	2nd	5.53	<0.0	0.2	43	1410.238	-1145.211
2003	238	8	26	24	2nd	5.73	<0.0	0.2	44	1411.049	-1145.082
2003	279	10	6	24	2nd	6.07	0.02	0.2	45	1404.414	-1145.19
2003	279	10	6	24	2nd	5.93	0.01	0.2	46	1405.225	-1145.061
2003	279	10	6	24	2nd	5.79	0.01	0.2	47	1406.036	-1144.933
2003	279	10	6	24	2nd	5.66	0.00	0.2	48	1406.847	-1144.804
2003	279	10	6	24	2nd	5.52	<0.0	0.2	49	1407.658	-1144.675
2003	238	8	26	24	2nd	5.56	<0.0	0.2	50	1410.091	-1144.287
2003	238	8	26	24	2nd	5.48	<0.0	0.2	51	1410.901	-1144.158

TABLE 6-20
CONTRIBUTION OF CRYSTAL RIVER UNITS 4 AND 5 TO TIME PERIODS PREDICTED TO EXCEED THE 24-HOUR ALLOWABLE SO_2 INCREMENT
AT THE CHASSAHOWITZKA NWA PSD CLASS I AREA

Year	Julian Day	Month	Day	Hour Ending for Period	Rank	Maximum Concentration (μg/m³)[a]		Class I Significant Impact Level (μg/m³)	Chassahowitzka NWA Receptor[c]		
						Modeled Sources	Units 4 & 5[b]			Lambert Conformal Coordinates x (km)	y (km)
2003	238	8	26	24	2nd	5.37	<0.0	0.2	52	1411.712	-1144.028
2003	279	10	6	24	2nd	5.90	0.0	0.2	53	1403.457	-1144.395
2003	279	10	6	24	2nd	5.75	0.0	0.2	54	1404.268	-1144.266
2003	279	10	6	24	2nd	5.61	0.0	0.2	55	1405.078	-1144.137
2003	279	10	6	24	2nd	5.47	0.0	0.2	56	1405.889	-1144.008
2003	279	10	6	24	2nd	5.33	0.0	0.2	57	1406.7	-1143.879
2003	238	8	26	24	2nd	5.21	<0.0	0.2	58	1407.511	-1143.75
2003	238	8	26	24	2nd	5.11	<0.0	0.2	59	1411.565	-1143.104
2003	279	10	6	24	2nd	5.75	0.1	0.2	60	1402.499	-1143.599
2003	279	10	6	24	2nd	5.59	0.0	0.2	61	1403.31	-1143.47
2003	279	10	6	24	2nd	5.43	0.0	0.2	62	1404.121	-1143.341
2003	279	10	6	24	2nd	5.29	0.0	0.2	63	1404.931	-1143.213
2003	279	10	6	24	2nd	5.16	0.0	0.2	64	1405.742	-1143.084
2003	238	8	26	24	2nd	5.08	<0.0	0.2	65	1406.553	-1142.955
2003	238	8	26	24	2nd	5.10	<0.0	0.2	66	1407.364	-1142.826
2003	279	10	6	24	2nd	5.81	0.1	0.2	67	1400.731	-1142.931
2003	279	10	6	24	2nd	5.62	0.1	0.2	68	1401.542	-1142.803
2003	279	10	6	24	2nd	5.46	0.1	0.2	69	1402.353	-1142.674
2003	279	10	6	24	2nd	5.30	0.0	0.2	70	1403.163	-1142.546
2003	279	10	6	24	2nd	5.16	0.0	0.2	71	1403.974	-1142.417
2003	279	10	6	24	2nd	5.03	0.0	0.2	72	1404.785	-1142.288
2003	279	10	6	24	2nd	5.21	0.1	0.2	76	1402.206	-1141.75
2003	279	10	6	24	2nd	5.06	0.1	0.2	77	1403.017	-1141.621
2003	238	8	26	24	3rd	5.04	<0.0	0.2	4	1408.318	-1154.049
2003	238	8	26	24	3rd	5.03	<0.0	0.2	9	1409.13	-1153.92
2003	238	8	26	24	3rd	5.02	<0.0	0.2	15	1409.941	-1153.791
2003	238	8	26	24	3rd	5.00	<0.0	0.2	21	1410.753	-1153.661
2003	238	8	26	24	3rd	5.06	<0.0	0.2	40	1407.359	-1153.254
2003	238	8	26	24	3rd	5.27	<0.0	0.2	41	1408.171	-1153.124
2003	238	8	26	24	3rd	5.39	<0.0	0.2	42	1408.983	-1152.995
2003	279	10	6	24	3rd	5.44	0.0	0.2	43	1409.794	-1152.866
2003	279	10	6	24	3rd	5.33	0.0	0.2	44	1410.606	-1152.737
2003	238	8	26	24	3rd	5.04	<0.0	0.2	48	1406.401	-1152.458
2003	238	8	26	24	3rd	5.17	<0.0	0.2	49	1407.212	-1152.329
2003	279	10	6	24	3rd	5.12	0.0	0.2	50	1408.024	-1152.2
2003	238	8	26	24	3rd	5.00	<0.0	0.2	56	1408.835	-1152.071
2003	238	8	26	24	3rd	5.10	<0.0	0.2	57	1409.647	-1151.941
2003	279	10	6	24	3rd	5.19	0.0	0.2	58	1410.458	-1151.812
2003	238	8	26	24	3rd	5.01	<0.0	0.2	64	1406.254	-1151.533
2003	279	10	6	24	3rd	5.04	0.0	0.2	65	1407.065	-1151.404

[a] Based on the CALPUFF model using 3 years of CALMET meteorological data for 2001, 2002, and 2003, 4-km Florida domain.

[b] Includes change in SO_2 impacts for Units 4 and 5 with proposed SO_2 emissions and new stack minus the SO_2 impacts from Units 1 and 2 with baseline SO_2 emissions.

[c] Based on 113 National Park Service receptors for Chassahowitzka NWA

TABLE 7-1

SENSITIVITY GROUPINGS OF VEGETATION BASED ON VISIBLE INJURY AT DIFFERENT SO_2 EXPOSURES[A]

Sensitivity Grouping	SO_2 Concentration		Plants
	1-Hour	3-Hour	
Sensitive	1,310 - 2,620 µG/m^3 (0.5 - 1.0 ppm)	790 - 1,570 µG/m^3 (0.3 - 0.6 ppm)	Ragweeds Legumes Blackberry Southern pines Red and black oaks White ash Sumacs
Intermediate	2,620 - 5,240 µG/m^3 (1.0 - 2.0 ppm)	1,570 - 2,100 µG/m^3 (0.6 - 0.8 ppm)	Maples Locust Sweetgum Cherry Elms Tuliptree Many crop and garden species
Resistant	>5,240 µG/m^3 (>2.0 ppm)	>2,100 µG/m^3 (>0.8 ppm)	White oaks Potato Upland cotton Corn Dogwood Peach

[a] Based on observations over a 20-year period of visible injury occurring on over 120 species growing in the vicinities of coal-fired power plants in the southeastern United States.

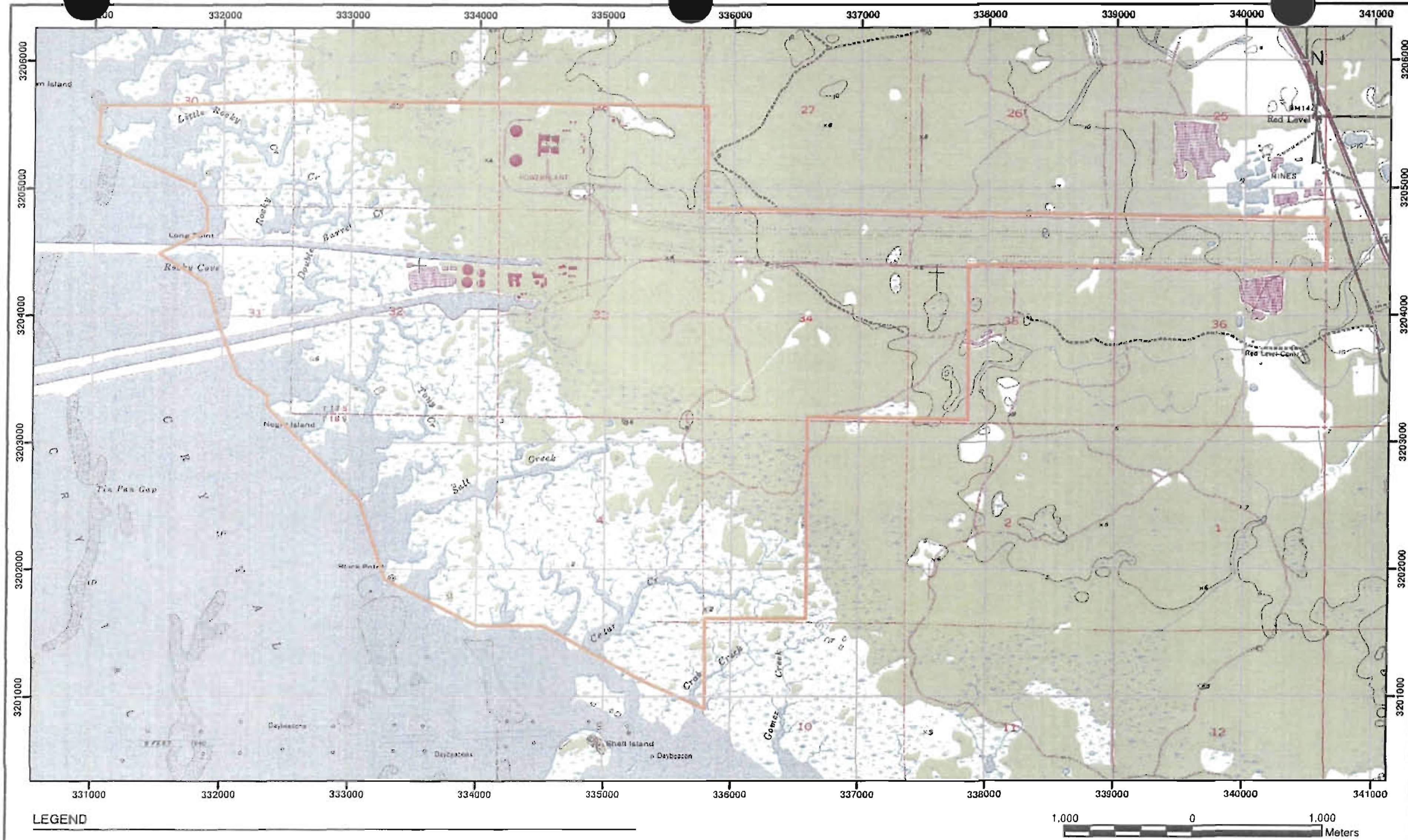
Source: EPA, 1982a.

TABLE 7-2

EXAMPLES OF REPORTED EFFECTS OF AIR POLLUTANTS AT CONCENTRATIONS BELOW NATIONAL SECONDARY AMBIENT AIR QUALITY STANDARDS

Pollutant	Reported Effect	Concentration ($\mu g/m^3$)	Exposure
Sulfur Dioxide[a]	Respiratory stress in guinea pigs	427 to 854	1 hour
	Respiratory stress in rats	267	7 hours/day; 5 day/week for 10 weeks
	Decreased abundance in deer mice	13 to 157	continually for 5 months
Nitrogen Dioxide[b,c]	Respiratory stress in mice	1,917	3 hours
	Respiratory stress in guinea pigs	96 to 958	8 hours/day for 122 days
Particulates[a]	Respiratory stress, reduced respiratory disease defenses	120 PbO_3	continually for 2 months
	Decreased respiratory disease defenses in rats, same with hamsters	100 $NiCl_2$	2 hours

Sources: [a] Newman and Schreiber, 1988.
[b] Gardner and Graham, 1976.
[c] Trzeciak et al., 1977.



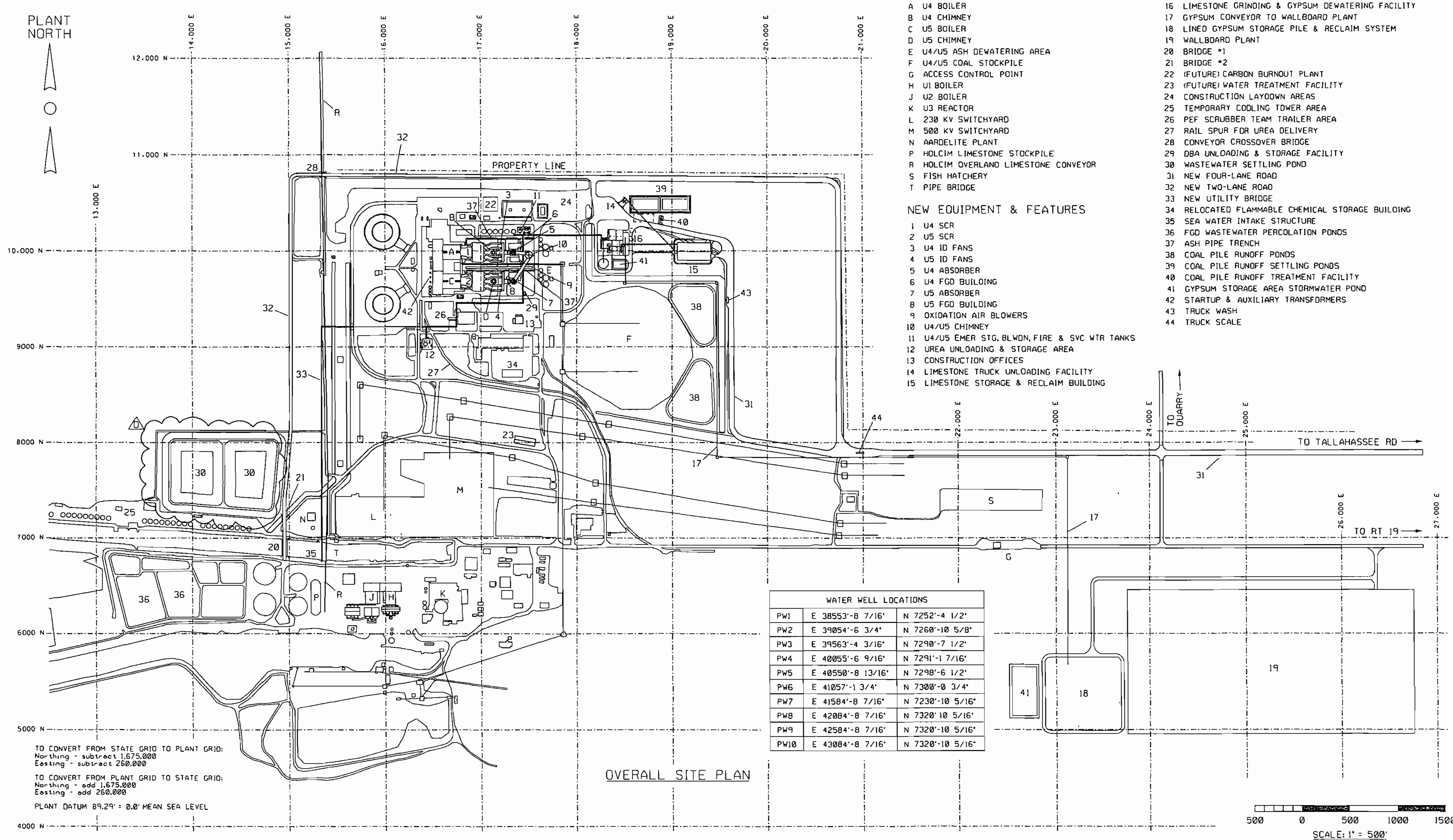
LEGEND

Boundary

REFERENCE

Projection: Transverse Mercator Datum: NAD 27 Coordinate System: UTM Zone 17

PROJECT				
PROGRESS ENERGY				
TITLE				
SITE LOCATION AND BOUNDARY OF THE CRYSTAL RIVER POWER PLANT				
Golder Associates, Gainesville, Florida	PROJECT No. 053-9555		SCALE AS SHOWN	REV. 0
	DESIGN	AB	23 Aug. 2006	**FIGURE 1-1**
	GIS	AB	23 Aug. 2006	
	CHECK	BM	23 Aug. 2006	
	REVIEW	SO	23 Aug. 2006	



OVERALL SITE PLAN

EXISTING EQUIPMENT & FEATURES

- A U4 BOILER
- B U4 CHIMNEY
- C U5 BOILER
- D U5 CHIMNEY
- E U4/U5 ASH DEWATERING AREA
- F U4/U5 COAL STOCKPILE
- G ACCESS CONTROL POINT
- H U1 BOILER
- J U2 BOILER
- K U3 REACTOR
- L 230 KV SWITCHYARD
- M 500 KV SWITCHYARD
- N AARDELITE PLANT
- P HOLCIM LIMESTONE STOCKPILE
- R HOLCIM OVERLAND LIMESTONE CONVEYOR
- S FISH HATCHERY
- T PIPE BRIDGE

NEW EQUIPMENT & FEATURES

1. U4 SCR
2. U5 SCR
3. U4 ID FANS
4. U5 ID FANS
5. U4 ABSORBER
6. U4 FGD BUILDING
7. U5 ABSORBER
8. U5 FGD BUILDING
9. OXIDATION AIR BLOWERS
10. U4/U5 CHIMNEY
11. U4/U5 EMER STG, BLWDN, FIRE & SVC WTR TANKS
12. UREA UNLOADING & STORAGE AREA
13. CONSTRUCTION OFFICES
14. LIMESTONE TRUCK UNLOADING FACILITY
15. LIMESTONE STORAGE & RECLAIM BUILDING

NEW EQUIPMENT & FEATURES (CONT.)

16. LIMESTONE GRINDING & GYPSUM DEWATERING FACILITY
17. GYPSUM CONVEYOR TO WALLBOARD PLANT
18. LINED GYPSUM STORAGE PILE & RECLAIM SYSTEM
19. WALLBOARD PLANT
20. BRIDGE #1
21. BRIDGE #2
22. (FUTURE) CARBON BURNOUT PLANT
23. (FUTURE) WATER TREATMENT FACILITY
24. CONSTRUCTION LAYDOWN AREAS
25. TEMPORARY COOLING TOWER AREA
26. PEF SCRUBBER TEAM TRAILER AREA
27. RAIL SPUR FOR UREA DELIVERY
28. CONVEYOR CROSSOVER BRIDGE
29. DBA UNLOADING & STORAGE FACILITY
30. WASTEWATER SETTLING POND
31. NEW FOUR-LANE ROAD
32. NEW TWO-LANE ROAD
33. NEW UTILITY BRIDGE
34. RELOCATED FLAMMABLE CHEMICAL STORAGE BUILDING
35. SEA WATER INTAKE STRUCTURE
36. FGD WASTEWATER PERCOLATION PONDS
37. ASH PIPE TRENCH
38. COAL PILE RUNOFF PONDS
39. COAL PILE RUNOFF SETTLING PONDS
40. COAL PILE RUNOFF TREATMENT FACILITY
41. GYPSUM STORAGE AREA STORMWATER POND
42. STARTUP & AUXILIARY TRANSFORMERS
43. TRUCK WASH
44. TRUCK SCALE

WATER WELL LOCATIONS		
PW1	E 38553'-8 7/16"	N 7252'-4 1/2"
PW2	E 39054'-6 3/4"	N 7260'-10 5/8"
PW3	E 39563'-4 3/16"	N 7290'-7 1/2"
PW4	E 40055'-6 9/16"	N 7291'-1 7/16"
PW5	E 40550'-8 13/16"	N 7298'-6 1/2"
PW6	E 41057'-1 3/4"	N 7300'-0 3/4"
PW7	E 41584'-8 7/16"	N 7230'-10 5/16"
PW8	E 42084'-8 7/16"	N 7320' 10 5/16"
PW9	E 42584'-8 7/16"	N 7320'-10 5/16"
PW10	E 43084'-8 7/16"	N 7320'-10 5/16"

TO CONVERT FROM STATE GRID TO PLANT GRID:
Northing - subtract 1,675,000
Easting - subtract 260,000

TO CONVERT FROM PLANT GRID TO STATE GRID:
Northing - add 1,675,000
Easting - add 260,000

PLANT DATUM 89.29' = 0.0' MEAN SEA LEVEL

500 0 500 1000 1500
SCALE: 1" = 500'

NOTES:

FIGURE 2-1

REV.	DESCRIPTION	DRAWN	CHKD	APPRVD	DATE
					/ /
					/ /
					/ /
					/ /
0	REVISED ITEM 30	MG	CLS		05/17/06
C	ISSUED FOR EPC BID PACKAGE	GRP	CLS		05/11/06
B	ISSUED FOR REVIEW	CLS	FCC		03/30/06
A	ISSUED FOR INFORMATION ONLY	CLS			11/17/05

DRAWING REVISIONS

DWG NO.	REV.	TITLE

DRAWING REFERENCES

CONTRACTOR/VENDOR INFORMATION
WorleyParsons
resources & energy
2675 MORGANTOWN ROAD - READING, PA 19607 - (610) 855-2000
FL CERTIFICATE OF AUTHENTICATION #00008777
ORIGINALLY PREPARED UNDER THE SUPERVISION OF
PE: ____ STATE: ____
LIC. NO.: ____ DATE: ____
THE ABOVE IS RESERVED FOR VENDOR'S LOGO, NAME, ADDRESS, TELEPHONE NUMBER AND ANY REQUIRED REFERENCE NUMBERS. ALL DRAWINGS TO BE PRODUCED IN AUTOCAD RELEASE 2000 OR LATER.

SEAL
THE ABOVE IS RESERVED FOR PROFESSIONAL ENGINEER SEAL USE INK - DO NOT EMBOSS

PROGRESS ENERGY FLORIDA, INC.
POWER OPERATIONS GROUP

FACILITY: CRY	UNIT: 000	SYSTEM:
PROJECT NO:	EC NO:	W.O. NO: N/A
SIZE: ANSI-D	SCALE: 1"=500'	PLOT: 1:6000

THIS DRAWING IS THE PROPERTY OF PROGRESS ENERGY FLORIDA, INC. AND IS NOT TO BE REPRODUCED OR USED FOR ANY PURPOSE EXCEPT AS SPECIFIED BY PROGRESS ENERGY FLORIDA, INC.

Progress Energy

TITLE: FGD & SCR PROJECTS OVERALL SITE PLAN GENERAL ARRANGEMENT

SHT 001 OF 001 | DWG NO: CRCA-0-DW-111-002-001 | REV: D

FILE NAME: 0111002001.dgn
PATH: d:\7\crystal\2\draw\002\
SERVER: reapds07

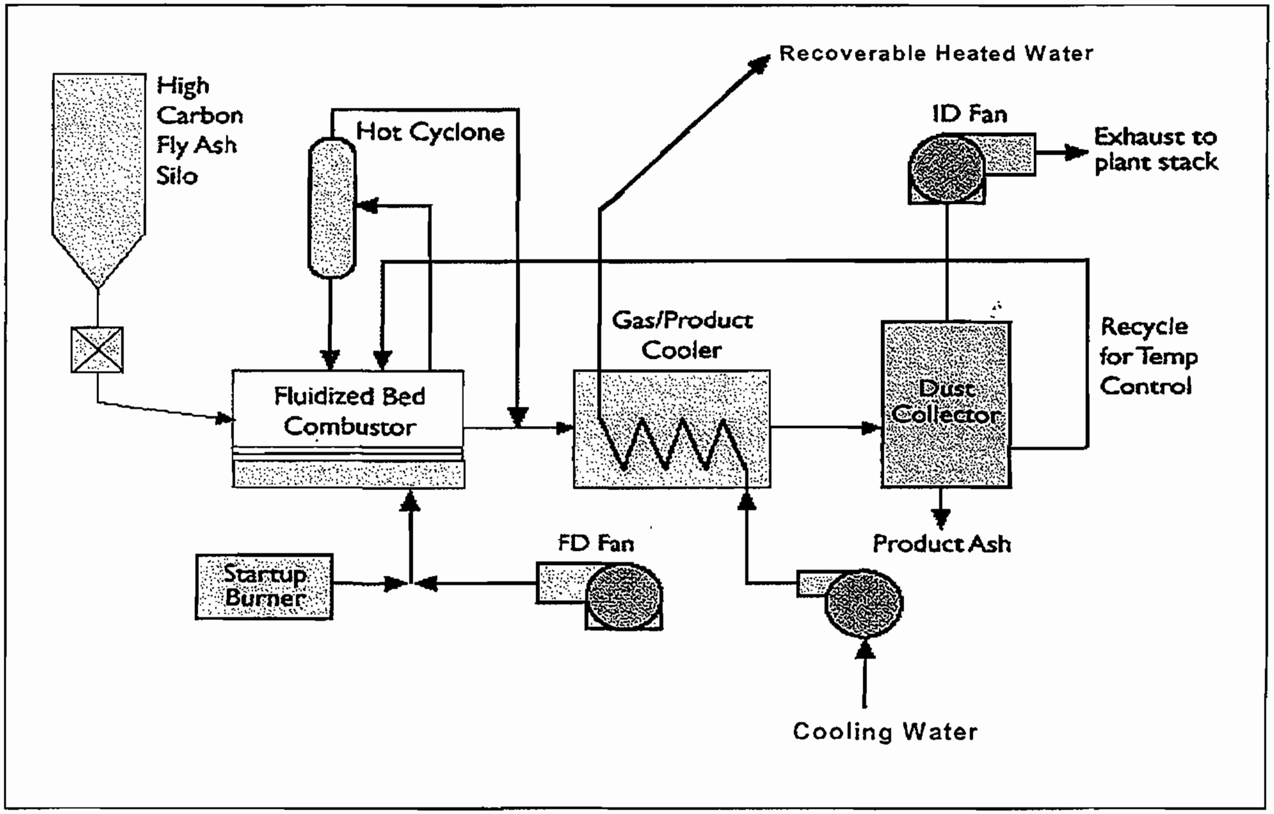
OID NO.: CRY-

PLOTTED:

VHL: 17-MAY-2006 06:43:53

FIGURE 2-2

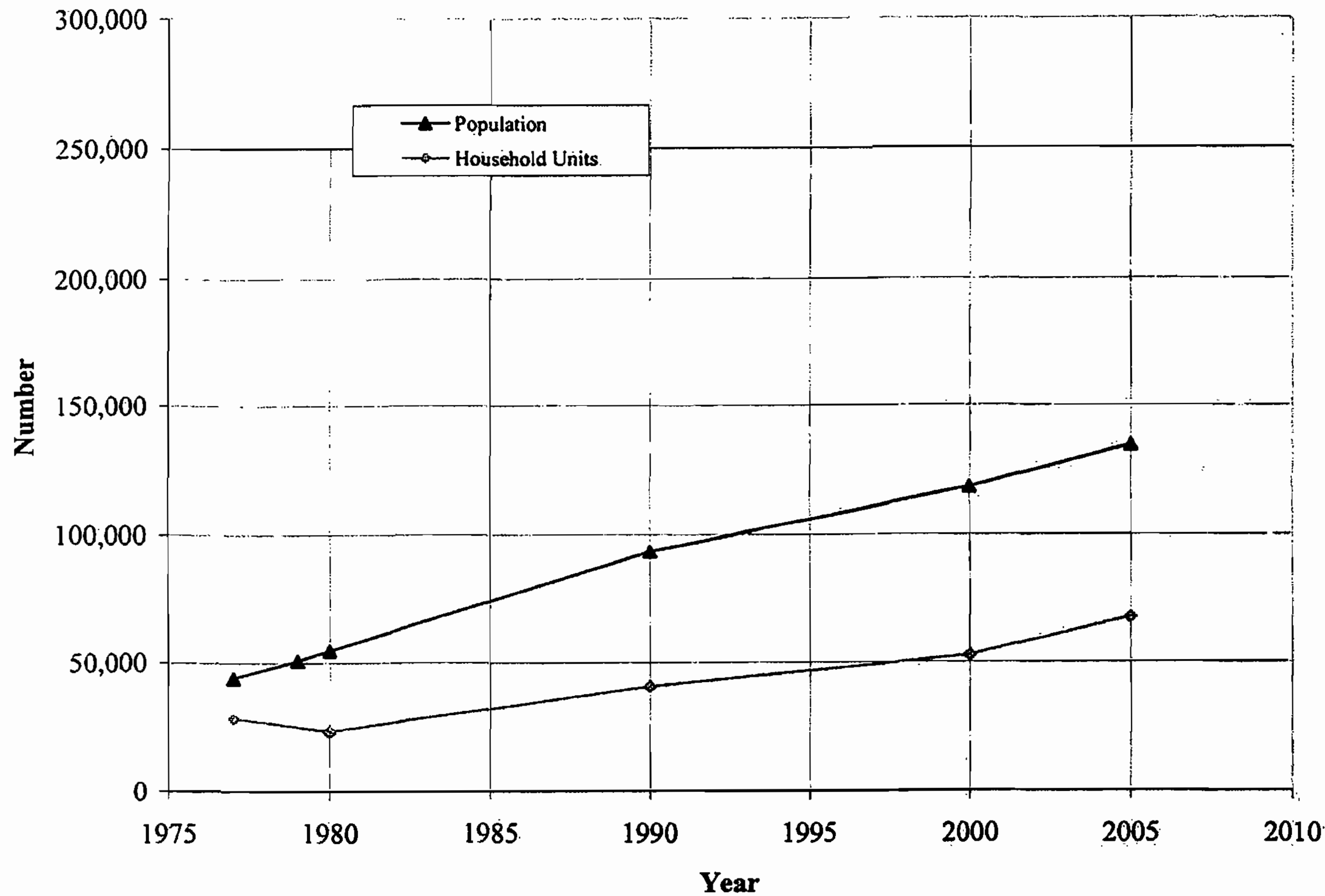
Carbon Burn-Out Schematic



PMI

A Progress Fuels Company

Figure 7-1. Population and Household Unit Trends in Citrus County



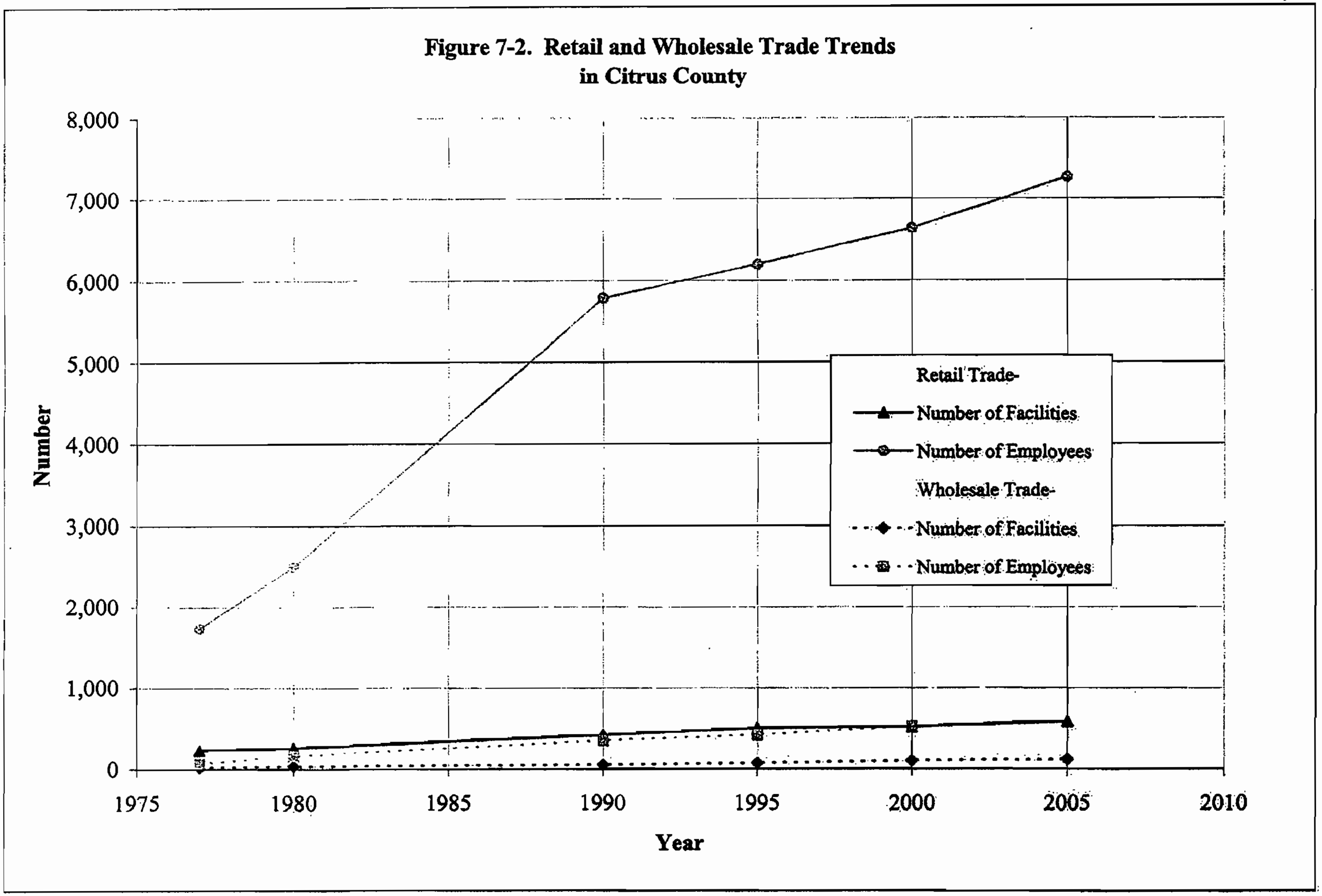


Figure 7-2. Retail and Wholesale Trade Trends
in Citrus County
Number
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1975
1980
1985
1990
1995
2000
2005
2010
Year
Retail Trade-
Number of Facilities
Number of Employees
Wholesale Trade-
Number of Facilities
Number of Employees

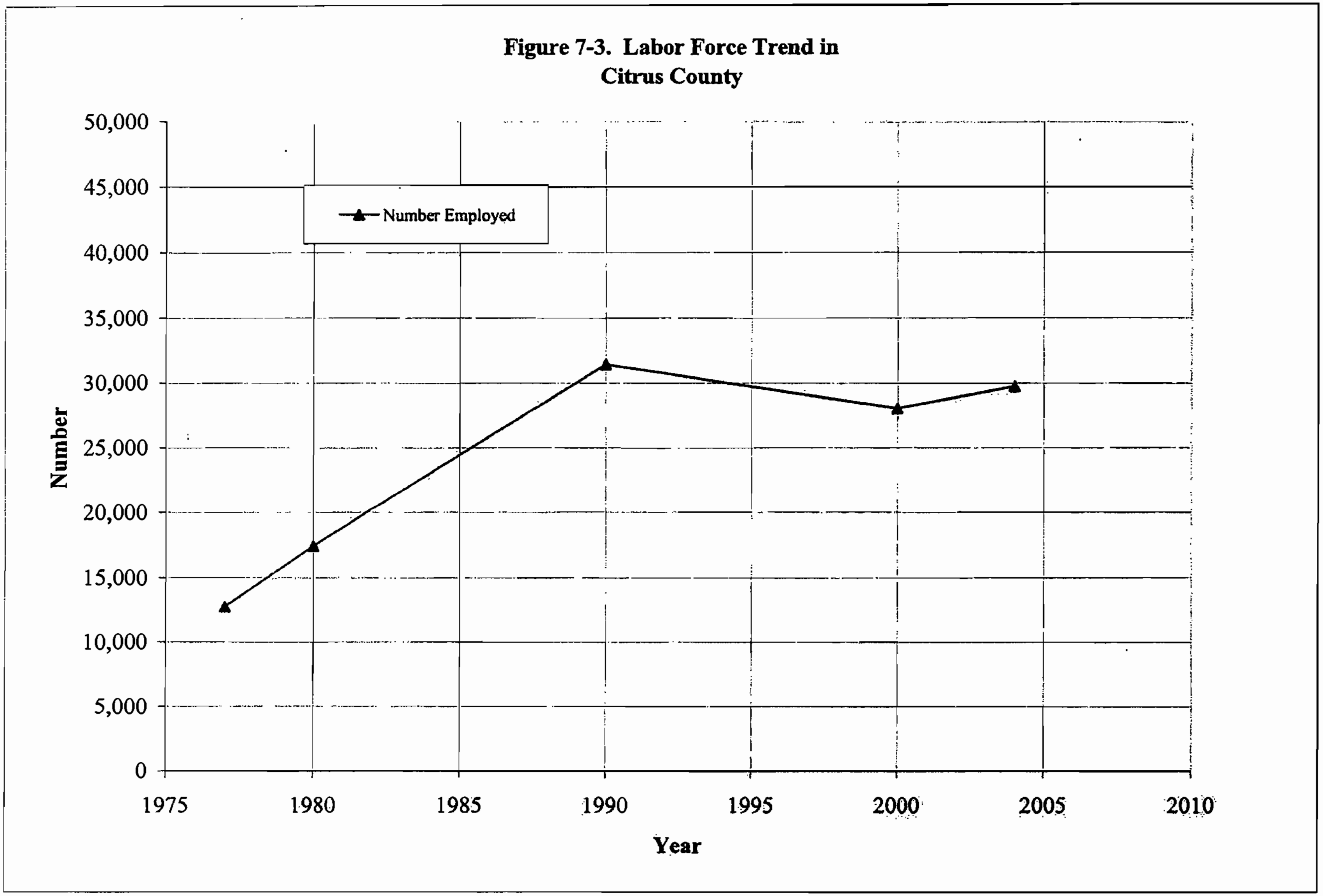


Figure 7-3. Labor Force Trend in Citrus County
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Number
Number Employed
1975
1980
1985
1990
1995
2000
2005
2010
Year

Figure 7-4. Hotel and Motel Trends in Citrus County

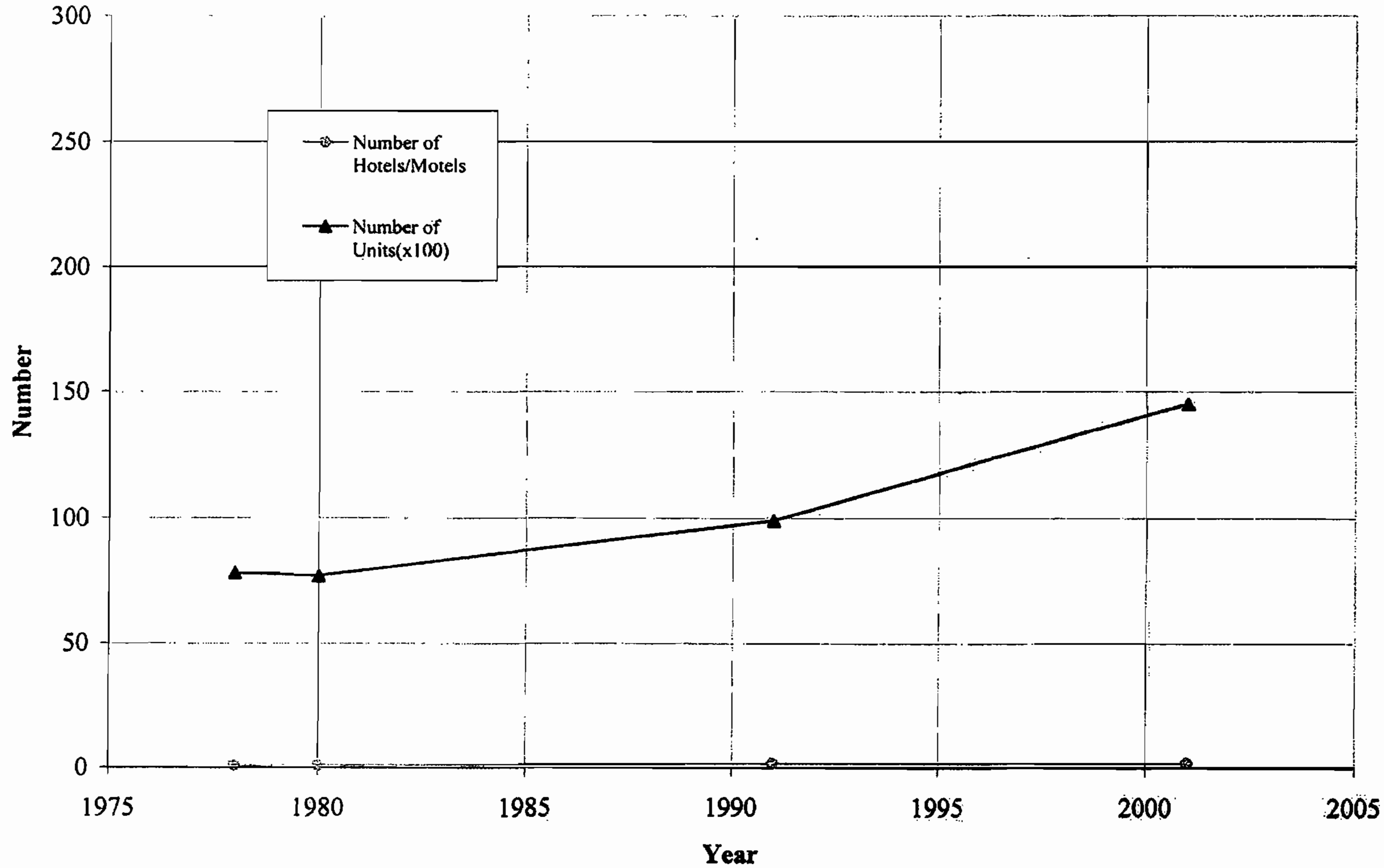


Figure 7-5. Vehicle Miles Traveled (VMT) Estimates for Motor Vehicles for Citrus County

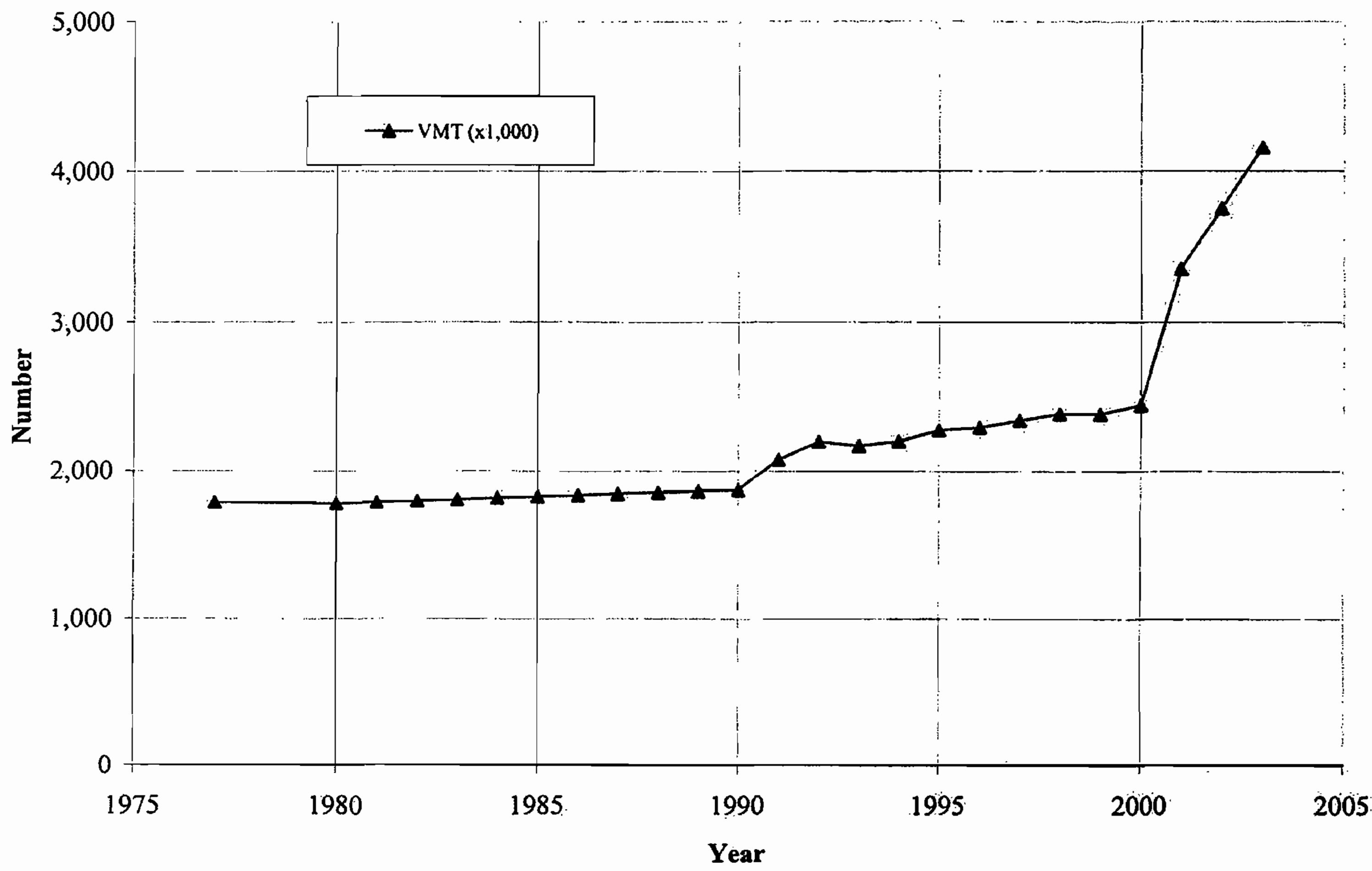


Figure 7-6. Manufacturing and Agriculture Trends in Citrus County

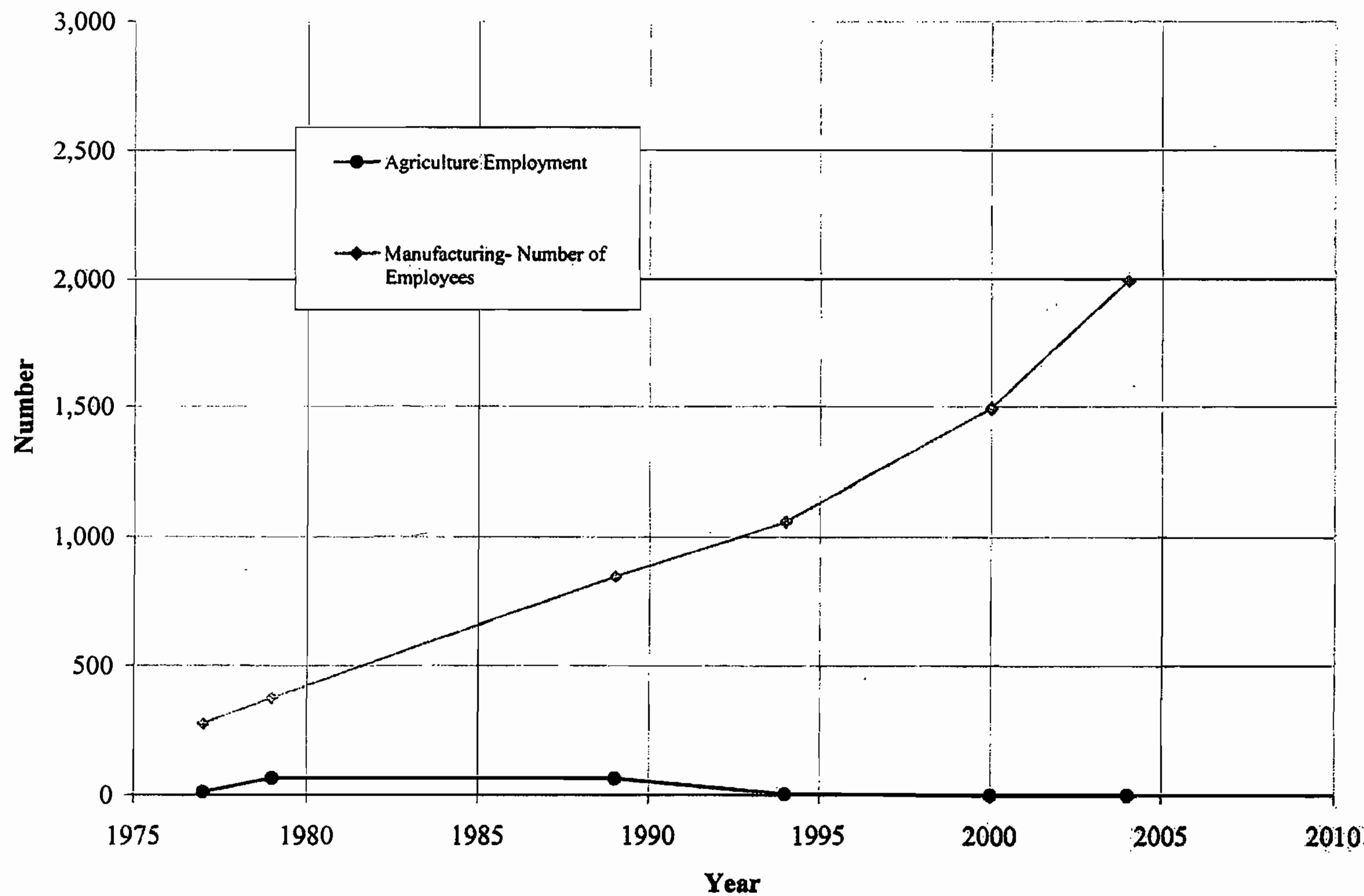


Figure 7-7. Electrical Power Generation Capacity in Citrus County

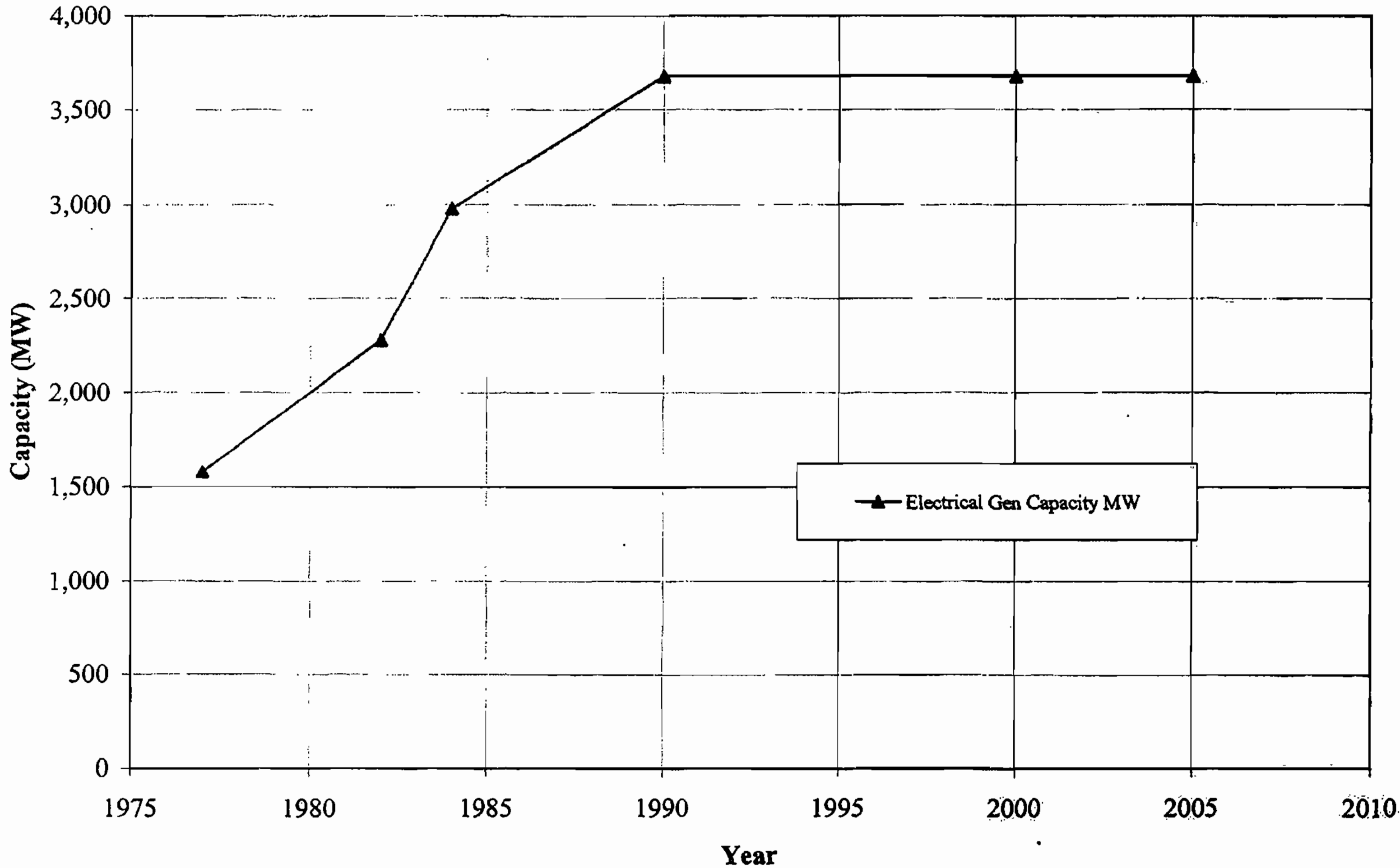


Figure 7-8. Mobile Source Emissions (Tons per Day) of CO, VOC, and NO_x in Citrus County

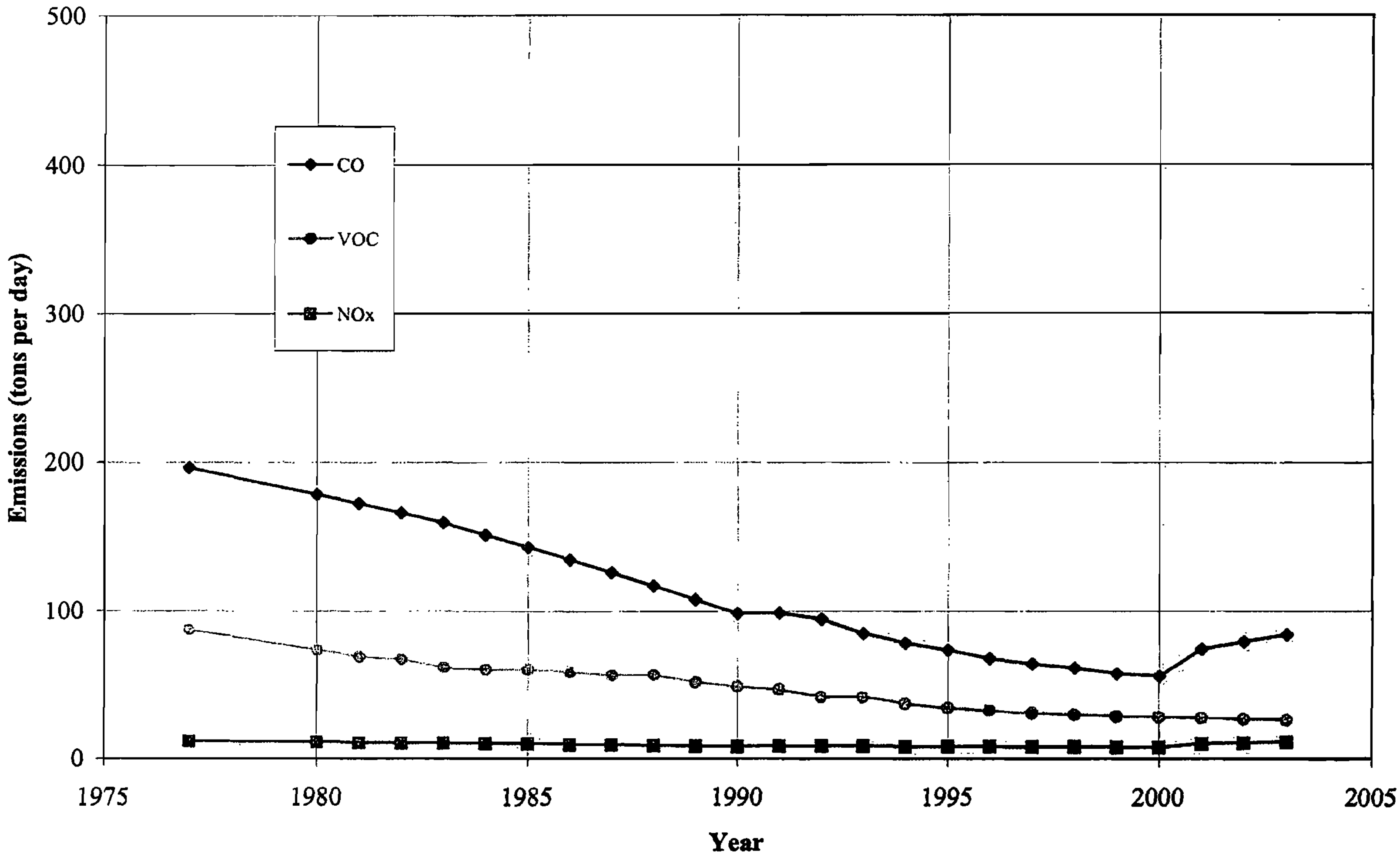


Figure 7-9. Annual Average PM_{10} Concentrations and TSP Concentrations Measured from 1977 to 2005-Pinellas County

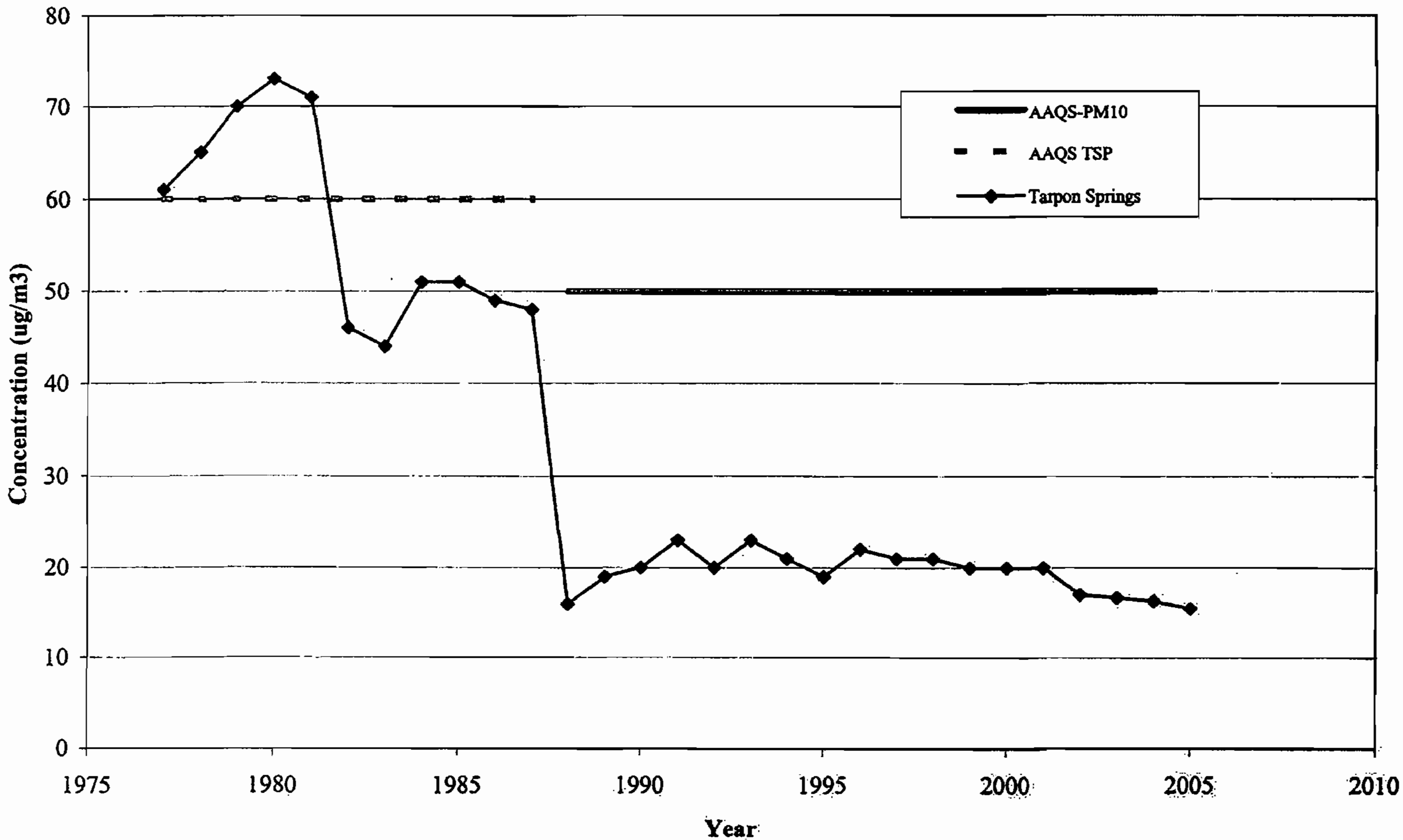


Figure 7-10. 24-hour Average PM_{10} Concentrations and TSP Concentrations (2nd Highest Values) Measured from 1977 to 2005- Pinellas County

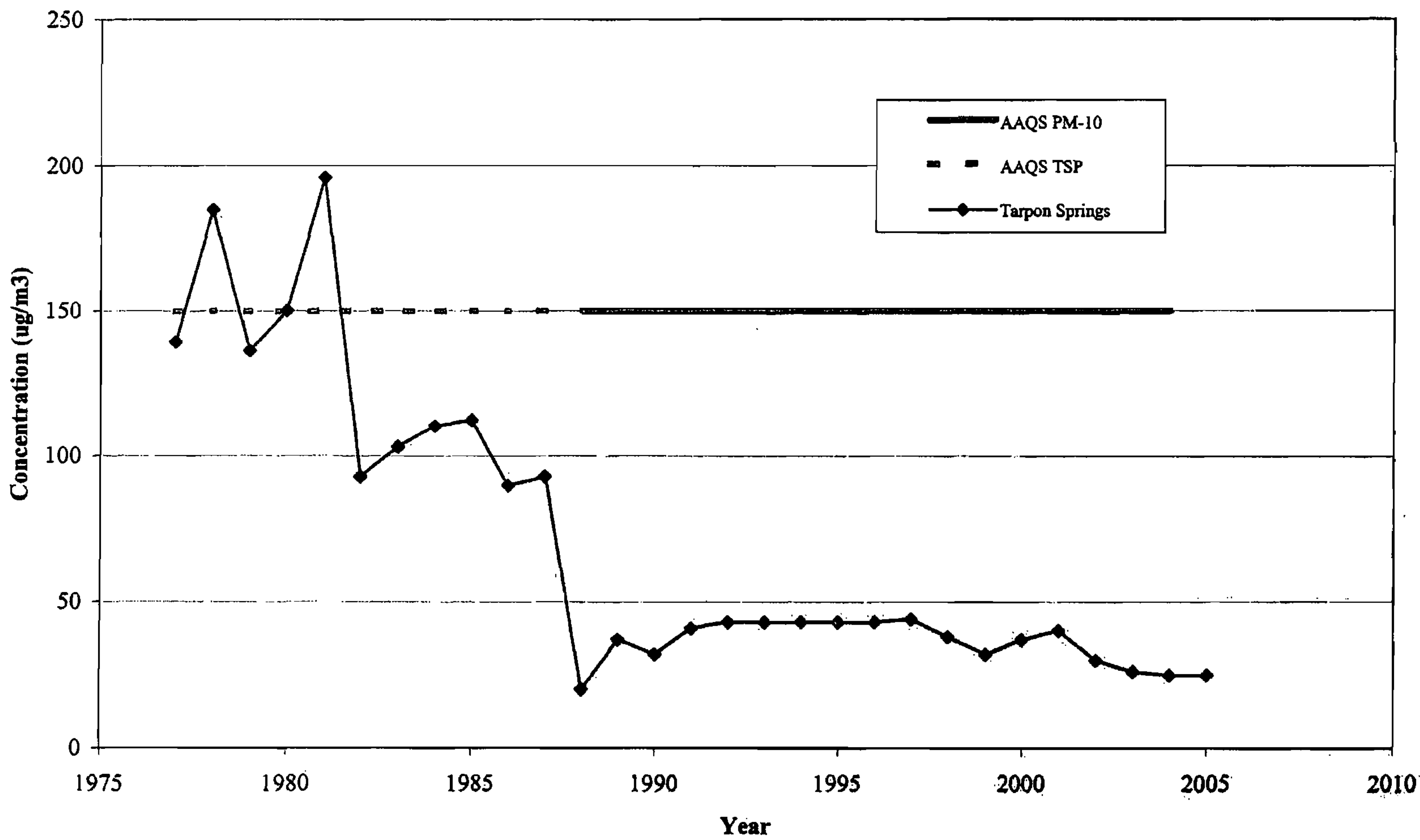


Figure 7-11. 1-hour Average Carbon Monoxide Concentrations (2nd Highest Values) Measured from 1977 to 2004-Pinellas County

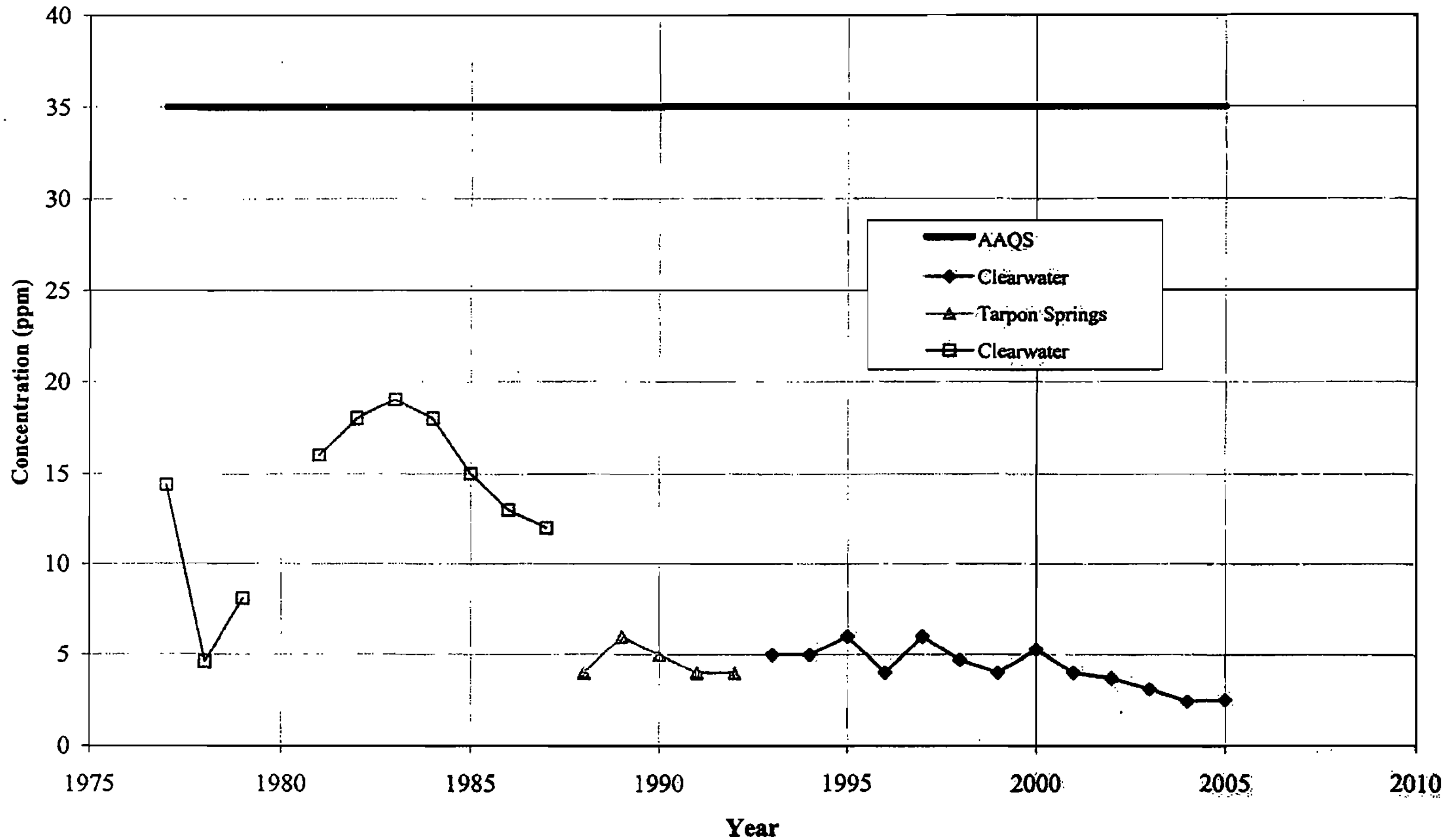


Figure 7-12. 8-hour Average Carbon Monoxide Concentrations (2nd Highest Values) Measured from 1977 to 2004- Pinellas County

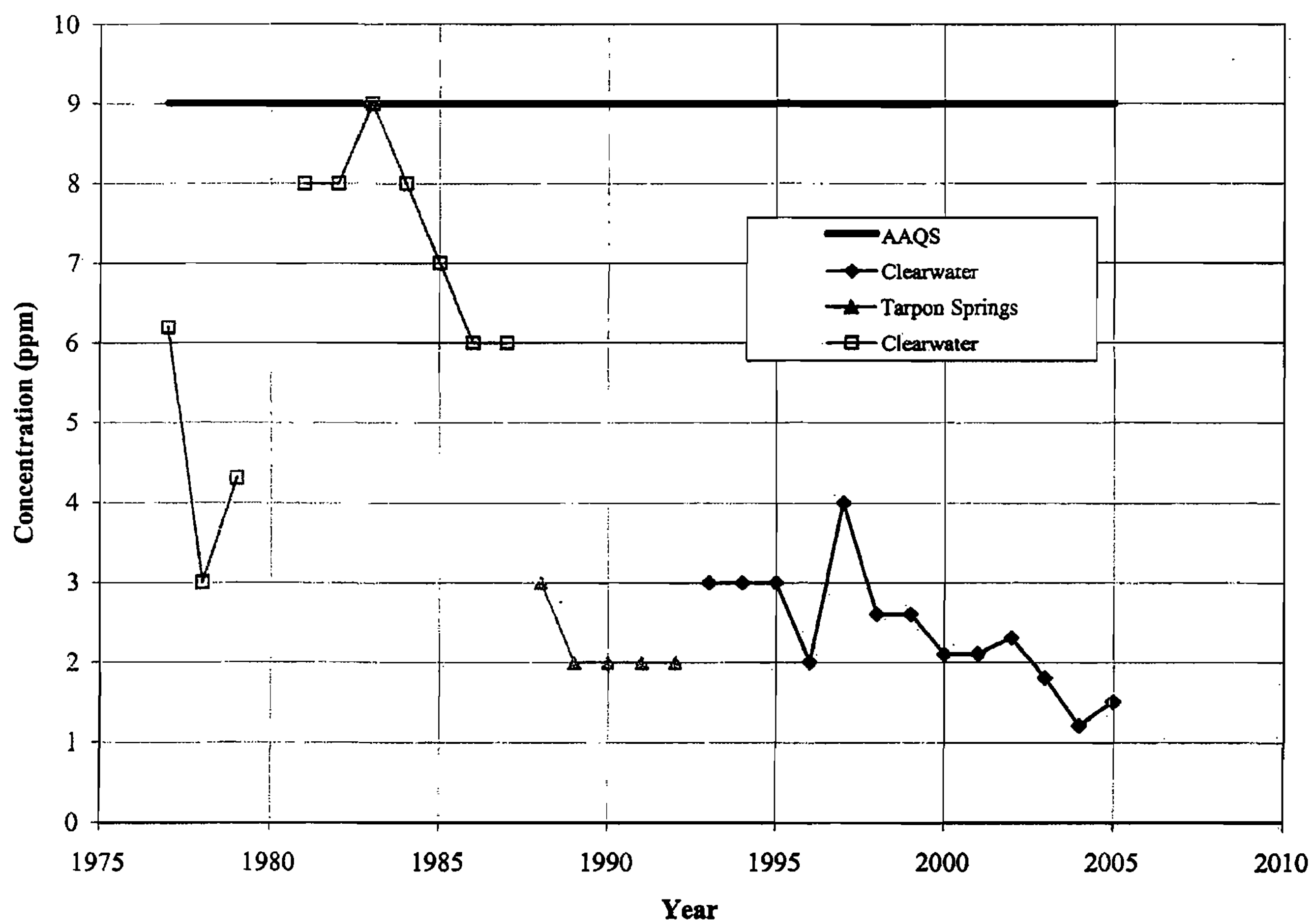


Figure 7-13. 1-hour Average Ozone Concentrations (2nd Highest Values) Measured from 1977 to 2004- Pinellas and Marion Counties

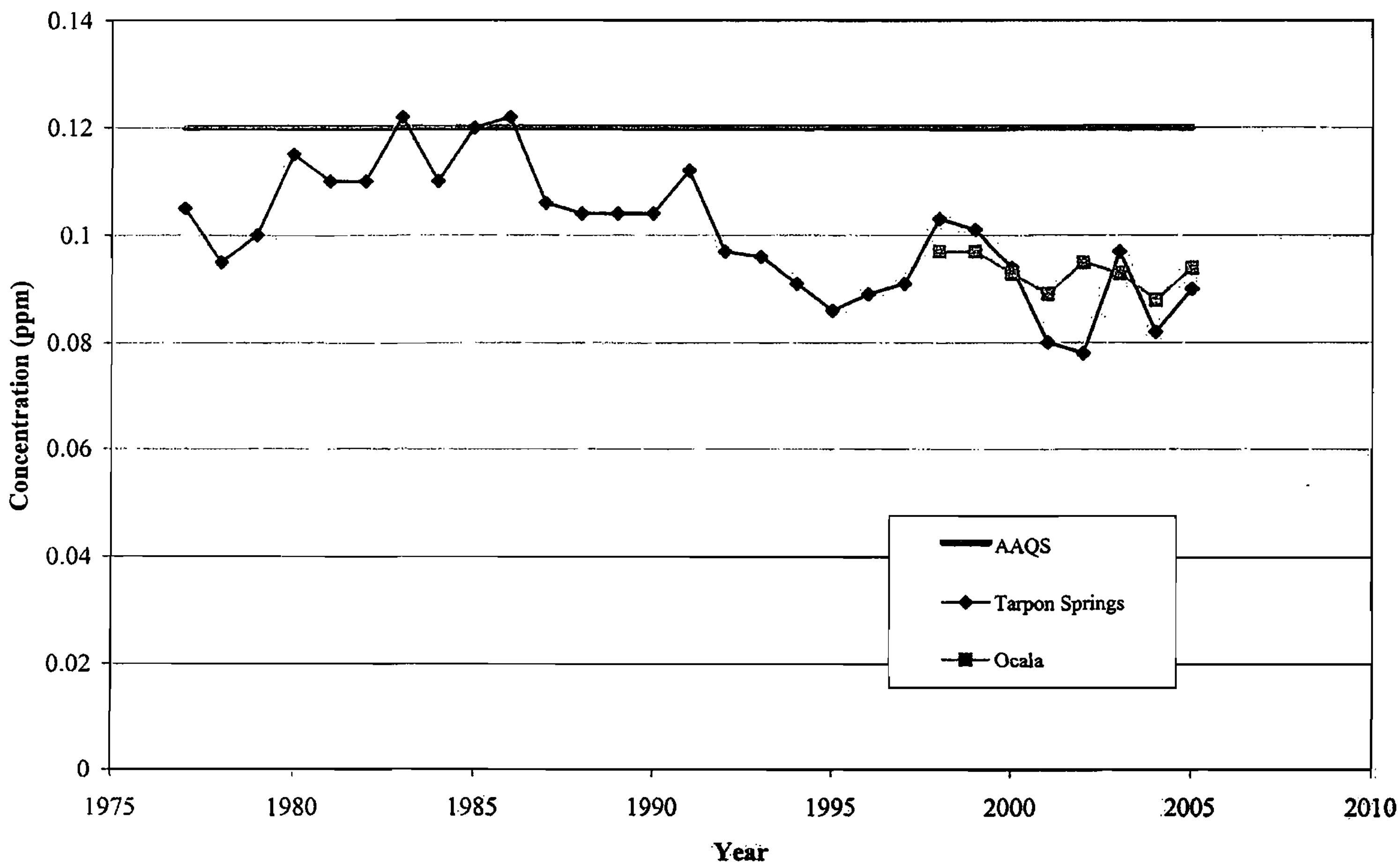
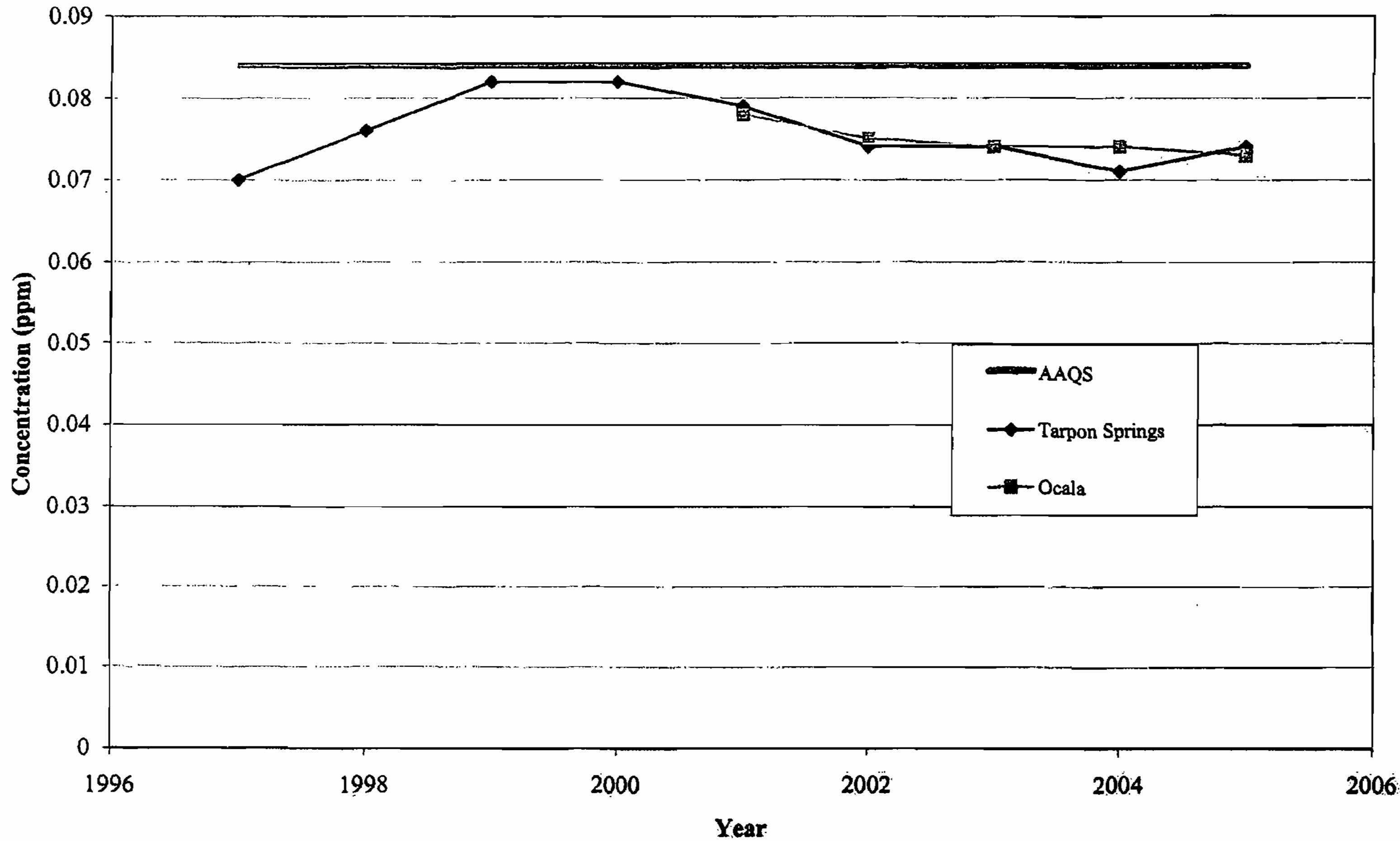


Figure 7-14. 8-hour Average Ozone Concentrations (3-year Average of the 4th Highest Values) Measured from 1997 to 2004- Pinellas and Marion Counties



Department of
Environmental Protection

RECEIVED
SEP 05 2006
BUREAU OF AIR REGULATION

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit for a proposed project:

- subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- at an existing federally enforceable state air operation permit (FESOP) or Title V permitted facility.

Air Operation Permit – Use this form to apply for:

- an initial federally enforceable state air operation permit (FESOP); or
- an initial/revised/renewal Title V air operation permit.

Air Construction Permit & Revised/Renewal Title V Air Operation Permit (Concurrent Processing Option) – Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: **PROGRESS ENERGY FLORIDA, INC.**	
2. Site Name: **CRYSTAL RIVER POWER PLANT**	
3. Facility Identification Number: **0170004**	
4. Facility Location...: Street Address or Other Locator: **NORTH OF CRYSTAL RIVER, WEST OF U.S. 19** City: **CRYSTAL RIVER** County: **CITRUS** Zip Code: **34428**	
5. Relocatable Facility? ☐ Yes ☒ No	6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: **DAVE MEYER, SENIOR ENVIRONMENTAL SPECIALIST**
2. Application Contact Mailing Address... Organization/Firm: **PROGRESS ENERGY FLORIDA** Street Address: **100 CENTRAL AVE CX1B** City: **ST. PETERSBURG** State: **FL** Zip Code: **33701**
3. Application Contact Telephone Numbers... Telephone: **(727) 820-5295** ext. Fax: **(727) 820-5229**
4. Application Contact Email Address: **DAVE.MEYER@PGNMAIL.COM**

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	
2. Project Number(s):	
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

APPLICATION INFORMATION

Purpose of Application

This application for air permit is submitted to obtain: (Check one)

Air Construction Permit

☒ Air construction permit.

Air Operation Permit

☐ Initial Title V air operation permit.

☐ Title V air operation permit revision.

☐ Title V air operation permit renewal.

☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.

☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

☐ Air construction permit and Title V permit revision, incorporating the proposed project.

☐ Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

☐ I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

Progress Energy Florida (PEF) is currently considering upgrades to further improve the environmental performance of existing Units 4 and 5 (EU Nos. 004 and 003, respectively) by installing new/upgraded air emission control devices. An air construction application has been submitted to address the installation of selective catalytic reduction (SCR) systems on Units 4 and 5, as well as the installation of an alkali injection system.

This application requests authorization of additional upgrades for each unit including installation of low NOx burners, flue gas desulfurization (FGD) systems, alkali injection systems, upgrades to the existing ESPs and a carbon burn out (CBO™) system. In addition, PEF is requesting the flexibility to fire additional fuel blends (i.e., sub-bituminous coal and petroleum coke) and revise the current heat input value of each boiler, as referenced in Title V Air Operation Permit 0170004-011-AV, from 6,665 MMBtu/hr to 7,200 MMBtu/hr.

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1.	Owner/Authorized Representative Name : **BERNIE CUMBIE, PLANT MANAGER**
2.	Owner/Authorized Representative Mailing Address... Organization/Firm: **PROGRESS ENERGY** Street Address: **100 CENTRAL AVE CN77** City: **ST PETERSBURG** State: **FLORIDA** Zip Code: **33701**
3.	Owner/Authorized Representative Telephone Numbers... Telephone: **(352) 563-4484** ext. Fax: **(352) 563-4496**
4.	Owner/Authorized Representative Email Address: **BERNIE.CUMBIE@PGNMAIL.COM**
5.	Owner/Authorized Representative Statement: *I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. 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 and all other requirements identified in this application to which the facility is subject. 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 the facility or any permitted emissions unit.* Bernie W Cumbie 9/1/06 Signature Date

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
004	FFSG, Unit 4		NA
003	FFSG, Unit 5		NA
016	Material Handling Activities		NA
	CBO Feed Fly Ash Silo		NA
	CBO Product Fly Ash Storage Dome		NA
	CBO Product Fly Ash Loadout Storage Silo		NA
	CBO Product Fly Ash Fugitives		NA
	CBO Fluidized Bed Combustor (FBC)		NA

Application Processing Fee

Check one: ☒ Attached - Amount: $ **7,500** ☐ Not Applicable

Application Responsible Official Certification

Complete if applying for an initial/revised/renewal Title V permit or concurrent processing of an air construction permit and a revised/renewal Title V permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name:

2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):
   - ☐ For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.
   - ☐ For a partnership or sole proprietorship, a general partner or the proprietor, respectively.
   - ☐ For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.
   - ☐ The designated representative at an Acid Rain source.

3. Application Responsible Official Mailing Address...
   Organization/Firm:
   Street Address:
   City: State: Zip Code:

4. Application Responsible Official Telephone Numbers...
   Telephone: ( ) - ext. Fax: ( ) -

5. Application Responsible Official Email Address:

6. Application Responsible Official Certification:

   I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. 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 and all other applicable requirements identified in this application to which the Title V source is subject. 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 the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.

   ____________________ ________________
   Signature Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **SCOTT OSBOURN**
   Registration Number: **57557**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.****
   Street Address: **5100 West Lemon St., Suite 114**
   City: **Tampa** State: **FL** Zip Code: **33609**
3. Professional Engineer Telephone Numbers...
   Telephone: **(813) 287-1717** ext.**211** Fax: **(813) 287-1716**
4. Professional Engineer Email Address: **SOSBOURN@GOLDER.COM**
5. 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.

(3) If the purpose of this application is to obtain a Title V 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 plan and schedule is submitted with this application.

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here ☐, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal 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.

Signature ______________________ Date ______________

(seal)

SCOTT OSBOURN LICENSE NO. 57557 STATE OF FLORIDA PROFESSIONAL ENGINEER

* Attach any exception to certification statement.

**** Board of Professional Engineers Certificate of Authorization #00001670**

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone **17** East (km) **334.3** North (km) **3204.5**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) **28/57/34** Longitude (DD/MM/SS) **82/42/01**	
3. Governmental Facility Code: **0**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **49**	6. Facility SIC(s):
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: **DAVE MEYER, SENIOR ENVIRONMENTAL SPECIALIST**
2. Facility Contact Mailing Address... Organization/Firm: **PROGRESS ENERGY** Street Address: **100 CENTRAL AVE CX1B** City: **ST PETERSBURG** State: **FLORIDA** Zip Code: **33701**
3. Facility Contact Telephone Numbers: Telephone: **(727) 820-5295** ext. Fax: **(727) 820-5229**
4. Facility Contact Email Address: **DAVE.MEYER@PGNMAIL.COM**

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I. that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: ( ) - ext. Fax: ( ) -
4. Facility Primary Responsible Official Email Address:

FACILITY INFORMATION

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1. ☐ Small Business Stationary Source	☐ Unknown
2. ☐ Synthetic Non-Title V Source	
3. ☒ Title V Source	
4. ☒ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. ☐ Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. ☒ Major Source of Hazardous Air Pollutants (HAPs)	
7. ☐ Synthetic Minor Source of HAPs	
8. ☒ One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. ☒ One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. ☐ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. ☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment: **Units are subject to the CAMR rule in 2010.**	

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
PM	**A**	**N**
PM10	**A**	**N**
SO2	**A**	**N**
CO	**A**	**N**
NOx	**A**	**N**
VOC	**A**	**N**
SAM	**A**	**N**

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID No.s Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1.	Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☒ Attached, Document ID: Figure 2-1 ☐ Previously Submitted, Date:____
2.	Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☒ Attached, Document ID: Figures 2-1 & 2-2 ☐ Previously Submitted, Date:____
3.	Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☒ Attached, Document ID: Section 2.3 ☐ Previously Submitted, Date:____

Additional Requirements for Air Construction Permit Applications

1.	Area Map Showing Facility Location: ☐ Attached, Document ID:____ ☒ Not Applicable (existing permitted facility)
2.	Description of Proposed Construction or Modification: ☒ Attached, Document ID: See Report, Section 1.0
3.	Rule Applicability Analysis: ☒ Attached, Document ID: See Report, Section 3.0
4.	List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.): ☐ Attached, Document ID: ☒ Not Applicable (no exempt units at facility)
5.	Fugitive Emissions Identification (Rule 62-212.400(2), F.A.C.): ☐ Attached, Document ID:____ ☒ Not Applicable
6.	Preconstruction Air Quality Monitoring and Analysis (Rule 62-212.400(5)(f), F.A.C.): ☐ Attached, Document ID:____ ☒ Not Applicable
7.	Ambient Impact Analysis (Rule 62-212.400(5)(d), F.A.C.): ☐ Attached, Document ID:____ ☒ Not Applicable
8.	Air Quality Impact since 1977 (Rule 62-212.400(5)(h)5., F.A.C.): ☐ Attached, Document ID:____ ☒ Not Applicable
9.	Additional Impact Analyses (Rules 62-212.400(5)(e)1. and 62-212.500(4)(e), F.A.C.): ☐ Attached, Document ID:____ ☒ Not Applicable
10.	Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): ☐ Attached, Document ID:____ ☒ Not Applicable

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.): ☐ Attached, Document ID:_____ ☐ Not Applicable (no exempt units at facility)	

Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities (Required for initial/renewal applications only): ☐ Attached, Document ID:_____ ☐ Not Applicable (revision application)
2. Identification of Applicable Requirements (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought): ☐ Attached, Document ID:_____ ☐ Not Applicable (revision application with no change in applicable requirements)
3. Compliance Report and Plan (Required for all initial/revision/renewal applications): ☐ Attached, Document ID:_____ Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.
4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only): ☐ Attached, Document ID:_____ ☐ Equipment/Activities On site but Not Required to be Individually Listed ☐ Not Applicable
5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) : ☐ Attached, Document ID:_____ ☐ Not Applicable
6. Requested Changes to Current Title V Air Operation Permit: ☐ Attached, Document ID:_____ ☐ Not Applicable

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☒ 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.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

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

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:

   FOSSIL FUEL STEAM GENERATOR-5 (PHASE II ACID RAIN UNIT)

3. Emissions Unit Identification Number: **003**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
A	**12/1/06**		**49**	☒ Yes ☐ No

9. Package Unit:
   Manufacturer: Model Number:

10. Generator Nameplate Rating: **760** MW

11. Emissions Unit Comment:

    PULVERIZED COAL DRY BOTTOM BOILER, WALL-FIRED.

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **Electrostatic Precipitator - High Efficiency (95.0 – 99.9%)** **<u>Proposed:</u>** **Selective Catalytic Reduction (SCR) (Permit Application Submitted April 25, 2006)** **Low NOx Burners (LNB)** **Alkali Injection System** **Wet Limestone Flue Gas Desulfurization (FGD)** **Electrostatic Precipitator (ESP) Upgrades**
2. Control Device or Method Code(s): **010, 139, 205, 032/070, 042**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: **7,200** million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: **24**hours/day **7**days/week **52**weeks/year **8760**hours/year	
6. Operating Capacity/Schedule Comment: **PEF proposes to revise the maximum heat input from 6,665 MMBtu/hr to 7,200 MMBtu/hr, to be measured by fuel flow measurements and fuel analysis. The maximum annual average heat input is 6,800 MMBtu/hr.**	

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **EU 003**	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **550** feet	7. Exit Diameter: **30.5** feet
8. Exit Temperature: **130** °F	9. Actual Volumetric Flow Rate: **2,205,195** acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: **Stack parameters provided for 100% load and maximum heat input of 7,200 MMBtu/hr.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 6

1. Segment Description (Process/Fuel Type): **Bituminous coal & bituminous coal briquette mixture**		
2. Source Classification Code (SCC): **1010010100**	3. SCC Units: **Tons Bituminous Coal Burned**	
4. Maximum Hourly Rate: **316.5**	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **24**
10. Segment Comment: **Bituminous coal and coal briquette. Maximum hourly rate based on an average heating value of 11,375 Btu/lb (HHV) and 7,200 MMBtu/hr maximum heat input.**		

Segment Description and Rate: Segment 2 of 6

1. Segment Description (Process/Fuel Type): **Distillate fuel oil**		
2. Source Classification Code (SCC): **10100501**	3. SCC Units: **1000 Gallons Distillate Oil (No. 1 & 2) Burned**	
4. Maximum Hourly Rate: **48.297**	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **0.73**	8. Maximum % Ash: **0.1**	9. Million Btu per SCC Unit: **138**
10. Segment Comment: **Fuel oil used for startup**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 3 of 6

1. Segment Description (Process/Fuel Type): **Natural gas as startup and low-load flame stabilization fuel**		
2. Source Classification Code (SCC): **10100601**	3. SCC Units: **Million Cubic Feet Natural Gas Burned**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Natural gas as startup and low-load flame stabilization fuel**		

Segment Description and Rate: Segment 4 of 6

1. Segment Description (Process/Fuel Type): **On specification used oil**		
2. Source Classification Code (SCC): **10101302**	3. SCC Units: **1000 Gallons Waste Oil Burned**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Used oil specification: Arsenic 5 PPM, Cadmium 2 PPM, Chromium 10 PPM, Lead 100 PPM, Total Halogens 1000 PPM, PCB 50 PPM, 10 million gal/12 month limit for all 4 steam generating units (FFSG 1, 2, 4, & 5)**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 5 of 6

1. Segment Description (Process/Fuel Type): **Sub-Bituminous Coal Blend (up to 50% sub-bituminous coal)**		
2. Source Classification Code (SCC): **1010010100**	3. SCC Units: **Tons Sub-Bituminous Coal Blend Burned**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **3.13**	8. Maximum % Ash:	9. Million Btu per SCC Unit: **20.1**
10. Segment Comment: **Sub-bituminous coal and bituminous coal blend. Maximum hourly rate based on an average heating value of 10,034 Btu/lb (HHV) and 7,200 MMBtu/hr maximum heat input.**		

Segment Description and Rate: Segment 6 of 6

1. Segment Description (Process/Fuel Type): **Bituminous Coal and Petroleum Coke Blend (up to 30% petroleum coke)**		
2. Source Classification Code (SCC): **1010881800**	3. SCC Units: **Tons Petroleum Coke and Coal Blend Burned**	
4. Maximum Hourly Rate: **309**	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **3.13**	8. Maximum % Ash:	9. Million Btu per SCC Unit: **23.3**
10. Segment Comment: **Bituminous coal and petroleum coke blend. Maximum hourly rate based on an average heating value of 11,650 Btu/lb (HHV) and 7,200 MMBtu/hr maximum heat input.**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO			EL
NOX	139	205	EL
SAM	032/070	042	EL
PM	010		EL
PM10	010		NS
SO2	042		EL
VOC			EL

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **CO – Carbon Monoxide**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **1,440** lb/hour **5,063** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.2 lb/MMBtu** Reference: **Vendor Specification/Process Knowledge**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

lb/hr = 0.2 lb/MMBtu * 7,200 MMBtu/hr = 1,440 lb/hr
TPY = (6,800/7,200 MMBtu/hr)*1,440 lb/hr * 8760 hr/yr * 1 ton/2000 lb * 0.85 Capacity Factor = 5,063 TPY

11. Potential Fugitive and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.2 lb/MMBtu**	4. Equivalent Allowable Emissions: **1,440**lb/hour **5,063**tons/year
5. Method of Compliance: **EPA Method 10; Annually**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **NO_X – Nitrogen Oxides**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **3,384** lb/hour **11,795** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.47 lb/MMBtu** Reference: **PSD Avoidance.**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **24,069** tons/year	8.b. Baseline 24-month Period: From: **1/2003** To: **12/2004**
9.a. Projected Actual Emissions (if required): **23,797** tons/year **(11,899 TPY per unit)**	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

lb/hr = 7,200 MMBtu/hr * 0.47 lb/MMBtu = 3,384 lb/hr.
TPY = (6,800/7,200 MMBtu/hr)*3,384 lb/hr * 8760 hrs/yr * 1 ton/2000 lb * 0.85 Capacity Factor = 11,899 TPY

11. Potential Fugitive and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 3

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.47 lb/MMBtu heat input**	4. Equivalent Allowable Emissions: **3,384** lb/hour **11,899** tons/year
5. Method of Compliance: **EPA Method 20/7E RATA: Continuous Emission Monitoring (CEM), annual average**	
6. Allowable Emissions Comment (Description of Operating Method): **PSD Avoidance**	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions 3 of 3

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **Sulfuric Acid Mist – SAM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **86.4** lb/hour **303.8** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.012 lb/MMBtu** Reference: **Vendor Specification/Process Knowledge**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

lb/hr = 7,200 MMBtu/hr * 0.012 lb/MMBtu = 86.4 lb/hr.
TPY = (6,800/7,200 MMBtu/hr)*86.4 lb/hr * 8760 hrs/yr * 1 ton/2000 lb * 0.85 Capacity Factor = 303.8 TPY

11. Potential Fugitive and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.012**	4. Equivalent Allowable Emissions: **86.4** lb/hour **303.8** tons/year
5. Method of Compliance: **EPA Method 8 or 8A; Initial Test Only**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM – Particulate Matter Total**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **216** lb/hour **759.5** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.03 lb/MMBtu** Reference: **Vendor Specification/Process Knowledge**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

lb/hr = 7,200 MMBtu/hr * 0.03 lb/MMBtu = 216 lb/hr
TPY = (6,800/7,200 MMBtu/hr)*216 lb/hr * 8760 hrs/yr * 1 ton/2000 lb * .85 Capacity Factor = 759.5 TPY

11. Potential Fugitive and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.03 lb/MMBtu heat input**	4. Equivalent Allowable Emissions: **216** lb/hour **759.5** tons/year
5. Method of Compliance: **EPA Method 5 or 5B; Annually**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM_{10} – Particulate Matter**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **216** lb/hour **759.5** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.03 lb/MMBtu** Reference: **Vendor Specification/Process Knowledge**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **PM_{10} is assumed to be equal to PM.**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.03 lb/MMBtu**	4. Equivalent Allowable Emissions: **216** lb/hour **759.5** tons/year
5. Method of Compliance: **See PM.**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **SO_2 – Sulfur Dioxide**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **1,944** lb/hour **6,835** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.27 lb/MMBtu** Reference: **Based on modeled impacts.**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): **51,031** tons/year	8.b. Baseline 24-month Period: From: **1/2003** To: **12/2004**
9.a. Projected Actual Emissions (if required): **13,670** tons/year **(6,835 TPY per unit)**	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years
10. Calculation of Emissions: **lb/hr = 7,200 MMBtu/hr * 0.27 lb/MMBtu = 1,944 lb/hr** **TPY = (6,800/7,200 MMBtu/hr)*1,944 lb/hr * 8760 hr/yr * 1 ton/2000 lb * .85 Capacity Factor = 6,835 TPY**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

<u>**Allowable Emissions**</u> Allowable Emissions 1 of 3

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.27 lb/MMBtu heat input**	4. Equivalent Allowable Emissions: **1,944** lb/hour **6,835**tons/year
5. Method of Compliance: **Continuous Emission Monitor (CEM) 30-day rolling average, 40 CFR Part 75 (Acid Rain Program).**	
6. Allowable Emissions Comment (Description of Operating Method):	

<u>**Allowable Emissions**</u> Allowable Emissions 2 of 3

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

<u>**Allowable Emissions**</u> Allowable Emissions 3 of 3

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **VOC – Volatile Organic Compounds**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **28.8** lb/hour **101.2** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.004 lb/MMBtu** Reference: **Vendor Specification/Process Knowledge**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

lb/hr = 0.004 lb/MMBtu * 7,200 MMBtu/hr = 28.8 lb/hr
TPY = (6,800/7,200 MMBtu/hr)*28.8 lb/hr * 8760 hr/yr * 1 ton/2000 lb * 0.85 Capacity Factor = 101.2 TPY

11. Potential Fugitive and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.004 lb/MMBtu**	4. Equivalent Allowable Emissions: **28.8** lb/hour **101.2** tons/year
5. Method of Compliance: **EPA Method 18, 25, or 25a; base load.**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: **VE20 – Visible Emissions**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **20** % Exceptional Conditions: **27** % Maximum Period of Excess Opacity Allowed: **6** min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment: **Unit has opacity monitor.**	

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 1 of 5

1. Parameter Code: **EM – Emission**	2. Pollutant(s): **SO_2**
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: **TECO/Enviroplan** Model Number: **43B**	Serial Number: **43B-46236-275**
5. Installation Date: **04-APR-94**	6. Performance Specification Test Date: **04-DEC-94**
7. Continuous Monitor Comment: **40 CFR 75, SO_2**	

Continuous Monitoring System: Continuous Monitor 2 of 5

1. Parameter Code: **VE – Visible Emissions (opacity)**	2. Pollutant(s): **PM**
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: **Durag/Enviroplan** Model Number: **CEMOP-281**	Serial Number: **29859**
5. Installation Date: **04-APR-94**	6. Performance Specification Test Date: **04-DEC-94**
7. Continuous Monitor Comment: **40 CFR 75**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 3 of 5

1. Parameter Code: **EM – Emission**	2. Pollutant(s): **NO_X**
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: **TECO/Enviroplan** Model Number: **42**	Serial Number: **42-46066-275K**
5. Installation Date: **04-APR-94**	6. Performance Specification Test Date: **04-DEC-94**
7. Continuous Monitor Comment: **40 CFR 75, NO_X**	

Continuous Monitoring System: Continuous Monitor 4 of 5

1. Parameter Code: **CO_2 – Carbon Dioxide**	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: **TECO/Enviroplan** Model Number: **41H**	Serial Number: **41H-45738-274**
5. Installation Date: **04-APR-94**	6. Performance Specification Test Date: **04-DEC-94**
7. Continuous Monitor Comment: **40 CFR 75**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 5 of 5

1. Parameter Code: **FLOW – Volumetric Flow Rate**	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: **United Sciences/Envi** Model Number: **Ultraflow 100**	Serial Number: **9303522**
5. Installation Date: **04-APR-94**	6. Performance Specification Test Date: **04-DEC-94**
7. Continuous Monitor Comment: **40 CFR 75**	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: Figure 2-1 ☐ Previously Submitted, Date

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: Table 2-1 ☐ Previously Submitted, Date

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: PSD, Sections 2.0/4.0 ☐ Previously Submitted, Date ____

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
   ☐ Not Applicable

6. Compliance Demonstration Reports/Records
   ☒ Attached, Document ID: Appendix A
   Test Date(s)/Pollutant(s) Tested: PRB Coal Test; SAM Emissions

   ☐ Previously Submitted, Date:
   Test Date(s)/Pollutant(s) Tested: ____

   ☐ To be Submitted, Date (if known): ____
   Test Date(s)/Pollutant(s) Tested: ____

   ☐ Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☐ Attached, Document ID: ____ ☐ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☐ Attached, Document ID: PSD, Section 4.0	☐ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☒ Attached, Document ID: Section 2.4	☐ Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☒ Attached, Document ID: Section 2.4	☐ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements ☐ Attached, Document ID: ____	☐ Not Applicable
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ____	☐ Not Applicable
3. Alternative Methods of Operation ☐ Attached, Document ID: ____	☐ Not Applicable
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ____	☐ Not Applicable

5. Acid Rain Part Application
- ☐ Certificate of Representation (EPA Form No. 7610-1)
  - ☐ Copy Attached, Document ID: ____
- ☐ Acid Rain Part (Form No. 62-210.900(1)(a))
  - ☐ Attached, Document ID: ____
  - ☐ Previously Submitted, Date: ____
- ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
  - ☐ Attached, Document ID: ____
  - ☐ Previously Submitted, Date: ____
- ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
  - ☐ Attached, Document ID: ____
  - ☐ Previously Submitted, Date: ____
- ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
  - ☐ Attached, Document ID: ____
  - ☐ Previously Submitted, Date: ____
- ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
  - ☐ Attached, Document ID: ____
  - ☐ Previously Submitted, Date: ____
- ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
  - ☐ Attached, Document ID: ____
  - ☐ Previously Submitted, Date: ____
- ☐ Not Applicable

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☒ 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.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

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

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:

   FOSSIL FUEL STEAM GENERATOR-4 (PHASE II ACID RAIN UNIT)

3. Emissions Unit Identification Number: **004**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
A	**12/1/06**		**49**	☒ Yes ☐ No

9. Package Unit:
   Manufacturer: Model Number:

10. Generator Nameplate Rating: **760** MW

11. Emissions Unit Comment:

    PULVERIZED COAL DRY BOTTOM BOILER, WALL-FIRED.

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **Electrostatic Precipitator - High Efficiency (95.0 – 99.9%)** **<u>Proposed:</u>** **Selective Catalytic Reduction (SCR) (Permit Application Submitted April 25, 2006)** **Low NOx Burners (LNB)** **Alkali Injection System** **Wet limestone Flue Gas Desulfurization, (FGD)** **Electrostatic Precipitator (ESP) Upgrades**	
2. Control Device or Method Code(s): **010, 139, 205, 032/070, 042**	

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:		
2. Maximum Production Rate:		
3. Maximum Heat Input Rate: **7,200** million Btu/hr		
4. Maximum Incineration Rate:	pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	**24** hours/day **52** weeks/year	**7** days/week **8,760** hours/year
6. Operating Capacity/Schedule Comment: **PEF Proposes to revise the maximum heat input from 6,665 MMBtu/hr to 7,200 MMBtu/hr, to be measured by fuel flow measurements and fuel analysis. The maximum annual average heat input is 6,800 MMBtu/hr.**		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **EU 004**		2. Emission Point Type Code: **1**
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **550** feet	7. Exit Diameter: **30.5** feet
8. Exit Temperature: **130** °F	9. Actual Volumetric Flow Rate: **2,205,195** acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)
15. Emission Point Comment: **Stack parameters provided for 100% load and maximum heat input of 7,200 MMBtu/hr.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 6

1. Segment Description (Process/Fuel Type): **Bituminous coal & bituminous coal briquette mixture**		
2. Source Classification Code (SCC): **1010010100**	3. SCC Units: **Tons Bituminous Coal Burned**	
4. Maximum Hourly Rate: **316.5**	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **24**
10. Segment Comment: **Bituminous coal and coal briquette. Maximum hourly rate based on an average heating value of 11,375 Btu/lb (HHV) and 7,200 MMBtu/hr maximum heat input.**		

Segment Description and Rate: Segment 2 of 6

1. Segment Description (Process/Fuel Type): **Distillate fuel oil**		
2. Source Classification Code (SCC): **10100501**	3. SCC Units: **1000 Gallons Distillate Oil (No. 1 & 2) Burned**	
4. Maximum Hourly Rate: **48.297**	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **0.73**	8. Maximum % Ash: **0.1**	9. Million Btu per SCC Unit: **138**
10. Segment Comment: **Fuel oil used for startup**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 3 of 6

1. Segment Description (Process/Fuel Type): **Natural gas as startup and low-load flame stabilization fuel**		
2. Source Classification Code (SCC): **10100601**	3. SCC Units: **Million Cubic Feet Natural Gas Burned**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Natural gas as startup and low-load flame stabilization fuel**		

Segment Description and Rate: Segment 4 of 6

1. Segment Description (Process/Fuel Type): **On specification used oil**		
2. Source Classification Code (SCC): **10101302**	3. SCC Units: **1000 Gallons Waste Oil Burned**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Used oil specification: Arsenic 5 PPM, Cadmium 2 PPM, Chromium 10 PPM, Lead 100 PPM, Total Halogens 1000 PPM, PCB 50 PPM, 10 million gal/12 month limit for all 4 steam generating units (FFSG 1, 2, 4, & 5)**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 5 of 6

1. Segment Description (Process/Fuel Type): **Sub-Bituminous Coal Blend (up to 50% sub-bituminous coal)**		
2. Source Classification Code (SCC): **1010010100**	3. SCC Units: **Tons Sub-Bituminous Coal Blend Burned**	
4. Maximum Hourly Rate: **358.8**	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **20.1**
10. Segment Comment: **Sub-bituminous coal and bituminous coal blend. Maximum hourly rate based on an average heating value of 10,034 Btu/lb (HHV) and 7,200 MMBtu/hr maximum heat input.**		

Segment Description and Rate: Segment 6 of 6

1. Segment Description (Process/Fuel Type): **Bituminous Coal and Petroleum Coke Blend (up to 30% petroleum coke)**		
2. Source Classification Code (SCC): **1010881800**	3. SCC Units: **Tons Petroleum coke and Coal Blend Burned**	
4. Maximum Hourly Rate: **309**	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **3.13**	8. Maximum % Ash:	9. Million Btu per SCC Unit: **23.3**
10. Segment Comment: **Bituminous coal and petroleum coke blend. Maximum hourly rate based on an average heating value of 11,650 Btu/lb (HHV) and 7,200 MMBtu/hr maximum heat input.**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO			EL
NOX	139	205	EL
SAM	032/070	042	EL
PM	010		EL
PM10	010		NS
SO2	042		EL
VOC			EL

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **CO – Carbon Monoxide**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **1,440** lb/hour **5,063** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.2 lb/MMBtu** Reference: **Vendor Specification**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

lb/hr = 0.2 lb/MMBtu * 7,200 MMBtu/hr = 1,440 lb/hr
TPY = (6,800/7,200 MMBtu/hr)*1,440 lb/hr * 8760 hr/yr * 1 ton/2000 lb * 0.85 Capacity Factor = 5,063 TPY.

11. Potential Fugitive and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.2 lb/MMBtu**	4. Equivalent Allowable Emissions: **1,440** lb/hour **5,063** tons/year
5. Method of Compliance: **EPA Method 10; Annually**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **NO_X – Nitrogen Oxides**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **3,384** lb/hour **11,899** tons/year	4. Synthetically Limited? ☐ Yes ☒ No

5. Range of Estimated Fugitive Emissions (as applicable): to tons/year

6. Emission Factor: **0.47 lb/MMBtu** Reference: **PSD Avoidance.**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **24,069** tons/year	8.b. Baseline 24-month Period: From: **1/2003** To: **12/2004**
9.a. Projected Actual Emissions (if required): **23,797** tons/year **(11,899 TPY per unit)**	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

lb/hr = 7,200 MMBtu/hr * 0.47 lb/MMBtu = 3,384 lb/hr.
TPY = (6,800/7,200 MMBtu/hr)*3,384 lb/hr * 8760 hrs/yr * 1 ton/2000 lb * 0.85 Capacity Factor = 11,899 TPY

11. Potential Fugitive and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.47 lb/MMBtu heat input**	4. Equivalent Allowable Emissions: **3,384** lb/hour **11,899** tons/year
5. Method of Compliance: **EPA Method 20/7E RATA: Continuous Emission Monitoring (CEM), annual average.**	
6. Allowable Emissions Comment (Description of Operating Method): **PSD Avoidance**	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **Sulfuric Acid Mist – SAM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **86.4**lb/hour **303.8** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.012 lb/MMbtu** Reference: **Vendor Specification/Process Knowledge**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **lb/hr = 7,200 MMBtu/hr * 0.012 lb/MMBtu = 86.4 lb/hr.** **TPY = (6,800/72,00 MMBtu/hr)*86.4 lb/hr * 8760 hrs/yr * 1 ton/2000 lb * 0.85 Capacity Factor = 303.8 TPY**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.012 lb/MMBtu**	4. Equivalent Allowable Emissions: **86.4** lb/hour **303.8** tons/year
5. Method of Compliance: **EPA Method 8 or 8A; Initial Test Only**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM – Particulate Matter Total**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **216** lb/hour **759.5** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.03 lb/MMBtu** Reference: **Vendor Specification/Process Knowledge**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **lb/hr = 7,200 MMBtu/hr * 0.03 lb/MMBtu = 216 lb/hr** **TPY = (6,800/7,200 MMBtu/hr)*216 lb/hr * 8760 hrs/yr * 1 ton/2000 lb * .85 Capacity Factor = 759.5 TPY**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.03 lb/MMBtu heat input**	4. Equivalent Allowable Emissions: **216** lb/hour **759.5** tons/year
5. Method of Compliance: **EPA Method 5 or 5B; Annually**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM_{10} – Particulate Matter**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **216** lb/hour **759.5** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.03 lb/MMBtu** Reference: **Vendor Specification/Process Knowledge**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **PM_{10} is assumed to be equal to PM.**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.03 lb MMBtu**	4. Equivalent Allowable Emissions: **216** lb/hour **759.5** tons/year
5. Method of Compliance: **See PM.**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **SO_2 – Sulfur Dioxide**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **1,944** lb/hour **6,835** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.27 lb/MMBtu** Reference: **Based on modeled impacts.**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): **51,031** tons/year	8.b. Baseline 24-month Period: From: **1/2003** To: **12/2004**
9.a. Projected Actual Emissions (if required): **13,670** tons/year **(6,835 TPY per unit)**	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

lb/hr = 7,200 MMBtu/hr * 0.27 lb/MMBtu = 1,944 lb/hr
TPY = (6,800/7,200MMBtu/hr)*1,944 lb/hr * 8760 hr/yr * 1 ton/2000 lb * .85 Capacity Factor = 6,835 TPY

11. Potential Fugitive and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 3

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.27 lb/MMBtu heat input**	4. Equivalent Allowable Emissions: **1,944** lb/hour **6,835** tons/year
5. Method of Compliance: **Continuous Emission Monitor (CEM) 30-day rolling average 40 CFR Part 75 (Acid Rain Program)**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions 2 of 3

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **VOC – Volatile Organic Compounds**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **28.8** lb/hour **107.2** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.004 lb/MMBtu** Reference: **Vendor Specification/Process Knowledge**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

lb/hr = 0.004 lb/MMBtu * 7,200 MMBtu/hr = 28.8 lb/hr
TPY = (6,800/7,200 MMBtu/hr)*28.8 lb/hr * 8760 hr/yr * 1 ton/2000 lb * 0.85 Capacity Factor = 101.2 TPY

11. Potential Fugitive and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.004 lb/MMBtu**	4. Equivalent Allowable Emissions: **28.8** lb/hour **101.2** tons/year
5. Method of Compliance: **EPA Method 18, 25, or 25a; base load.**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: **VE20 – Visible Emissions**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **20** % Exceptional Conditions: **27** % Maximum Period of Excess Opacity Allowed: **6** min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment: **Unit has opacity monitor.**	

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 1 of 5

1. Parameter Code: **EM – Emission**	2. Pollutant(s): **SO_2**
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: **TECO/Enviroplan** Model Number: **43B**	Serial Number: **43B-46236-275**
5. Installation Date: **04-APR-94**	6. Performance Specification Test Date: **04-DEC-94**
7. Continuous Monitor Comment: **40 CFR 75, SO_2**	

Continuous Monitoring System: Continuous Monitor 2 of 5

1. Parameter Code: **VE – Visible Emissions (opacity)**	2. Pollutant(s): **PM**
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: **Durag/Enviroplan** Model Number: **CEMOP-281**	Serial Number: **29859**
5. Installation Date: **04-APR-94**	6. Performance Specification Test Date: **04-DEC-94**
7. Continuous Monitor Comment: **40 CFR 75**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 3 of 5

1. Parameter Code: **EM – Emission**	2. Pollutant(s): **NO_X**
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: **TECO/Enviroplan** Model Number: **42** Serial Number: **42-46066-275K**	
5. Installation Date: **04-APR-94**	6. Performance Specification Test Date: **04-DEC-94**
7. Continuous Monitor Comment: **40 CFR 75, NO_X**	

Continuous Monitoring System: Continuous Monitor 4 of 5

1. Parameter Code: **CO_2 – Carbon Dioxide**	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: **TECO/Enviroplan** Model Number: **41H** Serial Number: **41H-45738-274**	
5. Installation Date: **04-APR-94**	6. Performance Specification Test Date: **04-DEC-94**
7. Continuous Monitor Comment: **40 CFR 75**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 5 of 5

1. Parameter Code: **FLOW – Volumetric Flow Rate**	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: **United Sciences/Envi** Model Number: **Ultraflow 100** Serial Number: **9303522**	
5. Installation Date: **04-APR-94**	6. Performance Specification Test Date: **04-DEC-94**
7. Continuous Monitor Comment: **40 CFR 75**	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **Figure 2-1** ☐ Previously Submitted, Date

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **Table 2-1** ☐ Previously Submitted, Date

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: **PSD, Sections 2.0/4.0** ☐ Previously Submitted, Date ____

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
   ☐ Not Applicable

6. Compliance Demonstration Reports/Records
   ☒ Attached, Document ID: **Appendix A**
   Test Date(s)/Pollutant(s) Tested: **PRB Coal Test; SAM Emissions**

   ☐ Previously Submitted, Date:
   Test Date(s)/Pollutant(s) Tested: ____

   ☐ To be Submitted, Date (if known): ____
   Test Date(s)/Pollutant(s) Tested: ____

   ☐ Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☐ Attached, Document ID: ____ ☐ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☐ Attached, Document ID: PSD, Section 4.0 ☐ Not Applicable	
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☒ Attached, Document ID: Section 2.4 ☐ Not Applicable	
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☒ Attached, Document ID: Section 2.4 ☐ Not Applicable	

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements ☐ Attached, Document ID: ____ ☐ Not Applicable	
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ____ ☐ Not Applicable	
3. Alternative Methods of Operation ☐ Attached, Document ID: ____ ☐ Not Applicable	
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ____ ☐ Not Applicable	
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID: ____ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Not Applicable	

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☒ 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.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

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

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section: **Material-handling activities for coal-fired steam units.**

3. Emissions Unit Identification Number: **EU016**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
A	**12/01/06**	**11/01/08**	**49**	☐ Yes ☒ No

9. Package Unit:
   Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment: **This emission unit consists of transport and storage of coal and limestone for FFSG Units 1, 2, 4, and 5.**

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **Dust suppression by water sprays** **Miscellaneous control devices - enclosures** **Dust suppression - traffic control** **(Refer to Condition H.3 of the current TV Permit No. 0170004-009-AV, which references Progress Energy's Best Management Plan (BMP) for particulate emissions)**
2. Control Device or Method Code(s): **061**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **8,195,916 TPY coal for Units 1, 2, 4, and 5.**	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: **24**hours/day **52**weeks/year	**7**days/week **8760**hours/year
6. Operating Capacity/Schedule Comment: **Maximum process throughput rate is based on boiler maximum firing rates and lower range of the coal heating value.**	

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **Various - 016**	2. Emission Point Type Code: **4**

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:
Barge unloading, rail unloading, coal crushing, various conveyors and transfer points, storage piles and manipulation activities, storage silos, and unpaved road emissions from coal yard and limestone equipment.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code: **F**	6. Stack Height: feet	7. Exit Diameter: feet
8. Exit Temperature: **77**°F	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %

11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: **Various** feet
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)

15. Emission Point Comment:
Fugitive emissions at ambient temperature.

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type): **Coal Transport for Units 1 and 2.**		
2. Source Classification Code (SCC):	3. SCC Units: **Tons Transferred**	
4. Maximum Hourly Rate: **900**	5. Maximum Annual Rate: **3.118,925**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type): **Coal Transport for Units 4 and 5**		
2. Source Classification Code (SCC):	3. SCC Units: **Tons Transferred**	
4. Maximum Hourly Rate: **2,500**	5. Maximum Annual Rate: **5,076,991**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	061		WP
PM10	061		WP

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **23.3** lb/hour **102** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **See Table 2-5** Reference:	7. Emissions Method Code: **3**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **Annual emissions (tons/year) and hourly emissions (lb/hr) given for coal, fly ash, bottom ash, and limestone handling. The project's incremental change in annual emissions (coal and limestone handling) is equal to 33.7 TPY. See Tables 2-5. Hourly rate is based on the annual emissions and 8,760 hours per year.**	
11. Potential Fugitive and Actual Emissions Comment:	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **6.4** lb/hour **28.0** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **See Table 2-5** Reference:	7. Emissions Method Code: **3**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

Annual emissions (tons/year) and hourly emissions (lb/hr) given for coal, fly ash, bottom ash, and limestone handling. The project's incremental change in annual emissions (coal and limestone handling) is equal to 10.79 TPY. See Tables 2-5. Hourly rate is based on the annual emissions and 8,760 hours per year

11. Potential Fugitive and Actual Emissions Comment:

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **20** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Method 9**	
5. Visible Emissions Comment:	

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☒ Attached, Document ID: **Figure 2-1** ☐ Previously Submitted, Date ____
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID: ____ ☒ Previously Submitted, Date ____
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____ ☒ Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____ ☒ Not Applicable
6. Compliance Demonstration Reports/Records ☐ Attached, Document ID: ____ Test Date(s)/Pollutant(s) Tested: ____ ☐ Previously Submitted, Date: ____ Test Date(s)/Pollutant(s) Tested: ____ ☐ To be Submitted, Date (if known): ____ Test Date(s)/Pollutant(s) Tested: ____ ☒ Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute ☐ Attached, Document ID: ____ ☒ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e))
   ☐ Attached, Document ID: ____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.)
   ☐ Attached, Document ID: ____ ☒ Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only)
   ☐ Attached, Document ID: ____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements
   ☐ Attached, Document ID: ____ ☐ Not Applicable
2. Compliance Assurance Monitoring
   ☐ Attached, Document ID: ____ ☐ Not Applicable
3. Alternative Methods of Operation
   ☐ Attached, Document ID: ____ ☐ Not Applicable
4. Alternative Modes of Operation (Emissions Trading)
   ☐ Attached, Document ID: ____ ☐ Not Applicable
5. Acid Rain Part Application
   ☐ Certificate of Representation (EPA Form No. 7610-1)
     ☐ Copy Attached, Document ID: ____
   ☐ Acid Rain Part (Form No. 62-210.900(1)(a))
     ☐ Attached, Document ID: ____
     ☐ Previously Submitted, Date: ____
   ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
     ☐ Attached, Document ID: ____
     ☐ Previously Submitted, Date: ____
   ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
     ☐ Attached, Document ID: ____
     ☐ Previously Submitted, Date: ____
   ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
     ☐ Attached, Document ID: ____
     ☐ Previously Submitted, Date: ____
   ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
     ☐ Attached, Document ID: ____
     ☐ Previously Submitted, Date: ____
   ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
     ☐ Attached, Document ID: ____
     ☐ Previously Submitted, Date: ____
   ☐ Not Applicable

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☒ 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.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

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

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section: **CBO™ Feed Fly Ash Silo**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: **C**	5. Commence Construction Date: **06/01/07**	6. Initial Startup Date: **11/1/08**	7. Emissions Unit Major Group SIC Code: **49**	8. Acid Rain Unit? ☐ Yes ☒ No

9. Package Unit:
   Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

Emissions Unit Control Equipment

1.	Control Equipment/Method(s) Description: **Fabric Filter- Low Temperature**
2.	Control Device or Method Code(s): **018**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **75 tons/hr**	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: **24**hours/day **52**weeks/year	 **7**days/week **8,760**hours/year
6. Operating Capacity/Schedule Comment:	

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: CBO-001	2. Emission Point Type Code: 1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: N/A		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: N/A		
5. Discharge Type Code: H	6. Stack Height: 93 feet	7. Exit Diameter: 1.3 feet
8. Exit Temperature: 77 °F	9. Actual Volumetric Flow Rate: 3,040 acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): **Feed Fly Ash Storage**		
2. Source Classification Code (SCC): **3-05-009-99**	3. SCC Units: **Tons Transferred or Handled**	
4. Maximum Hourly Rate: **75**	5. Maximum Annual Rate: **320,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	018		NS
PM10	018		NS

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **99 percent**
3. Potential Emissions: **0.3** lb/hour **1.1** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.01 gr/dscf** Reference: **Vendor Data**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Table 2-4 for emission rate calculations**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **5% Opacity**	4. Equivalent Allowable Emissions: **0.3** lb/hour **1.1** tons/year
5. Method of Compliance: **EPA Reference Method 9**	
6. Allowable Emissions Comment (Description of Operating Method): **Rule 62-297.620(4), F.A.C.**	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **99 percent**
3. Potential Emissions: **0.3** lb/hour **1.1** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.01 gr/dscf** Reference: **Vendor Data**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Table 2-4 for emission rate calculations**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **5% Opacity**	4. Equivalent Allowable Emissions: **0.3** lb/hour **1.1** tons/year
5. Method of Compliance: **EPA Reference Method 9**	
6. Allowable Emissions Comment (Description of Operating Method): **Rule 62-297.620(4), F.A.C.**	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: **VE05**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **5** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Reference Method 9**	
5. Visible Emissions Comment: **Rule 62-297.620(4), F.A.C.**	

Visible Emissions Limitation: Visible Emissions Limitation ____ of ____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☒ Attached, Document ID: **Figure 2-2** ☐ Previously Submitted, Date ____

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: **NA** ☐ Previously Submitted, Date ____

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☒ Attached, Document ID: **Section 2.3** ☐ Previously Submitted, Date ____

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
☒ Not Applicable

6. Compliance Demonstration Reports/Records
☐ Attached, Document ID: ____
Test Date(s)/Pollutant(s) Tested: ____
☐ Previously Submitted, Date: ____
Test Date(s)/Pollutant(s) Tested: ____
☐ To be Submitted, Date (if known): ____
Test Date(s)/Pollutant(s) Tested: ____
☒ Not Applicable
Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
☐ Attached, Document ID: ____ ☒ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **Section 2.3** ☐ Not Applicable	
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☐ Attached, Document ID: ____ ☒ Not Applicable	
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ____ ☒ Not Applicable	

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements ☐ Attached, Document ID: ____ ☐ Not Applicable	
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ____ ☐ Not Applicable	
3. Alternative Methods of Operation ☐ Attached, Document ID: ____ ☐ Not Applicable	
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ____ ☐ Not Applicable	
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID: ____ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Not Applicable	

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☒ 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.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

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

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section: **CBO™ Feed Fly Ash Storage Dome**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
C	**06/01/07**	**11/1/08**	**49**	☐ Yes ☒ No

9. Package Unit:
   Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **Fabric Filter- Medium Temperature**
2. Control Device or Method Code(s): **017**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **75 tons/hr**		
2. Maximum Production Rate:		
3. Maximum Heat Input Rate:	million Btu/hr	
4. Maximum Incineration Rate:	pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	**24**hours/day **52**weeks/year	**7**days/week **8,760**hours/year
6. Operating Capacity/Schedule Comment:		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **CBO-002**	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **N/A**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **N/A**		
5. Discharge Type Code: **H**	6. Stack Height: **106** feet	7. Exit Diameter: **2.2** feet
8. Exit Temperature: **200** °F	9. Actual Volumetric Flow Rate: **7,600** acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: **6,000** dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): **Product Fly Ash Storage**		
2. Source Classification Code (SCC): **3-05-009-99**	3. SCC Units: **Tons Transferred or Handled**	
4. Maximum Hourly Rate: **75**	5. Maximum Annual Rate: **320,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	017		NS
PM10	017		NS

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **99 percent**
3. Potential Emissions: **0.5** lb/hour **2.3** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.01 gr/dscf** Reference: **Vendor Data**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Table 2-4 for emission rate calculations**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **5% Opacity**	4. Equivalent Allowable Emissions: **0.5** lb/hour **2.3** tons/year
5. Method of Compliance: **EPA Reference Method 9**	
6. Allowable Emissions Comment (Description of Operating Method): **Rule 62-297.620(4), F.A.C.**	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **99 percent**
3. Potential Emissions: **0.5** lb/hour **2.3** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.01 gr/dscf** Reference: **Vendor Data**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Table 2-4 for emission rate calculations**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **5% Opacity**	4. Equivalent Allowable Emissions: **0.5** lb/hour **2.3** tons/year
5. Method of Compliance: **EPA Reference Method 9**	
6. Allowable Emissions Comment (Description of Operating Method): **Rule 62-297.620(4), F.A.C.**	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: **VE05**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **5** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Reference Method 9**	
5. Visible Emissions Comment: **Rule 62-297.620(4), F.A.C.**	

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: Figure 2-2 ☐ Previously Submitted, Date _____

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: NA ☐ Previously Submitted, Date _____

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: Section 2.3 ☐ Previously Submitted, Date _____

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____
   ☒ Not Applicable

6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   ☐ Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   ☐ To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   ☒ Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **Section 2.3** ☒ Not Applicable	
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☐ Attached, Document ID: ____ ☒ Not Applicable	
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ____ ☒ Not Applicable	

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements ☐ Attached, Document ID: ____ ☐ Not Applicable	
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ____ ☐ Not Applicable	
3. Alternative Methods of Operation ☐ Attached, Document ID: ____ ☐ Not Applicable	
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ____ ☐ Not Applicable	
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID: ____ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Not Applicable	

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☒ 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.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

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

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section: **CBO™ Product Fly Ash Loadout Storage Silo**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
C	**06/01/07**	**11/1/08**	**49**	☐ Yes ☒ No

9. Package Unit:
   Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **Fabric Filter- Medium Temperature**
2. Control Device or Method Code(s): **017**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **75 tons/hr**		
2. Maximum Production Rate:		
3. Maximum Heat Input Rate: million Btu/hr		
4. Maximum Incineration Rate:	pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	**24**hours/day **52**weeks/year	**7**days/week **8,760**hours/year
6. Operating Capacity/Schedule Comment:		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **CBO-003**	2. Emission Point Type Code: **2**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **N/A**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **Product Fly Ash Truck/Rail Loading Silo** **Product Fly Ash Truck/Rail Loading**		
5. Discharge Type Code: **H**	6. Stack Height: **87**feet	7. Exit Diameter: **1.9** feet
8. Exit Temperature: **200** °F	9. Actual Volumetric Flow Rate: **7,600** acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: **6,000** dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): **Product Fly Ash Storage and Handling**		
2. Source Classification Code (SCC): **3-05-009-99**	3. SCC Units: **Tons Transferred or Handled**	
4. Maximum Hourly Rate: **75**	5. Maximum Annual Rate: **320,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	017		NS
PM10	017		NS

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **99 percent**
3. Potential Emissions: **0.5** lb/hour **2.3** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.01 gr/dscf** Reference: **Vendor Data**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Table 2-4 for emission rate calculations**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **5% Opacity**	4. Equivalent Allowable Emissions: **0.5** lb/hour **2.3** tons/year
5. Method of Compliance: **EPA Reference Method 9**	
6. Allowable Emissions Comment (Description of Operating Method): **Rule 62-297.620(4), F.A.C.**	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **99 percent**
3. Potential Emissions: **0.5** lb/hour **2.3** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.01 gr/dscf** Reference: **Vendor Data**	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Table 2-4 for emission rate calculations**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **5% Opacity**	4. Equivalent Allowable Emissions: **0.5** lb/hour **2.3** tons/year
5. Method of Compliance: **EPA Reference Method 9**	
6. Allowable Emissions Comment (Description of Operating Method): **Rule 62-297.620(4), F.A.C.**	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: **VE05**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **5** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Reference Method 9**	
5. Visible Emissions Comment: **Rule 62-297.620(4), F.A.C.**	

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: Figure 2-2 ☐ Previously Submitted, Date ____

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: NA ☐ Previously Submitted, Date ____

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: Section 2.3 ☐ Previously Submitted, Date ____

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
   ☒ Not Applicable

6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: ____
   Test Date(s)/Pollutant(s) Tested: ____

   ☐ Previously Submitted, Date: ____
   Test Date(s)/Pollutant(s) Tested: ____

   ☐ To be Submitted, Date (if known): ____
   Test Date(s)/Pollutant(s) Tested: ____

   ☒ Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☐ Attached, Document ID: ____ ☒ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **Section 2.3** ☐ Not Applicable	
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☐ Attached, Document ID: _____ ☒ Not Applicable	
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☒ Not Applicable	

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements ☐ Attached, Document ID: _____ ☐ Not Applicable	
2. Compliance Assurance Monitoring ☐ Attached, Document ID: _____ ☐ Not Applicable	
3. Alternative Methods of Operation ☐ Attached, Document ID: _____ ☐ Not Applicable	
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: _____ ☐ Not Applicable	

5. Acid Rain Part Application
- ☐ Certificate of Representation (EPA Form No. 7610-1)
  - ☐ Copy Attached, Document ID: _____
- ☐ Acid Rain Part (Form No. 62-210.900(1)(a))
  - ☐ Attached, Document ID: _____
  - ☐ Previously Submitted, Date: _____
- ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
  - ☐ Attached, Document ID: _____
  - ☐ Previously Submitted, Date: _____
- ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
  - ☐ Attached, Document ID: _____
  - ☐ Previously Submitted, Date: _____
- ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
  - ☐ Attached, Document ID: _____
  - ☐ Previously Submitted, Date: _____
- ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
  - ☐ Attached, Document ID: _____
  - ☐ Previously Submitted, Date: _____
- ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
  - ☐ Attached, Document ID: _____
  - ☐ Previously Submitted, Date: _____
- ☐ Not Applicable

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☐ 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.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

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

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section: **CBO™ Product Fly Ash Fugitives**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
C	**06/01/07**	**11/1/08**	**49**	☐ Yes ☒ No

9. Package Unit:
   Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **Watering of roadways, as neccessary**
2. Control Device or Method Code(s): **062**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **320,000 tons/yr of product fly ash**	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: **24**hours/day **52**weeks/year	**7**days/week **8,760**hours/year
6. Operating Capacity/Schedule Comment:	

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **CBO-004**		2. Emission Point Type Code: **4**
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **N/A**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **N/A**		
5. Discharge Type Code: **F**	6. Stack Height: feet	7. Exit Diameter: feet
8. Exit Temperature: °F	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)
15. Emission Point Comment:		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): **Product Fly Ash Handling**		
2. Source Classification Code (SCC): **3-05-009-99**	3. SCC Units: **Tons Transferred or Handled**	
4. Maximum Hourly Rate: **104**	5. Maximum Annual Rate: **320,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Max hourly rate based on 8 trucks per hour, each containing 13 tons of product fly ash.**		

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	062		NS
PM10	062		NS

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour **2.3**tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **0.0** to **0.2** tons/year	
6. Emission Factor: **NA** Reference: **AP-42, Section 13.2.1**	7. Emissions Method Code: **3**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Table 2-4 for emission rate calculations**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

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 Emissions (as applicable): **0.0** to **0.2** tons/year	
6. Emission Factor: **N/A** Reference: **AP-42, Section 13.2.1**	7. Emissions Method Code: **3**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Table 2-4 for emission rate calculations**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical *emissions limitation.*

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☒ Attached, Document ID: **Figure 2-2** ☐ Previously Submitted, Date ____
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☒ Attached, Document ID: **Section 2.3** ☐ Previously Submitted, Date ____
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____ ☒ Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____ ☒ Not Applicable
6. Compliance Demonstration Reports/Records ☐ Attached, Document ID: ____ Test Date(s)/Pollutant(s) Tested: ____ ☐ Previously Submitted, Date: ____ Test Date(s)/Pollutant(s) Tested: ____ ☐ To be Submitted, Date (if known): ____ Test Date(s)/Pollutant(s) Tested: ____ ☒ Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute ☐ Attached, Document ID: ____ ☒ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **Section 2.3** ☐ Not Applicable	
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☐ Attached, Document ID: ____ ☒ Not Applicable	
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ____ ☒ Not Applicable	

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements ☐ Attached, Document ID: ____ ☐ Not Applicable	
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ____ ☐ Not Applicable	
3. Alternative Methods of Operation ☐ Attached, Document ID: ____ ☐ Not Applicable	
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ____ ☐ Not Applicable	
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID: ____ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Not Applicable	

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☒ 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.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

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

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section: **CBO™ Fluidized Bed Combustor (FBC) – FBC Return to Units 4 and 5**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
C	**06/01/07**	**11/1/08**	**49**	☐ Yes ☒ No

9. Package Unit:
   Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:
   Fabric Filter for CBO. Exhaust ducted through Units 4 and 5 Controls:

   Selective Catalytic Reduction (SCR)
   Electrostatic Precipitation (ESP)
   Flue Gas Desulfurization (FGD)

2. Control Device or Method Code(s): **017, 139, 010, and 067**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: 95 million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: 24hours/day 52weeks/year	7days/week 8,760hours/year
6. Operating Capacity/Schedule Comment:	

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **CBO-005**	2. Emission Point Type Code: **2**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **N/A**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **004-Unit No. 4 Steam Generator** **005-Unit No. 5 Steam Generator** **CBO FBC Return**		
5. Discharge Type Code: **V**	6. Stack Height: **550** feet	7. Exit Diameter: **30.5** feet
8. Exit Temperature: **130** °F	9. Actual Volumetric Flow Rate: **2,205,195** acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: **Stack parameters represent the host steam unit, as exhaust gases for CBO will be vented through either Unit 4 or Unit 5 prior to the SCR System.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type): **Feed fly ash burned in the CBO™ FBC**		
2. Source Classification Code (SCC): **1-02-002-17**	3. SCC Units: **Tons Burned**	
4. Maximum Hourly Rate: **75**	5. Maximum Annual Rate: **320,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash: **100**	9. Million Btu per SCC Unit: **2.76**
10. Segment Comment:		

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type): **Distillate fuel oil burned in the CBO FBC (start-up fuel)**		
2. Source Classification Code (SCC): **1-02-005-02**	3. SCC Units: **Thousand Gallons Burned**	
4. Maximum Hourly Rate: **0.25**	5. Maximum Annual Rate: **14.3**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **0.5**	8. Maximum % Ash: **0.1**	9. Million Btu per SCC Unit: **140**
10. Segment Comment: **Maximum annual rate bsed on four cold starts per year.**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	017, 010	067	NS
PM10	017, 010	067	NS
SO2	067		NS
NOx	139		NS
CO			NS
VOC			NS

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **98 percent**
3. Potential Emissions: **2.8** lb/hour **12.1**tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.028 lb/MMBtu** Reference: **Vendor Data**	7. Emissions Method Code: **5**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

See Tables 2-4 and 2-6 for emission rate calculations. The 12.1 tons/yr is prior to control with the Units 4 and 5 ESPs.

In accordance with the requirements of Rule 62-297.310(7)(a)4.b., F.A.C., PEF proposes to conduct initial and annual PM sampling of the combined CBO return and Units 4 or 5 exhaust streams downstream of the Units 4 or 5 FGD control systems, using EPA reference methods.

11. Potential Fugitive and Actual Emissions Comment:

Percent efficiency of control, Field No. 2 is a conservative estimate of PM removal for Units 4 and 5 ESP/FGD control system.

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **99 percent**
3. Potential Emissions: **2.8** lb/hour **12.1** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.028 lb/MMBtu** Reference: **Vendor Data**	7. Emissions Method Code: **5**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Tables 2-4 and 2-6 for emission rate calculations. The 12.1 tons/yr estimate is prior to control with the Units 4 or 5 ESPs.**	
11. Potential Fugitive and Actual Emissions Comment: **Percent efficiency of control, Field No. 2 is a conservative estimate of PM removal for Units 4 or 5 ESP/FGD control system.**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **SO2**	2. Total Percent Efficiency of Control: **90 percent**
3. Potential Emissions: **494** lb/hour **2,163.7** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **5.2 lb/MMBtu** Reference: **Vendor Data**	7. Emissions Method Code: **5**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:
See Tables 2-4 and 2-6 for emission rate calculations. The 2,163.4 tons/yr estimate is prior to control with the Units 4 or 5 FGDs.

PEF proposes to conduct continuous SO2 monitoring of the combined CBO return and Units 4 or 5 exhaust streams using the existing SO2 CEMS located downstream of the Units 4 and 5 FGD control systems.

11. Potential Fugitive and Actual Emissions Comment:
Field is a conservative estimate of SO2 removal for Units 4 and 5 FGD systems.

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **5.2 lb/MMBtu**	4. Equivalent Allowable Emissions: **494** b/hour **2,163.7**tons/year
5. Method of Compliance: **CEM**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **NOx**	2. Total Percent Efficiency of Control: **90**
3. Potential Emissions: **74.3** lb/hour **325.4** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.782 lb/MMBtu** Reference: **Vendor Data**	7. Emissions Method Code: **5**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

See Tables 2-4 and 2-6 for emission rate calculations. The 325.4 tons/yr estimate is prior to control with the Units 4 or 5 SCRs.

PEF proposes to conduct continuous NOx monitoring of the combined CBO return and Units 4 or 5 exhaust streams using existing NOx CEMS located downstream of the Units 4 and 5 FGD systems.

11. Potential Fugitive and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.782 lb/MMBtu**	4. Equivalent Allowable Emissions: **74.3** lb/hour **325.4** tons/year
5. Method of Compliance: **CEM**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **CO**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **23.2** lb/hour **101.5** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.24 lb/MMBtu** Reference: **Vendor Data**	7. Emissions Method Code: **5**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Tables 2-4 and 2-6 for emission rate calculations.**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **Other**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.24 lb/MMBtu**	4. Equivalent Allowable Emissions: **23.2**lb/hour **101.5**tons/year
5. Method of Compliance: **EPA Method 10 on Unit 4 and/ or Unit 5**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **1.8** lb/hour **7.8** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.018 lb/MMBtu** Reference: **Vendor Data**	7. Emissions Method Code: **5**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Tables 2-4 and 2-6 for emission rate calculations.**	
11. Potential Fugitive and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

<u>Allowable Emissions</u> Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

<u>Allowable Emissions</u> Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

<u>Allowable Emissions</u> Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **20** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Reference Method 9**	
5. Visible Emissions Comment: **Rule 62-297.620(4), F.A.C.**	

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **Figure 2-2** ☐ Previously Submitted, Date ____
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **Table 2-1** ☐ Previously Submitted, Date ____
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report, Section 2.3** ☐ Previously Submitted, Date ____
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
   ☒ Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
   ☒ Not Applicable
6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: ____
   Test Date(s)/Pollutant(s) Tested: ____
   ☐ Previously Submitted, Date: ____
   Test Date(s)/Pollutant(s) Tested: ____
   ☐ To be Submitted, Date (if known): ____
   Test Date(s)/Pollutant(s) Tested: ____
   ☒ Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute
   ☐ Attached, Document ID: ____ ☒ Not Applicable

Additional Requirements for Air Construction Permit Applications

1.	Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **PSD Report, Section 2.3** ☒ Not Applicable
2.	Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☐ Attached, Document ID: ____ ☒ Not Applicable
3.	Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1.	Identification of Applicable Requirements ☐ Attached, Document ID: ____ ☐ Not Applicable
2.	Compliance Assurance Monitoring ☐ Attached, Document ID: ____ ☐ Not Applicable
3.	Alternative Methods of Operation ☐ Attached, Document ID: ____ ☐ Not Applicable
4.	Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ____ ☐ Not Applicable
5.	Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID: ____ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____ ☐ Not Applicable

Additional Requirements Comment

APPENDIX A

EXPECTED PERFORMANCE AND EMISSION INFORMATION

TABLES A-1 – A-27

TABLE A-1
UNIT 4 ACTUAL 2001 EMISSIONS RATES

Average 2001 Data:		
Heat Input	46,720,863	MMBtu/yr (HHV)
Operating Hours	8,381	hr/yr
Coal Sulfur Content	0.69	weight percent S
Coal Consumption	1,892,573	tpy

Pollutant	Emissions Rate		
	lb/MMBtu	lb/hr	tpy
SO_2*	1.065	5,938.7	24,886
NO_x*	0.475	2,648.1	11,097
CO‡	0.020	114.1	478
VOCs‡	0.002	13.6	57
PM†	0.013	72.5	304
PM_{10}**	0.009	48.6	203
H_2SO_4 mist	0.001	6.7	28

*CEMS Data.
†Stack test data.
‡AP-42 emission factor.
**PM_{10} assumed equal to PM * 0.67.

Sources: AOR, 2001.
Golder, 2005.

TABLE A-2
UNIT 4 ACTUAL 2002 EMISSIONS RATES

Average 2002 Data:		
Heat Input	39,652,425	MMBtu/yr (HHV)
Operating Hours	6,966	hr/yr
Coal Sulfur Content	0.70	weight percent S
Coal Consumption	1,596,694	tpy

Pollutant	Emissions Rate		
	lb/MMBtu	lb/hr	tpy
SO_2*	1.075	6,118.6	21,311
NO_x*	0.472	2,689.1	9,366
CO‡	0.020	116.1	404
VOCs‡	0.003	14.6	51
PM†	0.013	74.0	258
PM_{10}**	0.009	49.6	173
H_2SO_4 mist	0.001	6.9	24

*CEMS Data.
†Stack test data.
‡AP-42 emission factor.
**PM_{10} assumed equal to PM.

Sources: AOR, 2002.
Golder, 2005.

TABLE A-3
UNIT 4 ACTUAL 2003 EMISSIONS RATES

Average 2003 Data:		
Heat Input	50,470,986	MMBtu/yr (HHV)
Operating Hours	8,598	hr/yr
Coal Sulfur Content	0.70	weight percent S
Coal Consumption	2,018,650	blend weight percent

Pollutant	Emissions Rate		
	lb/MMBtu	lb/hr	tpy
SO_2*	1.066	6,258.4	26,905
NO_x*	0.503	2,951.2	12,687
CO‡	0.020	119.7	515
VOCs‡	0.002	14.2	61
PM†	0.010	58.7	252
PM_{10}**	0.007	39.3	169
H_2SO_4 mist	0.001	7.0	30

*CEMS Data.
†Stack test data.
‡AP-42 emission factor.
**PM_{10} assumed equal to PM.

Sources: AOR, 2003.
Golder, 2005.

TABLE A-4
UNIT 4 ACTUAL 2004 EMISSIONS RATES

Average 2004 Data:		
Heat Input	46,796,141	MMBtu/yr (HHV)
Operating Hours	8,341	hr/yr
Coal Sulfur Content	0.64	weight percent S
Coal Consumption	1,900,531	tpy

Pollutant	Emissions Rate		
	lb/MMBtu	lb/hr	tpy
SO_2*	0.991	5,559.5	23,186
NO_x*	0.481	2,696.6	11,246
CO‡	0.020	114.5	477
VOCs‡	0.002	13.7	57
PM†	0.029	162.7	679
PM_{10}**	0.019	109.0	455
H_2SO_4 mist	0.001	6.3	26

*CEMS Data.
†Stack test data.
‡AP-42 emission factor.
**PM_{10} assumed equal to PM.

Sources: AOR, 2004.
Golder, 2005.

TABLE A-5
UNIT 4 ACTUAL 2005 EMISSIONS RATES

Average 2000 Data:		
Heat Input	50,197,931	MMBtu/yr (HHV)
Operating Hours	8,030	hr/yr
Coal Sulfur Content	0.64	weight percent S
Coal Consumption	2,044,416	tpy

Pollutant	Emissions Rate		
	lb/MMBtu	lb/hr	tpy
SO_2*	0.992	6,200.7	24,896
NO_x*	0.465	2,907.1	11,672
CO‡	0.020	127.5	512
VOCs‡	0.002	15.4	62
PM†	0.010	62.5	251
PM_{10}**	0.007	41.9	168
H_2SO_4 mist	0.001	7.0	28

*CEMS Data.
†Stack test data.
‡AP-42 emission factor.
**PM_{10} assumed equal to PM.

Sources: AOR, 2000.
Golder, 2005.

TABLE A-6
UNIT 5 ACTUAL 2001 EMISSIONS RATES

Average 2001 Data:		
Heat Input	42,041,141	MMBtu/yr (HHV)
Operating Hours	7,394	hr/yr
Coal Sulfur Content	0.69	weight percent S
Coal Consumption	1,706,480	tpy

Pollutant	Emissions Rate		
	lb/MMBtu	lb/hr	tpy
SO_2*	1.066	6,063.6	22,417
NO_x*	0.469	2,664.1	9,849
CO‡	0.020	116.0	429
VOCs‡	0.002	13.8	51
PM†	0.013	73.9	273
PM_{10}**	0.009	49.5	183
H_2SO_4 mist	0.001	6.8	25

*CEMS Data.
†Stack test data.
‡AP-42 emission factor.
**PM_{10} assumed equal to PM * 0.67.

Sources: AOR, 2001.
Golder, 2005.

TABLE A-7
UNIT 5 ACTUAL 2002 EMISSIONS RATES

Average 2002 Data:		
Heat Input	44,499,728	MMBtu/yr (HHV)
Operating Hours	7,678	hr/yr
Coal Sulfur Content	0.70	weight percent S
Coal Consumption	1,791,010	tpy

Pollutant	Emissions Rate		
	lb/MMBtu	lb/hr	tpy
SO_2*	1.074	6,223.5	23,892
NO_x*	0.465	2,693.9	10,342
CO‡	0.020	118.2	454
VOCs‡	0.002	14.1	54
PM†	0.013	75.3	289
PM_{10}**	0.009	50.5	194
H_2SO_4 mist	0.001	7.0	27

*CEMS Data.
†Stack test data.
‡AP-42 emission factor.
**PM_{10} assumed equal to PM.

Sources: AOR, 2002.
Golder, 2005.

TABLE A-8
UNIT 5 ACTUAL 2003 EMISSIONS RATES

Average 2003 Data:		
Heat Input	51,534,299	MMBtu/yr (HHV)
Operating Hours	8,582	hr/yr
Coal Sulfur Content	0.70	weight percent S
Coal Consumption	2,060,970	blend weight percent

Pollutant	Emissions Rate		
	lb/MMBtu	lb/hr	tpy
SO_2*	1.066	6,401.8	27,470
NO_x*	0.494	2,964.8	12,722
CO‡	0.020	122.5	526
VOCs‡	0.002	14.4	62
PM†	0.023	138.1	593
PM_{10}**	0.015	92.5	397
H_2SO_4 mist	0.001	7.2	31

*CEMS Data.
†Stack test data.
‡AP-42 emission factor.
**PM_{10} assumed equal to PM.

Sources: AOR, 2003.
Golder, 2005.

TABLE A-9
UNIT 5 ACTUAL 2004 EMISSIONS RATES

Average 2004 Data:		
Heat Input	49,482,991	MMBtu/yr (HHV)
Operating Hours	8,492	hr/yr
Coal Sulfur Content	0.64	weight percent S
Coal Consumption	2,009,652	tpy

Pollutant	Emissions Rate		
	lb/MMBtu	lb/hr	tpy
SO_2*	0.990	5,770.4	24,501
NO_x*	0.464	2,704.4	11,483
CO‡	0.020	118.9	505
VOCs‡	0.002	14.4	61
PM†	0.055	320.5	1,361
PM_{10}**	0.037	214.7	912
H_2SO_4 mist	0.001	6.6	28

*CEMS Data.
†Stack test data.
‡AP-42 emission factor.
**PM_{10} assumed equal to PM.

Sources: AOR, 2004.
Golder, 2005.

TABLE A-10
UNIT 5 ACTUAL 2005 EMISSIONS RATES

Average 2000 Data:		
Heat Input	51,213,314	MMBtu/yr (HHV)
Operating Hours	8,231	hr/yr
Coal Sulfur Content	0.64	weight percent S
Coal Consumption	2,088,723	tpy

Pollutant	Emissions Rate		
	lb/MMBtu	lb/hr	tpy
SO_2*	0.993	6,177.4	25,423
NO_x*	0.466	2,902.0	11,943
CO‡	0.020	126.9	522
VOCs‡	0.002	15.3	63
PM†	0.020	124.4	512
PM_{10}**	0.013	83.4	343
H_2SO_4 mist	0.001	7.0	29

*CEMS Data.
†Stack test data.
‡AP-42 emission factor.
**PM_{10} assumed equal to PM.

Sources: AOR, 2000.
Golder, 2005.

Table A-11
Annual Emissions - Units 4 and 5

Pollutant	2001 (tpy)	2002 (tpy)	2003 (tpy)	2004 (tpy)	2005 (tpy)
SO_2	47,303	45,203	54,375	47,687	50,319
NO_x	20,946	19,708	25,409	22,729	23,615
CO	907	858	1,040	982	1,034
VOCs	108	105	123	118	125
PM	577	547	845	2,039	763
PM_{10}	387	366	566	1,366	511
H_2SO_4 mist	53	51	61	54	57
Heat Input	88,762,004	84,152,153	102,005,285	96,279,132	101,411,245

Table A-12
Highest 2 Year Average - Units 4 and 5

Pollutant	2001-2002 (tpy)	2002-2003 (tpy)	2003-2004 (tpy)	2004-2005 (tpy)	Highest 2 Year Average
SO_2	46,253	49,789	51,031	49,003	51,031
NO_x	20,327	22,559	24,069	23,172	24,069
CO	883	949	1,011	1,008	1,011
VOCs	107	114	121	122	122
PM	562	696	1,442	1,401	1,442
PM_{10}	377	466	966	939	966
H_2SO_4 mist	52	56	58	56	58
Heat Input	86,457,079	93,078,719	99,142,209	98,845,189	99,142,209

TABLES A-13 --- A-27

MATERIAL HANDLING AND OTHER PM EMISSIONS DATA

TABLE A-13
PAST ACTUAL AND FUTURE POTENTIAL COAL DATA FOR THE CRYSTAL RIVER POWER PLANT

Past Actuals		Plant at full load - all year			
2,169,450	Coal to 1 & 2	3,118,925	Coal to 1 & 2		
4,079,620	Coal to 4 & 5	5,076,991	Coal to 4 & 5		
6,249,070		8,195,916			
				53%	Rail
60%	Percent Rail	95%	Percent Rail 1&2		4,384,536
40%	Percent Barge	5%	Percent Barge 1&2	47%	Barge
		28%	Percent Rail 4&5		3811379.8
		72%	Percent Barge 4&5		
5%	Percent direct to plant 1&2	5%	Percent direct to plant 1&2		8,195,916
95%	Percent to ground 1&2	95%	Percent to ground 1&2		
67%	Percent direct to plant 4&5	60%	Percent direct to plant 4&5		
33%	Percent to ground 4&5	40%	Percent to ground 4&5		
43,389	Barge to Units 1 & 2	7,797	Barge to Units 1 & 2		
824,391	Barge to ground to Units 1& 2	148,149	Barge to ground to Units 1& 2		
1,093,338	Barge to Units 4 & 5	2,193,260	Barge to Units 4 & 5		
538,510	Barge to ground to Units 4 & 5	1,462,173	Barge to ground to Units 4 & 5		
65,084	Rail to Units 1 & 2	148,149	Rail to Units 1 & 2		
1,236,587	Rail to ground to Units 1& 2	2,814,830	Rail to ground to Units 1& 2		
1,640,007	Rail to Units 4 & 5	852,934	Rail to Units 4 & 5		
807,765	Rail to ground to Units 4 & 5	568,623	Rail to ground to Units 4 & 5		
8400	t/d to 1&2	8400	t/d to 1&2		
13,000	t/d to 4&5	13,000	t/d to 4&5		
16,000	t/d barge unloading old system	16,000	t/d barge unloading old system		
32,000	t/d barge unloading new system	32,000	t/d barge unloading new system		
24,250	t/d train unloading	24,250	t/d train unloading		

Year	Coal (tons/yr) Unit 1	Unit 2	Unit 4	Unit 5	1&2	4&5
4	866,693	1,138,271	1,900,531	2,009,652	2,004,964	3,910,183
3	991,860	1,101,770	2,018,650	2,060,970	2,093,630	4,079,620
2	1,001,051	1,168,399	1,596,694	1,791,010	2,169,450	3,387,704
1	859,077	1,009,538	1,892,573	1,706,480	1,868,615	3,599,053
0	961,959	845,055	1,719,108	1,949,498	1,807,014	3,668,606
					2,169,450	4,079,620

9700 t/train 2.5 trains/day
16,000 t/barge 2 barges/day

333,000 Tons CRS coal inventory
540,000 Tons CRN coal inventory

6,666 btu/hr ~ 271 t/h

From Plant:	Current mi/yr	mi/day	hr/yr	hr/d	New Configuration mi/yr	mi/day	hr/yr	hr/d	mi/hr
Front end loader	21,900	60			43800	120		12	10
Scraper	4,200	200			7300	20		2	10
Dozer	3,650	10	724	2	3650	10	730	2	5
Water truck	2,738	8			7300	20		2	10

TABLE A-14

COAL YARD DROP OPERATIONS AND MODELED SOURCE EMISSIONS FOR THE FUTURE OPERATIONS OF THE CRYSTAL RIVER POWER PLANT

Segment	ID	Description	Drop		Future Annual Emissions TSP TPY	Future Annual Emissions PM10 TPY	Future Daily Emissions TSP LB/D	Future Daily Emissions PM10 LB/D		Golder Source		Annual Emissions TSP TPY	Annual Emissions PM10 TPY	Daily Emissions TSP LB/D	Daily Emissions PM10 LB/D
A															
Barge to Units 1 & 2															
	New	Barge to Units 1 & 2													
	Source	Description	Drops												
	B-1	Clamshell to hopper	1	open	0.003332	0.001576	0	0	f	A	A	0.0040	0.0019	0	0
	B-2	Hopper to belt	2		0.000333	0.000158	0	0	f	A					
	B-3	Belt to C1	3		0.000333	0.000158	0	0		A					
	TP1-1	C1 to C2	4		0.000333	0.000158	0	0		B	B	0.0003	0.0002	0	0
	TP3	C2 to C4A/B	5		0.000333	0.000158	0	0		C	C	0.0003	0.0002	0	0
	C building	C4A/B to surge bin	6		0.000333	0.000158	0	0		E	E	0.0042	0.0021	0	0
	C building	Surge bin to feeder								E					
	C building	Feeder to crusher								E					
	C building	Crusher to C5 A/B	7	crusher	0.003899	0.001949	0	0	f	E					
	Plant	C5 to surge hopper	8		0.000333	0.000158	0	0		P12	P12	0.0013	0.0006	0	0
	Plant	Surge hopper to C7	9		0.000333	0.000158	0	0		P12					
	Plant	C7 to C8	10		0.000333	0.000158	0	0		P12					
	Plant	C8 to Silo	11		0.000333	0.000158	0	0		P12					
B															
Barge to ground (SR) to Units 1 & 2															
	New	Barge to ground (SR) to Units 1 & 2													
	Source	Description													
	B-1	Clamshell to hopper	1	open	0.063317	0.029947	0	0	f	A	A	0.0760	0.0359	0	0
	B-2	Hopper to belt	2		0.006332	0.002995	0	0	f	A					
	B-3	Belt to C1	3		0.006332	0.002995	0	0		A					
	TP1-1	C1 to C2	4		0.006332	0.002995	0	0		B	B	0.0063	0.0030	0	0
	TP3	C2 to C3	5		0.006332	0.002995	0	0		C	C	0.1646	0.0779	0	0
	SR	C3 to SR1	6		0.006332	0.002995	0	0		SR12 C					
	SR	SR1 to SR2	7		0.006332	0.002995	0	0		SR12 C					
	SR	SR2 to coal pile	8	open	0.063317	0.029947	0	0		SR12 C					
	SR	Bucket wheel to SR2	9	open	0.063317	0.029947	0	0		SR12 C					
	SR	Belt to belt	10		0.006332	0.002995	0	0		SR12 C					
	SR	Belt to C3	11		0.006332	0.002995	0	0		SR12 C					
	TP3	C3 to C4A/B	12		0.006332	0.002995	0	0		SR12 C					
	C building	C4A/B to surge bin	13		0.006332	0.002995	0	0		E	E	0.0804	0.0400	0	0
	C building	Surge bin to feeder								E					
	C building	Feeder to crusher								E					
	C building	Crusher to C5 A/B	14	crusher	0.074074	0.037037	0	0	f	E					
	Plant	C5 to surge hopper	15		0.006332	0.002995	0	0		P12	P12	0.0253	0.0120	0	0
	Plant	Surge hopper to C7	16		0.006332	0.002995	0	0		P12					
	Plant	C7 to C8	17		0.006332	0.002995	0	0		P12					
	Plant	C8 to Silo	18		0.006332	0.002995	0	0		P12					
C															
Barge to Units 4 & 5															
	New	Barge to Units 4 & 5													
	Source	Description													
	B-1	Clamshell to hopper	1	open	0.937374	0.443353	16.63047	7.865761	f	A	A	1.125	0.532	19.957	9.439
	B-2	Hopper to belt	2		0.093737	0.044335	1.663047	0.786576	f	A					
	B-3	Belt to C1	3		0.093737	0.044335	1.663047	0.786576		A					
	TP1-1	C1 to C2	4		0.093737	0.044335	1.663047	0.786576		B	B	0.094	0.044	1.663	0.787
	TP3	C2 to C29A	5		0.093737	0.044335	1.663047	0.786576		C	C	0.094	0.044	1.663	0.787
	TP 24-1	C29A TO C30A	6		0.093737	0.044335	1.663047	0.786576		F	F	0.094	0.044	1.663	0.787
	TP25-1	C30A TO C31B	7		0.093737	0.044335	1.663047	0.786576		G	G	0.094	0.044	1.663	0.787
	TP26-1	C31B TO C33A	8		0.093737	0.044335	1.663047	0.786576		H	H	0.094	0.044	1.663	0.787
	TP27-1	C33A TO C35A/B	9		0.093737	0.044335	1.663047	0.786576		I	I	0.094	0.044	1.663	0.787
	C building	C35A/B to surge bin	10		0.093737	0.044335	1.663047	0.786576		C45	C45	1.190	0.593	14.663	7.287
	C building	Surge bin to c feeder								C45					
	C building	Feeder to crusher								C45					
	C building	Crusher to C36A/B	11	crusher	1.09663	0.548315	13	6.5	f	C45					
	Plant	C36A/B to C502	12		0.093737	0.044335	1.663047	0.786576		P45	P45	0.281	0.133	4.989	2.360
	Plant	C502 to C504	13		0.093737	0.044335	1.663047	0.786576		P45					
	Plant	C504 to silo	14		0.093737	0.044335	1.663047	0.786576		P45					
D															
Barge to grou	New	Barge to ground (SR) to Units 4 & 5													
	Source	Description													
	B-1	Clamshell to hopper	1	open	0.624916	0.295568	24.30606	11.49611	f	A	A	0.750	0.355	29.167	13.795
	B-2	Hopper to belt	2		0.062492	0.029557	2.430606	1.149611	f	A					
	B-3	Belt to C1	3		0.062492	0.029557	2.430606	1.149611		A					
	TP1-1	C1 to C2	4		0.062492	0.029557	2.430606	1.149611		B	B	0.062	0.030	2.431	1.150
	TP3	C2 to C29A	5		0.062492	0.029557	2.430606	1.149611		C	C	0.062	0.030	2.431	1.150
	TP 24-1	C29A TO C30A	6		0.062492	0.029557	2.430606	1.149611		F	F	0.062	0.030	2.431	1.150
	TP25-1	C30A TO C31B	7		0.062492	0.029557	2.430606	1.149611		G	G	0.062	0.030	2.431	1.150
	TP26-1	C31B TO C33A	8		0.062492	0.029557	2.430606	1.149611		H	H	0.062	0.030	2.431	1.150
	TP27-1	C33A TO C34	9		0.062492	0.029557	2.430606	1.149611		I	I	0.125	0.059	2.431	1.150
	SR	C34 TO Hopper	10		0.062492	0.029557	2.430606	1.149611		JKL	JKL	1.562	0.739	31.598	14.945
	SR	Hopper to belt	11		0.062492	0.029557	2.430606	1.149611		JKL					
	SR	Belt to belt	12		0.062492	0.029557	2.430606	1.149611		JKL					
	SR	Belt to coal pile	13	open	0.624916	0.295568	24.30606	11.49611		JKL					
	SR	Bucket wheel to belt	14	open	0.624916	0.295568				JKL					
	SR	Belt to belt	15		0.062492	0.029557				JKL					
	SR	Belt to C34	16		0.062492	0.029557				JKL					
	TP27-1	C34 TO C35A/B	17		0.062492	0.029557				I					
	C building	C35A/B to surge bin	18		0.062492	0.029557				C45	C45	0.794	0.395	0.000	0.000
	C building	Surge bin to c feeder								C45					
	C building	Feeder to crusher								C45					
	C building	Crusher to C36A/B	19	crusher	0.731087	0.365543			f	C45					
	Plant	C36A/B to C502	20		0.062492	0.029557				P45	P45	0.187	0.089	0.000	0.000
	Plant	C502 to C504	21		0.062492	0.029557				P45					
	Plant	C504 to silo	22		0.062492	0.029557				P45					

		Annual Emissions TSP TPY	Annual Emissions PM10 TPY	Daily Emissions TSP LB/D	Daily Emissions PM10 LB/D
UN1&2 barge	A	0.004	0.002	0.000	0.000
	A	0.073	0.034	0.000	0.000
	B	0.000	0.000	0.000	0.000
	B	0.006	0.003	0.000	0.000
	C	0.000	0.000	0.000	0.000
	C	0.158	0.075	0.000	0.000
	E	0.004	0.002	0.000	0.000
	E	0.077	0.038	0.000	0.000
	P12	0.001	0.001	0.000	0.000
	P12	0.024	0.011	0.000	0.000
		0.348	0.167	0.000	0.000
UN1&2 rail	C	0.006	0.003	1.075	0.508
	C	3.003	1.420	26.359	12.467
	E	1.467	0.730	0.000	0.000
	E	0.077	0.038	9.475	4.708
	F	0.006	0.003	1.075	0.508
	F	0.115	0.055	2.028	0.959
	M	0.006	0.003	1.075	0.508
	M	0.115	0.055	2.028	0.959
	P12	0.024	0.011	4.298	2.033
	P12	0.462	0.218	0.000	0.000
	RAIL	0.073	0.034	12.895	6.099
	RAIL	1.386	0.655	24.332	11.508
		6.741	3.227	84.638	40.258
UN1&2 TOTAL	A	0.077	0.036	0.000	0.000
	B	0.006	0.003	0.000	0.000
	C	3.167	1.498	27.434	12.975
	E	1.625	0.809	9.475	4.708
	F	0.122	0.057	3.102	1.467
	M	0.122	0.057	3.102	1.467
	P12	0.512	0.242	4.298	2.033
	RAIL	1.459	0.690	37.227	17.607
		7.089	3.393	84.638	40.258
	CHECK	7.089	3.393	84.638	40.258
UN4&5 barge	A	1.035	0.489	19.957	9.439
	A	0.690	0.326	29.167	13.795
	B	0.086	0.041	1.663	0.787
	B	0.057	0.027	2.431	1.150
	C	0.086	0.041	1.663	0.787
	C	0.057	0.027	2.431	1.150
	C45	1.095	0.545	14.663	7.287
	C45	0.730	0.363	0.000	0.000
	F	0.086	0.041	1.663	0.787
	F	0.057	0.027	2.431	1.150
	G	0.086	0.041	1.663	0.787
	G	0.057	0.027	2.431	1.150
	H	0.086	0.041	1.663	0.787
	H	0.057	0.027	2.431	1.150
	I	0.086	0.041	1.663	0.787
	I	0.115	0.054	2.431	1.150
	JKL	1.437	0.680	31.598	14,945
	P45	0.259	0.122	4.989	2.360
	P45	0.172	0.082	0.000	0.000
		6.338	3.043	124.936	59.443
UN4&5 rail	C45	0.426	0.212	0.000	0.000
	C45	0.284	0.141	0.000	0.000
	F	0.034	0.016	0.000	0.000
	F	0.022	0.011	0.000	0.000
	G	0.034	0.016	0.000	0.000
	G	0.022	0.011	0.000	0.000
	H	0.034	0.016	0.000	0.000
	H	0.022	0.011	0.000	0.000
	I	0.034	0.016	0.000	0.000
	I	0.045	0.021	0.000	0.000
	JKL	0.559	0.264	0.000	0.000
	M	0.034	0.016	0.000	0.000
	M	0.022	0.011	0.000	0.000
	P45	0.101	0.048	0.000	0.000
	P45	0.067	0.032	0.000	0.000
	RAIL	0.402	0.190	0.000	0.000
	RAIL	0.268	0.127	0.000	0.000
		2.409	1.157	0.000	0.000

SUMMARY	Annual Emissions TSP TPY	Annual Emissions PM10 TPY	Daily Emissions TSP LB/D	Daily Emissions PM10 LB/D
A	1.955	0.925	49.124	23.234
B	0.163	0.077	4.094	1.936
C	3.455	1.634	31.528	14.912
E	1.693	0.843	9.475	4.708
F	0.344	0.163	7.196	3.403
G	0.217	0.103	4.094	1.936
H	0.217	0.103	4.094	1.936
I	0.304	0.144	4.094	1.936
JKL	2.170	1.026	31.598	14.945
M	0.187	0.089	3.102	1.467
P12	0.533	0.252	4.298	2.033
P45	0.651	0.308	4.989	2.360
C45	2.755	1.372	14.663	7.287
RAIL	2.249	1.064	37.227	17.607
	16.893	8.101	209.574	99.701
UN1&2	7.089	3.393	84.638	40.258
UN4&5	8.747	4.200	124.936	59.443
CHECK	15.836	7.594	209.574	99.701

E	New	Rail to Units 1 & 2														
Rail to Units	Source	Description														
			Drops													
	R unloader	Rail car to hopper	1	open	0.063317	0.029947	10.74584	5.082491	f	RAIL		RAIL	0.0760	0.0359	12.8950	6.0990
	R unloader	V feeder to C10	2		0.006332	0.002995	1.074584	0.508249	f	RAIL						
	R unloader	C10 to C11	3		0.006332	0.002995	1.074584	0.508249		RAIL						
	TP23	C11 to C13	4		0.006332	0.002995	1.074584	0.508249		M		M	0.0063	0.0030	1.0746	0.5082
	TP24	C13 to C29B	5		0.006332	0.002995	1.074584	0.508249		F		F	0.0063	0.0030	1.0746	0.5082
	TP3	C29B to C4A/B	6		0.006332	0.002995	1.074584	0.508249		C		C	0.0063	0.0030	1.0746	0.5082
	C building	C4A/B to surge bin	7		0.006332	0.002995	1.074584	0.508249		E		E	0.0804	0.0400	9.4746	4.7082
	C building	Surge bin to feeder								E						
	C building	Feeder to crusher								E						
	C building	Crusher to C5 A/B	8	crusher	0.074074	0.037037	8.4	4.2	f	E						
	Plant	C5 to surge hopper	9		0.006332	0.002995	1.074584	0.508249		P12		P12	0.0253	0.0120	4.2983	2.0330
	Plant	Surge hopper to C7	10		0.006332	0.002995	1.074584	0.508249		P12						
	Plant	C7 to C8	11		0.006332	0.002995	1.074584	0.508249		P12						
	Plant	C8 to Silo	12		0.006332	0.002995	1.074584	0.508249		P12						
	New	Rail to ground (SR) to Units 1 & 2														
F	Source	Description														
Rail to ground (SR) to Units 1 & 2																
	R unloader	Rail car to hopper	1	open	1.203026	0.568999	20.27638	9.590177	f	RAIL		RAIL	1.443631	0.682799	24.33165	11.50821
	R unloader	V feeder to C10	2		0.120303	0.0569	2.027638	0.959018	f	RAIL						
	R unloader	C10 to C11	3		0.120303	0.0569	2.027638	0.959018		RAIL						
	TP23	C11 to C13	4		0.120303	0.0569	2.027638	0.959018		M		M	0.120303	0.0569	2.027638	0.959018
	TP24	C13 to C29B	5		0.120303	0.0569	2.027638	0.959018		F		F	0.120303	0.0569	2.027638	0.959018
	TP3	C29B to C3	6		0.120303	0.0569	2.027638	0.959018		C		C	3.127868	1.479397	26.35929	12.46723
	SR	C3 to SR1	7		0.120303	0.0569	2.027638	0.959018		SR12	C					
	SR	SR1 to SR2	8		0.120303	0.0569	2.027638	0.959018		SR12	C					
	SR	SR2 to coal pile	9	open	1.203026	0.568999	20.27638	9.590177		SR12	C					
	SR	Bucket wheel to SR2	10	open	1.203026	0.568999				SR12	C					
	SR	Belt to belt	11		0.120303	0.0569				SR12	C					
	SR	Belt to C3	12		0.120303	0.0569				SR12	C					
	TP3	C3 to C4A/B	13		0.120303	0.0569				C						
	C building	C4 A/B to surge bin	14		0.120303	0.0569				E		E	1.527718	0.760607	0	0
	C building	Surge bin to feeder								E						
	C building	Feeder to crusher								E						
	C building	Crusher to C5 A/B	15	crusher	1.407415	0.703707			f	E						
	Plant	C5A/B to surge hopper	16		0.120303	0.0569				P12		P12	0.48121	0.2276	0	0
	Plant	Surge hopper to C7	17		0.120303	0.0569				P12						
	Plant	C7 to C8	18		0.120303	0.0569				P12						
	Plant	C8 to Silo	19		0.120303	0.0569				P12						
	New	Rail to Units 4 & 5														
	Source	Description														
G																
Rail to Units ·	R unloader	Rail car to hopper	1	open	0.364534	0.172415	0	0	f	RAIL		RAIL	0.437	0.207	0.000	0.000
	R unloader	V feeder to C10	2		0.036453	0.017241	0	0	f	RAIL						
	R unloader	C10 to C11	3		0.036453	0.017241	0	0		RAIL						
	TP23	C11 to C13	4		0.036453	0.017241	0	0		M		M	0.036	0.017	0.000	0.000
	TP24	C13 to C30A	5		0.036453	0.017241	0	0		F		F	0.036	0.017	0.000	0.000
	TP25-1	C30A TO C31B	6		0.036453	0.017241	0	0		G		G	0.036	0.017	0.000	0.000
	TP26-1	C31B TO C33A	7		0.036453	0.017241	0	0		H		H	0.036	0.017	0.000	0.000
	TP27-1	C33A TO C35A/B	8		0.036453	0.017241	0	0		I		I	0.036	0.017	0.000	0.000
	C building	C35A/B to surge bin	9		0.036453	0.017241	0	0		C45		C45	0.463	0.230	0.000	0.000
	C building	Surge bin to c feeder								C45						
	C building	Feeder to crusher								C45						
	C building	Crusher to C36A/B	10	crusher	0.426467	0.213234	0	0	f	C45						
	Plant	C36A/B to C502	11		0.036453	0.017241	0	0		P45		P45	0.109	0.052	0.000	0.000
	Plant	C502 to C504	12		0.036453	0.017241	0	0		P45						
	Plant	C504 to silo	13		0.036453	0.017241	0	0		P45						
	New	Rail to ground (SR) to Units 4 & 5														
	Source	Description														
H	R unloader	Rail car to hopper	1	open	0.243023	0.114943	0	0	f	RAIL		RAIL	0.292	0.138	0.000	0.000
Rail to groun	R unloader	V feeder to C10	2		0.024302	0.011494	0	0	f	RAIL						
	R unloader	C10 to C11	3		0.024302	0.011494	0	0		RAIL						
	TP23	C11 to C13	4		0.024302	0.011494	0	0		M		M	0.024	0.011	0.000	0.000
	TP24	C13 to C30A	5		0.024302	0.011494	0	0		F		F	0.024	0.011	0.000	0.000
	TP25-1	C30A TO C31B	6		0.024302	0.011494	0	0		G		G	0.024	0.011	0.000	0.000
	TP26-1	C31B TO C33A	7		0.024302	0.011494	0	0		H		H	0.024	0.011	0.000	0.000
	TP27-1	C33A TO C34	8		0.024302	0.011494	0	0		I		I	0.049	0.023	0.000	0.000
	SR	C34 TO Hopper	9		0.024302	0.011494	0	0		JKL		JKL	0.608	0.287	0.000	0.000
	SR	Hopper to belt	10		0.024302	0.011494	0	0		JKL						
	SR	Belt to belt	11		0.024302	0.011494	0	0		JKL						
	SR	Belt to coal pile	12	open	0.243023	0.114943	0	0		JKL						
	SR	Bucket wheel to belt	13	open	0.243023	0.114943	0	0		JKL						
	SR	Belt to belt	14		0.024302	0.011494	0	0		JKL						
	SR	Belt to C34	15		0.024302	0.011494	0	0		JKL						
	TP27-1	C34 TO C35A/B	16		0.024302	0.011494	0	0		I						
	C building	C35A/B to surge bin	17		0.024302	0.011494	0	0		C45		C45	0.309	0.154	0.000	0.000
	C building	Surge bin to c feeder								C45						
	C building	Feeder to crusher								C45						
	C building	Crusher to C36A/B	18	crusher	0.284311	0.142156	0	0	f	C45						
	Plant	C36A/B to C502	19		0.024302	0.011494	0	0		P45		P45	0.073	0.034	0.000	0.000
	Plant	C502 to C504	20		0.024302	0.011494	0	0		P45						
	Plant	C504 to silo	21		0.024302	0.011494	0	0		P45						
					16.893	8.101	209.574	99.701					16.893	8.101	209.574	99.701

UN4&5	A	1.725	0.816	49.124	23.234
TOTAL	B	0.144	0.068	4.094	1.936
	C	0.144	0.068	4.094	1.936
	F	0.200	0.094	4.094	1.936
	G	0.200	0.094	4.094	1.936
	H	0.200	0.094	4.094	1.936
	I	0.279	0.132	4.094	1.936
	JKL	1.996	0.944	31.598	14.945
	M	0.056	0.026	0.000	0.000
	C45	2.535	1.262	14.663	7.287
	P45	0.599	0.283	4.989	2.360
	RAIL	0.671	0.317	0.000	0.000
		8.747	4.200	124.936	59.443
	CHECK	8.747	4.200	124.936	59.443

TABLE A-15

COAL YARD DROP OPERATIONS AND MODELED SOURCE EMISSIONS FOR THE ACTUAL OPERATIONS OF THE CRYSTAL RIVER POWER PLANT

New Source	Barge to Units 1 & 2 Description	Drops		Actual Annual Emissions TSP TPY	Actual Annual Emissions PM10 TPY	Actual Daily Emissions TSP LB/D	Actual Daily Emissions PM10 LB/D		Golder Source			Annual Emissions TSP TPY	Annual Emissions PM10 TPY	Daily Emissions TSP LB/D	Daily Emissions PM10 LB/D
B-1	Clamshell to hopper	1	open	0.01854	0.00877	0	0	f	A		A	0.0223	0.0105	0	0
B-2	Hopper to belt	2		0.00185	0.00088	0	0	f	A						
B-3	Belt to C1	3		0.00185	0.00088	0	0		A						
TP1-1	C1 to C2	4		0.00185	0.00088	0	0		B		B	0.0019	0.0009	0	0
TP3	C2 to C4A/B	5		0.00185	0.00088	0	0		C		C	0.0019	0.0009	0	0
C building	C4A/B to surge bin	6		0.00185	0.00088	0	0		E		E	0.0235	0.0117	0	0
C building	Surge bin to feeder								E						
C building	Feeder to crusher								E						
C building	Crusher to C5 A/B	7	crusher	0.02169	0.01085	0	0	f	E						
Plant	C5 to surge hopper	8		0.00185	0.00088	0	0		P12		P12	0.0074	0.0035	0	0
Plant	Surge hopper to C7	9		0.00185	0.00088	0	0		P12						
Plant	C7 to C8	10		0.00185	0.00088	0	0		P12						
Plant	C8 to Silo	11		0.00185	0.00088	0	0		P12						

New Source	Barge to ground (SR) to Units 1 & 2 Description	Drops		Annual TSP TPY	Annual PM10 TPY	Daily TSP LB/D	Daily PM10 LB/D		Golder Source			Annual TSP TPY	Annual PM10 TPY	Daily TSP LB/D	Daily PM10 LB/D
B-1	Clamshell to hopper	1	open	0.35234	0.16665	0	0	f	A		A	0.4228	0.2000	0	0
B-2	Hopper to belt	2		0.03523	0.01666	0	0	f	A						
B-3	Belt to C1	3		0.03523	0.01666	0	0		A						
TP1-1	C1 to C2	4		0.03523	0.01666	0	0		B		B	0.0352	0.0167	0	0
TP3	C2 to C3	5		0.03523	0.01666	0	0		C		C	0.9161	0.4333	0	0
SR	C3 to SR1	6		0.03523	0.01666	0	0		SR12	C					
SR	SR1 to SR2	7		0.03523	0.01666	0	0		SR12	C					
SR	SR2 to coal pile	8	open	0.35234	0.16665	0	0		SR12	C					
SR	Bucket wheel to SR2	9	open	0.35234	0.16665	0	0		SR12	C					
SR	Belt to belt	10		0.03523	0.01666	0	0		SR12	C					
SR	Belt to C3	11		0.03523	0.01666	0	0		SR12	C					
TP3	C3 to C4A/B	12		0.03523	0.01666	0	0		SR12	C					
C building	C4A/B to surge bin	13		0.03523	0.01666	0	0		E		E	0.4474	0.2228	0	0
C building	Surge bin to feeder								E						
C building	Feeder to crusher								E						
C building	Crusher to C5 A/B	14	crusher	0.4122	0.2061	0	0	f	E						
Plant	C5 to surge hopper	15		0.03523	0.01666	0	0		P12		P12	0.1409	0.0667	0	0
Plant	Surge hopper to C7	16		0.03523	0.01666	0	0		P12						
Plant	C7 to C8	17		0.03523	0.01666	0	0		P12						
Plant	C8 to Silo	18		0.03523	0.01666	0	0		P12						

New Source	Barge to Units 4 & 5 Description	Drops		Annual TSP TPY	Annual PM10 TPY	Daily TSP LB/D	Daily PM10 LB/D		Golder Source		Annual TSP TPY	Annual PM10 TPY	Daily TSP LB/D	Daily PM10 LB/D
B-1	Clamshell to hopper	1	open	0.46728	0.22101	16.6305	7.86576	f	A	A	0.561	0.265	19.957	9.439
B-2	Hopper to belt	2		0.04673	0.0221	1.66305	0.78658	f	A					
B-3	Belt to C1	3		0.04673	0.0221	1.66305	0.78658		A					
TP1-1	C1 to C2	4		0.04673	0.0221	1.66305	0.78658		B	B	0.047	0.022	1.663	0.787
TP3	C2 to C29A	5		0.04673	0.0221	1.66305	0.78658		C	C	0.047	0.022	1.663	0.787
TP 24-1	C29A TO C30A	6		0.04673	0.0221	1.66305	0.78658		F	F	0.047	0.022	1.663	0.787
TP25-1	C30A TO C31B	7		0.04673	0.0221	1.66305	0.78658		G	G	0.047	0.022	1.663	0.787
TP26-1	C31B TO C33A	8		0.04673	0.0221	1.66305	0.78658		H	H	0.047	0.022	1.663	0.787
TP27-1	C33A TO C35A/B	9		0.04673	0.0221	1.66305	0.78658		I	I	0.047	0.022	1.663	0.787
C building	C35A/B to surge bin	10		0.04673	0.0221	1.66305	0.78658		C45	C45	0.593	0.295	14.663	7.287
C building	Surge bin to c feeder								C45					
C building	Feeder to crusher								C45					
C building	Crusher to C36A/B	11	crusher	0.54667	0.27333	13	6.5	f	C45					
Plant	C36A/B to C502	12		0.04673	0.0221	1.66305	0.78658		P45	P45	0.140	0.066	4.989	2.360
Plant	C502 to C504	13		0.04673	0.0221	1.66305	0.78658		P45					
Plant	C504 to silo	14		0.04673	0.0221	1.66305	0.78658		P45					

New Source	Barge to ground (SR) to Units 4 & 5 Description	Drops		Annual TSP TPY	Annual PM10 TPY	Daily TSP LB/D	Daily PM10 LB/D		Golder Source		Annual TSP TPY	Annual PM10 TPY	Daily TSP LB/D	Daily PM10 LB/D
B-1	Clamshell to hopper	1	open	0.23015	0.10886	2.55853	1.21012	f	A	A	0.276	0.131	3.028	1.432
B-2	Hopper to belt	2		0.02302	0.01089	0.23453	0.11093	f	A					
B-3	Belt to C1	3		0.02302	0.01089	0.23453	0.11093		A					
TP1-1	C1 to C2	4		0.02302	0.01089	0.23453	0.11093		B	B	0.023	0.011	0.235	0.111
TP3	C2 to C29A	5		0.02302	0.01089	0.23453	0.11093		C	C	0.023	0.011	0.235	0.111
TP 24-1	C29A TO C30A	6		0.02302	0.01089	0.23453	0.11093		F	F	0.023	0.011	0.235	0.111
TP25-1	C30A TO C31B	7		0.02302	0.01089	0.23453	0.11093		G	G	0.023	0.011	0.235	0.111
TP26-1	C31B TO C33A	8		0.02302	0.01089	0.23453	0.11093		H	H	0.023	0.011	0.235	0.111
TP27-1	C33A TO C34	9		0.02302	0.01089	0.23453	0.11093		I	I	0.046	0.022	0.469	0.222
SR	C34 TO Hopper	10		0.02302	0.01089	0.23453	0.11093		JKL	JKL	0.575	0.272	6.290	2.975
SR	Hopper to belt	11		0.02302	0.01089	0.23453	0.11093		JKL					
SR	Belt to belt	12		0.02302	0.01089	0.23453	0.11093		JKL					
SR	Belt to coal pile	13	open	0.23015	0.10886	2.55853	1.21012		JKL					
SR	Bucket wheel to belt	14	open	0.23015	0.10886	2.55853	1.21012		JKL					
SR	Belt to belt	15		0.02302	0.01089	0.23453	0.11093		JKL					
SR	Belt to C34	16		0.02302	0.01089	0.23453	0.11093		JKL					
TP27-1	C34 TO C35A/B	17		0.02302	0.01089	0.23453	0.11093		I					
C building	C35A/B to surge bin	18		0.02302	0.01089	0.23453	0.11093		C45	C45	0.292	0.146	0.235	0.111
C building	Surge bin to c feeder								C45					
C building	Feeder to crusher								C45					
C building	Crusher to C36A/B	19	crusher	0.26926	0.13463	0	0	f	C45					
Plant	C36A/B to C502	20		0.02302	0.01089	0.23453	0.11093		P45	P45	0.069	0.033	0.704	0.333
Plant	C502 to C504	21		0.02302	0.01089	0.23453	0.11093		P45					
Plant	C504 to silo	22		0.02302	0.01089	0.23453	0.11093		P45					

New Rail to Units 1 & 2

		Annual Emissions TSP TPY	Annual Emissions PM10 TPY	Daily Emissions TSP LB/D	Daily Emissions PM10 LB/D
UN1&2	A	0.022	0.011	0	0
barge	A	0.423	0.200	0	0
	B	0.002	0.001	0	0
	B	0.035	0.017	0	0
	C	0.002	0.001	0	0
	C	0.916	0.433	0	0
	E	0.024	0.012	0	0
	E	0.447	0.223	0	0
	P12	0.007	0.004	0	0
	P12	0.141	0.067	0	0
		2.0193988	0.967	0	0
UN1&2	C	0.003	0.001	1.075	0.508
rail	C	1.374	0.650	32.713	15.472
	E	0.671	0.334	16.796	8.373
	E	0.035	0.018	9.475	4.708
	F	0.003	0.001	1.075	0.508
	F	0.053	0.025	0.946	0.448
	M	0.003	0.001	1.075	0.508
	M	0.053	0.025	0.946	0.448
	P12	0.011	0.005	4.298	2.033
	P12	0.211	0.100	3.785	1.790
	RAIL	0.033	0.016	12.895	6.099
	RAIL	0.634	0.300	15.410	7.289
		3.085	1.477	100.488	48.183
UN1&2	A	0.445	0.210	0.000	0.000
TOTAL	B	0.037	0.018	0.000	0.000
	C	2.295	1.085	33.787	15.980
	E	1.177	0.586	26.271	13.081
	F	0.056	0.026	2.021	0.956
	M	0.056	0.026	2.021	0.956
	P12	0.371	0.175	8.083	3.823
	RAIL	0.668	0.316	28.305	13.388
		5.104	2.443	100.488	48.183
	CHECK	5.104	2.443	100.488	48.183
UN4&5					
barge	A	0.561	0.265	19.957	9.439
	A	0.276	0.131	3.028	1.432
	B	0.047	0.022	1.663	0.787
	B	0.023	0.011	0.235	0.111
	C	0.047	0.022	1.663	0.787
	C	0.023	0.011	0.235	0.111
	C45	0.593	0.295	14.663	7.287
	C45	0.292	0.146	0.235	0.111
	F	0.047	0.022	1.663	0.787
	F	0.023	0.011	0.235	0.111
	G	0.047	0.022	1.663	0.787
	G	0.023	0.011	0.235	0.111
	H	0.047	0.022	1.663	0.787
	H	0.023	0.011	0.235	0.111
	I	0.047	0.022	1.663	0.787
	I	0.046	0.022	0.469	0.222
	JKL	0.575	0.272	6.290	2.975
	P45	0.140	0.066	4.989	2.360
	P45	0.069	0.033	0.704	0.333
		2.949	1.417	61.484	29.432
UN4&5	C45	0.890	0.443	0.000	0.000
rail	C45	0.438	0.218	0.000	0.000
	F	0.070	0.033	0.000	0.000
	F	0.035	0.016	0.000	0.000
	G	0.070	0.033	0.000	0.000
	G	0.035	0.016	0.000	0.000
	H	0.070	0.033	0.000	0.000
	H	0.035	0.016	0.000	0.000
	I	0.070	0.033	0.000	0.000
	I	0.069	0.033	0.000	0.000
	JKL	0.863	0.408	0.000	0.000
	M	0.070	0.033	0.000	0.000
	M	0.035	0.016	0.000	0.000
	P45	0.210	0.099	0.000	0.000
	P45	0.104	0.049	0.000	0.000
	RAIL	0.841	0.398	0.000	0.000
	RAIL	0.414	0.196	0.000	0.000
		4.318	2.076	0.000	0.000

SUMMARY

	Annual Emissions TSP TPY	Annual Emissions PM10 TPY	Daily Emissions TSP LB/D	Daily Emissions PM10 LB/D
A	1.282	0.606	22.984	10.871
B	0.107	0.051	1.898	0.898
C	2.365	1.118	35.685	16.878
E	1.177	0.586	26.271	13.081
F	0.230	0.109	3.918	1.853
G	0.174	0.082	1.898	0.898
H	0.174	0.082	1.898	0.898
I	0.232	0.110	2.132	1.008
JKL	1.438	0.680	6.290	2.975
M	0.160	0.076	2.021	0.956
P12	0.371	0.175	8.083	3.823
P45	0.523	0.247	5.693	2.693
C45	2.214	1.102	14.898	7.398
RAIL	1.923	0.910	28.305	13.388
	12.371	5.936	161.972	77.615
UN1&2	5.104	2.443	100.488	48.183
UN4&5	7.267	3.492	61.484	29.432
CHECK	12.371	5.936	161.972	77.615

Source	Description	Drops													
R unloader	Rail car to hopper	1	open	0.02782	0.01316	10.7458	5.08249	f	RAIL		RAIL	0.0334	0.0158	12.8950	6.0990
R unloader	V feeder to C10	2		0.00278	0.00132	1.07458	0.50825	f	RAIL						
R unloader	C10 to C11	3		0.00278	0.00132	1.07458	0.50825		RAIL						
TP23	C11 to C13	4		0.00278	0.00132	1.07458	0.50825		M		M	0.0028	0.0013	1.0746	0.5082
TP24	C13 to C29B	5		0.00278	0.00132	1.07458	0.50825		F		F	0.0028	0.0013	1.0746	0.5082
TP3	C29B to C4A/B	6		0.00278	0.00132	1.07458	0.50825		C		C	0.0028	0.0013	1.0746	0.5082
C building	C4A/B to surge bin	7		0.00278	0.00132	1.07458	0.50825		E		E	0.0353	0.0176	9.4746	4.7082
C building	Surge bin to feeder								E						
C building	Feeder to crusher								E						
C building	Crusher to C5 A/B	8	crusher	0.03254	0.01627	8.4	4.2	f	E						
Plant	C5 to surge hopper	9		0.00278	0.00132	1.07458	0.50825		P12		P12	0.0111	0.0053	4.2983	2.0330
Plant	Surge hopper to C7	10		0.00278	0.00132	1.07458	0.50825		P12						
Plant	C7 to C8	11		0.00278	0.00132	1.07458	0.50825		P12						
Plant	C8 to Silo	12		0.00278	0.00132	1.07458	0.50825		P12						
New	Rail to ground (SR) to Units 1 & 2														
Source	Description														
R unloader	Rail car to hopper	1	open	0.5285	0.24997	13.5176	6.39345	f	RAIL		RAIL	0.6342	0.29996	15.41	7.28853
R unloader	V feeder to C10	2		0.05285	0.025	0.94623	0.44754	f	RAIL						
R unloader	C10 to C11	3		0.05285	0.025	0.94623	0.44754		RAIL						
TP23	C11 to C13	4		0.05285	0.025	0.94623	0.44754		M		M	0.05285	0.025	0.94623	0.44754
TP24	C13 to C29B	5		0.05285	0.025	0.94623	0.44754		F		F	0.05285	0.025	0.94623	0.44754
TP3	C29B to C3	6		0.05285	0.025	0.94623	0.44754		C		C	1.37411	0.64992	32.7126	15.4722
SR	C3 to SR1	7		0.05285	0.025	0.94623	0.44754		SR12	C					
SR	SR1 to SR2	8		0.05285	0.025	0.94623	0.44754		SR12	C					
SR	SR2 to coal pile	9	open	0.5285	0.24997	13.5176	6.39345		SR12	C					
SR	Bucket wheel to SR2	10	open	0.5285	0.24997	13.5176	6.39345		SR12	C					
SR	Belt to belt	11		0.05285	0.025	0.94623	0.44754		SR12	C					
SR	Belt to C3	12		0.05285	0.025	0.94623	0.44754		SR12	C					
TP3	C3 to C4A/B	13		0.05285	0.025	0.94623	0.44754		C						
C building	C4 A/B to surge bin	14		0.05285	0.025	0.94623	0.44754		E		E	0.67114	0.33414	16.7962	8.37254
C building	Surge bin to feeder								E						
C building	Feeder to crusher								E						
C building	Crusher to C5 A/B	15	crusher	0.61829	0.30915	15.85	7.925	f	E						
Plant	C5A/B to surge hopper	16		0.05285	0.025	0.94623	0.44754		P12		P12	0.2114	0.09999	3.78492	1.79017
Plant	Surge hopper to C7	17		0.05285	0.025	0.94623	0.44754		P12						
Plant	C7 to C8	18		0.05285	0.025	0.94623	0.44754		P12						
Plant	C8 to Silo	19		0.05285	0.025	0.94623	0.44754		P12						
New	Rail to Units 4 & 5														
Source	Description														
R unloader	Rail car to hopper	1	open	0.70092	0.33152	0	0	f	RAIL		RAIL	0.841	0.398	0.000	0.000
R unloader	V feeder to C10	2		0.07009	0.03315	0	0	f	RAIL						
R unloader	C10 to C11	3		0.07009	0.03315	0	0		RAIL						
TP23	C11 to C13	4		0.07009	0.03315	0	0		M		M	0.070	0.033	0.000	0.000
TP24	C13 to C30A	5		0.07009	0.03315	0	0		F		F	0.070	0.033	0.000	0.000
TP25-1	C30A TO C31B	6		0.07009	0.03315	0	0		G		G	0.070	0.033	0.000	0.000
TP26-1	C31B TO C33A	7		0.07009	0.03315	0	0		H		H	0.070	0.033	0.000	0.000
TP27-1	C33A TO C35A/B	8		0.07009	0.03315	0	0		I		I	0.070	0.033	0.000	0.000
C building	C35A/B to surge bin	9		0.07009	0.03315	0	0		C45		C45	0.890	0.443	0.000	0.000
C building	Surge bin to c feeder								C45						
C building	Feeder to crusher								C45						
C building	Crusher to C36A/B	10	crusher	0.82	0.41	0	0	f	C45						
Plant	C36A/B to C502	11		0.07009	0.03315	0	0		P45		P45	0.210	0.099	0.000	0.000
Plant	C502 to C504	12		0.07009	0.03315	0	0		P45						
Plant	C504 to silo	13		0.07009	0.03315	0	0		P45						
New	Rail to ground (SR) to Units 4 & 5														
Source	Description														
R unloader	Rail car to hopper	1	open	0.34523	0.16328	0	0	f	RAIL		RAIL	0.414	0.196	0.000	0.000
R unloader	V feeder to C10	2		0.03452	0.01633	0	0	f	RAIL						
R unloader	C10 to C11	3		0.03452	0.01633	0	0		RAIL						
TP23	C11 to C13	4		0.03452	0.01633	0	0		M		M	0.035	0.016	0.000	0.000
TP24	C13 to C30A	5		0.03452	0.01633	0	0		F		F	0.035	0.016	0.000	0.000
TP25-1	C30A TO C31B	6		0.03452	0.01633	0	0		G		G	0.035	0.016	0.000	0.000
TP26-1	C31B TO C33A	7		0.03452	0.01633	0	0		H		H	0.035	0.016	0.000	0.000
TP27-1	C33A TO C34	8		0.03452	0.01633	0	0		I		I	0.069	0.033	0.000	0.000
SR	C34 TO Hopper	9		0.03452	0.01633	0	0		JKL		JKL	0.863	0.408	0.000	0.000
SR	Hopper to belt	10		0.03452	0.01633	0	0		JKL						
SR	Belt to belt	11		0.03452	0.01633	0	0		JKL						
SR	Belt to coal pile	12	open	0.34523	0.16328	0	0		JKL						
SR	Bucket wheel to belt	13	open	0.34523	0.16328	0	0		JKL						
SR	Belt to belt	14		0.03452	0.01633	0	0		JKL						
SR	Belt to C34	15		0.03452	0.01633	0	0		JKL						
TP27-1	C34 TO C35A/B	16		0.03452	0.01633	0	0		I						
C building	C35A/B to surge bin	17		0.03452	0.01633	0	0		C45		C45	0.438	0.218	0.000	0.000
C building	Surge bin to c feeder								C45						
C building	Feeder to crusher								C45						
C building	Crusher to C36A/B	18	crusher	0.40388	0.20194	0	0	f	C45						
Plant	C36A/B to C502	19		0.03452	0.01633	0	0		P45		P45	0.104	0.049	0.000	0.000
Plant	C502 to C504	20		0.03452	0.01633	0	0		P45						
Plant	C504 to silo	21		0.03452	0.01633	0	0		P45						
				12.371	5.936	161.972	77.615					12.371	5.936	161.972	77.615

UN4&5	A	0.837	0.396	22.984	10.871
TOTAL	B	0.070	0.033	1.898	0.898
	C	0.070	0.033	1.898	0.898
	F	0.174	0.082	1.898	0.898
	G	0.174	0.082	1.898	0.898
	H	0.174	0.082	1.898	0.898
	I	0.232	0.110	2.132	1.008
	JKL	1.438	0.680	6.290	2.975
	M	0.105	0.049	0.000	0.000
	C45	2.214	1.102	14.898	7.398
	P45	0.523	0.247	5.693	2.693
	RAIL	1.255	0.594	0.000	0.000
		7.267	3.492	61.484	29.432
	CHECK	7.267	3.492	61.484	29.432

TABLE A-16
COAL YARD EMISSIONS - PAST ACTUAL AND FUTURE POTENTIAL FOR THE CRYSTAL RIVER POWER PLANT

Segment		Annual	Daily*	Past Actual: Annual Coal Throughput (TPY)	Past Actual: Daily Coal Throughput (TPD)	Past Actual: Annual Emissions TSP (TPY)	Past Actual: Annual Emissions PM10 (TPY)	Past Actual: Daily Emissions TSP (LB/Day)	Past Actual: Daily Emissions PM10 (LB/Day)	New Configuration - plant at full load all year: Annual Coal Throughput (TPY)	New Configuration: Daily Coal Throughpu (TPD)	New Configuration: Annual Emissions TSP (TPY)	New Configuration: Annual Emissions PM10 (TPY)	New Configuration: Daily Emissions TSP (LB/Day)	New Configuration: Daily Emissions PM10 (LB/Day)	AP-42 Equations
A	Barge to Units 1 & 2															
	Drops inclosed	9	9	43,389	0	0.017	0.008	0.000	0.000	7,797	0	0.003	0.001	0.000	0.000	13.2.4 1/95
	Drops open	1	1	43,389	0	0.019	0.009	0.000	0.000	7,797	0	0.003	0.002	0.000	0.000	13.2.4 1/95
	Crusher			43,389	0	0.022	0.011	0.000	0.000	7,797	0	0.004	0.002	0.000	0.000	
B	Barge to ground to Units 1& 2															
	Drops inclosed	14	6	824,391	0	0.493	0.233	0.000	0.000	148,149	0	0.089	0.042	0.000	0.000	13.2.4 1/95
	Drops open	3	2	824,391	0	1.057	0.500	0.000	0.000	148,149	0	0.190	0.090	0.000	0.000	13.2.4 1/95
	Crusher			824,391	0	0.412	0.206	0.000	0.000	148,149	0	0.074	0.037	0.000	0.000	
C	Barge to Units 4 & 5															
	Drops inclosed	12	12	1,093,338	13,000	0.561	0.265	19.957	9.439	2,193,260	13,000	1.125	0.532	19.957	9.439	13.2.4 1/95
	Drops open	1	1	1,093,338	13,000	0.467	0.221	16.630	7.866	2,193,260	13,000	0.937	0.443	16.630	7.866	13.2.4 1/95
	Crusher			1,093,338	13,000	0.547	0.273	13.000	6.500	2,193,260	13,000	1.097	0.548	13.000	6.500	
D	Barge to ground to Units 4 & 5															
	Drops inclosed	18	11	538,510	3,000	0.414	0.196	4.222	1.997	1,462,173	19,000	1.125	0.532	26.737	12.646	13.2.4 1/95
	Drops open	3	2	538,510	3,000	0.690	0.327	7.676	3.630	1,462,173	19,000	1.875	0.887	48.612	22.992	13.2.4 1/95
	Crusher			538,510	0	0.269	0.135	0.000	0.000	1,462,173	0	0.731	0.366	0.000	0.000	
E	Rail to Units 1 & 2															
	Drops inclosed	10	10	65,084	8,400	0.028	0.013	10.746	5.082	148,149	8,400	0.063	0.030	10.746	5.082	13.2.4 1/95
	Drops open	1	1	65,084	8,400	0.028	0.013	10.746	5.082	148,149	8,400	0.063	0.030	10.746	5.082	13.2.4 1/95
	Crusher			65,084	8,400	0.033	0.016	8.400	4.200	148,149	8,400	0.074	0.037	8.400	4.200	
F	Rail to ground to Units 1& 2															
	Drops inclosed	15	7	1,236,587	15,850	0.793	0.375	14.193	6.713	2,814,830	15,850	1.805	0.853	14.193	6.713	13.2.4 1/95
	Drops open	3	2	1,236,587	15,850	1.586	0.750	40.553	19.180	2,814,830	15,850	3.609	1.707	40.553	19.180	13.2.4 1/95
	Crusher			1,236,587	15,850	0.618	0.309	15.850	7.925	2,814,830	0	1.407	0.704	0.000	0.000	
G	Rail to Units 4 & 5															
	Drops inclosed	11	11	1,640,007	0	0.771	0.365	0.000	0.000	852,934	0	0.401	0.190	0.000	0.000	13.2.4 1/95
	Drops open	1	1	1,640,007	0	0.701	0.332	0.000	0.000	852,934	0	0.365	0.172	0.000	0.000	13.2.4 1/95
	Crusher			1,640,007	0	0.820	0.410	0.000	0.000	852,934	0	0.426	0.213	0.000	0.000	
H	Rail to ground to Units 4 & 5															
	Drops inclosed	17	10	807,765	0	0.587	0.278	0.000	0.000	568,623	0	0.413	0.195	0.000	0.000	13.2.4 1/95
	Drops open	3	2	807,765	0	1.036	0.490	0.000	0.000	568,623	0	0.729	0.345	0.000	0.000	13.2.4 1/95
	Crusher			807,765	0	0.404	0.202	0.000	0.000	568,623	0	0.284	0.142	0.000	0.000	
I	Pyrites															
	Drops inclosed	10	10	2,600	65	0.001	0.001	0.083	0.039	2,600	120	0.001	0.001	0.154	0.073	13.2.4 1/95
	Drops open	1	1	2,600	65	0.001	0.001	0.083	0.039	2,600	120	0.001	0.001	0.154	0.073	13.2.4 1/95
	Crusher			2,600	65	0.001	0.001	0.065	0.033	2,600	120	0.001	0.001	0.120	0.060	
	Total					12.375	5.937	162.203	77.726			16.896	8.102	210.001	99.906	

Note: AP-42 13.2.4: lb/ton = k(0.0035) x {[(U/5)^1.3] / [(M/2)^1.4]} where: k = 0.35 for PM10 and 0.74 for TSP, M = 7% Moisture, U = 8.8 MPH for Annual Average and 12 MPH for Daily Average
* The daily value is less because the coal is conveyed to ground.

TABLE A-17
UNPAVED ROAD EMISSIONS FOR THE COAL YARD

		Past Actual Emissions								Future Potential Emissions								
		Vehicle Miles Traveled	Vehicle Miles Traveled	Hours Per Year	Hours Per Day	Annual		Daily		Vehicle Miles Traveled	Vehicle Miles Traveled	Hours Per Year	Hours Per Day	Annual		Daily		
Original Source	Original Description	Annual VMT/YR	Daily VMT/DAY	Annual HR/YR	Daily HR/DAY	TSP TPY	PM10 TPY	TSP LB/D	PM10 LB/D	Annual VMT/YR	Daily VMT/DAY	Annual HR/YR	Daily HR/DAY	TSP TPY	PM10 TPY	TSP LB/D	PM10 LB/D	AP-42
MR-4	FEL Traffic	5,475	15			1.931	0.448	10.583	2.455	21,900	60			7.726	1.792	42.332	9.821	13.2.2 12/03
		5,475	15			1.178	0.273	6.455	1.498	21,900	60			4.712	1.093	25.821	5.990	13.2.2 12/03
CP-3	Front end loader	5,475	15			1.931	0.448	10.583	2.455					0.000	0.000	0.000	0.000	13.2.2 12/03
		5,475	15			1.178	0.273	6.455	1.498					0.000	0.000	0.000	0.000	13.2.2 12/03
CP-4	Scraper	4,200	200			0.265	0.119	25.250	11.358	7,300	20			0.627	0.475	3.437	2.605	
CP-5	Bulldozer			724	2	1.690	0.344	9.339	1.902			730	2	1.704	0.347	9.339	1.902	11.9 10/98
	Water Truck	2,738	8			1.153	0.267	6.315	1.465	7,300	20			3.073	0.713	16.841	3.907	13.2.2 12/03
	Total					9.327	2.174	74.980	22.630					17.843	4.421	97.769	24.225	

New & Old Equation Partical Size Multiplier TSP	Partical Size Multiplier PM10	Sil ont %	Vehicle Weight TONS	Days of Precip DAYS/YR	Max ys ec YS	Control Efficiency %
4.9	1.5	3	27	107	0	80
4.9	1.5	3	9	107	0	80
4.9	1.5	3	27	107	0	80
4.9	1.5	3	9	107	0	80
		3	40	107	0	80
1	0.75	3			0	80
4.9	1.5	3	40	107	0	80

TABLE A-18
PM10 EMISSIONS MODELED FOR THE FUTURE COAL YARD OPERATIONS FOR THE CRYSTAL RIVER POWER PLANT

Model Source	Past Actual Annual Emissions TSP TPY	Annual Emissions PM10 TPY	Daily Emissions TSP LB/D	Daily Emissions PM10 LB/D	New Configuration Annual Emissions TSP TPY	Annual Emissions PM10 TPY	Daily Emissions TSP LB/D	Daily Emissions PM10 LB/D	Past Actual Annual Emissions PM10 g/s	Daily Emissions PM10 g/s	New Configuration Annual Emissions PM10 g/s	Daily Emissions PM10 g/s
COAL YARD- PAST ACT & NEW CONF												
ALL												
A	1.282	0.606	22.984	10.871	1.955	0.925	49.124	23.234	0.017	0.057	0.027	0.122
B	0.107	0.051	1.898	0.898	0.163	0.077	4.094	1.936	0.001	0.005	0.002	0.010
C	2.365	1.118	35.685	16.878	3.455	1.634	31.528	14.912	0.032	0.089	0.047	0.078
E	1.177	0.586	26.271	13.081	1.693	0.843	9.475	4.708	0.017	0.069	0.024	0.025
F	0.230	0.109	3.918	1.853	0.344	0.163	7.196	3.403	0.003	0.010	0.005	0.018
G	0.174	0.082	1.898	0.898	0.217	0.103	4.094	1.936	0.002	0.005	0.003	0.010
H	0.174	0.082	1.898	0.898	0.217	0.103	4.094	1.936	0.002	0.005	0.003	0.010
I	0.232	0.110	2.132	1.008	0.304	0.144	4.094	1.936	0.003	0.005	0.004	0.010
JKL	1.438	0.680	6.290	2.975	2.170	1.026	31.598	14.945	0.020	0.016	0.030	0.078
M	0.160	0.076	2.021	0.956	0.187	0.089	3.102	1.467	0.002	0.005	0.003	0.008
P12	0.371	0.175	8.083	3.823	0.533	0.252	4.298	2.033	0.005	0.020	0.007	0.011
P45	0.523	0.247	5.693	2.693	0.651	0.308	4.989	2.360	0.007	0.014	0.009	0.012
C45	2.214	1.102	14.898	7.398	2.755	1.372	14.663	7.287	0.032	0.039	0.039	0.038
RAIL	1.923	0.910	28.305	13.388	2.249	1.064	37.227	17.607	0.026	0.070	0.031	0.092
COAL YARD TOTAI	12.371	5.936	161.972	77.615	16.893	8.101	209.574	99.701	0.171	0.407	0.233	0.523
PILE TRAFFIC	9.327	2.174	74.980	22.630	17.843	4.421	97.769	24.225	0.063	0.119	0.127	0.127
TOTAL	21.698	8.109	236.952	100.246	34.736	12.522	307.343	123.926	0.233	0.526	0.360	0.651
COAL YARD FROM:												
CR 1 & 2												
A	0.445	0.210	0.000	0.000	0.077	0.036	0.000	0.000	0.006	0.000	0.001	0.000
B	0.037	0.018	0.000	0.000	0.006	0.003	0.000	0.000	0.001	0.000	0.000	0.000
C	2.295	1.085	33.787	15.980	3.167	1.498	27.434	12.975	0.031	0.084	0.043	0.068
E	1.177	0.586	26.271	13.081	1.625	0.809	9.475	4.708	0.017	0.069	0.023	0.025
F	0.056	0.026	2.021	0.956	0.122	0.057	3.102	1.467	0.001	0.005	0.002	0.008
M	0.056	0.026	2.021	0.956	0.122	0.057	3.102	1.467	0.001	0.005	0.002	0.008
P12	0.371	0.175	8.083	3.823	0.512	0.242	4.298	2.033	0.005	0.020	0.007	0.011
RAIL	0.668	0.316	28.305	13.388	1.459	0.690	37.227	17.607	0.009	0.070	0.020	0.092
Total	5.104	2.443	100.488	48.183	7.089	3.393	84.638	40.258	0.070	0.253	0.098	0.211
CR 4 & 5												
A	0.837	0.396	22.984	10.871	1.725	0.816	49.124	23.234	0.011	0.057	0.023	0.122
B	0.070	0.033	1.898	0.898	0.144	0.068	4.094	1.936	0.001	0.005	0.002	0.010
C	0.070	0.033	1.898	0.898	0.144	0.068	4.094	1.936	0.001	0.005	0.002	0.010
F	0.174	0.082	1.898	0.898	0.200	0.094	4.094	1.936	0.002	0.005	0.003	0.010
G	0.174	0.082	1.898	0.898	0.200	0.094	4.094	1.936	0.002	0.005	0.003	0.010
H	0.174	0.082	1.898	0.898	0.200	0.094	4.094	1.936	0.002	0.005	0.003	0.010
I	0.232	0.110	2.132	1.008	0.279	0.132	4.094	1.936	0.003	0.005	0.004	0.010
JKL	1.438	0.680	6.290	2.975	1.996	0.944	31.598	14.945	0.001	0.000	0.027	0.078
M	0.105	0.049	0.000	0.000	0.056	0.026	0.000	0.000	0.020	0.016	0.001	0.000
C45	2.214	1.102	14.898	7.398	2.535	1.262	14.663	7.287	0.032	0.039	0.036	0.038
P45	0.523	0.247	5.693	2.693	0.599	0.283	4.989	2.360	0.007	0.014	0.008	0.012
RAIL	1.255	0.594	0.000	0.000	0.671	0.317	0.000	0.000	0.017	0.000	0.009	0.000
	7.267	3.492	61.484	29.432	8.747	4.200	124.936	59.443	0.100	0.155	0.121	0.312

TABLE A-19
COMPARISON OF PAST ACTUAL PM EMISSIONS TO FUTURE PM EMISSIONS FOR THE COAL YARD FOR THE CRYSTAL RIVER POWER PLANT

	Past Actual				*New Configuration* - plant at full load all year				
	Annual Emissions TSP (TPY)	Annual Emissions PM10 (TPY)	Daily Emissions TSP (LB/Day)	Daily Emissions PM10 (LB/Day)	Annual Emissions TSP (TPY)	Annual Emissions PM10 (TPY)	Daily Emissions TSP (LB/Day)	Daily Emissions PM10 (LB/Day)	
Barge to Units 1 & 2	0.0569	0.0275	0.0000	0.0000	0.0102	0.0049	0.0000	0.0000	
Barge to ground to Units 1& 2	1.9625	0.9393	0.0000	0.0000	0.3527	0.1688	0.0000	0.0000	
Barge to Units 4 & 5	1.5747	0.7596	49.5870	23.8047	3.1589	1.5237	49.5870	23.8047	
Barge to ground to Units 4 & 5	1.3740	0.6571	11.8972	5.6270	3.7307	1.7843	75.3488	35.6379	
Rail to Units 1 & 2	0.0882	0.0426	29.8917	14.3650	0.2007	0.0969	29.8917	14.3650	
Rail to ground to Units 1& 2	2.9966	1.4340	70.5962	33.8185	6.8210	3.2642	54.7462	25.8935	
Rail to Units 4 & 5	2.2919	1.1062	0.0000	0.0000	1.1920	0.5753	0.0000	0.0000	
Rail to ground to Units 4 & 5	2.0265	0.9694	0.0000	0.0000	1.4265	0.6824	0.0000	0.0000	
Pyrites	0.0035	0.0017	0.2313	0.1112	0.0035	0.0017	0.4270	0.2052	
Total	12.4	5.9	162.2	77.7	16.9	8.1	210.0	99.9	
from Coal Yard workshee	12.4	5.9	162.2	77.7	16.9	8.1	210.0	99.9	SEE COAL YARD-PAST ACT & NEW CONF

PILE TRAFFIC								
FEL Traffic	1.931	0.448	10.583	2.455	7.726	1.792	42.332	9.821
	1.178	0.273	6.455	1.498	4.712	1.093	25.821	5.990
Front end loader	1.931	0.448	10.583	2.455	0.000	0.000	0.000	0.000
	1.178	0.273	6.455	1.498	0.000	0.000	0.000	0.000
Scraper	0.265	0.119	25.250	11.358	0.627	0.475	3.437	2.605
Bulldozer	1.690	0.344	9.339	1.902	1.704	0.347	9.339	1.902
Water Truck	1.153	0.267	6.315	1.465	3.073	0.713	16.841	3.907
	9.327	2.174	74.980	22.630	17.843	4.421	97.769	24.225

TABLE A-20
ESTIMATION OF DAILY PM EMISSION FACTORS AND RATES FOR VEHICLE TRAFFIC ON PAVED ROADS

General Data		ENTRY ROAD: Fly Ash from Units 4 & 5 UNLD/LD	ENTRY ROAD: Limestone from Units 4 & 5 UNLD/LD	ENTRY ROAD: Landfill Ash Mining UNLD/LD	ENTRY ROAD: Gypsum/ Wallboard UNLD/LD	ENTRY ROAD: TOTAL	INTERIOR (ENTRY): FA/ Units 4 & 5 UNLD/LD	INTERIOR (ENTRY): LS/ Units 4 & 5 UNLD/LD	INTERIOR (ENTRY): Landfill Ash Mining UNLD/LD	INTERIOR (ENTRY): Gyp/ Wallb UNLD/LD	INTERIOR (ENTRY): TOTAL	INTERIOR (NEAR COALPILE): FA/ Units 4 & 5 UNLD/LD	INTERIOR (NEAR COALPILE): LS/ Units 4 & 5 UNLD/LD	INTERIOR (NEAR COALPILE): Landfill Ash Mining UNLD/LD	INTERIOR (NEAR COALPILE): Gyp/ Wallb UNLD/LD	INTERIOR (NEAR COALPILE): TOTAL	GYPSUM/ WALLBOARD ENTRY: Gyp/ Wallb UNLD/LD
Throughput Data																	
Operation days (N)	Annual	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365
Vehicle Data																	
Vehicle weight (W), ton	Loaded	39	36	36	40		39	36	36	40		39	36	36	40		40
	Unloaded	13.25	11	11	11		13.25	11	11	11		13.25	11	11	11		11
	Average	26.125	23.5	23.5	25.5	25.13	26.125	23.5	23.5	25.5	25.13	26.125	23.5	23.5	25.5	25.13	25.5
Number of vehicles/year	Annual	23,400	15,600	7,800	54,750	101,550	23,400	15,600	7,800	54,750	101,550	23,400	15,600	7,800	54,750	101,550	54,750
Number of vehicles/day	Daily	90	60	30	150	330	90	60	30	150	330	90	60	30	150	330	150
Distance (miles) travelled/ vehicle/ route [c]	Per trip					6.21					0.50					1.44	0.20
VMT (no. vehicles x miles travelled)	Daily					2,050.0					165.0					475.0	30.1
	Annual					630,841					50,775					146,170	10,992
General/ Site Characteristics																	
Days of precipitation greater than or equal to 0.254 mm (P)	Annual					103					103					103	103
Silt Loading (sL), g/m^2 [a]						1.0					1.0					1.0	1.0
Particle size multiplier, PM (k)						0.082					0.082					0.082	0.082
PM_{10} (k)						0.016					0.016					0.016	0.016
Emission Factor Fleet Exhaust (C), lb/VMT						0.00047					0.00047					0.00047	0.00047
Emission Control Data																	
Emission control method						Watering					Watering					Watering	Watering
Emission control removal efficiency, %						80					80					80	80
Emission Factor (EF) Equation (Equations 1 & 2, daily basis, AP-42, Section 13.2.1.3)																	
Uncontrolled EF (UEF) Equation - PM	UEF(lb/VMT) = [k x {(sL/2)$^{0.65}$x (W(ton, ave)/3)$^{1.5}$}-C] (1-P/4N)																
PM_{10}	UEF(lb/VMT) = [k x {(sL/2)$^{0.65}$x (W(ton, ave)/3)$^{1.5}$}-C] (1-P/4N)																
Controlled (Final) EF (CEF) Equation	CEF(lb/VMT) = UEF (lb/VMT) x (100 - Removal efficiency (%))																
Calculated PM Emission Factor (EF)																	
Uncontrolled EF, lb/VMT	Daily					1.18					1.18					1.18	1.20
Controlled (Final) EF, lb/VMT	Daily					0.24					0.24					0.24	0.24
Calculated PM_{10} Emission Factor (EF)																	
Uncontrolled EF, lb/VMT	Daily					0.229					0.229					0.229	0.234
Controlled (Final) EF, lb/VMT	Daily					0.046					0.046					0.046	0.047
Estimated Emission Rate (ER)		Contribution					Contribution					Contribution					Contribution
PM Emission Rate (lb/hr)	Daily	4.6	3.1	1.5	10.8	20.1	0.4	0.2	0.1	0.9	1.6	1.1	0.7	0.4	2.5	4.7	0.3
PM_{10} Emission Rate (lb/hr)	Daily	0.9	0.6	0.3	2.1	3.92	0.1	0.0	0.0	0.2	0.32	0.2	0.1	0.1	0.5	0.91	0.06
PM Emission Rate (TPY)	Annual	20.3	13.5	6.8	47.5	88.1	1.6	1.1	0.5	3.8	7.1	4.7	3.1	1.6	11.0	20.4	1.3
PM_{10} Emission Rate (TPY)	Annual	4.0	2.6	1.3	9.2	17.2	0.3	0.2	0.1	0.7	1.4	0.9	0.6	0.3	2.1	4.0	0.3

Source: USEPA, 2003 (AP-42, Section 13.2.1, Paved Roads)

		ENTRY ROAD TOTAL	INTERIOR (ENTRY) TOTAL	INTERIOR (NEAR COALPILE) TOTAL	GYPSUM/ WALLBOARD ENTRY
MODEL	NO. VOLUME SOURCES	243	10	27	8
	TOTAL PM10 DAILY EMISSIONS, G/S	0.493	0.040	0.114	0.007
	PM10/SOURCES, G/S	0.00203	0.0039719	0.00423	0.00093

TABLE A-21
SUMMARY OF PM EMISSIONS FROM TRUCK TRAFFIC USED IN THE MODELING

Pollutant	Bottom Ash from Units 1 & 2 Current	Fly Ash from Units 1 & 2 Current	Bottom Ash from Units 4 & 5 Current	Fly Ash from Units 4 & 5 Current	Landfill Ash Mining Current	Limestone from Units 4 & 5 New	Gypsum/ Wallboard New	Summary Current	Summary New	Total
PM Emission Rate (lb/hr)	0.133	2.36	0.067	6.08	2.03	4.05	14.52	10.66	18.58	29.24
PM10 Emission Rate (lb/hr)	0.026	0.46	0.013	1.18	0.39	0.79	2.83	2.08	3.62	5.70
PM Emission Rate (TPY)	0.584	10.34	0.291	26.62	8.87	17.75	63.62	46.71	81.36	128.08
PM10 Emission Rate (TPY)	0.114	2.01	0.057	5.19	1.73	3.46	12.39	9.10	15.85	24.95

MODELED SOURCES — **From Table A-19** — **CALCULATED INDIVIDUALLY**

INCLUDED AS INTERIOR — AAQS INCLUDED ENTRY ETC.

		MODEL TOTAL		ENTRY ROAD	INTERIOR (ENTRY)	INTERIOR (NEAR COALPILE)	GYPSUM/ WALLBOARD ENTRY	Bottom Ash from Units 1 & 2	Bottom Ash from Units 4 & 5	Total	Fly Ash from Units 1 & 2
PM Emission Rate (lb/hr)		26.7		20.1	1.6	4.7	0.3				
PM10 Emission Rate (lb/hr)		5.2		3.9	0.3	0.9	0.1				
PM Emission Rate (TPY)		116.9		88.1	7.1	20.4	1.3	0.133	0.067	0.200	2.36
PM10 Emission Rate (TPY)		22.8		17.2	1.4	4.0	0.3	0.026	0.013	0.039	0.46
								0.584	0.291	0.876	10.34
No. sources				243	10	27	8	0.114	0.057	0.171	2.01
PM10 Emission Rate (g/s)	TOTAL			0.493	0.0397	0.114	0.00741				
PM10 Emission Rate (g/s)	PER SOURCE			0.00203	0.003972	0.00423	0.000927				
Bottom Ash 1,2 & 4,5 to Interior Road											
PM10 Emission Rate (lb/hr)	TOTAL		0.039								
PM10 Emission Rate (g/s)	TOTAL		0.00491								
PM10 Emission Rate (g/s)	PER SOURCE					0.00018					
Added to INTERIOR ROAD											
PM10 Emission Rate (g/s)	PER SOURCE					0.00442					
Flyash Units 1 & 2											
PM10 Emission Rate (lb/hr)			0.46								
PM10 Emission Rate (g/s)			0.05794								
PM10 Emission Rate (g/s)	PER SOURCE			0.00023	0.00023						
Added to INTERIOR ROAD											
PM10 Emission Rate (g/s)	PER SOURCE			0.00226	0.004201						

TABLE A-22
STACK, OPERATING AND PM_{10} EMISSION DATA
FOR THE FGD LIMESTONE MATERIAL HANDLING SYSTEMS (OPTION 1)

Parameter	Limestone Truck Unloading L-01	Limestone Truck Unloading L-02	Limestone Truck Unloading L-03	Limestone Truck Unloading L-04	Limestone Day Silos L-08/L-09 [a]	Limestone Day Silos L-10/L-11 [a]	Limestone Day Silos L-12/L-13/L-14 [a]
Stack Parameters							
Height, ft (m)	45 (13.7)	45 (13.7)	45 (13.7)	45 (13.7)	137 (41.8)	137 (41.8)	130 (39.6)
Exit Diameter, ft (m)	1.0 (0.30)	1.0 (0.30)	1.0 (0.30)	1.0 (0.30)	0.83 (0.25)	0.83 (0.25)	1.17 (0.36)
Vent Orientation	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Operating Parameters							
Gas Flow Rate, acfm	2,500	2,500	2,500	2,500	1,200	1,200	3,200
Gas Exit Temperature, °F (K)	77 (298)	77 (298)	77 (298)	77 (298)	77 (298)	77 (298)	77 (298)
Gas Exit Velocity, ft/sec (m/s)	53.1 (16.2)	53.1 (16.2)	53.1 (16.2)	53.1 (16.2)	36.7 (11.2)	36.7 (11.2)	49.9 (15.2)
Operating Schedule, hr/day	24	24	24	24	4	4	2
day/week	5	5	5	5	7	7	7
Emission Rates							
PM Emission Rate, gr/dscf	0.022	0.022	0.022	0.022	0.022	0.022	0.022
PM Emissions, lb/hr (g/s)	0.47 (0.06)	0.47 (0.06)	0.47 (0.06)	0.47 (0.06)	0.23 (0.03)	0.23 (0.03)	0.60 (0.08)
PM10 Emissions, lb/hr (g/s) [b]	0.47 (0.06)	0.47 (0.06)	0.47 (0.06)	0.47 (0.06)	0.23 (0.03)	0.23 (0.03)	0.60 (0.08)
PM Emissions, TPY	1.47	1.47	1.47	1.47	0.16	0.16	0.22
PM10 Emissions, TPY	1.47	1.47	1.47	1.47	0.16	0.16	0.22

[a] Only one train of equipment shoul be operaring at a time.

[b] Assumed equal to the PM emission rate

TABLE A-23
PHYSICAL, PERFORMANCE, AND EMISSIONS DATA
FOR THE MECHANICAL DRAFT PORTABLE COOLING TOWERS

Parameter	Values for Aggreko		
Physical Data	Modeled		
Number of Cells- Total	67		
Individual Number	27	23	17
Individual Type	TTMT	TTEF	TTXE
Deck Dimensions, ft			
Length	31	30	30
Width	12	12	12
Height(Tower Height)	19	19	19
Stack Dimensions			
Height, ft	19	19	19
Stack Top Effective Inner Diameter, per cell, ft	22	21	21
Performance Data (per cell)			
Discharge Velocity, ft/min	67	69	69
Circulating Water Flow Rate (CWFR), gal/min	180,000	180,000	180,000
Design hot water temperature, °F	140	140	140
Design Air Flow Rate per cell, acfm, (estimated)	25,000	25,000	25,000
Hours of operation	3,000	3,000	3,000
Emission Data			
Drift Rate [a] (DR), percent	0.0015		
Total Dissolved Solids (TDS) Concentration [b], average ppm	25,307.0		
Solution Drift [c] (SD), lb/hr	1,388.3		
PM Drift [d], lb/hr	35.13		
tons/year	52.70		
PM_{10} Drift[e]			
PM_{10} Emissions, lb/hr	2.13		
tons/year	3.19		

[a] Drift rate is the percent of circulating water.

[b] A TDS of 25,307 Average Value from Historical Data (Ron Johnson email 12/13/05)

[c] Includes water and based on circulating water flow rate and drift rate (CWFR x DR x 8.57 lb/gal x 60 min/hr).

[d] PM calculated based on total dissolved solids and solution drift (TDS x SD).

[e] PM_{10} based on Cooling Tower PM_{10} emissions study (

Source: Progress Energy, 2006; Golder, 2006.

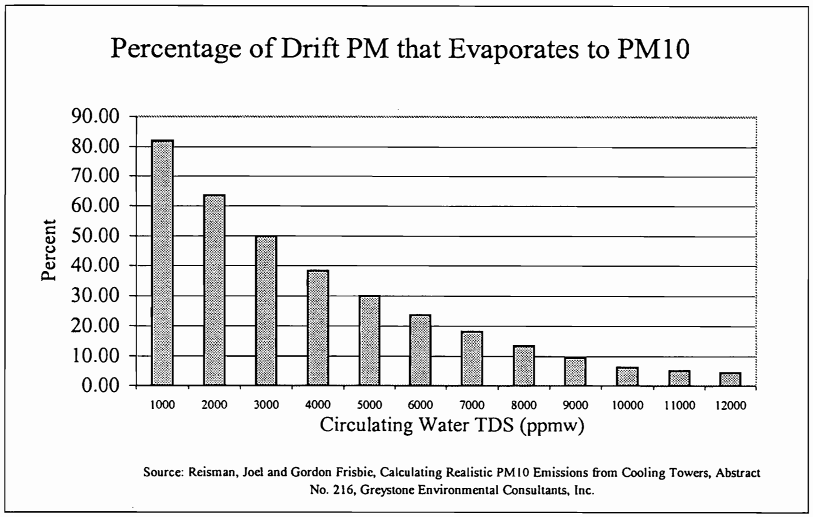
TABLE A-24
PM10 EMISSIONS FOR THE COOLING TOWER FOR UNITS 4 AND 5

TDS (ppmw)	PM Emission Rate (lb/hr)	Percent of Emissions < or = PM10 %	PM10 Emissions (lb/hr)
1000	6.63	82.04	5.435
2000	13.25	63.50	8.414
3000	19.88	50.00	9.938
4000	26.50	38.33	10.158
5000	33.13	29.97	9.928
6000	39.75	23.59	9.377
7000	46.38	18.20	8.441
8000	53.00	13.57	7.192
9000	59.63	9.65	5.754
10000	66.25	6.28	4.161
11000	72.88	5.11	3.724
12000	79.50	4.46	3.546
25307	167.67	1.07	1.794
29100	192.80	0.81	1.562
89600	593.63	0.22	1.306

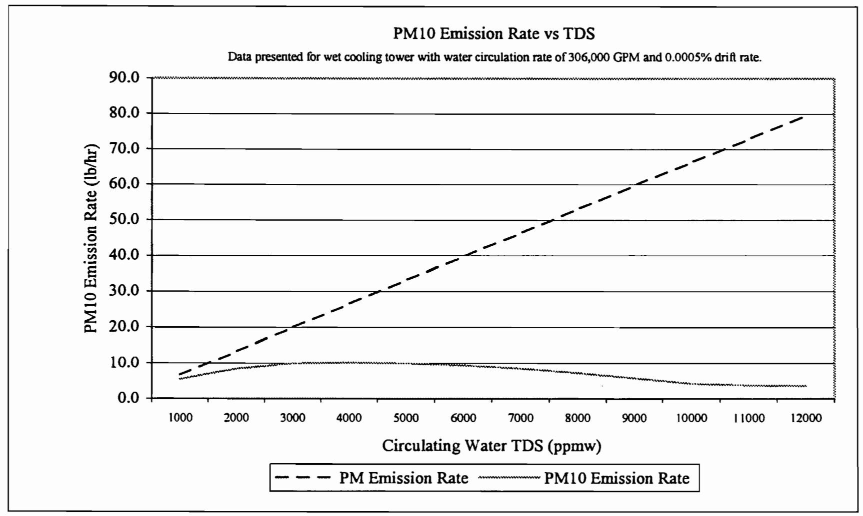
Tower Circulation Rate (GPM)	Drift Rate %
331,000	0.004

	Salt water density (lb/gal)
swd	8.34

Calculated PM10 % < or = PM10 %
82.04
63.50
50.00
38.33
29.97
23.59
18.20
13.57
9.65
6.28
5.11
4.46
1.07
0.81
0.22



Source: Reisman, Joel and Gordon Frisbie, Calculating Realistic PM10 Emissions from Cooling Towers, Abstract No. 216, Greystone Environmental Consultants, Inc.



Reisman, Joel and Gordon Frisbie, *Calculating Realistic PM10 Emissions from Cooling Towers,* Abstract No. 216, Greystone Environmental Consultants, Inc.

TABLE A-25
STACK, OPERATING AND PM_{10} EMISSION DATA
FOR THE FLY ASH AND BOTTOM ASH HANDLING SYSTEMS

Parameter	Fly Ash Transfer Unit 1	Fly Ash Silo for Units 1 and 2	Fly Ash Transfer Unit 2a	Fly Ash Transfer Unit 2b	Bottom Ash Silo Units 1 and 2
Emission Rates [a]					
PM Emissions, lb/hr (g/s)	3.5 (0.44)	0.6 (0.08)	2.2 (0.28)	2.2 (0.28)	13.0 (1.64)
PM10 Emissions, lb/hr (g/s) [b]	3.5 (0.44)	0.6 (0.08)	2.2 (0.28)	2.2 (0.28)	13.0 (1.64)
Stack Parameters [c]					
Height, ft (m)	8 (2.4)	93 (28.4)	8 (2.4)	8 (2.4)	5 (1.5)
Exit Diameter, ft (m)	0.80 (0.24)	1.50 (0.46)	0.833 (0.25)	0.833 (0.25)	0.80 (0.24)
Height, ft (m)	30 (9.1)	75 (22.9)	30 (9.1)	30 (9.1)	15 (4.6) 78 (23.8)
Direction	Horizontal	Horizontal	Horizontal	Horizontal	Down
Operating Parameters					
Gas Flow Rate, acfm	1,820	2,546	2,200	2,800	2,200
Gas Exit Temperature, °F (K)	77 (298)	77 (298)	77 (298)	77 (298)	77 (298)
Gas Exit Velocity, ft/sec (m/s)	60.3 (18.4)	24.0 (7.3)	67.3 (20.5)	85.6 (26.1)	72.9 (22.2)
Modeled velocity, ft/sec (m/s)	0.33 (0.1)	0.33 (0.1)	0.33 (0.1)	0.33 (0.1)	0.33 (0.1)

[a] Maximum allowable PM emissions from the Title V operating permit (0170004-009-AV).

[b] Assumed equal to the PM emission rate

[b] Stack and operating parameters from the Title V permit application.

Table A-26
Estimation of PM Emission Factors and Rates For Wind Erosion from Active Storage Piles (Existing)
Project: PGN Crystal River

Parameters		Operations: Coal handling	Operations: Coal handling
		Coal Pile 4 & 5	**Coal Pile 1 & 2**
Emission Point/Area			
Storage Pile Data			
Material Type		Coal	Coal
Pile Description (shape)		Rectangular	Rectangular
Average Storage (ton)			
Average Pile Height (ft)		40	40
Average Pile Length (ft)		1117.1	930.6
Average Pile Width (ft)		1117.1	930.6
Size, ft^2	380,480	1,247,974	866,051
Size, acres		28.69	19.91
General/ Site Characteristics			
Days of precipitation greater than or equal to 0.01 inch (p)	Short term	0	0
	Annual	103	103
Time (%) that unobstructed wind speed exceeds 5.4 m/s at mean pile height (f)	Short term	60	60
	Annual	10	10
Silt content (s), %		3	3
Particle size multiplier, PM (k)		1.00	1.00
Particle size multiplier, PM10 (k)		0.50	0.50
Emission Control Data			
Emission control method		Watering	Watering
Emission control removal efficiency, %		80	80
Emission Factor (EF) Equation			
Uncontrolled EF (UEF) Equation	UEF (lb/day/acre) = k x 1.7 x (s/1.5) x ((365 - p)/365) x (f/15)		
Controlled (Final) EF (CEF) Equation	CEF (lb/day/acre) = UEF (lb/day/acre) x (100 - Removal efficiency (%))		
Calculated PM Emission Factor (EF)			
Uncontrolled EF, lb/day/acre	Short term	13.60	13.60
	Annual	1.63	1.63
Controlled EF, lb/day/acre	Short term	2.72	2.72
	Annual	0.33	0.33
Calculated PM10 Emission Factor (EF)			
Uncontrolled EF, lb/day/acre	Short term	6.80	6.80
	Annual	0.81	0.81
Controlled EF, lb/day/acre	Short term	1.36	1.36
	Annual	0.16	0.16
Estimated Emission Rate (ER)			
PM ER lb/hr (daily basis)		3.25	2.26
TPY		1.70	1.18
PM10 ER lb/hr (daily basis)		1.63	1.13
TPY		0.85	0.59

Source: USEPA, 1992 (Fugitive Dust Background and Technical Information Document for Best Available Control Measures, Section 2.3.1.3.3, Wind Emissions from Continuously Active Piles)

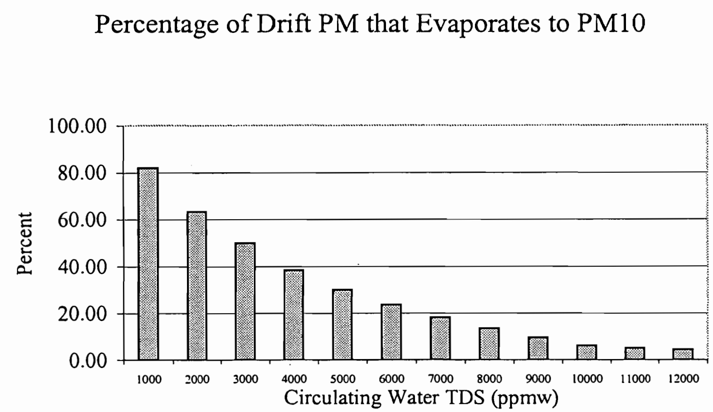
TABLE A-27
PM10 EMISSIONS FOR THE HELPER COOLING TOWERS

TDS (ppmw)	PM Emission Rate (lb/hr)	Percent of Emissions < or = PM10 %	PM10 Emissions (lb/hr)
1000	14.71	82.04	12.070
2000	29.42	63.50	18.684
3000	44.14	50.00	22.068
4000	58.85	38.33	22.556
5000	73.56	29.97	22.046
6000	88.27	23.59	20.823
7000	102.98	18.20	18.743
8000	117.69	13.57	15.971
9000	132.41	9.65	12.777
10000	147.12	6.28	9.239
11000	161.83	5.11	8.269
12000	176.54	4.46	7.874
25307	372.31	1.07	3.984
29100	428.11	0.81	3.468
89600	1318.17	0.22	2.900

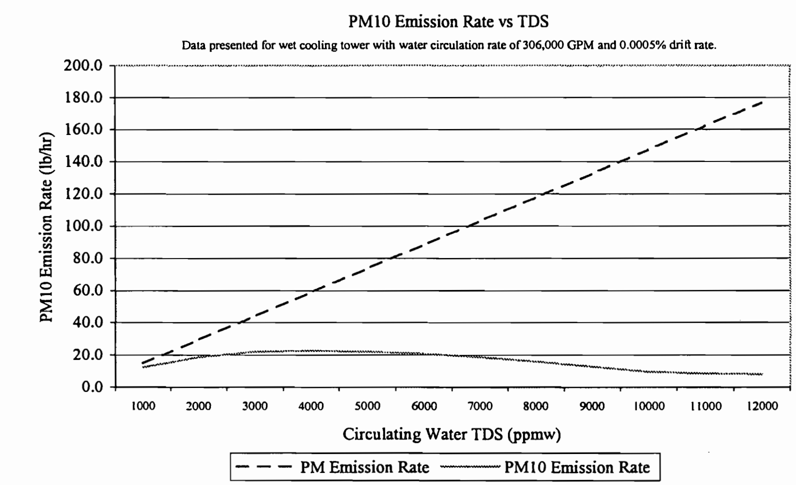
Tower Circulation Rate (GPM)	Drift Rate %
735,000	0.004

	Salt water density (lb/gal)
swd	8.34

Calculated PM10 % < or = PM10 %
82.04
63.50
50.00
38.33
29.97
23.59
18.20
13.57
9.65
6.28
5.11
4.46
1.07
0.81
0.22



Source: Reisman, Joel and Gordon Frisbie, Calculating Realistic PM10 Emissions from Cooling Towers, Abstract No. 216, Greystone Environmental Consultants, Inc.



Reisman, Joel and Gordon Frisbie, *Calculating Realistic PM10 Emissions from Cooling Towers,* Abstract No. 216, Greystone Environmental Consultants, Inc.

APPENDIX A-1

SULFURIC ACID MIST TEST REPORT

Sulfuric Acid Mist Engineering Study
Test Report

Progress Energy
Crystal River, Unit 4
Crystal River, Florida

C.E.M. Solutions Project No. 2648

Testing Completed: June 2006

Client Purchase Order Number: TBD
C.E.M. Solutions, Inc Report Number: 20-2648-04-001

C.E.M. Solutions, Inc.
7990 W. Gulf to Lake Hwy.
Crystal River, Florida 34429
Phone: 352-564-0441

Statement of Validity

I hereby certify the information and data provided in this emissions test report for tests performed at Progress Energy's Crystal River facility, Unit 4, conducted on June 20, 2006 are complete and accurate to the best of my knowledge.

Jeremy A. Johnson
President, C.E.M. Solutions, Inc.

Project Background

Name of Source Owner:	Progress Energy
Address of Owner:	One Power Plaza 263 13th Avenue South St. Petersburg, Fl 33701
Source Identification:	Oris Code: 628 Facility ID: 0170004 Emissions Unit: 004
Location of Source:	Citrus County, Florida
Type of Operation:	SIC Code: 4911
Tests Performed:	Method 1 - Traverse Points Method 3A - Determination of Oxygen and Carbon Dioxide Method 8 - Determination of Sulfuric Acid and Sulfur Dioxide
Test Supervisor:	Mr. Jeremy Johnson
Date Tests Conducted:	June 20, 2006
Site Test Coordinator:	Mr. James T. Long

C.E.M. Solutions, Inc Test Personnel

Project Field Manager:	Mr. Jeremy A. Johnson
Test Engineer:	Mr. Joseph Conti
Test Technician:	Mr. Charles Horton

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1.0 Introduction

Progress Energy, Florida (PEF) retained C.E.M. Solutions, Inc. to perform source emissions testing on Unit 4's boiler exhaust stack located at its facility in Crystal River, Florida.

The test program was conducted in order to compile air emissions data for engineering purposes.

Target pollutants include:

- Sulfuric Acid Mist (H_2SO_4), including SO_3

James T. Long of Progress Energy's Environmental Services Section coordinated plant operations throughout the test program.

All testing was conducted in accordance with test methods promulgated by the USEPA.

Sulfuric acid emissions, for the three test runs, averaged 18.7 pounds per hour (lb/hr).

The test program and results are presented and discussed in this report.

2.0 Facility Description

Crystal River, Unit 4 is a fossil fuel steam generator consisting of a dry bottom wall-fired boiler, rated at 760 MW, 6665 mmBtu/hr. Primary fuel is bituminous coal or a bituminous coal and bituminous coal briquette mixture. Number 2 fuel oil and natural gas may be burned as a startup fuel and for low load flame stabilization.

2.1 Process Equipment

Fossil Fuel Steam Generator, Unit 4 is a pulverized coal, dry bottom, wall-fired boiler. Emissions are controlled from the unit with a high efficiency electrostatic precipitator, manufactured by Combustion Engineering.

Emissions are exhausted through a brick and mortar 600 ft. stack.

3.0 Test Program/Operating Conditions

Emissions tests were completed on Unit 4, at Crystal River, on June 20, 2006.

Sulfuric Acid Mist Testing (H_2SO_4) was conducted utilizing USEPA Test Method 8 of Title 40 of the Code of Federal Regulations, Part 60 (40CFR60), Appendix A.

Plant operating data was collected and provided by facility personnel during the entire test program. Data provided include, but was not limited to:

- Fuel flow rate (Klbs/hr)

Fuel analysis was completed by Progress Energy.

During the test program, Unit 4's heat input averaged 6,845 mmBtu/hr while operating on 100 percent solid fuel, which correlates to 103 percent of the maximum heat input (6,665 mmBtu/hr).

Unit 4 fuel flow and fuel analysis reports are located in Appendix A.

4.0 Test Methods

All testing was performed in accordance with methods approved by the USEPA and FDEP. The following discusses the methods, as well as quality assurance and sample handling procedures.

Result summaries of each EPA test and completed forms are located in Appendix B.

Completed QA/QC procedures for each test method are located in Appendix C.

Table 1 summarizes the EPA test methods utilized:

Table 1: Summary of EPA Test Methods
Progress Energy
Crystal River Plant
Unit 4

USEPA Method	Description
1	Sample and Velocity Traverses for Stationary Sources
2	Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot)
3A	Gas Analysis for Determining Dry Molecular Weight (O_2/CO_2 gas analysis) Instrumental Method
4	Moisture Content in Stack Gases
8	Sulfur Acid (including sulfuric acid mist and SO_3)

4.1 Sample and Velocity Traverses

Sample and velocity traverse points used during the test program were determined utilizing EPA Method 1.

The stack diameter of Unit 4's exhaust stack is 28.29' (339.5"). The sample location for the stack is 10.7 diameters (302.75') downstream from the nearest disturbance and 6.9 diameters upstream (195.25') from the stack exit. 4 ports located 90 degrees from each other were used at the sample location.

4.2 Stack Gas Velocity and Volumetric Flow Rate

Method 2 was used to determine the volumetric flow rate of the stack effluent gas.

Stack differential pressure and temperature readings were taken with an S type pitot tube and Type K temperature sensor at each sample traverse point.

Method 2 data was recorded on the Method 8 isokinetic field data sheets.

4.2.1 Method 2 Quality Assurance/Quality Control Procedures

The S type pitot tube was inspected visually and measured to meet the design specifications of EPA Method 2, for a pitot coefficient of 0.84.

The inclined manometer and each leg of the pitot tube was leak checked before and immediately after each test run.

Thermocouple sensors were calibrated prior to the test program and a post test check was performed after testing was completed.

The inclined manometer was leveled and zeroed before each test run.

4.3 Determining Sample Gas Dry Molecular Weight

Stack gas dry molecular weight was determined utilizing Method 3A.

Gas samples were taken continuously at a sample point located at least 1 meter from the inner wall.

All reference method analyzers used meet or exceed applicable performance specifications detailed in the appropriate method.

Gas samples were continuously extracted from the stack by a gas sample probe. Samples were then transported to a gas sample conditioner via a heated sample line operating at 250°F or above. The gas sample conditioner lowers the dew point of the sample gas to approximately 5°C through minimum interference heat exchangers. The dry, cool sample is then sent to the gas analyzers, located in the environmentally controlled test trailer for analysis by the reference method analyzers.

Instrument outputs were recorded continuously with a Windows compatible personal computer, compiled into 15 second averages, and stored in a database for future reference.

Instrument ranges and calibration gases were chosen in accordance with the EPA method and are located in Appendix C with the QA/QC procedures.

4.3.1 Method 3A Quality Assurance/Quality Control Procedures

All sampling, analytical, and Quality Assurance/Quality Control (QA/QC) procedures outlined in the EPA method were followed.

All test equipment was calibrated before or during use in the field.

Interference checks and response time checks were performed on each instrumental analyzer, as applicable, before field use.

In the field, each analyzer and the entire instrument measurement system was checked for system bias before and following each test run using the calibration gases listed in the EPA method.

4.4 Moisture Content Determination

Moisture content of the stack gas was determined by Method 4.

Stack gas was sampled at each traverse point, passed through pre-weighed impingers and then through a calibrated dry gas meter. Moisture is removed from the sample gas in the pre-weighed impingers, which are submerged in an ice bath, and later analyzed for moisture weight gain. Moisture is determined based upon the amount of moisture weight gain and sample gas collected.

4.4.1 Method 4 Quality Assurance/Quality Control Procedures

The moisture sampling train was leak checked prior to each test run at approximately 15" Hg and immediately after each run at a vacuum higher than the highest vacuum recorded during the respective test run. Results are recorded on the moisture field data sheets.

Weighing to determine moisture content was conducted with a balance having an accuracy of 0.1 grams.

Gas temperature at the exit of the impingers was maintained at less than 68 degrees Fahrenheit.

4.5 Determination of Sulfur Acid Mist

Sulfur Acid Mist content of the stack gas was determined by USEPA Method 8.

The stack gas was extracted isokinetically from the stack at each traverse point. The gas is pulled from the stack through a glass tapered nozzle and glass lined sample probe, heated to approximately 250 °F, and then sent through an impinger train iced down and maintained for a train exit gas temperature of ≤68 °F. Sample gas was measured by a dry gas metering system.

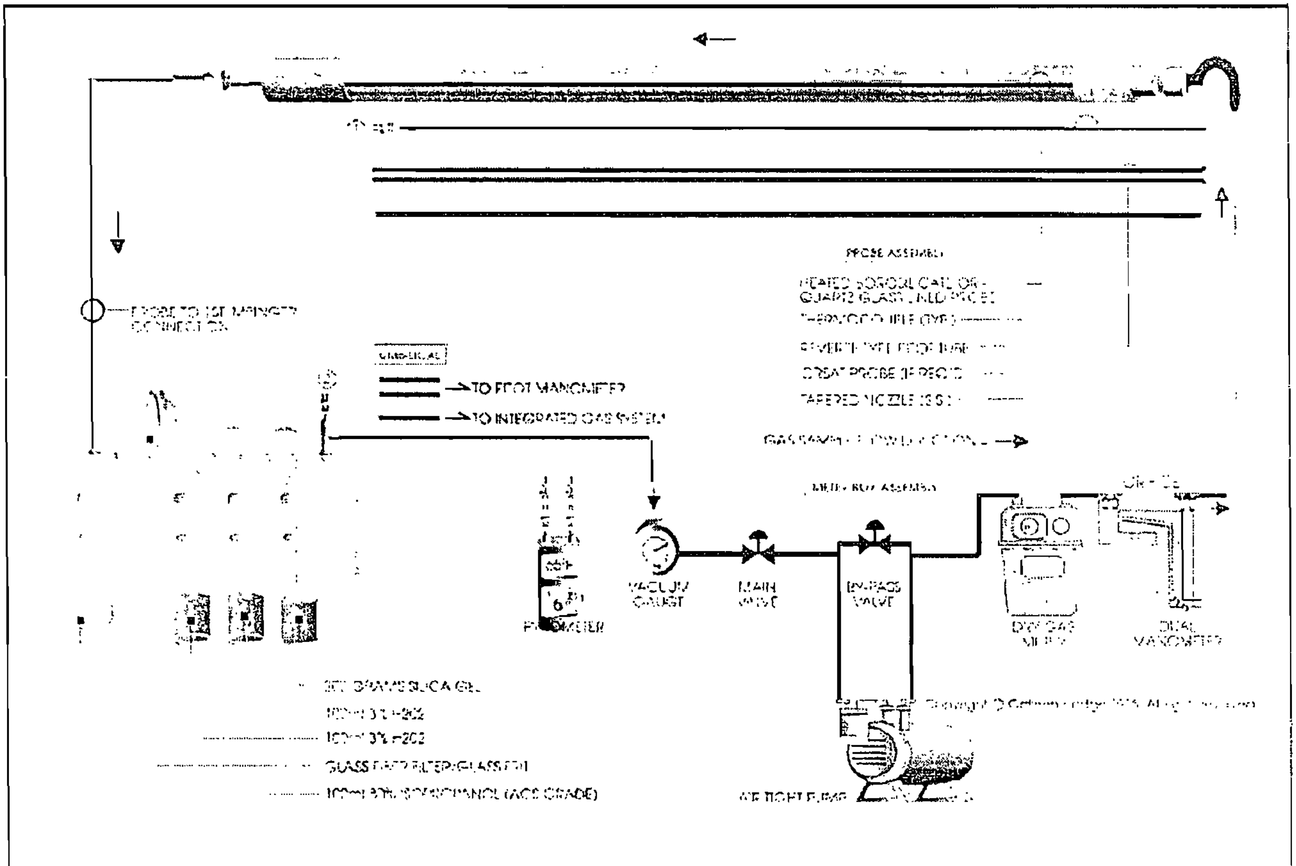
The impinger train is comprised of four Greenburg-Smith impingers. The first and third impingers have the standard tip, while the second and fourth are modified by replacing the standard tip with a ½" ID glass tube located approximately ½" from the bottom of the impinger.

The first impinger is loaded with 100 ml of 80 percent ACS grade isopropanol. A glass filter and filter housing is located between the first and third impinger. The second and third impingers contain 100 ml each of 3% H_2O_2 (hydrogen peroxide). A known, pre-weighed amount of indicating silica gel is contained in the fourth impinger.

Sulfuric Acid is trapped in the first impinger and on the filter and housing between the first and second impinger. Sulfur dioxide is captured in the third and fourth impinger (not applicable for this test since the target component was sulfuric acid). The sulfuric acid and sulfur dioxide fractions are, in most cases, measured separately by the barium-thorin titration method, but for this engineering study the samples were measured by an Ion Chromatograph to increase analytical detection limits.

Figure 1 contains a diagram of the Method 8 sampling train.

Figure 1: Method 8 Sample Train Diagram
Progress Energy
Crystal River Plant
Unit 4



U.S. EPA Method 8 Sampling Train

4.5.1 Sampling Train Operation/Test Run Durations

During each sampling run, isokinetic sampling was maintained between 90 and 110 percent isokinetic as summarized in Table 2. The temperature of the sample probe was maintained to 248 °F ±25 °F. The sampling rate did not exceed 1.0 cfm.

Table 2: Method 8 Isokinetics Summary
Progress Energy
Crystal River Plant
Unit 4

Unit	% Isokinetic				
	Run 1	Run 2	Run 3	Average(s)	Tolerance
4	98.2	100.9	102.9	100.7	90-110

Dry gas meter volume, velocity head, DGM orifice pressure and various temperature readings were taken at each traverse point for each test run.

A total of three sixty-minute test runs were completed.

Immediately following each test run a leak check of the sampling train was performed.

After draining the impinger ice bath, with the probe disconnected, the impinger train was purged by drawing clean ambient air through the system for 15 minutes at the average flow rate used for sampling.

4.5.2 Sample recovery

The contents of the first impinger were transferred to a clean 250ml graduated cylinder. The probe, first impinger, all connecting glassware before the filter, and front half of the filter holder were rinsed with 80 percent isopropanol. The rinses were added to the graduated cylinder and diluted to 225 ml with 80 % isopropanol and transferred to a one liter, leak free polyethylene storage bottle. The graduated cylinder was rinsed with 25 ml of 80 % isopropanol and transferred to the storage bottle. The filter was added to the storage bottle and mixed.

A portion of the 80 % isopropanol was transferred to a storage container for blank analysis.

Since sulfur dioxide was not measured, the rest of the train contained DI water and was not recovered.

The sample container for each test run and the blanks were packed and shipped to the laboratory for analysis.

4.5.3 Sample Analysis

Laboratory analysis was completed by Resolution Analytics, Inc. located in Sanford, NC.

The analytical report can be viewed in Appendix B.

4.5.4 Method 8 Quality Assurance/Quality Control Procedures

The probe nozzles were inspected and measured across three different diameters to determine the appropriate nozzle diameter.

Before and after each test run, the manometer was leveled and zeroed.
Leak checks of the sampling train were conducted before and immediately after each test run.

The dry gas meter was fully calibrated within six months prior to the test program using a set of EPA critical orifices. Post test program dry meter checks were completed to verify the accuracy of the meter's Y_i.

5.0 H_2SO_4 Test Results

The test program results are presented below. Supporting fuel analysis reports, field data, and equations are presented in Appendix A, B and C, respectively.

Summaries of the test results are presented in Table 3.

The three-run average sulfuric acid emissions during the test program was 18.7 pounds per hour (lb/hr).

Table 3: Method 8 Results Summary
Progress Energy
Crystal River Plant
Unit 4

METHOD 8 - DETERMINATION OF SULFURIC ACID MIST EMISSIONS - RESULTS

Plant Name	Progress Energy, Crystal River Plant	Date	06/20/06
Sampling Location	Unit 4 Stack	Project #	2648
Operator	J. Conti	Stack Type	Circular

Historical Data						
Run Number		M8-1	M8-2	M8-3	Average	
Run Start Time		13:17	15:56	17:56		hh:mm
Run Stop Time		14:17	16:56	18:56		hh:mm
Meter Calibration Factor	(Y)	1.011	1.011	1.011		
Pitot Tube Coefficient	(C_p)	0.840	0.840	0.840		
Actual Nozzle Diameter	(D_n)	0.192	0.192	0.192		in
Stack Test Data						
Initial Meter Volume	(V_m)$_i$	511.477	566.324	618.078		ft^3
Final Meter Volume	(V_m)$_f$	551.915	608.215	660.325		ft^3
Total Meter Volume	(V_m)	40.438	41.891	42.247	41.525	ft^3
Total Sampling Time	(Θ)	60.0	60.0	60.0	60.0	min
Average Meter Temperature	(t_m)$_{avg}$	102.5	105.0	105.8	104.4	°F
Average Stack Temperature	(t_s)$_{avg}$	300.6	302.0	301.2	301.3	°F
Barometric Pressure	(P_b)	29.65	29.65	29.59	29.63	in Hg
Stack Static Pressure	(P_{static})	0.00	-0.75	-0.75	-0.50	in H_2O
Absolute Stack Pressure	(P_s)	29.65	29.59	29.53	29.59	in Hg
Average Orifice Pressure Drop	(ΔH)$_{avg}$	1.46	1.56	1.54	1.52	in H_2O
Absolute Meter Pressure	(P_m)	29.76	29.76	29.70	29.74	in Hg
Avg Square Root Pitot Pressure	($\Delta p^{1/2}$)$_{avg}$	1.26	1.29	1.29	1.28	(in H_2O)$^{1/2}$
Moisture Content Data						
Impingers 1-3 Water Volume Gain	(V_f)	36.6	67.1	67.1	56.9	ml
Impinger 4 Silica Gel Weight Gain	(W_g)	29.1	23.0	38.0	30.0	g
Total Water Volume Collected	(V_{lc})	65.8	90.1	105.2	87.0	ml
Standard Water Vapor Volume	(V_w)$_{std}$	3.095	4.243	4.950	4.096	scf
Standard Meter Volume	(V_m)$_{std}$	38.167	39.372	39.567	39.035	dscf
Calculated Stack Moisture	($B_{ws(calc)}$)	7.5	9.7	11.1	9.4	%
Saturated Stack Moisture	($B_{ws(svp)}$)	100.00	100.0	100.0	100.0	%
Reported Stack Moisture Content	(B_{ws})	7.5	9.7	11.1	9.4	%
Gas Analysis Data						
Carbon Dioxide Percentage	(%CO_2)	12.7	12.9	12.7	12.8	%
Oxygen Percentage	(%O_2)	6.6	6.5	6.6	6.6	%
Carbon Monoxide Percentage	(%CO)	0.0	0.0	0.0	0.0	%
Nitrogen Percentage	(%N_2)	80.7	80.6	80.7	80.7	%
Dry Gas Molecular Weight	(M_d)	30.30	30.32	30.30	30.31	lb/lb-mole
Wet Stack Gas Molecular Weight	(M_s)	29.37	29.13	28.93	29.14	lb/lb-mole
Calculated Fuel Factor	(F_o)	1.126	1.116	1.126	1.123	
Fuel F-Factor	(F_d)	0	0	0	0	dscf/mmBtu
Percent Excess Air	(%EA)	0.4	0.4	0.4	0.4	%
Volumetric Flow Rate Data						
Average Stack Gas Velocity	(V_s)	84.40	87.16	87.28	86.28	ft/sec
Stack Cross-Sectional Area	(A_s)	628.65	628.65	628.65		ft^2
Actual Stack Flow Rate	(Q_{aw})	3183549	3287524	3291914	3254329	acfm
Wet Standard Stack Flow Rate	(Q_{sw})	131405	135193	135247	133948	wkscfh
Dry Standard Stack Flow Rate	(Q_{sd})	2025814	2034019	2003459	2021097	dscfm
Dry Standard Stack Flow Rate	(Q_{sd})	121548855	122041118	120207512	121265828	dscfh
Percent of Isokinetic Rate	(I)	98.2	100.9	102.9	100.7	%
Emission Rate Data						
Mass of H2SO4 in Catch	(m_t)	2.38	2.75	3.06	2.73	mg
H2SO4 Emission Rate	(E)	0.00000014	0.00000015	0.00000017	0.00000015	lb/dscf
	(E)	16.7	18.8	20.5	18.7	lbs/hr
(Pt 75 App F Sect. 5.2.1) Heat Input	(HI)	6877	6842	6816	6845	mmBtu/Hr

APPENDIX A-2

SUB-BITUMINOUS TEST BURN REPORT

PROGRESS ENERGY
SUB-BITUMINOUS BLEND TRIAL TEST REPORT
CRYSTAL RIVER UNIT 5

Submitted to:

Mr. Jeff Koerner
FDEP
North Permitting Section
Division of Air Resource Management
2600 Blair Stone Road MS 5500

Submitted by:

Progress Energy Corporation
Environmental Services Section
100 Central Avenue CX1B
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Distribution:

2 Copies	Department of Environmental Protection
2 Copies	Progress Energy Florida
1 Copy	Golder Associates Inc.

July 2006

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Appendix

1. Actual schedule and overall description of the trial burn

Actual Schedule

- 04/19/06 – Baseline CO testing on Unit 5 by CEMS Solutions
- 05/21/06 – Start Sub-bituminous blend burn at Crystal River Unit 5
- 05/22/06 – Sub-bituminous blend burn Particulate, CO, Resistivity, ESP Performance and Coal testing on Unit 5
- 05/23/06 - Sub-bituminous blend burn Ash Resistivity
- 05/23/06 – Completion of Sub-bituminous blend test burn – Unit 5
- 06/05/06 – Baseline CO, Resistivity and Coal testing on unit 5 by Koogler & Associates
- 06/06/06 – Baseline Ash Resistivity
- 07/08/06 – Baseline ESP Performance

Overall description of the trial burn

In an effort to continue expanding fuel diversity and ultimately enhancing market options through supplier flexibility at the Crystal River facility, a test burn of a blended bituminous product and a sub-bituminous product was conducted on Crystal River Unit 5 (referenced as CR5). This test burn was conducted following approval of a modified air permit by the Florida Department of Environmental Protection (FDEP) allowing testing of a sub-bituminous blended product.

The test consisted of one barge (15,900 tons) of the preblended product made up of 18% sub-bituminous coal & 82% bituminous coal. The barge arrived on site Saturday 5/20/06 and was burned Sunday 5/21/06 – Tuesday 5/23/06 on Unit 5. The sub-bituminous blend was coaled up directly to the unit from the barge without going to the ground allowing for better control and monitoring of the blended product. CR4 was coaled-up separately from the stockpile to prevent any opportunity for co-mingling of the sub-bituminous blend with the standard coal in CR4.

Blending of the coal product was conducted at the International Marine Terminal (IMT) in New Orleans prior to delivery.

There were no substantial issues raised during this trial. Full load was achieved and LOI (loss on ignition) was as good as or better than the base line coal performance measurements. Major emissions constituents, such as NOx, SO2, and opacity, were equivalent to or better than the same constituents utilizing the base line coal.

In addition to the major emissions constituents discussed above, detailed stack testing of CO, PM and ash resistivity testing were required to meet the Florida Department of Environmental Protection (FDEP) requirements. Particulate Matter was basically unaffected by the PRB blend as compared to baseline. CO, which is not currently regulated, was reportedly low during the baseline tests. CO readings did register while burning the PRB blend.

2. Summary of sub-bituminous blends evaluated (amounts delivered; blend ratio; and proximate/ultimate analyses)

- Amount Delivered - 15,900 Tons in one single continuous burn in Unit 5 from 5/21/6 to 5/23/6
- Blend Ratio - 18 % Sub-bituminous and 82 % Bituminous
- Proximate/ultimate analysis (See Appendix)

3. Discussion of operational issues of the sub-bituminous coal blend including: coal unloading, handling, storage and firing; fugitive dust; soot blowing; ESP performance and adjustments; and ash handling and storage;

Discussion of Operational Issues:

- **Coal Unloading**: The blend was observed unloading from barge and along conveyors. The large percentage of bituminous coal (82%) did an excellent job of controlling dust and in fact, little if any dusting at all was noticed.
- **Handling**: No problems were encountered with coal handling. Performed similar to current Crystal River coal.
- **Storage and firing**: The sub-bituminous blend was taken directly from the barge to Unit 5 and not put to the ground, therefore unable to evaluate storage on-site. Firing was adequate to achieve full load in the unit.
- **Fugitive Dust**: Coal blend was not dusty and fugitive dusting was not an issue.
- **Sootblowing**: Routine sootblowing operations were continued during trial. A small ash accumulation was observed in an area where sootblowers were non-operational. Accumulation was removed with air lance and did not reform during trial. Therefore, the accumulation may have been formed prior to the sub-bituminous blend.
- **ESP Performance and Adjustments**: No problems with ESP performance or opacity during the sub-bituminous blend burn.
- **Ash handling and storage**: Ash quality and LOI were well within acceptable limits to be able to utilitize ash product. In fact, LOI was better than normal at 3.4 - 4%.

4. Comparison of baseline operations versus operation with the sub-bituminous coal blend

Baseline Compared to PRB Blend burn:

Crystal River 5 PRB Blend Trial & Baseline					
Test Type Start Time End Time Ran By		Stack Test - Baseline 06/05/2006 10:00:00 06/05/2006 14:00:00	PRB Blend Test 05/22/2006 07:30:00 05/22/2006 19:30:00		
Measured Test Data (Average)				Delta	% change
Gross Load	*MW*	711.29	711.31	0.02	0.00%
Auxillary Load	*MW*	32.01	32.10	0.10	0.30%
Net Load	*MW*	**679.29**	**679.21**	-0.08	-0.01%
Main Steam Temp	*DEGF*	1003.33	1003.31	-0.02	0.00%
Main Steam Press	*PSI*	2392.81	2404.18	11.37	0.48%
Hot Reheat Temp	*DEGF*	998.77	998.20	-0.56	-0.06%
Main Steam Flow	*KPPH*	4899.27	4882.48	-16.79	-0.34%
U5 COAL FDRS TOTAL COAL FLOW	*KLB/HR*	534.48	540.02	5.55	1.04%
Heat Input Rate	*MMBTU/HR*	6257.43	6197.09	-60.34	-0.96%
CEMS data & LOI					
Opacity	*%*	5.40	5.39	-0.02	-0.33%
NOx	*LB/MBTU*	0.50	0.44	-0.05	-10.69%
SO2	*LB/MBTU*	1.06	1.05	-0.02	-1.69%
LOI (from PMI) - below 6% is good	*%*	5.30	3.40	-1.90	-35.85%

5. Evaluation of current equipment compatibility with the sub-bituminous coal blend

Evaluation of Current Equipment Compatibility with the Sub-bituminous Blend:

There were no shortcomings in existing equipment during the sub-bituminous blend use. U5 was able to make full load without issues. More long term use of the product, or a similar product, would likely require some expenditures to complete repairs to existing equipment and provide additional safety measures needed for long-term use of a higher volatility product.

6. Summary of continuous emissions monitoring data

Crystal River 5 PRB Blend Trial & Baseline					
Test Type Start Time End Time Ran By		Stack Test - Baseline 06/05/2006 10:00:00 06/05/2006 14:00:00	PRB Blend Test 05/22/2006 07:30:00 05/22/2006 19:30:00		
Measured Test Data (Average)				Delta	% change
Gross Load	*MW*	711.29	711.31	0.02	0.00%
Auxiliary Load	*MW*	32.01	32.10	0.10	0.30%
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CEMS data & LOI					
Opacity	*%*	5.40	5.39	-0.02	-0.33%
NOx	*LB/MBTU*	0.50	0.44	-0.05	-10.69%
SO2	*LB/MBTU*	1.06	1.05	-0.02	-1.69%
LOI (from PMI) - below 6% is good	*%*	5.30	3.40	-1.90	-35.85%

The continuous emission monitors recorded Opacity, NOx, and SO2 emissions. Referencing the above table:

- Opacity – During the baseline testing the opacity readings averaged 5.40. The sub-bituminous blend test value averaged 5.39. The percent change is an improvement of 0.33 percent with the blended coal.

- NOx - During the baseline testing the NOx readings averaged 0.50. The sub-bituminous blend test value averaged 0.44. The percent change is an improvement of 10.7 percent with the blended coal.

- SO2 - During the baseline testing the SO2 readings averaged 1.06. The sub-bituminous blend test value averaged 1.05. The percent change is an improvement of 1.7 percent with the blended coal.

7. Summary of boiler operating data

Furnace Exit Gas Temperature (FEGT)

FEGT's were taken before and during the sub-bituminous blend trial at full load on 11th floor of CR5. The table below summarizes the main results of FEGT tests. Note that the Ash Fusion Softening Temperture (AFT) of the sub-bituminous coal blend used in the trial was 2170-2200 degrees F (from lab analyses) and ash fusion cannot be blended away. (Also, red O_2% indicates a reducing atmosphere present.)

CR Unit 5
Benchmark HVT Data West Face of Boiler
4/19/2006 11th Floor, Elev 224 **Note: CO at 1000 ppm indicates offscale high**

Insertion	North Port, Near Wall			Center Port, Middle			South Port, Near Wall		
Length, ft	O2, %	CO, ppm	Temp, F	O2, %	CO, ppm	Temp, F	O2, %	CO, ppm	Temp, F
2	1.55	608	**1678**	1.0	1000+	**2416**	4.40	530	**1874**
4	2.00	610	**1742**				3.20	410	**2018**
6	1.85	634	**1858**				1.20	20	**2109**
8	1.30	702	**1909**				0.00	1000	**2175**
10	1.00	739	**1945**				0.00	1000	**2190**
12	1.10	720	**2119**				0.00	1000	**2287**
14							0.00	1000	
16							0.00	1000	**2300**

CR Unit 5
PRB Blend HVT Data West Face of Boiler
5/23/2006 11th Floor, Elev 224

Insertion	North Port, Near Wall			Center Port, Middle			South Port, Near Wall		
Length, ft	O2, %	CO, ppm	Temp, F	O2, %	CO, ppm	Temp, F	O2, %	CO, ppm	Temp, F
2	1.90	392	**1660**	2.1	527	**2245**	0.00	1000	**1960**
4	1.90	400	**1775**	1.7	565	**2240**	0.00	1000	**2120**
6	1.20	340	**1855**	1.8	575	**2320**	0.00	1000	**2195**
8	0.90	425	**1960**				0.00	1000	**2245**
10	0.45	500	**2065**				0.10	1000	**2295**
12	0.40	770	**2145**						
14	1.00	865	**2165**						
16									

Comparing the above tables, the temperatures appear to be about the same between the two tests, with the exception of the center readings, which dropped about 200 degrees F from the baseline to the sub-bituminous blend. This could be due to the high moisture content of PRB (28% moisture). It also appears that CO levels were in the same ballpark, if not slightly lower, with the sub-bituminous blend.

8. Summary of emissions test results, actual test schedule, and procedures used Actual Schedule

- 04/19/06 – Baseline CO testing on Unit _ by CEMS Solutions
- 05/22/06 – Sub-bituminous blend burn - Particulate, CO, Ash Resistivity, ESP Performance and Coal testing on Unit 5
- 05/23/06 – Sub-bituminous blend burn - Ash Resistivity
- 06/05/06 – Baseline CO, Ash Resistivity and Coal testing on unit 5 by Koogler & Associates
- 06/06/06 – Baseline Ash Resistivity
- 07/08/06 – Baseline ESP Performance

Summary of emissions test results

CO & PM

CO & PM measurements were taken by Koogler & Associates both during the sub-bituminous blend and later on typical plant bituminous coal (baseline). Koogler performed (6) 1-hour tests on the sub-bituminous blend day (5/22) and (3) 1-hour tests on the baseline coal (6/5). CEMS Solutions performed (9) 20 minute CO tests on the baseline coal (4/19). Results are indicated below:

CR5 Stack Testing Results Summary (lb/mmbtu)					
	Baseline Tests			Blend Tests	
	4/19	6/5	6/5	5/22	5/22
Test Run #	CO	CO	PM	CO	PM
1	0.007	*<.001**	0.003	0.031	0.004
2	0.005	*<.001*	0.004	0.058	0.004
3	0.006	*<.001*	0.004	0.033	0.004
4	0.006			0.03	0.003
5	0.006			0.024	0.003
6	0.004			0.019	0.002
7	0.004				
8	0.004				
9	0.006				
Avg	0.006	*<.001*	0.004	0.033	0.003
Min	0.004		0.003	0.019	0.002
Max	0.007		0.004	0.058	0.004

** non-detectable (< 1ppm)*

Particulate Matter was basically unaffected by the sub-bituminous blend as compared to baseline. CO, which is not currently regulated, was reportedly low during the baseline tests. CO readings did register while burning the sub-bituminous blend. However, in comparing the CO levels of the two coals in the HVT tests (Section 7), the two coals seem very similar in CO levels. This leads us to question how the CO levels could be similar within the boiler yet differ at the stack.

ESP Voltages/Performance

We monitored ESP secondary voltage and secondary current and the total ESP secondary power input. The statistical results are summarized below:

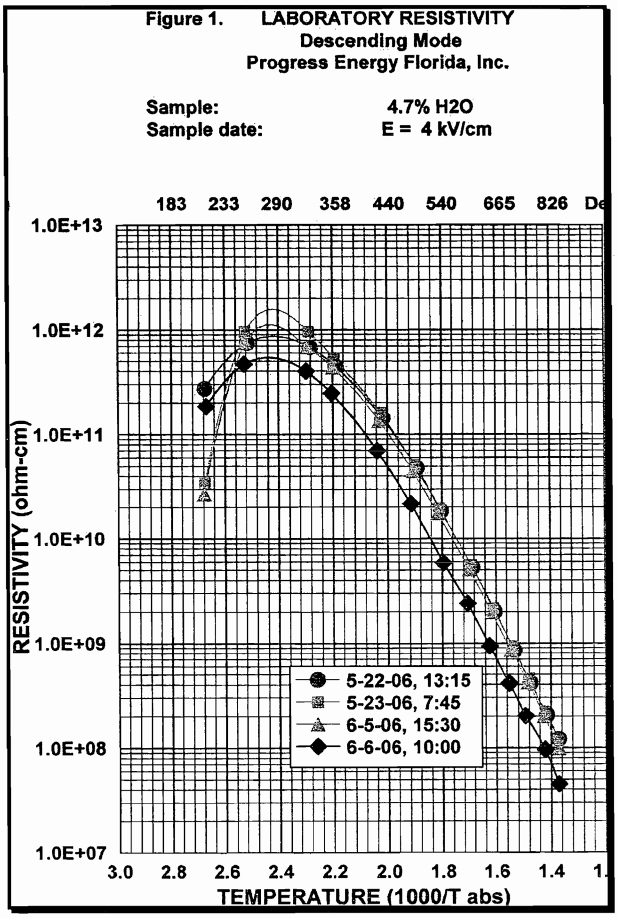
	Baseline Run - 7/8/06 (710 MW)			PRB Blend - 5/22/06 (710 MW)		
ESP T/R Set	Baseline Secondary Current (mA)	Baseline Secondary Voltage (kV)	Baseline Secondary Power Input (KW)	PRB Blend - Secondary Current (mA)	PRB Blend Secondary Voltage (kV)	PRB Blend Secondary Power Input (KW)
Descriptive Statistics						
Mean	**412.66**	50.05	**19.73**	**318.57**	50.124	**15[illegible]**
Median	387.00	50.00	18.90	272.0	50.0	11[illegible]
Mode	474.00	50.00	9.90	162.0	50.0	8.8
Standard Deviation	181.74	2.33	8.98	177.32	1.85	8.73
Range	753	14.00	36.90	653	11	34
Minimum	94.0	41.1	3.5	86.0	44.3	4.0
Maximum	847.0	55.1	40.4	739.0	55.0	37.9
Count	77	77	77	79	79	79

Ash Resistivity

Fly ash samples were pulled from ESP hoppers on CR5 at full load. Two samples were taken during the sub-bituminous blend burn and two more taken during normal coal burning operations. Samples were sent to APCO Services laboratories in Hopkinsville, KY. All (4) samples were tested simultaneously in a declining temperature batch resistivity test at 4.7% moisture to simulate conditions at the ESP inlet.

Sample Date	Coal Type	Full Load (Mw)
5/22/06	PRB blend	710
5/23/06	PRB blend	760
6/5/06	Typical CAPP	710
6/6/06	Typical CAPP	760

Fig. 1 is APCO's resistivity curve results. Typical ESP inlet temperature is 300 degrees F.



Upon evaluating APCO Services' Fig. 1, it appears that the sub-bituminous blend had, for the most part, slightly higher resistivity, yet still in the manageable range of the Electrostatic Precipitator. If we consider that the normal full load ESP inlet temperature is 300˚F, the 5/22/06 sub-bituminous blend resistivity was actually lower than the 6/5/06 typical bituminous coal. Conclusion: the sub-bituminous blend ash resistivity is within normal parameters.

Test Procedures

Test Parameter	Test Method
PM	EPA Method 17
Stack Gas Velocity	EPA Method 2
Stack Moisture	EPA Method 4
Dry Molecular Weight	EPA Method 3
Carbon Monoxide	EPA Method 10
Opacity	EPA Method 9
Ash Resistivity Measurements	IEEE Standard 58-1984
Proximate Analysis	ASTM D-3172
Ultimate Analysis	ASTM D-3176
Heating Value	ASTM D-5865
Sulfur Percent	ASTM D-4239

9. Comparison of baseline emissions with emissions from firing the sub-bituminous coal blend (short-term and long-term)

NOx – Baseline testing of NOx emissions was conducted on June 05, 2006. The blend testing was conducted on May 22, 2006. The results of the testing are as follows:

NOx Test Results

Run Number	Baseline Rate (lb/mmbtu)	Blend Rate (lb/mmbtu)
1	0.501	.443
2	0.504	.436
3	0.502	.455
4	0.513	.455
5	0.512	.447
6		.439
7		.446
8		.453
9		.456
10		.457
11		.456
12		.452
13		.485
Average	.506	.452

SO2 - Baseline testing of SO2 emissions was conducted on June 05, 2006. The blend testing was conducted on May 22, 2006. The results of the testing are as follows:

Run Number	Baseline Rate (lb/mmbtu)	Blend Rate (lb/mmbtu)
1	1.071	1.056
2	1.077	1.061
3	1.077	1.064
4	1.082	1.056
5	1.072	1.063
6		1.059
7		1.063
8		1.068
9		1.07
10		1.059
11		1.037
12		1.021
13		1.016
Average	1.076	1.053

PM - Baseline testing of PM emissions was conducted on June 05, 2006. The blend testing was conducted on May 22, 2006. The results of the testing are as follows:

Run Number	Baseline Rate (lb/mmbtu)	Blend Rate (lb/mmbtu)
1	.003	.004
2	.004	.004
3	.004	.004
4		.003
5		.003
6		.002
Average	.004	.003

CO - Baseline testing of CO emissions was conducted on April 19, 2006 and June 05, 2006. The blend testing was conducted on May 22, 2006. The results of the testing are as follows:

	Baseline Rate (lb/mmbtu)	Baseline Rate (lb/mmbtu)	Blend Rate (lb/mmbtu)
Run Number	4/19/2006	6/5/2006	5/22/2006
1	.007	<.001	.031
2	.005	<.001	.058
3	.006	<.001	.033
4	.006		.03
5	.006		.024
6	.004		.019
7	.004		
8	.004		
9	.006		
Average	.006	<.001	.033

10. Discussion of emissions changes as described in Appendix C of 40 CFR 60.

The measured emissions outlined in section 9 were evaluated using the statistical methodology found in 40 CFR 60 Appendix C. The methodology used is the student's t test. Please see the results in Appendix 4.

NOx, SOx, and PM all showed that the emission rate change was insignificant. The only pollutant measured that showed a significant rate increase was CO. The CO significant rate increase determination, however, is based on a relatively small number of tests – with only a single set of tests with the sub-bituminous blend.

APPENDIX A-3

FUEL ADDITIVE SPECIFICATIONS

1. EES will bring a tankwagon of *EES®Energy Plus* with 3 totes of *EES®Energy Plus* concentrate at varying levels to allow for inline changes in dosage without altering spray patterns.

2. The objective is to measure changes caused by varying a fuel treatment process documenting changes in:
   a. Heat rate.
      - Energy Plus will increase the BTU output of coal in the furnace.
   b. Boiler efficiency.
      - EES expects reductions in fuel consumption and an increase in feed water flow.
   c. Emissions reductions.
      - We expect to see reductions as follows: CO 30%, PM 30%, NOx 20%, Opacity 10%.

3. Initially run a stable *coal only* baseline test at a repeatable coal feed rate (full load). Crystal River will use typical fuel and we will examine long term CEMS records for variations and compare average values. The fuel quality will most likely fluctuate but we will agree on the typical statistical data collected to establish baseline parameter.

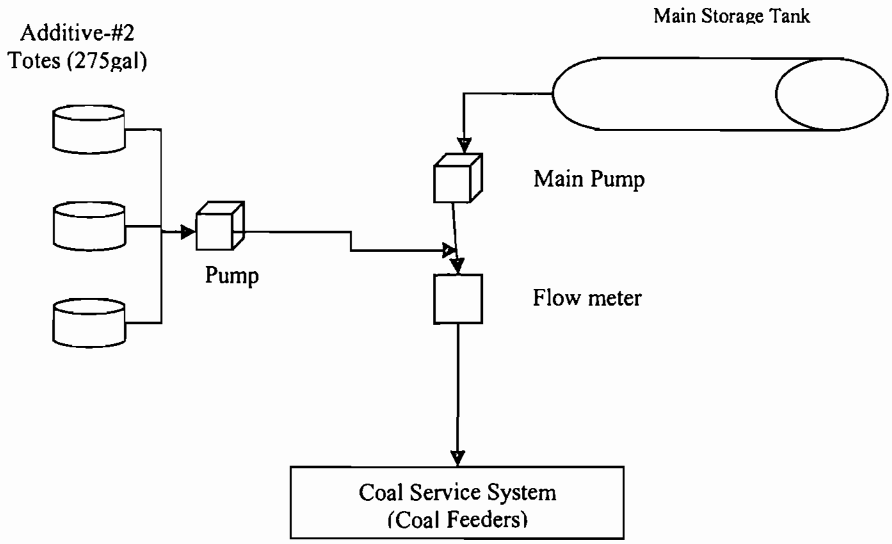
4. Then running with *EES®Energy Plus* for several days to document changes at different concentrations. EES will deliver 500ppm – 1000ppm of active concentrate onto the coal. The concentration will be determined by dilution with a less concentrated product (denoted as additive #2 in the diagram below). The additive mixture is fed at a rate of 3 to 30 gallons per hour (total to all feeders.)

5. Excess air levels will be reduced by Crystal River for each dosage condition. EES will run three dosage conditions to bracket performance for later optimization. The amount of air reduced will be limited by CO limits and/or opacity limits. Our objective will be to increase efficiency and reduce NOx while keeping CO within limits. We will discuss and agree on an exact protocol for reducing excess air when the trial date is fixed. Crystal River operations will be responsible for moving excess air levels according to the protocol we all agree upon. Varying the dosage is used to optimize chemical consumption while maximizing performance results.

6. It may take several hours to days to initiate the changes expected in point #2, depending on the boilers response to the additive. No undesirable effects are expected. If the novel technology does not work according to plan, nothing will happen. Risks remain "normal" as with any boiler operations.

7. The *EES®Energy Plus* concentrate will be mixed with a diluted product stream and water in varying proportions from 275 gallon totes to achieve the desired dosages of 500 – 1000ppm. Our pumping system will be controlled by the gravimetric feeders. The main pump will have an on/off switch (a 4-20ma signal from feeder(s) will need to be provided by Crystal River I&C) and will deliver the correct flow to maintain a header pressure of 100psi. We will control dosage manually for the trial. A sketch of the proposed fuel treatment system is attached.

8. The following parameters should be measured for the test:
   a. Feed water rate and temperature to the boiler economizer
   b. Steam flow, temperature and pressure from boiler
   c. Electrical output from generator
   d. Coal feed rate
   e. Heat rate
   f. Flue gas oxygen
   g. NOx (from CEMs)
   h. Sox (from CEMs)
   i. CO (portable analyzer provided by EES)
   j. PM (EES Impaction Plate test with is much less complicated than method 5, at no cost to Crystal River).
   k. Opacity (from COMs)



The main storage tank will be 3 totes in series.

Environmental Energy Services, Inc.

Combustion Enhancer System

Material Safety Data Sheet

Environmental Energy Services, Inc.
8 West Kenosia Ave
Danbury, CT 06810

Emergency Phone:
CHEMTREC: 800-424-9300
EES®: 203-798-7428
Business Phone: 203-798-7428

PART I: What is the material and what do I need to know in an emergency?

Section 1: PRODUCT IDENTIFICATION	
Trade Name (as labeled):	EES® – Energy Plus™
Chemical Name/Class:	Inorganic Nitrate Solution
Technical Bulletins:	EES® – Energy Plus™ (Liquid Calcium Nitrate Tetrahydrate)
Product Use:	Variety of Industrial Applications
MSDS Preparation Date:	February 6, 2004
Health (Blue):	2
Flammability (Red):	0
Reactivity (Yellow):	0
Protective Equipment:	D
Respiratory:	See Section 8
See Section 16 for definition of ratings.	

Section 2: COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Name	CAS #	% v/v	Exposure Limits in Air: ACGIH TLV Mg/m³	ACGIH STEL Mg/m³	OSHA PEL Mg/m³	OSHA STEL Mg/m³	IDLH Mg/m³	Other
Calcium Nitrate Tetrahydrate	13477-34-4	> 50%	NE	NE	NE	NE	NE	NE
Water	7732-18-5	Balance	NE	NE	NE	NE	NE	NE

NE = Not Established

C = Ceiling

See Section 16 for definition of terms used.

NOTE: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1993 format.

Section 3: HAZARD INFORMATION	
Emergency Overview:	This product is a colorless, odorless solution. This primary health hazard associated with this product is the potential for moderate irritation of the eyes, skin, and other contaminated tissue. This product is not flammable or reactive. In its dry form, this product may act as an oxidizer to initiate and sustain the combustion of flammable materials. Emergency responders must wear the personal protective equipment suitable for the situation to which they are responding.
Symptoms of Overexposure by Route of Exposure:	The primary routes of overexposure for the solution are via inhalation and contact with skin and eyes. The following paragraphs describe the symptoms of overexposure to this material.
Inhalation:	If vapors, mists or sprays of this product are inhaled, they may irritate the nose, throat and lungs. Symptoms may include the following: sneezing, coughing, and difficulty breathing. Severe overexposure can result in damage to the respiratory system tissues. Most symptoms are generally alleviated when the overexposure ends.
Contact with Skin or Eyes:	Depending on the duration of overexposure, contact with the eyes will cause irritation, pain, and reddening. Severe eye exposure can cause conjunctivitis. Severe, prolonged exposures may cause tissue damage, which could lead to blindness. Depending on the duration of skin contact, skin overexposures will cause reddening, discomfort, moderate irritation and tissue damage. Dermatitis may result from prolonged or repeated skin contact.
Skin Absorption:	Skin absorption is not a significant route of overexposure for the components of this product.
Ingestion:	Is this product is swallowed, irritation and burns of the mouth, throat, esophagus, and other tissues of the digestive system will occur immediately upon contact. Symptoms of such overexposure can include nausea, abdominal pain, vomiting and diarrhea. Severe ingestion overexposures can result in convulsions and collapse. The nitrate component of Calcium Nitrate, Tetrahydrate (a component of this product) may damage the oxygen transport system to the blood. Severe ingestion exposures can be fatal. Repeated ingestion of small amounts of this product (as may occur in the event of poor hygiene practices) may cause weakness, depression, headaches, and mental impairment.
Injection:	Accidental injection of this product, via laceration or puncture by a contaminated object, may cause pain and irritation in addition to the wound.
Health Effects or Risks from Overexposure: *An explanation in Lay Terms.*	
In the event of overexposure, the following symptoms may be observed:	
Acute:	The primary hazard associated with this product is the potential for moderate irritation of the skin, eyes, and other contaminated tissues. Prolonged contact can result in tissue damage. Ingestion of this product can be harmful or fatal.
Chronic:	Dermatitis (inflammation and redness of the skin) may result from prolonged or repeated skin contact. Repeated ingestion of small amounts of this product may cause weakness, depression, headaches, neurological effects, and mental impairment. See Section 11: Toxicology Information for additional information.
Target Organs:	Skin, eyes, nervous system.

PART II: What should I do if a hazardous situation occurs?

Section 4: FIRST-AID MEASURES

Skin Exposure:	If this product contaminates the skin, begin decontaminated with running water. The minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek medical attention if any adverse effects occur.
Eye Exposure:	If this product's liquid or vapors enter the eyes, open contaminated individual's eyes while *under gently running water. Use sufficient force to open eyelids.* Have contaminated individual "roll" eyes. **Minimum** flushing is for 15 minutes. Contaminated individual must seek immediate medical attention.
Inhalation:	If vapors, mists, or sprays of this product are inhaled, remove contaminated individual to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.
Ingestion:	If this product is swallowed, **CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION**. If professional advice is not available, **DO NOT INDUCE VOMITING**. Contaminated individual should drink milk, egg whites, or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is **unconscious, having convulsions, or unable to swallow**.

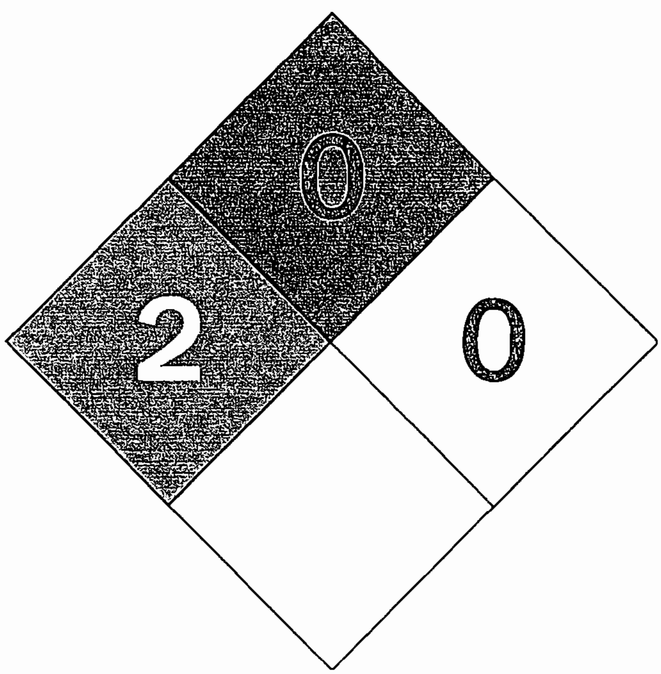
Contaminated individuals must be taken for medical attention if any adverse reaction occurs. Rescuers should be taken for medical attention, if necessary. Take a copy of the label and MSDS to health professional with contaminated individual.

Section 5: FIRE-FIGHTING MEASURES

NFPA Rating

Flammability

Health



Reactivity

Other

See Section 16 for definition of ratings.

Section 5: FIRE-FIGHTING MEASURES (Continued)

Flash Point:	Not flammable
Autoignition Temperature:	Not flammable
Flammable Limits (in air by volume %)	**Lower (LEL):** Not applicable
	Upper (LEL): Not applicable

Fire Extinguishing Materials:

Water Spray:	Yes
Foam:	Yes
Halon:	Yes
Carbon Dioxide:	Yes
Dry Chemical:	Yes
Other:	Any "ABC" Class
Unusual Fire and Explosion Hazards:	This product is a moderate irritant and presents a potential contact hazard to firefighters. When involved in a fire, this material may decompose and produce acrid vapors, calcium compounds, and oxides of nitrogen. Though not anticipated to be a significant hazard associated with this product, due to that fact that this is a solution, it is important to note that in its dry form, Calcium Nitrate is an oxidizer, which can act to initiate and sustain the combustion of flammable materials.
Explosion Sensitivity to Mechanical Impact:	Not sensitive
Explosion Sensitivity to Static Discharge:	Not sensitive
Special Fire-Fighting Procedures:	Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Chemical resistant clothing may be necessary. Move containers from fire area if they have not been exposed to heat and if it can be done without risk to personnel. If this product is involved in a fire, fire run-off should be contained to prevent possible environmental damage. Rinse all contaminated equipment thoroughly with water before returning to service.

Section 6: ACCIDENTAL RELEASE MEASURES

Spill and Leak Response:	Uncontrolled releases should be responded to be trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a large spill, clear the affected area, and protect people. In the event of a non-incidental release (e.g., 55-gallon release in which excessive splashes or sprays can be generated), minimum Personal Protective Equipment should be Level C: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemically resistant suit and boots, hard-hat and an air-purifying respirator with a high-efficiency particulate filter. Level B, which includes Self-Contained Breathing Apparatus, must be worn in situations in which excessive sprays or mists can be generated, or the oxygen level is less than 19.5% or unknown. Absorb spilled liquid with lime, polypads, or other suitable absorbent materials. Decontaminate the area thoroughly. Place all spill residue in a suitable container and seal. Dispose of in accordance with U.S. federal, state, and local waste disposal regulations, or the applicable Canadian standards (see Section 13: Disposal Considerations).

PART III: How can I prevent hazardous situations from occurring?

Section 7: HANDLING AND STORAGE	
Work and Hygiene Practices:	As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash hands after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. All work practices should minimize the generation of splashes and aerosols. Remove contaminated clothing immediately.
Storage and Handling Practices:	All employees who handle this material should be trained to handle it safely. Avoid breathing vapors or mists generated by this product. Use in a well-ventilated location. Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Empty containers may contain residual liquid or vapors; therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see Section 10: Stability and Reactivity). Material should be stored in secondary containers or in a diked area, as appropriate. Keep container closed tightly when not in use. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.
Protective Practices During Maintenance of Contaminated Equipment:	Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely, if necessary. Collect all rinsates and dispose of according to applicable U.S. federal, state, or local procedures, or the appropriate Canadian Standards.
Section 8: EXPOSURE CONTROLS – PERSONAL PROTECTION	
Ventilation and Engineering Controls:	Exhaust directly to the outside. Use local exhaust ventilation, and process enclosure if necessary, to control mist formation. Supply sufficient replacement air to make up for air removed by system. Ensure eyewash/safety shower stations are available near areas where this product is used.
Respiratory Protection:	Maintain airborne containment concentrations below exposure limits listed in Section 2 (Composition and information on Ingredients). If respiratory protection is (e.g., air-purifying respirator with dust/mist/fume cartridge), use only protection authorized in 29 CFR 1910.134, or applicable U.S. state regulations (or the appropriate standards of Canada and its provinces). Use supplied air respiration protection during response procedures to non-incidental releases and if oxygen levels are below 19.5% or unknown.
Eye Protection:	Splash goggles or safety glasses. Face shields recommended when using quantities of this product in excess of one (1) gallon.
Hand Protection:	Wear Neoprene or rubber gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 (Accidental Release Measures) of this MSDS.
Body Protection:	Use body protection appropriate for task. An apron, or other impermeable body protection is suggested. Full-body chemical protective clothing is recommended for emergency response procedures.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES	
Vapor Density:	Not applicable
Specific Gravity @ 15°C (59°F):	1.465-1.475
Solubility in Water:	Completely
Vapor Pressure:	Not applicable
Odor Threshold:	Not applicable
Log Water/Oil Distribution Coefficient:	Not available
Appearance and Color:	This product is a colorless, odorless solution
How to detect this substance (Warning Properties):	There are no distinguishing characteristics of this product
Evaporation Rate (n-BuAc – 1):	Similar to water
Freezing Point or Range:	-35°C (-31°F)
Boiling Point:	>100°C (>212°F)
pH @ 15°C (59°F):	6.5-8.0

Section 10: STABILITY AND REACTIVITY	
Stability:	Stable
Decomposition Products:	Calcium compounds, nitrogen oxides
Materials with which Substance is Incompatible:	Flammable and combustible materials, strong reducing agents, finely powdered metals.
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	Extreme heat and contact with incompatible chemicals

PART IV: Is there any other useful information about this material?

Section 11: TOXICOLOGICAL INFORMATION	
Toxicity Data:	The toxicology data available for the components of this product specifically listed in Section 2 (Composition and Information on Ingredients), and for a related compound, are as follows:
ENERGY PLUS Skin-rabbit, adult 500 mg/24 hours, mild irritation effects; Eye effects – rabbit, adult 500 mg/24 hours, mild irritation effects; Oral – rat LD_{50}, 3900 mg/kg	**CALCIUM NITRATE:** Oral – rat LD_{50}, 302 mg/kg
Suspected Cancer Agent:	The components of this product are not found on the following lists: U.S. Federal OSHA, NTP, IARC, and CAL/OSHA and therefore are not considered to be, nor suspected to be, cancer causing agents by these agencies.
Irritancy of Product:	This product is moderately irritating to contaminated tissue
Sensitization of Product:	This product contains no known sensitizers with repeated or prolonged use.
Reproductive Toxicity Information:	Listed below is information concerning the effects of this product and its components on the human reproductive system:
Mutagenicity:	This product is not reported to produce mutagenic effects in humans
Embryotoxicity:	This product is not reported to produce embryotoxic effects in humans
Teratogenicity:	This product is not reported to cause teratogenic effects in humans

Section 11: TOXICOLOGICAL INFORMATION (continued)

Reproductive Toxicity:	This product is not reported to cause reproductive toxicity effects in humans

A **mutagen** is a chemical that causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An **embryotoxin** is a chemical that causes damage to a developing embryo (i.e., within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A **teratogen** is a chemical that causes damage to a developing fetus, but the damage does not propagate across generational lines.
A **reproductive toxin** is any substance that interferes in any way with the reproductive process.

Medical Conditions Aggravated by Exposure:	Pre-existing dermatitis, or other skin disorders, and conditions involving the other Target Organs (see Section 3, Hazard Identification) may be aggravated by over-exposure to this product.
Recommendations to Physicians:	Treat symptoms and eliminate over-exposure. Be observant for signs of pulmonary edema in the event of severe inhalation over-exposure.
ACGIH Biological Exposure Indices:	Currently, there are no ACGIH Biological Exposure Indices (BEI's) associated with components of this product.

Section 12: ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION

Environmental Stability:	The components of this product are relatively stable under ambient, environmental conditions.
Effect of Materials on Plants or Animals:	This product may be harmful to terrestrial plant or animal life, especially if released in large quantities. Refer to Section 11 for clinical data on the effects of this product's components on test animals.
Effect of Chemical on Aquatic Life:	This product may be harmful to aquatic plant or animal life, especially if released in large quantities.

Section 13: DISPOSAL CONSIDERATIONS

Preparing Wastes for Disposal:	Waste disposal must be in accordance with appropriate U.S. federal, state, and local regulations, or appropriate Canadian standards. This product, if unaltered, may be disposed of by treatment at a permitted facility, or as advised by your local hazardous waste authority.
EPA Waste Number:	Not applicable to wastes consisting only of this product.

Section 14: TRANSPORTATION INFORMATION

THIS MATERIAL IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION

Proper Shipping Name:	Not applicable
Hazardous Class Number and Description:	Not applicable
UN Identification Number:	Not applicable
Packing Group:	Not applicable
DOT Label(s) Required:	Not applicable
North American Emergency Response Number:	Not applicable
Marine Pollutant:	This product does not contain any components which are designated by the Department of Transportation (DOT) to be Marine Pollutants (per 49 CFR 172.101 Appendix B)
Transport Canada Transportation of Dangerous Goods Regulations:	THIS MATERIAL IS NOT CONSIDERED AS DANGEROUS GOODS.

Section 15: REGULATORY INFORMATION

ADDITIONAL UNITED STATES REGULATIONS	
U.S. SARA Reporting Requirements:	The components of this product are subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act, and are listed below as follows:

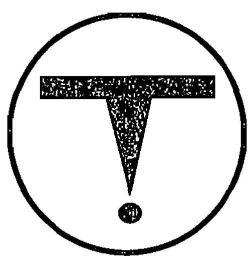
Chemical Name	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Energy Plus (as Nitrate Compounds, Water Dissociable)	NO	NO	YES

U.S. SARA Threshold Planning Quantity:	Not applicable
U.S. CERCLA Reportable Quantity (RQ):	Calcium Nitrate, Tetrahydrate is a hydrate of anhydrous Calcium Nitrate, which is on the TSCA inventory.
U.S. TSCA Inventory Status:	Not applicable
Other U.S. Federal Regulations:	Not applicable
U.S. Regulatory Information:	The components of this product are covered under the following specific state regulations:

Alaska – Designated Toxic and Hazardous Substance:	No
California – Permissible Exposure Limits for Chemical Contaminates:	No
Florida – Substance List:	No
Illinois – Toxic Substance List:	No
Kansas – Section 302/313 List:	No
Massachusetts – Substance List:	No
Michigan – Critical Materials Register:	No
Minnesota – List of Hazardous Substances:	No
Missouri – Employer Information/Toxic Substance List:	No
New Jersey – Right to Know Hazardous Substance List:	Calcium Nitrate
North Dakota – List of Hazardous Chemicals, Reportable Quantities:	No
Pennsylvania – Hazardous Substance List:	No
Rhode Island – Hazardous Substance List:	No
Texas – Hazardous Substance List:	No
West Virginia – Hazardous Substance List:	No
Wisconsin – Toxic and Hazardous Substances:	No
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65):	No component of this product is on the California Proposition 65 lists

Section 15: REGULATORY INFORMATION (Continued)	
ANSI Labeling (per Z129.1, provided to summarize occupational safety hazards):	WARNING! CAUSES SKIN OR EYE IRRITATION. MAY BE HARMFUL OR FATAL IF SWALLOWED. Keep away from flammable or combustible materials. Do not taste or swallow. Do not get on skin, in eyes, or on clothing. Avoid breathing vapors or mists. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, face-shield, and suitable body protection. FIRST AID: In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing or shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. IN CASE OF FIRE: Use water fog, dry chemical, CO_2, or "alcohol" foam. IN CASE OF SPILL: Absorb spill with inert material. Place residue in suitable container. Consult MSDS for additional information.
Current Labeling (Precautionary Statements):	WARNING! INGESTION: Temporary intestinal upset. SKIN CONTACT: Mild irritant. SKIN ABSORPTION: Mild irritant. EYE CONTACT: Mild irritant. FIRST-AID: INGESTION: Flush system with water. Take milk of magnesia. SKIN: Wash with plenty of soap and water. EYE: Flush with running water for a minimum of 15 minutes. INHALATION: Get patient to fresh air; blow nose to remove dust. IN CASE OF FIRE: Aqueous solution is non-flammable, but dry solids will support combustion of flammable materials. Anhydrous nitrates are powerful oxidizing agents. Exposure to heat or flame can emit toxic oxides of nitrogen. IN CASE OF SPILL: Clean up at once. Do not allow dried-out spill to remain near flammable material. See MSDS for further information.

ADDITIONAL CANADIAN REGULATIONS:	
Canadian DSL Inventory:	Calcium Nitrate, Tetrahydrate is a hydrate of anhydrous Calcium Nitrate, which is on the DSL/NDSL inventory.
Canadian WHMIS Symbols:	Class D2B: Materials Causing other Toxic Effects



Section 16: OTHER INFORMATION

DEFINITIONS OF TERMS

A LARGE NUMBER OF ABBREVIATIONS AND ACRONYMS APPEAR ON AN MSDS. SOME OF THESE WHICH ARE COMMONLY USED INCLUDE THE FOLLOWING:

CAS #:	This is the Chemical Abstract Service Number that uniquely identifies each constituent. It is used for computer related searching.

EXPOSURE LIMITS IN AIR:

ACGIH – American Conference of Governmental Industrial Hygienists, a professional association that establishes exposure limits. TLV – Threshold Limit Value; an airborne concentration of a substance that represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average (TWA), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level (C). Skin absorption effects must also be considered. OSHA – U.S. Occupational Safety and Health Administration. PEL – Permissible Exposure Limit. This exposure value means exactly the same thing as a TLV, except that it is enforcible by OSHA. The OSHA Permissible Exposure Limits are based on the 1969 PELS and the June, 1993 Air Contaminates Rule (Federal Register: 58:35338-35351 and 58:40191). Both the current PELS and the vacated PELS are indicated. The phrase, "Vacated 1989 PEL" is placed next to the PEL THAT was vacated by Court Order. IDLH – Immediately Dangerous to Life and Health. This level represents a concentration from which one can escape within 30 minutes without suffering, preventing escape or permanent injury. The DFG-MAK is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. NIOSH is the national institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Association (OSHA). NIOSH issues exposure guidelines called Recommended Exposure Levels (RELS) when no exposure guidelines are established, an entry of NE is made for reference.

HAZARD RATINGS:

HAZARD MATERIALS IDENTIFICATION SYSTEM:

Health Hazard: 0 (minimal acute or chronic exposure hazard); 1 (slight acute or chronic exposure hazard); 2 (moderate acute or significant chronic exposure hazard); 3 (severe acute exposure hazard; one-time overexposure can result in permanent injury and may be fatal); 4 (extreme acute exposure hazard; one-time overexposure can be fatal)

Flammability Hazard: 0 (minimal hazard); 1 (materials that require substantial pre-heating before burning); 2 (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); 3 (Class 1B and 1C flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C (100°F)

Reactivity Hazard: 0 (normally stable); 1 (material that can become unstable at elevated temperatures or which can react slightly with water); 2 (materials that are unstable but do not detonate or which can react violently with water); 3 (materials that can detonate when initiated or which can react explosively with water); 4 (materials that can detonate at normal temperatures or pressures)

Section 16: OTHER INFORMATION (continued)

NATIONAL FIRE PROTECTION ASSOCIATION:

Health Hazard: 0 (material that, on exposure under fire conditions, would offer no hazard beyond that of ordinary combustible materials); 1 (materials that on exposure under fire conditions could cause irritation or minor residual injury); 2 (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); 3 (materials that can, on short exposure, cause serious, temporary, or residual injury); 4 (materials that under very short exposure causes death or major residual injury)

Flammability Hazards and Reactivity Hazard:

Refer to definitions for "Hazardous Materials Identification System"

FLAMMABILITY LIMITS ON AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA).

Flash Point: minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. ***Autoignition Temperatures:*** the minimum temperature required to initiate combustion in air with no other source of ignition. ***LEL:*** the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. ***UEI:*** the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Possible health hazards as derived from human data, animal studies, or from the results of studies with ilar compounds are presented. Definitions of some terms used in this section are: *LD_{50}* - Lethal Dose ids and liquids) which kills 50% of the exposed animals; *LC_{50}* - Lethal Concentration (gases) which kills 50% of the exposed animals; ***ppm*** - concentration expressed in weight of substance per volume of air; ***mg/m^3*** - concentration expressed in weight of substance per volume of air; ***mg/kg*** - quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: *IARC* - the International Agency for Research on Cancer; *NTP* - the National Toxicology Program; RTECS - the Registry of Toxic Effects of Chemical Substances; *OSHA* and *CAL/OSHA*. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1-4. Subrankings (2A, 2B, etc) are also used. Other measures of toxicity include *TDLO*, the lowest dose to cause a symptom; *TDO, LDLO*, and *LDO*, or *TC, TCO, LCLO*, and *LCO*, the lowest dose (or concentration) to cause lethal or toxic effects. *BEI* - Biological Exposure Indices, represent the level of determinants, which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the *TLV*. *EC* – Ecological Information is the effect concentration in water.

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. *EPA* is the U.S. Environmental Protection Agency. *WHMIS* is the Canadian Workplace Hazardous Materials Information System. *DOT* and *TC* are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act *(SARA)*; the Canadian Domestic/Non-Domestic Substances List *(DSL/NDSL)*; the U.S. Toxic Substance Control Act *(TSCA)*; Marine Pollutant status according to the DOT; the Comprehensive Environmental Response, Compensation and Liability Act *(CERCLA or SUPERFUND)*; and various state regulations.

APPENDIX A-4

CBO MERCURY EMISSIONS DATA

The Fate of Ammonia and Mercury in the Carbon Burn-Out (CBO™) Process

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KEYWORDS: mercury, ammonia, carbon burn-out, fly ash

INTRODUCTION

Carbon Burn-Out (CBO™) has long been known as a very robust system for carbon removal for various types of ash feed stocks. Ash feed stocks with carbon contents ranging from 7% to 90% have been successfully processed. To date, over one million tons of coal fly ash have been processed using CBO™.

CBO™ processed coal fly ash exhibits excellent pozzolanic activity, consistent air entrainment, consistent LOI at 2.5% or less, and has gained excellent market acceptance.

Recently, there has been much discussion in the fly ash industry about the fate of ammonia and mercury on fly ash. These two parameters are present in coal fly ash via different mechanisms. Mercury is inherent to the coal while ammonia originates from post-combustion NOx reduction techniques using ammonia.

Ammonia on fly ash is primarily a result of recent pollution abatement techniques. Coal fired power generation facilities are under increasing pressure for NOx emission reductions. Recent United States EPA rule changes will require many coal fired utilities to meet NOx emissions limitations of 0.15 lbs./MBTU or less. In order to meet these requirements, many utilities will use a combination of combustion management and post-combustion processes. Combustion management techniques include low NOx burners, over-fire air systems, gas re-burning technology and flue gas re-circulation. These methods can contribute to higher residual carbon levels in fly ash, especially when operating for maximum NOx removal.

Post-combustion processes include Selective Catalytic Reduction (SCR) and Selective Non-Catalytic Reduction (SNCR). Use of either of these treatment technologies will result in fly ash contaminated with ammonia slip, which may then be un-marketable, depending on the concentration.

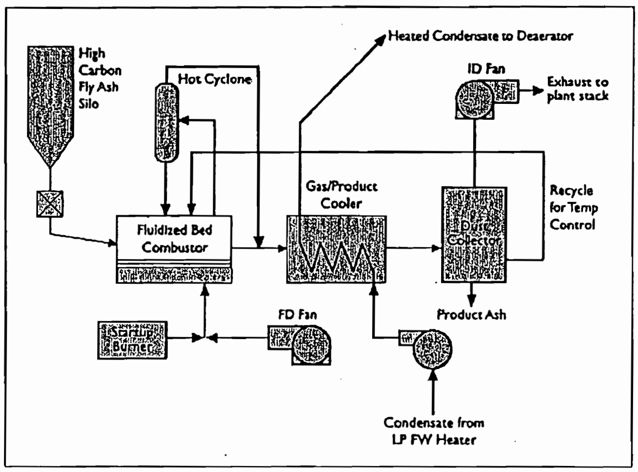
Mercury on the other hand is inherent or naturally occurs in coal. The average value for fly ash from Bituminous coal combustion is .41 ppm[1].

Given the industry's concerns, Progress Materials recently conducted investigations as to the fate of ammonia and mercury in the Carbon Burn-Out process. This paper presents recent findings concerning ammonia and mercury in the Carbon Burn-Out process.

THE CARBON BURN-OUT PROCESS

The Carbon Burn-Out process is a thermal process specifically designed for the reduction of carbon in fly ash.

FIGURE 1: <u>CBO™ Process Diagram</u>



Referring to Figure 1, the CBO™ process flow may be easily summarized:

- High-carbon ash is pneumatically transported to the high carbon fly ash silo.
- FD fan provides fluidization and combustion air to CBO™ fluid bed combustor.
- Start-Up Burner is used only during start up to heat bed to ignition temperature.
- High Carbon feed ash is metered into the combustor.
- Carbon combusts in the FBC on a continuous basis.
- Hot cyclones remove most elutriated particles from FBC flue gas.
- Low carbon fly ash exits FBC via level control weirs.
- Flue gas pneumatically conveys low carbon fly ash, both at about 1300° F through the Gas/Product Cooler.
- In the Gas/Product cooler, heat transfer occurs from hot product ash and hot flue gas to the condensate from the power plant.
- Product ash and flue gas exit at < 300° F.
- Heated condensate returns to power plant's feedwater heater system.

- Product ash is separated from flue gas via cyclone and baghouse.
- ID fan maintains entire CBO™ system at a slight negative pressure, transports product ash through the heat exchanger, and transports cooled, particulate-free flue gas to power plant stack.
- Product ash is pneumatically conveyed to storage for subsequent load out.
- Product ash is also recycled for FBC temperature control.

AMMONIA AND THE CARBON BURN-OUT PROCESS

Progress Materials' ammonia removal investigation approach was developed to accomplish two primary goals. The first goal was to determine Carbon Burn-Out's efficiency in removing ammonia from fly ash. Data would be generated to determine fly ash ammonia concentrations after Carbon Burn-Out processing. The second goal was to determine the fate of the ammonia in the Carbon Burn-Out process. This investigation step involved measuring gas phase ammonia concentrations thereby providing information as to whether the ammonia is exhausted or thermally decomposed within the CBO™ system.

This work on the fate of ammonia in the CBO™ builds on the work previously reported by PMI [2].

Ammonia Testing Procedures and Results

In order to determine the effectiveness of ammonia removal by Carbon Burn-Out, several fly ash feed stocks of differing ammonia contents were processed. Processing was accomplished using Progress Materials' one ton per hour pilot facility located in Tampa, Florida.

Ammonia containing fly ash samples from several Eastern United States utilities were selected for processing. Fly ash ammonia concentrations ranged between 50 and 750 ppmw. Ammoniated fly ash used in this study was generated in both SCR and SNCR systems. Ammonia or Urea was used as the process reagent.

Carbon Burn-Out's fluid bed technology provides heat and residence time dictated by conditions for optimal combustion of carbon found in fly ash. Fly ash residence times of forty-five minutes and temperatures in the 1300°F range are characteristic of the CBO™ process. Kinetic theory suggest that CBO™ conditions should be ideal for ammonia removal and decomposition.

Both feed and product samples were analyzed for ammonia content. Ammoniated fly ash was tested by several different methods. Testing methodology for ammonia in fly ash is not well defined. However, well-defined methods have been used for solid matrices in environmental testing. EPA methods 350.2, 350.3 and a rapid field technique developed by Boral Materials Technologies Inc. were selected for use in our testing program.

Table 1 illustrates results of four different, as-received fly ashes tested using the three methods. EPA methods 350.2 and 350.3 produced similar results. EPA 350.2 uses an aggressive acid distillation step while method 350.3 uses only distilled water for the dissolution of ammonia. The similarity of results between the two methods indicates that the ammonia is water-soluble. The Boral method, which is a simpler-to-run field test, also produced reasonably similar results.

Table1: Ammonia Method Comparison

	EPA 350.2 (PPM)	EPA 350.3 (PPM)	Boral Procedure (PPM)
Sample 1	300	306	320
Sample 2	351	300	250
Sample 3	534	660	525
Sample 4	735	610	720

Table 2 illustrates ammoniated fly ash samples before and after processing by Carbon Burn-Out. Ammonia content of the feed and product, type of NOx control device used and NOx reagent are shown.

Table 2: Ammonia in Fly Ash Feed

Feed Ash (PPM)	Product Ash (PPM)*	Control Device	Reagent
60	< 5	SCR	Ammonia
230	< 5	SNCR	Ammonia
300	< 5	SNCR	Ammonia
500	< 5	SNCR	Ammonia
650	< 5	SNCR	Ammonia
700	< 5	SNCR	Urea
735	< 5	SNCR	Urea

* < Indicates detection limit of the method

Results indicate that under normal Carbon Burn-Out operating conditions essentially all ammonia was removed from the fly ash feed material.

The second goal of the study involved the determination of the fate of released ammonia in the flue gas. To quantify the extent of thermal decomposition of ammonia, flue gas ammonia concentrations were measured at the fluid bed exhaust and the exhaust stack.

The test method selected for ammonia concentration in flue gas was EPA CTM 027, "Procedure for Collection and Analysis of Ammonia in Stationary Sources."

Sampling was conducted after the CBO™ system achieved steady state operation and recycle ash was used for FBC cooling. Such conditions closely simulate large scale CBO™ operation in the pilot facility.

Results of testing indicate that between 94% and 98% of the ammonia introduced into the system is being thermally decomposed. That is, the mass of ammonia in the FBC flue gas was between 4% and 8% of that in the feed ash. Both sampling points produced similar concentrations and decomposition efficiency.

MERCURY AND THE CARBON BURN-OUT PROCESS

Mercury as a trace element in coal is now coming under increasing investigation, particularly as a contaminant in flue gas from coal-fired power plants. Technology is being developed to capture mercury (Hg) contained in this flue gas.

Processes that absorb mercury from the flue gas by injecting carbon (typically activated carbon) into the gas ducting show significant promise. In these processes, the mercury containing carbon may be captured with the fly ash by existing particulate control devices. These processes report capture rates of up to 90% of the total Hg contained in the coal. The relatively small amount of carbon used in mercury capture is co-mingled with normally occurring fly ash.

Addition of even very small amounts of activated carbon to fly ash can reduce the value of the fly ash as a pozzolan used in concrete manufacturing. Activated carbon has been found to interfere greatly with the air entrainment reagents used in concrete mix designs[3].

While most of the regulatory effort has been on removing mercury from flue gas, the presence of mercury on either fly ash or on mixtures of fly ash and activated carbon slated for disposal is of significant concern. This scenario has the potential to change once marketable fly ash into a solid waste.

It was clear that the CBO™ process would combust the small amounts of activated carbon, along with the carbon in the co-mingled ash, and that the mercury would be vaporized at the FBC temperature. What was not clear was what the final fate of that mercury would be. One possibility was that it could simply remain in the vapor state and exit the CBO process in the flue gas. However, since the flue gas is cooled in the G/P Cooler, another possibility was that some fraction of the mercury would condense on the product fly ash and become sequestered when the fly ash was bound in the concrete matrix.

Mercury Testing Procedures and Results

A testing program was designed to determine the fate of mercury in the CBO™ process. A commercial scale CBO™ system was used for this testing program. Fly ash processed in this study was from a utility boiler without activated carbon mercury control equipment so the mercury represents only that captured by the fly ash. Various studies indicate that this can represent 30% to 100% of the total mercury from the coal. [4,5]

Table 3 illustrates sampling points used in this program, sample matrix and the sample type

Table 3: Mercury Sampling Locations

Sampling Point	Matrix	Sample Type
Fly Ash Feed	Solid	Grab
Fly ash product	Solid	Grab
Fluid Bed	Solid	Grab
Hot cyclone Inlet	Gas, Solid	Ontario Hydro
Hot Cyclone Outlet	Gas, Solid	Ontario Hydro
Baghouse Inlet	Gas, Solid	Ontario Hydro
Baghouse Exhaust	Gas, Solid	Ontario Hydro

A mercury balance of the CBO™ process was constructed by examining the mercury concentration of the high carbon feed, low carbon CBO™ product and the exhaust gas of the CBO™ system.

Table 4 illustrates the results of this approach. Three separate runs were used to determine the CBO™ system mass balance for mercury. The data shows excellent mass balance recovery ranging from a low of 94% to a high value of 109% with the average being 101%.

As the data indicates, virtually all of the mercury entering the CBO™ system on the high carbon fly ash feed is found on the low carbon fly ash product. Only .02% of the total mercury entering the CBO™ process is found in the exhaust gas of the system. The remaining 99.98% of the mercury entering the CBO™ process on the high carbon fly ash exits the system with the low carbon CBO™ fly ash product.

Table 4: Mercury Mass Balance for CBO™ Process

Run	Hg-Feed Mg/hr	Hg-Product Mg/hr	Hg-BHO Mg/hr	Prod+BHO Mg/hr	Material Balance %
1	13159	12395	12	12407	94
2	9899	9778	19	9797	99
3	11193	12119	37	12156	109
Average					101

Considering the operational temperatures of the CBO™ process, normally in the 1300° F range, one would assume that mercury would volatize and might exit the CBO™ process in the vapor phase. Indeed, fly ash samples taken from the fluid bed contain essentially no mercury. However, the mass balance information presented in table 4 does not support the assumption that mercury exits the CBO™ system along with the flue gas since virtually all the mercury introduced into the process exits "particulate bound" with the low carbon CBO™ product material.

Mass balance information in table 4 suggests that mercury volatization and a subsequent absorption/adsorption process is taking place within the CBO™ process. In order to develop an understanding of this mechanism speciation data was examined from several Carbon Burn-Out sampling points.

Table 5: Mercury Particulate/Gas Data

<table>
<tr><th rowspan="2">Sampling Point</th><th rowspan="2">Matrix</th><th rowspan="2">Sample Type</th><th rowspan="2">Particulate</th><th colspan="2">-------Vapor Phase-----</th></tr>
<tr><th>Oxidized</th><th>Elemental</th></tr>
<tr><td>Fly Ash Feed</td><td>Solid</td><td>Grab</td><td>100%</td><td></td><td></td></tr>
<tr><td>Fluid Bed</td><td>Solid</td><td>Grab</td><td></td><td colspan="2">>96%</td></tr>
<tr><td>Hot Cyclone Inlet</td><td>Gas, Solid</td><td>Ontario Hydro</td><td></td><td colspan="2">>96%</td></tr>
<tr><td>Hot Cyclone Outlet</td><td>Gas, Solid</td><td>Ontario Hydro</td><td></td><td colspan="2">>96%</td></tr>
<tr><td>Baghouse Inlet</td><td>Gas, Solid</td><td>Ontario Hydro</td><td>99.7%</td><td>2%</td><td>1%</td></tr>
<tr><td>Fly Ash Product</td><td>Solid</td><td>Grab</td><td>100%</td><td></td><td></td></tr>
</table>

Combining the results presented in Table 5 with the CBO™ process diagram (figure 1) the fate of mercury in the Carbon Burn-Out Process becomes clear. Mercury enters the CBO™ process in the high carbon feed material. Mercury contained with the feed is on the particles of the fly ash.

The fly ash is then metered into the fluid bed combustor and subject to temperatures in the 1300°F range and residence times approaching 45 minutes. In the fluid bed combustor, the mercury is volatized and exits the fluid bed in the vapor state, existing as either the oxidized or elemental form.

The mercury free, low carbon fly ash product exiting the fluid bed is combined with 1200°F to 1300°F flue gas from the hot cyclone. At this point in the process, the hot cyclone exhaust gas contains essentially all of the mercury.

The combined stream of mercury laden flue gas from the hot cyclone discharge and mercury free fly ash exiting the fluid bed enter the gas/product cooler. The combined stream is then cooled from 1100°F to 300°F and subsequently collected by the cold cyclone and baghouse for storage or shipment.

The speciation data shows that fly ash efficiently captures the mercury as the hot fly ash and gas stream pass through the gas product cooler and cold cyclone. By the time the gas stream enters the baghouse, the final particle collection device of the CBO™ process, mercury is particulate bound.

Fly ash enters the gas/product cooler virtually mercury free and by the time it exits the low temperature cyclone, the mercury that was entrained in the flue gas is efficiently transfered to the fly ash. The conditions associated with the G/P cooler and cold cyclone are ideal for the capture of mercury.

The conditions associated with the G/P cooler and cold cyclone are as follows:

Table 6: G/P Cooler & Cold Cyclone Conditions

	G/P Cooler Inlet	Cold Cyclone Discharge
Fly Ash Carbon Content	2%	2%
Fly Ash Mass Flow	60 TPH	60 TPH
Flow Rate	13,500 DSCFM	13,500 DSCFM
Temperature	1050°F	300°F
Residence Time	1 sec	3-4 sec

CONCLUSIONS

Mercury and ammonia are two environmental parameters of interest for the fly ash industry. Progress Materials has undertaken in-depth studies to determine the fate of ammonia and mercury in the Carbon Burn-Out system.

Results indicate that, under normal Carbon Burn-Out operating conditions, essentially all ammonia is eliminated from the fly ash feed material and decomposed. Fly ash having ammonia concentrations between 300 and 750 ppm were processed and in all cases the Carbon Burn-Out process successfully reduced ammonia concentrations below detectable levels. The Carbon Burn-Out process with operational temperatures at 1300°F and 45-minute solid residence times decomposes the ammonia associated with the fly ash. Thus ammonia air emissions tests found that all but 4% to 8% of the total ammonia from the feed ash was decomposed.

Mercury is inherent to coal combustion and, even without activated carbon injection for mercury capture, a substantial portion of mercury found in the coal remains with the high carbon fly ash used as feed for the Carbon Burn-Out system. Operating conditions of the Carbon Burn-Out process results in mercury being volatized and subsequently absorbed/adsorbed on the fly ash product. Process efficiency for the absorption/adsorption process approaches 100%. Therefore, essentially all of the mercury entering the CBO™ process exits the process attached to the product ash. The product ash is used in concrete so the mercury becomes sequestered in the concrete product.

Testing conditions presented in this paper were conducted on Carbon Burn-Out systems functioning in their normal operational modes. No additional equipment modifications or process changes were made .

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APPENDIX B

BEST AVAILABLE CONTROL TECHNOLOGY

APPENDIX B-1

SULFURIC ACID MIST BACT

TABLE B-1

CALCULATION OF SULFURIC ACID MIST (SAM) EMISSIONS FOR THE CRYSTAL RIVER UNIT 4 AND 5 AQCS PROJECT

Category	Units	NH_4 Injection	Wet-ESP
Coal Sulfur Content	%	3.13	3.13
Coal Heat Content	Btu/lb	11,375	11,375
Uncontrolled SO_2 Emissions[a]	lb/MMBtu	5.50	5.50
Combustion Factor[b]		0.011	0.011
SAM from Combustion	lb/MMBtu	0.093	0.093
SCR Factor[c]		0.005	0.005
SAM produced by SCR	lb/MMBtu	0.042	0.042
SAM Leaving SCR[d]	lb/MMBtu	0.134	0.134
Air Heater Factor[e]		0.850	0.850
SAM Leaving Air Heater	lb/MMBtu	0.114	0.114
ESP (Ammonia Injection and ash)[f]		0.150	0.770
SAM Leaving ESP	lb/MMBtu	0.017	0.088
FGD System Factor[g]		0.700	0.700
SAM Leaving FGD	lb/MMBtu	0.0120	0.062
Wet-ESP Removal		NA	0.100
SAM Leaving Wet-ESP	lb/MMBtu	NA	0.006
Heat Input	MMBtu/hr	7,200	7,200
Capacity Factor		100%	100%
Input SAM	lb/MMBtu	0.114	0.062
SAM Emissions	lb/MMBtu	0.012	0.006
Difference	lb/MMBtu	0.102	0.055
Reduction	tons/yr/unit	3,222	1,746

[a] Assumes 100% of sulfur converted to SO_2 for the purpose of calculating the amount of SAM produced; actual SO_2 emissions are typically 95 percent of the sulfur from combustion

[b] Table 5-1; 0.011 for high sulfur eastern bituminous coal (Southern Company, 2005).

[c] Section 4; 0.5 percent SO_3 produced from SO_2 oxidation. (WorleyParsons, 2006).

[d] Section 4; 0.75 ppm ammonia slip scavenging SAM. (Southern Company, 2005).

[e] Table 4-1; 0.85 for high/medium sulfur eastern bituminous (Southern Company, 2005).

[f] 0.15 for 85% removal with Ammonia injection (WorleyParsons, 2006). 0.77 for 23% removal for high sulfur fuel (Southern Company, 2005).

[g] 0.7 representative of 30 percent removal in FDG system.

[h] 0.1 for 90% removal with wet-ESP to net-out of PSD review.

TABLE B-2
COST EFFECTIVENESS OF AMMONIA INJECTION FOR SAM CONTROL ON CRYSTAL RIVER UNITS 4 AND 5

Cost Items	Cost Factors[a]	Cost 2005 ($)
DIRECT CAPITAL COSTS (DCC):		
Purchased Equipment Cost (PEC)		
Equipment and Materials	WorleyParsons, 2006	1,373,000
Instruments and Controls	Included in Equipment and Materials	included
Freight	Included in Equipment and Materials	included
Taxes	Not required for Pollution Control Equipment	included
Total PEC:		1,373,000
Direct Installation Costs		
Foundation and Structure Support	Included in Equipment and Materials	included
Handling & Erection	Included in Equipment and Materials	included
Electrical	Included in Equipment and Materials	included
Piping	Included in Equipment and Materials	included
Insulation for ductwork	Included in Equipment and Materials	included
Painting	Included in Equipment and Materials	included
Total Direct Installation Costs		
Total DCC:		1,373,000
INDIRECT CAPITAL COSTS (ICC):		
Engineering	10% of PEC; OAQPS Cost Control Manual	137,300
Contractor Fees	10% of PEC; OAQPS Cost Control Manual	137,300
Startup and Performance tests	3% of PEC; OAQPS Cost Control Manual	41,190
Contingencies	3% of PEC; OAQPS Cost Control Manual	41,190
Total ICC:		356,980
TOTAL CAPITAL INVESTMENT (TCI):	DCC + ICC	1,729,980
DIRECT OPERATING COSTS (DOC):		
Operating Labor		
Operator	1/4 additional operator @ 65,000/year	16,250
Supervisor	20% of operating labor cost	3,250
Maintenance Materials	Engineering Estimate; 3% of capital, WorleyParsons, 2006	41,190
Maintenance Labor	66.7% of Maintenance Materials	27,474
Reagent Costs	228 lb/hr/unit; $565/ton; 100% C.F., WorleyParsons, 2006	1,123,750
Auxiliary Power Cost	278 kW/unit; 100% C.F., WorleyParsons, 2006. $30/MWhr	145,875
Total DOC:		1,357,789
INDIRECT OPERATING COSTS (IOC):		
Overhead	60% of oper. labor & maintenance	36,414
Property Taxes	1% of total capital investment	17,300
Insurance	1% of total capital investment	17,300
Administration	2% of total capital investment	34,600
Total IOC:		105,613
CAPITAL RECOVERY COSTS (CRC):	CRF of 0.0944 times TCI (20 yrs @ 7%)	163,310
ANNUALIZED COSTS (AC):	DOC + IOC + CRC	1,626,712
SAM EMISSIONS UNCONTROLLED (TPY) :	0.114 lb/MMBtu, 7,200 MMBtu/hr, 8,760 hr/yr; 100% CF	7,199.9
SAM EMISSIONS CONTROLLED (TPY) :	0.012 lb/MMBtu, 7,200MMBtu/hr, 8,760 hr/yr; 100% CF	756.0
REDUCTION IN SAM EMISSIONS (TPY):		6,444
COST EFFECTIVENESS:	$ per ton of SAM Removed	252

[a] Unless otherwise specified, factors and cost estimates reflect OAQPS Cost Manual, Section 3, Sixth edition.

TABLE B-3

COST EFFECTIVENESS OF WET ELECTROSTATIC PRECIPITATOR FOR SAM CONTROL ON CRYSTAL RIVER UNITS 1 AND 2

Cost Items	Cost Factors[a]	Cost 2005 ($)
DIRECT CAPITAL COSTS (DCC):		
Purchased Equipment Cost (PEC)		
Wet ESP. Equipment and Materials	Project Cost Estimate	80,000,000
Pumps, piping and valves, external to ESP	Included in Equipment and Materials	included
Water handling/treatment facilities (Design and equipment cost: containment, skimming, sludge removal, clarification, pH adj, recirculation)	Included in Equipment and Materials	included
Ductwork to ESP inlet and outlet	Included in Equipment and Materials	included
Electrical switchgear, motor control centers	Included in Equipment and Materials	included
Instruments and Controls	Included in Equipment and Materials	included
Freight	Included in Equipment and Materials	included
Taxes	Not required for Pollution Control Equipment	included
Total PEC:		80,000,000
Direct Installation Costs	Project Cost Estimate	Included
Foundation and Structure Support	Included in Equipment and Materials	included
Handling & Erection	Included in Equipment and Materials	included
Electrical	Included in Equipment and Materials	included
Piping	Included in Equipment and Materials	included
Insulation for ductwork	Included in Equipment and Materials	included
Painting	Included in Equipment and Materials	included
Total Direct Installation Costs		0
Total DCC:		80,000,000
INDIRECT CAPITAL COSTS (ICC):		
Engineering	10% of PEC; OAQPS Cost Control Manual	8,000,000
Contractor Fees	10% of PEC; OAQPS Cost Control Manual	8,000,000
Startup and Performance Evaluations	3% of PEC; OAQPS Cost Control Manual	2,400,000
Contingencies	3% of PEC; OAQPS Cost Control Manual	2,400,000
Total ICC:		20,800,000
TOTAL CAPITAL INVESTMENT (TCI):	DCC + ICC	100,800,000
DIRECT OPERATING COSTS (DOC):		
Operating Labor		
Operator	1/2 additional operator @ 65,000/year	33,000
Supervisor	20% of operating labor cost	6,600
Maintenance Materials	Engineering Estimate; 3% of capital, WorleyParsons, 2006	2,400,000
Maintenance Labor	66.7% of Maintenance Materials	100,000
Water/Treatment	1000 GPM for 8760 hr/yr; $0.4/1000gal; 100% CF	420,480
Auxiliary Power Cost	952 kW/unit, WorleyParsons, 2006. 2" pressure drop $30/MWhr	806,400
Total DOC:		3,766,480
INDIRECT OPERATING COSTS (IOC):		
Overhead	60% of oper. labor & maintenance	1,463,760
Property Taxes	1% of total capital investment	1,008,000
Insurance	1% of total capital investment	1,008,000
Administration	2% of total capital investment	2,016,000
Total IOC:		5,495,760
CAPITAL RECOVERY COSTS (CRC):	CRF of 0.0944 times TCI (20 yrs @ 7%)	9,515,520
ANNUALIZED COSTS (AC):	DOC + IOC + CRC	18,777,760
SAM EMISSIONS Inlet to WET ESP (TPY) :	0.062 lb/MMBtu, 7,200 MMBtu/hr, 8,760 hr/yr; 1000% CF	3,880.7
SAM EMISSIONS (TPY) :	0.006 lb/MMBtu, 7;200 MMBtu/hr, 8,760 hr/yr; 100% CF	388.1
REDUCTION IN SAM EMISSIONS (TPY):		3492.7
INCREMENTAL REDUCTION IN SAM EMISSIONS (TPY)		367.9
TOTAL COST EFFECTIVENESS:	$ per ton of SAM Removed	5,376
INCREMENTAL COST EFFECTIVENESS OVER AMMONIA:	$ per ton of SAM Removed	51,038

[a] Unless otherwise specified, factors and cost estimates reflect OAQPS Cost Manual, Section 3, Sixth edition.

APPENDIX B-2

LNB SPECIFICATIONS

PROGRESS ENERGY FLORIDA
CRYSTAL RIVER FGD/SCR PROJECT

SPECIFICATION

FOR

LOW NOx BURNERS

FOR PEF CRYSTAL UNITS 4 AND 5

CRCA-4-SP-168301

REVISION C

AUGUST 2006

WorleyParsons
2675 Morgantown Road
Reading, PA 19607

TABLE OF CONTENTS

1.0 SCOPE

1.1 GENERAL

This specification covers the technical requirements for designing, supplying and shipping 108 (54 per unit) Low NOx Burners (LNB) for the installation in Boilers 4 and 5 at Progress Energy Florida Crystal River Station. The burners shall be Babcock and Wilcox model number DRB-4Z. The LNBs will replace the existing burners to reduce the NOx emissions from Boilers 4 and 5.

1.2 OPTIONS

The Seller shall provide an option price to perform clean air tests on all mills for both Units 4 and 5 and develop mill calibration curves for each mill.

1.3 EQUIPMENT AND SERVICES BY THE SELLER

The scope of work listed below for each of the LNBs is only intended to provide a broad definition of the scope of work, not an itemized listing of each element of work required. Seller shall provide all required equipment, services, hardware, and documents for the supply, installation, start up and testing of the LNBs in accordance with Engineering Requisition, CRCA-4-ER-168301.

A. Provide and ship to site 108 new Low NOx Burners. Fifty-four for Boiler 4 and fifty-four for Boiler 5. Burners shall have provisions to use the existing spark igniters, oil igniters, igniter flame scanners, and coal burner flame scanners. Each burner shall include, as a minimum, the following:

1. Manually adjustable inner and outer spin vanes.
2. Transition zone air flow control sleeve.
3. Sliding air zone disk with manual ratchet actuator.
4. Ceramic lined coal nozzle with mating elbow flange and spun cast SS tip.
5. Silicon carbide conical diffuser/deflector.
6. Burner air monitor with Magnehelic gage.
7. Three (3) shop mounted (on coverplate) Type K sheath thermocouples with common terminal box.
8. Burner slip seal ring.
9. Burner throat tile assembly.
10. Burner slide rails.

B. Provide engineering, drawings and instructions for any boiler modifications that may be required for the installation of new LNBs.

C. Provide supervision for the installation and start-up of the burners. Start-up shall include balancing of the secondary air flow to all the burners plus burner optimization including burner tuning and testing.

D. Provide Operation and Maintenance manuals.

1.4 EQUIPMENT AND SERVICES TO BE FURNISHED BY OTHERS

A. All management and labor for on-site unloading, storing, handling.

B. On-site storage facilities consisting of an outdoor area for large components. Limited indoor storage facilities on site will be available for items requiring special handling as required by the Seller.

C. Labor for the installation and start-up of the LNBs.

D. Igniters and flame scanners. The existing spark igniters, oil igniters, igniter flame scanners, and coal burner flame scanners will be re-used. The new LNBs shall have provisions for re-using these existing items.

E. Combustion Controls and Burner Management System. The new burners as supplied shall interface with the existing control systems.

F. Burner elbows. The existing burner elbows will be reused.

2.0 CODES AND STANDARDS

A. All equipment and materials furnished under these specifications shall be designed and constructed in accordance with the latest applicable requirements of the standard specifications and codes of AISC, ANSI, ASME, ASTM, AWS, EPA, NFPA, Florida Building Code, and other such regularly published and accepted standards except where modified or supplemented by these specifications; and in accordance with the applicable requirements of the Federal "Occupational Safety and Health Administration."

B. It is the responsibility of the Seller to ensure that all aspects of the design, fabrication, and testing meet the requirements of all the applicable and specified codes, standards and specifications including all regulating and governing authorities over the location where the equipment will be installed.

C. Seller shall verify compliance with the applicable portions of the referenced Codes and Standards or state which codes and standards and which editions of these codes/standards apply.

D. All deviations by the Seller from the listed and supporting Codes and Standards shall be noted by the Seller and only accepted if stated, in writing, by the Owner.

E. Any other applicable design Codes and Standards that are used by the Seller, such as International Organization for Standardization (ISO), that govern the design and manufacture of the Seller's equipment shall be noted by the Seller and subject to review by the Owner.

F. Reference to the Standards of any technical society, organization, or association, or to the laws, ordinances, or Codes of governmental authorities shall mean the latest Standard, Code, or Specification adopted, published, and effective at the date of taking bids unless specifically stated otherwise in these specifications.

G. The Specifications, Codes, and Standards referenced in these specifications (including addenda, amendments, and errata) shall govern in all cases where references thereto are made except where they conflict with these specifications. Where the referenced Codes and Standards contain recommendations in addition to requirements, the recommendations shall be considered requirements and shall be followed unless stated otherwise by this Specification. In the event of any conflict between Codes, Standards or Specifications the more stringent regulation shall apply.

H. As a minimum, the Codes and Standards that apply are as follows:

1. American Institute of Steel Construction

   Manual of Steel Construction

2. American Society of Mechanical Engineers (ASME):

   a. Code for Pressure Piping, B31.1

   b. Boiler and Pressure Vessel Code - Section I, Section II, Section V and Section IX

3 American Society for Testing and Materials (ASTM):

   a. A 36, "Standard Specification for Structural Steel."

   b. A 53, "Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless."

   c. A 105, "Standard Specification for Forgings, Carbon Steel, for Piping Components."

   d. A 106, "Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service."

   e. A 182, "Standard Specification for Forged or Rolled Alloy Steel Pipe Flanges, Forged Fittings, Valves, and Parts for High Temperature Service."

   f. A 234, "Standard Specification for Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service."

   g. A 312, "Standard Specification for Seamless and Welded Austenitic Stainless Steel Pipe."

4. American Welding Society (AWS):

D1.1, "Structural Welding Code."

5. National Fire Protection Association (NFPA)

   a. 70, "National Electrical Code".

   b. 85E, "Prevention of Furnace Explosions/Implosions in Pulverized Coal Fired Multiple Burner Boiler-Furnaces."

   c. 85F, "Installation and Operation of Pulverized Fuel Systems."

6. Florida State Building Code (2000 International Building Code with Florida Amendments), 2002 Edition.

7. Occupational Safety and Health Administration (OSHA).

3.0 GENERAL

The Seller is expected to comply fully with the complete requirements of this specification. Any deviations must be clearly defined in their proposal. If no deviations are provided in writing in their proposal, then it is understood that the Seller is complying with all parts of this specification and attachments stated in Engineering Requisition CRCA-4-ER-168301. The Seller shall assume final responsibility for complete design, fabrication and performance for all equipment that it and its sub Sellers supply.

3.1 MATERIALS AND EQUIPMENT

Unless specifically provided otherwise, all materials and equipment furnished for permanent installation in the work shall conform to applicable standard specifications and shall be new, unused, and undamaged.

3.2 HAZARDOUS MATERIALS

A. The Seller shall provide Material Safety Data Sheets (MSDS) covering all hazardous materials furnished under or otherwise associated with the Work included herein. All MSDS sheets require Owner approval prior to shipment. The Seller shall provide the Owner with either copies of the applicable MSDS or copies of a document certifying that no MSDS are required under any federal, state, or local law, regulation, statute, or ordinance in effect at the Crystal River Station.

B. Hazardous materials are defined in the applicable statute that may use the terminology "toxic substances" instead of "hazardous materials." The Seller is responsible for determining if any substance or material furnished, used, applied, or stored under this Contract is within the provisions of any applicable statute.

C. All shipments of hazardous materials shall be identified on the materials list. A copy of the hazardous materials documentation required shall be included with the materials list and shall also be included with the shipping papers attached to the shipment.

D. No item provided by the Seller shall contain any asbestos containing product, part, or component. No lead paint is permitted.

3.3 TOOLS

If required, installation and maintenance tools for the LNBs shall be boxed separately and the box shall be marked with the large painted legend as follows:

PROGRESS ENERGY FLORIDA
CRYSTAL RIVER FGD/SCR PROJECT
INSTALLATION & MAINTENANCE TOOLS FOR LNBs
PURCHASE ORDER NUMBER ___________________

A weatherproofed itemized list of the contents shall also be attached to the outside of the box.

All maintenance tools shall be in new and unused condition and shall become the property of the Owner.

3.4 CORRECTION OF ERRORS

Equipment and materials shall be complete in all respects within the limits herein outlined. The Seller or its duly authorized representative, at the Seller's expense, shall correct all errors or omissions found in the field.

4.0 DESIGN REQUIREMENTS

4.1 BACKGROUND

Units 4 and 5 will be operated anywhere between full load and minimum load. Load changes can be continuous without the benefit of mandatory hold periods after a step change. High availability, operational flexibility, and system maintainability are necessary. The ability to move the unit quickly (either up or down) on an on-going basis is important. The burners shall be capable of changing load level to keep up with the changes made by the steam generator.

Crystal River Units 4 and 5 are coal-fired "Early Election Compliance Plan" Units. The two units are essentially identical. Maximum net output of each unit at 5% overpressure is approximately 750 MWs. The units are semi-indoor, balanced draft Carolina type radiant boilers that were manufactured by Babcock & Wilcox ("B&W") and were placed in service in 1982 and 1984. The original design NOx emissions rate for each boiler is 0.7 lb/MMBtu. The boilers are front and rear wall fired, with 3 elevations of burners for each wall. Each boiler has six MPS-89GR pulverizers, each supplying fuel through individually orificed coal pipes to 9 burners on each of the elevations. The 54 burners on each boiler are the original Dual-Register designs as supplied by B&W, and there are no over-fire air systems installed on either boiler. The coal pipe orifices are also original. The windboxes are divided, with a separate windbox for each elevation of burners. Each unit has a single flue gas recirculation fan that is used for reheat temperature control. Each unit has three Rothemühle air heaters (two secondary and one primary), two FD Fans, and two PA Fans. The single furnaces are 79 feet wide by 57 feet deep and 201 feet high from the centerline of the lower wall headers to the drum centerline. There is a vertical separation of approximately 24 feet between burner elevations, with the top burner elevation approximately 50 feet below the furnace nose. The boilers were designed to burn a 50/50% blend of eastern bituminous and western sub-bituminous as well as 100% Illinois Basin coals. The coal specification for current coal fired for guarantee purposes and the future design coal is provided as Attachment "A". Light fuel oil is used for boiler startup and flame stabilization. There is no natural gas available at the site. The combustion control on each unit is an ABB/Bailey Infi 90. The systems were upgraded in 2002.

Both units are currently operating as base loaded units, with both requiring that all six pulverizers be in operation to achieve full load at 5% overpressure. In order to reduce NOx emissions rates below the 0.50 lb/MMBtu annual NOx Permit limit, excess O_2 has been reduced from the design value of 3.5% to approximately 2.3-2.4% as measured by eight O_2 probes in the backpass of the boiler. Secondary air flow is automatically controlled by dampers at each end of the windboxes. The burner registers are manually controlled. Windbox pressures are approximately 3-3 ½ inches of H_2O, with the outer burner registers nearly in the closed position.

With these changes, the NOx emissions rates at full load have been reduced to approximately 0.5-0.52 lb/MMBtu on both boilers. However, unburned carbon in the ash ("LOI") has increased from 3-4% to in excess of 6% at times, the level which must be not be exceeded to continue the commercial sale of the flyash. When load conditions have allowed, the boilers have been operated with the top levels of front and rear burners out of service with approximately 20% air flow through the burners to simulate overfire air. In this configuration, the NOx emissions rates have been approximately 0.38-0.42 lb/MMBtu.

Maximum Heat Input	6,800 MMBTU/HR
Maximum Coal Firing Rate@ 100% Load (Based upon MCR Heat Input and Coal Higher Heating Value)	597,802 LB/HR

4.2 INTERFACE REQUIREMENTS

A. The existing spark igniters, oil igniters, igniter flame scanners, and coal burner flame scanner will be re-used. The new LNBs shall have provisions for re-using these existing items. This shall include the addition of fiber-optic extensions compatible with the existing flame scanner heads.

B. The new burners shall interface with the existing Combustion Controls and Burner Management System.

C. The Seller shall assure the fit up of the new burners to the existing boiler. If modifications or repairs are required to assure proper fit the Seller shall provide engineering, drawings and instructions to accomplish the modifications to assure proper fit up of the new burners.

D. There shall be no change to the operational capability of the boilers. Minimum load shall be not less than the minimum load with the existing burners. The ramp up rate, ramp down rate and the boiler MCR shall not be less than the ramp up and down rates and boiler MCR with the existing burners.

E. Burner design shall preclude flame impingement of any furnace pressure parts.

F. Burners shall be provided with properly sized and located lifting lugs. Drawings shall show burner weights and center of gravity.

4.3 DESIGN AND CONSTRUCTION REQUIREMENTS

A. Welding

1. All welding and repair welding shall be in accordance with the Seller's written procedures and the applicable Codes referenced herein. These procedures shall include welding method, inspection method, and criteria for acceptance of a welded member.

2. All welding shall be performed by qualified welders, inspected by qualified personnel, and shall comply with the requirements of ASME Boiler and Pressure Vessel Code, Section IX, or AWS D1.1 and 14.6.

3. All welder qualification records shall be available to the Owner for review upon request.

B. Materials

All materials shall be new and unused. The Seller shall have the ultimate responsibility for proper selection of materials based upon the intended service and the requirements of the Seller's design.

4.4 INSTALLATION REQUIREMENTS

A. The Seller shall provide the services of an on-site qualified representative acceptable to the Owner to provide technical direction of installation of the burners. The field personnel provided by the Seller shall be capable, qualified, fluent in English and able to perform the duties required to the satisfaction of the Owner and shall be vested with authority to make decisions binding on the Seller.

B. The Seller's representative shall provide all necessary technical assistance including at least the following:

1. Provide technical direction for:

   a. Removal of insulation, lagging and any adjacent equipment needed to remove the existing burners and install the new burners.

   b. Removal of the existing burners and installation of new LNBs.

   c. Re-install any insulation, lagging and equipment that was removed to complete the installation of the new burners.

   d. Start-up of new burners including balancing the secondary air flow and coal flow to all the burners.

2. Assist the Owner's Contractor in scheduling the installation during construction, and inform the Owner's Contractor of difficulties encountered or anticipated.

3. Instruct the Owner's operating personnel in the following:

a. Conduct of such operating tests that the Owner may specify.

b. Initial starting and placing the burners in good operating condition.

c. The Seller's recommended procedure for regular starting, operating, and shutting down of the burners.

5.0 TESTING

5.1 GENERAL

A. The Owner shall have free access to the Seller's facility during fabrication of the equipment covered by this Specification. The Seller shall make the necessary arrangements to provide access. Any inspection by the Owner shall not be considered a waiver of any warranty or other rights.

B. Tests shall verify the ability of all equipment to perform its intended functions within the applicable tolerances and performance guarantees, such that when the equipment is shipped and correctly connected to external devices, the complete system is operable as intended.

C. Test results shall be submitted in accordance with CRCA-4-ER-168301-RA, Section III.

5.2 SHOP TESTS

A. All moving parts on the burner shall be stroked and operated to verify that they operate properly without binding prior to shipment.

B. Visual Inspection:

All burner welds shall be visually inspected. Acceptance criteria of burner welds shall be per AWS D14.6.

5.3 FIELD TESTS

The Owner will conduct a final performance test to determine if the burners are meeting the performance requirements listed in Section 4.2. The Seller can elect to witness the test at his discretion.

6.0 SPARE PARTS

6.1 GENERAL

A. A normal complement of startup and commissioning spare parts shall be included with the original order and shall be shipped with the burners.

B. Any spare parts supplied shall be identical to, or interchangeable with the corresponding part originally supplied and shall in all respects conform to the technical specifications governing such original parts.

C. All spare parts shall be wrapped separately and sealed against moisture. Packaging shall prevent damage caused by normal shipping and handling.

D. Seller shall furnish a recommended spare parts list, including at least, part description, part number, recommended quantity, lead time and price. This list shall be furnished no later than the date of shipment.

7.0 GUARANTEES

7.1 PERFORMANCE GUARANTEES

A. The Seller shall guarantee the following burner performance over the entire load range of the boilers as measured at the economizer outlet when firing the guarantee coal shown in Attachment A.

1. NOx emissions shall not exceed 0.41 Lbs/10^6 BTU heat input.
2. CO emissions shall not exceed 200 PPM.
3. Excess O_2 levels shall not be less than 2.5 % (dry, volumetric).
4. Unburned carbon in the fly ash shall not be greater than 5%.

B. The Seller shall provide the maximum turndown points of the burners both without and with support fuel which will satisfy all emission and LOI guarantee.

C. Seller must detail potential remedies for not meeting performance guarantees. Should the burners not meet the performance guarantees, the Seller shall at its option or expense redesign and/or repair the burners in an expeditious manner, as required and as acceptable to the Owner or the Seller shall pay for failure to meet the performance guarantees, in lieu of all other claims or obligations for such failure, as liquidated damages, and not as a penalty, the sum(s) set out in the Commercial Terms of the Contract.

D. Should the burners not meet the performance guarantees, the Seller elects to redesign and/or repair the burners, the burners shall be retested to verify compliance with performance guarantees. All costs for the retesting shall be borne by the Seller.

8.0 OTHER REQUIREMENTS

8.1 SPECIAL TOOLS

The Seller shall provide one complete set of all necessary special tools, required for installation, start-up, and maintenance for the burners. The tools shall be new, all in first class condition. Identification of all tools by name and number shall be provided. These numbers shall appear on drawings and installation, operation, and maintenance instructions to indicate the application of the tools and to permit ordering replacements. These tools shall remain the property of the Owner.

8.2 IDENTIFICATION

All correspondence, shipping notices, specifications, engineering data, and other documents pertaining to the equipment and materials furnished under this specification shall be identified by the Owner's name, the project name, the specification number, and the purchase order number.

8.3 MATERIALS LIST

The Seller shall prepare and submit with the first shipping notice two copies of an itemized materials list covering all material and equipment furnished under these specifications. The materials list shall be in sufficient detail to permit an accurate determination of the completion of shipment.

8.4 QUALITY ASSURANCE REQUIREMENTS

A. Seller shall follow their standard procedures for quality assurance and control. Seller's standard QA Manual shall be submitted to the Owner for review and should be in such a form as to enable an assessment to be made of the manufacturing sequence and inspection set-up and other control procedures.

B. Seller shall impose Seller's Quality Assurance requirements to all applicable sub Sellers. Seller shall identify all proposed sub Sellers to be used, prior to start of work. Included shall be their scope of work, location and a listing of their planned inspection and test points.

C. Seller is responsible to review and determine that all sub Seller's procedures for special fabrication and testing e.g. welding, NDE, final testing etc. meet the applicable code and specification requirements.

D. Seller is responsible for using qualified personnel for the performance of all required inspection and tests. All personnel performing nondestructive testing shall be qualified and certified to ASNT-TC-1A, Level II as a minimum. Inspections/tests witnessed or performed by the Owner do not relieve the Seller of the obligation and responsibility to furnish all items in accordance with the requirements of this specification and applicable referenced codes and standards. Any deviations to this specification must be documented and approved by Owner prior to final disposition. The Seller shall verify that all sub Seller's procedures for fabrication and testing, e.g., welding and nondestructive testing, ASME code required tests, etc. meet specification requirements.

E. Prior to award and during the life of the Purchase Order or Contract, the Owner shall have the right of reasonable access to the Seller's facility and that of any sub Sellers, in order to evaluate the implementation and effectiveness of the Quality Program and work associated with this specification, Purchase Order or Contract.

F. All sub Sellers are expected to comply fully with all requirements of this specification and the contract drawings. Any exceptions or deviations must be clearly defined in the proposal.

G. As a minimum, the following are requested:

1. Description of Seller's quality assurance plan.

2. Organizational chart of quality assurance department showing relationship to other groups.

3. Typical inspection, test and QA audit procedures.

H. After award of purchase order, the Owner will identify the inspection points to the Seller that will be witnessed by the Owner.

I. During the execution of the purchase order, manufacturing and quality control procedures shall be available for reference by the Owner at the place of manufacture.

J. At least two (2) weeks prior to the start of fabrication, the Seller shall submit to the Owner a detailed manufacturing/inspection/testing sequence sheet or flow chart, identifying the major steps in the fabrication/testing/inspection process, including those applicable nondestructive examinations and tests required to satisfy the specification and referenced codes. This requirement is also applicable to all sub Sellers. Selected witness/inspection points will be established by the Owner and identified to the Seller.

K. Inspection release for shipment at Seller's plant does not relieve the Seller of the responsibility from complying completely with the requirements of this specification, except for deviations specifically brought to the attention of the Owner and specifically waived in writing.

L. The Seller shall certify that the equipment supplied is in compliance with all applicable codes, standards and requirements of this specification by providing Certificates of Compliance (COC).

8.5 INSPECTIONS

A. The Owner reserves the right to inspect the equipment at the Seller's location and witness factory and other such tests as may be necessary to verify conformance with this specification.

B. The Owner may survey the Seller's facilities prior to award of purchase order.

C. The Owner shall have access to Seller's facilities and records for surveillance of compliance to the Seller's standard procedures of quality assurance and quality control, at any time.

D. The Owner will inspect the completed shop work prior to shipment.

E. Seller shall provide or arrange proper notification and facilities for all the purposes listed in sub-paragraphs above.

F. The Owner shall be notified in writing at least 15 days in advance of the date of completion and availability of inspection points and availability of tests, or prior to shipping, whichever is earlier.

G. Inspection results shall be submitted in accordance with CRCA-4-ER-168301-RA, Section III.

8.6 CLEANING AND PAINTING

Cleaning and painting shall be in accordance with B&W's standard for burner fabrication.

8.7 PRESERVATION, PACKING, MARKING, SHIPPING, AND STORAGE

A. Burners and all accessories shall be protected against possible damage and corrosion during shipping, receiving, storing, and handling operations.

B. Proper precautions shall be taken to ensure that the equipment arrives on the jobsite in an undamaged and satisfactory working condition.

D. Whenever size permits, the burners and all accessories shall be packed securely in weatherproof crates. If any component is too large for packing in a crate, it shall be placed on skids.

E. Guards shall be placed over easily damageable parts. All openings, including pipe ends, shall be provided with closures to prevent the entrance of dirt or debris. (The use of cloth for plugs or caps is prohibited.)

F. Each package, skid, box, or crate shall contain two complete detailed packing lists. Each package, skid, box, and crate shall be properly marked on the outside for identification with the following information so that it is readily visible:

1. Seller's name.

2. Service.

3. The Owner's Purchase Order number.

4. The Owner's tag number.

5. Component identification number(s) and/or bill of material number(s).

6. Short description of part(s).

7. Any special instructions for handling.

8. Weight if in excess of 1,000 pounds.

9. Lift points or the center of gravity to facilitate handling.

G. The Seller shall prepare and submit written procedures for the handling, storage, shipping, and preservation of the equipment to prevent degradation of the supplied equipment. This shall include recommendations for onsite storage outdoors for up to one year. These procedures shall be submitted for review in accordance with the Engineering Requisition.

8.8 SUBMITTALS

A. With Bid:

1. Technical information, guarantees and lead time for delivery.

2. Complete description of design and construction features of burners and accessories.

3. Outline and sectional drawings of burners including accessories showing principal dimensions, clearances required for maintenance and weights of all components.

4. A written list of all exceptions or a statement that clearly specifies that the submitted proposal complies with all aspects of this specification and other referenced specifications in the Engineering Requisition.

5. Provide additional information as listed in section III of Engineering Requisition CRCA-4-ER-168301.

B. After Award:

The drawings and information listed in Engineering Requisition CRCA-4-ER-168301 shall be submitted.

Installation, Operation and Maintenance (I/O/M) manuals shall be furnished in both hardback and electronic formats.

ATTACHMENT A

	Guaranteed Basis Coal	Design Basis Coal	Coal Range	Coal Range
NAME	Kanawha Eagle	Highland No. 9	Minimum	Maximum
PROXIMATE (Wt%) – As Rec'd				
Fixed Carbon	48.10	42.6	25.0	70.0
Volatile	32.44	36.5	25.0	40.0
Ash	13.95	8.2	5.00	20.0
Moisture	5.51	12.7	3.0	26.5
	100.0	100.00		
Sulfur (Wt%)	0.67	3.13	1.14	3.13
HHV (Btu/lb)	12099	11,375	8,600	14,250
SO_2 (lb/MMBtu)	1.11	5.5	2.0	5.5
ULTIMATE (Wt%) – As Rec'd				
Carbon	69.0	63.2	40.0	80.00
Hydrogen	4.03	4.4	4.25	5.50
Sulfur	0.67	3.13	1.14	3.13
Nitrogen	1.59	1.3	0.75	2.0
Oxygen	5.25	6.82	2.0	15.0
Ash	13.95	8.2	5.00	20.0
Moisture	5.51	12.7	3.0	26.5
Chlorine	0.10	0.25	0.01	0.25
		100.00		
HARD. GRIND. INDEX	45	52	41	60
FUSION TEMPERATURE – Reducing (F)				
Initial Def.	2800+	2020	2100	2900
Soft (H=W)	2800+	2055	2100	2900
Soft (H=1/2W)	2800+	2095	2400	2900
Fluid	2800+	2300	2400	2900
MINERAL ANALYSIS (Wt%)				
SiO_2	58.54	47.6	35.0	60.0
Al_2O_3	31.57	17.8	15.0	35.0
TiO_2	1.85	0.90	0.70	2.0
Fe_2O_3	2.86	18.9	3.0	25.0
CaO	0.50	6.5	0.50	20.0
MgO	0.78	0.9	0.25	5.0
K_2O	2.85	2.3	0.50	3.0

	Guaranteed Basis Coal	Design Basis Coal	Coal Range	Coal Range
Na_2O	0.22	0.8	0.25	1.50
SO_3	0.1	4.0	0.25	15.0
P_2O_5	0.38	0.1	0.05	0.75
SrO	0.05	<0.1	<0.1	<0.1
BaO	0.06	0.2	<0.1	<0.1
MnO	0.01	>0.1	<0.1	<0.1
Undetermined	0.23	-00		
		100.00		
Base/Acid	0.08	0.44		
Fouling Index				
Slagging Index				

Coal					
Trace Elements (ppm) Dry Basis					
			Design	**Minimum**	**Maximum**
ANTIMONY			0.83	0.15	2.00
ARSENIC			11.26	1.00	22.50
BARIUM			171.83	30.00	500.00
BERYLLIUM			1.57	0.25	5.00
BORON			50.14	20.00	125.00
BROMINE			14.34	1.00	30.00
CADMIUM			0.19	0.03	2.00
CHROMIUM			11.45	5.00	29.00
COBALT			4.72	1.00	15.00
COPPER			11.49	1.00	25.00
FLUORINE			74.59	40.00	200.00
GERMANIUM			6.50	1.00	15.00
LEAD			7.93	2.00	16.00
LITHIUM			9.75	5.00	38.00
MANGANESE			35.53	8.00	50.00
MERCURY			0.10	0.05	1.00
MOLYBDENUM			2.52	0.75	9.50
NICKEL			14.16	2.00	30.00
SELENIUM			2.13	0.50	5.00
SILVER			0.08	0.05	2.00
STRONTIUM			120.68	20.00	250.00
THALLIUM			0.85	0.10	5.00
THORIUM			2.25	1.00	5.00
TIN			0.68	0.25	2.00
URANIUM			1.42	0.25	2.50
VANADIUM			18.55	6.00	58.00
ZINC			26.84	4.00	71.00
ZIRCONIUM			21.76	10.00	25.00

APPENDIX C

CALPUFF MODEL DESCRIPTION AND METHODOLOGY

CALPUFF MODEL DESCRIPTION AND METHODOLOGY

C.1 INTRODUCTION

As part of the new source review requirements under Prevention of Significant Deterioration (PSD) regulations, new sources are required to address air quality impacts at PSD Class I areas. As part of the PSD analysis report submitted to the Florida Department of Environmental Protection (DEP), the air quality impacts due to the potential emissions of the Crystal Plant Power Project are required to be addressed at the PSD Class I areas of the Chassahowitzka National Wildlife Area (NWA) and St. marks NWA. The Chassahowitzka NWA is located approximately 22 km south of the plant while the St. Marks NWA is located approximately 175 km northwest of the plant.

Currently there are several air quality modeling approaches recommended by the Interagency Workgroup on Air Quality Models (IWAQM) to perform these analyses. The IWAQM consists of EPA and Federal Land Managers (FLM) of Class I areas who are responsible for ensuring that AQRVs are not adversely impacted by new and existing sources. These recommendations have been summarized in two documents:

- *Interagency Workgroup on Air Quality Models (IWAQM), Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* (EPA, 1998), referred to as the IWAQM Phase 2 report.
- *Federal Land Managers' Air Quality Related Values Workgroup (FLAG), Phase I Report,* USFS, NPS, USFWS (12/00), referred to as the FLAG document.

For the proposed project, air quality analyses were performed that assess the plant's impacts in the PSD Class I areas using the refined modeling approach from the IWAQM Phase 2 report.

The refined analysis approach was used instead of the screening analysis approach since the air quality impacts are based on generally more realistic assumptions, include more detailed meteorological data, and are estimated at locations at the Class I area.

C.2 GENERAL AIR MODELING APPROACH

The general modeling approach was based on using the long-range transport model, California Puff model [CALPUFF, Version 5.754 (the Best Available Retrofit Technology (BART) Version)]. This version of the model was developed by the Visibility Improvement State and Tribal Association of the Southeast (VISTAS). At distances beyond 50 km, the AERMOD model is considered to overpredict air quality impacts, because it is a steady-state model. At those distances, the CALPUFF model is recommended for use. The FLM have requested that air quality impacts, such as for regional haze, for a source located more than 50 km from a Class I area be predicted using the CALPUFF model. The Florida DEP has also recommended that the CALPUFF model be used to assess if the source has a significant impact at a Class I area located beyond 50 km from the source.

It should be noted that the plant is located within 50 km of the Chassahowitzka NWA. As a result, AERMOD would generally be recommended to address impacts for the plant. However, the CALPUFF model was used to address cumulative air quality impacts that included the Crystal River Power Plant and background sources located within a 200 km radius from the Class I area. Since most of the background sources are located beyond 50 km from the Class I area, one model was selected and used to address cumulative impacts for sources, regardless of their location within the 200 km radius.

The methods and assumptions used in the CALPUFF model were based on the latest recommendations for a refined analysis as presented in the IWAQM Phase 2 Summary Report and the FLAG documents.

C.3 MODEL SELECTION AND SETTINGS

The CALPUFF air modeling system was used to model to assess the proposed project's impacts at the PSD Class I areas for comparison to the PSD Class I significant impact levels and the cumulative source the PSD Class I increments. CALPUFF is a non-steady state Lagrangian Gaussian puff long-range transport model that includes algorithms for building downwash effects as well as chemical transformations (important for visibility controlling pollutants), and wet/dry deposition. CALPUFF was used in a manner that is recommended by the IWAQM Phase 2 and FLAG reports.

C.3.1 CALPUFF MODEL APPROACHES AND SETTINGS

The IWAQM has recommended approaches for performing a Phase 2 refined modeling analyses that are presented in Table C-1. These approaches involve use of meteorological data, selection of receptors and dispersion conditions, and processing of model output.

The specific settings used in the CALPUFF model are presented in Table C-2.

C.3.2 EMISSION INVENTORY AND BUILDING WAKE EFFECTS

The CALPUFF model included the facility's emission, stack, and operating data as well as building dimensions to account for the effects of building-induced downwash on the emission sources. Dimensions for all significant building structures were processed with the Building Profile Input Program (BPIP), Version 04274, and were included in the CALPUFF model input. The PSD report presents a listing of the facility's emissions and structures included in the analysis.

C.4 RECEPTOR LOCATIONS

For the refined analyses, pollutant concentrations were predicted at 113 receptors located at the Chassahowitzka NWA area and at 214 receptors located at the St. Marks NWA area. These receptors were developed by the National Park Service and cover all areas along the boundary and internal areas of the Class I areas.

C.5 METEOROLOGICAL DATA

C.5.1 CALMET DOMAINS

The air modeling analysis used CALMET-developed domains that were prepared for BART applications. The data were developed by VISTAS and obtained from the FEDP for the years 2001 to 2003. The data consists of a 3-dimensional gridded domain of 4-km cell resolution.

Table C-1. Refined Modeling Analyses Recommendations [a]

Model Input/Output	Description
Meteorology	Use CALMET (minimum 6 to 10 layers in the vertical; top layer must extend above the maximum mixing depth expected); horizontal domain extends 50 to 80 km beyond outer receptors and sources being modeled; terrain elevation and land-use data is resolved for the situation.
Receptors	Within Class I area(s) of concern; obtain regulatory concurrence on coverage.
Dispersion	1. CALPUFF with default dispersion settings. 2. Use MESOPUFF II chemistry with wet and dry deposition. 3. Define background values for ozone and ammonia for area.
Processing	1. For PSD increments: use highest, second highest 3-hour and 24-hour average SO_2 concentrations; highest, second highest 24-hour average PM_{10} concentrations; and highest annual average SO_2, PM_{10} and NO_x concentrations. 2. For haze: process, on a 24-hour basis, compute the source extinction from the maximum increase in emissions of SO_2, NO_x and PM_{10}; compute the daily relative humidity factor [f(RH)], provided from an external disk file; and compute the maximum percent change in extinction using the FLM supplied background extinction data in the FLAG document. 3. For significant impact analysis: use highest annual and highest short-term averaging time concentrations for SO_2, PM_{10} and NO_{x},

[a] IWAQM Phase II report (December, 1998) and FLAG document (December, 2000)

Table C-2. CALPUFF Model Settings

Parameter	Setting
Pollutant Species	SO_2, SO_4, NO_x, HNO_3, NO_3, PM_{10}, CO
Chemical Transformation	MESOPUFF II scheme, hourly ozone data from FDEP
Deposition	Include both dry and wet deposition, plume depletion
Meteorological/Land Use Input	CALMET
Plume Rise	Transitional, Stack-tip downwash, Partial plume penetration
Dispersion	Puff plume element, PG /MP coefficients, rural mode, ISC building downwash scheme
Terrain Effects	Partial plume path adjustment
Output	Create binary concentration file including output species for SO_4, NO_3, PM_{10}, SO_2, and NO_x; process for visibility change using Method 2 and FLAG background extinctions
Model Processing	For haze: highest predicted 24-hour extinction change (%) for the year For deposition: annual average deposition rates For significant impact analysis: highest predicted annual and highest short-term averaging time concentrations for SO_2, NO_2, PM_{10}, CO
Background Values	Ozone: hourly concentration file; Ammonia: 0.5 ppb

[a] Recommended values by the Florida DEP.

APPENDIX D

EMISSION INVENTORY DATA FOR BACKGROUND SOURCES

TABLE D-1

SUMMARY OF PM_{10} SOURCES INCLUDED IN THE AAQS AND PSD CLASS II COMPLIANCE AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility ID	Facility Name / Emission Unit Description	EU ID	Model ID Name	UTM Location X (m)	UTM Location Y (m)	Stack Height ft	Stack Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	PM_{10} Emission Rate lb/hr	PM_{10} Emission Rate g/s	PSD Source? [a] (EXP/CON)	Modeled in AAQS	Modeled in Class II
0170022	Progress Materials, Inc.																	
	Fly Ash Surge Bin W/Baghouse	1	PMINC1	334,080	3,204,530	60	18.29	0.5	0.15	77	298	76.4	23.3	0.15	0.02	CON	Yes	No
	Lime Storage Silo W/Baghouse	2	PMINC2	334,080	3,204,530	60	18.29	0.5	0.15	77	298	38.2	11.6	0.08	0.01	CON	Yes	No
	Embedded Material Surge Bin W/Baghouse	3	PMINC3	334,080	3,204,530	60	18.29	0.5	0.15	77	298	38.2	11.6	0.08	0.01	CON	Yes	No
	Uncured Pellet Transfer Point W/Baghouse	4	PMINC4	334,080	3,204,530	60	18.29	0.5	0.15	77	298	38.2	11.6	0.08	0.01	CON	Yes	No
	Four Pellet Curing Silos W/Baghouse	5	PMINC5	334,080	3,204,530	60	18.29	0.5	0.15	77	298	84.9	25.9	0.17	0.02	CON	Yes	No
	Cured Pellet Vibrating Screen W/Baghouse	6	PMINC6	334,080	3,204,530	60	18.29	0.5	0.15	77	298	38.2	11.6	1.07	0.13	CON	Yes	No
															0.21			
0530021	Florida Crushed Stone - Brooksville Cement And Power Plants																	
	BCP: Filter Dust Bin With Baghouse(D-75)	1	FCS1	361,340	3,162,370	125	38.10	2	0.6	77	298	36	11.0	0.7	0.09	CON	Yes	Yes
	BCP: Fly Ash/Equilibrium Catalyst Bin With Baghouse (D-67)	2	FCS2	361,340	3,162,370	125	38.10	2	0.6	77	298	22	6.7	0.4	0.05	CON	Yes	Yes
	BCP: Raw Meal Transfer With Baghouse (F-14)	4	FCS4	361,340	3,162,370	70	21.34	1	0.3	180	355	25.5	7.8	0.2	0.03	CON	Yes	Yes
	BCP: Two Blend Silos With Baghouse (G-12A & B)	6	FCS6	361,340	3,162,370	240	73.15	3.5	1.1	180	355	29	8.8	2.2	0.28	CON	Yes	Yes
	BCP: Kiln Feed Surge Bin With Baghouse (H-15)	7	FCS7	361,340	3,162,370	50	15.24	2	0.6	200	366	31.8	9.7	0.8	0.10	CON	Yes	Yes
	BCP: Clinker Receiving/handling System (S-04)	8	FCS8	361,340	3,162,370	15	4.57	2	0.6	70	294	31	9.4	0.7	0.09	CON	Yes	Yes
	Clinker Cooler Discharge with Baghouse (L-03)	9	FCS9	361,340	3,162,370	10	3.05	1	0.3	250	394	108.2	33.0	0.66	0.08	CON	Yes	Yes
	BCP: Clinker Silo (L-06) & Finish Mill Silo (L-07)/baghouse	10	FCS10	361,340	3,162,370	200	60.96	1.5	0.5	200	366	24	7.3	0.3	0.04	CON	Yes	Yes
	BCP: Gypsum & Limestone Bins With Baghouse (L-08)	11	FCS11	361,340	3,162,370	135	41.15	1.5	0.5	200	366	47	14.3	0.6	0.08	CON	Yes	Yes
	BCP: Silo Discharge With Baghouse(M-08)	12	FCS12	361,340	3,162,370	135	41.15	2.5	0.8	100	311	30	9.1	1.2	0.15	CON	Yes	Yes
	BCP: Finish Mill With Baghouse (N-13)	13	FCS13	361,340	3,162,370	70	21.34	5	1.5	210	372	33	10.1	5.1	0.64	CON	Yes	Yes
	BCP:Cement Silos #1 & 2 Discharge System With Baghouse(Q-17)	14	FCS14	361,340	3,162,370	50	15.24	1.5	0.5	160	344	30	9.1	0.4	0.05	CON	Yes	Yes
	BCP: Cement Storage Silos #1 & 2 With Baghouse (Q-15)	15	FCS15	361,340	3,162,370	200	60.96	2	0.6	180	355	39.3	12.0	1	0.13	CON	Yes	Yes
	BCP: Iron Ore Bin With Baghouse (D-63)	17	FCS17	361,340	3,162,370	51	15.54	1.5	0.5	180	355	34	10.4	0.5	0.06	CON	Yes	Yes
	BPP: POWER PLANT	18	FCS18	361,340	3,162,370	320	97.54	16	4.9	300	422	69.6	21.2	25	3.15	CON	Yes	Yes
	BCP: Finish Mill Feed Belt With Baghouse (M-05)	19	FCS19	361,340	3,162,370	29	8.84	2	0.6	85	303	47	14.3	1.16	0.15	CON	Yes	Yes
	BCP: Cement Kiln1, In-line Kiln/Raw Mill & Clinker Cooler 1	20	FCS20	361,340	3,162,370	300	91.44	16	4.9	220	378	47	14.3	49.5	6.24	CON	Yes	Yes
	BCP: Cement Storage Silo #3 Discharge System/Baghouse (Z-17)	21	FCS21	361,340	3,162,370	50	15.24	1.5	0.5	160	344	94	28.7	1.29	0.16	CON	Yes	Yes
	BCP: Cement Storage Silo #3 With Baghouse (Z-15)	22	FCS22	361,340	3,162,370	200	60.96	2	0.6	180	355	28.1	8.6	0.68	0.09	CON	Yes	Yes
	BCP: Cement Silo #4 & Truck Loadout Sys With Baghouse	23	FCS23	361,340	3,162,370	75	22.86	0.8	0.2	77	298	28	8.5	0.11	0.01	CON	Yes	Yes
	BCP: Cement Storage Silo & Railcar Loadout System/Baghouse	24	FCS24	361,340	3,162,370	80	24.38	1.5	0.5	77	298	56	17.1	1.03	0.13	CON	Yes	Yes
	Raw Mill System	25	FCS25	361,340	3,162,370	219	66.75	3.3	1.0	180	355	33.1	10.1	1.688	0.21	CON	Yes	Yes
	FINISH MILL SYSTEM	28	FCS28	361,340	3,162,370	123	37.49	8.6	2.6	160	344	33	10.1	12.855	1.62	CON	Yes	Yes
	CEMENT HANDLING SYSTEM	29	FCS29	361,340	3,162,370	203	61.87	2.1	0.6	180	355	34.7	10.6	1.414	0.18	CON	Yes	Yes
	COAL HANDLING SYSTEM	30	FCS30	361,340	3,162,370	40	12.19	3.9	1.2	150	339	33.5	10.2	1.89	0.24	CON	Yes	Yes
	BPP: Limestone Rock Bin With Baghouse (D-38)	35	FCS35	361,340	3,162,370	100	30.48	2.5	0.8	70	294	35.7	10.9	1.1	0.14	CON	Yes	Yes
	BPP: Contaminated Flyash & Filter Dust Bin (D-31)	36	FCS36	361,340	3,162,370	200	60.96	1.5	0.5	180	355	103.7	31.6	1.41	0.18	CON	Yes	Yes
	BPP: Limestone Screening System With Baghouse (D-39)	37	FCS37	361,340	3,162,370	30	9.14	2	0.6	150	339	15.9	4.8	0.77	0.10	CON	Yes	Yes
	BPP: Limestone Fines Storage Bin With Baghouse (D-13)	38	FCS38	361,340	3,162,370	150	45.72	3.5	1.1	100	311	32.9	10.0	0.77	0.10	CON	Yes	Yes
	BPP: Limedust Storage Bin With Baghouse (Z-31)	39	FCS39	361,340	3,162,370	100	30.48	2.5	0.8	120	322	21.4	6.5	1.16	0.15	CON	Yes	Yes
	BPP: Limestone Dryer Discharge Transfer Point (D-46)	40	FCS40	361,340	3,162,370	15	4.57	1.5	0.5	77	298	16.3	5.0	0.22	0.03	CON	Yes	Yes
	Kiln #2	44	FCS44	361,340	3,162,370	320	97.54	14	4.3	550	561	40.1	12.2	28.8	3.63	CON	Yes	Yes
	Filter Dust ID No. 2E-22	45	FCS45	361,340	3,162,370	194	59.13	1.7	0.5	200	366	29.4	9.0	1.14	0.14	CON	Yes	Yes
	Raw Meal Transport 2F-04	46	FCS46	361,340	3,162,370	30	9.14	1.4	0.4	180	355	32.5	9.9	0.26	0.03	CON	Yes	Yes
	Kiln Feed Tranport ID 2H-05	47	FCS47	361,340	3,162,370	30	9.14	1.4	0.4	180	355	32.5	9.9	0.26	0.03	CON	Yes	Yes
	Clinker Transport	48	FCS48	361,340	3,162,370	32	9.75	1.6	0.5	240	389	24.9	7.6	0.19	0.02	CON	Yes	Yes
	Gypsum Bin 2L-14	49	FCS49	361,340	3,162,370	120	36.58	1.6	0.5	95	308	33.2	10.1	0.32	0.04	CON	Yes	Yes
	Clinker Storage ID 2L-05	50	FCS50	361,340	3,162,370	203	61.87	1.6	0.5	240	389	33.2	10.1	0.253	0.03	CON	Yes	Yes
	Finish Mill Collecting Bin	51	FCS51	361,340	3,162,370	15	4.57	2.3	0.7	180	355	48.1	14.7	0.832	0.10	CON	Yes	Yes
	Finish Mill	52	FCS52	361,340	3,162,370	130	39.62	4	1.2	212	373	46.4	14.1	2.31	0.29	CON	Yes	Yes
	Air Slide ID 2N-03	53	FCS53	361,340	3,162,370	46	14.02	1.8	0.5	200	366	39.3	12.0	0.403	0.05	CON	Yes	Yes
	Bucket Elevator ID 2N-04	54	FCS54	361,340	3,162,370	46	14.02	1.8	0.5	200	366	39.3	12.0	0.403	0.05	CON	Yes	Yes
	High Efficiency Seperator	55	FCS55	361,340	3,162,370	130	39.62	7.5	2.3	160	344	48.5	14.8	9.199	1.16	CON	Yes	Yes
	Cement Cooler 2N-26	56	FCS56	361,340	3,162,370	46	14.02	1.8	0.5	200	366	39.3	12.0	0.403	0.05	CON	Yes	Yes
	Cement Transport ID 2P-01	57	FCS57	361,340	3,162,370	203	61.87	1.6	0.5	180	355	30.7	9.4	0.832	0.10	CON	Yes	Yes
	Cement Loadout Bin ID 2Q-28	58	FCS58	361,340	3,162,370	30	9.14	1.4	0.4	180	355	32.5	9.9	0.208	0.03	CON	Yes	Yes
	Cement Loadout Bin 2Q-31	59	FCS59	361,340	3,162,370	30	9.14	1.4	0.4	180	355	32.5	9.9	0.208	0.03	CON	Yes	Yes
	Coal Mill ID 2S-15	60	FCS60	361,340	3,162,370	40	12.19	3.9	1.2	150	339	30.7	9.4	1.6	0.20	CON	Yes	Yes
	Fuel Bin 2S-20	61	FCS61	361,340	3,162,370	40	12.19	1.1	0.3	150	339	35.1	10.7	0.145	0.02	CON	Yes	Yes
0530010	CEMEX																	

TABLE D-1

SUMMARY OF PM_{10} SOURCES INCLUDED IN THE AAQS AND PSD CLASS II COMPLIANCE AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility ID	Facility Name / Emission Unit Description	EU ID	Model ID Name	UTM Location X (m)	UTM Location Y (m)	Stack Parameters: Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	PM_{10} Emission Rate lb/hr	PM_{10} Emission Rate g/s	PSD Source? * (EXP/CON)	Modeled in AAQS	Modeled in Class II
	No. 1 Kiln Feed System (Baghouse D-31)	2	CEMEX2	357,470	3,169,190	75	22.86	3	0.9	85	303	23.0	7.0	1.0	0.13	NO	Yes	No
	Cement Kiln No. 1 Baghouse(E-55);Revised Oil Concentrations	3	CEMEX3	357,470	3,169,190	150	45.72	13	4.0	285	414	34.0	10.4	29.7	3.74	NO	Yes	No
	Cement Plant Clinker Cooler No. 1 (Baghouse F-18)	4	CEMEX4	357,470	3,169,190	50	15.24	10	3.0	340	444	29.0	8.8	14.9	1.88	NO	Yes	No
	Finish Mills #1 & #2 With Two Dust Collectors	5	CEMEX5	357,470	3,169,190	83	25.30	3	0.9	195	364	518.0	157.9	36.0	4.54	NO	Yes	No
	Clinker Storage Silo Nos. 1&2 (Baghouse F-31)	6	CEMEX6	357,470	3,169,190	145	44.20	2	0.6	78	299	159.0	48.5	1.5	0.18	NO	Yes	No
	No. 1 Kiln Blending Silos (Baghouse Nos. E-36,F-17)	8	CEMEX8	357,470	3,169,190	216	65.84	2	0.6	85	303	79.0	24.1	3.7	0.47	Yes	Yes	Yes
	Cement Plt Stg Silos Dust Unit H-3	9	CEMEX9	357,470	3,169,190	141	42.98	3	0.9	85	303	35.0	10.7	36.1	4.54	NO	Yes	No
	Raw Mat'l Storage Silos & Feed Syst. W/Baghouses (C-11,C-11a	11	CEMEX11	357,470	3,169,190	80	24.38	2.5	0.8	77	298	50.0	15.2	2.2	0.27	NO	Yes	No
	Kiln No. 2 Blending Silo W/Baghouse (G-11)	12	CEMEX12	357,470	3,169,190	220	67.06	2.8	0.9	200	366	62.0	18.9	2.0	0.25	Yes	Yes	Yes
	No. 2 Kiln Feed System W/Baghouse (H-13)	13	CEMEX13	357,470	3,169,190	90	27.43	1.4	0.4	130	328	64.0	19.5	13.5	1.70	Yes	Yes	Yes
	Cement Kiln No. 2 Baghouse(E-19); Revised Oil Concentrations	14	CEMEX14	357,470	3,169,190	105	32.00	14	4.3	250	394	32.0	9.8	29.7	3.74	Yes	Yes	Yes
	No. 2 Clinker Cooler W/Baghouse K-09	15	CEMEX15	357,470	3,169,190	50	15.24	7.5	2.3	400	478	71.0	21.6	14.9	1.88	Yes	Yes	Yes
	Clinker Silo No. 3 W/Baghouse (L-7)	16	CEMEX16	357,470	3,169,190	150	45.72	2.8	0.9	185	358	23.0	7.0	1.5	0.18	Yes	Yes	Yes
	Clinker/Gypsum Transfer Belt W/Baghouse (M-09)	17	CEMEX17	357,470	3,169,190	75	22.86	1	0.3	150	339	63.0	19.2	0.5	0.06	Yes	Yes	Yes
	Finish Mill No. 3 Clinker/Gypsum Day Tank W/Baghouse (M-10)	18	CEMEX18	357,470	3,169,190	75	22.86	2.8	0.9	140	333	23.0	7.0	1.5	0.18	Yes	Yes	Yes
	Finish Mill No. 3 W/Baghouse (N-23)	19	CEMEX19	357,470	3,169,190	75	22.86	3.3	1.0	207	370	62.0	18.9	4.0	0.50	Yes	Yes	Yes
	Cement Silos 7 & 8 W/Baghouse (P-05)	21	CEMEX21	357,470	3,169,190	210	64.01	2.2	0.7	145	336	50.0	15.2	1.0	0.13	Yes	Yes	Yes
	Masonry Silo W/Baghouse (P-07)	22	CEMEX22	357,470	3,169,190	210	64.01	1.5	0.5	150	339	51.0	15.5	1.0	0.13	Yes	Yes	Yes
	Truck Loadout System W/Baghouse (Q-17)	23	CEMEX23	357,470	3,169,190	70	21.34	1.5	0.5	150	339	51.0	15.5	0.5	0.06	Yes	Yes	Yes
	Raw Material Pre-Mix Bin W/Baghouse (M-2280)	24	CEMEX24	357,470	3,169,190	81	24.69	1.7	0.5	107	315	39.0	11.9	0.6	0.08	Yes	Yes	Yes
	Additive Material Storage Bin W/Baghouse M-1171	25	CEMEX25	357,470	3,169,190	32	9.75	2	0.6	70	294	79.0	24.1	0.0	0.00	Yes	Yes	Yes
	Cement Bag Loadout System W/Baghouse (M-3514)	26	CEMEX26	357,470	3,169,190	24	7.32	2	0.6	114	319	20.0	6.1	0.6	0.08	Yes	Yes	Yes
	Cement Bagging Line No. 2	27	CEMEX27	357,470	3,169,190	48	14.63	1.64	0.5		255	67.1	20.5	12.7	1.60	Yes	Yes	Yes
	IMC Agrico (Pierce)																	
	PSD Expanding source	1	1AGRI	404,100	3,079,000	80	24.38	8	2.4	118	321	69.7	21.2	-40.0	-5.04	E	No	Yes
	PSD Expanding source	2	2AGRI	404,100	3,079,000	95	28.96	5.8	1.8	770	683	48.8	14.9	-31.1	-3.92	E	No	Yes

* EXP = PSD expanding source.
CON = PSD consuming source.
NO = Baseline Source, does not affect PSD increment.
ND = No data available.

TABLE D-2

SUMMARY OF SO2 SOURCES INCLUDED IN THE AAQS AND PSD CLASS II COMPLIANCE AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility ID	Facility Name	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to the Crystal River Power Plant[a] X (km)	Y (km)	Direction (deg.)	Distance (km)	Stack Height (ft)		Stack Diameter (ft)		Exit Temp (F)		Volumetric Flowrate (acfm)	(dscfm)	Velocity (ft/s)		Maximum SO_2 Emissions (TPY)		PSD Source?[c] (EXP/CON)	Modeled AAQS	Modeled PSD Class II
0170007	Crystal River Quarries	CRQUAR	340.60	3.205.30	6.3	0.8	83	6.4	60	18.3	3.9	1.19	143	335	15.224	ND	21.0	6.4	133.9	3.85	NA	YES	NO
0530010	Cemex	CEMEX02	357.47	3.169.19	23.2	-35.3	147	42.2	150	45.7	13.0	3.96	285	414	275.000	175.400	34.0	10.4	66.0	1.90	NA	YES	NO
0530010	Cemex	CEMEX14	357.47	3.169.19	23.2	-35.3	147	42.2	105	32.0	14.0	4.27	250	394	300.000	200.000	32.0	9.76	66.0	1.90	CON	YES	YES
0530021	Florida Crushed Stone Co., Inc. - Brookville Cement	FCRUSH18	361.34	3.162.37	27.0	-42.1	147	50.1	320	97.6	16.0	4.88	300	422	840.000	540.000	69.6	21.2	3.372.6	97.02	CON	YES	YES
0530021	Florida Crushed Stone Co., Inc. - Brookville Cement	FCRUSH20	361.34	3.162.37	27.0	-42.1	147	50.1	300	91.5	16.0	4.88	220	378	577.700	376.796	47.0	14.3	219.0	6.30	CON	YES	YES
0530022	Florida Crushed Stone Co., Inc. - Brookville Cement	FCRUSH44	361.34	3.162.37	27.0	-42.1	147	50.1	320	97.6	15.0	4.57	259	399			33.8	10.3	126.2	3.63	CON	YES	YES
0530004	Citrus Service, Inc.	CITSER1	364.20	3.158.30	29.9	-46.2	147	55.0	34	10.4	2.0	0.61	468	515	9.118	ND	48.0	14.6	118.3	3.40	NA	YES	NO
0530004	Citrus Service, Inc.	CITSER2	364.20	3.158.30	29.9	-46.2	147	55.0	64	19.5	2.5	0.76	150	339	8,000	9.200	27.0	8.2	19.0	0.55	NA	YES	NO
1010056	Pasco County	PASCORRF	348.62	3.139.02	14.3	-65.5	168	67.0	275	83.8	4.7	1.43	250	394	85.300	47.600	81.9	25.0	65.9	1.90	CON	YES	YES
1010056	Pasco County	PASCORRF	348.62	3.139.02	14.3	-65.5	168	67.0	275	83.8	4.7	1.43	250	394	85.300	47.600	81.9	25.0	65.9	1.90	CON	YES	YES
1010056	Pasco County	PASCORRF	348.62	3.139.02	14.3	-65.5	168	67.0	275	83.8	4.7	1.43	250	394	85.300	47.600	81.9	25.0	65.9	1.90	CON	YES	YES
1010056	Pasco County	PASCORRF	348.62	3.139.02	14.3	-65.5	168	67.0	30	9.1	1.0	0.30	350	450	900	580	19.1	5.8	0.008	0.00	CON	YES	YES
1010373	Shady Hills Power Company, L.L.C.	SHADYHL	348.72	3.138.37	14.4	-66.1	168	67.7	60	18.3	22.0	6.71	1.113	874	2.645.000	800.000	116.0	35.4	55.3	1.59	CON	YES	YES
1010373	Shady Hills Power Company, L.L.C.	SHADYHL	348.72	3.138.37	14.4	-66.1	168	67.7	60	18.3	22.0	6.71	1.113	874	2.645.000	800.000	116.0	35.4	55.3	1.59	CON	YES	YES
1010373	Shady Hills Power Company, L.L.C.	SHADYHL	348.72	3.138.37	14.4	-66.1	168	67.7	60	18.3	22.0	6.71	1.113	874	2.645.000	800.000	116.0	35.4	55.3	1.59	CON	YES	YES
1010017	Progress Energy Florida, Inc. - Anclote Power Plant	ANCL12	327.41	3.120.68	-6.9	-83.8	185	84.1	499	152.1	24.0	7.32	320	433	1.699.026	ND	62.0	18.9	61.104.0	1.757.79	NA	YES	NO
1010017	Progress Energy Florida, Inc. - Anclote Power Plant	ANCL13	327.41	3.120.68	-6.9	-83.8	185	84.1	499	152.1	24.0	7.32	320	433	1.692.307	ND	62.0	18.9	59.707.0	1.717.60	NA	YES	NO
	Asphalt Pavers 3	ASPHALT3	359.90	3162.40	25.6	-42.1	149	49.3	40.0	12.2	4.5	1.37	219	377	38.077	ND	40.0	12.2	78.2	2.25	CON	YES	YES
	Asphalt Pavers 4	ASPHALT4	361.40	3168.40	27.1	-36.1	143	45.1	27.9	8.5	3.5	1.08	183	357	16.487	ND	27.9	8.5	78.2	2.25	CON	YES	YES
	FDOC	FDOC	382.20	3166.10	47.9	-38.4	129	61.4	29.8	9.1	2.0	0.61	401	478	5,631	ND	29.8	9.1	103.9	2.99	CON	YES	YES
	Hospital Corp of America	HCOA12	333.40	3141.00	-0.9	-63.5	181	63.5	36.1	11.0	1.0	0.31	500	533	1,758	ND	36.1	11.0	5.6	0.16	CON	YES	YES
	Oman Construction	OMAN	359.80	3164.90	25.5	-39.6	147	47.1	24.9	7.6	6.0	1.83	165	347	42.323	ND	24.9	7.6	72.7	2.09	CON	YES	YES
	Overstreet Paving	OVERST	355.90	3143.70	21.6	-60.8	160	64.5	29.8	9.1	4.3	1.30	275	408	25.574	ND	29.8	9.1	127.6	3.67	CON	YES	YES

Note: NA = Not applicable, ND = No data. SID = Significant impact distance for the project

[a] The Crystal River Power Plant is located at UTM Coordinates: East 334.3 km; North 3204.5 km

[b] The significant impact distance (SID) for the project is estimated to be 15.0 km

[c] Based on the North Carolina Screening Threshold method, a background facility is included in the modeling analysis if the facility is beyond the modeling area and its emission rate is greater than the product of (Distance-SID) x 20.

TABLE D-3

SUMMARY OF NO_X SOURCES INCLUDED IN THE AAQS AND PSD CLASS II COMPLIANCE AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility ID	Facility Name / Emission Unit Description	EU ID	Model ID Name	UTM Location X (m)	UTM Location Y (m)	Stack Parameters Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	NOx Emission Rate TPY	NOx Emission Rate (g/s)	PSD Source? * (EXP/CON)	Modeled In AAQS	Modeled In PSD Class II
0530010	CEMEX																	
	Cement Kiln No. 1	3	CEMEX3	355,900	3,169,100	150	45.72	13	4.0	285	414	34.0	10.4	1318.0	37.9	NO	Yes	No
	Cement Kiln No. 2	14	CEMEX14	355,900	3,169,100	105	32.00	14	4.3	250	394	32.0	9.8	1130.0	32.5	NO	Yes	No
0530021	Florida Crushed Stone - Brooksville Cement And Power Plants																	
	BPP: POWER PLANT	18	FCS18	360000	3162500	320	97.54	16	4.9	300	422	69.6	21.2	3705.5	106.6	NO	Yes	No
	BCP: Cement Kiln1, In-line Kiln/Raw Mill & Clinker Cooler 1	20	FCS20	360000	3162500	300	91.44	16	4.9	220	378	47	14.3	1572.0	45.2	NO	Yes	No
	Kiln #2	44	FCS44	360000	3162500	320	97.54	14	4.3	550	561	40.1	12.2	1595.7	45.9	CON	Yes	Yes
1010373	Shady Hills Generating Station																	
	A 170 MW Gas Simple Cycle Combustion Turbine	1	SHILLGS1	347,000	3,139,000	60	18.3	22.0	6.71	1113	874	116.0	35.4	252.1	7.3	CON	Yes	Yes
	A 170 MW Gas Simple Cycle Combustion Turbine	2	SHILLGS2	347,000	3,139,000	60	18.3	22.0	6.71	1113	874	116.0	35.4	252.1	7.3	CON	Yes	Yes
	A 170 MW Gas Simple Cycle Combustion Turbine	3	SHILLGS3	347,000	3,139,000	60	18.3	22.0	6.71	1113	874	116.0	35.4	252.1	7.3	CON	Yes	Yes
1010056	Pasco County Resource Recovery Facility																	
	Municipal waste Combustor Unit #1	1	PCRRF1	348,810	3,138,770	275	83.8	4.7	1.43	250	394	81.9	25.0	335.6	9.7	CON	Yes	Yes
	Municipal Waste Combustor Unit #2	2	PCRRF2	348,810	3,138,770	275	83.8	4.7	1.43	250	394	81.9	25.0	335.6	9.7	CON	Yes	Yes
	Municipal Waste Combustor Unit #3	3	PCRRF3	348,810	3,138,770	275	83.8	4.7	1.43	250	394	81.9	25.0	335.6	9.7	CON	Yes	Yes
	Leachate Treatment Facility	5	PCRRF5	348,810	3,138,770	30	9.1	1.0	0.30	350	450	19.1	5.8	1.32	0.0	CON	Yes	Yes
0010087	Florida Rock Industries - Thompson S. Baker Cement Plant																	
	Kiln/Raw Mill System Stack	3	FRBCP3	348350	3287040	250	76.20	9.42	2.9	356	453	47.8	14.6	980.0	28.2	CON	Yes	Yes
	Kiln/Raw Mill- Line 2	10	FRBCP10	348350	3287040	315	96.01	9.42	2.9	356	453	52.6	16.0	1067.6	30.7	CON	Yes	Yes
1010017	Progress Energy-Anclote Power Plant																	
	Steam Turbine Gen. Anclote Unit No.1	1	FPCANC1	327,400	3,120,700	499	152.10	24	7.3	320	433	62.0	18.9	6812.6	196.0	NO	Yes	No
	Steam Turbine Gen Anclote Unit No.2	2	FPCANC2	327,400	3,120,700	499	152.10	24	7.3	320	433	62.0	18.9	6656.1	191.5	NO	Yes	No
0830070	Florida Gas Transmission Company																	
	FGTC Engine 1701 - 2000 bhp RICE compressor engine	1	FGTC1	418,800	3,240,900	28	8.53	1.3	0.4	875	741	147.0	44.8	212.4	6.1	CON	Yes	Yes
	FGTC Engine 1702 - 2000 bhp RICE compressor engine	2	FGTC2	418,800	3,240,900	28	8.53	1.3	0.4	875	741	147.0	44.8	212.4	6.1	CON	Yes	Yes
	FGTC Engine 1703 - 2000 bhp RICE compressor engine	3	FGTC3	418,800	3,240,900	28	8.53	1.3	0.4	875	741	147.0	44.8	212.4	6.1	CON	Yes	Yes
	FGTC Engine 1704 - 2000 bhp RICE compressor engine	4	FGTC4	418,800	3,240,900	28	8.53	1.3	0.4	875	741	147.0	44.8	154.6	4.4	CON	Yes	Yes
	FGTC Engine 1705 - 2400 bhp RICE compressor engine	5	FGTC5	418,800	3,240,900	40	12.19	1.3	0.4	695	641	180.0	54.9	46.3	1.3	CON	Yes	Yes
	FGTC Engine 1706 - 15,700 bhp gas turbine compressor engine	8	FGTC8	418,800	3,240,900	61	18.59	7.6	2.3	910	761	79.1	24.1	61.8	1.8	CON	Yes	Yes
0010006	GRU Deerhaven Generating Station																	
	Fossil Fuel Fired Steam Generator #1(Phase II AR Unit)	3	GRUDGS3	365,700	3,292,600	300	91.4	11.0	3.4	261	400	47.0	14.3	1154.3	33.2	NO	Yes	No
	Fossil Fuel Fired Steam Generator #2 (Phase I & II AR Unit)	5	GRUDGS5	365,700	3,292,600	350	106.7	18.5	5.6	275	408	50.0	15.2	7444.1	214.1	NO	Yes	No
	Simple Cycle Comb Turbine No. 3 (Phase II Acid Rain Unit)	6	GRUDGS6	365,700	3,292,600	52	15.8	14.1	4.3	1100	866	168.0	51.2	239.0	6.9	CON	Yes	Yes

* EXP = PSD expanding source.
CON = PSD consuming source.
NO = Baseline Source, does not affect PSD increment.
ND = No data available.

TABLE D-4

SUMMARY OF PM_{10} SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Facility Name		CALPUFF	UTM Location		LCC Location		Stack Parameters								PM_{10} Emission			Modeled
				X	Y	X	Y	Height		Diameter		Temperature		Velocity		Rate		PSD Source? *	PSD
ID	Emission Unit Description	EU ID	ID	(m)	(m)	(km)	(km)	ft	m	ft	m	°F	K	ft/s	m/s	lb/hr	g/s	(EXP/CON)	Source?
0530010	CEMEX																		
	No. 1 Kiln Feed System (Baghouse D-31)	2	CEMEX2	357,470	3,169,190	1,427.654	-1,147.418	75	22.86	3	0.9	85	303	23.0	7.0	1.0	0.13	NO	No
	Cement Kiln No. 1 Baghouse(E-55);Revised Oil Concentrations	3	CEMEX3	357,470	3,169,190	1,427.654	-1,147.418	150	45.72	13	4.0	285	414	34.0	10.4	29.7	3.74	NO	No
	Cement Plant Clinker Cooler No. 1 (Baghouse F-18)	4	CEMEX4	357,470	3,169,190	1,427.654	-1,147.418	50	15.24	10	3.0	340	444	29.0	8.8	14.9	1.88	NO	No
	Finish Mills #1 & #2 With Two Dust Collectors	5	CEMEX5	357,470	3,169,190	1,427.654	-1,147.418	83	25.30	3	0.9	195	364	518.0	157.9	36.0	4.54	NO	No
	Clinker Storage Silo Nos. 1&2 (Baghouse F-31)	6	CEMEX6	357,470	3,169,190	1,427.654	-1,147.418	145	44.20	2	0.6	78	299	159.0	48.5	1.5	0.18	NO	No
	No. 1 Kiln Blending Silos (Baghouse Nos. E-36,F-17)	8	CEMEX8	357,470	3,169,190	1,427.654	-1,147.418	216	65.84	2	0.6	85	303	79.0	24.1	3.7	0.47	Yes	Yes
	Cement Plt Stg Silos Dust Unit H-3	9	CEMEX9	357,470	3,169,190	1,427.654	-1,147.418	141	42.98	3	0.9	85	303	35.0	10.7	36.1	4.54	NO	No
	Raw Mat'l Storage Silos & Feed Syst. W/Baghouses (C-11,C-11a	11	CEMEX11	357,470	3,169,190	1,427.654	-1,147.418	80	24.38	2.5	0.8	77	298	50.0	15.2	2.2	0.27	NO	No
	Kiln No. 2 Blending Silo W/Baghouse (G-11)	12	CEMEX12	357,470	3,169,190	1,427.654	-1,147.418	220	67.06	2.8	0.9	200	366	62.0	18.9	2.0	0.25	Yes	Yes
	No. 2 Kiln Feed System W/Baghouse (H-13)	13	CEMEX13	357,470	3,169,190	1,427.654	-1,147.418	90	27.43	1.4	0.4	130	328	64.0	19.5	13.5	1.70	Yes	Yes
	Cement Kiln No. 2 Baghouse(E-19); Revised Oil Concentrations	14	CEMEX14	357,470	3,169,190	1,427.654	-1,147.418	105	32.00	14	4.3	250	394	32.0	9.8	29.7	3.74	Yes	Yes
	No. 2 Clinker Cooler W/Baghouse K-09	15	CEMEX15	357,470	3,169,190	1,427.654	-1,147.418	50	15.24	7.5	2.3	400	478	71.0	21.6	14.9	1.88	Yes	Yes
	Clinker Silo No. 3 W/Baghouse (L-7)	16	CEMEX16	357,470	3,169,190	1,427.654	-1,147.418	150	45.72	2.8	0.9	185	358	23.0	7.0	1.5	0.18	Yes	Yes
	Clinker/Gypsum Transfer Belt W/Baghouse (M-09)	17	CEMEX17	357,470	3,169,190	1,427.654	-1,147.418	75	22.86	1	0.3	150	339	63.0	19.2	0.5	0.06	Yes	Yes
	Finish Mill No. 3 Clinker/Gypsum Day Tank W/Baghouse (M-10)	18	CEMEX18	357,470	3,169,190	1,427.654	-1,147.418	75	22.86	2.8	0.9	140	333	23.0	7.0	1.5	0.18	Yes	Yes
	Finish Mill No. 3 W/Baghouse (N-23)	19	CEMEX19	357,470	3,169,190	1,427.654	-1,147.418	75	22.86	3.3	1.0	207	370	62.0	18.9	4.0	0.50	Yes	Yes
	Cement Silos 7 & 8 W/Baghouse (P-05)	21	CEMEX21	357,470	3,169,190	1,427.654	-1,147.418	210	64.01	2.2	0.7	145	336	50.0	15.2	1.0	0.13	Yes	Yes
	Masonry Silo W/Baghouse (P-07)	22	CEMEX22	357,470	3,169,190	1,427.654	-1,147.418	210	64.01	1.5	0.5	150	339	51.0	15.5	1.0	0.13	Yes	Yes
	Truck Loadout System W/Baghouse (Q-17)	23	CEMEX23	357,470	3,169,190	1,427.654	-1,147.418	70	21.34	1.5	0.5	150	339	51.0	15.5	0.5	0.06	Yes	Yes
	Raw Material Pre-Mix Bin W/Baghouse (M-2280)	24	CEMEX24	357,470	3,169,190	1,427.654	-1,147.418	81	24.69	1.7	0.5	107	315	39.0	11.9	0.6	0.08	Yes	Yes
	Additive Material Storage Bin W/Baghouse M-1171	25	CEMEX25	357,470	3,169,190	1,427.654	-1,147.418	32	9.75	2	0.6	70	294	79.0	24.1	0.009	0.001	Yes	Yes
	Cement Bag Loadout System W/Baghouse (M-3514)	26	CEMEX26	357,470	3,169,190	1,427.654	-1,147.418	24	7.32	2	0.6	114	319	20.0	6.1	0.6	0.08	Yes	Yes
	Cement Bagging Line No. 2	27	CEMEX27	357,470	3,169,190	1,427.654	-1,147.418	48	14.63	1.64	0.5		255	67.1	20.5	12.7	1.60	Yes	Yes
0530021	Florida Crushed Stone - Brooksville Cement And Power Plants																		
	BCP: Filter Dust Bin With Baghouse(D-75)	1	FCS1	361340	3162370	1432.684	-1153.561	125	38.10	2	0.6	77	298	36	11.0	0.7	0.09	CON	Yes
	BCP: Fly Ash/Equilibrium Catalyst Bin With Baghouse (D-67)	2	FCS2	361340	3162370	1432.684	-1153.561	125	38.10	2	0.6	77	298	22	6.7	0.4	0.05	CON	Yes
	BCP: Raw Meal Transfer With Baghouse (F-14)	4	FCS4	361340	3162370	1432.684	-1153.561	70	21.34	1	0.3	180	355	25.5	7.8	0.2	0.03	CON	Yes
	BCP: Two Blend Silos With Baghouse (G-12A & B)	6	FCS6	361340	3162370	1432.684	-1153.561	240	73.15	3.5	1.1	180	355	29	8.8	2.2	0.28	CON	Yes
	BCP: Kiln Feed Surge Bin With Baghouse (H-15)	7	FCS7	361340	3162370	1432.684	-1153.561	50	15.24	2	0.6	200	366	31.8	9.7	0.8	0.10	CON	Yes
	BCP: Clinker Receiving/handling System (S-04)	8	FCS8	361340	3162370	1432.684	-1153.561	15	4.57	2	0.6	70	294	31	9.4	0.7	0.09	CON	Yes
	Clinker Cooler Discharge with Baghouse (L-03)	9	FCS9	361340	3162370	1432.684	-1153.561	10	3.05	1	0.3	250	394	108.2	33.0	0.66	0.08	CON	Yes
	BCP: Clinker Silo (L-06) & Finish Mill Silo (L-07)/baghouse	10	FCS10	361340	3162370	1432.684	-1153.561	200	60.96	1.5	0.5	200	366	24	7.3	0.3	0.04	CON	Yes
	BCP: Gypsum & Limestone Bins With Baghouse (L-08)	11	FCS11	361340	3162370	1432.684	-1153.561	135	41.15	1.5	0.5	200	366	47	14.3	0.6	0.08	CON	Yes
	BCP: Silo Discharge With Baghouse(M-08)	12	FCS12	361340	3162370	1432.684	-1153.561	135	41.15	2.5	0.8	100	311	30	9.1	1.2	0.15	CON	Yes
	BCP: Finish Mill With Baghouse (N-13)	13	FCS13	361340	3162370	1432.684	-1153.561	70	21.34	5	1.5	210	372	33	10.1	5.1	0.64	CON	Yes
	BCP:Cement Silos #1 & 2 Discharge System With Baghouse(Q-17)	14	FCS14	361340	3162370	1432.684	-1153.561	50	15.24	1.5	0.5	160	344	30	9.1	0.4	0.05	CON	Yes
	BCP: Cement Storage Silos #1 & 2 With Baghouse (Q-15)	15	FCS15	361340	3162370	1432.684	-1153.561	200	60.96	2	0.6	180	355	39.3	12.0	1	0.13	CON	Yes
	BCP: Iron Ore Bin With Baghouse (D-63)	17	FCS17	361340	3162370	1432.684	-1153.561	51	15.54	1.5	0.5	180	355	34	10.4	0.5	0.06	CON	Yes
	BPP: POWER PLANT	18	FCS18	361340	3162370	1432.684	-1153.561	320	97.54	16	4.9	300	422	69.6	21.2	25	3.15	CON	Yes
	BCP: Finish Mill Feed Belt With Baghouse (M-05)	19	FCS19	361340	3162370	1432.684	-1153.561	29	8.84	2	0.6	85	303	47	14.3	1.16	0.15	CON	Yes
	BCP: Cement Kiln1, In-line Kiln/Raw Mill & Clinker Cooler 1	20	FCS20	361340	3162370	1432.684	-1153.561	300	91.44	16	4.9	220	378	47	14.3	49.5	6.24	CON	Yes
	BCP: Cement Storage Silo #3 Discharge System/Baghouse (Z-17)	21	FCS21	361340	3162370	1432.684	-1153.561	50	15.24	1.5	0.5	160	344	94	28.7	1.29	0.16	CON	Yes
	BCP: Cement Storage Silo #3 With Baghouse (Z-15)	22	FCS22	361340	3162370	1432.684	-1153.561	200	60.96	2	0.6	180	355	28.1	8.6	0.68	0.09	CON	Yes
	BCP: Cement Silo #4 & Truck Loadout Sys With Baghouse	23	FCS23	361340	3162370	1432.684	-1153.561	75	22.86	0.8	0.2	77	298	28	8.5	0.11	0.01	CON	Yes
	BCP: Cement Storage Silo & Railcar Loadout System/Baghouse	24	FCS24	361340	3162370	1432.684	-1153.561	80	24.38	1.5	0.5	77	298	56	17.1	1.03	0.13	CON	Yes
	Raw Mill System	25	FCS25	361340	3162370	1432.684	-1153.561	219	66.75	3.3	1.0	180	355	33.1	10.1	1.688	0.21	CON	Yes
	FINISH MILL SYSTEM	28	FCS28	361340	3162370	1432.684	-1153.561	123	37.49	8.6	2.6	160	344	33	10.1	12.855	1.62	CON	Yes
	CEMENT HANDLING SYSTEM	29	FCS29	361340	3162370	1432.684	-1153.561	203	61.87	2.1	0.6	180	355	34.7	10.6	1.414	0.18	CON	Yes
	COAL HANDLING SYSTEM	30	FCS30	361340	3162370	1432.684	-1153.561	40	12.19	3.9	1.2	150	339	33.5	10.2	1.89	0.24	CON	Yes
	BPP: Limestone Rock Bin With Baghouse (D-38)	35	FCS35	361340	3162370	1432.684	-1153.561	100	30.48	2.5	0.8	70	294	35.7	10.9	1.1	0.14	CON	Yes
	BPP: Contaminated Flyash & Filter Dust Bin (D-31)	36	FCS36	361340	3162370	1432.684	-1153.561	200	60.96	1.5	0.5	180	355	103.7	31.6	1.41	0.18	CON	Yes
	BPP: Limestone Screening System With Baghouse (D-39)	37	FCS37	361340	3162370	1432.684	-1153.561	30	9.14	2	0.6	150	339	15.9	4.8	0.77	0.10	CON	Yes
	BPP: Limestone Fines Storage Bin With Baghouse (D-13)	38	FCS38	361340	3162370	1432.684	-1153.561	150	45.72	3.5	1.1	100	311	32.9	10.0	0.77	0.10	CON	Yes
	BPP: Limedust Storage Bin With Baghouse (Z-31)	39	FCS39	361340	3162370	1432.684	-1153.561	100	30.48	2.5	0.8	120	322	21.4	6.5	1.16	0.15	CON	Yes
	BPP: Limestone Dryer Discharge Transfer Point (D-46)	40	FCS40	361340	3162370	1432.684	-1153.561	15	4.57	1.5	0.5	77	298	16.3	5.0	0.22	0.03	CON	Yes
	Kiln #2	44	FCS44	361340	3162370	1432.684	-1153.561	320	97.54	14	4.3	550	561	40.1	12.2	28.8	3.63	CON	Yes
	Filter Dust ID No. 2E-22	45	FCS45	361340	3162370	1432.684	-1153.561	194	59.13	1.7	0.5	200	366	29.4	9.0	1.14	0.14	CON	Yes
	Raw Meal Transport 2F-04	46	FCS46	361340	3162370	1432.684	-1153.561	30	9.14	1.4	0.4	180	355	32.5	9.9	0.26	0.03	CON	Yes
	Kiln Feed Tranport ID 2H-05	47	FCS47	361340	3162370	1432.684	-1153.561	30	9.14	1.4	0.4	180	355	32.5	9.9	0.26	0.03	CON	Yes
	Clinker Transport	48	FCS48	361340	3162370	1432.684	-1153.561	32	9.75	1.6	0.5	240	389	24.9	7.6	0.19	0.02	CON	Yes

Facility ID	Facility Name / Emission Unit Description	EU ID	CALPUFF ID	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Stack Parameters: Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	PM10 Emission Rate lb/hr	PM10 Emission Rate g/s	PSD Source? a (EXP/CON)	Modeled PSD Source?
	Gypsum Bin 2L-14	49	FCS49	361340	3162370	1432.684	-1153.561	120	36.58	1.6	0.5	95	308	33.2	10.1	0.32	0.04	CON	Yes
	Clinker Storage ID 2L-05	50	FCS50	361340	3162370	1432.684	-1153.561	203	61.87	1.6	0.5	240	389	33.2	10.1	0.253	0.03	CON	Yes
	Finish Mill Collecting Bin	51	FCS51	361340	3162370	1432.684	-1153.561	15	4.57	2.3	0.7	180	355	48.1	14.7	0.832	0.10	CON	Yes
	Finish Mill	52	FCS52	361340	3162370	1432.684	-1153.561	130	39.62	4	1.2	212	373	46.4	14.1	2.31	0.29	CON	Yes
	Air Slide ID 2N-03	53	FCS53	361340	3162370	1432.684	-1153.561	46	14.02	1.8	0.5	200	366	39.3	12.0	0.403	0.05	CON	Yes
	Bucket Elevator ID 2N-04	54	FCS54	361340	3162370	1432.684	-1153.561	46	14.02	1.8	0.5	200	366	39.3	12.0	0.403	0.05	CON	Yes
	High Efficiency Seperator	55	FCS55	361340	3162370	1432.684	-1153.561	130	39.62	7.5	2.3	160	344	48.5	14.8	9.199	1.16	CON	Yes
	Cement Cooler 2N-26	56	FCS56	361340	3162370	1432.684	-1153.561	46	14.02	1.8	0.5	200	366	39.3	12.0	0.403	0.05	CON	Yes
	Cement Transport ID 2P-01	57	FCS57	361340	3162370	1432.684	-1153.561	203	61.87	1.6	0.5	180	355	30.7	9.4	0.832	0.10	CON	Yes
	Cement Loadout Bin ID 2Q-28	*58*	*FCS58*	361340	*3162370*	*1432.684*	*-1153.561*	30	9.14	1.4	0.4	*180*	355	32.5	9.9	0.208	0.03	CON	Yes
	Cement Loadout Bin 2Q-31	59	FCS59	361340	3162370	1432.684	-1153.561	30	9.14	1.4	0.4	180	355	32.5	9.9	0.208	0.03	CON	Yes
	Coal Mill ID 2S-15	60	FCS60	361340	3162370	1432.684	-1153.561	40	12.19	3.9	1.2	150	339	30.7	9.4	1.6	0.20	CON	Yes
	Fuel Bin 2S-20	61	FCS61	361340	3162370	1432.684	-1153.561	40	12.19	1.1	0.3	150	339	35.1	10.7	0.145	0.02	CON	Yes
	IMC Agrico (Pierce)																		
	PSD Expanding source	1	1AGRI	404,100	3,079,000	1,489.779	-1,229.526	80	24.38	8	2.4	118	321	69.7	21.2	-40.0	-5.04	EXP	Yes
	PSD Expanding source	2	2AGRI	404,100	3,079,000	1,489.779	-1,229.526	95	28.96	5.8	1.8	770	683	48.8	14.9	-31.1	-3.92	EXP	Yes
1010056	Pasco County Resource Recovery Facility																		
	Municipal waste Combustor Unit #1	1	PCRRF1	348,620	3,139,020	1,424.093	-1,179.090	275	83.8	4.7	1.43	250	394	81.9	25.0	5.37	0.68	CON	Yes
	Municipal Waste Combustor Unit #2	2	PCRRF2	348,620	3,139,020	1,424.093	-1,179.090	275	83.8	4.7	1.43	250	394	81.9	25.0	5.37	0.68	CON	Yes
	Municipal Waste Combustor Unit #3	3	PCRRF3	348,620	3,139,020	1,424.093	-1,179.090	275	83.8	4.7	1.43	250	394	81.9	25.0	5.37	0.68	CON	Yes
	Leachate Treatment Facility	5	PCRRF5	348,620	3,139,020	1,424.093	-1,179.090	30	9.1	1.0	0.30	350	450	19.1	5.8	0.52	0.07	CON	Yes
1010373	Shady Hills Generating Station																		
	A 170 MW Gas Simple Cycle Combustion Turbine	1	SHILLGS1	348,720	3,138,370	1,424.305	-1,179.729	60	18.3	22.0	6.71	1113	874	116.0	35.4	17.0	2.14	CON	Yes
	A 170 MW Gas Simple Cycle Combustion Turbine	2	SHILLGS2	348,720	3,138,370	1,424.305	-1,179.729	60	18.3	22.0	6.71	1113	874	116.0	35.4	17.0	2.14	CON	Yes
	A 170 MW Gas Simple Cycle Combustion Turbine	3	SHILLGS3	348,720	3,138,370	1,424.305	-1,179.729	60	18.3	22.0	6.71	1113	874	116.0	35.4	17.0	2.14	CON	Yes
	Stauffer Tarpon Springs																		
	Boiler	1	STAUFF1	325,600	3,116,700	1,405.057	-1,205.389	24	7.3	3.0	0.9	376	464	10.6	3.2	-9.80	-1.23	EXP	Yes
	Rotary Kiln	2	STAUFF2	325,600	3,116,700	1,405.057	-1,205.389	161	49.1	3.9	1.2	143	335	11.8	3.6	-92.70	-11.68	EXP	Yes
	Furnace	3	STAUFF3	325,600	3,116,700.	1,405.057	-1,205.389	84	25.6	3.0	0.91	120	322	22.9	7.0	-1.44	-0.18	EXP	Yes
0570005	CF Industries--Plant City Phosphate Complex																		
	Johnston Scotch Marine Type Boiler	1	JSMTB	388,000	3,116,000	1,467.276	-1,195.295	25	7.6	3.5	1.07	550	561	61.6	18.8	1.3	0.17	CON	Yes
	"A" Dap/Map Plant	10	ADMP	388,000	3,116,000	1,467.276	-1,195.295	80	24.4	10.0	3.05	137	331	36.8	11.2	32.7	4.12	CON	Yes
	"Z" Dap/Map Plant	11	ZDMP	388,000	3,116,000	1,467.276	-1,195.295	136	41.5	9.0	2.74	140	333	44.5	13.6	22.6	2.85	CON	Yes
	"X" Dap/Map Plant	12	XDMP	388,000	3,116,000	1,467.276	-1,195.295	136	41.5	9.0	2.74	134	330	50.7	15.5	13.8	1.73	CON	Yes
	"Y" Dap/Map Plant	13	YDMP	388,000	3,116,000	1,467.276	-1,195.295	136	41.5	9.0	2.74	135	330	53.3	16.2	15.3	1.93	CON	Yes
	"A" Shipping Baghouse	15	ASBAG	388,000	3,116,000	1,467.276	-1,195.295	90	27.4	1.7	0.52	110	316	62.4	19.0	5.0	0.63	CON	Yes
	"B" Shipping Baghouse	18	BSBAG	388,000	3,116,000	1,467.276	-1,195.295	35	10.7	2.0	0.61	120	322	53.1	16.2	5.0	0.63	CON	Yes
	2600 Ton Storage Tank	22	MSTK22	388,000	3,116,000	1,467.276	-1,195.295	38	11.6	2.0	0.61	212	373	0.03	0.01	0.13	0.02	CON	Yes
	Truck Pit A	23	MSTPTA	388,000	3,116,000	1,467.276	-1,195.295	12	3.7	0.7	0.20	212	373	0.03	0.01	0.13	0.02	CON	Yes
	Truck Pit B	24	MSTPTB	388,000	3,116,000	1,467.276	-1,195.295	12	3.7	0.7	0.20	212	373	0.03	0.01	0.13	0.02	CON	Yes
	Phosphoric Acid Clean (Clarification And Scrubber)	32	PACS	388,000	3,116,000	1,467.276	-1,195.295	80	24.4	4.0	1.22	110	316	46.4	14.1	0.94	0.12	CON	Yes
	"A" DAP Plant	10	ADMPb	388,000	3,116,000	1,467.276	-1,195.295	100	30.5	10.0	3.05	128	326	26.8	8.2	-4.0	-0.51	EXP	Yes
	"X" DAP/MAP Plant	12	XDMPb	388,000	3,116,000	1,467.276	-1,195.295	125	38.1	7.3	2.23	110	316	69.7	21.2	-5.1	-0.64	EXP	Yes
	"Y" Dap/Map/GTSP Plant	13	YDMGPb	388,000	3,116,000	1,467.276	-1,195.295	125	38.1	7.3	2.23	110	316	44.8	13.7	-5.1	-0.64	EXP	Yes
	"Z" Dap/Map/GTSP Plant	11	ZDMGPb	388,000	3,116,000	1,467.276	-1,195.295	125	38.1	7.3	2.23	110	316	69.7	21.2	-5.1	-0.64	EXP	Yes
	"A" and "B" Storage Building Scrubber	14	ABSTOb	388,000	3,116,000	1,467.276	-1,195.295	85.5	26.1	9.0	2.74	80	300	45.8	14.0	-2.6	-0.33	EXP	Yes
	"A" Shipping Baghouse	15	ASBAGb	388,000	3,116,000	1,467.276	-1,195.295	90	27.4	1.7	0.52	110	316	62.4	19.0	-0.4	-0.05	EXP	Yes
	"B" Shipping Baghouse	16	BSBAGb	388,000	3,116,000	1,467.276	-1,195.295	35	10.7	2.0	0.61	120	322	53.1	16.2	-0.4	-0.05	EXP	Yes
	Rock Unloading and Storage Building Collector	25	RUSBC1b	388,000	3,116,000	1,467.276	-1,195.295	20	6.1	3.5	1.07	100	311	62.4	19.0	-1.54	-0.19	EXP	Yes
	Product Reclaim bag Collector		RUSBC2b	388,000	3,116,000	1,467.276	-1,195.295	3	0.9	1.1	0.34	120	322	0.3	0.1	-0.36	-0.05	EXP	Yes
	"X,Y,Z" Rock Hopper Bag Collectors	28	RBBCb	388,000	3,116,000	1,467.276	-1,195.295	119	36.3	1.0	0.30	120	322	45.0	13.7	-0.23	-0.03	EXP	Yes
	ROP/MGTSP manufacturing		RMMANb	388,000	3,116,000	1,467.276	-1,195.295	135	41.1	6.5	1.98	87	304	33.9	10.3	-0.08	-0.01	EXP	Yes
0570127	Mckay Bay Refuse-To-Energy Facility																		
	Unit #1 - The West Most Unit.	1	MBREF1	360,200	3,092,210	1,443.748	-1,223.927	160	48.8	5.7	1.74	450	505	41.0	12.5	7.0	0.88	CON	Yes
	Unit#2 - Second West Most Unit. Burns Municipal Waste Only.	2	MBREF2	360,200	3,092,210	1,443.748	-1,223.927	160	48.8	5.7	1.74	450	505	41.0	12.5	7.0	0.88	CON	Yes
	Unit #3 - 3rd Westmost Unit - Burns Municipal Waste.	3	MBREF3	360,200	3,092,210	1,443.748	-1,223.927	160	48.8	5.7	1.74	450	505	41.0	12.5	7.0	0.88	CON	Yes
	Unit #4 - East Most Unit. Burns Municipal Waste.	4	MBREF4	360,200	3,092,210	1,443.748	-1,223.927	160	48.8	5.7	1.74	450	505	41.0	12.5	7.0	0.88	CON	Yes
	Flyash Silo In Refuse To Energy Facility	5	MBREF5	360,200	3,092,210	1,443.748	-1,223.927	57	17.4	2.0	0.61	200	366	11.0	3.4	0.4	0.05	CON	Yes
	Municipal Waste Combustor & Auxiliary Burners - Unit No. 1	103	MBREF103	360,200	3,092,210	1,443.748	-1,223.927	201	61.3	4.2	1.28	289	416	73.3	22.3	2.8	0.35	CON	Yes
	Municipal Waste Combustor & Auxiliary Burners - Unit No. 2	104	MBREF104	360,200	3,092,210	1,443.748	-1,223.927	201	61.3	4.2	1.28	289	416	73.3	22.3	2.8	0.35	CON	Yes
	Municipal Waste Combustor & Auxiliary Burners - Unit No. 3	105	MBREF105	360,200	3,092,210	1,443.748	-1,223.927	201	61.3	4.2	1.28	289	416	73.3	22.3	2.76	0.35	CON	Yes

Facility ID	Facility Name Emission Unit Description	EU ID	CALPUFF ID	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Stack Parameters Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	PM_{10} Emission Rate lb/hr	PM_{10} Emission Rate g/s	PSD Source? [a] (EXP/CON)	Modeled PSD Source?
	Municipal Waste Combustor & Auxiliary Burners - Unit No. 4	106	MBREF106	360,200	3,092,210	1,443.748	-1,223.927	201	61.3	4.2	1.28	289	416	73.3	22.3	2.76	0.35	CON	Yes
0570038	*TECO, Hookers Point*																		
	Boiler #1	1	TECOHK1	358,000	3,091,000	1,441.767	-1,225.519	280	85.3	11.3	3.4	356	453	82.0	25.0	-37.3	-4.70	EXP	Yes
	Boiler #2	2	TECOHK2	358,000	3,091,000	1,441.767	-1,225.519	280	85.3	11.3	3.4	356	453	82.0	25.0	-37.3	-4.70	EXP	Yes
	Boiler #3	3	TECOHK3	358,000	3,091,000	1,441.767	--1,225.519	280	85.3	12.0	3.7	341	445	62.7	19.1	-51.4	-6.48	EXP	Yes
	Boiler #4	4	TECOHK4	358,000	3,091,000	1,441.767	-1,225.519	280	85.3	12.0	3.7	341	445	62.7	19.1	-51.4	-6.48	EXP	Yes
	Boiler #5	5	TECOHK5	358,000	3,091,000	1,441.767	-1,225.519	280	85.3	11.3	3.4	356	453	82.0	25.0	-76.3	-9.61	EXP	Yes
	Boiler #6	6	TECOHK6	358,000	3,091,000	1,441.767	-1,225.519	280	85.3	9.4	2.9	329	438	75.2	22.9	-97.3	-12.26	EXP	Yes
	30 Caterpillar XQ2000 Power Modules	8-37	TECOHKPM	358,000	3,091,000	1,441.767	-1,225.519	10	3.0	0.7	0.2	808	704	681.0	207.6	7.5	0.95	CON	Yes
0570261	Hillsborough Cty. RRF																		
	Unit #1 - The West Most Unit.	1	HCRRF1	368,200	3,092,700	1,451.629	-1,222.050	220	67.1	5.1	1.55	290	416	72.5	22.1	7.0	0.88	CON	Yes
	Unit#2 - Second West Most Unit. Burns Municipal Waste Only.	2	HCRRF2	368,200	3,092,700	1,451.629	-1,222.050	220	67.1	5.1	1.55	290	416	72.5	22.1	7.0	0.88	CON	Yes
	Unit #3 - 3rd Westmost Unit - Burns Municipal Waste.	3	HCRRF3	368,200	3,092,700	1,451.629	-1,222.050	220	67.1	5.1	1.55	290	416	72.5	22.1	7.0	0.88	CON	Yes
0570040	TECO, Bayside Power Station																		
	Unit #1 125 MW Coal Fired Boiler with Steam Generator	1	TECOBA1	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	10	3.05	289	416	94	28.65	-126.0	-15.88	EXP	Yes
	Unit #2 125 MW Coal Fired Boiler with Steam Generator	2	TECOBA2	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	10	3.05	298	421	101	30.78	-126.0	-15.88	EXP	Yes
	Unit #3 180 MW Coal Fired Boiler with Steam Generator	3	TECOBA3	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	10.6	3.23	296	420	126	38.40	-160.0	-20.16	EXP	Yes
	Unit #4 188 MW Coal Fired Boiler with Steam Generator	4	TECOBA4	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	10	3.05	309	427	75	22.86	-188.0	-23.69	EXP	Yes
	Unit #5 239 MW Coal Fired Boiler with Steam Generator	5	TECOBA5	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	14.6	4.45	303	424	76	23.16	-228.0	-28.73	EXP	Yes
	Unit #6 414 MW Coal Fired Boiler with Steam Generator	6	TECOBA6	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	17.6	5.36	320	433	81	24.69	-380.0	-47.88	EXP	Yes
	14 MW Gas-Fired Turbine	7	TECOBA7	360,100	3,087,500	1,444.467	-1,228.660	35	10.67	11	3.35	1010	816	92.6	28.22	-122.0	-15.37	EXP	Yes
	Economizer Ash Silo	9	TECOBA9	360,100	3,087,500	1,444.467	-1,228.660	72	21.95	0.7	0.21	350	450	35	10.67	-0.14	-0.02	EXP	Yes
	Flyash Silo No. 1 For Units 5 & 6	10	TECOBA10	360,100	3,087,500	1,444.467	-1,228.660	107	32.61	1.0	0.30	350	450	99	30.18	-1.20	-0.15	EXP	Yes
	Fly Ash Silo No. 2 Units 1-4	11	TECOBA11	360,100	3,087,500	1,444.467	-1,228.660	104	31.70	2.0	0.61	350	450	59	17.98	-2.90	-0.37	EXP	Yes
	Unit 1 Coal Bunker W/Roto-Clone	13	TECOBA13	360,100	3,087,500	1,444.467	-1,228.660	175	53.34	1.7	0.52	78	299	70	21.34	-0.19	-0.02	EXP	Yes
	Unit 2 Coal Bunker W/Roto-Clone	14	TECOBA14	360,100	3,087,500	1,444.467	-1,228.660	175	53.34	1.7	0.52	78	299	70	21.34	-0.19	-0.02	EXP	Yes
	Unit 3 Coal Bunker W/Roto-Clone	15	TECOBA15	360,100	3,087,500	1,444.467	-1,228.660	177	53.95	2.0	0.61	78	299	50	15.24	-0.19	-0.02	EXP	Yes
	Unit 4 Coal Bunker W/Roto-Clone	16	TECOBA16	360,100	3,087,500	1,444.467	-1,228.660	175	53.34	1.7	0.52	78	299	70	21.34	-0.19	-0.02	EXP	Yes
	Unit 5 Coal Bunker W/Roto-Clone	17	TECOBA17	360,100	3,087,500	1,444.467	-1,228.660	174	53.04	1.2	0.37	78	299	79	24.08	-0.19	-0.02	EXP	Yes
	Unit 6 Coal Bunker W/Roto-Clone	18	TECOBA18	360,100	3,087,500	1,444.467	-1,228.660	175	53.34	1.7	0.52	78	299	70	21.34	-0.19	-0.02	EXP	Yes
	Bayside Unit 1A – 170 MW combined cycle gas turbine	20	TECOBA20	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	11.5	1.45	CON	Yes
	Bayside Unit 1B – 170 MW combined cycle gas turbine	21	TECOBA21	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	11.5	1.45	CON	Yes
	Bayside Unit 1C – 170 MW combined cycle gas turbine	22	TECOBA22	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	11.5	1.45	CON	Yes
	Bayside Unit 2A – 170 MW combined cycle gas turbine	23	TECOBA23	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	11.5	1.45	CON	Yes
	Bayside Unit 2B – 170 MW combined cycle gas turbine	24	TECOBA24	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	11.5	1.45	CON	Yes
	Bayside Unit 2C – 170 MW combined cycle gas turbine	25	TECOBA25	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	11.5	1.45	CON	Yes
	Bayside Unit 2D – 170 MW combined cycle gas turbine	26	TECOBA26	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	11.5	1.45	CON	Yes
1030117	PINELLAS CO. RESOURCE RECOVERY FACILITY																		
	Municipal Ewaste Combustor Unit 1	1	PCRRF1	335,200	3,084,100	1,420.255	-1,236.366	165	50.3	8.5	2.59	270	405	71.4	21.8	14.4	1.81	CON	Yes
	Municipal Ewaste Combustor Unit 2	2	PCRRF2	335,200	3,084,100	1,420.255	-1,236.366	165	50.3	8.5	2.59	270	405	71.4	21.8	14.4	1.81	CON	Yes
	Municipal Ewaste Combustor Unit 3	3	PCRRF3	335,200	3,084,100	1,420.255	-1,236.366	165	50.3	8.5	2.59	270	405	71.4	21.8	14.4	1.81	CON	Yes
0570008	Mosaic Riverview Facility																		
	DAP Manufacturing Plant	7	MOSRIV7	362,900	3,082,500	1,448.126	-1,233.182	126	38.4	8.0	2.44	104	313	34.5	10.5	12.9	1.62	CON	Yes
	No. 3 MAP Plant	22	MOSRIV22	362,900	3,082,500	1,448.126	-1,233.182	133	40.5	7.0	2.13	142	334	71.5	21.8	3.3	0.42	CON	Yes
	No. 4 MAP Plant	23	MOSRIV23	362,900	3,082,500	1,448.126	-1,233.182	133	40.5	7.0	2.13	142	334	71.5	21.8	3.3	0.42	CON	Yes
	South Cooler	24	MOSRIV24	362,900	3,082,500	1,448.126	-1,233.182	133	40.5	7.0	2.13	142	334	71.5	21.8	3.3	0.42	CON	Yes
	West Bag Filter	51	MOSRIV51	362,900	3,082,500	1,448.126	-1,233.182	30	9.1	3.5	1.07	80	300	57.2	17.4	1.2	0.15	CON	Yes
	South Baghouse	52	MOSRIV52	362,900	3,082,500	1,448.126	-1,233.182	50	15.2	1.5	0.46	80	300	42.4	12.9	1.2	0.15	CON	Yes
	Vessel Loading System -- Tower Baghouse Exhaust	53	MOSRIV53	362,900	3,082,500	1,448.126	-1,233.182	30	9.1	2.5	0.76	80	300	40.7	12.4	0.8	0.10	CON	Yes
	No. 5 DAP Plant	55	MOSRIV55	362,900	3,082,500	1,448.126	-1,233.182	133	40.5	7.0	2.13	110	316	67.6	20.6	12.8	1.61	CON	Yes
	Building #6 Belt to Conveyor #7 Transfer Point	58	MOSRIV58	362,900	3,082,500	1,448.126	-1,233.182	30	9.1	1.2	0.35	80	300	57.2	17.4	0.6	0.08	CON	Yes
	Conveyor #7 to Conveyor #8 Transfer Point with Baghouse	59	MOSRIV59	362,900	3,082,500	1,448.126	-1,233.182	45	13.7	1.2	0.35	80	300	57.2	17.4	0.6	0.08	CON	Yes
	Conveyor #8 to Conveyor #9 Transfer Point with Baghouse	60	MOSRIV60	362,900	3,082,500	1,448.126	-1,233.182	75	22.9	1.6	0.48	80	300	59.5	18.1	1.2	0.15	CON	Yes
	Animal Feed Ingredient (AFI) Plant No. 1	78	MOSRIV78	362,900	3,082,500	1,448.126	-1,233.182	136	41.5	6.0	1.83	150	339	64.5	19.7	8.0	1.01	CON	Yes
	Diatomaceous Earth Silo	79	MOSRIV79	362,900	3,082,500	1,448.126	-1,233.182	64	19.5	1.5	0.46	90	305	5.7	1.7	0.1	0.01	CON	Yes
	Limestone Silo	80	MOSRIV80	362,900	3,082,500	1,448.126	-1,233.182	85	25.9	1.5	0.46	90	305	33.0	10.1	0.3	0.04	CON	Yes
	Animal Feed Plant Loadout System	81	MOSRIV81	362,900	3,082,500	1,448.126	-1,233.182	30	9.1	3.0	0.91	90	305	54.5	16.6	2.1	0.26	CON	Yes
	Animal Feed Ingredient Plant No. 2	103	MOSRIV103	362,900	3,082,500	1,448.126	-1,233.182	145	44.2	7.0	2.13	150	339	66.4	20.2	13.1	1.66	CON	Yes
	Ammonia Plant		AMMPLTB	362,900	3,082,500	1,448.126	-1,233.182	60	18.3	8.3	2.53	600	589	22.7	6.9	-18.4	-2.32	EXP	Yes
	Sodium Silicofluoride/Sodium Fluoride Plant		SSFSFPB	362,900	3,082,500	1,448.126	-1,233.182	28	8.5	2.5	0.76	95	308	11.6	3.5	-6.1	-0.76	EXP	Yes
	No. 2 and No. 3 Rock Silo Bag Filter		NO23RSB	362,900	3,082,500	1,448.126	-1,233.182	93	28.3	1.1	0.34	91	306	48.8	14.9	-0.9	-0.11	EXP	Yes
	Nos. 6, 7, and 8 Rock Mills		NO678RB	362,900	3,082,500	1,448.126	-1,233.182	95	29.0	2.0	0.61	91	306	55.5	16.9	-8.6	-1.08	EXP	Yes

Facility ID	Facility Name / Emission Unit Description	EU ID	CALPUFF ID	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Stack Parameters Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	PM_{10} Emission Rate lb/hr	g/s	PSD Source? [a] (EXP/CON)	Modeled PSD Source?
	No. 10 KVS Mill		10KVSMB	362,900	3,082,500	1,448.126	-1,233.182	87	26.5	1.7	0.52	118	321	59.8	18.2	-4.4	-0.55	EXP	Yes
	No. 11 KVS Mill		11KVSMB	362,900	3,082,500	1,448.126	-1,233.182	70	21.3	1.6	0.49	126	325	63.6	19.4	-6.9	-0.87	EXP	Yes
	No. 12 KVS Mill		12KVSMB	362,900	3,082,500	1,448.126	-1,233.182	71	21.6	1.6	0.49	135	330	68.5	20.9	-2.9	-0.37	EXP	Yes
	No. 2 Air Slide North Bag Filter		2ASNBFB	362,900	3,082,500	1,448.126	-1,233.182	85	25.9	1.0	0.30	97	309	47.7	14.6	-1.2	-0.15	EXP	Yes
	No. 2 Air Slide South Bag Filter		2ASSBFB	362,900	3,082,500	1,448.126	-1,233.182	96	29.3	0.9	0.27	115	319	72.8	22.2	-0.4	-0.05	EXP	Yes
	No. 3 Air Slide North Bag Filter		3ASNBFB	362,900	3,082,500	1,448.126	-1,233.182	82	25.0	1.2	0.37	113	318	16.1	4.9	-0.2	-0.03	EXP	Yes
	No. 3 Air Slide Center Bag Filter		3ARCBFB	362,900	3,082,500	1,448.126	-1,233.182	115	35.1	1.2	0.37	118	321	25.8	7.9	-1.0	-0.12	EXP	Yes
	No. 3 Air Slide South Bag Filter		3ASSBFB	362,900	3,082,500	1,448.126	-1,233.182	100	30.5	1.2	0.37	117	320	16.5	5.0	-0.8	-0.11	EXP	Yes
	No. 3 Air Slide Bin Bag Filter		3ASBBFB	362,900	3,082,500	1,448.126	-1,233.182	108	32.9	1.2	0.37	122	323	23.3	7.1	-1.1	-0.14	EXP	Yes
	No. 2 Phosphoric Acid System		PASNO2B	362,900	3,082,500	1,448.126	-1,233.182	110	33.5	4.0	1.22	145	336	43.3	13.2	-14.8	-1.86	EXP	Yes
	No. 3 Phosphoric Acid System		PASNO3B	362,900	3,082,500	1,448.126	-1,233.182	93	28.3	4.0	1.22	118	321	23.5	7.2	-9.2	-1.16	EXP	Yes
	No. 1 Horizontal Filter Scrubber		1HZFSB	362,900	3,082,500	1,448.126	-1,233.182	59	18.0	4.8	1.45	86	303	35.5	10.8	-6.5	-0.82	EXP	Yes
	No. 2 Horizontal Filter Scrubber		2HZFSB	362,900	3,082,500	1,448.126	-1,233.182	51	15.5	4.0	1.22	93	307	51.9	15.8	-10.4	-1.31	EXP	Yes
	No. 2 Horizontal Filter Vacuum System		2HZFVSB	362,900	3,082,500	1,448.126	-1,233.182	4.5	1.4	1.1	0.34	153	340	16.8	5.1	0.0	0.00	EXP	Yes
	No. 3 Horizontal Filter Vacuum System		3HZFVSB	362,900	3,082,500	1,448.126	-1,233.182	4.5	1.4	1.5	0.46	126	325	16.3	5.0	-0.7	-0.08	EXP	Yes
	No. 7 Oil-Fired Concentrator		7OFCONB	362,900	3,082,500	1,448.126	-1,233.182	78	23.8	6.0	1.83	165	347	17.2	5.2	-12.5	-1.58	EXP	Yes
	No. 8 Oil-Fired Concentrator		8OFCONB	362,900	3,082,500	1,448.126	-1,233.182	78	23.8	6.0	1.83	159	344	16.7	5.1	-16.8	-2.12	EXP	Yes
	GTSP Bag Filter		GTSPBFB	362,900	3,082,500	1,448.126	-1,233.182	88	26.8	1.3	0.40	153	340	26.6	8.1	-0.5	-0.06	EXP	Yes
	GTSP Plant		GTSPAPB	362,900	3,082,500	1,448.126	-1,233.182	126	38.4	8.0	2.44	129	327	34.9	10.7	-19.1	-2.41	EXP	Yes
	No. 5 and No. 9 Mills Bag Filter		RKML59B	362,900	3,082,500	1,448.126	-1,233.182	66	20.1	2.0	0.61	115	319	58.3	17.8	-12.4	-1.56	EXP	Yes
	No. 3 Triple Reactor Belt		3TRIPLB	362,900	3,082,500	1,448.126	-1,233.182	65	19.8	4.0	1.22	77	298	48.4	14.7	-11.8	-1.49	EXP	Yes
	No. 4 Triple Reactor Belt		4TRIPLB	362,900	3,082,500	1,448.126	-1,233.182	65	19.8	4.0	1.22	84	302	50.9	15.5	-8.6	-1.08	EXP	Yes
	No. 3 Continuous Triple Dryer		3CONTDB	362,900	3,082,500	1,448.126	-1,233.182	68	20.7	3.5	1.07	115	319	45.8	14.0	-18.2	-2.29	EXP	Yes
	No. 4 Continuous Triple Dryer		4CONTDB	362,900	3,082,500	1,448.126	-1,233.182	68	20.7	3.5	1.07	134	330	61.8	18.8	-11.8	-1.49	EXP	Yes
	Nos. 2 & 4 Sizing Units		24SIZUB	362,900	3,082,500	1,448.126	-1,233.182	74	22.6	4.0	1.22	73	296	29.7	9.1	-9.7	-1.22	EXP	Yes
	Normal Superphosphate		NORMSPB	362,900	3,082,500	1,448.126	-1,233.182	73	22.3	2.5	0.76	104	313	53.1	16.2	-2.3	-0.29	EXP	Yes
	No. 1 Ammonium Phosphate Plant		1AMMPPB	362,900	3,082,500	1,448.126	-1,233.182	90	27.4	4.0	1.22	141	334	51.2	15.6	-11.7	-1.47	EXP	Yes
	No. 2 Ammonium Phosphate Plant		2AMMPPB	362,900	3,082,500	1,448.126	-1,233.182	90	27.4	3.5	1.07	132	329	64.5	19.7	-16.1	-2.03	EXP	Yes
	No. 3 Ammonium Phosphate Plant		3AMMPPB	362,900	3,082,500	1,448.126	-1,233.182	90	27.4	3.5	1.07	144	335	63.0	19.2	-12.9	-1.63	EXP	Yes
	No. 4 Ammonium Phosphate Plant		4AMMPPB	362,900	3,082,500	1,448.126	-1,233.182	90	27.4	3.5	1.07	149	338	60.0	18.3	-18.9	-2.38	EXP	Yes
	North Ammonium Phosphate Cooler		NAMMPCB	362,900	3,082,500	1,448.126	-1,233.182	55	16.8	4.3	1.31	144	335	60.9	18.6	-64.8	-8.16	EXP	Yes
	South Ammonium Phosphate Cooler		SAMMPCB	362,900	3,082,500	1,448.126	-1,233.182	55	16.8	4.3	1.31	125	325	69.7	21.2	-67.3	-8.48	EXP	Yes
1050004	Lakeland Electric - Mcintosh																		
	McIntosh Unit 1- FFFSG (Phase II Acid Rain Unit)	1	MCINT1	409,000	3,106,200	1,489.890	-1,201.443	150	45.72	9.0	2.74	277	409	81.2	24.75	95.00	11.97	NO	No
	Diesel Engine Peaking Unit 2	2	MCINT2	409,000	3,106,200	1,489.890	-1,201.443	20	6.10	2.6	0.79	715	653	77.0	23.47	1.74	0.22	NO	No
	Diesel Engine Peaking Unit 3	3	MCINT3	409,000	3,106,200	1,489.890	-1,201.443	20	6.10	2.6	0.79	715	653	77.0	23.47	1.74	0.22	NO	No
	Gas Turbine Peaking Unit 1	4	MCINT4	409,000	3,106,200	1,489.890	-1,201.443	35	10.67	13.5	4.11	900	755	79.5	24.23	12.16	1.53	NO	No
	McIntosh Unit 2 FFFSG (Phase II Acid Rain Unit)	5	MCINT5	409,000	3,106,200	1,489.890	-1,201.443	157	47.85	10.5	3.20	277	409	73.2	22.31	111.5	14.05	CON	Yes
	McIntosh Unit 3 FFFSG (Phase II Acid Rain Unit)	6	MCINT6	409,000	3,106,200	1,489.890	-1,201.443	250	76.20	18.0	5.49	167	348	82.6	25.18	273.00	34.40	CON	Yes
	250 MW Combustion Turbine UNIT 5	28	MCINT28	409,000	3,106,200	1,489.890	-1,201.443	85	25.91	28.0	8.53	1095	864	82.7	25.21	139.60	17.59	CON	Yes
	[redacted]																		
0570094	Mosaic - Big Bend Terminal																		
	Shipping Terminal Incoming/Transfer Point #1	1	MOSBBT1	361,000	3,076,200	1,448.443	-1,239.730	36	11.0	1.5	0.46	95	308	43.0	13.1	1.2	0.15	CON	Yes
	Shipping Terminal Outgoing Transfer Point #2	2	MOSBBT2	361,000	3,076,200	1,448.443	-1,239.730	25	7.6	1.3	0.40	95	308	34.0	10.4	0.7	0.09	CON	Yes
	Shipping Terminal Outgoing Transfer Point #3	3	MOSBBT3	361,000	3,076,200	1,448.443	-1,239.730	25	7.6	1.3	0.40	95	308	34.0	10.4	0.7	0.09	CON	Yes
	Shipping Terminal Gantry and Shiploading	4	MOSBBT4	361,000	3,076,200	1,448.443	-1,239.730	30	9.1	2.2	0.67	95	308	34.0	10.4	5.1	0.65	CON	Yes
1050003	Lakeland Electric, Larsen Power Plant																		
	Fossil Fuel Fired Steam Generator # 6	3	LARPWR3	408,900	3,102,500	1,490.439	-1,205.163	165	50.3	10.0	3.05	340	444	21.0	6.4	38.3	4.83	NO	No
	Steam Generator # 7 (Phase II Acid Rain unit)	4	LARPWR4	408,900	3,102,500	1,490.439	-1,205.163	165	50.3	10.0	3.05	340	444	22.0	6.7	77.0	9.70	NO	No
	Peaking Gas Turbine # 3	5	LARPWR5	408,900	3,102,500	1,490.439	-1,205.163	31	9.4	11.8	3.60	800	700	101.0	30.8	7.94	1.00	NO	No
	Peaking Gas Turbine # 2	6	LARPWR6	408,900	3,102,500	1,490.439	-1,205.163	31	9.4	11.8	3.60	800	700	101.0	30.8	7.94	1.00	NO	No
	Combined Cycle Combustion Turbine (Phase II Acid Rain unit)	8	LARPWR8	408,900	3,102,500	1,490.439	-1,205.163	155	47.2	16.0	4.88	481	523	85.7	26.1	26.00	3.28	CON	Yes
	Peaking Gas Turbine # 1	7	LARPWR7	408,900	3,102,500	1,490.439	-1,205.163	31	9.4	11.8	3.60	800	700	101.0	30.8	-7.94	-1.00	E	Yes
0570039	TECO - Big Bend Station																		
	Unit #1 Coal Fired Boiler w/ ESP	1	TECOBB1	361,900	3,075,000	1,448.435	-1,240.867	490	149.35	24.0	7.3	294	419	115.9	35.3	121.1	15.26	NO	No
	Unit #2 Riley-Stoker Coal Boiler w/ Esp	2	TECOBB2	361,900	3,075,000	1,448.435	-1,240.867	490	149.35	24.0	7.3	125	325	87.6	26.7	119.9	15.11	NO	No
	Unit #3 Riley-Stoker Coal Boiler w/ ESP	3	TECOBB3	361,900	3,075,000	1,448.435	-1,240.867	499	152.10	24.0	7.3	279	410	47.0	14.3	123.5	15.56	CON	Yes
	Unit #4 Coal Boiler W/ Belco ESP	4	TECOBB4	361,900	3,075,000	1,448.435	-1,240.867	499	152.10	24.0	7.3	156	342	59.0	18.0	43.3	5.46	CON	Yes
	Combustion Turbine #2 - No. 2 Fuel Oil	5	TECOBB5	361,900	3,075,000	1,448.435	-1,240.867	75	22.86	14.0	4.3	928	771	61.0	18.6	33.0	4.16	NO	No
	Combustion Turbine #3 - No. 2 Fuel Oil	6	TECOBB6	361,900	3,075,000	1,448.435	-1,240.867	75	22.86	14.0	4.3	928	771	61.0	18.6	33.0	4.16	NO	No
	Combustion Turbine #1 - No. 2 Fuel Oil	7	TECOBB7	361,900	3,075,000	1,448.435	-1,240.867	35	10.67	11.0	3.4	1010	816	91.9	28.0	33.0	4.16	NO	No
	Fly Ash Silo No. 1 Baghouse	8	TECOBB8	361,900	3,075,000	1,448.435	-1,240.867	102	31.09	2.5	0.8	250	394	52.0	15.8	5.16	0.650	NO	No
	Fly Ash Silo No. 2 Baghouse	9	TECOBB9	361,900	3,075,000	1,448.435	-1,240.867	113	34.44	0.9	0.3	250	394	52.0	15.8	5.16	0.650	NO	No
	Limestone Silo A W/ 2 Baghouses	12	TECOBB12	361,900	3,075,000	1,448.435	-1,240.867	101	30.78	0.5	0.2	150	339	46.0	14.0	0.05	0.006	NO	No

Facility ID	Facility Name / Emission Unit Description	EU ID	CALPUFF ID	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Stack Parameters: Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	PM10 Emission Rate lb/hr	PM10 Emission Rate g/s	PSD Source? [a] (EXP/CON)	Modeled PSD Source?
	Limestone Silo B W/ 2 Baghouses	13	TECOBB13	361,900	3,075,000	1,448.435	-1,240.867	101	30.78	0.5	0.2	150	339	46.0	14.0	0.05	0.006	NO	No
	Flyash Silo For Unit #4	14	TECOBB14	361,900	3,075,000	1,448.435	-1,240.867	139	42.37	1.6	0.5	140	333	59.0	18.0	0.20	0.025	NO	No
	Unit 1 Coal Bunker W/Roto-Clone	15	TECOBB15	361,900	3,075,000	1,448.435	-1,240.867	179	54.56	1.7	0.5	78	299	69.0	21.0	0.48	0.060	NO	No
	Unit 2 Coal Bunker W/Roto-Clone	16	TECOBB16	361,900	3,075,000	1,448.435	-1,240.867	179	54.56	1.7	0.5	78	299	69.0	21.0	0.48	0.060	NO	No
	Unit 3 Coal Bunker W/Roto-Clone	17	TECOBB17	361,900	3,075,000	1,448.435	-1,240.867	179	54.56	1.7	0.5	78	299	69.0	21.0	0.48	0.060	NO	No
1050047	Agrifos Mining, L.L.C. - Nichols																		
	Rock Dryer N. 1	1	AGRNIC1	398,700	3,085,300	1,483.296	-1,224.159	80	24.4	7.5	2.29	160	344	41.0	12.5	38.1	4.80	CON	Yes
	Rock Dryer N. 2	2	AGRNIC2	398,700	3,085,300	1,483.296	-1,224.159	80	24.4	7.5	2.29	160	344	41.0	12.5	38.1	4.80	CON	Yes
	Dry Rock Storage Building	10	AGRNIC10	398,700	3,085,300	1,483.296	-1,224.159	85	25.9	5.5	1.68	80	300	47.0	14.3	40.0	5.04	CON	Yes
	Dry Rock Loadout	11	AGRNIC11	398,700	3,085,300	1,483.296	-1,224.159	85	25.9	5.0	1.52	75	297	63.0	19.2	33.0	4.16	CON	Yes
1050057	Mosaic Phosphates (Nichols)																		
	Phosphoric Acid Plant	1	IMCNIC1	398,400	3,084,200	1,483.190	-1,225.312	42	12.8	4.0	1.2	100	311	34.0	10.4	-22.4	-2.82	EXP	Yes
	DAP Cooler Venturi Scrubber	2	IMCNIC2	398,400	3,084,200	1,483.190	-1,225.312	52	15.8	2.5	0.8	120	322	66.0	20.1	-2.4	-0.30	EXP	Yes
	DAP Plant Dryer	3	IMCNIC3	398,400	3,084,200	1,483.190	-1,225.312	80	24.4	3.5	1.1	130	328	78.0	23.8	-7.3	-0.92	EXP	Yes
	DAP Plant Scrubber 4a	4	IMCNIC4	398,400	3,084,200	1,483.190	-1,225.312	72	21.9	3.2	1.0	190	361	101.0	30.8	-10.1	-1.27	EXP	Yes
	North Ball Mill	9	IMCNIC9	398,400	3,084,200	1,483.190	-1,225.312	207	63.1	1.4	0.4	135	330	69.0	21.0	-5.0	-0.63	EXP	Yes
	South Ball Mill	10	IMCNIC10	398,400	3,084,200	1,483.190	-1,225.312	207	63.1	1.4	0.4	135	330	69.0	21.0	-5.0	-0.63	EXP	Yes
	Phosphate Rock Dryer W/ Wet Scrubber	12	IMCNIC12	398,400	3,084,200	1,483.190	-1,225.312	81	24.7	7.5	2.3	130	328	12.0	3.7	-35.24	-4.44	EXP	Yes
	Package Boiler (North Standby Boiler)	15	IMCNIC15	398,400	3,084,200	1,483.190	-1,225.312	27	8.2	2.0	0.6	500	533	45.0	13.7	-0.36	-0.05	EXP	Yes
	Package Boiler	16	IMCNIC16	398,400	3,084,200	1,483.190	-1,225.312	39	11.9	3.2	1.0	500	533	29.0	8.8	-0.72	-0.09	EXP	Yes
	Dry Phosphate Rock Storage Bin	19	IMCNIC19	398,400	3,084,200	1,483.190	-1,225.312	207	63.1	0.9	0.3	140	333	168.0	51.2	-22.0	-2.77	EXP	Yes
	Molten Sulfur Storage Tanks, Railcar & Truck Unloading Pits	21	IMCNIC21	398,400	3,084,200	1,483.190	-1,225.312	6	1.8	0.75	0.2	77	298	11.6	3.54	-0.90	-0.11	EXP	Yes
0010087	Florida Rock Industries - Thompson S. Baker Cement Plant																		
	Kiln/Raw Mill System Stack	3	FRBCP3	348350	3287040	1,398.163	-1,031.470	250	76.20	9.42	2.9	356	453	47.8	14.6	25.9	3.26	CON	Yes
	Clinker Cooler & Handling	4	FRBCP4	348350	3287040	1,398.163	-1,031.470	115	35.05	9.00	2.7	480	522	41.9	12.8	15.4	1.94	CON	Yes
	Raw Mill System- Line 2	9	FRBCP9	348350	3287040	1,398.163	-1,031.470	240	73.15	2.61	0.8	200	366	46.7	14.2	3.58	0.45	CON	Yes
	Kiln/Raw Mill- Line 2	10	FRBCP10	348350	3287040	1,398.163	-1,031.470	315	96.01	9.42	2.9	356	453	52.6	16.0	28.8	3.63	CON	Yes
	Clinker Handling System- Line 2	11	FRBCP11	348350	3287040	1,398.163	-1,031.470	198	60.35	9.00	2.7	480	522	45.1	13.7	13.7	1.73	CON	Yes
	Finish Grinding Operation- Line 2	12	FRBCP12	348350	3287040	1,398.163	-1,031.470	131	39.93	7.50	2.3	158	343	48.3	14.7	14.51	1.83	CON	Yes
	Cement Loadout Silos 6 & 7	13	FRBCP13	348350	3287040	1,398.163	-1,031.470	30	9.14	1.50	0.5	150	339	28.3	8.6	0.22	0.03	CON	Yes
	Coal/Coke Handling & Grinding Operation	14	FRBCP14	348350	3287040	1,398.163	-1,031.470	198	60.35	9.00	2.7	150	339	6.3	1.9	1.81	0.23	CON	Yes
1050059	Mosaic Phosphates Co. (New Wales)																		
	Dap Plant No. 1 W/3 Teller Venturi Scrubbers,	9	WALES9	396,700	3,079,400	1,482.337	-1,230.415	133	40.5	7.00	2.1336	105	314	49.0	14.9352	28.60	3.604	NO	No
	Map Prill Tower W/Venturi Scrubber And Cyclonic Demister	11	WALES11	396,700	3,079,400	1,482.337	-1,230.415	120	36.6	4.00	1.2192	155	341	57.0	17.3736	15.00	1.890	NO	No
	Animal Feed Shipping/Truck Loadout (200 Tph), With Baghouse.	15	WALES15	396,700	3,079,400	1,482.337	-1,230.415	65	19.8	1.00	0.3048	105	314	169.0	51.5112	1.08	0.136	CON	Yes
	Animal Feed Storage Silos (3) -"A"Side	23	WALES23	396,700	3,079,400	1,482.337	-1,230.415	114	34.7	1.00	0.3048	105	314	33.0	10.0584	4.75	0.599	CON	Yes
	Animal Feed Storage/Shipping/Railcar Loadout	24	WALES24	396,700	3,079,400	1,482.337	-1,230.415	103	31.4	1.00	0.3048	105	314	140.0	42.672	3.60	0.454	CON	Yes
	Animal Feed - (2) Limestone Silos	25	WALES25	396,700	3,079,400	1,482.337	-1,230.415	119	36.3	1.00	0.3048	105	314	127.0	38.7096	3.60	0.454	CON	Yes
	Animal Feed - Silica Storage Bin	26	WALES26	396,700	3,079,400	1,482.337	-1,230.415	18	5.5	1.00	0.3048	105	314	31.0	9.4488	1.60	0.202	CON	Yes
	Animal Feed Ingredient Granulation Plant	27	WALES27	396,700	3,079,400	1,482.337	-1,230.415	172	52.4	8.00	2.4384	130	328	66.3	20.2082	36.80	4.637	CON	Yes
	Animal Feed Storage Silos (3) - "B Side"	28	WALES28	396,700	3,079,400	1,482.337	-1,230.415	114	34.7	1.00	0.3048	105	314	33.0	10.0584	4.75	0.599	CON	Yes
	#1 Fertilizer Rail/Truck Shipping	29	WALES29	396,700	3,079,400	1,482.337	-1,230.415	133	40.5	3.00	0.9144	90	305	42.4	12.9235	4.70	0.592	NO	No
	Multifos Soda Ash Conveying System W/Baghouse	31	WALES31	396,700	3,079,400	1,482.337	-1,230.415	108	32.9	0.80	0.24384	80	300	31.0	9.4488	3.60	0.454	CON	Yes
	Multifos "A" Kiln Cooler W/Baghouse	32	WALES32	396,700	3,079,400	1,482.337	-1,230.415	86	26.2	1.50	0.4572	220	378	258.0	78.6384	7.70	0.970	CON	Yes
	Multifos "B" Kiln Cooler W/Baghouse	33	WALES33	396,700	3,079,400	1,482.337	-1,230.415	86	26.2	1.50	0.4572	274	408	225.0	68.58	7.70	0.970	CON	Yes
	Multifos Plant Milling & Sizing System West Baghouse	34	WALES34	396,700	3,079,400	1,482.337	-1,230.415	71	21.6	1.70	0.51816	125	325	87.0	26.5176	0.93	0.118	CON	Yes
	Multifos Milling & Sizing System East Baghouse	35	WALES35	396,700	3,079,400	1,482.337	-1,230.415	71	21.6	1.00	0.3048	100	311	253.0	77.1144	0.93	0.118	CON	Yes
	Multifos Production 1 Dryer 2 Kilns (A/B) For Multifos Plant	36	WALES36	396,700	3,079,400	1,482.337	-1,230.415	172	52.4	4.50	1.3716	105	314	52.0	15.8496	29.83	3.759	CON	Yes
	Map/Dap #2 Truck Loadout	37	WALES37	396,700	3,079,400	1,482.337	-1,230.415	10	3.0	1.80	0.54864	100	311	68.0	20.7264	3.60	0.454	CON	Yes
	Multifos Milling & Sizing Syst Surge Bin Baghouse	38	WALES38	396,700	3,079,400	1,482.337	-1,230.415	65	19.8	1.10	0.33528	100	311	79.0	24.0792	3.60	0.454	CON	Yes
	Gtsp Truck Loadout Facility W/Baghouse	41	WALES41	396,700	3,079,400	1,482.337	-1,230.415	10	3.0	1.50	0.4572	100	311	179.0	54.5592	5.00	0.630	CON	Yes
	Map/Dap No. 2 Rail Loadout	43	WALES43	396,700	3,079,400	1,482.337	-1,230.415	10	3.0	1.60	0.48768	105	314	70.0	21.336	3.60	0.454	CON	Yes
	Dap Plant Ii - East Train	45	WALES45	396,700	3,079,400	1,482.337	-1,230.415	171	52.1	6.00	1.8288	110	316	58.0	17.6784	6.40	0.806	CON	Yes
	Dap Plant Ii - West Train	46	WALES46	396,700	3,079,400	1,482.337	-1,230.415	171	52.1	6.00	1.8288	110	316	58.0	17.6784	6.40	0.806	CON	Yes
	Dap Ii West Product Cooler	47	WALES47	396,700	3,079,400	1,482.337	-1,230.415	147	44.8	4.30	1.31064	175	353	68.9	21.0007	4.22	0.532	CON	Yes
	Uranium Recovery Acid Cleanup Scrubber	48	WALES48	396,700	3,079,400	1,482.337	-1,230.415	60	18.3	3.50	1.0668	80	300	31.2	9.50976	1.00	0.126	CON	Yes
	Animal Feed - Limestone Feed Bin	52	WALES52	396,700	3,079,400	1,482.337	-1,230.415	114	34.7	1.00	0.3048	105	314	33.0	10.0584	4.75	0.599	CON	Yes
	Map Plant Cooler	55	WALES55	396,700	3,079,400	1,482.337	-1,230.415	25	7.6	4.30	1.31064	140	333	34.0	10.3632	5.14	0.648	NO	No
	Dap Ii East Product Cooler	56	WALES56	396,700	3,079,400	1,482.337	-1,230.415	170	51.8	5.00	1.524	110	316	64.5	19.6596	6.06	0.764	CON	Yes
	Gtsp Railcar Loadout Facility W/ Baghouse	59	WALES59	396,700	3,079,400	1,482.337	-1,230.415	10	3.0	1.50	0.4572	100	311	68.9	21.0007	5.00	0.630	CON	Yes
	Limestone Storage Silo With Baghouse.	70	WALES70	396,700	3,079,400	1,482.337	-1,230.415	110	33.5	0.75	0.2286	110	316	113.2	34.5034	0.70	0.088	CON	Yes

Facility ID	Facility Name / Emission Unit Description	EU ID	CALPUFF ID	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Stack Parameters: Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	PM₁₀ Emission Rate lb/hr	PM₁₀ Emission Rate g/s	PSD Source? ᵃ (EXP/CON)	Modeled PSD Source?
	Kiln C Scrubber Stack - Multifos Plant	74	WALES74	396,700	3,079,400	1,482.337	-1,230.415	172	52.4	4.50	1.3716	105	314	70.2	21.397	14.30	1.802	CON	Yes
	Multifos Kiln C Cooler Baghouse	75	WALES75	396,700	3,079,400	1,482.337	-1,230.415	86	26.2	3.00	0.9144	250	394	106.1	32.3393	1.90	0.239	CON	Yes
	Multifos Kiln C Milling & Sizing Baghouse	76	WALES76	396,700	3,079,400	1,482.337	-1,230.415	90	27.4	1.50	0.4572	130	328	113.2	34.5034	1.90	0.239	CON	Yes
1050046	Mosaic - Bartow Facility																		
	No. 3 Fertilizer Plant	1	MOSBAR1	409,800	3,086,600	1494.126	-1220.919	153	46.6	7.5	2.29	160	344	79.4	24.2	30.0	3.78	CON	Yes
	No. 4 Fertilizer Shipping Plant	2	MOSBAR2	409,800	3,086,600	1494.126	-1220.919	128	39.0	4.9	1.49	91	306	30.9	9.4	10.5	1.33	CON	Yes
	No. 3 Fertilizer Shipping Plant	4	MOSBAR4	409,800	3,086,600	1494.126	-1220.919	80	24.4	2.3	0.70	77	298	38.2	11.6	12.0	1.51	NO	No
	No. 4 Fertilizer Plant	21	MOSBAR21	409,800	3,086,600	1494.126	-1220.919	140	42.7	10.9	3.33	144	335	45.6	13.9	22.8	2.87	CON	Yes
	Cleaver Brooks Package Watertube Boiler	51	MOSBAR51	409,800	3,086,600	1494.126	-1220.919	31	9.4	3.5	1.07	410	483	20.0	6.1	4.4	0.55	CON	Yes
	Phosphate Rock Grinding Mill "D" Vent		ROCKUNLD	409,800	3,086,600	1494.126	-1220.919	83	25.3	1.7	0.51	115	319	26.6	8.1	-1.0	-0.13	EXP	Yes
	Phosphate Rock Storage Bin Stack R-4		UNGNDP3	409,800	3,086,600	1494.126	-1220.919	55	16.8	3.1	0.94	95	308	59.9	18.2	-5.1	-0.64	EXP	Yes
	Phosphate Rock Storage Bin Stack R-5		UNGNDP4	409,800	3,086,600	1494.126	-1220.919	55	16.8	3.0	0.92	75	297	74.7	22.8	-2.7	-0.34	EXP	Yes
	Phosphate Rock Storage Bin Stack R-6		UNGNDP5	409,800	3,086,600	1494.126	-1220.919	55	16.8	3.0	0.92	82	301	65.3	19.9	-9.0	-1.13	EXP	Yes
	Phosphate Rock Storage Bin Stack R-7		UNGNDP6	409,800	3,086,600	1494.126	-1220.919	50	15.2	1.1	0.33	113	318	25.5	7.8	-2.1	-0.26	EXP	Yes
	GTSP Fertilizer Plant No. 1, Stack No. 8		UNGNDP7	409,800	3,086,600	1494.126	-1220.919	100	30.5	6.7	2.03	135	330	47.9	14.6	-20.0	-2.52	EXP	Yes
	GTSP Shipping East, Stack No. 13		RGRINDP8	409,800	3,086,600	1494.126	-1220.919	92	28.0	1.8	0.55	75	297	34.7	10.6	-0.4	-0.05	EXP	Yes
	GTSP Shipping West, Stack No. 14		100BALL	409,800	3,086,600	1494.126	-1220.919	95	29.0	2.2	0.67	75	297	14.0	4.3	-0.4	-0.05	EXP	Yes
	GTSP Storage Building E-1, Stack No. 31		40BALL	409,800	3,086,600	1494.126	-1220.919	108	32.9	6.9	2.10	108	315	42.8	13.0	-0.7	-0.09	EXP	Yes
	GTSP Fertilizer Plant No. 2, Stack No. 7		GRNDP10	409,800	3,086,600	1494.126	-1220.919	80	24.4	6.6	2.01	112	318	54.9	16.7	-10.2	-1.29	EXP	Yes
	GTSP Fertilizer Plant No. 2, Granulator Stack No. 12		FILTER11	409,800	3,086,600	1494.126	-1220.919	46	14.0	2.0	0.61	75	297	53.1	16.2	-0.1	-0.01	EXP	Yes
	Phosphate Rock Grinding Mill "A" Vent		FILTER13	409,800	3,086,600	1494.126	-1220.919	74	22.6	1.8	0.56	91	306	25.8	7.9	-1.1	-0.14	EXP	Yes
	Phosphate Rock Grinding Mill "B" Vent		DAPRGSCR	409,800	3,086,600	1494.126	-1220.919	74	22.6	1.8	0.56	106	314	28.8	8.8	-0.9	-0.11	EXP	Yes
	Phosphate Rock Grinding Mill "C" Vent		SDAPMAIB	409,800	3,086,600	1494.126	-1220.919	74	22.6	1.8	0.56	94	308	24.5	7.5	-0.9	-0.12	EXP	Yes
	Phosphate Rock Transfer Point R-10, R-11, R-12		DAPCOOL	409,800	3,086,600	1494.126	-1220.919	46	14.0	1.0	0.30	75	297	32.3	9.8	-0.1	-0.01	EXP	Yes
	Phosphate Rock Conveyor R-8		TSPRBSCR	409,800	3,086,600	1494.126	-1220.919	53	16.2	0.7	0.22	75	297	21.2	6.4	-1.4	-0.18	EXP	Yes
	Phosphate Rock Conveyor, Stack No. 27		NDAPMAIB	409,800	3,086,600	1494.126	-1220.919	40	12.2	1.8	0.56	99	310	37.9	11.6	-0.8	-0.10	EXP	Yes
	Phosphate Rock Conveyor, Stack No. 28		NDAPMAIB	409,800	3,086,600	1494.126	-1220.919	58	17.7	1.8	0.56	91	306	38.0	11.6	-0.5	-0.06	EXP	Yes
	Phosphate Rock Conveyor, Stack No. 29		STORSCRB	409,800	3,086,600	1494.126	-1220.919	71	21.6	1.8	0.56	91	306	38.0	11.6	-0.5	-0.06	EXP	Yes
	Phosphate Dryers R-1 and R-2		SHIPSCRB	409,800	3,086,600	1494.126	-1220.919	50	15.2	6.7	2.05	140	333	56.6	17.2	-5.0	-0.63	EXP	Yes
1050034	Mosaic Phosphates (CFMO)																		
	Soda Ash Storage & Handling @ Fort Green Mine	7	CFMO7	398,200	3,075,700	1,484.479	-1,233.860	30	9.1	2.0	0.6	75	297	3.3	1.0	19.20	2.42	CON	Yes
	Boiler @ Four Corners Mine	8	CFMO8	398,200	3,075,700	1,484.479	-1,233.860	26	7.9	1.0	0.3	400	478	23.5	7.2	0.06	0.01	CON	Yes
	Magnetite Storage Bin @ Four Corners Mine (009)	9	CFMO9	398,200	3,075,700	1,484.479	-1,233.860	122	37.2	0.6	0.2	77	298	29.5	9.0	0.14	0.02	CON	Yes
	Ferrosilicon Storage Bin @ Four Corners Mine	10	CFMO10	398,200	3,075,700	1,484.479	-1,233.860	122	37.2	0.6	0.2	77	298	22.4	6.8	0.14	0.02	CON	Yes
	Dryer No. 1 @ Noralyn Mine (011)	11	CFMO11	398,200	3,075,700	1,484.479	-1,233.860	76	23.16	6.5	2.0	250	394	56.8	17.3	42.2	5.32	NO	No
	Dryer No. 2 East @ Noralyn Mine (012)	12	CFMO12	398,200	3,075,700	1,484.479	-1,233.860	55	16.76	9.3	2.8	155	341	29.0	8.8	45.1	5.68	NO	No
	Silos 1, 2, 3, 12 @ Noralyn Mine (013)	13	CFMO13	398,200	3,075,700	1,484.479	-1,233.860	150	45.72	3.5	1.1	100	311	52.0	15.8	35.0	4.41	NO	No
	Ball Mill Transfers @ Noralyn Mine (015)	15	CFMO15	398,200	3,075,700	1,484.479	-1,233.860	24	7.32	2	0.6	110	316	26.5	8.1	10.0	1.26	NO	No
	Ball Mill No. 3 @ Noralyn Mine (016)	16	CFMO16	398,200	3,075,700	1,484.479	-1,233.860	25	7.62	1.5	0.5	75	297	37.7	11.5	10.0	1.26	NO	No
	Ball Mill No. 4 @ Noralyn Mine (017)	17	CFMO17	398,200	3,075,700	1,484.479	-1,233.860	27	8.23	2	0.6	75	297	15.9	4.8	10.0	1.26	NO	No
	No. 3 Ball Mill Loadouts @ Noralyn Mine (018)	18	CFMO18	398,200	3,075,700	1,484.479	-1,233.860	25	7.62	1.5	0.5	77	298	37.7	11.5	10.0	1.26	NO	No
	No. 4 Ball Mill Loadouts @ Noralyn Mine (019)	19	CFMO19	398,200	3,075,700	1,484.479	-1,233.860	29	8.84	1.8	0.5	77	298	19.7	6.0	10.0	1.26	NO	No
	A Track Railcar Loadout @ Noralyn Mine	20	CFMO20	398,200	3,075,700	1,484.479	-1,233.860	27	8.23	2	0.6	85	303	53.1	16.2	15.0	1.89	CON	Yes
	B Track Railcar Loadout @ Noralyn Mine	21	CFMO21	398,200	3,075,700	1,484.479	-1,233.860	27	8.23	1.9	0.6	81	300	71.8	21.9	15.0	1.89	CON	Yes
	Transfer Points To Conveyors C31 & C33 @ Noralyn	22	CFMO22	398,200	3,075,700	1,484.479	-1,233.860	40	12.19	1.5	0.5	100	311	47.2	14.4	10.0	1.26	NO	No
	Material Transfer Sources @ Noralyn	23	CFMO23	398,200	3,075,700	1,484.479	-1,233.860	43	13.11	2	0.6	86	303	26.5	8.1	15.0	1.89	CON	Yes
	Dry Phosphate Transfer @ Noralyn Mine (024)	24	CFMO24	398,200	3,075,700	1,484.479	-1,233.860	135	41.15	2.8	0.9	60	289	55.0	16.8	15.0	1.89	NO	No
	Dry Unground Truck Load Out System @ Noralyn Mine	28	CFMO28	398,200	3,075,700	1,484.479	-1,233.860	27	8.2	2.0	0.6	75	297	33.0	10.1	0.3	0.04	CON	Yes
	Bartow Phosphate Center *(Formerly IMC Uranium Recovery)*																		
	PSD Expanding source	16	16IMCF	408,400	3,082,200	1,493.501	-1,225.571	85	25.9	0.7	0.2	75	297	38.1	11.6	-189.7	-23.90	EXP	Yes
1050034	Mosaic Phosphates Inc. (CFMO), Ft. Lonesome																		
	PSD Expanding source		12IMCF	389,500	3,068,000	1,477.158	-1,243.088	125	38.1	8.0	2.4	151	339	49.7	15.1	-25.20	-3.18	EXP	Yes
	PSD Expanding source		13IMCF	389,500	3,068,000	1,477.158	-1,243.088	125	38.1	8.0	2.4	151	339	55.1	16.8	-24.90	-3.14	EXP	Yes
	PSD Expanding source		14IMCF	389,500	3,068,000	1,477.158	-1,243.088	150	45.7	2.7	0.8	110	316	27.7	8.4	-51.20	-6.45	EXP	Yes
1050053	Mosaic - Green Bay Facility																		
	South DAP Plant--Stack A	7	MOSGB7A	409,500	3,080,100	1494.963	-1227.482	130	39.6	5.0	1.52	150.9	339	20.7	6.3	5.9	0.74	NO	No
	South DAP Plant--Stack B	7	MOSGB7B	409,500	3,080,100	1494.963	-1227.482	129.5	39.5	7.5	2.29	107.6	315	52.6	16.0	5.9	0.74	CON	Yes
	North AP Plant-Main Stack	29	MOSGB29M	409,500	3,080,100	1494.963	-1227.482	129.5	39.5	7.5	2.29	104.5	313	68.2	20.8	15.9	2.00	CON	Yes
	North AP Plant-RG Stack	29	MOSGB29R	409,500	3,080,100	1494.963	-1227.482	117	35.7	5.5	1.68	203.6	368	39.4	12.0	15.9	2.00	CON	Yes
	Phosphate Rock Unloading and Storage-Scrubber (A-A)		ROCKUNLD	409,500	3,080,100	1494.963	-1227.482	90	27.4	3.0	0.91	98.6	310	17.7	5.4	-3.9	-0.49	EXP	Yes
	Unground Rock Storage Silo Filter Pt. 3 (B-B)		UNGNDP3	409,500	3,080,100	1494.963	-1227.482	90	27.4	0.5	0.15	77	298	35.7	10.9	-4.0	-0.50	EXP	Yes

Facility ID	Facility Name / Emission Unit Description	EU ID	CALPUFF ID	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	PM10 Emission Rate lb/hr	PM10 Emission Rate g/s	PSD Source? a (EXP/CON)	Modeled PSD Source?
	Unground Rock Storage Silo Filter Pt. 4 (C-C)		UNGNDP4	409,500	3,080,100	1494.963	-1227.482	90	27.4	0.5	0.15	77	298	34.9	10.6	-3.4	-0.43	EXP	Yes
	Unground Rock Storage Silo Filter Pt. 5 (D-D)		UNGNDP5	409,500	3,080,100	1494.963	-1227.482	90	27.4	0.5	0.15	75.2	297	35.4	10.8	-4.2	-0.53	EXP	Yes
	Unground Rock Storage Silo Filter Pt. 6 (E-E)		UNGNDP6	409,500	3,080,100	1494.963	-1227.482	90	27.4	0.5	0.15	75.2	297	34.5	10.5	-3.8	-0.48	EXP	Yes
	Unground Rock Storage Silo Filter Pt. 7 (F-F)		UNGNDP7	409,500	3,080,100	1494.963	-1227.482	90	27.4	0.5	0.15	75.2	297	35.7	10.9	-3.6	-0.45	EXP	Yes
	Rock Grinding Filter Pt. 8 (G-G)		RGRINDP8	409,500	3,080,100	1494.963	-1227.482	100	30.5	1.7	0.51	77	298	41.6	12.7	-18.0	-2.26	EXP	Yes
	100-Ton Ball Mill Dust Collector (H-H)		100BALL	409,500	3,080,100	1494.963	-1227.482	165	50.3	2.3	0.70	77	298	59.1	18.0	-18.7	-2.35	EXP	Yes
	40-Ton Ball Mill Dust Collector (H1-H1)		40BALL	409,500	3,080,100	1494.963	-1227.482	50	15.2	1.7	0.51	127	326	31.1	9.5	-26.0	-3.27	EXP	Yes
	Ground Rock Storage Silos Pt. 10 (I-I)		GRNDP10	409,500	3,080,100	1494.963	-1227.482	90	27.4	0.8	0.26	77	298	39.0	11.9	-9.8	-1.23	EXP	Yes
	Fluid Bed Calciner Feed Bin Filter Pt. 11 (J-J)		FILTER11	409,500	3,080,100	1494.963	-1227.482	40	12.2	1.0	0.30	77	298	46.5	14.2	-3.5	-0.44	EXP	Yes
	Rock Storage Silo--No. 2 Phosphoric Acid Plant Feed (L-L)		FILTER13	409,500	3,080,100	1494.963	-1227.482	100	30.5	1.5	0.46	77	298	47.8	14.6	-3.6	-0.45	EXP	Yes
	DAP Plant-R/G Scrubber (S-S)		DAPRGSCR	409,500	3,080,100	1494.963	-1227.482	185	56.4	5.0	1.52	149	338	9.7	3.0	-1.3	-0.16	EXP	Yes
	DAP Plant-Dryer Scrubber (U-U)		SDAPMAIB	409,500	3,080,100	1494.963	-1227.482	129	39.3	7.5	2.29	139	333	22.5	6.9	-19.0	-2.39	EXP	Yes
	DAP Plant-Cooler Scrubber		DAPCOOL	409,500	3,080,100	1494.963	-1227.482	120	36.6	5.0	1.52	139	333	59.8	18.2	-19.0	-2.39	EXP	Yes
	TSP Plant-Reactor & Blunger Scrubber (W-W)		TSPRBSCR	409,500	3,080,100	1494.963	-1227.482	110.5	33.7	2.5	0.76	130	328	19.7	6.0	-1.0	-0.13	EXP	Yes
	TSP Plant-Dryer Scrubber (Y1-Y1)		NDAPMAIB	409,500	3,080,100	1494.963	-1227.482	129	39.3	7.5	2.29	190	361	34.5	10.5	-11.4	-1.44	EXP	Yes
	Shipping & Storage-Storage Scrubbers d (Z1-Z1)		STORSCRB	409,500	3,080,100	1494.963	-1227.482	130.5	39.8	8.0	2.44	69.8	294	40.8	12.4	-4.5	-0.57	EXP	Yes
	Shipping & Storage-Shipping Scrubbers (Z2-Z2)		SHIPSCRB	409,500	3,080,100	1494.963	-1227.482	130.5	39.8	4.0	1.22	88	304	33.0	10.1	-3.5	-0.43	EXP	Yes
0970014	Progress Energy Florida - Intercession City Plant																		
	Combined CTs 1-6	1-6	ICP16	446,300	3,126,000	1,523.522	-1,175.112	45	13.72	14.6	4.46	760	678	174.9	53.3	258.0	32.51	NO	No
	Combined CTs 7-10	7-10	ICP710	446,300	3,126,000	1,523.522	-1,175.112	50	15.24	13.8	4.19	1043	835	174.1	53.1	60.0	7.56	CON	Yes
	CT # 11	11	ICP11	446,300	3,126,000	1,523.522	-1,175.112	75	22.86	19.0	5.79	1034	830	139.4	42.5	17.0	2.14	CON	Yes
	Simple Cycle CTs P-12, P13 & P-14	18-20	ICP1820	446,300	3,126,000	1,523.522	-1,175.112	56	17.07	16.1	4.91	993	807	117.6	35.8	73.8	9.30	CON	Yes
0010006	GRU Deerhaven Generating Station																		
	Fossil Fuel Fired Steam Generator #1(Phase II AR Unit)	3	GRUDGS3	365,700	3,292,600	1,414.383	-1,022.938	300	91.4	11.0	3.4	261	400	47.0	14.3	120.0	15.12	NO	No
	Fossil Fuel Fired Steam Generator #2 (Phase I & II AR Unit)	5	GRUDGS5	365,700	3,292,600	1,414.383	-1,022.938	350	106.7	18.5	5.6	275	408	50.0	15.2	242.8	30.59	CON	Yes
	Simple Cycle Comb Turbine No. 3 (Phase II Acid Rain Unit)	6	GRUDGS6	365,700	3,292,600	1,414.383	-1,022.938	52	15.8	14.1	4.3	1100	866	168.0	51.2	15.0	1.89	CON	Yes
1050217	Polk Power Partners, L.P. Mulberry - Mulberry Cogen Facility																		
	Combustion Turbine with HRSG(Phase II, Acid Rain Unit)	1	MCF1	413,600	3,080,600	1,498.961	-1,226.266	125	38.1	15.0	4.6	220	378	64.1	19.5	9.00	1.13	CON	Yes
0810010	Florida Power & Light - Manatee																		
	Generator Unit 1	1	FPLMAN1	367,250	3,054,150	1,457.397	-1,260.832	499	152.1	26.2	8.0	325	436	68.7	20.9	865	108.99	NO	No
	Generator Unit 2	2	FPLMAN2	367,250	3,054,150	1,457.397	-1,260.832	499	152.1	26.2	8.0	325	436	68.7	20.9	865	108.99	NO	No
	Gas Turbine (nominal 170 MW) with HRSG- Unit No.3A	5	FPLMAN5	367,250	3,054,150	1,457.397	-1,260.832	120	36.6	19.0	5.8	202	368	59.0	18.0	17.2	2.17	CON	Yes
	Gas Turbine (nominal 170 MW) with HRSG- Unit No.3B	6	FPLMAN6	367,250	3,054,150	1,457.397	-1,260.832	120	36.6	19.0	5.8	202	368	59.0	18.0	17.2	2.17	CON	Yes
	Gas Turbine (nominal 170 MW) with HRSG- Unit No.3C	7	FPLMAN7	367,250	3,054,150	1,457.397	-1,260.832	120	36.6	19.0	5.8	202	368	59.0	18.0	17.2	2.17	CON	Yes
	Gas Turbine (nominal 170 MW) with HRSG- Unit No.3D	8	FPLMAN8	367,250	3,054,150	1,457.397	-1,260.832	120	36.6	19.0	5.8	202	368	59.0	18.0	17.2	2.17	CON	Yes
1050233	TECO, Polk Power Station																		
	260 MW Combined cycle CT (Phase II Acid Rain Unit)	1	TECOPK1	402,450	3,067,350	1490.176	-1241.483	150	45.7	19.0	5.79	340	444	75.8	23.1	17.0	2.14	CON	Yes
	120 MMBtu/HR Auxiliary Boiler	3	TECOPK3	402,450	3,067,350	1490.176	-1241.483	75	22.9	3.7	1.13	375	464	50.0	15.2	12.0	1.51	CON	Yes
	165MW Simple Cycle Combustion Turbine	9	TECOPK9	402,450	3,067,350	1490.176	-1241.483	114	34.7	29.0	8.84	1117	876	60.2	18.3	48.7	6.14	CON	Yes
	165MW Simple Cycle Combustion Turbine	10	TECOPK10	402,450	3,067,350	1490.176	-1241.483	114	34.7	29.0	8.84	1117	876	60.2	18.3	48.7	6.14	CON	Yes
1050234	Progress Energy Florida - Hines																		
	250 MW Combined Cycle Combustion Turbine 1 NG Primary Fuel	1	HINES1	414,340	3,073,910	1500.873	-1232.836	300	91.4	9.0	2.74	312	429	119.2	36.3	44.8	5.64	CON	Yes
	250 MW Combined Cycle Combustion Turbine 2 NG Primary Fuel	2	HINES2	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	270	405	69.4	21.2	44.8	5.64	CON	Yes
	POWER BLOCK 2, CT 2A	14	HINES14	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	64.8	8.16	CON	Yes
	POWER BLOCK 2, CT 2B	15	HINES15	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	64.8	8.16	CON	Yes
	POWER BLOCK 3, CT 3A	16	HINES16	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	64.8	8.16	CON	Yes
	POWER BLOCK 3, CT 3B	17	HINES17	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	64.8	8.16	CON	Yes
	POWER BLOCK 4, CT 4A		HINES4A	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	39.1	4.93	CON	Yes
	POWER BLOCK 4, CT 4B		HINES4B	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	39.1	4.93	CON	Yes
1270028	FPC - Debary Facility																		
	Combustion Turbine Peaking Unit # 1	3	FPCDF3	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	48.0	6.05	No	No
	Combustion Turbine Peaking Unit # 2	5	FPCDF5	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	48.0	6.05	No	No
	Combustion Turbine Peaking Unit # 3	7	FPCDF7	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	48.0	6.05	No	No
	Combustion Turbine Peaking Unit # 4	9	FPCDF9	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	48.0	6.05	No	No
	Combustion Turbine Peaking Unit # 5	11	FPCDF11	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	48.0	6.05	No	No
	Combustion Turbine Peaking Unit # 6	13	FPCDF13	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	48.0	6.05	No	No
	Combustion Turbine # 7 (Phase II Acid Rain Unit)	15	FPCDF15	467,500	3,197,200	1,532.022	-1,100.273	50	15.2	13.8	4.2	1043	835	174.1	53.1	15.0	1.89	CON	Yes
	Combustion Turbine # 8 (Phase II Acid Rain Unit)	16	FPCDF16	467,500	3,197,200	1,532.022	-1,100.273	50	15.2	13.8	4.2	1043	835	174.1	53.1	15.0	1.89	CON	Yes

Facility ID	Facility Name / Emission Unit Description	EU ID	CALPUFF ID	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Stack Parameters: Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	PM₁₀ Emission Rate lb/hr	PM₁₀ Emission Rate g/s	PSD Source? [a] (EXP/CON)	Modeled PSD Source?
	Combustion Turbine # 9 (Phase II Acid Rain Unit)	17	FPCDF17	467,500	3,197,200	1,532.022	-1,100.273	50	15.2	13.8	4.2	1043	835	174.1	53.1	15.0	1.89	CON	Yes
	Combustion Turbine # 10 (Phase II Acid Rain Unit)	18	FPCDF18	467,500	3,197,200	1,532.022	-1,100.273	50	15.2	13.8	4.2	1043	835	174.1	53.1	15.0	1.89	CON	Yes
1270020	Fpc-Turner Plant																		
	Combustion Turbine Peaking Unit No.3	9	FPCTUR9	473,400	3,193,300	1,538.567	-1,103.127	41	12.5	12.3	3.75	960	789	133.8	40.8	-52.8	-6.65	EXP	Yes
	Combustion Turbine Peaking Unit No.4	10	FPCTUR10	473,400	3,193,300	1,538.567	-1,103.127	41	12.5	12.3	3.75	960	789	133.8	40.8	-52.8	-6.65	EXP	Yes
	Combustion Turbine Peaking Unit No.1	11	FPCTUR11	473,400	3,193,300	1,538.567	-1,103.127	41	12.5	6.0	1.83	960	789	509.3	155.2	-19.9	-2.51	EXP	Yes
	Combustion Turbine Peaking Unit No.2	*12*	*FPCTUR12*	*473,400*	*3,193,300*	*1,538.567*	*-1,103.127*	*41*	*12.5*	*6.0*	*1.83*	*960*	789	*509.0*	*155.1*	*-19.9*	*-2.51*	*EXP*	Yes
1070005	GP Pulp/Paper Mill, Palatka																		
	No. 4 Recovery Boiler	18	RB4	434,000	3,283,400	1,483.634	-1,020.228	230	70.1	12.0	3.7		491	65.9	20.1	56.7	7.14	CON	Yes
	No. 4 Smelt Dissolving Tanks	19	SDT4	434,000	3,283,400	1,483.634	-1,020.228	206	62.8	5.0	1.5		355	34.0	10.4	11.3	1.43	CON	Yes
	No. 5 Power Boiler	15	PB5	434,000	3,283,400	1,483.634	-1,020.228	237	72.2	8.0	2.4		485	85.9	26.2	56.9	7.17	CON	Yes
	No. 4 Combination Boiler	16	CB4	434,000	3,283,400	1,483.634	-1,020.228	237	72.2	8.0	2.4		514	92.3	28.1	16.7	2.10	CON	Yes
	No. 7 Power Boiler	44	PB7	434,000	3,283,400	1,483.634	-1,020.228	60	18.3	7.0	2.1		672	43.5	13.3	1.9	0.24	CON	Yes
	No. 4 Lime Kiln	17	LK4	434,000	3,283,400	1,483.634	-1,020.228	131	39.9	4.4	1.4		347	70.6	21.5	29.2	3.68	CON	Yes
	New Themal Oxidizer		*TOX*	434,000	3,283,400	*1,483.634*	*-1,020.228*	250	76.2	3.6	*1.1*		344	18.0	5.5	7.0	0.88	CON	Yes
	TM5-[3] Stock Prep Area Exhaust Fan (FM1)	43	TM5_3	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.7	1.7		319	39.2	11.9	0.3	0.04	CON	Yes
	TM5-[4] Roof Exhaust Fan 776	43	TM5_4	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.7	1.7		319	39.2	11.9	0.3	0.04	CON	Yes
	TM5-[6] Reel Roof Exhaust Fan 2040 (WND)	43	TM5_6	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.2	1.6		319	47.1	14.4	0.9	0.11	CON	Yes
	TM5-[5] AirCap Roof Exhaust Fan 2041(FM2)	43	TM5_5	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.7	1.7		319	39.2	11.9	0.1	0.01	CON	Yes
	TM5-[7] Winder Area Roof Exhaust Fan 2039	43	TM5_7	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	4.7	1.4		319	38.4	11.7	0.9	0.11	CON	Yes
	TM5-[9] Former Area Exhaust Fan 2042	43	TM5_9	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.7	1.7		322	39.2	11.9	0.3	0.04	CON	Yes
	TM5-[10] Roof Exhaust Fan 902	43	TM5_10	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	4.7	1.4		319	38.4	11.7	0.2	0.03	CON	Yes
	TM5-[11] Fan 778	43	TM5_11	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.7	1.7		319	39.2	11.9	0.4	0.05	CON	Yes
	TM5-*[12] Roof Exhaust Fan 905*	43	TM5_12	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	4.7	1.4		319	38.4	11.7	0.2	0.03	CON	Yes
	TM5-[14] Afterdryer Hood Exhaust (MND)	43	TM5_14	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	3.8	1.2		355	56.7	17.3	0.3	0.04	CON	Yes
	TM5-[15] Existing Wet & Dry Yankee Hood (YKD)-burner	43	TM5_15	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.0	1.5		505	64.5	19.7	1.2	0.15	CON	Yes
	TM5-[16] Burner Area Exhaust Fan	43	TM5_16	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.7	1.7		319	39.2	11.9	0.4	0.05	CON	Yes
	Converting Operations	45	CONV1	434,000	3,283,400	1,483.634	-1,020.228	55	16.9	3.1	0.9		305	147.2	44.9	0.6	0.07	CON	Yes
	Converting Operations	45	CONV2	434,000	3,283,400	1,483.634	-1,020.228	55	16.9	3.1	0.9		305	147.2	44.9	0.6	0.07	CON	Yes
	Converting Operations	45	CONV3	434,000	3,283,400	1,483.634	-1,020.228	55	16.9	3.1	0.9		305	147.2	44.9	0.6	0.07	CON	Yes
	Converting Operations	45	TRIM1	434,000	3,283,400	1,483.634	-1,020.228	55	16.8	2.8	0.9		305	81.2	24.8	3.6	0.45	CON	Yes
	Converting Operations	45	TRIM2	434,000	3,283,400	1,483.634	-1,020.228	55	16.8	2.8	0.9		305	81.2	24.8	3.6	0.45	CON	Yes
	Converting Operations	45	TRIM3	434,000	3,283,400	1,483.634	-1,020.228	58	17.8	2.8	0.9		305	0.0	0.0	3.8	0.48	CON	Yes
	No. 3 Tissue Machine Combined Source		TM3	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.0	1.5		505	64.5	19.7	0.6	0.07	CON	Yes
	No 4 Tissue Machine Combined Source		TM4	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.0	1.5		505	64.5	19.7	0.6	0.07	CON	Yes
	# 1 Recovery Boiler		RB1B	408,810	3,354,380	1,483.634	-1,020.228	250	76.2	12.0	3.7		360	28.9	8.8	-67.8	-8.54	EXP	Yes
	# 2 Recovery Boiler		RB2B	408,810	3,354,380	1,483.634	-1,020.228	250	76.2	12.0	3.7		372	28.9	8.8	-86.6	-10.91	EXP	Yes
	# 3 Recovery Boiler		RB3B	408,810	3,354,380	1,483.634	-1,020.228	133	40.5	11.2	3.4		372	23.9	7.3	-93.7	-11.81	EXP	Yes
	# 4 Recovery Boiler		RB4B	408,810	3,354,380	1,483.634	-1,020.228	230	70.1	12.0	3.7		474	55.3	16.9	-143.2	-18.04	EXP	Yes
	# 1 Smelt Dissolving Tanks		SDT1B	408,810	3,354,380	1,483.634	-1,020.228	100	30.5	2.5	0.8		366	24.7	7.5	-2.1	-0.26	EXP	Yes
	# 2 Smelt Dissolving Tanks		SDT2B	408,810	3,354,380	1,483.634	-1,020.228	100	30.5	3.0	0.9		375	31.2	9.5	-3.1	-0.39	EXP	Yes
	# 3 Smelt Dissolving Tanks		SDT3B	408,810	3,354,380	1,483.634	-1,020.228	109	33.2	2.5	0.8		369	11.7	3.6	-2.8	-0.35	EXP	Yes
	# 4 Smelt Dissolving Tanks		SDT4B	408,810	3,354,380	1,483.634	-1,020.228	206	62.8	5.0	1.5		346	27.1	8.3	-35.1	-4.42	EXP	Yes
	# 1 Lime Kiln		LK1B	427,600	3,357,300	1,483.634	-1,020.228	50	15.2	4.2	1.3		401	17.2	5.2	-154.8	-19.50	EXP	Yes
	# 2 Lime Kiln		LK2B	427,600	3,357,300	1,483.634	-1,020.228	52	15.9	5.6	1.7		341	35.0	10.7	-81.7	-10.29	EXP	Yes
	# 3 Lime Kiln		LK3B	427,600	3,357,300	1,483.634	-1,020.228	52	15.9	5.6	1.7		342	27.8	8.5	-80.0	-10.08	EXP	Yes
	# 4 Lime Kiln		LK4B	427,600	3,357,300	1,483.634	-1,020.228	149	45.4	4.3	1.3		351	54.0	16.5	-27.2	-3.43	EXP	Yes
	# 4 Power Boiler		PB4B	427,600	3,357,300	1,483.634	-1,020.228	122	37.2	4.0	1.2		477	47.7	14.5	-100.6	-12.68	EXP	Yes
	# 5 Power Boiler		PB5B	427,600	3,357,300	1,483.634	-1,020.228	232	70.7	9.0	2.7		520	52.4	16.0	-43.9	-5.53	EXP	Yes
	# 4 Combination Boiler		CB4B	427,600	3,357,300	1,483.634	-1,020.228	237	72.2	10.0	3.1		477	34.5	10.5	-612.1	-77.12	EXP	Yes
	# 3 Tissue Machine Combined Source		TM3B	427,600	3,357,300	1,483.634	-1,020.228	94	28.7	5.0	1.5		505	64.5	19.7	-1.7	-0.22	EXP	Yes
	# 5 Tissue Machine Combined Source		TM5B	432,800	3,358,300	1,483.634	-1,020.228	94	28.7	5.0	1.5		505	64.5	19.7	-1.7	-0.21	EXP	Yes
0950137	Stanton Energy Center																		
	Fossil Fuel Steam Generation Unit #1	1	STAN1	483,500	3,150,600	1,556.158	-1,143.982	550	167.6	19.0	5.79	127	326	83.0	25.3	124.0	15.62	CON	Yes
	Pulverized Coal Fired Unit No. 2 (460 Mw Gross)	2	STAN2	483,500	3,150,600	1,556.158	-1,143.982	550	167.6	19.0	5.79	124	324	77.0	23.5	85.7	10.80	CON	Yes
1070025	SECI Seminole Generating Station																		
	Steam Electric Generator Unit No. 1	1	SECSEM1	438,850	3,289,300	1,487.402	-1,013.508	675	205.7	36.0	11.0	128	326	26.2	8.0	215.2	27.12	CON	Yes
	Steam Electric Generator Unit No. 2	2	SECSEM2	438,850	3,289,300	1,487.402	-1,013.508	675	205.7	36.0	11.0	128	326	26.2	8.0	215.2	27.12	CON	Yes
	Unit No. 3	3	SECSEM3	438,850	3,289,300	1,487.402	-1,013.508	675	205.7	26.0	7.92	126	325	61.8	18.8	113.0	14.24	CON	Yes

[a] EXP = PSD expanding source.
CON = PSD consuming source.

Facility	Facility Name		CALPUFF	UTM Location		LCC Location		Stack Parameters								PM_{10} Emission		PSD Source? [a]	Modeled
				X	Y	X	Y	Height		Diameter		Temperature		Velocity		Rate			PSD
ID	Emission Unit Description	EU ID	ID	(m)	(m)	(km)	(km)	ft	m	ft	m	°F	K	ft/s	m/s	lb/hr	g/s	(EXP/CON)	Source?

NO = Baseline Source, does not affect PSD increment.
ND = No data available.

TABLE D-5
SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES,
PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD [a] Source (CON/EXP)
Florida Power & Light (FPL)- Putnam Plant	CFPLPUTM	443.3	3277.6	73.144	22.3	10.33	3.15	327.65	437.4	192.21	58.6	1,549.2	195.2 [c]	NA
												925.4	116.6 [c]	CON
Florida Power & Light (FPL)- Palatka Plant	FPLPALAT	442.8	3277.6	149.896	45.7	12.99	3.96	274.91	408.1	31.16	9.5	-2,039.9	-257.0	CON
Georgia Pacific, Palatka Mill [b]	SDT4	433.9347	3283.478	206.0	62.8	5.0	1.52	179	355	33.9	10.35	7.7	0.97	CON
	PB524	433.9773	3283.447	236.8	72.2	8.0	2.44	413	485	85.9	26.19	1,461.9	184.2	CON
	CB4	433.9825	3283.45	236.8	72.2	8.0	2.44	466	514	92.3	28.14	961.1	121.1	CON
	PB7	433.9862	3283.466	60.0	18.3	7.0	2.13	750	672	43.5	13.25	0.2	0.0189	CON
	LK4	434.1067	3283.247	130.9	39.9	4.4	1.35	164	346.5	70.6	21.51	34.5	4.35	CON
	TM5P	434.2864	3283.44	94.0	28.65	4.2	1.29	450	505.4	77.1	23.5	0.030	0.00378	CON
	RB4_24HR	433.8823	3283.438	229.9	70.1	12.0	3.66	424	491	65.9	20.08	109.8	13.84	CON
	TOX	433.9816	3283.38	249.9	76.2	3.6	1.1	160	344	18.0	5.49	31.3	3.94	CON
	RB1B	434.0536	3283.407	249.9	76.2	12.0	3.66	188	360	28.9	8.8	49.3	6.21	EXP
	RB2B	434.0536	3283.407	249.9	76.2	12.0	3.66	210	372	28.9	8.8	70.5	8.88	EXP
	RB3B	434.0195	3283.385	132.8	40.5	11.2	3.41	210	372	23.9	7.28	68.1	8.58	EXP
	RB4B	433.8823	3283.438	229.9	70.1	12.0	3.66	394	474	55.3	16.86	277.8	35	EXP
	SDT1B	434.0593	3283.411	100.0	30.5	2.5	0.76	199	366	24.7	7.53	1.0	0.13	EXP
	SDT2B	434.0593	3283.411	100.0	30.5	3.0	0.91	215	375	31.2	9.51	1.4	0.18	EXP
	SDT3B	434.0253	3283.388	108.9	33.2	2.5	0.76	205	369	11.7	3.57	1.4	0.18	EXP
	SDT4B	433.9347	3283.478	206.0	62.8	5.0	1.52	163	346	27.1	8.26	5.6	0.71	EXP
	LK1B	434.1219	3283.301	49.9	15.2	4.2	1.28	262	401	17.2	5.24	1.9	0.24	EXP
	LK2B	434.1174	3283.299	52.2	15.9	5.6	1.71	154	341	35.0	10.67	1.9	0.24	EXP
	LK3B	434.1193	3283.271	52.2	15.9	5.6	1.71	156	342	27.8	8.47	3.8	0.48	EXP
	LK4B	434.1067	3283.247	148.9	45.4	4.3	1.31	172	351	54.0	16.46	11.1	1.4	EXP
	PB4B	433.998	3283.481	122.0	37.2	4.0	1.22	399	477	47.7	14.54	358.7	45.2	EXP
	PB5B	433.9773	3283.447	239.1	72.9	9.0	2.74	476	520	52.4	15.97	1,277.8	161	EXP
	CB4B	433.9825	3283.45	239.1	72.9	10.0	3.05	399	477	34.5	10.52	960.3	121	EXP
Gerdau Ameristeel	EAFBH1	405.708	3350.0	110.0	33.53	12.0	3.66	230	383.2	55.2	16.84	16.0	2.02	CON
	EAFBH2	405.715	3350.0	110.0	33.53	12.0	3.66	230	383.2	55.2	16.84	16.0	2.02	CON
	REHEATN	405.811	3350.3	66.0	20.12	5.8	1.77	480	522	45.0	13.72	0.16	0.02	CON
	ST12	405.699	3350.1	115.0	35.05	10.0	3.05	230	383.2	64.8	19.76	10.16	1.28	EXP
	ST34	405.732	3350.1	115.0	35.05	10.0	3.05	230	383.2	67.9	20.7	1.11	0.14	EXP
	REHEAT	405.758	3350.4	160.0	48.77	6.9	2.1	900	755.4	19.5	5.93	0.054	0.0068	EXP
JEA Brandy Branch	S1NG	408.835	3354.5	189.9	57.91	18.0	5.49	266	403	69.8	21.28	32.70	4.12	CON
	S2NG	408.713	3354.5	189.9	57.91	18.0	5.49	266	403	69.8	21.28	32.70	4.12	CON
	S3FO	408.774	3354.5	189.9	57.91	18.0	5.49	266	403	69.8	21.28	32.70	4.12	CON
	SFP	408.893	3354.5	24.0	7.32	0.5	0.15	649	616	196.9	60.02	0.032	0.0040	CON
Gainesville Regional Utilities- Deerhaven	GRUDH2	365.7	3292.6	349.9	106.68	18.5	5.64	275	408.1	. 50.0	15.24	2,913.97	367.16	CON
	GRUDHCC	365.5	3292.6	52.0	15.85	14.1	4.3	1100	866.5	168.0	51.21	53.02	6.68	CON

TABLE D-5
SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD [a] Source (CON/EXP)
CF Industries, Plant City														
001 Johnson Scotch Boiler	JOHNSTON	388.0	3116.0	25.0	7.6	3.5	1.1	550	561	61.6	18.8	46.86	5.90	CON
002 "A" SAP	SAPA			110.0	33.5	5.0	1.5	85	303	72.6	22.1	303.30	38.22	CON
003 "B" SAP	SAPB			110.0	33.5	5.0	1.5	84	302	80.1	24.4	303.30	38.22	CON
007 "C" SAP	SAPC			199.0	60.7	8.0	2.4	0	0	46.7	14.2	401.04	55.58	CON
008 "D" SAP	SAPD			199.0	60.7	8.0	2.4	0	0	48.3	14.7	401.04	55.58	CON
010 "A" DAP/MAP Plant	ADMP			80.0	24.4	10.0	3.0	137	331	36.8	11.2	13.86	1.75	CON
011 "Z" DAP/MAP Plant	ZDMP			136.0	41.5	9.0	2.7	140	333	44.5	13.6	20.79	2.62	CON
012 "X" DAP/MAP/GTSP Plant	XDMGP			136.0	41.5	9.0	2.7	134	330	50.7	15.5	24.17	3.05	CON
013 "Y" DAP/MAP/GTSP Plant	YDMGP			136.0	41.5	9.0	2.7	135	330	53.3	16.2	24.07	3.03	CON
022 --Storage Tank (022)b	MSTK22			38.0	11.6	2.0	0.6	212	373.2	-	0.0	0.13	0.02	CON
033 --Storage Tank (033)c	MSTK33			41.0	12.5	-	-	-	-	-	-	0.13	0.02	CON
023 --Truck Pit Ab	MSTPTA			12.0	3.7	0.7	0.2	212	373.2	-	0.0	0.13	0.02	CON
024 --Truck Pit Bb	MSTPTB			12.0	3.7	0.7	0.2	212	373.2	-	0.0	0.13	0.02	CON
010 "A" DAP Plant	ADMPB			100	30.5	10.0	3.0	128	326.483	26.8	8.2	-18.42	-2.32	EXP
012 "X" DAP/MAP/GTSP Plant	XDMGPB			125	38.1	7.3	2.2	110	316.483	69.7	21.2	-27.43	-3.46	EXP
013 "Y" GTSP Plant	YDMGPB			125	38.1	7.3	2.2	110	316.483	44.8	13.6	-18.34	-2.31	EXP
011 "Z" DAP/GTSP Plant	ZDMPB			125	38.1	7.3	2.2	110	316.483	69.7	21.2	-18.34	-2.31	EXP
002 "A" Sulfuric Acid Plant with Ammonia Scrubber	SAPAB			80	24.4	5.0	1.5	98	309.817	62.2	19.0	-416.70	-52.50	EXP
003 "B" Sulfuric Acid Plant with Ammonia Scrubber	SAPBB			80	24.4	5.0	1.5	96	308.706	68.4	20.9	-416.70	-52.50	EXP
007 "C" Sulfuric Acid Plant Double Absorption	SAPCB			199	60.7	8.0	2.4	150	338.706	34.5	10.5	-250.00	-31.50	EXP
008 "D" Sulfuric Acid Plant Double Absorption	SAPDB			199	60.7	8.0	2.4	150	338.706	27.7	8.4	-250.00	-31.50	EXP
-- Sulfur Storage and Handling (b)				--	--	--	--	--	--	--	--	-0.33	-0.04	EXP
-- ROP/MGTSP Manufacturing	RMMANB			135	41.1	6.5	2.0	87	303.706	33.9	10.3	-14.11	-1.78	EXP
Cargill Fertilizer, Inc.--Riverview														
MOLTEN SULFUR PITS 7, 8, AND 9	CRPITS	363	3083	d	d	d	d	d	d	d	d	0.13	0.016	CON
MOLTEN SULFUR TANKS 1, 2, AND 3/TRUCK LO/	CRTKTL			33	10.1	0.8	0.25	110	316	20.5	6.24	3.34	0.42	CON
4 NO. 7 SULFURIC ACID PLANT	CR7SAP			150	45.7	7.5	2.29	152	340	41.5	12.64	466.70	58.8	CON
5 NO. 8 SULFURIC ACID PLANT	CR8SAP			150	45.7	8.0	2.44	165	347	42.9	13.08	393.75	49.6	CON
6 NO. 9 SULFURIC ACID PLANT	CR9SAP			150	45.7	9.0	2.74	155	341	44.8	13.66	495.83	62.5	CON
100 NO. 5 ROCK MILL	CR5RKML			91	27.7	2.5	0.76	166	348	122.6	37.36	6.59	0.83	CON
106 NO. 7 ROCK MILL	CR7RKML			91	27.7	3.0	0.91	165	347	47.2	14.37	6.59	0.83	CON
101 NO. 9 ROCK MILL	CR9RKML			91	27.7	2.5	0.76	162	345	106.5	32.46	6.59	0.83	CON
7 NO. 6 GRANULATION PLANT DRYER STACK	CR6GRAN			162	49.4	8.5	2.59	164	346	58.7	17.89	40.57	5.1	CON
AFI PLANT NO. 1	CRAFI1			136	41.5	6.0	1.83	150	339	64.5	19.66	25.36	3.2	CON
AFI PLANT NO. 2	CRAFI2			155	47.2	6.0	1.83	150	339	64.5	19.66	38.04	4.8	CON

TABLE D-5
SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES,
PE CRYSTAL RIVER POWER PLANT PROJECT

	Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD [a] Source (CON/EXP)
55	NO. 5 GRANULATION PLANT-DRYER/COOLER ST	CR5GRAN			133	40.5	7.0	2.13	110	316	67.6	20.59	12.58	1.585	CON
22,23,24	NOS. 3 AND 4 MAP PLANTS, SOUTH COOLER	CR34MAP			133	40.5	7.0	2.13	142	334	71.5	21.78	0.0030	0.00038	CON
	Ammonia Plant (Expanding Source)	AMMPLTB			60	18.3	8.3	2.5	600	589	22.7	6.93	-32.80	-4.13	EXP
	Sodium Silicofluoride/Sodium Fluoride Plant (Expandin	SSFSFPB			28	8.5	2.5	0.76	95	308	11.6	3.55	-0.20	-0.03	EXP
	No. 10 KVS Mill (Expanding Source)	10KVSMB			87	26.5	1.7	0.52	118	321	59.8	18.24	-0.020	-0.0025	EXP
	No. 12 KVS Mill (Expanding Source)	12KVSMB			71	21.6	1.6	0.49	135	330	68.5	20.87	-0.040	-0.0050	EXP
	No. 7 Oil-Fired Concentrator (Expanding Source)	7OFCONB			78	23.8	6.0	1.83	165	347	17.2	5.24	-41.40	-5.22	EXP
	No. 8 Oil-Fired Concentrator (Expanding Source)	8OFCONB			78	23.8	6.0	1.83	159	344	16.7	5.10	-39.70	-5.00	EXP
	GTSP Plant (Expanding Source)	GTSPAPB			126	38.4	8.0	2.44	129	327	34.9	10.65	-71.40	-9.00	EXP
	No. 5 and No. 9 Mills Bag Filter (Expanding Source)	RKML59B			66	20.1	2.0	0.61	115	319	58.3	17.75	-0.010	-0.0013	EXP
	No. 3 Continuous Triple Dryer (Expanding Source)	3CONTDB			68	20.7	3.5	1.07	115	319	45.8	13.96	-22.80	-2.87	EXP
	No. 4 Continuous Triple Dryer (Expanding Source)	4CONTDB			68	20.7	3.5	1.07	134	330	61.8	18.85	-23.20	-2.92	EXP
	Molten Sulfur Handling- Pits 7 & 8 (Expanding Source)	MSPTSB			e	e	e	e	e	e	e	e	-0.080	-0.010	EXP
	Molten Sulfur Handling- Pits 4,5, & 6 (Expanding Sour	PTS456B			f	f	f	f	f	f	f	f	-0.13	-0.02	EXP
	Molten Sulfur Handling- Tanks (Expanding Source)	MSTKTLB			g	g	g	g	g	g	g	g	-2.12	-0.27	EXP
	No. 4 Sulfuric Acid Plant (Expanding Source)	NO4SAPB			80	24.4	4.7	1.43	194	363	20.4	6.23	-282.00	-35.53	EXP
	No. 5 Sulfuric Acid Plant (Expanding Source)	NO5SAPB			74	22.6	5.3	1.62	189	360	25.3	7.72	-480.00	-60.48	EXP
	No. 6 Sulfuric Acid Plant (Expanding Source)	NO6SAPB			72	21.9	5.9	1.80	189	360	31.3	9.53	-688.00	-86.69	EXP
	No. 7 Sulfuric Acid Plant (Expanding Source)	NO7SAPB			92	28.0	9.4	2.87	183	357	22.3	6.80	-1,503.00	-189.38	EXP
	No. 8 Sulfuric Acid Plant (Expanding Source)	NO8SAPB			96	29.3	10.7	3.26	174	352	24.2	7.37	-1,679.00	-211.55	EXP
	Natonal Gypsum - Apollo Beach														
1	Imp Mill #1	NATGYP1	363.3	3075.6	98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	CON
	Imp Mill #2	NATGYP2			98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	CON
	Imp Mill #3	NATGYP3			98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	CON
	Imp Mill #4	NATGYP4			98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	CON
	Kiln	NATGYP5			54	16.5	13.4	4.08	384	469	58.2	17.7	33.22	4.19	CON
	Big Bend Transfer Co. L.L.C.														
	Melter/ Molten Scrubber stack	BBTCCMBO	361.1	3076.2	95	29.0	2.2	0.66	97	309	57.0	17.4	0.014	0.002	CON
	Package Boiler	BBTCPKBL			106	32.3	4.0	1.22	350	450	29.7	9.1	3.56	0.45	CON
	TECO - Big Bend														
4	UNIT #4 BOILER W/ESP	TECOBB4	361.9	3075.0	490	149.4	24.0	7.32	127	326	78.3	23.9	3,576	451	CON
1,2	Steam Generators 1 & 2 Baseline	TCBB12B			490	149.4	24.0	7.32	300	422	94.0	28.7	-19333	-2436	EXP
3	Steam Generator 3 Baseline	TCBB3B			490	149.4	24.0	7.32	293	418	47.0	14.3	-9667	-1218	EXP
	Tampa Bay Shipbuiding & Repair Co.														

TABLE D-5
SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD [a] Source (CON/EXP)
5 DIESEL COMPRESSORS	TBSHIP5	358.0	3089.0	10	3.0	0.5	0.15	350	450	148.5	45.3	2.74	0.35	CON
McKay Bay Refuse-to-Energy Facility														
103 MWC & Aux Burner No. 1	MCKY103	360.2	3092.2	201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	CON
104 MWC & Aux Burner No. 2	MCKY104			201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	CON
105 MWC & Aux Burner No. 3	MCKY105			201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	CON
106 MWC & Aux Burner No. 4	MCKY106			201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	CON
Hillsborough Cty. Resource Recovery Fac.														
1 MWC & Aux Burner #1	HILLSRC1	368.2	3092.7	220	67.1	5.1	1.55	290	416	72.5	22.1	58.67	7.39	CON
2 MWC & Aux Burner #2	HILLSRC2			220	67.1	5.1	1.55	290	416	72.5	22.1	58.67	7.39	CON
3 MWC & Aux Burner #3	HILLSRC3			220	67.1	5.1	1.55	290	416	72.5	22.1	58.67	7.39	CON
Yuengling Brewing Co.														
1 2 Natural gas boilers	YNGBREW1	362.0	3103.2	90	27.4	6.5	1.98	275	408	7.0	2.1	9.00	1.13	CON
Pinellas Co. Resource Recovery Facility														
1 Waste Combustor & Aux burners-Unit #1	PINRCY1	335.2	3084.1	161	49.1	7.8	2.38	449	505	88.0	26.8	170.00	21.4	CON
3 Waste Combustor & Aux burners-Unit #2	PINRCY3			165	50.3	9.0	2.74	450	505	90.0	27.4	525.00	66.2	CON
IMC PhosphateS Company - New Wales														
2 SAP No. 1	IMCWAL2	396.7	3079.4	200	61.0	8.5	2.59	170	350	50.0	15.2	483.30	60.90	CON
3 SAP No. 2	IMCWAL3			200	61.0	8.5	2.59	170	350	50.0	15.2	483.30	60.90	CON
4 SAP No. 3	IMCWAL4			200	61.0	8.5	2.59	170	350	50.0	15.2	483.30	60.90	CON
9 DAP Plant No. 1	IMCWAL9			133	40.5	7.0	2.13	105	314	49.0	14.9	74.60	9.40	CON
13 Auxiliary Boiler	IMCWAL13			85	25.9	3.0	0.91	555	564	193.3	58.9	569.00	71.69	CON
27 AFI Plant	IMCWAL27			172	52.4	8.0	2.44	130	328	66.3	20.2	18.30	2.31	CON
36 Kilns, Dryer, Blending Op.	IMCWAL36			172	52.4	4.5	1.37	105	314	52.0	15.8	192.00	24.19	CON
42 SAP No. 4	IMCWAL42			199	60.7	8.5	2.59	170	350	50.0	15.2	483.30	60.90	CON
44 SAP No. 5	IMCWAL44			199	60.7	8.5	2.59	170	350	50.0	15.2	483.30	60.90	CON
45 DAP Plant No 2 - East Train	IMCWAL45			171	52.1	6.0	1.83	110	316	58.0	17.7	22.00	2.77	CON
46 DAP Plant No 2 - West Train	IMCWAL46			171	52.1	6.0	1.83	110	316	58.0	17.7	22.00	2.77	CON
60 Molten Storage Tank	IMCWAL60			40	12.2	2.0	0.61	240	389	0.4	0.1	0.50	0.06	CON
62 Molten Storage Tank	IMCWAL62			40	12.2	2.0	0.61	240	389	0.4	0.1	0.50	0.06	CON
63 Unloading Sulfur Pit	IMCWAL63			40	12.2	2.0	0.61	240	389	0.4	0.1	0.30	0.04	CON
64 Unloading Sulfur Pit	IMCWAL64			40	12.2	2.0	0.61	240	389	0.4	0.1	0.10	0.01	CON
65 Unloading Sulfur Pit	IMCWAL65			40	12.2	2.0	0.61	240	389	0.4	0.1	0.30	0.04	CON
66 Sulfur Transfer Pit	IMCWAL66			40	12.2	2.0	0.61	240	389	0.4	0.1	0.10	0.01	CON
68 Unloading Sulfur Pit	IMCWAL68			25	7.6	0.1	0.03	90	305	0.1	0.03	0.30	0.04	CON

TABLE D-5
SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD [a] Source (CON/EXP)
69 Unloading Sulfur Pit	IMCWAL69			25	7.6	0.1	0.03	90	305	0.1	0.03	0.10	0.01	CON
74 Multifos C Kiln	IMCWAL74			172	52.4	4.5	1.37	105	314	70.2	21.4	8.70	1.10	CON
78 GRANULAR MAP PLANT	IMCWAL78			133	40.5	6.0	1.83	145	336	109.6	33.4	13.72	1.73	CON
Expanding Source	IMCWAL0			69	21.0	7.0	2.13	165	347	61.0	18.6	-272.0	-34.27	EXP
Expanding Source	IMCWAL1			200	61.0	8.5	2.59	170	350	42.9	13.1	-1158.7	-146.00	EXP
Agrifos, L.L.C. - Nichols	(formerly Mobil Mining & Minerals Nichols)													
Expanding Source	AGRINK3	398.7	3085.3	93	28.4	3.6	1.10	152	340	63.1	19.2	-110.32	-13.90	EXP
Expanding Source	AGRINK4			13	4.0	2.6	0.79	480	522	5.9	1.8	-6.90	-0.87	EXP
IMC Phosphates Company - Nichols	(formerly IMC Agrico/Conserve)													
5 SAP NO. 1 PSD	AGRNK5	398.4	3084.2	150	45.7	7.5	2.29	170	350	33.0	10.1	416.80	52.52	CON
Expanding Source	AGRNK1			100	30.5	5.9	1.80	95	308	62.0	18.9	-120.5	-15.2	EXP
Expanding Source	AGRNK2			80	24.4	5.0	1.52	151	339	42.3	12.9	-30.8	-3.88	EXP
TECO - Polk Power Station														
1 Combined cycle CT	TECOPK1	402.5	3067.4	150	45.7	19.0	5.79	340	444	75.8	23.1	518.00	65.27	CON
3 120 MMBtu/HR AuxBlr	TECOPK3			75	22.9	3.7	1.13	375	464	50.0	15.2	96.00	12.10	CON
4 Sulfuric Acid Plant	TECOPK4			199	60.7	2.5	0.76	180	355	60.0	18.3	35.60	4.49	CON
9 Simple Cycle CT	TECOPK9			114	34.7	29.0	8.84	1117	876	60.2	18.3	9.20	1.16	CON
10 Simple Cycle CT	TECOPK10			114	34.7	29.0	8.84	1117	876	60.2	18.3	9.20	1.16	CON
Cargill Mulberry (Formerly Mulberry Phosphates, Inc.)														
2 SAP 2	MULPHS2	406.8	3085.1	200	61.0	7.0	2.13	200	366	32.0	9.8	283.33	35.70	CON
1 Expanding Source	MULPHSX			168	51.2	7.0	2.13	181	356	37.5	11.4	-2,044.40	-258	EXP
CF Industries, Inc. - Bartow	(Bonnie Mine Road)													
6 SAP NO.6	CFIBAR6	408.3	3082.5	206	62.8	7.0	2.13	140	333	21.0	6.4	400.00	50.40	CON
21 BOILER NO. 1	CFIBAR21			36	11.0	2.5	0.76	600	589	44.0	13.4	16.80	2.12	CON
1 Expanding Source	CFIBARX1			100	30.5	4.5	1.37	170	350	40.0	12.2	-483	-61	EXP
2 Expanding Source	CFIBARX2			100	30.5	5.5	1.68	170	350	34.0	10.4	-875	-110	EXP
3 Expanding Source	CFIBARX3			100	30.5	9.0	2.74	196	364	14.0	4.3	-850	-107	EXP
4 Expanding Source	CFIBARX4			100	30.5	7.0	2.13	185	358	26.0	7.9	-1,388	-175	EXP
5 Expanding Source	CFIBARX5			206	62.8	7.0	2.13	185	358	35.0	10.7	-1,800	-227	EXP
6 Expanding Source	CFIBARX6			206	62.8	7.0	2.13	187	359	34.0	10.4	-1,350	-170	EXP
IMC Phosphates Company - South Pierce														
4 SAP No. 10	IMCSPR4	407.5	3071.4	144	43.9	9.0	2.74	170	350	41.1	12.5	450.0	56.70	CON
5 SAP No. 11	IMCSPR5			144	43.9	9.0	2.74	170	350	41.1	12.5	450.0	56.70	CON

TABLE D-5
SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD [a] Source (CON/EXP)
Combined Expanding Sources	IMCPIER6			144	43.9	5.2	1.58	170	350	86.6	26.4	-600.0	-75.6	EXP
Cargill Green Bay (Formerly Farmland Hydro, L.P. - Green Bay)														
3 SAP #3	FARM3	409.5	3080.1	100	30.5	7.5	2.29	170	350	28.0	8.5	350.00	44.10	CON
4 SAP #4	FARM4			100	30.5	7.5	2.29	180	355	39.6	12.1	350.00	44.10	CON
5 SAP #5	FARM5			150	45.7	8.0	2.44	180	355	44.1	13.4	466.70	58.80	CON
7 South AP Plant--Stack A	FARM7			130	39.5	8.0	2.44	97	309	49.7	15.2	3.16	0.40	CON
29 NORTH MAP/DAP PLANT--MAIN STACK	FARM29			128	39.0	8.0	2.44	113	318	50.7	15.5	2.63	0.33	CON
34 MOLTEN SULFUR PIT	FARM34			10	3.0	0.8	0.24	200	366	54.0	16.5	0.70	0.09	CON
38 No. 6 SAP	FARM38			150	45.7	9.0	2.74	180	355	34.8	10.6	401.00	50.53	CON
SAP # 1 (Expanding Source)	FRMSAP1			100	30.5	7.0	2.13	169	349	18.9	5.8	-493	-62.10	EXP
SAP # 2 (Expanding Source)	FRMSAP2			100	30.5	7.0	2.13	171	350	18.8	5.7	-533	-67.13	EXP
SAP # 3 (Expanding Source)	FRMSAP3			100	30.5	7.5	2.29	162	345	30.3	9.2	-653	-82.23	EXP
SAP # 4 (Expanding Source)	FRMSAP4			100	30.5	7.5	2.29	124	324	22.7	6.9	-542	-68.34	EXP
Cargill Fertilizer - Bartow														
1 NO.3 FERTILIZER PLANT	CARBAR1	409.8	3086.6	141	43.0	7.5	2.29	160	344	79.0	24.1	76.90	9.69	CON
12 No. 4 SAP	CARBAR12			200	61.0	6.8	2.07	180	355	61.0	18.6	433.30	54.60	CON
32 No. 6 SAP	CARBAR32			200	61.0	6.8	2.07	180	355	61.0	18.6	433.30	54.60	CON
33 No. 5 SAP	CARBAR33			200	61.0	6.8	2.07	180	355	61.0	18.6	433.30	54.60	CON
51 Boiler	CARBAR51			31	9.4	3.5	1.07	410	483	20.0	6.1	165.17	20.81	CON
Hardee Power Station														
1 CT 1A W\HRSG	HARDE1	404.8	3057.4	90	27.4	14.5	4.42	236	386	77.5	23.6	734.40	92.53	CON
2 CT 2A W\HRSG	HARDE2			90	27.4	14.5	4.42	245	391	75.8	23.1	734.40	92.53	CON
3 Simple cycle CT 2A	HARDE3			75	22.9	17.9	5.46	986	803	94.3	28.7	734.40	92.53	CON
5 Unit 2B - 75 MW gas turbine	HARDE5			85	25.9	14.8	4.51	999	810	142.0	43.3	5.30	0.67	CON
Lakeland Electric, Larsen Power Plant														
8 Combined Cycle CT	LARS8	408.9	3102.5	155	47.2	16.0	4.88	481	523	85.7	26.1	211.40	26.64	CON
Lakeland Electric, McIntosh Power Plant														
6 McIntosh Unit 3	MCINT6	409.0	3106.2	250	76.2	18.0	5.49	167	348	82.6	25.2	4,368.00	550.37	CON
28 CT UNIT 5	MCINT28			85	25.9	28.0	8.53	1095	864	82.7	25.2	126.70	15.96	CON
U.S. Agri-Chemicals - Ft. Meade														
16 SAP #1	USAGFM16	416.0	3069.0	175	53.3	8.5	2.59	180	355	32	9.8	500.00	63.00	CON
17 SAP #2	USAGFM17			175	53.3	8.5	2.59	180	355	32	9.8	500.00	63.00	CON
28 MOLTEN SULFUR TANK	USAGFM28			6	1.8	0.3	0.09	270	405	344	104.9	0.49	0.06	CON

TABLE D-5
SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES,
PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD [a] Source (CON/EXP)
29 MOLTEN SULFUR TANK	USAGFM29			6	1.8	0.3	0.09	260	400	157	47.9	0.23	0.03	CON
Expanding Source	USAGFM0			95	29	9.9	3.02	106	314	23	6.9	-625.4	-78.80	EXP
Expanding Source	USAGFM1			93	28	5.0	1.52	134	330	58	17.6	-145.0	-18.27	EXP
Cutrale Citrus Juices USA, Inc.														
3 PEEL DRYER	CUTR3	421.6	3103.7	100	30.5	3.2	0.98	161	345	49.0	14.9	186.00	23.44	CON
8 COGEN #1	CUTR8			40	12.2	4.0	1.22	323	435	60.0	18.3	170.80	21.52	CON
9 COGEN #2	CUTR9			40	12.2	4.0	1.22	330	439	66.0	20.1	26.00	3.28	CON
Auburndale Power Partners, LP														
Proposed CT	LD7595A	420.8	3103.3	50	15	22.0	6.71	1,040	833	68	20.8	53.60	6.75	CON
1 Existing CT	CALEXT1			160	49	18.0	5.49	280	411	58	17.7	70.00	8.82	CON
Proposed CT, Osprey	CALOSP1			135	41	19.0	5.79	200	366	60	18.3	6.50	0.82	CON
Proposed CT, Osprey	CALOSP2			135	41	19.0	5.79	200	366	60	18.3	6.50	0.82	CON
Florida Distillers - Auburndale														
3 Boiler	FDIST31	421.4	3102.9	45	14	4.0	1.22	350	450	5	1.5	0.060	0.008	CON
FPC - Intercession City Plant														
1-6 Combined CT Units 1-6	INTCP16	446.3	3126.0	20	6	14.6	4.46	760	678	175	53.3	2,185.20	275.34	CON
7-10 Combined CTs 7-10	INTCP710			75	23	19.0	5.79	1034	830	139	42.5	1,295.00	163.17	CON
11 CT 11	INTCP11			75	23	19.0	5.79	1034	830	139	42.5	407.00	51.28	CON
IPS - Shady Hills														
CT No. 1-3	IPSPASCO	347.2	3138.8	60	18.3	22	6.71	1076	853	122.4	37.3	304.50	38.37	CON
Estech/Swift Polk														
	ESTDRY1	411.5	3,074.2	60.0	18.3	9.7	2.95	151	339	27.8	8.47	-190.00	-23.94	EXP
	ESTDRY2			61.5	18.8	9.7	2.95	152	340	16.6	5.06	-180.95	-22.80	EXP
	ESTSAP			101	30.8	7.0	2.13	185	358	12.8	3.90	-737.06	-92.87	EXP
FL Crushed Stone Kiln 1														
	FCS1	360.0	3,162.5	320	97.5	21.3	6.48	323	435	54.6	16.6	806.35	101.60	CON
FPC Polk County Site														
				113	34.4	13.5	4.115	260	400	133.0	40.5	98.02	12.35	CON
				113	34.4	13.5	4.1	260	400	133.0	40.5	98.02	12.35	CON

TABLE D-5

SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD [a] Source (CON/EXP)
	FPCPKC2	414.3	3,073.9	113	34.4	13.5	4.1	260	400	133.0	40.5	196.03	24.7	CON
General Portland Cement #4														
	GPCEM4B	358.0	3,090.6	118	36.0	9.0	2.74	450	505	57.8	17.6	-499.92	-62.99	EXP
General Portland Cement #5														
	GPCEM5B	358.0	3,090.6	149	45.4	12.5	3.81	430	494	19.0	5.80	-550.00	-69.3	EXP
IMC-Agrico Pierce														
	IAPRC12	404.1	3,079.0	80.0	24.4	5.0	1.52	151	339	42.5	12.9	-193.02	-24.3	EXP
	IAPRC34	404.1	3,079.0	80.0	24.4	8.0	2.43	151	339	61.7	18.8	-182.54	-23.0	EXP
Imperial Phosphates (Brewer)														
	IMPRLX	404.8	3,069.5	90	27.4	7.5	2.29	151	339	50.0	15.3	-152.86	-19.3	EXP
Mobil Electrophos Division														
	MOBELE1	405.6	3,079.4	24.0	7.3	3.0	0.91	376	464	10.6	3.2	-51.83	-6.53	EXP
	MOBELE2			20.0	6.1	3.0	0.91	376	464	25.3	7.7	-79.76	-10.05	EXP
	MOBELE3			60.0	18.3	6.0	1.83	170	350	22.3	6.8	-173.10	-21.81	EXP
	MOBELE4			84.0	25.6	7.0	2.13	91	306	22.9	7.0	-56.43	-7.11	EXP
	MOBELE5			60.0	18.3	2.3	0.7	120	322	75.0	22.9	-25.16	-3.17	EXP
	MOBELE6			96.0	29.3	7.0	2.13	106	314	28.0	8.5	-375.00	-47.25	EXP
Stauffer (Shutdown)														
	STAUFR1	325.6	3,116.7	24.0	7.3	3.0	0.91	376	464	10.6	3.2	-38.57	-4.86	EXP
	STAUFR2			60.0	18.3	2.3	0.7	120	322	75.0	22.9	-11.90	-1.50	EXP
	STAUFR3			161	49.0	3.9	1.2	143	335	11.8	3.6	-404.21	-50.93	EXP
	STAUFR4			84.0	25.6	7.0	2.13	91	306	22.9	7.0	-58.41	-7.36	EXP
	STAUFR5			84.0	25.6	3.0	0.91	120	322	22.9	7.0	-3.57	-0.45	EXP
US Agri-Chem Bartow														
	UAGBAR1	413.2	3,086.3	51.8	15.8	6.0	1.83	138	332	32.8	10.0	-27.06	-3.41	EXP
	UAGBAR2			95.0	29.0	7.0	2.12	89	305	24.6	7.5	-333.33	-42.00	EXP
Asphalt Pavers 3														
	ASPHALT3	359.9	3,162.4	40.0	12.2	4.5	1.37	219	377	34.7	10.6	17.86	2.25	CON
Asphalt Pavers 4														
	ASPHALT4	361.4	3,168.4	28.0	8.5	3.5	1.08	184	357	35.9	11.0	17.86	2.25	CON

TABLE D-5
SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES,
PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD[a] Source (CON/EXP)
Borden Hillsborough														
	BORDHIL	394.6	3,069.6	100	30.5	6.0	1.82	160	344	48.5	14.8	-51.43	-6.48	EXP
Borden Polk														
	BORDPLK	414.5	3,109.0	56.0	17.1	7.7	2.34	140	333	27.1	8.3	-41.98	-5.29	EXP
Couch Const-Zephyrhills (Asphalt)														
	COUCHZEP	390.3	3,129.4	20.0	6.1	4.5	1.38	300	422	68.9	21.0	28.10	3.54	CON
Couch Const-Odessa (Asphalt)														
	COUCHODE	340.7	3,119.5	30.0	9.1	4.6	1.4	325	436	73.2	22.3	57.54	7.25	CON
Dris Paving (Asphalt)														
	DRIS	340.6	3,119.2	40.0	12.2	10.0	3.05	151	339	21.2	6.5	1.83	0.23	CON
Dolime														
Dryers	DOLIMEDR	404.8	3,069.5	90.0	27.4	5.0	1.52	140	333	67.8	20.7	-45.08	-5.68	EXP
Boilers	DOLIMEBL			90.0	27.4	2.0	0.61	430	494	23.8	7.3	-35.87	-4.52	EXP
Evans Packing														
	EVANS	383.3	3,135.8	40.4	12.3	1.3	0.4	379	466	30.2	9.2	1.59	0.20	CON
E R Jahna (Lime Dryer)														
	ERJAHNA	386.7	3,155.8	35.0	10.7	6.0	1.83	129	327	29.5	9.0	6.51	0.82	CON
FDOC Boiler #3														
	FDOC	382.2	3,166.1	30.0	9.1	2.0	0.61	401	478	15.0	4.6	23.73	2.99	CON
FL Mining and Materials Kiln														
	FMM	356.2	3,169.9	105	32.0	14.0	4.27	250	394	32.5	9.9	11.51	1.45	CON
FPC - Crystal River														
Crystal River 1	CRYRIV1B	334.2	3,204.5	499	152.0	15.0	4.57	300	422	138.1	42.1	-2,492.06	-314.00	EXP
Crystal River 2	CRYRIV2B			502	153.0	16.0	4.88	300	422	138.1	42.1	-14,753.97	-1,859.00	EXP
Crystal River 4				585	178.2	25.5	7.77	253	396	68.9	21.0	8,006.35	1,008.80	CON
Crystal River 5				585	178.2	25.5	7.77	253	396	68.9	21.0	8,006.35	1,008.80	CON
	CRYRIV45			585	178.2	25.5	7.77	253	396	68.9	21.0	16,012.70	2,017.60	CON

TABLE D-5
SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES,
PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD [a] Source (CON/EXP)
FPC Debary														
	DEBARY	467.5	3,197.2	50.0	15.2	13.8	4.21	1016	820	184.4	56.2	3,701.59	466.40	CON
Hospital Corp of America														
Boiler #1				36.0	11.0	1.0	0.31	500	533	13.1	4.0	0.63	0.08	CON
Boiler #2				36.0	11.0	1.0	0.31	500	533	13.1	4.0	0.63	0.08	CON
	HCOA12	333.4	3,141.0	36.0	11.0	1.0	0.31	500	533	13.1	4.0	1.27	0.16	CON
Kissimmee Utilities														
	KISSUT	447.7	3,127.9	40.0	12.2	10.0	3.05	718	654	95.5	29.1	233.33	29.40	CON
Kissimmee Utilites Exist														
	KISSEX	460.1	3,129.3	60.0	18.3	12.0	3.66	300	422	124.7	38.0	254.76	32.10	CON
Lake Cogen														
	LAKECOGN	434.0	3,198.8	100	30.5	11.0	3.35	232	384	56.2	17.1	40.00	5.04	CON
Mulberry Cogeneration														
CT	MULCNAA	413.6	3,080.6	125	38.1	15.0	4.57	219	377	61.9	18.9	100.79	12.70	CON
Duct Burner	MULCNAB			125	38.1	6.5	1.98	300	422	30.5	9.3	5.16	0.65	CON
New Pt Richey Hospital														
Boiler #1				36.0	11.0	1.0	0.31	520	544	12.7	3.9	0.48	0.06	CON
Boiler #2				36.0	11.0	1.0	0.31	520	544	12.7	3.9	0.24	0.03	CON
	NEWPTR12	331.2	3,124.5	36.0	11.0	1.0	0.31	520	544	12.7	3.9	0.71	0.09	CON
Oman Construction														
	OMAN	359.8	3,164.9	25.0	7.6	6.0	1.83	165	347	20.6	6.3	16.59	2.09	CON
Orlando Utilities Commission - Stanton														
Unit 1	OUC1	483.5	3,150.6	550	167.6	19.0	5.8	127	326	70.9	21.6	4,769.84	601.00	CON
Unit 2 (24-hour)	OUC2			550	167.6	19.0	5.8	124	324	77.1	23.5	728.57	91.80	CON
Overstreet Paving														
	OVERST	355.9	3,143.7	30	9.1	4.3	1.3	275	408	52.5	16.0	29.13	3.67	CON
Pasco Cty RRF														
	PASCORRF	347.1	3,139.2	275	83.8	10.0	3.05	250	394	51.0	15.5	111.90	14.10	CON

TABLE D-5
SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES,
PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD [a] Source (CON/EXP)
Pasco Cogen														
	PASCOGN	385.6	3,139.0	100	30.5	11.0	3.35	232	384	56.2	17.1	40.00	5.04	CON
Reedy Creek Energy Services- EPCOT														
Generator 1				17.0	5.2	1.8	0.55	650	617	144.8	44.1	14.52	1.83	CON
Generator 2				17.0	5.2	1.8	0.55	650	617	144.8	44.1	14.52	1.83	CON
	EPCOT12	442.0	3,139.0	17.0	5.2	1.8	0.55	650	617	144.8	44.1	29.05	3.66	CON
Reedy Creek Energy Services														
	REEDY	443.1	3,144.3	65.0	19.8	11.2	3.41	285	414	51.0	15.6	1.19	0.15	CON
Ridge Cogeneration														
	RIDGE	416.7	3,100.4	325	99.1	10.0	3.05	170	350	47.6	14.5	109.52	13.80	CON
PCS	SULACC&D	328.3	3368.8	149.896	45.7	5.215	1.59	181.13	356	94.136	28.7	766.7	96.6	CON
	SULACE&F			200.08	61	9.512	2.9	181.13	356	30.504	9.3	833.3	105.0	CON
	AUXBLRE			50.184	15.3	5.248	1.6	310.73	428	52.152	15.9	170.6	21.5	CON
	AUXBLRB			35.096	10.7	4.789	1.46	382.73	468	31.16	9.5	174.6	22.0	CON
	AUXBLRC&			103.976	31.7	6.494	1.98	382.73	468	49.856	15.2	332.4	41.9	CON
	DAP2ZTR			140.056	42.7	8.003	2.44	125.33	325	42.968	13.1	5.5	0.7	CON
	SULACA&B			200.08	61	5.904	1.8	170.33	350	50.84	15.5	-2416.7	-304.5	EXP
	SULACC&D			149.896	45.7	5.215	1.59	181.13	356	94.136	28.7	-600.0	-75.6	EXP
Suwannee American Cement	AMSUWCEM	321.4	3315.9	315	96.0366	9.42	2.872	205	369.261	46.4	14.146	28.4	3.6	CON
Florida Rock Thompson S. Baker Cement Plant	FLROCCEM	348.4	3287.0	250	76.2195	9.42	2.872	356	453.15	47.8	14.573	17.7	2.2	CON
JEA Southside	JEASS1	437.67	3353.89	133.5	40.7	8.0	2.44	343	446	50.8	15.5	418.3	52.7	EXP
	JEASS2	437.67	3353.91	133.5	40.7	8.0	2.44	343	446	50.8	15.5	418.3	52.7	EXP
	JEASS5B	437.682	3353.841	145.0	44.2	9.7	2.96	287	415	69.9	21.3	825.4	104.0	EXP
	JEASS5A	437.682	3353.849	145.0	44.2	9.7	2.96	287	415	69.9	21.3	825.4	104.0	EXP
	JEASS4	437.67	3353.962	143.3	43.7	10.7	3.25	275	408	60.7	18.5	873.0	110.0	EXP
	JEASS3	437.678	3353.933	133.5	40.7	10.0	3.05	304	424	44.0	13.4	633.3	79.8	EXP

[a] Comsuming (C) sources are sources that were constructed or modified after the PSD baseline date.
Expanding (E) sources are sources that have shutdown or have been modified since the baseline date.

TABLE D-5
SUMMARY OF SO_2 SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES,
PE CRYSTAL RIVER POWER PLANT PROJECT

Facility	Model ID Name	UTM Coordinates East (km)	UTM Coordinates North (km)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	Emission Rate (lb/hr)	Emission Rate (g/s)	PSD [a] Source (CON/EXP)

[b] Higher emissions based on maximum allowable emissions. Lower emissions are based on maximum actual 3-hour and 24-hour average emissions for the two units from CEM data.

[c] Two of the four CT units (half of the total plant emissions) consume PSD increment and are included in the PSD increment analysis.
Higher emissions based on maximum allowable emissions. Lower emissions are based on maximum actual emissions for the two units.

[d, e, f, g] Modeled as volume sources. Dimensions are based on methods presented in accordance with ISCST3 User's Manual, and are as follows:

	Physical Dimensions (ft) Height (H)	Width (W)	Model Dimensions (ft) Height (H or H/2)	Sigma Y (W/4.3)	Sigma Z (H/2.15)
d	8.0	210.0	8.0	48.8	3.72
e	8.0	210.0	8.0	48.8	3.72
f	8.0	210.0	8.0	48.8	3.72
g	36.0	125.0	36.0	29	16.7

TABLE D-6

SUMMARY OF NO_X SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility ID	Facility Name / Emission Unit Description	EU ID	CALPUFF ID Name	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Stack Parameters: Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	NOx Emission Rate TPY	NOx Emission Rate (lb/hr)	PSD Source? ᵃ (EXP/CON)	Modeled PSD Source?
0530021	Florida Crushed Stone - Brooksville Cement And Power Plants																		
	BPP: POWER PLANT	18	FCS18	361340	3162370	1432.684	-1153.561	320	97.54	16	4.9	300	422	69.6	21.2	3705.5	846.0	NO	No
	BCP: Cement Kiln1, In-line Kiln/Raw Mill & Clinker Cooler 1	20	FCS20	361340	3162370	1432.684	-1153.561	300	91.44	16	4.9	220	378	47	14.3	1572.0	358.9	NO	No
	Kiln #2	44	FCS44	361340	3162370	1432.684	-1153.561	320	97.54	14	4.3	550	561	40.1	12.2	1595.7	364.3	CON	Yes
1010056	Pasco County Resource Recovery Facility																		
	Municipal waste Combustor Unit #1	1	PCRRF1	348,620	3,139,020	1,424.093	-1,179.090	275	83.8	4.7	1.43	250	394	81.9	25.0	335.6	76.6	CON	Yes
	Municipal Waste Combustor Unit #2	2	PCRRF2	348,620	3,139,020	1,424.093	-1,179.090	275	83.8	4.7	1.43	250	394	81.9	25.0	335.6	76.6	CON	Yes
	Municipal Waste Combustor Unit #3	3	PCRRF3	348,620	3,139,020	1,424.093	-1,179.090	275	83.8	4.7	1.43	250	394	81.9	25.0	335.6	76.6	CON	Yes
	Leachate Treatment Facility	5	PCRRF5	348.620	3.139,020	1,424.093	-1,179.090	30	9.1	1.0	0.30	350	450	19.1	5.8	1.32	0.3	CON	Yes
1010373	Shady Hills Generating Station																		
	A 170 MW Gas Simple Cycle Combustion Turbine	1	SHILLGS1	348,720	3,138,370	1,424.305	-1,179.729	60	18.3	22.0	6.71	1113	874	116.0	35.4	252.1	57.6	CON	Yes
	A 170 MW Gas Simple Cycle Combustion Turbine	2	SHILLGS2	348,720	3,138,370	1,424.305	-1,179.729	60	18.3	22.0	6.71	1113	874	116.0	35.4	252.1	57.6	CON	Yes
	A 170 MW Gas Simple Cycle Combustion Turbine	3	SHILLGS3	348,720	3.138,370	1,424.305	-1,179.729	60	18.3	22.0	6.71	1113	874	116.0	35.4	252.1	57.6	CON	Yes
0570005	CF Industries—Plant City Phosphate Complex																		
	Johnston Scotch Marine Type Boiler	1	JSMTB	388,000	3,116,000	1,467.276	-1,195.295	25	7.6	3.5	1.07	550	561	61.6	18.8	39.3	9.0	CON	Yes
	"A" SAP	2	SAPA	388,000	3,116,000	1,467.276	-1,195.295	110	33.5	5.0	1.52	83	301	68.7	20.9	35.0	8.0	CON	Yes
	"B" SAP	3	SAPB	388,000	3,116,000	1,467.276	-1,195.295	110	33.5	5.0	1.52	83	301	74.8	22.8	14.2	3.2	CON	Yes
	"C" SAP	7	SAPC	388,000	3,116,000	1,467.276	-1,195.295	199	60.7	8.0	2.44	158	343	46.7	14.2	60.0	13.7	CON	Yes
	"D" SAP	8	SAPD	388,000	3,116,000	1,467.276	-1,195.295	199	60.7	8.0	2.44	161	345	48.3	14.7	60.0	13.7	CON	Yes
	"A" Dap/Map Plant	10	ADMP	388,000	3,116,000	1,467.276	-1,195.295	80	24.4	10.0	3.05	137	331	36.8	11.2	17.8	4.1	CON	Yes
	"Z" Dap/Map Plant	11	ZDMP	388,000	3,116,000	1,467.276	-1,195.295	136	41.5	9.0	2.74	140	333	44.5	13.6	26.8	6.1	CON	Yes
	"X" Dap/Map Plant	12	XDMP	388,000	3,116,000	1,467.276	-1,195.295	136	41.5	9.0	2.74	134	330	50.7	15.5	28.0	6.4	CON	Yes
	"Y" Dap/Map Plant	13	YDMP	388,000	3,116,000	1,467.276	-1,195.295	136	41.5	9.0	2.74	135	330	53.3	16.2	31.0	7.1	CON	Yes
0570127	Mckay Bay Refuse-To-Energy Facility																		
	Unit #1 - The West Most Unit.	1	MBREF1	360,200	3,092,210	1,443.748	-1,223.927	160	48.8	5.7	1.74	450	505	41.0	12.5	-329.0	-75.1	EXP	Yes
	Unit#2 - Second West Most Unit. Burns Municipal Waste Only.	2	MBREF2	360,200	3,092,210	1,443.748	-1,223.927	160	48.8	5.7	1.74	450	505	41.0	12.5	-329.0	-75.1	EXP	Yes
	Unit #3 - 3rd Westmost Unit - Burns Municipal Waste.	3	MBREF3	360,200	3,092,210	1,443.748	-1,223.927	160	48.8	5.7	1.74	450	505	41.0	12.5	-329.0	-75.1	EXP	Yes
	Unit #4 - East Most Unit. Burns Municipal Waste.	4	MBREF4	360,200	3,092,210	1,443.748	-1,223.927	160	48.8	5.7	1.74	450	505	41.0	12.5	-329.0	-75.1	EXP	Yes
	Municipal Waste Combustor & Auxiliary Burners - Unit No. 1	103	MBREF103	360,200	3,092,210	1,443.748	-1,223.927	201	61.3	4.2	1.28	289	416	73.3	22.3	169.8	38.8	CON	Yes
	Municipal Waste Combustor & Auxiliary Burners - Unit No. 2	104	MBREF104	360,200	3,092,210	1,443.748	-1,223.927	201	61.3	4.2	1.28	289	416	73.3	22.3	169.8	38.8	CON	Yes
	Municipal Waste Combustor & Auxiliary Burners - Unit No. 3	105	MBREF105	360,200	3,092,210	1,443.748	-1,223.927	201	61.3	4.2	1.28	289	416	73.3	22.3	169.8	38.8	CON	Yes
	Municipal Waste Combustor & Auxiliary Burners - Unit No. 4	106	MBREF106	360,200	3,092,210	1,443.748	-1,223.927	201	61.3	4.2	1.28	289	416	73.3	22.3	169.8	38.8	CON	Yes
0570038	TECO, Hookers Point																		
	Boiler #1	1	TECOHK1	358,000	3,091,000	1,441.767	-1,225.519	280	85.3	11.3	3.4	356	453	82.0	25.0	-530.0	-121.0	EXP	Yes
	Boiler #2	2	TECOHK2	358,000	3,091,000	1,441.767	-1,225.519	280	85.3	11.3	3.4	356	453	82.0	25.0	-530.0	-121.0	EXP	Yes
	Boiler #3	3	TECOHK3	358,000	3,091,000	1,441.767	-1,225.519	280	85.3	12.0	3.7	341	445	62.7	19.1	-731.0	-166.9	EXP	Yes
	Boiler #4	4	TECOHK4	358,000	3,091,000	1,441.767	-1,225.519	280	85.3	12.0	3.7	341	445	62.7	19.1	-731.0	-166.9	EXP	Yes
	Boiler #5	5	TECOHK5	358,000	3,091,000	1,441.767	-1,225.519	280	85.3	11.3	3.4	356	453	82.0	25.0	-1064.0	-242.9	EXP	Yes
	Boiler #6	6	TECOHK6	358,000	3,091,000	1,441.767	-1,225.519	280	85.3	9.4	2.9	329	438	75.2	22.9	-972.0	-221.9	EXP	Yes
	30 Caterpillar XQ2000 Power Modules	8-37	TECOHKPM	358,000	3,091,000	1,441.767	-1,225.519	10	3.0	0.7	0.2	808	704	681.0	207.6	582.0	132.9	CON	Yes
0570261	Hillsborough Cty. RRF																		
	Unit #1 - The West Most Unit.	1	HCRRF1	368,200	3,092,700	1,451.629	-1,222.050	220	67.1	5.1	1.55	290	416	72.5	22.1	256.0	58.4	CON	Yes
	Unit#2 - Second West Most Unit. Burns Municipal Waste Only.	2	HCRRF2	368,200	3,092,700	1,451.629	-1,222.050	220	67.1	5.1	1.55	290	416	72.5	22.1	256.0	58.4	CON	Yes
	Unit #3 - 3rd Westmost Unit - Burns Municipal Waste.	3	HCRRF3	368,200	3,092,700	1,451.629	-1,222.050	220	67.1	5.1	1.55	290	416	72.5	22.1	256.0	58.4	CON	Yes
0570040	TECO, Bayside Power Station																		
	Unit #1 125 MW Coal Fired Boiler with Steam Generator	1	TECOBA1	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	10	3.05	289	416	94	28.65	-8,055.0	-1839.0	EXP	Yes
	Unit #2 125 MW Coal Fired Boiler with Steam Generator	2	TECOBA2	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	10	3.05	298	421	101	30.78	-8,314.0	-1898.2	EXP	Yes
	Unit #3 180 MW Coal Fired Boiler with Steam Generator	3	TECOBA3	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	10.6	3.23	296	420	126	38.40	-10,518.0	-2401.4	EXP	Yes
	Unit #4 188 MW Coal Fired Boiler with Steam Generator	4	TECOBA4	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	10	3.05	309	427	75	22.86	-11,555.0	-2638.1	EXP	Yes
	Unit #5 239 MW Coal Fired Boiler with Steam Generator	5	TECOBA5	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	14.6	4.45	303	424	76	23.16	-15,128.0	-3453.9	EXP	Yes
	Unit #6 414 MW Coal Fired Boiler with Steam Generator	6	TECOBA6	360,100	3,087,500	1,444.467	-1,228.660	315	96.01	17.6	5.36	320	433	81	24.69	-24,957.0	-5697.9	EXP	Yes
	14 MW Gas-Fired Turbine	7	TECOBA7	360,100	3,087,500	1,444.467	-1,228.660	35	10.67	11	3.35	1010	816	92.6	28.22	-561.0	-128.1	EXP	Yes
	Bayside Unit 1A – 170 MW combined cycle gas turbine	20	TECOBA20	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	101.2	23.1	CON	Yes
	Bayside Unit 1B – 170 MW combined cycle gas turbine	21	TECOBA21	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	101.2	23.1	CON	Yes
	Bayside Unit 1C – 170 MW combined cycle gas turbine	22	TECOBA22	360,100	3,087,500	1,444,467	-1,228,660	150	45.72	19	5.79	220	378	60.5	18.44	101.2	23.1	CON	Yes
	Bayside Unit 2A – 170 MW combined cycle gas turbine	23	TECOBA23	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	101.2	23.1	CON	Yes

TABLE D-6

SUMMARY OF NO_X SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility ID	Facility Name / Emission Unit Description	EU ID	CALPUFF ID Name	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Stack Parameters: Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	NOx Emission Rate TPY	NOx Emission Rate (lb/hr)	PSD Source? * (EXP/CON)	Modeled PSD Source?
	Bayside Unit 2B – 170 MW combined cycle gas turbine	24	TECOBA24	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	101.2	23.1	CON	Yes
	Bayside Unit 2C – 170 MW combined cycle gas turbine	25	TECOBA25	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	101.2	23.1	CON	Yes
	Bayside Unit 2D – 170 MW combined cycle gas turbine	26	TECOBA26	360,100	3,087,500	1,444.467	-1,228.660	150	45.72	19	5.79	220	378	60.5	18.44	101.2	23.1	CON	Yes
0570008	Mosaic Riverview Facility																		
	DAP Manufacturing Plant	7	MOSRIV7	362,900	3,082,500	1,448.126	-1,233.182	126	38.4	8.0	2.44	104	313	34.5	10.5	35.0	8.0	NO	No
	No. 3 MAP Plant	22	MOSRIV22	362,900	3,082,500	1,448.126	-1,233.182	133	40.5	7.0	2.13	142	334	71.5	21.8	0.7	0.2	NO	No
	No. 4 MAP Plant	23	MOSRIV23	362,900	3,082,500	1,448.126	-1,233.182	133	40.5	7.0	2.13	142	334	71.5	21.8	0.7	0.2	NO	No
	South Cooler	24	MOSRIV24	362,900	3,082,500	1,448.126	-1,233.182	133	40.5	7.0	2.13	142	334	71.5	21.8	0.7	0.2	NO	No
	No. 5 DAP Plant	55	MOSRIV55	362,900	3,082,500	1,448.126	-1,233.182	133	40.5	7.0	2.13	110	316	67.6	20.6	17.5	4.0	NO	No
	No. 7 SAP	4	MOSRIV4	362,900	3,082,500	1,448.126	-1,233.182	150	45.7	7.5	2.29	152	340	41.5	12.6	70.1	16.0	NO	No
	No. 8 SAP	5	MOSRIV5	362,900	3,082,500	1,448.126	-1,233.182	150	45.7	8.0	2.44	165	347	42.9	13.1	59.1	13.5	NO	No
	No. 9 SAP	6	MOSRIV6	362,900	3,082,500	1,448.126	-1,233.182	150	45.7	9.0	2.74	155	341	44.8	13.7	74.5	17.0	NO	No
	Animal Feed Ingredient Plant No. 1	78	MOSRIV78	362,900	3,082,500	1,448.126	-1,233.182	136	41.5	6.0	1.83	150	339	64.5	19.7	21.9	5.0	CON	Yes
	Animal Feed Ingredient Plant No. 2	103	MOSRJ103	362,900	3,082,500	1,448.126	-1,233.182	155	47.2	6.0	1.83	150	339	64.5	19.7	32.9	7.5	CON	Yes
	Baseline - No. 3 and No. 4 MAP Plants and South Cooler		MAP34CB	362,900	3,082,500	1,448.126	-1,233.182	90	27.4	3.3	1.01	140	333	67.0	20.4	-0.4	-0.1	EXP	Yes
	Baseline - No. 5 DAP Plant		NO5DAPB	362,900	3,082,500	1,448.126	-1,233.182	133	40.5	7.0	2.13	108	315	50.5	15.4	-2.4	-0.5	EXP	Yes
	Baseline - Auxiliary Steam Boiler		AUXSTB	362,900	3,082,500	1,448.126	-1,233.182	20	6.1	4.5	1.37	420	489	41.2	12.6	-0.8	-0.2	EXP	Yes
	Baseline - Sodium Silicofluoride/Sodium Fluoride Plant		SSFSFPB	362,900	3,082,500	1,448.126	-1,233.182	40	12.2	1.7	0.51	120	322	41.1	12.5	-0.7	-0.2	EXP	Yes
	Baseline - Phosphate Rock Grinding/Drying System		RKGRNDB	362,900	3,082,500	1,448.126	-1,233.182	60	18.3	1.9	0.59	140	333	57.6	17.5	-0.1	0.0	EXP	Yes
	Baseline - GTSP/DAP Manufacturing Plant		GTSPAPB	362,900	3,082,500	1,448.126	-1,233.182	126	38.4	8.0	2.44	125	325	46.4	14.1	-6.1	-1.4	EXP	Yes
	Baseline - No. 9 Sulfuric Acid Plantb		NO9SAPB	362,900	3,082,500	1,448.126	-1,233.182	150	45.7	9.0	2.74	152	340	39.0	11.9	-41.4	-9.5	EXP	Yes
	Baseline - No. 8 Sulfuric Acid Plantb		NO8SAPB	362,900	3,082,500	1,448.126	-1,233.182	150	45.7	8.0	2.44	150	339	34.8	10.6	-28.1	-6.4	EXP	Yes
	Baseline - No. 7 Sulfuric Acid Plantb		NO7SAPB	362,900	3,082,500	1,448.126	-1,233.182	150	45.7	7.5	2.29	170	350	46.0	14.0	-30.9	-7.1	EXP	Yes
1050004	Lakeland Electric - Mcintosh																		
	McIntosh Unit 1- FFFSG (Phase II Acid Rain Unit)	1	MCINT1	409,000	3,106,200	1,489.890	-1,201.443	150	45.72	9.0	2.74	277	409	81.2	24.75	2,317.0	529.0	NO	No
	Diesel Engine Peaking Unit 2	2	MCINT2	409,000	3,106,200	1,489.890	-1,201.443	20	6.10	2.6	0.79	715	653	77.0	23.47	380.2	86.8	NO	No
	Diesel Engine Peaking Unit 3	3	MCINT3	409,000	3,106,200	1,489.890	-1,201.443	20	6.10	2.6	0.79	715	653	77.0	23.47	380.2	86.8	NO	No
	Gas Turbine Peaking Unit 1	4	MCINT4	409,000	3,106,200	1,489.890	-1,201.443	35	10.67	13.5	4.11	900	755	79.5	24.23	978.3	223.4	NO	No
	McIntosh Unit 2 FFFSG (Phase II Acid Rain Unit)	5	MCINT5	409,000	3,106,200	1,489.890	-1,201.443	157	47.85	10.5	3.20	277	409	73.2	22.31	1,465.1	334.5	NO	No
	McIntosh Unit 3 FFFSG (Phase II Acid Rain Unit)	6	MCINT6	409,000	3,106,200	1,489.890	-1,201.443	250	76.20	18.0	5.49	167	348	82.6	25.18	11,160.2	2548.0	NO	No
	250 MW Combustion Turbine UNIT 5	28	MCINT28	409,000	3,106,200	1,489.890	-1,201.443	85	25.91	28.0	8.53	1095	864	82.7	25.21	1,148.0	262.1	CON	Yes
1050003	Lakeland Electric, Larsen Power Plant																		
	Fossil Fuel Fired Steam Generator # 6	3	LARPWR3	408,900	3,102,500	1,490.439	-1,205.163	165	50.3	10.0	3.05	340	444	21.0	6.4	674.0	153.9	NO	No
	Steam Generator # 7 (Phase II Acid Rain unit)	4	LARPWR4	408,900	3,102,500	1,490.439	-1,205.163	165	50.3	10.0	3.05	340	444	22.0	6.7	1448.0	330.6	NO	No
	Peaking Gas Turbine # 3	5	LARPWR5	408,900	3,102,500	1,490.439	-1,205.163	31	9.4	11.8	3.60	800	700	101.0	30.8	639.00	145.9	NO	No
	Peaking Gas Turbine # 2	6	LARPWR6	408,900	3,102,500	1,490.439	-1,205.163	31	9.4	11.8	3.60	800	700	101.0	30.8	639.00	145.9	NO	No
	Combined Cycle Combustion Turbine (Phase II Acid Rain unit)	8	LARPWR8	408,900	3,102,500	1,490.439	-1,205.163	155	47.2	16.0	4.88	481	523	85.7	26.1	425.00	97.0	CON	Yes
	Peaking Gas Turbine # 1	7	LARPWR7	408,900	3,102,500	1,490.439	-1,205.163	31	9.4	11.8	3.60	800	700	101.0	30.8	-639.00	-145.9	EXP	Yes
1050057	Mosaic Phosphates (Nichols)																		
	DAP Plant Dryer	3	IMCNIC3	398,400	3,084,200	1,483.190	-1,225.312	80	24.4	3.5	1.1	130	328	78.0	23.8	-10.0	-2.3	EXP	Yes
	Sulfuric Acid Plant No. 1	5	IMCNIC5	398,400	3,084,200	1,483.190	-1,225.312	150	45.7	7.5	2.3	170	350	33.0	10.1	-54.80	-12.5	EXP	Yes
	Phosphate Rock Dryer W/ Wet Scrubber	12	IMCNIC12	398,400	3,084,200	1,483.190	-1,225.312	81	24.7	7.5	2.3	130	328	12.0	3.7	-96.40	-22.0	EXP	Yes
	North Auxiliary Boiler	15	IMCNIC15	398,400	3,084,200	1,483.190	-1,225.312	27	8.2	2.0	0.6	500	533	45.0	13.7	-15.80	-3.6	EXP	Yes
	South Auxiliary Boiler	16	IMCNIC16	398,400	3,084,200	1,483.190	-1,225.312	39	11.9	3.2	1.0	500	533	29.0	8.8	-31.50	-7.2	EXP	Yes
0010087	Florida Rock Industries - Thompson S. Baker Cement Plant																		
	Kiln/Raw Mill System Stack	3	*FRBCP3*	*348350*	*3287040*	*1,398.163*	*-1,031.470*	*250*	76.20	9.42	2.9	*356*	453	47.8	14.6	*980.0*	223.7	*CON*	Yes
	Kiln/Raw Mill- Line 2	10	FRBCP10	348350	3287040	1,398.163	-1,031.470	315	96.01	9.42	2.9	356	453	52.6	16.0	1067.6	243.8	CON	Yes
1050059	Mosaic Phosphates Co. (New Wales)																		
	Sulfuric Acid Plant No. 1	2	WALES2	396,700	3,079,400	1,482.337	-1,230.415	200	61.0	8.50	2.59	170	350	50.0	15.24	63.50	14.5	NO	No
	Sulfuric Acid Plant No. 2	3	WALES3	396,700	3,079,400	1,482.337	-1,230.415	200	61.0	8.50	2.59	170	350	50.0	15.24	63.50	14.5	NO	No
	Sulfuric Acid Plant No. 3	4	WALES4	396,700	3,079,400	1,482.337	-1,230.415	200	61.0	8.50	2.59	170	350	50.0	15.24	63.50	14.5	NO	No
	Dap Plant No. 1 W/3 Teller Venturi Scrubbers.	9	WALES9	396,700	3,079,400	1,482.337	-1,230.415	133	40.5	7.00	2.13	105	314	49.0	14.9352	51.20	11.7	NO	No
	AFI Plant	27	WALES27	396,700	3,079,400	1,482.337	-1,230.415	172	52.4	8.00	2.44	130	328	66.3	20.2082	216.80	49.5	NO	No
	Multifos A and B Kilns, Dryer and Blending Operation	36	WALES36	396,700	3,079,400	1,482.337	-1,230.415	172	52.4	4.50	1.37	105	314	52.0	15.8496	20.10	4.6	NO	No
	Sulfuric Acid Plant No. 4	42	WALES41	396,700	3,079,400	1,482.337	-1,230.415	199	60.7	8.50	2.59	170	350	50.0	15.24	63.50	14.5	NO	No

TABLE D-6

SUMMARY OF NO_X SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility ID	Facility Name / Emission Unit Description	EU ID	CALPUFF ID Name	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Stack Parameters: Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	NOx Emission Rate TPY	NOx Emission Rate (lb/hr)	PSD Source? * (EXP/CON)	Modeled PSD Source?
	Sulfuric Acid Plant No. 5	44	WALES43	396,700	3,079,400	1,482.337	-1,230.415	199	60.7	8.50	2.59	170	350	50.0	15.24	63.50	14.5	NO	No
	DAP Plant No 2 - East Train	45	WALES45	396,700	3,079,400	1,482.337	-1,230.415	171	52.1	6.00	1.83	110	316	58.0	17.6784	55.20	12.6	NO	No
	DAP Plant No 2 - West Train	46	WALES46	396,700	3,079,400	1,482.337	-1,230.415	171	52.1	6.00	1.83	110	316	58.0	17.6784	55.20	12.6	NO	No
	Multifos "C" Kiln	74	WALES74	396,700	3,079,400	1,482.337	-1,230.415	172	52.4	4.50	1.37	105	314	70.2	21.397	25.60	5.8	CON	Yes
	Grannular MAP Plant	78	WALES70	396,700	3,079,400	1,482.337	-1,230.415	133	40.5	6.00	1.83	145	336	109.6	33.4061	39.80	9.1	CON	Yes
1050046	Mosaic - Bartow Facility																		
	No. 3 Fertilizer Plant	1	MOSBAR1	409,800	3,086,600	1494.126	-1220.919	153	46.6	7.5	2.29	160	344	79.4	24.2	24.0	5.5	CON	Yes
	No. 4 Sulfuric Acid Plant	12	MOSBAR12	409,800	3,086,600	1494.126	-1220.919	200	61.0	6.8	2.07	180	355	61.0	18.6	57.0	13.0	CON	Yes
	No. 6 Sulfuric Acid Plant	32	MOSBAR32	409,800	3,086,600	1494.126	-1220.919	200	61.0	6.8	2.07	180	355	61.0	18.6	57.0	13.0	CON	Yes
	No. 5 Sulfuric Acid Plant	33	MOSBAR33	409,800	3,086,600	1494.126	-1220.919	200	61.0	6.8	2.07	180	355	61.0	18.6	57.0	13.0	CON	Yes
	No. 4 Fertilizer Plant	21	MOSBAR21	409,800	3,086,600	1494.126	-1220.919	140	42.7	10.9	3.33	144	335	45.6	13.9	20.3	4.6	CON	Yes
1050034	Mosaic Phosphates (CFMO)																		
	Boiler @ Four Corners Mine	8	CFMO8	398,200	3,075,700	1,484.479	-1,233.860	26	7.9	1.0	0.3	400	478	23.5	7.2	2.41	0.6	CON	Yes
	Dryer No. 1 @ Noralyn Mine (011)	11	CFMO11	398,200	3,075,700	1,484.479	-1,233.860	76	23.16	6.5	2.0	250	394	56.8	17.3	128.1	29.2	NO	No
	Dryer No. 2 East @ Noralyn Mine (012)	12	CFMO12	398,200	3,075,700	1,484.479	-1,233.860	55	16.76	9.3	2.8	155	341	29.0	8.8	113.5	25.9	NO	No
1050053	Mosaic - Green Bay Facility																		
	No. 4 Sulfuric Acid Plant	4	MOSGB4	409,500	3,080,100	1494.963	-1227.482	100	30.5	7.5	2.29	180	355	39.6	12.1	46.0	10.5	NO	No
	No. 5 Sulfuric Acid Plant	5	MOSGB5	409,500	3,080,100	1494.963	-1227.482	150	45.7	8.0	2.44	180	355	44.1	13.4	61.3	14.0	CON	Yes
	No. 6 Sulfuric Acid Plant	38	MOSGB38	409,500	3,080,100	1494.963	-1227.482	150	45.7	9.0	2.74	180	355	34.8	10.6	60.0	13.7	CON	Yes
	South DAP Plant--Stack B (Dryer)	7	MOSGB7B	409,500	3,080,100	1494.963	-1227.482	129.5	39.5	7.5	2.29	107.6	315	52.6	16.0	55.2	12.6	NO	No
	North AP Plant-Main Stack	29	MOSGB29M	409,500	3,080,100	1494.963	-1227.482	129.5	39.5	7.5	2.29	104.5	313	68.2	20.8	32.4	7.4	NO	No
0970014	Progress Energy Florida - Intercession City Plant																		
	Combined CTs 1-6	1-6	ICP16	446,300	3,126,000	1,523.522	-1,175.112	45	13.72	14.6	4.46	760	678	174.9	53.3	12984.0	2964.4	NO	No
	Combined CTs 7-10	7-10	ICP710	446,300	3,126,000	1,523.522	-1,175.112	50	15.24	13.8	4.19	1043	835	174.1	53.1	1234.0	281.7	CON	Yes
	CT # 11	11	ICP11	446,300	3,126,000	1,523.522	-1,175.112	75	22.86	19.0	5.79	1034	830	139.4	42.5	566.1	129.3	CON	Yes
	Simple Cycle CTs P-12, P13 & P-14	18-20	ICP1820	446,300	3,126,000	1,523.522	-1,175.112	56	17.07	16.1	4.91	993	807	117.6	35.8	371.8	84.9	CON	Yes
0010006	GRU Deerhaven Generating Station																		
	Fossil Fuel Fired Steam Generator #1(Phase II AR Unit)	3	GRUDGS3	365,700	3,292,600	1,414.383	-1,022.938	300	91.4	11.0	3.4	261	400	47.0	14.3	1317.5	300.8	NO	No
	Fossil Fuel Fired Steam Generator #2 (Phase I & II AR Unit)	5	GRUDGS5	365,700	3,292,600	1,414.383	-1,022.938	350	106.7	18.5	5.6	275	408	50.0	15.2	5317.0	1213.9	NO	No
	Simple Cycle Comb Turbine No. 3 (Phase II Acid Rain Unit)	6	GRUDGS6	365,700	3,292,600	1,414.383	-1,022.938	52	15.8	14.1	4.3	1100	866	168.0	51.2	239.0	54.6	CON	Yes
1050217	Polk Power Partners, L.P. Mulberry - Mulberry Cogen Facility																		
	Combustion Turbine with HRSG(Phase II, Acid Rain Unit)	1	MCF1	413,600	3,080,600	1,498.961	-1,226.266	125	38.1	15.0	4.6	220	378	64.1	19.5	271.00	61.9	CON	Yes
	Secondary Boiler	2	MCF2	413,600	3,080,600	1,498.961	-1,226.266	125	38.1	3.0	4.6	220	378	66.5	19.5	82.00	18.7	CON	Yes
0810010	Florida Power & Light - Manatee																		
	Generator Unit 1	1	FPLMAN1	367,250	3,054,150	1,457.397	-1,260.832	499	152.1	26.2	8.0	325	436	68.7	20.9	11366	2595.0	NO	No
	Generator Unit 2	2	FPLMAN2	367,250	3,054,150	1,457.397	-1,260.832	499	152.1	26.2	8.0	325	436	68.7	20.9	11366	2595.0	NO	No
	Gas Turbine (nominal 170 MW) with HRSG- Unit No.3A	5	FPLMAN5	367,250	3,054,150	1,457.397	-1,260.832	120	36.6	19.0	5.8	202	368	59.0	18.0	103.4	23.6	CON	Yes
	Gas Turbine (nominal 170 MW) with HRSG- Unit No.3B	6	FPLMAN6	367,250	3,054,150	1,457.397	-1,260.832	120	36.6	19.0	5.8	202	368	59.0	18.0	103.4	23.6	CON	Yes
	Gas Turbine (nominal 170 MW) with HRSG- Unit No.3C	7	FPLMAN7	367,250	3,054,150	1,457.397	-1,260.832	120	36.6	19.0	5.8	202	368	59.0	18.0	103.4	23.6	CON	Yes
	Gas Turbine (nominal 170 MW) with HRSG- Unit No.3D	8	FPLMAN8	367,250	3,054,150	1,457.397	-1,260.832	120	36.6	19.0	5.8	202	368	59.0	18.0	103.4	23.6	CON	Yes
1050233	TECO, Polk Power Station																		
	260 MW Combined cycle CT (Phase II Acid Rain Unit)	1	TECOPK1	402,450	3,067,350	1490.176	-1241.483	150	45.7	19.0	5.79	340	444	75.8	23.1	1032.9	235.8	CON	Yes
	120 MMBtu/HR Auxiliary Boiler	3	TECOPK3	402,450	3,067,350	1490.176	-1241.483	75	22.9	3.7	1.13	375	464	50.0	15.2	12.0	2.7	CON	Yes
	165MW Simple Cycle Combustion Turbine	9	TECOPK9	402,450	3,067,350	1490.176	-1241.483	114	34.7	29.0	8.84	1117	876	60.2	18.3	355.9	81.3	CON	Yes
	165MW Simple Cycle Combustion Turbine	10	TECOPK10	402,450	3,067,350	1490.176	-1241.483	114	34.7	29.0	8.84	1117	876	60.2	18.3	355.9	81.3	CON	Yes
	Unit 4 - 165MW Simple Cycle Combustion Turbine	11	TECOPK11	402,450	3,067,350	1490.176	-1241.483	114	34.7	29.0	8.84	1117	876	60.2	18.3	266.7	60.9	CON	Yes
	Unit 5 - 165MW Simple Cycle Combustion Turbine	12	TECOPK12	402,450	3,067,350	1490.176	-1241.483	114	34.7	29.0	8.84	1117	876	60.2	18.3	266.7	60.9	CON	Yes
1050234	Progress Energy Florida - Hines																		
	250 MW Combined Cycle Combustion Turbine 1	1	HINES1	414,340	3,073,910	1500.873	-1232.836	300	91.4	9.0	2.74	312	429	119.2	36.3	319.5	72.9	CON	Yes
	250 MW Combined Cycle Combustion Turbine 2	2	HINES2	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	270	405	69.4	21.2	319.5	72.9	CON	Yes
	POWER BLOCK 2, CT 2A	14	HINES14	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	144.4	33.0	CON	Yes
	POWER BLOCK 2, CT 2B	15	HINES15	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	144.4	33.0	CON	Yes

TABLE D-6

SUMMARY OF NO_X SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility ID	Facility Name / Emission Unit Description	EU ID	CALPUFF ID Name	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Stack Parameters: Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	NOx Emission Rate TPY	NOx Emission Rate (lb/hr)	PSD Source? ᵃ (EXP/CON)	Modeled PSD Source?
	POWER BLOCK 3, CT 3A	16	HINES16	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	108.0	24.7	CON	Yes
	POWER BLOCK 3, CT 3B	17	HINES17	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	108.0	24.7	CON	Yes
	POWER BLOCK 4, CT 4A		HINES4A	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	102.5	23.4	CON	Yes
	POWER BLOCK 4, CT 4B		HINES4B	414,340	3,073,910	1500.873	-1232.836	125	38.1	19.0	5.79	190	361	59.3	18.1	102.5	23.4	CON	Yes
1270028	FPC - Debary Facility																		
	Combustion Turbine Peaking Unit # 1	3	FPCDF3	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	988.1	225.6	No	No
	Combustion Turbine Peaking Unit # 2	5	FPCDF5	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	988.1	225.6	No	No
	Combustion Turbine Peaking Unit # 3	7	FPCDF7	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	988.1	225.6	No	No
	Combustion Turbine Peaking Unit # 4	9	FPCDF9	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	988.1	225.6	No	No
	Combustion Turbine Peaking Unit # 5	11	FPCDF11	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	988.1	225.6	No	No
	Combustion Turbine Peaking Unit # 6	13	FPCDF13	467,500	3,197,200	1,532.022	-1,100.273	45	13.7	17.7	5.4	1050	839	173.7	52.9	988.1	225.6	No	No
	Combustion Turbine # 7 (Phase II Acid Rain Unit)	15	FPCDF15	467,500	3,197,200	1,532.022	-1,100.273	50	15.2	13.8	4.2	1043	835	174.1	53.1	308.5	70.4	CON	Yes
	Combustion Turbine # 8 (Phase II Acid Rain Unit)	16	FPCDF16	467,500	3,197,200	1,532.022	-1,100.273	50	15.2	13.8	4.2	1043	835	174.1	53.1	308.5	70.4	CON	Yes
	Combustion Turbine # 9 (Phase II Acid Rain Unit)	17	FPCDF17	467,500	3,197,200	1,532.022	-1,100.273	50	15.2	13.8	4.2	1043	835	174.1	53.1	308.5	70.4	CON	Yes
	Combustion Turbine # 10 (Phase II Acid Rain Unit)	18	FPCDF18	467,500	3,197,200	1,532.022	-1,100.273	50	15.2	13.8	4.2	1043	835	174.1	53.1	308.5	70.4	CON	Yes
1270020	Fpc-Turner Plant																		
	Combustion Turbine Peaking Unit No.3	9	FPCTUR9	473,400	3,193,300	1,538.567	-1,103.127	41	12.5	12.3	3.75	960	789	133.8	40.8	-214.8	-49.0	EXP	Yes
	Combustion Turbine Peaking Unit No.4	10	FPCTUR10	473,400	3,193,300	1,538.567	-1,103.127	41	12.5	12.3	3.75	960	789	133.8	40.8	-214.8	-49.0	EXP	Yes
	Combustion Turbine Peaking Unit No.1	11	FPCTUR11	473,400	3,193,300	1,538.567	-1,103.127	41	12.5	6.0	1.83	960	789	509.3	155.2	-698.3	-159.4	EXP	Yes
	Combustion Turbine Peaking Unit No.2	12	FPCTUR12	473,400	3,193,300	1,538.567	-1,103.127	41	12.5	6.0	1.83	960	789	509.0	155.1	-698.3	-159.4	EXP	Yes
1070005	GP Pulp/Paper Mill, Palatka																		
	No 4 Recovery Boiler	18	RB4	434,000	3,283,400	1,483.634	-1,020.228	230	70.1	12.0	3.7		491	65.9	20.1	738.0	168.5	CON	Yes
	No. 4 Smelt Dissolving Tanks	19	SDT4	434,000	3,283,400	1,483.634	-1,020.228	206	62.8	5.0	1.5		355	34.0	10.4	69.5	15.9	CON	Yes
	No. 5 Power Boiler	15	PB5	434,000	3,283,400	1,483.634	-1,020.228	237	72.2	8.0	2.4		485	85.9	26.2	781.1	178.3	CON	Yes
	No. 4 Combination Boiler	16	CB4	434,000	3,283,400	1,483.634	-1,020.228	237	72.2	8.0	2.4		514	92.3	28.1	496.4	113.3	CON	Yes
	No. 7 Power Boiler	44	PB7	434,000	3,283,400	1,483.634	-1,020.228	60	18.3	7.0	2.1		672	43.5	13.3	39.3	9.0	CON	Yes
	No 4 Lime Kiln	17	LK4	434,000	3,283,400	1,483.634	-1,020.228	131	39.9	4.4	1.4		347	70.6	21.5	297.6	67.9	CON	Yes
	TM5-[15] Existing Wet & Dry Yankee Hood (YKD)-burner	43	TM5_15	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.0	1.52		505.4	64.5	19.66	23.6	5.4	CON	Yes
	TM4		TM4	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.0	1.52		505.4	64.5	19.66	47.3	10.8	CON	Yes
	TM3		TM3	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.0	1.52		505.4	64.5	19.66	47.3	10.8	.CON	Yes
	New Themal Oxidizer		TOX	434,000	3,283,400	1,483.634	-1,020.228	250	76.2	3.6	1.1		344	18.0	5.5	151.6	34.6	CON	Yes
	# 4 Recovery Boiler		RB4B	434,000	3,283,400	1,483.634	-1,020.228	230	70.1	12.0	3.7		474	55.3	16.9	-514.5	-117.5	EXP	Yes
	# 4 Smelt Dissolving Tanks		SDT4B	434,000	3,283,400	1,483.634	-1,020.228	206	62.8	5.0	1.5		346	27.1	8.3	-11.8	-2.7	EXP	Yes
	# 4 Lime Kiln		LK4B	434,000	3,283,400	1,483.634	-1,020.228	149	45.4	4.3	1.3		351	54.0	16.5	-207.9	-47.5	EXP	Yes
	# 4 Power Boiler		PB4B	434,000	3,283,400	1,483.634	-1,020.228	122	37.2	4.0	1.2		477	47.7	14.5	-95.2	-21.7	EXP	Yes
	# 5 Power Boiler		PB5B	434,000	3,283,400	1,483.634	-1,020.228	232	70.7	9.0	2.7		520	52.4	16.0	-473.5	-108.1	EXP	Yes
	# 4 Combination Boiler		CB4B	434,000	3,283,400	1,483.634	-1,020.228	237	72.2	10.0	3.1		477	34.5	10.5	-247.2	-56.4	EXP	Yes
	# 5 Tissue Machine Combined Source		TM5B	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.0	1.52		505.4	64.5	19.66	-33.0	-7.5	EXP	Yes
	# 4 Tissue Machine Combined Source		TM4B	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.0	1.52		505.4	64.5	19.66	-47.3	-10.8	EXP	Yes
	# 3 Tissue Machine Combined Source		TM3B	434,000	3,283,400	1,483.634	-1,020.228	94	28.7	5.0	1.52		505.4	64.5	19.66	-47.3	-10.8	EXP	Yes
0950137	Stanton Energy Center																		
	Fossil Fuel Steam Generation Unit #1	1	STAN1	483,500	3,150,600	1,556.158	-1,143.982	550	167.6	19.0	5.79	127	326	83.0	25.3	8635.0	1971.5	CON	Yes
	Pulverized Coal Fired Unit No. 2 (460 Mw Gross)	2	STAN2	483,500	3,150,600	1,556.158	-1,143.982	550	167.6	19.0	5.79	124	324	77.0	23.5	3191.0	728.5	CON	Yes
1070025	SECI Seminole Generating Station																		
	Steam Electric Generator Unit No. 1	1	SECSEM1	438,850	3,289,300	1,487.402	-1,013.508	675	205.7	36.0	11.0	128	326	26.2	8.0	15706.7	3586.0	CON	Yes
	Steam Electric Generator Unit No. 2	2	SECSEM2	438,850	3,289,300	1,487.402	-1,013.508	675	205.7	36.0	11.0	128	326	26.2	8.0	15706.7	3586.0	CON	Yes
	Unit No. 3	3	SECSEM3	438,850	3,289,300	1,487.402	-1,013.508	675	205.7	26.0	7.92	126	325	61.8	18.8	2318.0	529.2	CON	Yes
0490043	VANDOLAH POWER COMPANY, LLC																		
	A 170 MW Gas Simple Cycle Combustion Turbine	1	VANDP1	408,750	3,044,500	1,500.462	-1,263.282	60	18.29	22.0	6.71	1113	874	116.0	35.36	252.10	57.6	CON	Yes
	A 170 MW Gas Simple Cycle Combustion Turbine	2	VANDP2	408,750	3,044,500	1,500.462	-1,263.282	60	18.29	22.0	6.71	1113	874	116.0	35.36	252.10	57.6	CON	Yes
	A 170 MW Gas Simple Cycle Combustion Turbine	3	VANDP3	408,750	3,044,500	1,500.462	-1,263.282	60	18.29	22.0	6.71	1113	874	116.0	35.36	252.10	57.6	CON	Yes
	A 170 MW Gas Simple Cycle Combustion Turbine	4	VANDP4	408,750	3,044,500	1,500.462	-1,263.282	60	18.29	22.0	6.71	1113	874	116.0	35.36	252.10	57.6	CON	Yes
0810007	Tropicana Products, Inc.																		
	Citrus Peel Dryer #1	1	TROPIC1	346,800	3,040,900	1,439.307	-1,277.658	95	28.96	3.2	0.98	100	311	35.2	10.73	37.20	8.5	CON	Yes
	Citrus Peel Dryer #2	2	TROPIC2	346,800	3,040,900	1,439.307	-1,277.658	95	28.96	3.0	0.91	140	333	70.0	21.34	37.20	8.5	CON	Yes

TABLE D-6

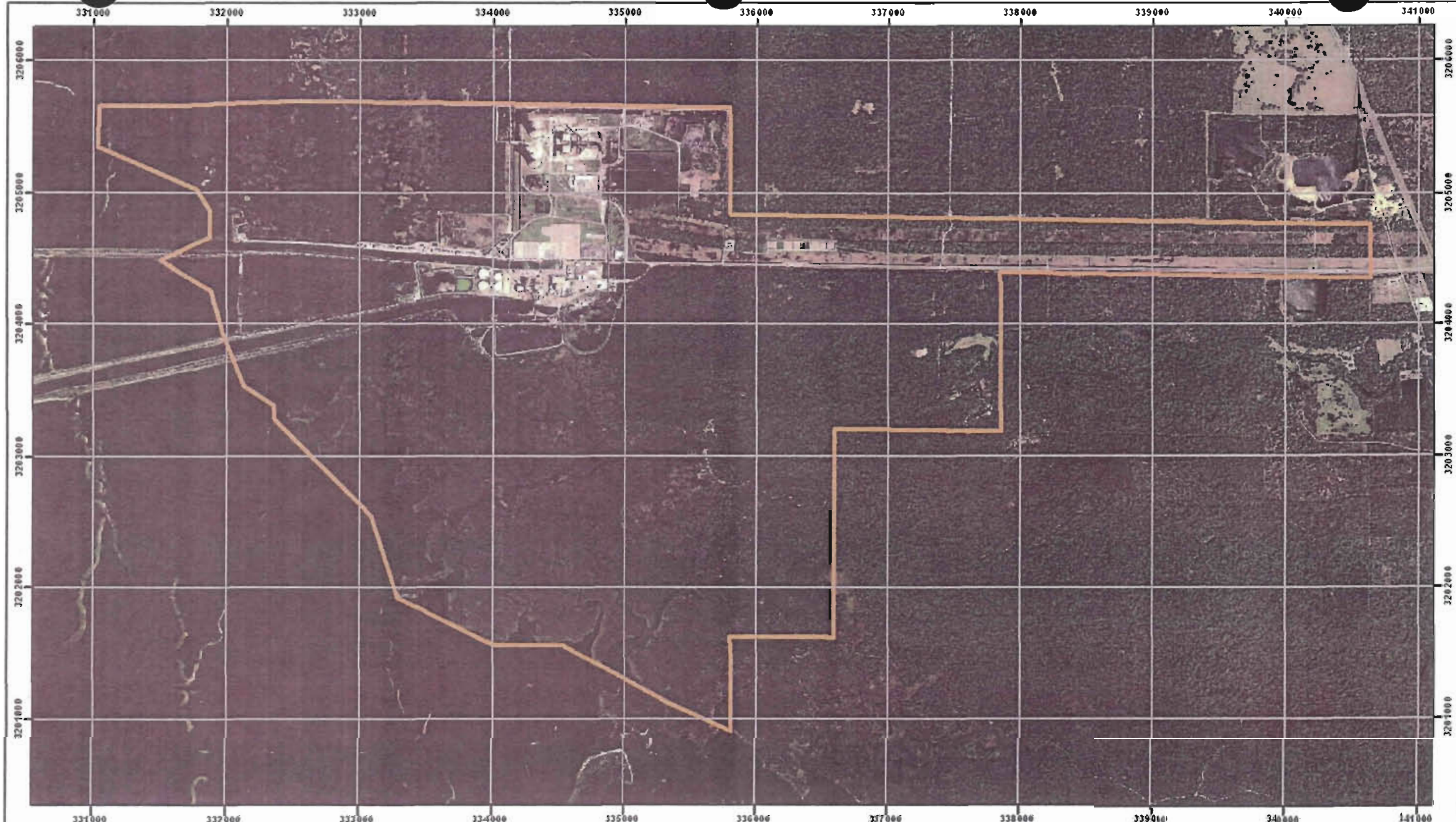
SUMMARY OF NO_X SOURCES INCLUDED IN THE CHASSAHOWITZKA NWA CLASS I AREA PSD INCREMENT CONSUMPTION AIR MODELING ANALYSES, PE CRYSTAL RIVER POWER PLANT PROJECT

Facility ID	Facility Name / Emission Unit Description	EU ID	CALPUFF ID Name	UTM Location X (m)	UTM Location Y (m)	LCC Location X (km)	LCC Location Y (km)	Stack Parameters: Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	NOx Emission Rate TPY	NOx Emission Rate (lb/hr)	PSD Source? * (EXP/CON)	Modeled PSD Source?
	Citrus Peel Dryer #3	3	TROPIC3	346,800	3,040,900	1,439.307	-1,277.658	95	28.96	3.2	0.98	140	333	62.0	18.90	37.20	8.5	CON	Yes
	Glass Plant #2 Fired With Natural Gas Or Bio-Gas.	12	TROPIC12	346,800	3,040,900	1,439.307	-1,277.658	71	21.64	6.2	1.89	425	491	43.3	13.20	423.60	96.7	CON	Yes
	Glass Plant Furnace #3, Burns Natural Gas Or Bio-Gas.	14	TROPIC14	346,800	3,040,900	1,439.307	-1,277.658	103	31.39	6.2	1.89	510	539	57.1	17.40	391.00	89.3	NO	No
	157.4 Mmbtu/Hr Auxiliary Boiler For Cogen Plant	15	TROPIC15	346,800	3,040,900	1,439.307	-1,277.658	75	22.86	5.0	1.52	540	555	48.6	14.81	80.20	18.3	CON	Yes
	Gas Turbine W/Heat Recovery - For Cogeneration Plant	16	TROPIC16	346,800	3,040,900	1,439.307	-1,277.658	67	20.42	12.0	3.66	268	404	54.0	16.46	314.50	71.8	CON	Yes
	400 HP Boiler - 17.0 MMBTU/Hr., NSPS Dc, Natural Gas	23	TROPIC23	346,800	3,040,900	1,439.307	-1,277.658	30	9.14	2.0	0.61	300	422	20.2	6.16	11.00	2.5	CON	Yes

* EXP = PSD expanding source.
CON = PSD consuming source.
NO = Baseline Source, does not affect PSD increment.
ND = No data available.

APPENDIX E

RECEPTOR LOCATION FIGURES AND BPIP FILES



LEGEND

Boundary

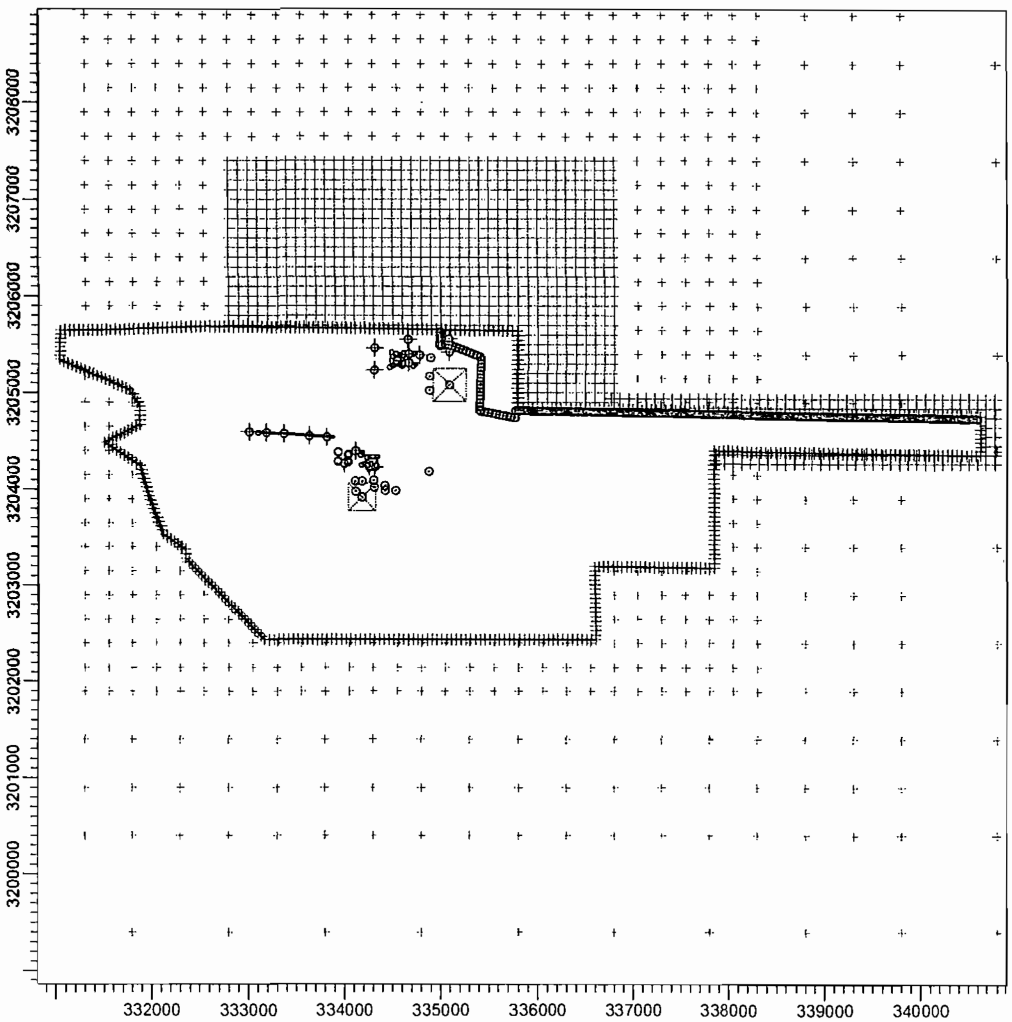
REFERENCE

Projection: Transverse Mercator Datum: NAD 27 Coordinate System: UTM Zone 17

PROJECT				
PROGRESS ENERGY				
TITLE				
AERIAL OF SITE LOCATION AND BOUNDARY OF THE CRYSTAL RIVER POWER PLANT				
Golder Associates Gainesville, Florida	PROJECT No. 053-8555		SCALE AS SHOWN	REV. 0
	DESIGN	AB	23 Aug. 2006	FIGURE E-1
	GIS	AB	23 Aug. 2006	
	CHECK	BM	23 Aug. 2006	
	REVIEW	SO	23 Aug. 2006	

PROJECT TITLE:

Progress Energy- Crystal River Power Plant
Plant Area



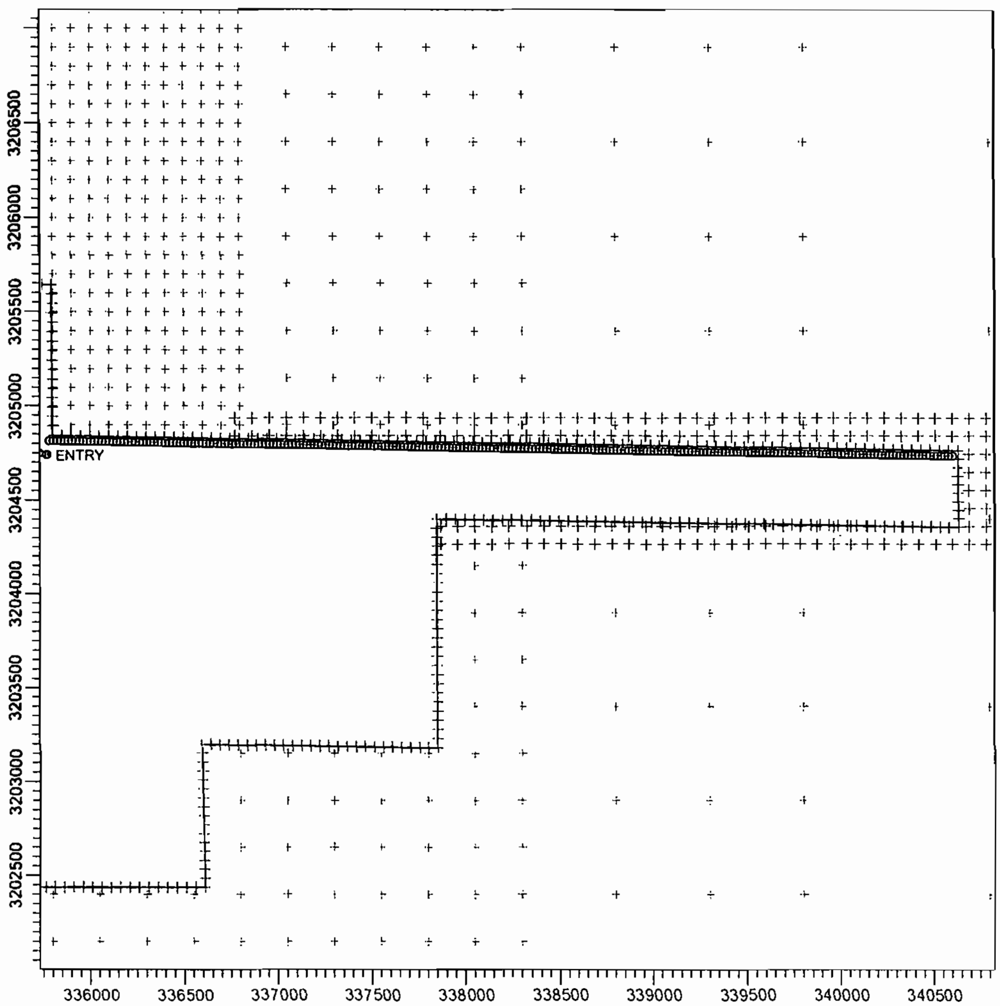
COMMENTS:	SOURCES:	COMPANY NAME:	
Golder Associates	42		
	RECEPTORS: 2470	MODELER:	
		SCALE: 1:61,656 (0 — 2 km)	
		DATE: 8/23/2006	PROJECT NO.: 053-9555

ISC-AERMOD View - Lakes Environmental Software

D:\Projects\Progress Energy\Crystal River\Lakes\c2aug06a.isc

PROJECT TITLE:

Progress Energy- Crystal River Power Plant
Emission Sources- Entry Road Area



COMMENTS:	SOURCES:	COMPANY NAME:	
Golder Associates	42		
	RECEPTORS: 2470	MODELER:	
		SCALE: 1:31,114 (0 – 1 km)	
		DATE: 8/23/2006	PROJECT NO.: 053-9555

ISC-AERMOD View - Lakes Environmental Software

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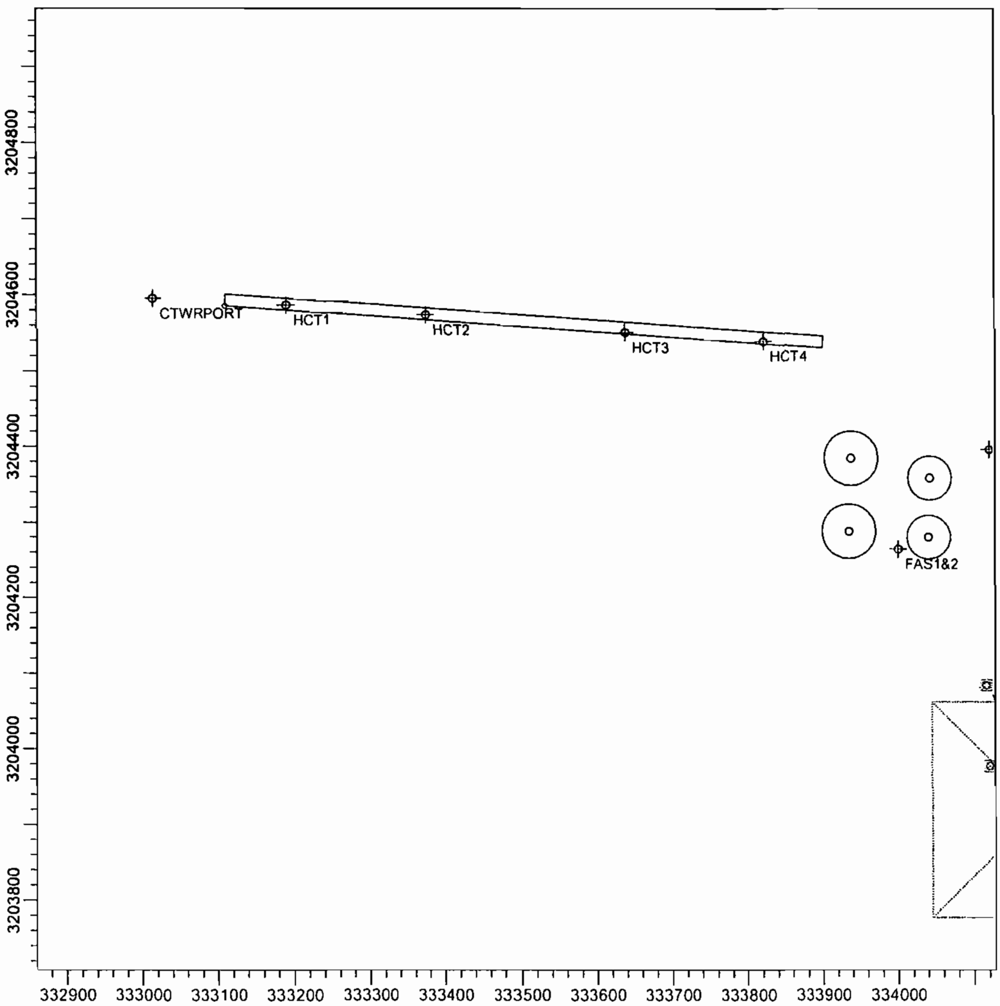
PROJECT TITLE:

Progress Energy- Crystal River Power Plant
Emission Sources- Helper Cooling Tower Area



COMMENTS:	SOURCES:	COMPANY NAME:	
Golder Associates	42		
	RECEPTORS: 2470	MODELER:	
		SCALE: 1:7,734 (0 — 0.2 km)	
		DATE: 8/23/2006	PROJECT NO.: **053-9555**

ISC-AERMOD View - Lakes Environmental Software

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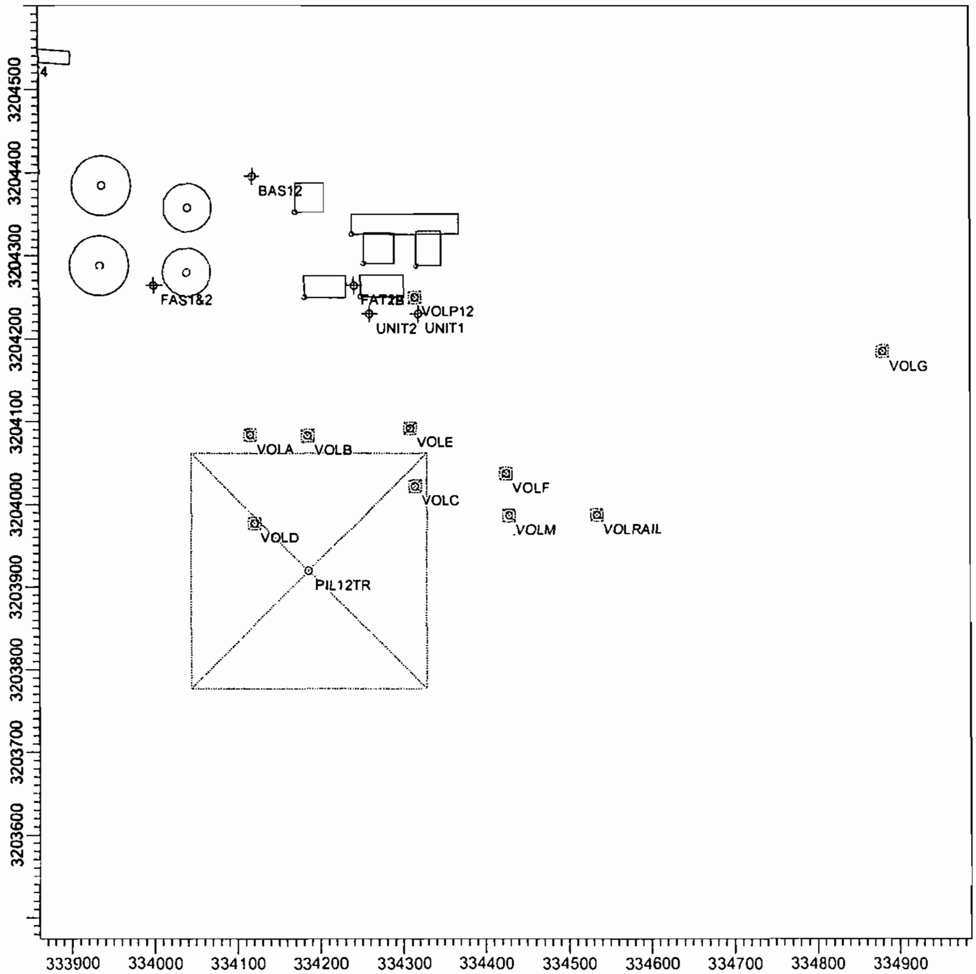
PROJECT TITLE:

Progress Energy- Crystal River Power Plant
Emission Sources- Units 1 and 2 Area



COMMENTS: Golder Associates

SOURCES: 42

COMPANY NAME:

RECEPTORS: 2470

MODELER:

SCALE: 1:6,870

0 — 0.2 km

DATE: 8/23/2006

PROJECT NO.: 053-9555

ISC-AERMOD View - Lakes Environmental Software

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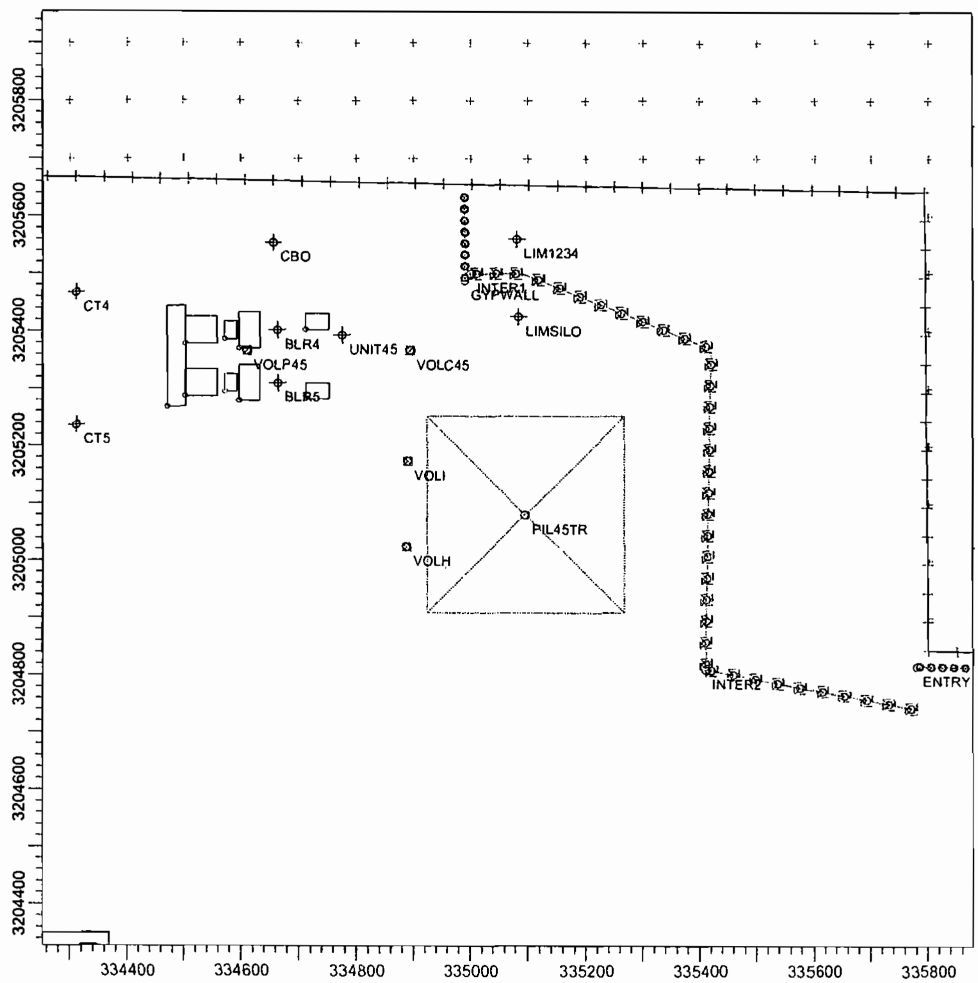
PROJECT TITLE:

Progress Energy- Crystal River Power Plant
Emission Sources- Units 4 and 5 Area



COMMENTS:	SOURCES:	COMPANY NAME:	
Golder Associates	42		
	RECEPTORS: 2470	MODELER:	
		SCALE: 1:9,924 (0 — 0.3 km)	
		DATE: 8/23/2006	PROJECT NO.: 053-9555

ISC-AERMOD View - Lakes Environmental Software

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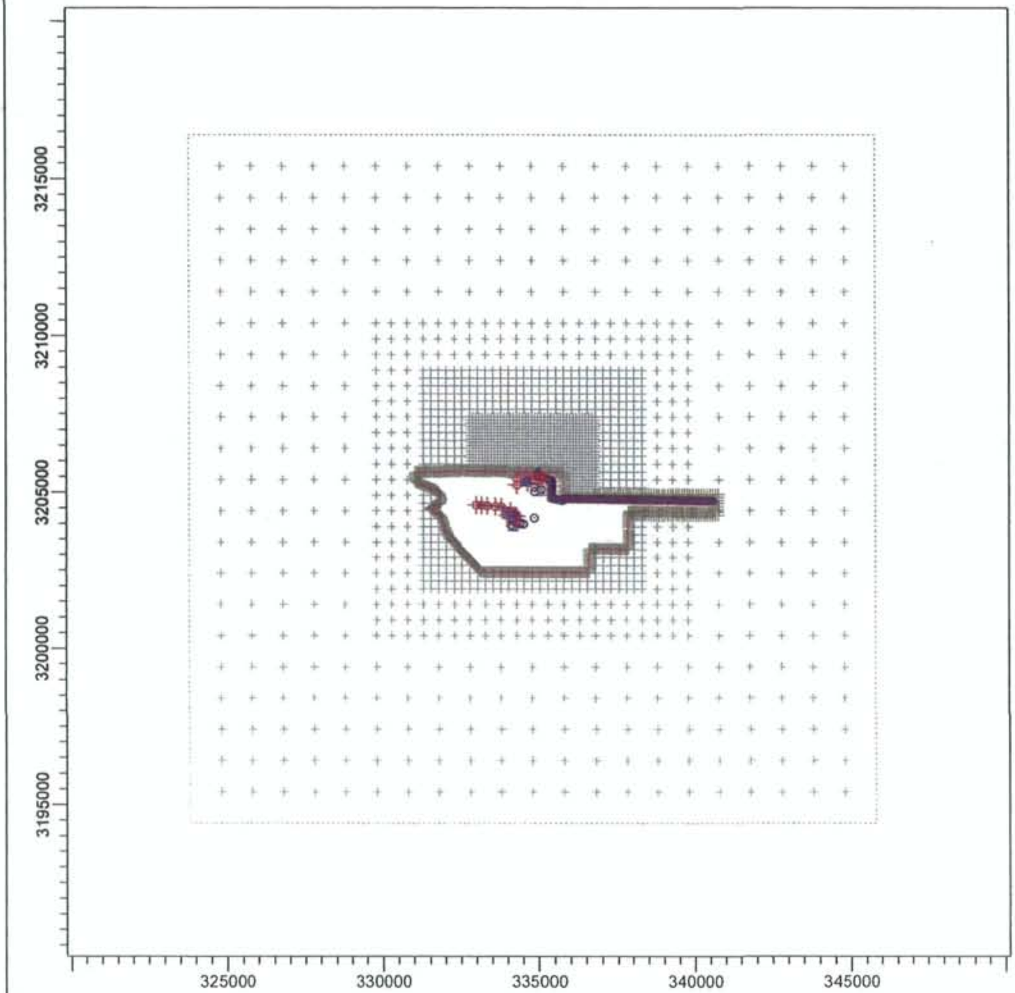
PROJECT TITLE:

Progress Energy- Crystal River Power Plant
General Receptor Grid



COMMENTS:	SOURCES:	COMPANY NAME:	
Golder Associates	42		
	RECEPTORS: 2470	MODELER:	
		SCALE: 1:184,778 (0 — 5 km)	
		DATE: 8/23/2006	PROJECT NO.: 053-9555

ISC-AERMOD View - Lakes Environmental Software

D:\Projects\Progress Energy\Crystal River\Lakes\c2aug06a.isc

D:\Projects\progress\Crystal River\Lakes\CRYSITE

BPIP (Dated: 04274)
TE : 8/15/2006
ME : 12:27:41
D:\Projects\progress\Crystal River\Lakes\CRYSITE

============================
BPIP PROCESSING INFORMATION:
============================

The P flag has been set for preparing downwash related data for a model run utilizing the PRIME algorithm.

Inputs entered in METERS will be converted to meters using a conversion factor of 1.0000. Output will be in meters.

The UTMP variable is set to UTMY. The input is assumed to be in UTM coordinates. BPIP will move the UTM origin to the first pair of UTM coordinates read. The UTM coordinates of the new origin will be subtracted from all the other UTM coordinates entered to form this new local coordinate system.

The new local coordinates will be displayed in parentheses just below the UTM coordinates they represent.

Plant north is set to 0.00 degrees with respect to True North.

==============
INPUT SUMMARY:
==============

Number of buildings to be processed : 20

```
4BOILER has 1 tier(s) with a base elevation of    1.02 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF    CORNER  COORDINATES
 NAME   NUMBER  NUMBER  HEIGHT  CORNERS      X          Y

U4BOILER   1       1    84.40     4
                                   334503.29  3205378.78 meters
                                 (      0.00        0.00) meters
                                   334503.29  3205425.25 meters
                                 (      0.00       46.47) meters
                                   334559.77  3205425.25 meters
                                 (     56.48       46.47) meters
                                   334559.77  3205378.78 meters
                                 (     56.48        0.00) meters

U5BOILER has 1 tier(s) with a base elevation of    1.00 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF    CORNER  COORDINATES
 NAME   NUMBER  NUMBER  HEIGHT  CORNERS      X          Y

U5BOILER   1       2    84.40     4
                                   334503.29  3205287.40 meters
                                 (      0.00      -91.38) meters
                                   334503.29  3205333.87 meters
                                 (      0.00      -44.91) meters
                                   334559.77  3205333.87 meters
                                 (     56.48      -44.91) meters
                                   334559.77  3205287.40 meters
                                 (     56.48      -91.38) meters

TUBINE   has 1 tier(s) with a base elevation of    1.00 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF    CORNER  COORDINATES
 NAME   NUMBER  NUMBER  HEIGHT  CORNERS      X          Y

BINE       1       3    29.50     4
                                   334471.95  3205268.86 meters
                                 (    -31.34     -109.92) meters
                                   334471.95  3205443.70 meters
                                 (    -31.34       64.92) meters
```

```
                      334503.94 3205443.70 meters
                    (      0.65      64.92) meters
                      334503.94 3205268.86 meters
                    (      0.65    -109.92) meters


U4PRECIP has 1 tier(s) with a base elevation of    1.85 METERS
BUILDING  TIER  BLDG-TIER  TIER  NO. OF    CORNER  COORDINATES
 NAME   NUMBER   NUMBER  HEIGHT  CORNERS      X          Y

U4PRECIP    1       4    27.80     4
                      334598.03 3205370.81 meters
                    (     94.74      -7.97) meters
                      334598.03 3205432.99 meters
                    (     94.74      54.21) meters
                      334633.99 3205432.99 meters
                    (    130.70      54.21) meters
                      334633.99 3205370.81 meters
                    (    130.70      -7.97) meters


U5PRECIP has 1 tier(s) with a base elevation of    1.00 METERS
BUILDING  TIER  BLDG-TIER  TIER  NO. OF    CORNER  COORDINATES
 NAME   NUMBER   NUMBER  HEIGHT  CORNERS      X          Y

U5PRECIP    1       5    27.80     4
                      334598.00 3205279.16 meters
                    (     94.71     -99.62) meters
                      334598.00 3205341.33 meters
                    (     94.71     -37.45) meters
                      334633.96 3205341.33 meters
                    (    130.67     -37.45) meters
                      334633.96 3205279.16 meters
                    (    130.67     -99.62) meters


SCR4     has 1 tier(s) with a base elevation of    1.89 METERS
BUILDING  TIER  BLDG-TIER  TIER  NO. OF    CORNER  COORDINATES
 NAME   NUMBER   NUMBER  HEIGHT  CORNERS      X          Y

SCR4        1       6    65.30     4
                      334572.62 3205386.56 meters
                    (     69.33       7.78) meters
                      334572.62 3205416.94 meters
                    (     69.33      38.17) meters
                      334594.33 3205416.94 meters
                    (     91.04      38.17) meters
                      334594.33 3205386.56 meters
                    (     91.04       7.78) meters


BLR5SCR  has 1 tier(s) with a base elevation of    1.22 METERS
BUILDING  TIER  BLDG-TIER  TIER  NO. OF    CORNER  COORDINATES
 NAME   NUMBER   NUMBER  HEIGHT  CORNERS      X          Y

BLR5SCR     1       7    65.30     4
                      334572.60 3205295.27 meters
                    (     69.31     -83.51) meters
                      334572.60 3205325.66 meters
                    (     69.31     -53.12) meters
                      334594.31 3205325.66 meters
                    (     91.02     -53.12) meters
                      334594.31 3205295.27 meters
                    (     91.02     -83.51) meters


ABSORB4  has 1 tier(s) with a base elevation of    1.00 METERS
BUILDING  TIER  BLDG-TIER  TIER  NO. OF    CORNER  COORDINATES
 NAME   NUMBER   NUMBER  HEIGHT  CORNERS      X          Y

ABSORB4     1       8    38.00     4
                      334713.10 3205403.39 meters
                    (    209.81      24.61) meters
                      334713.10 3205430.49 meters
                    (    209.81      51.71) meters
                      334753.50 3205430.49 meters
                    (    250.21      51.71) meters
                      334753.50 3205403.39 meters
```

```
                        (    250.21      24.61) meters


ABSORB5  has 1 tier(s) with a base elevation of    1.00 METERS
BUILDING TIER BLDG-TIER TIER  NO. OF    CORNER  COORDINATES
 NAME  NUMBER  NUMBER HEIGHT CORNERS      X        Y

ABSORB5    1      9    38.00    4
                          334713.14  3205282.97 meters
                        (    209.85      -95.81) meters
                          334713.14  3205310.03 meters
                        (    209.85      -68.75) meters
                          334753.56  3205310.03 meters
                        (    250.27      -68.75) meters
                          334753.56  3205282.97 meters
                        (    250.27      -95.81) meters


HCT12    has 1 tier(s) with a base elevation of    1.00 METERS
BUILDING TIER BLDG-TIER TIER  NO. OF    CORNER  COORDINATES
 NAME  NUMBER  NUMBER HEIGHT CORNERS      X        Y

HCT12      1     10    10.00    4
                          333110.36  3204585.63 meters
                        (  -1392.93     -793.15) meters
                          333111.44  3204601.07 meters
                        (  -1391.85     -777.71) meters
                          333900.02  3204545.92 meters
                        (   -603.27     -832.85) meters
                          333898.94  3204530.49 meters
                        (   -604.35     -848.29) meters


UN2 BLDG has 1 tier(s) with a base elevation of    1.00 METERS
BUILDING TIER BLDG-TIER TIER  NO. OF    CORNER  COORDINATES
 NAME  NUMBER  NUMBER HEIGHT CORNERS      X        Y

UN2 BLDG   1     11    63.40    4
                          334254.27  3204291.13 meters
                        (   -249.02    -1087.65) meters
                          334254.27  3204327.73 meters
                        (   -249.02    -1051.05) meters
                          334290.87  3204327.73 meters
                        (   -212.42    -1051.05) meters
                          334290.87  3204291.13 meters
                        (   -212.42    -1087.65) meters


UN1 BLDG has 1 tier(s) with a base elevation of    1.00 METERS
BUILDING TIER BLDG-TIER TIER  NO. OF    CORNER  COORDINATES
 NAME  NUMBER  NUMBER HEIGHT CORNERS      X        Y

UN1 BLDG   1     12    60.40    4
                          334317.30  3204288.33 meters
                        (   -185.99    -1090.45) meters
                          334317.30  3204329.64 meters
                        (   -185.99    -1049.14) meters
                          334347.41  3204329.64 meters
                        (   -155.88    -1049.14) meters
                          334347.41  3204288.33 meters
                        (   -155.88    -1090.45) meters


BLD_13   has 1 tier(s) with a base elevation of    1.00 METERS
BUILDING TIER BLDG-TIER TIER  NO. OF    CORNER  COORDINATES
 NAME  NUMBER  NUMBER HEIGHT CORNERS      X        Y

BLD_13     1     13     3.70    4
                          334172.00  3204353.36 meters
                        (   -331.29    -1025.42) meters
                          334172.00  3204388.02 meters
                        (   -331.29     -990.76) meters
                          334206.66  3204388.02 meters
                        (   -296.63     -990.76) meters
                          334206.66  3204353.36 meters
                        (   -296.63    -1025.42) meters
```

BLDG12 has 1 tier(s) with a base elevation of 1.00 METERS

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER COORDINATES X	Y
BLDG12	1	14	22.90	4		
					334239.75	3204326.58 meters
					(-263.54	-1052.20) meters
					334239.75	3204350.21 meters
					(-263.54	-1028.57) meters
					334368.94	3204350.21 meters
					(-134.35	-1028.57) meters
					334368.94	3204326.58 meters
					(-134.35	-1052.20) meters

TANKNW has 1 tier(s) with a base elevation of 1.00 METERS

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER COORDINATES X	Y
TANKNW	1	15	12.20	32		
					333937.22	3204420.22 meters
					(-566.07	-958.56) meters
					333930.24	3204419.53 meters
					(-573.05	-959.25) meters
					333923.52	3204417.50 meters
					(-579.77	-961.28) meters
					333917.33	3204414.19 meters
					(-585.96	-964.59) meters
					333911.91	3204409.73 meters
					(-591.38	-969.05) meters
					333907.46	3204404.31 meters
					(-595.83	-974.47) meters
					333904.15	3204398.12 meters
					(-599.14	-980.66) meters
					333902.11	3204391.40 meters
					(-601.18	-987.38) meters
					333901.42	3204384.42 meters
					(-601.87	-994.36) meters
					333902.11	3204377.44 meters
					(-601.18	-1001.34) meters
					333904.15	3204370.72 meters
					(-599.14	-1008.06) meters
					333907.46	3204364.53 meters
					(-595.83	-1014.25) meters
					333911.91	3204359.11 meters
					(-591.38	-1019.67) meters
					333917.33	3204354.65 meters
					(-585.96	-1024.13) meters
					333923.52	3204351.35 meters
					(-579.77	-1027.43) meters
					333930.24	3204349.31 meters
					(-573.05	-1029.47) meters
					333937.22	3204348.62 meters
					(-566.07	-1030.16) meters
					333944.21	3204349.31 meters
					(-559.08	-1029.47) meters
					333950.92	3204351.35 meters
					(-552.37	-1027.43) meters
					333957.11	3204354.65 meters
					(-546.18	-1024.13) meters
					333962.54	3204359.11 meters
					(-540.75	-1019.67) meters
					333966.99	3204364.53 meters
					(-536.30	-1014.25) meters
					333970.30	3204370.72 meters
					(-532.99	-1008.06) meters
					333972.34	3204377.44 meters
					(-530.95	-1001.34) meters
					333973.02	3204384.42 meters
					(-530.27	-994.36) meters
					333972.34	3204391.40 meters
					(-530.95	-987.38) meters
					333970.30	3204398.12 meters
					(-532.99	-980.66) meters
					333966.99	3204404.31 meters
					(-536.30	-974.47) meters
					333962.54	3204409.73 meters
					(-540.75	-969.05) meters

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                    333957.11  3204414.19 meters
                  (  -546.18     -964.59) meters
                    333950.92  3204417.50 meters
                  (  -552.37     -961.28) meters
                    333944.21  3204419.53 meters
                  (  -559.08     -959.25) meters

TANKSW   has 1 tier(s) with a base elevation of    1.00 METERS
BUILDING TIER BLDG-TIER TIER  NO. OF    CORNER  COORDINATES
 NAME  NUMBER  NUMBER HEIGHT CORNERS       X          Y

TANKSW     1      16    12.20   32
                    333935.05  3204323.60 meters
                  (  -568.24    -1055.18) meters
                    333928.07  3204322.91 meters
                  (  -575.22    -1055.87) meters
                    333921.35  3204320.88 meters
                  (  -581.94    -1057.90) meters
                    333915.16  3204317.57 meters
                  (  -588.13    -1061.21) meters
                    333909.74  3204313.12 meters
                  (  -593.55    -1065.66) meters
                    333905.29  3204307.69 meters
                  (  -598.00    -1071.09) meters
                    333901.98  3204301.50 meters
                  (  -601.31    -1077.28) meters
                    333899.94  3204294.79 meters
                  (  -603.35    -1083.99) meters
                    333899.25  3204287.80 meters
                  (  -604.04    -1090.98) meters
                    333899.94  3204280.82 meters
                  (  -603.35    -1097.96) meters
                    333901.98  3204274.10 meters
                  (  -601.31    -1104.68) meters
                    333905.29  3204267.91 meters
                  (  -598.00    -1110.87) meters
                    333909.74  3204262.49 meters
                  (  -593.55    -1116.29) meters
                    333915.16  3204258.04 meters
                  (  -588.13    -1120.74) meters
                    333921.35  3204254.73 meters
                  (  -581.94    -1124.05) meters
                    333928.07  3204252.69 meters
                  (  -575.22    -1126.09) meters
                    333935.05  3204252.00 meters
                  (  -568.24    -1126.78) meters
                    333942.04  3204252.69 meters
                  (  -561.25    -1126.09) meters
                    333948.75  3204254.73 meters
                  (  -554.54    -1124.05) meters
                    333954.94  3204258.04 meters
                  (  -548.35    -1120.74) meters
                    333960.37  3204262.49 meters
                  (  -542.92    -1116.29) meters
                    333964.82  3204267.91 meters
                  (  -538.47    -1110.87) meters
                    333968.13  3204274.10 meters
                  (  -535.16    -1104.68) meters
                    333970.16  3204280.82 meters
                  (  -533.13    -1097.96) meters
                    333970.85  3204287.80 meters
                  (  -532.44    -1090.98) meters
                    333970.16  3204294.79 meters
                  (  -533.13    -1083.99) meters
                    333968.13  3204301.50 meters
                  (  -535.16    -1077.28) meters
                    333964.82  3204307.69 meters
                  (  -538.47    -1071.09) meters
                    333960.37  3204313.12 meters
                  (  -542.92    -1065.66) meters
                    333954.94  3204317.57 meters
                  (  -548.35    -1061.21) meters
                    333948.75  3204320.88 meters
                  (  -554.54    -1057.90) meters
                    333942.04  3204322.91 meters
                  (  -561.25    -1055.87) meters
```

TANKNE has 1 tier(s) with a base elevation of 1.00 METERS

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER COORDINATES X	Y
TANKNE	1	17	12.20	32		
					334041.44	3204387.32 meters
					(-461.85	-991.46) meters
					334035.79	3204386.76 meters
					(-467.50	-992.02) meters
					334030.36	3204385.11 meters
					(-472.93	-993.67) meters
					334025.36	3204382.44 meters
					(-477.93	-996.34) meters
					334020.97	3204378.84 meters
					(-482.32	-999.94) meters
					334017.37	3204374.45 meters
					(-485.92	-1004.33) meters
					334014.70	3204369.44 meters
					(-488.60	-1009.34) meters
					334013.05	3204364.01 meters
					(-490.24	-1014.77) meters
					334012.49	3204358.37 meters
					(-490.80	-1020.41) meters
					334013.05	3204352.72 meters
					(-490.24	-1026.06) meters
					334014.70	3204347.29 meters
					(-488.60	-1031.49) meters
					334017.37	3204342.28 meters
					(-485.92	-1036.50) meters
					334020.97	3204337.90 meters
					(-482.32	-1040.89) meters
					334025.36	3204334.29 meters
					(-477.93	-1044.48) meters
					334030.36	3204331.62 meters
					(-472.93	-1047.16) meters
					334035.79	3204329.97 meters
					(-467.50	-1048.81) meters
					334041.44	3204329.42 meters
					(-461.85	-1049.36) meters
					334047.09	3204329.97 meters
					(-456.20	-1048.81) meters
					334052.52	3204331.62 meters
					(-450.77	-1047.16) meters
					334057.53	3204334.29 meters
					(-445.77	-1044.48) meters
					334061.91	3204337.90 meters
					(-441.38	-1040.89) meters
					334065.51	3204342.28 meters
					(-437.78	-1036.50) meters
					334068.19	3204347.29 meters
					(-435.10	-1031.49) meters
					334069.84	3204352.72 meters
					(-433.45	-1026.06) meters
					334070.39	3204358.37 meters
					(-432.90	-1020.41) meters
					334069.84	3204364.01 meters
					(-433.45	-1014.77) meters
					334068.19	3204369.44 meters
					(-435.10	-1009.34) meters
					334065.51	3204374.45 meters
					(-437.78	-1004.33) meters
					334061.91	3204378.84 meters
					(-441.38	-999.94) meters
					334057.53	3204382.44 meters
					(-445.77	-996.34) meters
					334052.52	3204385.11 meters
					(-450.77	-993.67) meters
					334047.09	3204386.76 meters
					(-456.20	-992.02) meters

TANKSE has 1 tier(s) with a base elevation of 1.00 METERS

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER COORDINATES X	Y
TANKSE	1	18	12.20	32		
					334040.35	3204309.15 meters

(-462.93 -1069.63) meters
334034.71 3204308.60 meters
(-468.58 -1070.18) meters
334029.28 3204306.95 meters
(-474.01 -1071.83) meters
334024.27 3204304.27 meters
(-479.02 -1074.51) meters
334019.89 3204300.67 meters
(-483.40 -1078.11) meters
334016.28 3204296.29 meters
(-487.01 -1082.49) meters
334013.61 3204291.28 meters
(-489.68 -1087.50) meters
334011.96 3204285.85 meters
(-491.33 -1092.93) meters
334011.41 3204280.20 meters
(-491.89 -1098.58) meters
334011.96 3204274.56 meters
(-491.33 -1104.22) meters
334013.61 3204269.12 meters
(-489.68 -1109.66) meters
334016.28 3204264.12 meters
(-487.01 -1114.66) meters
334019.89 3204259.73 meters
(-483.40 -1119.05) meters
334024.27 3204256.13 meters
(-479.02 -1122.65) meters
334029.28 3204253.46 meters
(-474.01 -1125.32) meters
334034.71 3204251.81 meters
(-468.58 -1126.97) meters
334040.35 3204251.25 meters
(-462.93 -1127.53) meters
334046.00 3204251.81 meters
(-457.29 -1126.97) meters
334051.43 3204253.46 meters
(-451.86 -1125.32) meters
334056.44 3204256.13 meters
(-446.85 -1122.65) meters
334060.83 3204259.73 meters
(-442.46 -1119.05) meters
334064.43 3204264.12 meters
(-438.86 -1114.66) meters
334067.10 3204269.12 meters
(-436.19 -1109.66) meters
334068.75 3204274.56 meters
(-434.54 -1104.22) meters
334069.30 3204280.20 meters
(-433.98 -1098.58) meters
334068.75 3204285.85 meters
(-434.54 -1092.93) meters
334067.10 3204291.28 meters
(-436.19 -1087.50) meters
334064.43 3204296.29 meters
(-438.86 -1082.49) meters
334060.83 3204300.67 meters
(-442.46 -1078.11) meters
334056.44 3204304.27 meters
(-446.85 -1074.51) meters
334051.43 3204306.95 meters
(-451.86 -1071.83) meters
334046.00 3204308.60 meters
(-457.29 -1070.18) meters

PRECIP2A *has 1 tier(s) with a base elevation of* 1.00 METERS

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER COORDINATES X	Y
PRECIP2A	1	19	12.20	4		

334182.57 3204249.81 meters
(-320.72 -1128.97) meters
334182.57 3204275.86 meters
(-320.72 -1102.92) meters
334232.51 3204275.86 meters
(-270.78 -1102.92) meters
334232.51 3204249.81 meters
(-270.78 -1128.97) meters

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PRECIP2B has 1 tier(s) with a base elevation of    1.00 METERS
BUILDING  TIER  BLDG-TIER  TIER  NO. OF    CORNER  COORDINATES
 NAME   NUMBER   NUMBER HEIGHT  CORNERS      X          Y

PRECIP2B   1      20     12.20     4
                               334249.88  3204250.89 meters
                            (    -253.41   -1127.89) meters
                               334249.88  3204276.95 meters
                            (    -253.41   -1101.83) meters
                               334301.98  3204276.95 meters
                            (    -201.31   -1101.83) meters
                               334301.98  3204250.89 meters
                            (    -201.31   -1127.89) meters

 Number of stacks to be processed :  20

             STACK          STACK   COORDINATES
 STACK NAME     BASE  HEIGHT       X          Y

 BLR4         1.00  182.90 METERS
                      334665.27  3205401.84 meters
                   (     161.98       23.06) meters
 BLR5         1.00  182.90 METERS
                      334665.27  3205310.43 meters
                   (     161.98      -68.35) meters
 UNIT45       1.00  122.00 METERS
                      334776.80  3205393.42 meters
                   (     273.51       14.64) meters
 CT4          1.00  135.10 METERS
                      334312.56  3205466.28 meters
                   (    -190.73       87.50) meters
 CT5          1.00  135.10 METERS
                      334313.48  3205236.26 meters
                   (    -189.81     -142.52) meters
 HCT1         1.00   16.20 METERS
                      333190.92  3204586.51 meters
                   (   -1312.37     -792.27) meters
 HCT2         1.00   16.20 METERS
                      333375.38  3204573.64 meters
                   (   -1127.91     -805.14) meters
 HCT3         1.00   16.20 METERS
                      333637.51  3204550.46 meters
                   (    -865.78     -828.32) meters
 HCT4         1.00   16.20 METERS
                      333820.52  3204538.72 meters
                   (    -682.77     -840.06) meters
 CTWRPORT     1.00    5.79 METERS
                      333014.94  3204595.01 meters
                   (   -1488.35     -783.77) meters
 UNIT1        1.00  152.10 METERS
                      334319.40  3204230.21 meters
                   (    -183.89    -1148.57) meters
 UNIT2        1.00  153.00 METERS
                      334260.58  3204230.21 meters
                   (    -242.71    -1148.57) meters
 FAT1         1.00    9.15 METERS
                      334242.00  3204264.00 meters
                   (    -261.29    -1114.78) meters
 FAS1&2       1.00   22.90 METERS
                      334000.00  3204264.00 meters
                   (    -503.29    -1114.78) meters
 FAT2A        1.00    9.15 METERS
                      334242.00  3204264.00 meters
                   (    -261.29    -1114.78) meters
 FAT2B        1.00    9.15 METERS
                      334242.00  3204264.00 meters
                   (    -261.29    -1114.78) meters
 BAS12        1.00   23.80 METERS
                      334120.01  3204395.90 meters
                   (    -383.28     -982.88) meters
 LIM1234      1.00   10.10 METERS
                      335081.37  3205560.73 meters
                   (     578.08      181.95) meters
 LIMSILO      2.00   41.80 METERS
                      335085.72  3205425.85 meters
                   (     582.43       47.07) meters
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CBO        2.00  28.40 METERS
                   334656.76  3205553.94 meters
                (     153.47      175.16) meters
```

The following lists the stacks that have been identified
as being atop the noted building-tiers.

STACK NAME	NO.	BUILDING NAME	TIER NO.	NO.
HCT1	6	HCT12	10	1
HCT2	7	HCT12	10	1
HCT3	8	HCT12	10	1
HCT4	9	HCT12	10	1

Overall GEP Summary Table
(Units: meters)

```
StkNo:  1  Stk Name:BLR4     Stk Ht: 182.90 Prelim. GEP Stk.Ht:  211.02
       GEP:  BH:  84.40  PBW:  135.05          *Eqn1 Ht:  211.02
      *adjusted for a Stack-Building elevation difference of   -0.02
 No. of Tiers affecting Stk:  2  Direction occurred:   42.75
  Bldg-Tier nos. contributing to GEP:   1   2

StkNo:  2  Stk Name:BLR5     Stk Ht: 182.90 Prelim. GEP Stk.Ht:  211.02
       GEP:  BH:  84.40  PBW:  135.05          *Eqn1 Ht:  211.02
      *adjusted for a Stack-Building elevation difference of   -0.02
 No. of Tiers affecting Stk:  2  Direction occurred:  137.25
  Bldg-Tier nos. contributing to GEP:   1   2

StkNo:  3  Stk Name:UNIT45   Stk Ht: 122.00 Prelim. GEP Stk.Ht:  211.02
       GEP:  BH:  84.40  PBW:  137.85          *Eqn1 Ht:  211.02
      *adjusted for a Stack-Building elevation difference of   -0.02
 No. of Tiers affecting Stk:  2  Direction occurred:   90.00
  Bldg-Tier nos. contributing to GEP:   1   2

StkNo:  4  Stk Name:CT4      Stk Ht: 135.10 Prelim. GEP Stk.Ht:  211.02
       GEP:  BH:  84.40  PBW:  139.34          *Eqn1 Ht:  211.02
      *adjusted for a Stack-Building elevation difference of   -0.02
 No. of Tiers affecting Stk:  2  Direction occurred:  313.00
  Bldg-Tier nos. contributing to GEP:   1   2

StkNo:  5  Stk Name:CT5      Stk Ht: 135.10 Prelim. GEP Stk.Ht:  211.02
       GEP:  BH:  84.40  PBW:  137.66          *Eqn1 Ht:  211.02
      *adjusted for a Stack-Building elevation difference of   -0.02
 No. of Tiers affecting Stk:  2  Direction occurred:  225.25
  Bldg-Tier nos. contributing to GEP:   1   2

StkNo:  6  Stk Name:HCT1     Stk Ht:  16.20 Prelim. GEP Stk.Ht:   65.00
       GEP:  BH:  10.00  PBW:   15.47          *Eqn1 Ht:   25.00
      *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:   94.00
  Bldg-Tier nos. contributing to GEP:  10

StkNo:  7  Stk Name:HCT2     Stk Ht:  16.20 Prelim. GEP Stk.Ht:   65.00
       GEP:  BH:  10.00  PBW:   15.47          *Eqn1 Ht:   25.00
      *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:   94.00
  Bldg-Tier nos. contributing to GEP:  10

StkNo:  8  Stk Name:HCT3     Stk Ht:  16.20 Prelim. GEP Stk.Ht:   65.00
       GEP:  BH:  10.00  PBW:   15.47          *Eqn1 Ht:   25.00
      *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:   94.00
  Bldg-Tier nos. contributing to GEP:  10

StkNo:  9  Stk Name:HCT4     Stk Ht:  16.20 Prelim. GEP Stk.Ht:   65.00
       GEP:  BH:  10.00  PBW:   15.47          *Eqn1 Ht:   25.00
```

*adjusted for a Stack-Building elevation difference of 0.00
No. of Tiers affecting Stk: 1 Direction occurred: 94.00
Bldg-Tier nos. contributing to GEP: 10

StkNo: 10 Stk Name:CTWRPORT Stk Ht: 5.79 Prelim. GEP Stk.Ht: 65.00
GEP: BH: 0.00 PBW: 0.00 *Eqn1 Ht: 0.00
No tiers affect this stack.

StkNo: 11 Stk Name:UNIT1 Stk Ht: 152.10 Prelim. GEP Stk.Ht: 151.00
GEP: BH: 60.40 PBW: 91.87 *Eqn1 Ht: 151.00
*adjusted for a Stack-Building elevation difference of 0.00
No. of Tiers affecting Stk: 2 Direction occurred: 133.25
Bldg-Tier nos. contributing to GEP: 11 12

StkNo: 12 Stk Name:UNIT2 Stk Ht: 153.00 Prelim. GEP Stk.Ht: 151.00
GEP: BH: 60.40 PBW: 84.75 *Eqn1 Ht: 151.00
*adjusted for a Stack-Building elevation difference of 0.00
No. of Tiers affecting Stk: 2 Direction occurred: 236.00
Bldg-Tier nos. contributing to GEP: 11 12

StkNo: 13 Stk Name:FAT1 Stk Ht: 9.15 Prelim. GEP Stk.Ht: 151.00
GEP: BH: 60.40 PBW: 60.41 *Eqn1 Ht: 151.00
*adjusted for a Stack-Building elevation difference of 0.00
No. of Tiers affecting Stk: 2 Direction occurred: 256.25
Bldg-Tier nos. contributing to GEP: 11 12

StkNo: 14 Stk Name:FAS1&2 Stk Ht: 22.90 Prelim. GEP Stk.Ht: 151.00
GEP: BH: 60.40 PBW: 60.41 *Eqn1 Ht: 151.00
*adjusted for a Stack-Building elevation difference of 0.00
No. of Tiers affecting Stk: 2 Direction occurred: 256.25
Bldg-Tier nos. contributing to GEP: 11 12

StkNo: 15 Stk Name:FAT2A Stk Ht: 9.15 Prelim. GEP Stk.Ht: 151.00
GEP: BH: 60.40 PBW: 60.41 *Eqn1 Ht: 151.00
*adjusted for a Stack-Building elevation difference of 0.00
No. of Tiers affecting Stk: 2 Direction occurred: 256.25
Bldg-Tier nos. contributing to GEP: 11 12

StkNo: 16 Stk Name:FAT2B Stk Ht: 9.15 Prelim. GEP Stk.Ht: 151.00
GEP: BH: 60.40 PBW: 60.41 *Eqn1 Ht: 151.00
*adjusted for a Stack-Building elevation difference of 0.00
No. of Tiers affecting Stk: 2 Direction occurred: 256.25
Bldg-Tier nos. contributing to GEP: 11 12

StkNo: 17 Stk Name:BAS12 Stk Ht: 23.80 Prelim. GEP Stk.Ht: 151.00
GEP: BH: 60.40 PBW: 63.03 *Eqn1 Ht: 151.00
*adjusted for a Stack-Building elevation difference of 0.00
No. of Tiers affecting Stk: 2 Direction occurred: 286.25
Bldg-Tier nos. contributing to GEP: 11 12

StkNo: 18 Stk Name:LIM1234 Stk Ht: 10.10 Prelim. GEP Stk.Ht: 65.00
GEP: BH: 0.00 PBW: 0.00 *Eqn1 Ht: 0.00
No tiers affect this stack.

StkNo: 19 Stk Name:LIMSILO Stk Ht: 41.80 Prelim. GEP Stk.Ht: 65.00
GEP: BH: 0.00 PBW: 0.00 *Eqn1 Ht: 0.00
No tiers affect this stack.

StkNo: 20 Stk Name:CBO Stk Ht: 28.40 Prelim. GEP Stk.Ht: 210.02
GEP: BH: 84.40 PBW: 100.22 *Eqn1 Ht: 210.02
*adjusted for a Stack-Building elevation difference of 0.98
No. of Tiers affecting Stk: 2 Direction occurred: 20.00
Bldg-Tier nos. contributing to GEP: 1 2

```
'D:\Projects\progress\Crystal River\Lakes\CRYSITE'
'P'
'METERS'  1.00000000
'UTMY'  0.0000
20
'U4BOILER'  1        1.020  'UNIT 4 BOILER'
  4      84.400
      334503.290    3205378.780
      334503.290    3205425.250
      334559.770    3205425.250
      334559.770    3205378.780
'U5BOILER'  1        1.000  'UNIT 5 BOILER'
  4      84.400
      334503.290    3205287.396
      334503.290    3205333.866
      334559.770    3205333.866
      334559.770    3205287.396
'TUBINE'  1        1.000  'TURBINE ROOM'
  4      29.500
      334471.945    3205268.856
      334471.945    3205443.696
      334503.939    3205443.696
      334503.939    3205268.856
'U4PRECIP'  1        1.850  'BOILER 4 PRECIPITATOR'
  4      27.800
      334598.034    3205370.813
      334598.034    3205432.991
      334633.994    3205432.991
      334633.994    3205370.813
'U5PRECIP'  1        1.000  'BOILER 5 PRECIPITATOR'
  4      27.800
      334598.000    3205279.156
      334598.000    3205341.333
      334633.960    3205341.333
      334633.960    3205279.156
'SCR4'  1        1.890  'BLR4 SCR'
  4      65.300
      334572.623    3205386.556
      334572.623    3205416.945
      334594.329    3205416.945
      334594.329    3205386.556
'BLR5SCR'  1        1.220  'BLR5 SCR'
  4      65.300
      334572.600    3205295.271
      334572.600    3205325.659
      334594.306    3205325.659
      334594.306    3205295.271
'ABSORB4'  1        1.000  'Absorber Unit 4'
  4      38.000
      334713.100    3205403.392
      334713.100    3205430.492
      334753.500    3205430.492
      334753.500    3205403.392
'ABSORB5'  1        1.000  'Absorber Unit 5'
  4      38.000
      334713.140    3205282.970
      334713.140    3205310.030
      334753.560    3205310.030
      334753.560    3205282.970
'HCT12'  1        1.000
  4      10.000
      333110.362    3204585.631
      333111.441    3204601.068
      333900.023    3204545.925
      333898.944    3204530.488
'UN2 BLDG'  1        1.000  'UNIT 2 BUILDING'
  4      63.400
      334254.267    3204291.127
      334254.267    3204327.727
      334290.867    3204327.727
      334290.867    3204291.127
'UN1 BLDG'  1        1.000  'UNIT 1 BUILDING'
  4      60.400
      334317.297    3204288.327
      334317.297    3204329.637
      334347.407    3204329.637
      334347.407    3204288.327
'BLD_13'  1        1.000
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   4      3.700
       334171.999   3204353.360
       334171.999   3204388.021
       334206.660   3204388.021
       334206.660   3204353.360
'BLDG12'  1       1.000
   4      22.900
       334239.750   3204326.580
       334239.750   3204350.210
       334368.940   3204350.210
       334368.940   3204326.580
'TANKNW'  1       1.000
  32      12.200
       333937.224   3204420.220
       333930.240   3204419.532
       333923.524   3204417.495
       333917.334   3204414.187
       333911.910   3204409.734
       333907.457   3204404.310
       333904.149   3204398.120
       333902.112   3204391.404
       333901.424   3204384.420
       333902.112   3204377.436
       333904.149   3204370.720
       333907.457   3204364.531
       333911.910   3204359.106
       333917.334   3204354.654
       333923.524   3204351.346
       333930.240   3204349.308
       333937.224   3204348.621
       333944.208   3204349.308
       333950.924   3204351.346
       333957.113   3204354.654
       333962.538   3204359.106
       333966.990   3204364.531
       333970.298   3204370.720
       333972.336   3204377.436
       333973.024   3204384.420
       333972.336   3204391.404
       333970.298   3204398.120
       333966.990   3204404.310
       333962.538   3204409.734
       333957.113   3204414.187
       333950.924   3204417.495
       333944.208   3204419.532
'TANKSW'  1       1.000
  32      12.200
       333935.052   3204323.602
       333928.068   3204322.914
       333921.352   3204320.877
       333915.163   3204317.569
       333909.738   3204313.116
       333905.286   3204307.692
       333901.978   3204301.502
       333899.941   3204294.786
       333899.253   3204287.802
       333899.941   3204280.818
       333901.978   3204274.102
       333905.286   3204267.913
       333909.738   3204262.488
       333915.163   3204258.036
       333921.352   3204254.728
       333928.068   3204252.690
       333935.052   3204252.002
       333942.037   3204252.690
       333948.752   3204254.728
       333954.942   3204258.036
       333960.367   3204262.488
       333964.819   3204267.913
       333968.127   3204274.102
       333970.164   3204280.818
       333970.852   3204287.802
       333970.164   3204294.786
       333968.127   3204301.502
       333964.819   3204307.692
       333960.367   3204313.116
       333954.942   3204317.569
       333948.752   3204320.877
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        333942.037    3204322.914
'TANKNE'  1          1.000
   32          12.200
        334041.441    3204387.316
        334035.793    3204386.760
        334030.362    3204385.112
        334025.357    3204382.437
        334020.970    3204378.837
        334017.370    3204374.450
        334014.695    3204369.445
        334013.047    3204364.014
        334012.491    3204358.366
        334013.047    3204352.718
        334014.695    3204347.287
        334017.370    3204342.282
        334020.970    3204337.895
        334025.357    3204334.295
        334030.362    3204331.620
        334035.793    3204329.972
        334041.441    3204329.416
        334047.089    3204329.972
        334052.520    3204331.620
        334057.525    3204334.295
        334061.912    3204337.895
        334065.512    3204342.282
        334068.187    3204347.287
        334069.835    3204352.718
        334070.391    3204358.366
        334069.835    3204364.014
        334068.187    3204369.445
        334065.512    3204374.450
        334061.912    3204378.837
        334057.525    3204382.437
        334052.520    3204385.112
        334047.089    3204386.760
'TANKSE'  1          1.000
   32          12.200
        334040.355    3204309.153
        334034.707    3204308.597
        334029.277    3204306.949
        334024.272    3204304.274
        334019.885    3204300.674
        334016.284    3204296.287
        334013.609    3204291.282
        334011.962    3204285.851
        334011.405    3204280.203
        334011.962    3204274.555
        334013.609    3204269.124
        334016.284    3204264.119
        334019.885    3204259.732
        334024.272    3204256.132
        334029.277    3204253.457
        334034.707    3204251.809
        334040.355    3204251.253
        334046.003    3204251.809
        334051.434    3204253.457
        334056.439    3204256.132
        334060.826    3204259.732
        334064.426    3204264.119
        334067.102    3204269.124
        334068.749    3204274.555
        334069.305    3204280.203
        334068.749    3204285.851
        334067.102    3204291.282
        334064.426    3204296.287
        334060.826    3204300.674
        334056.439    3204304.274
        334051.434    3204306.949
        334046.003    3204308.597
'PRECIP2A'  1          1.000
   4          12.200
        334182.568    3204249.806
        334182.568    3204275.861
        334232.506    3204275.861
        334232.506    3204249.806
'PRECIP2B'  1          1.000
   4          12.200
        334249.875    3204250.892
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        334249.875    3204276.946
        334301.984    3204276.946
        334301.984    3204250.892
20
'BLR4'       1.000      182.900    334665.270    3205401.840
'BLR5'       1.000      182.900    334665.270    3205310.430
'UNIT45'       1.000      122.000    334776.800    3205393.420
'CT4'      1.000      135.100    334312.560    3205466.280
'CT5'      1.000      135.100    334313.480    3205236.260
'HCT1'      1.000      16.200    333190.920    3204586.510
'HCT2'      1.000      16.200    333375.380    3204573.640
'HCT3'      1.000      16.200    333637.510    3204550.460
'HCT4'      1.000      16.200    333820.520    3204538.720
'CTWRPORT'      1.000      5.791    333014.940    3204595.010  'PORTABLE COOLING TOWER'
'UNIT1'      1.000      152.100    334319.400    3204230.210
'UNIT2'      1.000      153.000    334260.580    3204230.210
'FAT1'      1.000      9.150    334242.000    3204264.000
'FAS1&2'      1.000      22.900    334000.000    3204264.000
'FAT2A'      1.000      9.150    334242.000    3204264.000
'FAT2B'      1.000      9.150    334242.000    3204264.000
'BAS12'      1.000      23.800    334120.010    3204395.900
'LIM1234'      1.000      10.100    335081.370    3205560.730
'LIMSILO'      2.000      41.800    335085.720    3205425.850
'CBO'      2.000      28.400    334656.760    3205553.940  'CBO Unit'
```

D:\Projects\progress\Crystal River\Lakes\CRYSITE

BPIP (Dated: 04274)
TE : 8/15/2006
ME : 12:27:41
D:\Projects\progress\Crystal River\Lakes\CRYSITE

==========================
BPIP PROCESSING INFORMATION:
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The P flag has been set for preparing downwash related data for a model run utilizing the PRIME algorithm.

Inputs entered in METERS will be converted to meters using a conversion factor of 1.0000. Output will be in meters.

The UTMP variable is set to UTMY. The input is assumed to be in UTM coordinates. BPIP will move the UTM origin to the first pair of UTM coordinates read. The UTM coordinates of the new origin will be subtracted from all the other UTM coordinates entered to form this new local coordinate system.

Plant north is set to 0.00 degrees with respect to True North.

D:\Projects\progress\Crystal River\Lakes\CRYSITE

PRELIMINARY* GEP STACK HEIGHT RESULTS TABLE
(Output Units: meters)

Stack Name	Stack Height	Stack-Building Base Elevation Differences	GEP** EQN1	Preliminary* GEP Stack Height Value
BLR4	182.90	-0.02	211.02	211.02
BLR5	182.90	-0.02	211.02	211.02
UNIT45	122.00	-0.02	211.02	211.02
CT4	135.10	-0.02	211.02	211.02
CT5	135.10	-0.02	211.02	211.02
HCT1	16.20	0.00	25.00	65.00
HCT2	16.20	0.00	25.00	65.00
HCT3	16.20	0.00	25.00	65.00
HCT4	16.20	0.00	25.00	65.00
CTWRPORT	5.79	N/A	0.00	65.00
UNIT1	152.10	0.00	151.00	151.00
UNIT2	153.00	0.00	151.00	151.00
FAT1	9.15	0.00	151.00	151.00
FAS1&2	22.90	0.00	151.00	151.00
FAT2A	9.15	0.00	151.00	151.00
FAT2B	9.15	0.00	151.00	151.00
BAS12	23.80	0.00	151.00	151.00
LIM1234	10.10	N/A	0.00	65.00
LIMSILO	41.80	N/A	0.00	65.00
CBO	28.40	0.98	210.02	210.02

* Results are based on Determinants 1 & 2 on pages 1 & 2 of the GEP Technical Support Document. Determinant 3 may be investigated for additional stack height credit. Final values result after Determinant 3 has been taken into consideration.

** Results were derived from Equation 1 on page 6 of GEP Technical Support Document. Values have been adjusted for any stack-building base elevation differences.

Note: Criteria for determining stack heights for modeling emission limitations for a source can be found in Table 3.1 of the GEP Technical Support Document.

BPIP (Dated: 04274)
DATE : 8/15/2006
TIME : 12:27:41

D:\Projects\progress\Crystal River\Lakes\CRYSITE

BPIP output is in meters

```
SO BUILDHGT BLR4     27.80  65.30  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     27.80  27.80  27.80   0.00   0.00   0.00
SO BUILDHGT BLR4      0.00  65.30  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     38.00  38.00  38.00  38.00   0.00   0.00
SO BUILDWID BLR4    138.19 129.98 117.84 131.88 141.91 147.63
SO BUILDWID BLR4    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR4    125.54 134.97 140.30   0.00   0.00   0.00
SO BUILDWID BLR4      0.00 129.98 117.84 131.88 141.91 147.63
SO BUILDWID BLR4    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR4     46.71  48.36  48.53  47.24   0.00   0.00
SO BUILDLEN BLR4     75.81 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN BLR4    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR4    135.12 125.72 112.50   0.00   0.00   0.00
SO BUILDLEN BLR4      0.00 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN BLR4    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR4     48.36  46.71  43.64  39.25   0.00   0.00
SO XBADJ    BLR4   -140.83 -162.94 -180.10 -191.79 -197.65 -197.50
SO XBADJ    BLR4   -191.35 -179.39 -161.98 -163.58 -160.22 -151.98
SO XBADJ    BLR4   -139.13 -122.05 -101.26   0.00   0.00   0.00
SO XBADJ    BLR4      0.00  14.08  32.48  49.88  65.77  79.66
SO XBADJ    BLR4     91.13  99.83 105.50  84.02  60.00  34.14
SO XBADJ    BLR4   -144.04 -147.81 -147.09 -141.90   0.00   0.00
SO YBADJ    BLR4     78.62  95.23  93.06  73.19  51.10  27.45
SO YBADJ    BLR4      2.97 -21.60 -45.52 -68.05 -88.51 -106.29
SO YBADJ    BLR4    -59.01 -71.42 -81.66   0.00   0.00   0.00
SO YBADJ    BLR4      0.00 -95.23 -93.06 -73.19 -51.10 -27.45
SO YBADJ    BLR4     -2.97  21.60  45.52  68.05  88.51 106.29
SO YBADJ    BLR4     36.93  15.56  -6.29 -27.95   0.00   0.00


SO BUILDHGT BLR5      0.00   0.00  27.80  27.80  27.80  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  65.30  27.80   0.00
SO BUILDHGT BLR5      0.00  38.00  38.00  38.00  38.00  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  65.30   0.00   0.00
SO BUILDWID BLR5      0.00   0.00 140.52 135.27 125.90 147.63
SO BUILDWID BLR5    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR5    141.91 131.88 117.84 129.86 138.13   0.00
SO BUILDWID BLR5      0.00  47.23  48.54  48.37  46.73 147.63
SO BUILDWID BLR5    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR5    141.91 131.88 117.84 129.86   0.00   0.00
SO BUILDLEN BLR5      0.00   0.00 112.05 125.31 134.77 117.84
SO BUILDLEN BLR5    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR5    131.88 141.91 147.63 148.86  76.31   0.00
SO BUILDLEN BLR5      0.00  39.28  43.67  46.73  48.37 117.84
SO BUILDLEN BLR5    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR5    131.88 141.91 147.63 148.86   0.00   0.00
SO XBADJ    BLR5      0.00   0.00 -100.94 -121.76 -138.89 -151.80
SO XBADJ    BLR5   -160.09 -163.52 -161.98 -179.46 -191.48 -197.69
SO XBADJ    BLR5   -197.89 -192.08 -180.43 -163.30 -141.20   0.00
SO XBADJ    BLR5      0.00 -143.00 -148.09 -148.69 -144.76  33.96
SO XBADJ    BLR5     59.87  83.96 105.50  99.90  91.26  79.85
SO XBADJ    BLR5     66.01  50.17  32.80  14.44   0.00   0.00
SO YBADJ    BLR5      0.00   0.00  81.74  71.52  59.12 106.61
SO YBADJ    BLR5     88.87  68.42  45.89  21.97  -2.62 -27.13
SO YBADJ    BLR5    -50.81 -72.95 -92.88 -95.16 -78.58   0.00
SO YBADJ    BLR5      0.00  27.50   5.66 -16.35 -37.86 -106.61
SO YBADJ    BLR5    -88.87 -68.42 -45.89 -21.97   2.62  27.13
SO YBADJ    BLR5     50.81  72.95  92.88  95.16   0.00   0.00


SO BUILDHGT UNIT45   38.00  38.00  38.00  38.00   0.00  84.40
SO BUILDHGT UNIT45   84.40  84.40  84.40  84.40  38.00  38.00
SO BUILDHGT UNIT45   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDHGT UNIT45    0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT UNIT45   38.00  38.00  38.00  38.00  38.00  38.00
SO BUILDHGT UNIT45   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDWID UNIT45   44.50  47.24  48.53  48.36   0.00 147.63
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SO BUILDWID UNIT45   148.86 145.57 137.85 145.57  39.28  43.67
SO BUILDWID UNIT45    46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDWID UNIT45     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID UNIT45    39.28  33.70  27.10  33.70  39.28  43.67
SO BUILDWID UNIT45    46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDLEN UNIT45    33.67  39.25  43.64  46.71   0.00 117.84
SO BUILDLEN UNIT45   100.22  79.56  56.48  79.56  47.23  48.54
SO BUILDLEN UNIT45    48.37  46.73  43.67  39.28  33.70   0.00
SO BUILDLEN UNIT45     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN UNIT45    47.23  44.49  40.40  44.49  47.23  48.54
SO BUILDLEN UNIT45    48.37  46.73  43.67  39.28  33.70   0.00
SO XBADJ    UNIT45  -119.83 -125.56 -127.48 -125.53   0.00 -289.88
SO XBADJ    UNIT45  -293.28 -287.77 -273.51 -274.88 -72.54 -73.70
SO XBADJ    UNIT45   -72.63 -69.34 -63.96 -56.62 -47.57   0.00
SO XBADJ    UNIT45     0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    UNIT45     9.22  16.51  23.30  24.68  25.31  25.16
SO XBADJ    UNIT45    24.26  22.62  20.29  17.34  13.87   0.00
SO YBADJ    UNIT45    25.96   7.68 -10.83 -29.01   0.00  90.51
SO YBADJ    UNIT45    49.03   6.06 -37.10 -79.12   7.23  -1.38
SO YBADJ    UNIT45    -9.94 -18.20 -25.91 -32.83 -38.75   0.00
SO YBADJ    UNIT45     0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    UNIT45   -36.98 -30.72 -23.52 -15.61  -7.23   1.38
SO YBADJ    UNIT45     9.94  18.20  25.91  32.83  38.75   0.00


SO BUILDHGT CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CT4        0.00  84.40   0.00   0.00   0.00   0.00
SO BUILDHGT CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CT4        0.00   0.00  84.40  84.40  84.40  84.40
SO BUILDHGT CT4       84.40  84.40   0.00   0.00   0.00   0.00
SO BUILDWID CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CT4        0.00 131.88   0.00   0.00   0.00   0.00
SO BUILDWID CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CT4        0.00   0.00 137.85 145.57 148.86 147.63
SO BUILDWID CT4      141.91 131.88   0.00   0.00   0.00   0.00
SO BUILDLEN CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CT4        0.00 141.91   0.00   0.00   0.00   0.00
SO BUILDLEN CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CT4        0.00   0.00  56.48  79.56 100.22 117.84
SO BUILDLEN CT4      131.88 141.91   0.00   0.00   0.00   0.00
SO XBADJ    CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    CT4        0.00 154.03   0.00   0.00   0.00   0.00
SO XBADJ    CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    CT4        0.00   0.00 -247.21 -274.52 -293.48 -303.53
SO XBADJ    CT4     -304.36 -295.94   0.00   0.00   0.00   0.00
SO YBADJ    CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    CT4        0.00  97.06   0.00   0.00   0.00   0.00
SO YBADJ    CT4        0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    CT4        0.00   0.00 109.96  70.26  28.43 -14.26
SO YBADJ    CT4      -56.52 -97.06   0.00   0.00   0.00   0.00


SO BUILDHGT CT5        0.00   0.00   0.00  84.40   0.00   0.00
SO BUILDHGT CT5        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CT5        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CT5        0.00   0.00   0.00  84.40  84.40  84.40
SO BUILDHGT CT5       84.40  84.40   0.00   0.00   0.00   0.00
SO BUILDHGT CT5        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CT5        0.00   0.00   0.00 131.88   0.00   0.00
SO BUILDWID CT5        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CT5        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CT5        0.00   0.00   0.00 131.88 141.91 147.63
SO BUILDWID CT5      148.86 145.57   0.00   0.00   0.00   0.00
SO BUILDWID CT5        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CT5        0.00   0.00   0.00 141.91   0.00   0.00
SO BUILDLEN CT5        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CT5        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CT5        0.00   0.00   0.00 141.91 131.88 117.84
SO BUILDLEN CT5      100.22  79.56   0.00   0.00   0.00   0.00
SO BUILDLEN CT5        0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    CT5        0.00   0.00   0.00 161.18   0.00   0.00
SO XBADJ    CT5        0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    CT5        0.00   0.00   0.00   0.00   0.00   0.00
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SO XBADJ    CT5      0.00   0.00   0.00 -303.09 -310.15 -307.79
SO XBADJ    CT5   -296.08 -275.37   0.00   0.00   0.00   0.00
SO XBADJ    CT5      0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    CT5      0.00   0.00   0.00 -89.86   0.00   0.00
SO YBADJ    CT5      0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    CT5      0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    CT5      0.00   0.00   0.00  89.86  48.19   5.05
SO YBADJ    CT5    -38.24 -80.38   0.00   0.00   0.00   0.00
SO YBADJ    CT5      0.00   0.00   0.00   0.00   0.00   0.00

SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDWID HCT1    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT1    335.67 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT1    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDWID HCT1    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT1    335.66 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT1    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDLEN HCT1     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT1    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT1    648.63 560.26 454.88 335.67 206.26  70.58
SO BUILDLEN HCT1     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT1    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT1    648.63 560.26 454.88 335.66 206.26  70.58
SO XBADJ    HCT1    -14.85 -28.38 -41.04 -52.45 -62.28 -70.20
SO XBADJ    HCT1    -76.00 -79.49 -80.56 -80.80 -79.67 -76.11
SO XBADJ    HCT1    -70.24 -62.24 -52.35 -40.86 -28.14 -14.56
SO XBADJ    HCT1    -83.17 -204.39 -319.40 -424.71 -517.12 -593.81
SO XBADJ    HCT1   -652.46 -691.28 -709.10 -707.00 -684.49 -641.18
SO XBADJ    HCT1   -578.39 -498.02 -402.53 -294.80 -178.12 -56.02
SO YBADJ    HCT1   -313.10 -302.41 -282.53 -254.07 -217.89 -175.09
SO YBADJ    HCT1   -126.97 -74.99 -20.73  34.16  88.01 139.18
SO YBADJ    HCT1    186.13 227.42 261.80 288.23 305.90 314.27
SO YBADJ    HCT1    313.10 302.41 282.53 254.07 217.89 175.09
SO YBADJ    HCT1    126.97  74.99  20.73 -34.16 -88.01 -139.18
SO YBADJ    HCT1   -186.13 -227.42 -261.80 -288.23 -305.90 -314.27

SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDWID HCT2    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT2    335.67 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT2    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDWID HCT2    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT2    335.66 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT2    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDLEN HCT2     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT2    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT2    648.63 560.26 454.88 335.67 206.26  70.58
SO BUILDLEN HCT2     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT2    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT2    648.63 560.26 454.88 335.66 206.26  70.58
SO XBADJ    HCT2    -34.21 -79.37 -122.12 -161.16 -195.31 -223.52
SO XBADJ    HCT2   -244.93 -258.91 -265.02 -264.69 -257.40 -242.29
SO XBADJ    HCT2   -219.82 -190.67 -155.72 -116.05 -72.84 -27.43
SO XBADJ    HCT2    -63.81 -153.40 -238.32 -316.00 -384.09 -440.50
SO XBADJ    HCT2   -483.52 -511.86 -524.64 -523.10 -506.75 -475.00
SO XBADJ    HCT2   -428.81 -369.60 -299.15 -219.62 -133.41 -43.15
SO YBADJ    HCT2   -129.21 -124.67 -116.35 -104.50 -89.46 -71.71
SO YBADJ    HCT2    -51.79 -30.28  -7.86  14.80  37.01  58.10
SO YBADJ    HCT2     77.42  94.39 108.49 119.29 126.48 129.81
SO YBADJ    HCT2    129.21 124.67 116.35 104.50  89.46  71.71
SO YBADJ    HCT2     51.79  30.28   7.86 -14.80 -37.01 -58.10
SO YBADJ    HCT2    -77.42 -94.39 -108.49 -119.29 -126.48 -129.81

SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
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SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDWID HCT3    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT3    335.67 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT3    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDWID HCT3    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT3    335.66 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT3    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDLEN HCT3     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT3    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT3    648.63 560.26 454.88 335.67 206.26  70.58
SO BUILDLEN HCT3     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT3    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT3    648.63 560.26 454.88 335.66 206.26  70.58
SO XBADJ    HCT3    -56.90 -147.25 -233.11 -311.90 -381.21 -438.94
SO XBADJ    HCT3   -483.33 -513.03 -527.15 -526.86 -511.65 -480.89
SO XBADJ    HCT3   -435.52 -376.92 -306.86 -227.48 -141.19 -50.61
SO XBADJ    HCT3    -41.12 -85.52 -127.33 -165.27 -198.18 -225.08
SO XBADJ    HCT3   -245.13 -257.74 -262.51 -260.93 -252.50 -236.39
SO XBADJ    HCT3   -213.11 -183.35 -148.01 -108.18 -65.07 -19.97
SO YBADJ    HCT3    132.97 129.58 122.25 111.21  96.79  79.42
SO YBADJ    HCT3     59.65  38.06  15.32  -7.89 -30.86 -52.89
SO YBADJ    HCT3    -73.32 -91.51 -106.93 -119.10 -127.65 -132.32
SO YBADJ    HCT3   -132.97 -129.58 -122.25 -111.21 -96.79 -79.42
SO YBADJ    HCT3    -59.65 -38.06 -15.32   7.89  30.86  52.89
SO YBADJ    HCT3     73.32  91.51 106.93 119.10 127.65 132.32


SO BUILDHGT HCT4     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT4     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT4     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT4     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT4     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT4     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDWID HCT4    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT4    335.67 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT4    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDWID HCT4    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT4    335.66 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT4    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDLEN HCT4     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT4    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT4    648.63 560.26 454.88 335.67 206.26  70.58
SO BUILDLEN HCT4     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT4    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT4    648.63 560.26 454.88 335.66 206.26  70.58
SO XBADJ    HCT4    -77.12 -198.81 -314.45 -420.54 -513.86 -591.56
SO XBADJ    HCT4   -651.29 -691.22 -710.16 -709.13 -687.64 -645.25
SO XBADJ    HCT4   -583.26 -503.55 -408.53 -301.11 -184.53 -62.35
SO XBADJ    HCT4    -20.90 -33.96 -45.99 -56.62 -65.53 -72.45
SO XBADJ    HCT4    -77.17 -79.55 -79.50 -78.66 -76.51 -72.03
SO XBADJ    HCT4    -65.37 -56.72 -46.34 -34.56 -21.73  -8.23
SO YBADJ    HCT4    315.24 305.57 286.61 258.95 223.42 181.10
SO YBADJ    HCT4    133.27  81.40  27.06 -28.11 -82.42 -134.23
SO YBADJ    HCT4   -181.96 -224.16 -259.55 -287.06 -305.84 -315.33
SO YBADJ    HCT4   -315.24 -305.57 -286.61 -258.95 -223.42 -181.10
SO YBADJ    HCT4   -133.27 -81.40 -27.06  28.11  82.42 134.23
SO YBADJ    HCT4    181.96 224.16 259.55 287.06 305.84 315.33


SO BUILDHGT CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BLIILDHGT CTWRPORT 0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BLIILDWID CTWRPORT 0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CTWRPORT  0.00   0.00   0.00   0.00   0.00   0.00
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SO BUILDLEN CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ    CTWRPORT  0.00  0.00  0.00  0.00  0.00  0.00


SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40   0.00
SO BUILDHGT UNIT1     0.00   0.00   0.00   0.00  12.20  60.40
SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40   0.00
SO BUILDHGT UNIT1     0.00   0.00   0.00   0.00  12.20  60.40
SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDWID UNIT1    98.57 101.00 100.36  96.68  90.05   0.00
SO BUILDWID UNIT1     0.00   0.00   0.00   0.00  42.31  79.92
SO BUILDWID UNIT1    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDWID UNIT1    98.57 101.00 100.36  96.68  90.05   0.00
SO BUILDWID UNIT1     0.00   0.00   0.00   0.00  42.31  79.92
SO BUILDWID UNIT1    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDLEN UNIT1    54.10  68.04  79.92  89.37  96.10   0.00
SO BUILDLEN UNIT1     0.00   0.00   0.00   0.00  57.88 100.36
SO BUILDLEN UNIT1    96.68  90.05  80.69  68.88  54.97  41.31
SO BUILDLEN UNIT1    54.10  68.04  79.92  89.37  96.10   0.00
SO BUILDLEN UNIT1     0.00   0.00   0.00   0.00  57.88 100.36
SO BUILDLEN UNIT1    96.68  90.05  80.69  68.88  54.97  41.31
SO XBADJ    UNIT1    48.68  34.97  20.19   4.80 -10.74   0.00
SO XBADJ    UNIT1     0.00   0.00   0.00   0.00 -81.32 -105.17
SO XBADJ    UNIT1  -112.58 -116.57 -117.02 -113.91 -107.35 -99.43
SO XBADJ    UNIT1  -102.78 -103.01 -100.11 -94.17 -85.36   0.00
SO XBADJ    UNIT1     0.00   0.00   0.00   0.00  23.44   4.80
SO XBADJ    UNIT1    15.90  26.52  36.33  45.03  52.37  58.12
SO YBADJ    UNIT1    31.79  44.06  54.98  64.24  71.54   0.00
SO YBADJ    UNIT1     0.00   0.00   0.00   0.00  16.81  60.15
SO YBADJ    UNIT1    49.48  37.31  24.01   9.98  -4.36 -18.56
SO YBADJ    UNIT1   -31.79 -44.06 -54.98 -64.24 -71.54   0.00
SO YBADJ    UNIT1     0.00   0.00   0.00   0.00 -16.81 -60.15
SO YBADJ    UNIT1   -49.48 -37.31 -24.01  -9.98   4.36  18.56


SO BUILDHGT UNIT2    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2    60.40   0.00   0.00  12.20  12.20  12.20
SO BUILDHGT UNIT2    12.20  12.20  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2    60.40   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT UNIT2     0.00  12.20  60.40  60.40  60.40  60.40
SO BUILDWID UNIT2    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID UNIT2    68.88   0.00   0.00  34.33  41.56  47.53
SO BUILDWID UNIT2    52.06  55.00  99.92 100.69  98.41  93.14
SO BUILDWID UNIT2    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID UNIT2    68.88   0.00   0.00   0.00   0.00   0.00
SO BUILDWID UNIT2     0.00  56.66  99.92 100.69  98.41  93.14
SO BUILDLEN UNIT2    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN UNIT2   100.69   0.00   0.00  53.70  55.84  56.28
SO BUILDLEN UNIT2    55.00  52.06  80.69  68.88  54.97  41.31
SO BUILDLEN UNIT2    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN UNIT2   100.69   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN UNIT2     0.00  53.45  80.69  68.88  54.97  41.31
SO XBADJ    UNIT2    58.90  55.08  49.60  42.61  34.32  24.99
SO XBADJ    UNIT2    14.90   0.00   0.00 -84.75 -88.92 -90.39
SO XBADJ    UNIT2   -89.10 -85.12 -87.61 -93.80 -97.13 -99.43
SO XBADJ    UNIT2  -112.99 -123.13 -129.52 -131.98 -130.42 -124.91
SO XBADJ    UNIT2  -115.60   0.00   0.00   0.00   0.00   0.00
SO XBADJ    UNIT2     0.00 -10.77   6.92  24.92  42.16  58.12
SO YBADJ    UNIT2   -26.13 -11.21   4.04  19.18  33.73  47.26
SO YBADJ    UNIT2    59.36   0.00   0.00  22.92  12.51   1.73
SO YBADJ    UNIT2    -9.10 -19.66  74.95  65.25  53.57  40.26
SO YBADJ    UNIT2    26.13  11.21  -4.04 -19.18 -33.73 -47.26
SO YBADJ    UNIT2   -59.36   0.00   0.00   0.00   0.00   0.00
SO YBADJ    UNIT2     0.00 -33.43 -74.95 -65.25 -53.57 -40.26
```

```
SO BUILDHGT FAT1     60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT1     60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT1     60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT1     60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT1     60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT1     60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDWID FAT1     98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT1     68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT1     89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDWID FAT1     98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT1     68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT1     89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDLEN FAT1     54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT1    100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT1     96.68  90.05  80.69  68.88  54.97  41.31
SO BUILDLEN FAT1     54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT1    100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT1     96.68  90.05  80.69  68.88  54.97  41.31
SO XBADJ    FAT1     28.85  29.69  29.63  28.67  26.83  24.19
SO XBADJ    FAT1     20.81  16.79   7.88 -60.59 -10.27 -21.24
SO XBADJ    FAT1    -31.57 -40.93 -49.06 -55.69 -60.63 -65.64
SO XBADJ    FAT1    -82.94 -97.73 -109.55 -118.04 -122.94 -124.10
SO XBADJ    FAT1    -121.50 -115.20 -59.98   6.88 -90.73 -79.12
SO XBADJ    FAT1    -65.11 -49.12 -31.64 -13.19   5.65  24.33
SO YBADJ    FAT1    -50.30 -40.23 -28.94 -16.77  -4.09   8.71
SO YBADJ    FAT1     21.25  33.14  -0.08  -7.13  63.71  69.59
SO YBADJ    FAT1     73.35  74.89  74.15  71.15  66.00  58.84
SO YBADJ    FAT1     50.30  40.23  28.94  16.77   4.09  -8.71
SO YBADJ    FAT1    -21.25 -33.14   0.08   7.13 -63.71 -69.59
SO YBADJ    FAT1    -73.35 -74.89 -74.15 -71.15 -66.00 -58.84


SO BUILDHGT FAS1&2    0.00  12.20  12.20  12.20  12.20  12.20
SO BUILDHGT FAS1&2   12.20  12.20  12.20  12.20  12.20  12.20
SO BUILDHGT FAS1&2   12.20  12.20   0.00   0.00   0.00   0.00
SO BUILDHGT FAS1&2    0.00  12.20  12.20  12.20  12.20  12.20
SO BUILDHGT FAS1&2   60.40  60.40  12.20  12.20  12.20  12.20
SO BUILDHGT FAS1&2    0.00  12.20   0.00   0.00   0.00   0.00
SO BUILDWID FAS1&2    0.00  57.85  57.78  57.68  57.68  57.78
SO BUILDWID FAS1&2   57.84  57.89  57.90  57.89  57.84  57.78
SO BUILDWID FAS1&2   71.33  71.33   0.00   0.00   0.00   0.00
SO BUILDWID FAS1&2    0.00  57.85  57.78  57.68  57.68  57.78
SO BUILDWID FAS1&2   68.88  54.98  57.90  57.89  57.84  57.78
SO BUILDWID FAS1&2    0.00  71.33   0.00   0.00   0.00   0.00
SO BUILDLEN FAS1&2    0.00  57.84  57.78  57.68  57.68  57.78
SO BUILDLEN FAS1&2   57.85  57.89  57.90  57.89  57.85  57.78
SO BUILDLEN FAS1&2   71.33  71.33   0.00   0.00   0.00   0.00
SO BUILDLEN FAS1&2    0.00  57.84  57.78  57.68  57.68  57.78
SO BUILDLEN FAS1&2  100.69  98.41  57.90  57.89  57.85  57.78
SO BUILDLEN FAS1&2    0.00  71.33   0.00   0.00   0.00   0.00
SO XBADJ    FAS1&2    0.00   0.11   5.32   9.51  12.49  14.16
SO XBADJ    FAS1&2   14.54  13.61  11.40   7.99   3.46  -2.04
SO XBADJ    FAS1&2  -100.72 -95.64  0.00   0.00   0.00   0.00
SO XBADJ    FAS1&2    0.00 -57.95 -63.10 -67.19 -70.17 -71.94
SO XBADJ    FAS1&2  -348.91 -353.53 -69.31 -65.87 -61.30 -55.74
SO XBADJ    FAS1&2    0.00  24.32   0.00   0.00   0.00   0.00
SO YBADJ    FAS1&2    0.00 -32.38 -26.85 -20.50 -13.53  -6.15
SO YBADJ    FAS1&2    1.42   8.95  16.20  22.96  29.03  34.21
SO YBADJ    FAS1&2  -23.51 -34.45   0.00   0.00   0.00   0.00
SO YBADJ    FAS1&2    0.00  32.38  26.85  20.50  13.53   6.15
SO YBADJ    FAS1&2   61.52   8.88 -16.20 -22.96 -29.03 -34.21
SO YBADJ    FAS1&2    0.00  34.45   0.00   0.00   0.00   0.00


SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDWID FAT2A    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2A    68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2A    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDWID FAT2A    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2A    68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2A    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDLEN FAT2A    54.10  68.04  79.92  89.37  96.10  99.92
```

```
SO BUILDLEN FAT2A    100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT2A     96.68  90.05  80.69  68.88  54.97  41.31
SO BUILDLEN FAT2A     54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT2A    100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT2A     96.68  90.05  80.69  68.88  54.97  41.31
SO XBADJ    FAT2A     28.85  29.69  29.63  28.67  26.83  24.19
SO XBADJ    FAT2A     20.81  16.79   7.88 -60.59 -10.27 -21.24
SO XBADJ    FAT2A    -31.57 -40.93 -49.06 -55.69 -60.63 -65.64
SO XBADJ    FAT2A    -82.94 -97.73 -109.55 -118.04 -122.94 -124.10
SO XBADJ    FAT2A   -121.50 -115.20 -59.98   6.88 -90.73 -79.12
SO XBADJ    FAT2A    -65.11 -49.12 -31.64 -13.19   5.65  24.33
SO YBADJ    FAT2A    -50.30 -40.23 -28.94 -16.77  -4.09   8.71
SO YBADJ    FAT2A     21.25  33.14  -0.08  -7.13  63.71  69.59
SO YBADJ    FAT2A     73.35  74.89  74.15  71.15  66.00  58.84
SO YBADJ    FAT2A     50.30  40.23  28.94  16.77   4.09  -8.71
SO YBADJ    FAT2A    -21.25 -33.14   0.08   7.13 -63.71 -69.59
SO YBADJ    FAT2A    -73.35 -74.89 -74.15 -71.15 -66.00 -58.84

SO BUILDHGT FAT2B     60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2B     60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2B     60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2B     60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2B     60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2B     60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDWID FAT2B     98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2B     68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2B     89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDWID FAT2B     98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2B     68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2B     89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDLEN FAT2B     54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT2B    100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT2B     96.68  90.05  80.69  68.88  54.97  41.31
SO BUILDLEN FAT2B     54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT2B    100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT2B     96.68  90.05  80.69  68.88  54.97  41.31
SO XBADJ    FAT2B     28.85  29.69  29.63  28.67  26.83  24.19
SO XBADJ    FAT2B     20.81  16.79   7.88 -60.59 -10.27 -21.24
SO XBADJ    FAT2B    -31.57 -40.93 -49.06 -55.69 -60.63 -65.64
SO XBADJ    FAT2B    -82.94 -97.73 -109.55 -118.04 -122.94 -124.10
SO XBADJ    FAT2B   -121.50 -115.20 -59.98   6.88 -90.73 -79.12
SO XBADJ    FAT2B    -65.11 -49.12 -31.64 -13.19   5.65  24.33
SO YBADJ    FAT2B    -50.30 -40.23 -28.94 -16.77  -4.09   8.71
SO YBADJ    FAT2B     21.25  33.14  -0.08  -7.13  63.71  69.59
SO YBADJ    FAT2B     73.35  74.89  74.15  71.15  66.00  58.84
SO YBADJ    FAT2B     50.30  40.23  28.94  16.77   4.09  -8.71
SO YBADJ    FAT2B    -21.25 -33.14   0.08   7.13 -63.71 -69.59
SO YBADJ    FAT2B    -73.35 -74.89 -74.15 -71.15 -66.00 -58.84

SO BUILDHGT BAS12      0.00   0.00   0.00   0.00  12.20  12.20
SO BUILDHGT BAS12     12.20  12.20   0.00   0.00   0.00   0.00
SO BUILDHGT BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT BAS12      0.00   0.00   0.00  60.40  60.40  60.40
SO BUILDHGT BAS12     60.40   0.00   0.00   0.00   0.00   0.00
SO BUILDWID BAS12      0.00   0.00   0.00   0.00  57.68  57.78
SO BUILDWID BAS12     57.84  57.89   0.00   0.00   0.00   0.00
SO BUILDWID BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID BAS12      0.00   0.00   0.00  54.10  68.04  79.92
SO BUILDWID BAS12     89.37   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12      0.00   0.00   0.00   0.00  57.68  57.78
SO BUILDLEN BAS12     57.84  57.89   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12      0.00   0.00   0.00  98.57 101.00 100.36
SO BUILDLEN BAS12     96.68   0.00   0.00   0.00   0.00   0.00
SO XBADJ    BAS12      0.00   0.00   0.00   0.00 -113.15 -115.70
SO XBADJ    BAS12   -115.59 -112.84  0.00   0.00   0.00   0.00
SO XBADJ    BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    BAS12      0.00   0.00   0.00 -242.62 -250.48 -250.72
SO XBADJ    BAS12   -243.34   0.00   0.00   0.00   0.00   0.00
SO YBADJ    BAS12      0.00   0.00   0.00   0.00  21.75   6.78
SO YBADJ    BAS12     -8.40 -23.32   0.00   0.00   0.00   0.00
SO YBADJ    BAS12      0.00   0.00   0.00   0.00   0.00   0.00
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SO YBADJ   BAS12    0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   BAS12    0.00  0.00  0.00  52.82  18.51  -16.35
SO YBADJ   BAS12   -50.72  0.00  0.00  0.00  0.00  0.00

SO BUILDHGT LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIM1234  0.00  0.00  0.00  0.00  0.00  0.00

SO BUILDHGT LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDLEN LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO XBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00
SO YBADJ   LIMSILO  0.00  0.00  0.00  0.00  0.00  0.00

SO BUILDHGT CBO     65.30  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT CBO      0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT CBO      0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT CBO      0.00  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT CBO      0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT CBO      0.00  38.00  38.00  38.00  0.00  0.00
SO BUILDWID CBO     96.38  100.22  117.84  131.88  141.91  147.63
SO BUILDWID CBO      0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID CBO      0.00  0.00  0.00  0.00  0.00  0.00
```

```
SO BUILDWID CBO      0.00 100.22 117.84 131.88 141.91 147.63
SO BUILDWID CBO      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CBO      0.00  48.37  48.54  47.23   0.00   0.00
SO BUILDLEN CBO    145.57 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN CBO      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CBO      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CBO      0.00 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN CBO      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CBO      0.00  46.73  43.67  39.28   0.00   0.00
SO XBADJ   CBO   -289.14 -302.96 -307.57 -302.83 -288.90 -266.18
SO XBADJ   CBO      0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ   CBO      0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ   CBO      0.00 154.10 159.94 160.93 157.02 148.34
SO XBADJ   CBO      0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ   CBO      0.00 -177.51 -178.75 -174.56   0.00   0.00
SO YBADJ   CBO     80.60  50.09   9.64 -31.09 -70.89 -108.53
SO YBADJ   CBO      0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ   CBO      0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ   CBO      0.00 -50.09  -9.64  31.09  70.89 108.53
SO YBADJ   CBO      0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ   CBO      0.00  29.43   2.21 -25.07   0.00   0.00
```

APPENDIX F

MODEL SUMMARY AND INPUT FILES

```
CO STARTING
  TITLEONE 2001 PGN CRYSTAL RIVER NEW STACK UNIT 4&5 LOAD ANALYSIS  HS= 550 ft  8/12/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-05
  MODELOPT DFAULT CONC
  AVERTIME PERIOD 24 8 3 1
  POLLUTID GEN
  RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
  LOCATION U45100 POINT 334776.800 3205393.420 1.000
  LOCATION U45075 POINT 334776.800 3205393.420 1.000
  LOCATION U45050 POINT 334776.800 3205393.420 1.000
** Source Parameters **
  SRCPARAM U45100 1 167.7  328.000 15.30000 9.300
  SRCPARAM U45075 1 167.7  327.000 11.20000 9.300
  SRCPARAM U45050 1 167.7  327.000  7.50000 9.300

** Building Downwash **
SO BUILDHGT U45050-U45100     38.00   38.00   38.00   38.00   31.10   87.60
SO BUILDHGT U45050-U45100     87.60   87.60   87.60   87.60   38.00   38.00
SO BUILDHGT U45050-U45100     38.00   38.00   38.00   38.00   38.00    0.00
SO BUILDHGT U45050-U45100      0.00    0.00    0.00    0.00    0.00   87.60
SO BUILDHGT U45050-U45100     38.00   38.00   38.00   38.00   38.00   38.00
SO BUILDHGT U45050-U45100     38.00   38.00   38.00   38.00   38.00    0.00
SO BUILDWID U45050-U45100     44.50   47.24   48.53   48.36  144.98  147.63
SO BUILDWID U45050-U45100    148.86  145.57  137.85  145.57   39.28   43.67
SO BUILDWID U45050-U45100     46.73   48.37   48.54   47.23   44.49    0.00
SO BUILDWID U45050-U45100      0.00    0.00    0.00    0.00    0.00  147.63
SO BUILDWID U45050-U45100     39.28   33.70   27.10   33.70   39.28   43.67
SO BUILDWID U45050-U45100     46.73   48.37   48.54   47.23   44.49    0.00
SO BUILDLEN U45050-U45100     33.67   39.25   43.64   46.71  126.46  117.84
SO BUILDLEN U45050-U45100    100.22   79.56   56.48   79.56   47.23   48.54
SO BUILDLEN U45050-U45100     48.37   46.73   43.67   39.28   33.70    0.00
SO BUILDLEN U45050-U45100      0.00    0.00    0.00    0.00    0.00  117.84
SO BUILDLEN U45050-U45100     47.23   44.49   40.40   44.49   47.23   48.54
SO BUILDLEN U45050-U45100     48.37   46.73   43.67   39.28   33.70    0.00
SO XBADJ    U45050-U45100   -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45050-U45100   -293.28 -287.77 -273.51 -274.88  -72.54  -73.70
SO XBADJ    U45050-U45100    -72.63  -69.34  -63.96  -56.62  -47.57    0.00
SO XBADJ    U45050-U45100      0.00    0.00    0.00    0.00    0.00  172.04
SO XBADJ    U45050-U45100      9.22   16.51   23.30   24.68   25.31   25.16
SO XBADJ    U45050-U45100     24.26   22.62   20.29   17.34   13.87    0.00
SO YBADJ    U45050-U45100     25.96    7.68  -10.83  -29.01   76.77   90.51
SO YBADJ    U45050-U45100     49.03    6.06  -37.10  -79.12    7.23   -1.38
SO YBADJ    U45050-U45100     -9.94  -18.20  -25.91  -32.83  -38.75    0.00
SO YBADJ    U45050-U45100      0.00    0.00    0.00    0.00    0.00  -90.51
SO YBADJ    U45050-U45100    -36.98  -30.72  -23.52  -15.61   -7.23    1.38
SO YBADJ    U45050-U45100      9.94   18.20   25.91   32.83   38.75    0.00

   SRCGROUP U45100 U45100
   SRCGROUP U45075 U45075
   SRCGROUP U45050 U45050

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
  INCLUDED CRAUG06A.ROU
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
```

```
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
   RECTABLE ALLAVE FIRST
OU FINISHED
```

AERBOB RELEASE 020304

AERMOD OUTPUT FILE NUMBER 1 :G55045.O01
AERMOD OUTPUT FILE NUMBER 2 :G55045.O02
AERMOD OUTPUT FILE NUMBER 3 :G55045.O03
AERMOD OUTPUT FILE NUMBER 4 :G55045.O04
AERMOD OUTPUT FILE NUMBER 5 :G55045.O05
First title for last output file is: 2001 PGN CRYSTAL RIVER NEW STACK UNIT 4&5 LOAD ANALYSIS HS= 550 ft 8/12/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-05

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	0.00687	336500.	3205200.	01123124
	2002	0.00728	333434.	3205679.	02123124
	2003	0.00691	336400.	3205100.	03123124
	2004	0.00712	336400.	3205100.	04123124
	2005	0.00730	336400.	3205100.	05123124
HIGH 24-Hour					
	2001	0.07205	336700.	3205400.	01052624
	2002	0.07243	333800.	3205800.	02060524
	2003	0.06854	336800.	3205500.	03053024
	2004	0.08297	336600.	3205400.	04052724
	2005	0.09672	336500.	3205000.	05052424
HIGH 8-Hour					
	2001	0.20828	336800.	3205600.	01071216
	2002	0.17585	333800.	3205700.	02060516
	2003	0.14997	333800.	3206000.	03083016
	2004	0.19564	333677.	3205676.	04051416
	2005	0.21269	336400.	3205000.	05052416
HIGH 3-Hour					
	2001	0.31307	336700.	3205600.	01071215
	2002	0.26348	336700.	3206000.	02051718
	2003	0.29257	336700.	3206000.	03030915
	2004	0.30944	336600.	3205600.	04060215
	2005	0.29187	336500.	3205100.	05052418
HIGH 1-Hour					
	2001	0.36401	336600.	3205500.	01071214
	2002	0.35944	336600.	3205500.	02061514
	2003	0.39254	338050.	3205650.	03050712
	2004	0.37057	336400.	3206100.	04060115
	2005	0.39087	336500.	3205700.	05081214
SOURCE GROUP ID: U45075					
Annual					
	2001	0.00968	336600.	3205500.	01123124
	2002	0.00916	333579.	3205678.	02123124
	2003	0.00935	336500.	3205400.	03123124
	2004	0.00959	336300.	3205200.	04123124
	2005	0.00981	336300.	3205200.	05123124
HIGH 24-Hour					
	2001	0.09740	336500.	3205400.	01052624
	2002	0.08901	333800.	3205800.	02060524
	2003	0.11276	336600.	3205500.	03053024
	2004	0.10863	336400.	3205400.	04052724
	2005	0.12830	336300.	3205100.	05052424
HIGH 8-Hour					
	2001	0.27992	336700.	3205600.	01071216
	2002	0.21698	333900.	3205700.	02060516
	2003	0.19493	336500.	3205500.	03053016
	2004	0.23463	333774.	3205675.	04051416
	2005	0.25913	336300.	3205000.	05052416
HIGH 3-Hour					
	2001	0.38662	336600.	3205600.	01071215
	2002	0.35362	336600.	3206000.	02051718
	2003	0.37399	336600.	3206000.	03030915
	2004	0.40940	336500.	3205600.	04060215
	2005	0.37058	336400.	3205100.	05052418
HIGH 1-Hour					
	2001	0.48155	336400.	3205500.	01061414
	2002	0.46938	336400.	3205500.	02061514
	2003	0.47859	338800.	3205400.	03030414
	2004	0.48295	336200.	3206000.	04060115
	2005	0.49110	336400.	3205700.	05081214
SOURCE GROUP ID: U45050					
Annual					

	2001	0.01537	336500.	3205600.	01123124
	2002	0.01406	336500.	3205700.	02123124
	2003	0.01441	336400.	3205500.	03123124
	2004	0.01544	336500.	3205700.	04123124
	2005	0.01505	336500.	3205600.	05123124
HIGH 24-Hour					
	2001	0.14145	336400.	3205400.	01052624
	2002	0.11262	333900.	3205700.	02060524
	2003	0.15359	336400.	3205500.	03053024
	2004	0.14560	336300.	3205400.	04052724
	2005	0.16703	336200.	3205100.	05052424
HIGH 8-Hour					
	2001	0.39391	336500.	3205500.	01071216
	2002	0.27382	333968.	3205673.	02060516
	2003	0.27388	336400.	3205500.	03060216
	2004	0.32182	336500.	3205800.	04081916
	2005	0.41795	336500.	3205500.	05061716
HIGH 3-Hour					
	2001	0.49074	336300.	3205500.	01071215
	2002	0.49432	336600.	3205900.	02082115
	2003	0.46826	336400.	3205900.	03030915
	2004	0.53313	336300.	3205600.	04060215
	2005	0.47862	336600.	3205500.	05112415
HIGH 1-Hour					
	2001	0.99431	336600.	3206200.	01072911
	2002	0.80038	336600.	3206200.	02073112
	2003	0.65245	336700.	3206100.	03061012
	2004	0.89131	336700.	3206100.	04101714
	2005	0.84531	336800.	3205800.	05080512

All receptor computations reported with respect to a user-specified origin

GRID 0.00 0.00

DISCRETE 0.00 0.00

```
CO STARTING
  TITLEONE 2001 PGN CR NEW STACK UNIT 4&5 LOAD ANALYSIS CLASS I 550 ft  8/16/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-05
  MODELOPT DFAULT CONC
  AVERTIME PERIOD 24 8 3 1
  POLLUTID GEN
  RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
  LOCATION U45100 POINT 334776.800 3205393.420 1.000
  LOCATION U45075 POINT 334776.800 3205393.420 1.000
  LOCATION U45050 POINT 334776.800 3205393.420 1.000
** Source Parameters **
  SRCPARAM U45100 1 167.7  328.000 15.30000 9.300
  SRCPARAM U45075 1 167.7  327.000 11.20000 9.300
  SRCPARAM U45050 1 167.7  327.000  7.50000 9.300

** Building Downwash **
SO BUILDHGT U45050-U45100     38.00   38.00   38.00   38.00   31.10   87.60
SO BUILDHGT U45050-U45100     87.60   87.60   87.60   87.60   38.00   38.00
SO BUILDHGT U45050-U45100     38.00   38.00   38.00   38.00   38.00    0.00
SO BUILDHGT U45050-U45100      0.00    0.00    0.00    0.00    0.00   87.60
SO BUILDHGT U45050-U45100     38.00   38.00   38.00   38.00   38.00   38.00
SO BUILDHGT U45050-U45100     38.00   38.00   38.00   38.00   38.00    0.00
SO BUILDWID U45050-U45100     44.50   47.24   48.53   48.36  144.98  147.63
SO BUILDWID U45050-U45100    148.86  145.57  137.85  145.57   39.28   43.67
SO BUILDWID U45050-U45100     46.73   48.37   48.54   47.23   44.49    0.00
SO BUILDWID U45050-U45100      0.00    0.00    0.00    0.00    0.00  147.63
SO BUILDWID U45050-U45100     39.28   33.70   27.10   33.70   39.28   43.67
SO BUILDWID U45050-U45100     46.73   48.37   48.54   47.23   44.49    0.00
SO BUILDLEN U45050-U45100     33.67   39.25   43.64   46.71  126.46  117.84
SO BUILDLEN U45050-U45100    100.22   79.56   56.48   79.56   47.23   48.54
SO BUILDLEN U45050-U45100     48.37   46.73   43.67   39.28   33.70    0.00
SO BUILDLEN U45050-U45100      0.00    0.00    0.00    0.00    0.00  117.84
SO BUILDLEN U45050-U45100     47.23   44.49   40.40   44.49   47.23   48.54
SO BUILDLEN U45050-U45100     48.37   46.73   43.67   39.28   33.70    0.00
SO XBADJ    U45050-U45100   -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45050-U45100   -293.28 -287.77 -273.51 -274.88  -72.54  -73.70
SO XBADJ    U45050-U45100    -72.63  -69.34  -63.96  -56.62  -47.57    0.00
SO XBADJ    U45050-U45100      0.00    0.00    0.00    0.00    0.00  172.04
SO XBADJ    U45050-U45100      9.22   16.51   23.30   24.68   25.31   25.16
SO XBADJ    U45050-U45100     24.26   22.62   20.29   17.34   13.87    0.00
SO YBADJ    U45050-U45100     25.96    7.68  -10.83  -29.01   76.77   90.51
SO YBADJ    U45050-U45100     49.03    6.06  -37.10  -79.12    7.23   -1.38
SO YBADJ    U45050-U45100     -9.94  -18.20  -25.91  -32.83  -38.75    0.00
SO YBADJ    U45050-U45100      0.00    0.00    0.00    0.00    0.00  -90.51
SO YBADJ    U45050-U45100    -36.98  -30.72  -23.52  -15.61   -7.23    1.38
SO YBADJ    U45050-U45100      9.94   18.20   25.91   32.83   38.75    0.00

  SRCGROUP U45100 U45100
  SRCGROUP U45075 U45075
  SRCGROUP U45050 U45050

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
  INCLUDED CHASS.ROU
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
```

```
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
ME FINISHED
**
*******************************************
** AERMOD Output Pathway
*******************************************
**
**
OU STARTING
   RECTABLE ALLAVE FIRST
OU FINISHED
```

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :G55045C1.O01
AERMOD OUTPUT FILE NUMBER 2 :G55045C1.O02
AERMOD OUTPUT FILE NUMBER 3 :G55045C1.O03
AERMOD OUTPUT FILE NUMBER 4 :G55045C1.O04
AERMOD OUTPUT FILE NUMBER 5 :G55045C1.O05
First title for last output file is: 2001 PGN CR NEW STACK UNIT 4&5 LOAD ANALYSIS CLASS I 550 ft 8/16/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-05

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	0.00066	334447.	3183601.	01123124
	2002	0.00075	334447.	3183601.	02123124
	2003	0.00066	334447.	3183601.	03123124
	2004	0.00066	334447.	3183601.	04123124
	2005	0.00074	331926.	3178095.	05123124
HIGH 24-Hour					
	2001	0.00827	335260.	3183589.	01111624
	2002	0.00683	331926.	3178095.	02110724
	2003	0.00821	331926.	3178095.	03112024
	2004	0.00860	334447.	3183601.	04110624
	2005	0.00933	335260.	3183589.	05090824
HIGH 8-Hour					
	2001	0.01844	336074.	3183578.	01111608
	2002	0.01496	336074.	3183578.	02112724
	2003	0.01283	331926.	3178095.	03112008
	2004	0.01258	335260.	3183589.	04122408
	2005	0.01792	336074.	3183578.	05122108
HIGH 3-Hour					
	2001	0.02434	334447.	3183601.	01101621
	2002	0.02833	338515.	3183544.	02052909
	2003	0.02004	331926.	3178095.	03092909
	2004	0.02287	336074.	3183578.	04022703
	2005	0.02233	338515.	3183544.	05112924
HIGH 1-Hour					
	2001	0.05170	342483.	3176101.	01033109
	2002	0.08462	338515.	3183544.	02052908
	2003	0.05980	331926.	3178095.	03092908
	2004	0.04989	342483.	3176101.	04110809
	2005	0.04385	331926.	3178095.	05072407
SOURCE GROUP ID: U45075					
Annual					
	2001	0.00078	334447.	3183601.	01123124
	2002	0.00090	334447.	3183601.	02123124
	2003	0.00077	334447.	3183601.	03123124
	2004	0.00077	334447.	3183601.	04123124
	2005	0.00085	334447.	3183601.	05123124
HIGH 24-Hour					
	2001	0.00939	335260.	3183589.	01111624
	2002	0.00815	334447.	3183601.	02021324
	2003	0.00938	331926.	3178095.	03112024
	2004	0.00975	334447.	3183601.	04110624
	2005	0.00996	335260.	3183589.	05122124
HIGH 8-Hour					
	2001	0.02111	336074.	3183578.	01111608
	2002	0.01780	336074.	3183578.	02112724
	2003	0.01547	334447.	3183601.	03011108
	2004	0.01652	335260.	3183589.	04122408
	2005	0.02021	336074.	3183578.	05122108
HIGH 3-Hour					
	2001	0.02766	334447.	3183601.	01101621
	2002	0.03082	338515.	3183544.	02052909
	2003	0.02481	335260.	3183589.	03022521
	2004	0.02465	336074.	3183578.	04022703
	2005	0.02601	338515.	3183544.	05112924
HIGH 1-Hour					
	2001	0.05747	342483.	3176101.	01033109
	2002	0.09205	338515.	3183544.	02052908
	2003	0.06576	331926.	3178095.	03092908
	2004	0.05475	342483.	3176101.	04110809
	2005	0.04759	331926.	3178095.	05072407
SOURCE GROUP ID: U45050					
Annual					

	2001	0.00094	334447.	3183601.	01123124
	2002	0.00108	334447.	3183601.	02123124
	2003	0.00091	334447.	3183601.	03123124
	2004	0.00089	334447.	3183601.	04123124
	2005	0.00101	334447.	3183601.	05123124
HIGH 24-Hour					
	2001	0.01059	335260.	3183589.	01111624
	2002	0.01011	334447.	3183601.	02021324
	2003	0.01082	331926.	3178095.	03112024
	2004	0.01083	334447.	3183601.	04110624
	2005	0.01212	334447.	3183601.	05122124
HIGH 8-Hour					
	2001	0.02408	336074.	3183578.	01111608
	2002	0.02253	334447.	3183601.	02021308
	2003	0.01970	334447.	3183601.	03011108
	2004	0.02098	335260.	3183589.	04122408
	2005	0.02211	336074.	3183578.	05122108
HIGH 3-Hour					
	2001	0.03438	334447.	3183601.	01042524
	2002	0.03380	335260.	3183589.	02112721
	2003	0.02964	334447.	3183601.	03011106
	2004	0.03466	336074.	3183578.	04011221
	2005	0.03613	334447.	3183601.	05122121
HIGH 1-Hour					
	2001	0.06419	342483.	3176101.	01033109
	2002	0.09999	338515.	3183544.	02052908
	2003	0.07254	331926.	3178095.	03092908
	2004	0.06020	342483.	3176101.	04110809
	2005	0.05352	331926.	3178095.	05072407

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	0.00	0.00

```
CO STARTING
  TITLEONE 2001 PGN CR PROJECT 550 FT NO2 0.50 LB/MMBTU  8/16/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-2005
  MODELOPT DFAULT CONC
  AVERTIME PERIOD
  POLLUTID GEN
  RUNORNOT RUN
CO FINISHED
**
*****************************************
** AERMOD Source Pathway
*****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION

** Source Location **
** Source ID - Type - X Coord. - Y Coord. **

  LOCATION U45100 POINT 334776.800 3205393.420 1.000

  LOCATION BLR4 POINT 334665.270 3205401.840 1.000
  LOCATION BLR5 POINT 334665.270 3205310.430 1.000

** Source Parameters **
** PROP. 0.50 LB/MMBTU X 7200= 3600 LB/HR PER UNIT

  SRCPARAM U45100   907.2 167.700 328.000 15.300 9.300

  SRCPARAM BLR4   -419.9 178.200 300.000 21.00000 7.770
  SRCPARAM BLR5   -419.9 178.200 300.000 21.00000 7.770

** Building Downwash **
SO BUILDHGT U45100    38.00   38.00   38.00   38.00   31.10   87.60
SO BUILDHGT U45100    87.60   87.60   87.60   87.60   38.00   38.00
SO BUILDHGT U45100    38.00   38.00   38.00   38.00   38.00    0.00
SO BUILDHGT U45100     0.00    0.00    0.00    0.00    0.00   87.60
SO BUILDHGT U45100    38.00   38.00   38.00   38.00   38.00   38.00
SO BUILDHGT U45100    38.00   38.00   38.00   38.00   38.00    0.00
SO BUILDWID U45100    44.50   47.24   48.53   48.36  144.98  147.63
SO BUILDWID U45100   148.86  145.57  137.85  145.57   39.28   43.67
SO BUILDWID U45100    46.73   48.37   48.54   47.23   44.49    0.00
SO BUILDWID U45100     0.00    0.00    0.00    0.00    0.00  147.63
SO BUILDWID U45100    39.28   33.70   27.10   33.70   39.28   43.67
SO BUILDWID U45100    46.73   48.37   48.54   47.23   44.49    0.00
SO BUILDLEN U45100    33.67   39.25   43.64   46.71  126.46  117.84
SO BUILDLEN U45100   100.22   79.56   56.48   79.56   47.23   48.54
SO BUILDLEN U45100    48.37   46.73   43.67   39.28   33.70    0.00
SO BUILDLEN U45100     0.00    0.00    0.00    0.00    0.00  117.84
SO BUILDLEN U45100    47.23   44.49   40.40   44.49   47.23   48.54
SO BUILDLEN U45100    48.37   46.73   43.67   39.28   33.70    0.00
SO XBADJ    U45100  -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45100  -293.28 -287.77 -273.51 -274.88  -72.54  -73.70
SO XBADJ    U45100   -72.63  -69.34  -63.96  -56.62  -47.57    0.00
SO XBADJ    U45100     0.00    0.00    0.00    0.00    0.00  172.04
SO XBADJ    U45100     9.22   16.51   23.30   24.68   25.31   25.16
SO XBADJ    U45100    24.26   22.62   20.29   17.34   13.87    0.00
SO YBADJ    U45100    25.96    7.68  -10.83  -29.01   76.77   90.51
SO YBADJ    U45100    49.03    6.06  -37.10  -79.12    7.23   -1.38
SO YBADJ    U45100    -9.94  -18.20  -25.91  -32.83  -38.75    0.00
SO YBADJ    U45100     0.00    0.00    0.00    0.00    0.00  -90.51
SO YBADJ    U45100   -36.98  -30.72  -23.52  -15.61   -7.23    1.38
SO YBADJ    U45100     9.94   18.20   25.91   32.83   38.75    0.00

SO BUILDHGT BLR4      27.80   65.30   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4      84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4      27.80   27.80   27.80    0.00    0.00    0.00
SO BUILDHGT BLR4       0.00   65.30   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4      84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4      38.00   38.00   38.00   38.00    0.00    0.00
SO BUILDWID BLR4     138.19  129.98  117.84  131.88  141.91  147.63
SO BUILDWID BLR4     148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR4     125.54  134.97  140.30    0.00    0.00    0.00
SO BUILDWID BLR4       0.00  129.98  117.84  131.88  141.91  147.63
SO BUILDWID BLR4     148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR4      46.71   48.36   48.53   47.24    0.00    0.00
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SO BUILDLEN BLR4     75.81  148.86  147.63  141.91  131.88  117.84
SO BUILDLEN BLR4    100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR4    135.12  125.72  112.50    0.00    0.00    0.00
SO BUILDLEN BLR4      0.00  148.86  147.63  141.91  131.88  117.84
SO BUILDLEN BLR4    100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR4     48.36   46.71   43.64   39.25    0.00    0.00
SO XBADJ    BLR4   -140.83 -162.94 -180.10 -191.79 -197.65 -197.50
SO XBADJ    BLR4   -191.35 -179.39 -161.98 -163.58 -160.22 -151.98
SO XBADJ    BLR4   -139.13 -122.05 -101.26    0.00    0.00    0.00
SO XBADJ    BLR4      0.00   14.08   32.48   49.88   65.77   79.66
SO XBADJ    BLR4     91.13   99.83  105.50   84.02   60.00   34.14
SO XBADJ    BLR4   -144.04 -147.81 -147.09 -141.90    0.00    0.00
SO YBADJ    BLR4     78.62   95.23   93.06   73.19   51.10   27.45
SO YBADJ    BLR4      2.97  -21.60  -45.52  -68.05  -88.51 -106.29
SO YBADJ    BLR4    -59.01  -71.42  -81.66    0.00    0.00    0.00
SO YBADJ    BLR4      0.00  -95.23  -93.06  -73.19  -51.10  -27.45
SO YBADJ    BLR4     -2.97   21.60   45.52   68.05   88.51  106.29
SO YBADJ    BLR4     36.93   15.56   -6.29  -27.95    0.00    0.00


SO BUILDHGT BLR5      0.00    0.00   27.80   27.80   27.80   84.40
SO BUILDHGT BLR5     84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR5     84.40   84.40   84.40   65.30   27.80    0.00
SO BUILDHGT BLR5      0.00   38.00   38.00   38.00   38.00   84.40
SO BUILDHGT BLR5     84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR5     84.40   84.40   84.40   65.30    0.00    0.00
SO BUILDWID BLR5      0.00    0.00  140.52  135.27  125.90  147.63
SO BUILDWID BLR5    148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR5    141.91  131.88  117.84  129.86  138.13    0.00
SO BUILDWID BLR5      0.00   47.23   48.54   48.37   46.73  147.63
SO BUILDWID BLR5    148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR5    141.91  131.88  117.84  129.86    0.00    0.00
SO BUILDLEN BLR5      0.00    0.00  112.05  125.31  134.77  117.84
SO BUILDLEN BLR5    100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR5    131.88  141.91  147.63  148.86   76.31    0.00
SO BUILDLEN BLR5      0.00   39.28   43.67   46.73   48.37  117.84
SO BUILDLEN BLR5    100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR5    131.88  141.91  147.63  148.86    0.00    0.00
SO XBADJ    BLR5      0.00    0.00 -100.94 -121.76 -138.89 -151.80
SO XBADJ    BLR5   -160.09 -163.52 -161.98 -179.46 -191.48 -197.69
SO XBADJ    BLR5   -197.89 -192.08 -180.43 -163.30 -141.20    0.00
SO XBADJ    BLR5      0.00 -143.00 -148.09 -148.69 -144.76   33.96
SO XBADJ    BLR5     59.87   83.96  105.50   99.90   91.26   79.85
SO XBADJ    BLR5     66.01   50.17   32.80   14.44    0.00    0.00
SO YBADJ    BLR5      0.00    0.00   81.74   71.52   59.12  106.61
SO YBADJ    BLR5     88.87   68.42   45.89   21.97   -2.62  -27.13
SO YBADJ    BLR5    -50.81  -72.95  -92.88  -95.16  -78.58    0.00
SO YBADJ    BLR5      0.00   27.50    5.66  -16.35  -37.86 -106.61
SO YBADJ    BLR5    -88.87  -68.42  -45.89  -21.97    2.62   27.13
SO YBADJ    BLR5     50.81   72.95   92.88   95.16    0.00    0.00

   SRCGROUP U45100 U45100
   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED CRAUG06A.ROU
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
ME FINISHED
**
```

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****************************************
** AERMOD Output Pathway
****************************************

OU STARTING
   RECTABLE ALLAVE FIRST
OU FINISHED
```

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :PRN55.O01
AERMOD OUTPUT FILE NUMBER 2 :PRN55.O02
AERMOD OUTPUT FILE NUMBER 3 :PRN55.O03
AERMOD OUTPUT FILE NUMBER 4 :PRN55.O04
AERMOD OUTPUT FILE NUMBER 5 :PRN55.O05
First title for last output file is: 2001 PGN CR PROJECT 550 FT NO2 0.50 LB/MMBTU 8/16/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-2005

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	6.23129	336500.	3205200.	01123124
	2002	6.60185	333434.	3205679.	02123124
	2003	6.26973	336400.	3205100.	03123124
	2004	6.46338	336400.	3205100.	04123124
	2005	6.62295	336400.	3205100.	05123124
SOURCE GROUP ID: ALL					
Annual					
	2001	0.19699	334360.	3205667.	01123124
	2002	0.27090	334360.	3205667.	02123124
	2003	0.22416	334360.	3205667.	03123124
	2004	0.24927	334311.	3205667.	04123124
	2005	0.11051	334360.	3205667.	05123124

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00
DISCRETE 0.00 0.00

```
CO STARTING
  TITLEONE 2001 PGN CR PROJECT 550 FT NO2 0.50 LB/MMBTU CLASS I 8/16/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-2005
  MODELOPT DFAULT CONC
  AVERTIME PERIOD
  POLLUTID GEN
  RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION

** Source Location **
** Source ID - Type - X Coord. - Y Coord. **

  LOCATION U45100 POINT 334776.800 3205393.420 1.000

  LOCATION BLR4 POINT 334665.270 3205401.840 1.000
  LOCATION BLR5 POINT 334665.270 3205310.430 1.000

** Source Parameters **
** PROP. 0.50 LB/MMBTU X 7200= 3600 LB/HR PER UNIT

  SRCPARAM U45100   907.2 167.700 328.000 15.300 9.300

  SRCPARAM BLR4   -419.9 178.200 300.000 21.00000 7.770
  SRCPARAM BLR5   -419.9 178.200 300.000 21.00000 7.770

** Building Downwash **
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  31.10  87.60
SO BUILDHGT U45100   87.60  87.60  87.60  87.60  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDHGT U45100    0.00   0.00   0.00   0.00   0.00  87.60
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDWID U45100   44.50  47.24  48.53  48.36 144.98 147.63
SO BUILDWID U45100  148.86 145.57 137.85 145.57  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDWID U45100    0.00   0.00   0.00   0.00   0.00 147.63
SO BUILDWID U45100   39.28  33.70  27.10  33.70  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDLEN U45100   33.67  39.25  43.64  46.71 126.46 117.84
SO BUILDLEN U45100  100.22  79.56  56.48  79.56  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO BUILDLEN U45100    0.00   0.00   0.00   0.00   0.00 117.84
SO BUILDLEN U45100   47.23  44.49  40.40  44.49  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO XBADJ    U45100 -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45100 -293.28 -287.77 -273.51 -274.88 -72.54 -73.70
SO XBADJ    U45100  -72.63 -69.34 -63.96 -56.62 -47.57   0.00
SO XBADJ    U45100    0.00   0.00   0.00   0.00   0.00 172.04
SO XBADJ    U45100    9.22  16.51  23.30  24.68  25.31  25.16
SO XBADJ    U45100   24.26  22.62  20.29  17.34  13.87   0.00
SO YBADJ    U45100   25.96   7.68 -10.83 -29.01  76.77  90.51
SO YBADJ    U45100   49.03   6.06 -37.10 -79.12   7.23  -1.38
SO YBADJ    U45100   -9.94 -18.20 -25.91 -32.83 -38.75   0.00
SO YBADJ    U45100    0.00   0.00   0.00   0.00   0.00 -90.51
SO YBADJ    U45100  -36.98 -30.72 -23.52 -15.61  -7.23   1.38
SO YBADJ    U45100    9.94  18.20  25.91  32.83  38.75   0.00

SO BUILDHGT BLR4     27.80  65.30  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     27.80  27.80  27.80   0.00   0.00   0.00
SO BUILDHGT BLR4      0.00  65.30  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     38.00  38.00  38.00  38.00   0.00   0.00
SO BUILDWID BLR4    138.19 129.98 117.84 131.88 141.91 147.63
SO BUILDWID BLR4    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR4    125.54 134.97 140.30   0.00   0.00   0.00
SO BUILDWID BLR4      0.00 129.98 117.84 131.88 141.91 147.63
SO BUILDWID BLR4    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR4     46.71  48.36  48.53  47.24   0.00   0.00
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SO BUILDLEN BLR4     75.81 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN BLR4    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR4    135.12 125.72 112.50   0.00   0.00   0.00
SO BUILDLEN BLR4      0.00 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN BLR4    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR4     48.36  46.71  43.64  39.25   0.00   0.00
SO XBADJ    BLR4   -140.83 -162.94 -180.10 -191.79 -197.65 -197.50
SO XBADJ    BLR4   -191.35 -179.39 -161.98 -163.58 -160.22 -151.98
SO XBADJ    BLR4   -139.13 -122.05 -101.26   0.00   0.00   0.00
SO XBADJ    BLR4      0.00  14.08  32.48  49.88  65.77  79.66
SO XBADJ    BLR4     91.13  99.83 105.50  84.02  60.00  34.14
SO XBADJ    BLR4   -144.04 -147.81 -147.09 -141.90   0.00   0.00
SO YBADJ    BLR4     78.62  95.23  93.06  73.19  51.10  27.45
SO YBADJ    BLR4      2.97 -21.60 -45.52 -68.05 -88.51 -106.29
SO YBADJ    BLR4    -59.01 -71.42 -81.66   0.00   0.00   0.00
SO YBADJ    BLR4      0.00 -95.23 -93.06 -73.19 -51.10 -27.45
SO YBADJ    BLR4     -2.97  21.60  45.52  68.05  88.51 106.29
SO YBADJ    BLR4     36.93  15.56  -6.29 -27.95   0.00   0.00


SO BUILDHGT BLR5      0.00   0.00  27.80  27.80  27.80  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  65.30  27.80   0.00
SO BUILDHGT BLR5      0.00  38.00  38.00  38.00  38.00  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  65.30   0.00   0.00
SO BUILDWID BLR5      0.00   0.00 140.52 135.27 125.90 147.63
SO BUILDWID BLR5    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR5    141.91 131.88 117.84 129.86 138.13   0.00
SO BUILDWID BLR5      0.00  47.23  48.54  48.37  46.73 147.63
SO BUILDWID BLR5    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR5    141.91 131.88 117.84 129.86   0.00   0.00
SO BUILDLEN BLR5      0.00   0.00 112.05 125.31 134.77 117.84
SO BUILDLEN BLR5    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR5    131.88 141.91 147.63 148.86  76.31   0.00
SO BUILDLEN BLR5      0.00  39.28  43.67  46.73  48.37 117.84
SO BUILDLEN BLR5    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR5    131.88 141.91 147.63 148.86   0.00   0.00
SO XBADJ    BLR5      0.00   0.00 -100.94 -121.76 -138.89 -151.80
SO XBADJ    BLR5   -160.09 -163.52 -161.98 -179.46 -191.48 -197.69
SO XBADJ    BLR5   -197.89 -192.08 -180.43 -163.30 -141.20   0.00
SO XBADJ    BLR5      0.00 -143.00 -148.09 -148.69 -144.76  33.96
SO XBADJ    BLR5     59.87  83.96 105.50  99.90  91.26  79.85
SO XBADJ    BLR5     66.01  50.17  32.80  14.44   0.00   0.00
SO YBADJ    BLR5      0.00   0.00  81.74  71.52  59.12 106.61
SO YBADJ    BLR5     88.87  68.42  45.89  21.97  -2.62 -27.13
SO YBADJ    BLR5    -50.81 -72.95 -92.88 -95.16 -78.58   0.00
SO YBADJ    BLR5      0.00  27.50   5.66 -16.35 -37.86 -106.61
SO YBADJ    BLR5    -88.87 -68.42 -45.89 -21.97   2.62  27.13
SO YBADJ    BLR5     50.81  72.95  92.88  95.16   0.00   0.00

   SRCGROUP U45100 U45100
   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED CHASS.ROU
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
ME FINISHED
**
```

****
** AERMOD Output Pathway
****

OU STARTING
  RECTABLE ALLAVE FIRST
OU FINISHED

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :PRN55C1.O01
AERMOD OUTPUT FILE NUMBER 2 :PRN55C1.O02
AERMOD OUTPUT FILE NUMBER 3 :PRN55C1.O03
AERMOD OUTPUT FILE NUMBER 4 :PRN55C1.O04
AERMOD OUTPUT FILE NUMBER 5 :PRN55C1.O05
First title for last output file is: 2001 PGN CR PROJECT 550 FT NO2 0.50 LB/MMBTU CLASS I 8/16/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-2005

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	0.59661	334447.	3183601.	01123124
	2002	0.68244	334447.	3183601.	02123124
	2003	0.59914	334447.	3183601.	03123124
	2004	0.59816	334447.	3183601.	04123124
	2005	0.66733	331926.	3178095.	05123124
SOURCE GROUP ID: ALL					
Annual					
	2001	0.00000	0.	0.	01123124
	2002	0.00000	0.	0.	02123124
	2003	0.00000	0.	0.	03123124
	2004	0.00000	0.	0.	04123124
	2005	0.00000	0.	0.	05123124

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00
DISCRETE 0.00 0.00

```
CO STARTING
  TITLEONE 2001 PGN CR AAQS    PROPOSED 550 FT NOX 0.50 LB/MMBTU  8/12/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-2005
  MODELOPT DFAULT CONC
  AVERTIME PERIOD
  POLLUTID GEN
  RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION

** Source Location **
** Source ID - Type - X Coord. - Y Coord. **

   LOCATION U45100 POINT 334776.800 3205393.420 1.000

   LOCATION UNIT1 POINT 334319.400 3204230.210 1.0
   LOCATION UNIT2 POINT 334260.580 3204230.210 1.0

********** OTHER NOX SOURCES
**     CEMEX
SO LOCATION    CEMEX3  POINT   355900  3169100 30.5
SO LOCATION    CEMEX14 POINT   355900  3169100 30.5

**     Florida Crushed Stone - Brooksville Cement And Power Plants
SO LOCATION    FCS18   POINT   360000  3162500 39.6
SO LOCATION    FCS20   POINT   360000  3162500 39.6
SO LOCATION    FCS44   POINT   360000  3162500 39.6

**     Shady Hills Generating Station
SO LOCATION    SHILLGS1 POINT   347000  3139000 15.2
SO LOCATION    SHILLGS2 POINT   347000  3139000 15.2
SO LOCATION    SHILLGS3 POINT   347000  3139000 15.2

**     Pasco County Resource Recovery Facility
SO LOCATION    PCRRF1  POINT   348810  3138770 15.2
SO LOCATION    PCRRF2  POINT   348810  3138770 15.2
SO LOCATION    PCRRF3  POINT   348810  3138770 15.2
SO LOCATION    PCRRF5  POINT   348810  3138770 15.2

**     Florida Rock Industries - Thompson S. Baker Cement Plant
SO LOCATION    FRBCP3  POINT   348350  3287040 39.6
SO LOCATION    FRBCP10 POINT   348350  3287040 39.6

**     Progress Energy-Anclote Power Plant
SO LOCATION    FPCANC1 POINT   327400  3120700 4.6
SO LOCATION    FPCANC2 POINT   327400  3120700 4.6

**     Florida Gas Transmission Company
SO LOCATION    FGTC1   POINT   418800  3240900 4.6
SO LOCATION    FGTC2   POINT   418800  3240900 4.6
SO LOCATION    FGTC3   POINT   418800  3240900 4.6
SO LOCATION    FGTC4   POINT   418800  3240900 4.6
SO LOCATION    FGTC5   POINT   418800  3240900 4.6
SO LOCATION    FGTC8   POINT   418800  3240900 4.6

**     GRU Deerhaven Generating Station
SO LOCATION    GRUDGS3 POINT   365700  3292600 54.9
SO LOCATION    GRUDGS5 POINT   365700  3292600 54.9
SO LOCATION    GRUDGS6 POINT   365700  3292600 54.9


** Source Parameters **
** PROP. 0.50 LB/MMBTU X 7200= 3600 LB/HR PER UNIT

   SRCPARAM U45100   907.2 167.700 328.000 15.300 9.300

   SRCPARAM UNIT1    283.5 152.100 417.000 40.500 4.570
   SRCPARAM UNIT2    362.5 153.000 422.000 48.800 4.880

 **               Q     H     T     V     D
```

```
**         SRCID  (g/s)  (m)    (K)    (m/s)  (m)

**    CEMEX
SO SRCPARAM    CEMEX3 37.92 45.72  414    10.36  3.96
SO SRCPARAM    CEMEX14 32.51 32.00  394    9.75   4.27

**    Florida Crushed Stone - Brooksville Cement And Power Plants
SO SRCPARAM    FCS18  106.60 97.54  422    21.21  4.88
SO SRCPARAM    FCS20  45.22 91.44  378    14.33  4.88
SO SRCPARAM    FCS44  45.90 97.54  561    12.22  4.27

**    Shady Hills Generating Station
SO SRCPARAM    SHILLGS1 7.25  18.29  874    35.36  6.71
SO SRCPARAM    SHILLGS2 7.25  18.29  874    35.36  6.71
SO SRCPARAM    SHILLGS3 7.25  18.29  874    35.36  6.71

**    Pasco County Resource Recovery Facility
SO SRCPARAM    PCRRF1 9.65  83.82  394    24.96  1.43
SO SRCPARAM    PCRRF2 9.65  83.82  394    24.96  1.43
SO SRCPARAM    PCRRF3 9.65  83.82  394    24.96  1.43
SO SRCPARAM    PCRRF5 0.038  9.14  450    5.82   0.30

**    Florida Rock Industries - Thompson S. Baker Cement Plant
SO SRCPARAM    FRBCP3 28.19 76.20  453    14.57  2.87
SO SRCPARAM    FRBCP10 30.71 96.01  453    16.03  2.87

**    Progress Energy-Anclote Power Plant
SO SRCPARAM    FPCANC1 195.98 152.10 433   18.90  7.32
SO SRCPARAM    FPCANC2 191.48 152.10 433   18.90  7.32

**    Florida Gas Transmission Company
SO SRCPARAM    FGTC1  6.11  8.53   741   44.81  0.40
SO SRCPARAM    FGTC2  6.11  8.53   741   44.81  0.40
SO SRCPARAM    FGTC3  6.11  8.53   741   44.81  0.40
SO SRCPARAM    FGTC4  4.45  8.53   741   44.81  0.40
SO SRCPARAM    FGTC5  1.33  12.19  641   54.86  0.40
SO SRCPARAM    FGTC8  1.78  18.59  761   24.11  2.32

**    GRU Deerhaven Generating Station
SO SRCPARAM    GRUDGS3 33.21 91.44  400   14.33  3.35
SO SRCPARAM    GRUDGS5 214.15 106.68 408  15.24  5.64
SO SRCPARAM    GRUDGS6 6.88  15.85  866   51.21  4.30

** Building Downwash **
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  31.10  87.60
SO BUILDHGT U45100   87.60  87.60  87.60  87.60  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDHGT U45100    0.00   0.00   0.00   0.00   0.00  87.60
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDWID U45100   44.50  47.24  48.53  48.36 144.98 147.63
SO BUILDWID U45100  148.86 145.57 137.85 145.57  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDWID U45100    0.00   0.00   0.00   0.00   0.00 147.63
SO BUILDWID U45100   39.28  33.70  27.10  33.70  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDLEN U45100   33.67  39.25  43.64  46.71 126.46 117.84
SO BUILDLEN U45100  100.22  79.56  56.48  79.56  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO BUILDLEN U45100    0.00   0.00   0.00   0.00   0.00 117.84
SO BUILDLEN U45100   47.23  44.49  40.40  44.49  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO XBADJ    U45100 -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45100 -293.28 -287.77 -273.51 -274.88 -72.54 -73.70
SO XBADJ    U45100  -72.63 -69.34 -63.96 -56.62 -47.57   0.00
SO XBADJ    U45100    0.00   0.00   0.00   0.00   0.00 172.04
SO XBADJ    U45100    9.22  16.51  23.30  24.68  25.31  25.16
SO XBADJ    U45100   24.26  22.62  20.29  17.34  13.87   0.00
SO YBADJ    U45100   25.96   7.68 -10.83 -29.01  76.77  90.51
SO YBADJ    U45100   49.03   6.06 -37.10 -79.12   7.23  -1.38
SO YBADJ    U45100   -9.94 -18.20 -25.91 -32.83 -38.75   0.00
SO YBADJ    U45100    0.00   0.00   0.00   0.00   0.00 -90.51
SO YBADJ    U45100  -36.98 -30.72 -23.52 -15.61  -7.23   1.38
SO YBADJ    U45100    9.94  18.20  25.91  32.83  38.75   0.00

SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40   0.00
SO BUILDHGT UNIT1     0.00   0.00   0.00   0.00  12.20  60.40
SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40  60.40
```

```
SO BUILDHGT UNIT1     60.40  60.40  60.40  60.40  60.40   0.00
SO BUILDHGT UNIT1      0.00   0.00   0.00   0.00  12.20  60.40
SO BUILDHGT UNIT1     60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDWID UNIT1     98.57 101.00 100.36  96.68  90.05   0.00
SO BUILDWID UNIT1      0.00   0.00   0.00   0.00  42.31  79.92
SO BUILDWID UNIT1     89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDWID UNIT1     98.57 101.00 100.36  96.68  90.05   0.00
SO BUILDWID UNIT1      0.00   0.00   0.00   0.00  42.31  79.92
SO BUILDWID UNIT1     89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDLEN UNIT1     54.10  68.04  79.92  89.37  96.10   0.00
SO BUILDLEN UNIT1      0.00   0.00   0.00   0.00  57.88 100.36
SO BUILDLEN UNIT1     96.68  90.05  80.69  68.88  54.97  41.31
SO BUILDLEN UNIT1     54.10  68.04  79.92  89.37  96.10   0.00
SO BUILDLEN UNIT1      0.00   0.00   0.00   0.00  57.88 100.36
SO BUILDLEN UNIT1     96.68  90.05  80.69  68.88  54.97  41.31
SO XBADJ    UNIT1     48.68  34.97  20.19   4.80 -10.74   0.00
SO XBADJ    UNIT1      0.00   0.00   0.00   0.00 -81.32 -105.17
SO XBADJ    UNIT1   -112.58 -116.57 -117.02 -113.91 -107.35 -99.43
SO XBADJ    UNIT1   -102.78 -103.01 -100.11 -94.17 -85.36   0.00
SO XBADJ    UNIT1      0.00   0.00   0.00   0.00  23.44   4.80
SO XBADJ    UNIT1     15.90  26.52  36.33  45.03  52.37  58.12
SO YBADJ    UNIT1     31.79  44.06  54.98  64.24  71.54   0.00
SO YBADJ    UNIT1      0.00   0.00   0.00   0.00  16.81  60.15
SO YBADJ    UNIT1     49.48  37.31  24.01   9.98  -4.36 -18.56
SO YBADJ    UNIT1    -31.79 -44.06 -54.98 -64.24 -71.54   0.00
SO YBADJ    UNIT1      0.00   0.00   0.00   0.00 -16.81 -60.15
SO YBADJ    UNIT1    -49.48 -37.31 -24.01  -9.98   4.36  18.56


SO BUILDHGT UNIT2     60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2     60.40   0.00   0.00  12.20  12.20  12.20
SO BUILDHGT UNIT2     12.20  12.20  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2     60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2     60.40   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT UNIT2      0.00  12.20  60.40  60.40  60.40  60.40
SO BUILDWID UNIT2     98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID UNIT2     68.88   0.00   0.00  34.33  41.56  47.53
SO BUILDWID UNIT2     52.06  55.00  99.92 100.69  98.41  93.14
SO BUILDWID UNIT2     98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID UNIT2     68.88   0.00   0.00   0.00   0.00   0.00
SO BUILDWID UNIT2      0.00  56.66  99.92 100.69  98.41  93.14
SO BUILDLEN UNIT2     54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN UNIT2    100.69   0.00   0.00  53.70  55.84  56.28
SO BUILDLEN UNIT2     55.00  52.06  80.69  68.88  54.97  41.31
SO BUILDLEN UNIT2     54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN UNIT2    100.69   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN UNIT2      0.00  53.45  80.69  68.88  54.97  41.31
SO XBADJ    UNIT2     58.90  55.08  49.60  42.61  34.32  24.99
SO XBADJ    UNIT2     14.90   0.00   0.00 -84.75 -88.92 -90.39
SO XBADJ    UNIT2    -89.10 -85.12 -87.61 -93.80 -97.13 -99.43
SO XBADJ    UNIT2   -112.99 -123.13 -129.52 -131.98 -130.42 -124.91
SO XBADJ    UNIT2   -115.60   0.00   0.00   0.00   0.00   0.00
SO XBADJ    UNIT2      0.00 -10.77   6.92  24.92  42.16  58.12
SO YBADJ    UNIT2    -26.13 -11.21   4.04  19.18  33.73  47.26
SO YBADJ    UNIT2     59.36   0.00   0.00  22.92  12.51   1.73
SO YBADJ    UNIT2     -9.10 -19.66  74.95  65.25  53.57  40.26
SO YBADJ    UNIT2     26.13  11.21  -4.04 -19.18 -33.73 -47.26
SO YBADJ    UNIT2    -59.36   0.00   0.00   0.00   0.00   0.00
SO YBADJ    UNIT2      0.00 -33.43 -74.95 -65.25 -53.57 -40.26


   SRCGROUP U45100 U45100
   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED CRAUG06A.ROU
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
```

```
**
**
ME STARTING
  SURFFILE C:\amodmet\TAMPA_2001.SFC
  PROFFILE C:\amodmet\TAMPA_2001.PFL
  SURFDATA 12842 2001 TAMPA/INT'L_ARPT
  UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
  PROFBASE 19 FEET
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
  RECTABLE ALLAVE FIRST SECOND
OU FINISHED
```

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :AQN55.O01
AERMOD OUTPUT FILE NUMBER 2 :AQN55.O02
AERMOD OUTPUT FILE NUMBER 3 :AQN55.O03
AERMOD OUTPUT FILE NUMBER 4 :AQN55.O04
AERMOD OUTPUT FILE NUMBER 5 :AQN55.O05
First title for last output file is: 2001 PGN CR AAQS PROPOSED 550 FT NOX 0.50 LB/MMBTU 8/12/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-2005

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	6.23129	336500.	3205200.	01123124
	2002	6.60185	333434.	3205679.	02123124
	2003	6.26973	336400.	3205100.	03123124
	2004	6.46338	336400.	3205100.	04123124
	2005	6.62295	336400.	3205100.	05123124
SOURCE GROUP ID: ALL					
Annual					
	2001	7.32874	336500.	3205200.	01123124
	2002	9.10786	333336.	3205681.	02123124
	2003	7.70489	333600.	3206100.	03123124
	2004	7.82926	333385.	3205680.	04123124
	2005	7.70086	336500.	3205100.	05123124

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00
DISCRETE 0.00 0.00

```
CO STARTING
  TITLEONE 2001 PGN CR PSD CLASS II PROPOSED 550 FT NOX 0.50 LB/MMBTU  8/12/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-2005
  MODELOPT DFAULT CONC
  AVERTIME PERIOD
  POLLUTID GEN
  RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION

** Source Location **
** Source ID - Type - X Coord. - Y Coord. **

  LOCATION U45100 POINT 334776.800 3205393.420 1.000

********** PSD CLASS II CONSUMING
**
**    Florida Crushed Stone - Brooksville Cement And Power Plants
SO LOCATION    FCS44   POINT   360000  3162500 39.6

**    Shady Hills Generating Station
SO LOCATION    SHILLGS1 POINT   347000  3139000 15.2
SO LOCATION    SHILLGS2 POINT   347000  3139000 15.2
SO LOCATION    SHILLGS3 POINT   347000  3139000 15.2

**    Pasco County Resource Recovery Facility
SO LOCATION    PCRRF1  POINT   348810  3138770 15.2
SO LOCATION    PCRRF2  POINT   348810  3138770 15.2
SO LOCATION    PCRRF3  POINT   348810  3138770 15.2
SO LOCATION    PCRRF5  POINT   348810  3138770 15.2

**    Florida Rock Industries - Thompson S. Baker Cement Plant
SO LOCATION    FRBCP3  POINT   348350  3287040 39.6
SO LOCATION    FRBCP10 POINT   348350  3287040 39.6

**    Florida Gas Transmission Company
SO LOCATION    FGTC1   POINT   418800  3240900 4.6
SO LOCATION    FGTC2   POINT   418800  3240900 4.6
SO LOCATION    FGTC3   POINT   418800  3240900 4.6
SO LOCATION    FGTC4   POINT   418800  3240900 4.6
SO LOCATION    FGTC5   POINT   418800  3240900 4.6
SO LOCATION    FGTC8   POINT   418800  3240900 4.6

**    GRU Deerhaven Generating Station
SO LOCATION    GRUDGS6 POINT   365700  3292600 54.9

** Source Parameters **
** PROP. 0.50 LB/MMBTU X 7200= 3600 LB/HR PER UNIT

  SRCPARAM U45100   907.2 167.700 328.000 15.300 9.300

**              Short Q H       T       V       D       Modeled in
**        SRCID (g/s)    (m)    (K)     (m/s)   (m)     AAQS  Class II

**    Florida Crushed Stone - Brooksville Cement And Power Plants
SO SRCPARAM    FCS44   45.90  97.54  561    12.22  4.27

**    Shady Hills Generating Station
SO SRCPARAM    SHILLGS1 7.25   18.29  874    35.36  6.71
SO SRCPARAM    SHILLGS2 7.25   18.29  874    35.36  6.71
SO SRCPARAM    SHILLGS3 7.25   18.29  874    35.36  6.71

**    Pasco County Resource Recovery Facility
SO SRCPARAM    PCRRF1  9.65   83.82  394    24.96  1.43
SO SRCPARAM    PCRRF2  9.65   83.82  394    24.96  1.43
SO SRCPARAM    PCRRF3  9.65   83.82  394    24.96  1.43
SO SRCPARAM    PCRRF5  0.038  9.14   450    5.82   0.30

**    Florida Rock Industries - Thompson S. Baker Cement Plant
SO SRCPARAM    FRBCP3  28.19  76.20  453    14.57  2.87
```

```
SO SRCPARAM    FRBCP10 30.71   96.01  453    16.03  2.87

**     Florida Gas Transmission Company
SO SRCPARAM    FGTC1  6.11   8.53   741    44.81  0.40
SO SRCPARAM    FGTC2  6.11   8.53   741    44.81  0.40
SO SRCPARAM    FGTC3  6.11   8.53   741    44.81  0.40
SO SRCPARAM    FGTC4  4.45   8.53   741    44.81  0.40
SO SRCPARAM    FGTC5  1.33   12.19  641    54.86  0.40
SO SRCPARAM    FGTC8  1.78   18.59  761    24.11  2.32

**     GRU Deerhaven Generating Station
SO SRCPARAM    GRUDGS6 6.88   15.85  866    51.21  4.30


** Building Downwash **
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  31.10  87.60
SO BUILDHGT U45100   87.60  87.60  87.60  87.60  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDHGT U45100    0.00   0.00   0.00   0.00   0.00  87.60
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDWID U45100   44.50  47.24  48.53  48.36 144.98 147.63
SO BUILDWID U45100  148.86 145.57 137.85 145.57  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDWID U45100    0.00   0.00   0.00   0.00   0.00 147.63
SO BUILDWID U45100   39.28  33.70  27.10  33.70  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDLEN U45100   33.67  39.25  43.64  46.71 126.46 117.84
SO BUILDLEN U45100  100.22  79.56  56.48  79.56  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO BUILDLEN U45100    0.00   0.00   0.00   0.00   0.00 117.84
SO BUILDLEN U45100   47.23  44.49  40.40  44.49  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO XBADJ    U45100 -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45100 -293.28 -287.77 -273.51 -274.88 -72.54 -73.70
SO XBADJ    U45100  -72.63 -69.34 -63.96 -56.62 -47.57   0.00
SO XBADJ    U45100    0.00   0.00   0.00   0.00   0.00 172.04
SO XBADJ    U45100    9.22  16.51  23.30  24.68  25.31  25.16
SO XBADJ    U45100   24.26  22.62  20.29  17.34  13.87   0.00
SO YBADJ    U45100   25.96   7.68 -10.83 -29.01  76.77  90.51
SO YBADJ    U45100   49.03   6.06 -37.10 -79.12   7.23  -1.38
SO YBADJ    U45100   -9.94 -18.20 -25.91 -32.83 -38.75   0.00
SO YBADJ    U45100    0.00   0.00   0.00   0.00   0.00 -90.51
SO YBADJ    U45100  -36.98 -30.72 -23.52 -15.61  -7.23   1.38
SO YBADJ    U45100    9.94  18.20  25.91  32.83  38.75   0.00


   SRCGROUP U45100 U45100
   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED CRAUG06A.rou
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
```

```
**
**
OU STARTING
   RECTABLE ALLAVE FIRST SECOND
OU FINISHED
```

AERBOB RELEASE 020304

AERMOD OUTPUT FILE NUMBER 1 :C2N55.O01
AERMOD OUTPUT FILE NUMBER 2 :C2N55.O02
AERMOD OUTPUT FILE NUMBER 3 :C2N55.O03
AERMOD OUTPUT FILE NUMBER 4 :C2N55.O04
AERMOD OUTPUT FILE NUMBER 5 :C2N55.O05
First title for last output file is: 2001 PGN CR PSD CLASS II PROPOSED 550 FT NOX 0.50 LB/MMBTU 8/12/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-2005

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	6.23129	336500.	3205200.	01123124
	2002	6.60185	333434.	3205679.	02123124
	2003	6.26973	336400.	3205100.	03123124
	2004	6.46338	336400.	3205100.	04123124
	2005	6.62295	336400.	3205100.	05123124
SOURCE GROUP ID: ALL					
Annual					
	2001	6.30314	336500.	3205200.	01123124
	2002	6.67538	333434.	3205679.	02123124
	2003	6.36092	336400.	3205100.	03123124
	2004	6.54585	336400.	3205100.	04123124
	2005	6.70012	336400.	3205100.	05123124

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00
DISCRETE 0.00 0.00

```
CO STARTING
   TITLEONE 2001 PGN CR PROJECT 550 FT PM  0.05 LB/MMBTU  8/16/06
   TITLETWO TAMPA/RUSKIN METDATA 2001-2005
   MODELOPT DFAULT CONC
   AVERTIME PERIOD 24
   POLLUTID GEN
   RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION

** Source Location **
** Source ID - Type - X Coord. - Y Coord. **

   LOCATION U45100 POINT 334776.800 3205393.420 1.000

   LOCATION BLR4 POINT 334665.270 3205401.840 1.000
   LOCATION BLR5 POINT 334665.270 3205310.430 1.000

** Source Parameters **
** PROP. 0.05 LB/MMBTU X 7200= 360  LB/HR PER UNIT

   SRCPARAM U45100    90.8 167.700 328.000 15.300 9.300

   SRCPARAM BLR4     -84.0 178.200 300.000 21.00000 7.770
   SRCPARAM BLR5     -84.0 178.200 300.000 21.00000 7.770

** Building Downwash **
SO BUILDHGT U45100   38.00   38.00   38.00   38.00   31.10   87.60
SO BUILDHGT U45100   87.60   87.60   87.60   87.60   38.00   38.00
SO BUILDHGT U45100   38.00   38.00   38.00   38.00   38.00    0.00
SO BUILDHGT U45100    0.00    0.00    0.00    0.00    0.00   87.60
SO BUILDHGT U45100   38.00   38.00   38.00   38.00   38.00   38.00
SO BUILDHGT U45100   38.00   38.00   38.00   38.00   38.00    0.00
SO BUILDWID U45100   44.50   47.24   48.53   48.36  144.98  147.63
SO BUILDWID U45100  148.86  145.57  137.85  145.57   39.28   43.67
SO BUILDWID U45100   46.73   48.37   48.54   47.23   44.49    0.00
SO BUILDWID U45100    0.00    0.00    0.00    0.00    0.00  147.63
SO BUILDWID U45100   39.28   33.70   27.10   33.70   39.28   43.67
SO BUILDWID U45100   46.73   48.37   48.54   47.23   44.49    0.00
SO BUILDLEN U45100   33.67   39.25   43.64   46.71  126.46  117.84
SO BUILDLEN U45100  100.22   79.56   56.48   79.56   47.23   48.54
SO BUILDLEN U45100   48.37   46.73   43.67   39.28   33.70    0.00
SO BUILDLEN U45100    0.00    0.00    0.00    0.00    0.00  117.84
SO BUILDLEN U45100   47.23   44.49   40.40   44.49   47.23   48.54
SO BUILDLEN U45100   48.37   46.73   43.67   39.28   33.70    0.00
SO XBADJ    U45100 -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45100 -293.28 -287.77 -273.51 -274.88  -72.54  -73.70
SO XBADJ    U45100  -72.63  -69.34  -63.96  -56.62  -47.57    0.00
SO XBADJ    U45100    0.00    0.00    0.00    0.00    0.00  172.04
SO XBADJ    U45100    9.22   16.51   23.30   24.68   25.31   25.16
SO XBADJ    U45100   24.26   22.62   20.29   17.34   13.87    0.00
SO YBADJ    U45100   25.96    7.68  -10.83  -29.01   76.77   90.51
SO YBADJ    U45100   49.03    6.06  -37.10  -79.12    7.23   -1.38
SO YBADJ    U45100   -9.94  -18.20  -25.91  -32.83  -38.75    0.00
SO YBADJ    U45100    0.00    0.00    0.00    0.00    0.00  -90.51
SO YBADJ    U45100  -36.98  -30.72  -23.52  -15.61   -7.23    1.38
SO YBADJ    U45100    9.94   18.20   25.91   32.83   38.75    0.00

SO BUILDHGT BLR4     27.80   65.30   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4     84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4     27.80   27.80   27.80    0.00    0.00    0.00
SO BUILDHGT BLR4      0.00   65.30   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4     84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4     38.00   38.00   38.00   38.00    0.00    0.00
SO BUILDWID BLR4    138.19  129.98  117.84  131.88  141.91  147.63
SO BUILDWID BLR4    148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR4    125.54  134.97  140.30    0.00    0.00    0.00
SO BUILDWID BLR4      0.00  129.98  117.84  131.88  141.91  147.63
SO BUILDWID BLR4    148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR4     46.71   48.36   48.53   47.24    0.00    0.00
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```
SO BUILDLEN BLR4     75.81  148.86  147.63  141.91  131.88  117.84
SO BUILDLEN BLR4    100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR4    135.12  125.72  112.50    0.00    0.00    0.00
SO BUILDLEN BLR4      0.00  148.86  147.63  141.91  131.88  117.84
SO BUILDLEN BLR4    100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR4     48.36   46.71   43.64   39.25    0.00    0.00
SO XBADJ    BLR4   -140.83 -162.94 -180.10 -191.79 -197.65 -197.50
SO XBADJ    BLR4   -191.35 -179.39 -161.98 -163.58 -160.22 -151.98
SO XBADJ    BLR4   -139.13 -122.05 -101.26    0.00    0.00    0.00
SO XBADJ    BLR4      0.00   14.08   32.48   49.88   65.77   79.66
SO XBADJ    BLR4     91.13   99.83  105.50   84.02   60.00   34.14
SO XBADJ    BLR4   -144.04 -147.81 -147.09 -141.90    0.00    0.00
SO YBADJ    BLR4     78.62   95.23   93.06   73.19   51.10   27.45
SO YBADJ    BLR4      2.97  -21.60  -45.52  -68.05  -88.51 -106.29
SO YBADJ    BLR4    -59.01  -71.42  -81.66    0.00    0.00    0.00
SO YBADJ    BLR4      0.00  -95.23  -93.06  -73.19  -51.10  -27.45
SO YBADJ    BLR4     -2.97   21.60   45.52   68.05   88.51  106.29
SO YBADJ    BLR4     36.93   15.56   -6.29  -27.95    0.00    0.00

SO BUILDHGT BLR5      0.00    0.00   27.80   27.80   27.80   84.40
SO BUILDHGT BLR5     84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR5     84.40   84.40   84.40   65.30   27.80    0.00
SO BUILDHGT BLR5      0.00   38.00   38.00   38.00   38.00   84.40
SO BUILDHGT BLR5     84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR5     84.40   84.40   84.40   65.30    0.00    0.00
SO BUILDWID BLR5      0.00    0.00  140.52  135.27  125.90  147.63
SO BUILDWID BLR5    148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR5    141.91  131.88  117.84  129.86  138.13    0.00
SO BUILDWID BLR5      0.00   47.23   48.54   48.37   46.73  147.63
SO BUILDWID BLR5    148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR5    141.91  131.88  117.84  129.86    0.00    0.00
SO BUILDLEN BLR5      0.00    0.00  112.05  125.31  134.77  117.84
SO BUILDLEN BLR5    100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR5    131.88  141.91  147.63  148.86   76.31    0.00
SO BUILDLEN BLR5      0.00   39.28   43.67   46.73   48.37  117.84
SO BUILDLEN BLR5    100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR5    131.88  141.91  147.63  148.86    0.00    0.00
SO XBADJ    BLR5      0.00    0.00 -100.94 -121.76 -138.89 -151.80
SO XBADJ    BLR5   -160.09 -163.52 -161.98 -179.46 -191.48 -197.69
SO XBADJ    BLR5   -197.89 -192.08 -180.43 -163.30 -141.20    0.00
SO XBADJ    BLR5      0.00 -143.00 -148.09 -148.69 -144.76   33.96
SO XBADJ    BLR5     59.87   83.96  105.50   99.90   91.26   79.85
SO XBADJ    BLR5     66.01   50.17   32.80   14.44    0.00    0.00
SO YBADJ    BLR5      0.00    0.00   81.74   71.52   59.12  106.61
SO YBADJ    BLR5     88.87   68.42   45.89   21.97   -2.62  -27.13
SO YBADJ    BLR5    -50.81  -72.95  -92.88  -95.16  -78.58    0.00
SO YBADJ    BLR5      0.00   27.50    5.66  -16.35  -37.86 -106.61
SO YBADJ    BLR5    -88.87  -68.42  -45.89  -21.97    2.62   27.13
SO YBADJ    BLR5     50.81   72.95   92.88   95.16    0.00    0.00

   SRCGROUP U45100 U45100
   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED CRAUG06A.ROU
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
ME FINISHED
**
```

```
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
   RECTABLE ALLAVE FIRST
OU FINISHED
```

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :PRPM55.O01
AERMOD OUTPUT FILE NUMBER 2 :PRPM55.O02
AERMOD OUTPUT FILE NUMBER 3 :PRPM55.O03
AERMOD OUTPUT FILE NUMBER 4 :PRPM55.O04
AERMOD OUTPUT FILE NUMBER 5 :PRPM55.O05
First title for last output file is: 2001 PGN CR PROJECT 550 FT PM 0.05 LB/MMBTU 8/16/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-2005

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	0.62368	336500.	3205200.	01123124
	2002	0.66077	333434.	3205679.	02123124
	2003	0.62753	336400.	3205100.	03123124
	2004	0.64691	336400.	3205100.	04123124
	2005	0.66288	336400.	3205100.	05123124
HIGH 24-Hour					
	2001	6.54195	336700.	3205400.	01052624
	2002	6.57633	333800.	3205800.	02060524
	2003	6.22382	336800.	3205500.	03053024
	2004	7.53380	336600.	3205400.	04052724
	2005	8.78194	336500.	3205000.	05052424
SOURCE GROUP ID: ALL					
Annual					
	2001	0.00000	0.	0.	01123124
	2002	0.00000	0.	0.	02123124
	2003	0.00000	0.	0.	03123124
	2004	0.00000	0.	0.	04123124
	2005	0.00000	0.	0.	05123124
HIGH 24-Hour					
	2001	0.84249	343800.	3211400.	01070624
	2002	1.09255	344800.	3210400.	02011124
	2003	0.65691	340800.	3214400.	03060924
	2004	0.76179	334262.	3205668.	04051424
	2005	0.62422	334065.	3205671.	05061024

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00
DISCRETE 0.00 0.00

```
CO STARTING
   TITLEONE 2001 PGN CR PROJECT 550 FT PM  0.05 LB/MMBTU CLASS I 8/16/06
   TITLETWO TAMPA/RUSKIN METDATA 2001-2005
   MODELOPT DFAULT CONC
   AVERTIME PERIOD 24
   POLLUTID GEN
   RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION

** Source Location **
** Source ID - Type - X Coord. - Y Coord. **

   LOCATION U45100 POINT 334776.800 3205393.420 1.000

   LOCATION BLR4 POINT 334665.270 3205401.840 1.000
   LOCATION BLR5 POINT 334665.270 3205310.430 1.000

** Source Parameters **
** PROP. 0.05 LB/MMBTU X 7200= 360  LB/HR PER UNIT

   SRCPARAM U45100    90.8 167.700 328.000 15.300 9.300

   SRCPARAM BLR4    -84.0 178.200 300.000 21.00000 7.770
   SRCPARAM BLR5    -84.0 178.200 300.000 21.00000 7.770

** Building Downwash **
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  31.10  87.60
SO BUILDHGT U45100   87.60  87.60  87.60  87.60  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDHGT U45100    0.00   0.00   0.00   0.00   0.00  87.60
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDWID U45100   44.50  47.24  48.53  48.36 144.98 147.63
SO BUILDWID U45100  148.86 145.57 137.85 145.57  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDWID U45100    0.00   0.00   0.00   0.00   0.00 147.63
SO BUILDWID U45100   39.28  33.70  27.10  33.70  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDLEN U45100   33.67  39.25  43.64  46.71 126.46 117.84
SO BUILDLEN U45100  100.22  79.56  56.48  79.56  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO BUILDLEN U45100    0.00   0.00   0.00   0.00   0.00 117.84
SO BUILDLEN U45100   47.23  44.49  40.40  44.49  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO XBADJ    U45100 -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45100 -293.28 -287.77 -273.51 -274.88 -72.54 -73.70
SO XBADJ    U45100  -72.63 -69.34 -63.96 -56.62 -47.57   0.00
SO XBADJ    U45100    0.00   0.00   0.00   0.00   0.00 172.04
SO XBADJ    U45100    9.22  16.51  23.30  24.68  25.31  25.16
SO XBADJ    U45100   24.26  22.62  20.29  17.34  13.87   0.00
SO YBADJ    U45100   25.96   7.68 -10.83 -29.01  76.77  90.51
SO YBADJ    U45100   49.03   6.06 -37.10 -79.12   7.23  -1.38
SO YBADJ    U45100   -9.94 -18.20 -25.91 -32.83 -38.75   0.00
SO YBADJ    U45100    0.00   0.00   0.00   0.00   0.00 -90.51
SO YBADJ    U45100  -36.98 -30.72 -23.52 -15.61  -7.23   1.38
SO YBADJ    U45100    9.94  18.20  25.91  32.83  38.75   0.00

SO BUILDHGT BLR4     27.80  65.30  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     27.80  27.80  27.80   0.00   0.00   0.00
SO BUILDHGT BLR4      0.00  65.30  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR4     38.00  38.00  38.00  38.00   0.00   0.00
SO BUILDWID BLR4    138.19 129.98 117.84 131.88 141.91 147.63
SO BUILDWID BLR4    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR4    125.54 134.97 140.30   0.00   0.00   0.00
SO BUILDWID BLR4      0.00 129.98 117.84 131.88 141.91 147.63
SO BUILDWID BLR4    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR4     46.71  48.36  48.53  47.24   0.00   0.00
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SO BUILDLEN BLR4     75.81 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN BLR4    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR4    135.12 125.72 112.50   0.00   0.00   0.00
SO BUILDLEN BLR4      0.00 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN BLR4    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR4     48.36  46.71  43.64  39.25   0.00   0.00
SO XBADJ    BLR4   -140.83 -162.94 -180.10 -191.79 -197.65 -197.50
SO XBADJ    BLR4   -191.35 -179.39 -161.98 -163.58 -160.22 -151.98
SO XBADJ    BLR4   -139.13 -122.05 -101.26   0.00   0.00   0.00
SO XBADJ    BLR4      0.00  14.08  32.48  49.88  65.77  79.66
SO XBADJ    BLR4     91.13  99.83 105.50  84.02  60.00  34.14
SO XBADJ    BLR4   -144.04 -147.81 -147.09 -141.90   0.00   0.00
SO YBADJ    BLR4     78.62  95.23  93.06  73.19  51.10  27.45
SO YBADJ    BLR4      2.97 -21.60 -45.52 -68.05 -88.51 -106.29
SO YBADJ    BLR4    -59.01 -71.42 -81.66   0.00   0.00   0.00
SO YBADJ    BLR4      0.00 -95.23 -93.06 -73.19 -51.10 -27.45
SO YBADJ    BLR4     -2.97  21.60  45.52  68.05  88.51 106.29
SO YBADJ    BLR4     36.93  15.56  -6.29 -27.95   0.00   0.00

SO BUILDHGT BLR5      0.00   0.00  27.80  27.80  27.80  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  65.30  27.80   0.00
SO BUILDHGT BLR5      0.00  38.00  38.00  38.00  38.00  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  65.30   0.00   0.00
SO BUILDWID BLR5      0.00   0.00 140.52 135.27 125.90 147.63
SO BUILDWID BLR5    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR5    141.91 131.88 117.84 129.86 138.13   0.00
SO BUILDWID BLR5      0.00  47.23  48.54  48.37  46.73 147.63
SO BUILDWID BLR5    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR5    141.91 131.88 117.84 129.86   0.00   0.00
SO BUILDLEN BLR5      0.00   0.00 112.05 125.31 134.77 117.84
SO BUILDLEN BLR5    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR5    131.88 141.91 147.63 148.86  76.31   0.00
SO BUILDLEN BLR5      0.00  39.28  43.67  46.73  48.37 117.84
SO BUILDLEN BLR5    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR5    131.88 141.91 147.63 148.86   0.00   0.00
SO XBADJ    BLR5      0.00   0.00 -100.94 -121.76 -138.89 -151.80
SO XBADJ    BLR5   -160.09 -163.52 -161.98 -179.46 -191.48 -197.69
SO XBADJ    BLR5   -197.89 -192.08 -180.43 -163.30 -141.20   0.00
SO XBADJ    BLR5      0.00 -143.00 -148.09 -148.69 -144.76  33.96
SO XBADJ    BLR5     59.87  83.96 105.50  99.90  91.26  79.85
SO XBADJ    BLR5     66.01  50.17  32.80  14.44   0.00   0.00
SO YBADJ    BLR5      0.00   0.00  81.74  71.52  59.12 106.61
SO YBADJ    BLR5     88.87  68.42  45.89  21.97  -2.62 -27.13
SO YBADJ    BLR5    -50.81 -72.95 -92.88 -95.16 -78.58   0.00
SO YBADJ    BLR5      0.00  27.50   5.66 -16.35 -37.86 -106.61
SO YBADJ    BLR5    -88.87 -68.42 -45.89 -21.97   2.62  27.13
SO YBADJ    BLR5     50.81  72.95  92.88  95.16   0.00   0.00

   SRCGROUP U45100 U45100
   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED CHASS.ROU
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
ME FINISHED
**
```

```
******************************************
** AERMOD Output Pathway
******************************************
**
**
OU STARTING
   RECTABLE ALLAVE FIRST
OU FINISHED
```

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :PRPM55C1.O01
AERMOD OUTPUT FILE NUMBER 2 :PRPM55C1.O02
AERMOD OUTPUT FILE NUMBER 3 :PRPM55C1.O03
AERMOD OUTPUT FILE NUMBER 4 :PRPM55C1.O04
AERMOD OUTPUT FILE NUMBER 5 :PRPM55C1.O05
First title for last output file is: 2001 PGN CR PROJECT 550 FT PM 0.05 LB/MMBTU CLASS I 8/16/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-2005

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	0.05971	334447.	3183601.	01123124
	2002	0.06830	334447.	3183601.	02123124
	2003	0.05997	334447.	3183601.	03123124
	2004	0.05987	334447.	3183601.	04123124
	2005	0.06679	331926.	3178095.	05123124
HIGH 24-Hour					
	2001	0.75112	335260.	3183589.	01111624
	2002	0.62018	331926.	3178095.	02110724
	2003	0.74585	331926.	3178095.	03112024
	2004	0.78117	334447.	3183601.	04110624
	2005	0.84730	335260.	3183589.	05090824
SOURCE GROUP ID: ALL					
Annual					
	2001	0.00000	0.	0.	01123124
	2002	0.00000	0.	0.	02123124
	2003	0.00000	0.	0.	03123124
	2004	0.00000	0.	0.	04123124
	2005	0.00000	0.	0.	05123124
HIGH 24-Hour					
	2001	0.00000	0.	0.	00000000
	2002	0.00000	0.	0.	00000000
	2003	0.00000	0.	0.	00000000
	2004	0.00000	0.	0.	00000000
	2005	0.00000	0.	0.	00000000

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00
DISCRETE 0.00 0.00

```
CO STARTING
  TITLEONE 2001 PGN CR, PM10 AAQS ANALYSIS - CR+BACKGROUND SOURCES  8/18/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-05 (GOLDER SURFACE PARAMETERS)
  MODELOPT DFAULT CONC
  AVERTIME PERIOD 24
  POLLUTID GEN
  RUNORNOT RUN


CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
  LOCATION U45100 POINT 334776.80 3205393.42  1.0

**  COOLING TOWERS FOR UNITS 4 & 5 MODELED SEPARATELY
**  DUE TO INCORRECT USE OF STACK-TIP DOWNWASH
**  LOCATION CT4 POINT 334312.560 3205466.280 1.000
**  LOCATION CT5 POINT 334313.480 3205236.260 1.000

  LOCATION HCT1 POINT 333190.920 3204586.510 1.0
  LOCATION HCT2 POINT 333375.380 3204573.640 1.0
  LOCATION HCT3 POINT 333637.510 3204550.460 1.0
  LOCATION HCT4 POINT 333820.520 3204538.720 1.0
  LOCATION CTWRPORT POINT 333014.940 3204595.010 1.0
** DESCRSRC PORTABLE COOLING TOWER
  LOCATION UNIT1 POINT 334319.400 3204230.210 1.0
  LOCATION UNIT2 POINT 334260.580 3204230.210 1.0
  LOCATION FAT1 POINT 334242.000 3204264.000 1.0
  LOCATION FAS1&2 POINT 334000.000 3204264.000 1.0
  LOCATION FAT2A POINT 334242.000 3204264.000 1.0
  LOCATION FAT2B POINT 334242.000 3204264.000 1.0
  LOCATION BAS12 POINT 334120.010 3204395.900 1.0
  LOCATION LIM1234 POINT 335081.370 3205560.730 1.0
  LOCATION LIMSILO POINT 335085.720 3205425.850 2.0
  LOCATION CBO POINT 334656.760 3205553.940 2.000

  LOCATION VOLA  VOLUME 334116.030 3204084.070 1.0
  LOCATION VOLB  VOLUME 334185.650 3204082.870 1.0
  LOCATION VOLC  VOLUME 334314.680 3204022.260 1.0
**  LOCATION VOLD  VOLUME 334120.830 3203977.250 1.0
  LOCATION VOLE  VOLUME 334308.680 3204091.880 1.0
  LOCATION VOLF  VOLUME 334425.400 3204037.260 1.0
  LOCATION VOLG  VOLUME 334880.910 3204184.900 1.0
  LOCATION VOLH  VOLUME 334888.110 3205023.900 1.0
  LOCATION VOLI  VOLUME 334889.910 3205173.330 1.0
  LOCATION PIL12 VOLUME 334186.780 3203919.580 1.0
  LOCATION PIL45 VOLUME 335095.630 3205080.280 1.0

  LOCATION PILGYP  VOLUME 336471.50 3203967.17 0.0
  LOCATION VOLM    VOLUME 334428.44 3203986.80 1.0
  LOCATION VOLP12  VOLUME 334315.01 3204249.97 1.0
  LOCATION VOLRAIL VOLUME 334533.81 3203987.81 1.0
  LOCATION VOLC45  VOLUME 334894.28 3205366.67 1.0
  LOCATION VOLP45  VOLUME 334611.45 3205366.16 1.0
  LOCATION PIL12TR VOLUME 334186.78 3203919.58 1.0
  LOCATION PIL45TR VOLUME 335095.63 3205080.28 1.0


 ** --------------------------------------------------------------------
 ** --------------------------------------------------------------------
 ** LINE Source ID = ENTRY
 ** DESCRSRC New Entrance Road (90 ft buffer)
 ** Length of Side = 10.00
 ** Emission Rate = 10
 ** Vertical Dimension = 4.57
 ** SZINIT = 2.13
 ** Nodes = 2
 ** 335779.42, 3204815.23, 2.00, 2.29, 0.0
 ** 340609.00, 3204735.67, 2.00, 2.29, 9.26
 ** --------------------------------------------------------------------
 ** No. of Volumes = 243
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   LOCATION ENTRY001    VOLUME 335784.406 3204815.168 2.00
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LOCATION ENTRY002  VOLUME 335804.321 3204814.840 2.00
LOCATION ENTRY003  VOLUME 335824.237 3204814.512 2.00
LOCATION ENTRY004  VOLUME 335844.153 3204814.184 2.00
LOCATION ENTRY005  VOLUME 335864.068 3204813.856 2.00
LOCATION ENTRY006  VOLUME 335883.984 3204813.529 2.00
LOCATION ENTRY007  VOLUME 335903.900 3204813.201 2.00
LOCATION ENTRY008  VOLUME 335923.815 3204812.873 2.00
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LOCATION ENTRY010  VOLUME 335963.647 3204812.217 2.00
LOCATION ENTRY011  VOLUME 335983.562 3204811.889 2.00
LOCATION ENTRY012  VOLUME 336003.478 3204811.562 2.00
LOCATION ENTRY013  VOLUME 336023.394 3204811.234 2.00
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LOCATION ENTRY015  VOLUME 336063.225 3204810.578 2.00
LOCATION ENTRY016  VOLUME 336083.141 3204810.250 2.00
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LOCATION ENTRY021  VOLUME 336182.719 3204808.611 2.00
LOCATION ENTRY022  VOLUME 336202.635 3204808.283 2.00
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LOCATION ENTRY029  VOLUME 336342.045 3204805.988 2.00
LOCATION ENTRY030  VOLUME 336361.961 3204805.661 2.00
LOCATION ENTRY031  VOLUME 336381.876 3204805.333 2.00
LOCATION ENTRY032  VOLUME 336401.792 3204805.005 2.00
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LOCATION ENTRY036  VOLUME 336481.455 3204803.694 2.00
LOCATION ENTRY037  VOLUME 336501.371 3204803.366 2.00
LOCATION ENTRY038  VOLUME 336521.286 3204803.038 2.00
LOCATION ENTRY039  VOLUME 336541.202 3204802.710 2.00
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LOCATION ENTRY043  VOLUME 336620.865 3204801.399 2.00
LOCATION ENTRY044  VOLUME 336640.780 3204801.071 2.00
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LOCATION ENTRY047  VOLUME 336700.527 3204800.087 2.00
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LOCATION ENTRY139   VOLUME 338532.771 3204769.927 2.00
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LOCATION ENTRY171  VOLUME 339170.075 3204759.436 2.00
LOCATION ENTRY172  VOLUME 339189.991 3204759.108 2.00
LOCATION ENTRY173  VOLUME 339209.907 3204758.780 2.00
LOCATION ENTRY174  VOLUME 339229.822 3204758.453 2.00
LOCATION ENTRY175  VOLUME 339249.738 3204758.125 2.00
LOCATION ENTRY176  VOLUME 339269.654 3204757.797 2.00
LOCATION ENTRY177  VOLUME 339289.570 3204757.469 2.00
LOCATION ENTRY178  VOLUME 339309.485 3204757.141 2.00
LOCATION ENTRY179  VOLUME 339329.401 3204756.813 2.00
LOCATION ENTRY180  VOLUME 339349.317 3204756.486 2.00
LOCATION ENTRY181  VOLUME 339369.233 3204756.158 2.00
LOCATION ENTRY182  VOLUME 339389.148 3204755.830 2.00
LOCATION ENTRY183  VOLUME 339409.064 3204755.502 2.00
LOCATION ENTRY184  VOLUME 339428.980 3204755.174 2.00
LOCATION ENTRY185  VOLUME 339448.896 3204754.846 2.00
LOCATION ENTRY186  VOLUME 339468.811 3204754.519 2.00
LOCATION ENTRY187  VOLUME 339488.727 3204754.191 2.00
LOCATION ENTRY188  VOLUME 339508.643 3204753.863 2.00
LOCATION ENTRY189  VOLUME 339528.559 3204753.535 2.00
LOCATION ENTRY190  VOLUME 339548.474 3204753.207 2.00
LOCATION ENTRY191  VOLUME 339568.390 3204752.879 2.00
LOCATION ENTRY192  VOLUME 339588.306 3204752.552 2.00
LOCATION ENTRY193  VOLUME 339608.222 3204752.224 2.00
LOCATION ENTRY194  VOLUME 339628.138 3204751.896 2.00
LOCATION ENTRY195  VOLUME 339648.053 3204751.568 2.00
LOCATION ENTRY196  VOLUME 339667.969 3204751.240 2.00
LOCATION ENTRY197  VOLUME 339687.885 3204750.912 2.00
LOCATION ENTRY198  VOLUME 339707.801 3204750.585 2.00
LOCATION ENTRY199  VOLUME 339727.716 3204750.257 2.00
LOCATION ENTRY200  VOLUME 339747.632 3204749.929 2.00
LOCATION ENTRY201  VOLUME 339767.548 3204749.601 2.00
LOCATION ENTRY202  VOLUME 339787.464 3204749.273 2.00
LOCATION ENTRY203  VOLUME 339807.379 3204748.945 2.00
LOCATION ENTRY204  VOLUME 339827.295 3204748.618 2.00
LOCATION ENTRY205  VOLUME 339847.211 3204748.290 2.00
LOCATION ENTRY206  VOLUME 339867.127 3204747.962 2.00
LOCATION ENTRY207  VOLUME 339887.042 3204747.634 2.00
LOCATION ENTRY208  VOLUME 339906.958 3204747.306 2.00
LOCATION ENTRY209  VOLUME 339926.874 3204746.978 2.00
LOCATION ENTRY210  VOLUME 339946.789 3204746.651 2.00
LOCATION ENTRY211  VOLUME 339966.705 3204746.323 2.00
LOCATION ENTRY212  VOLUME 339986.621 3204745.995 2.00
LOCATION ENTRY213  VOLUME 340006.537 3204745.667 2.00
LOCATION ENTRY214  VOLUME 340026.452 3204745.339 2.00
LOCATION ENTRY215  VOLUME 340046.368 3204745.011 2.00
LOCATION ENTRY216  VOLUME 340066.284 3204744.684 2.00
LOCATION ENTRY217  VOLUME 340086.200 3204744.356 2.00
LOCATION ENTRY218  VOLUME 340106.115 3204744.028 2.00
LOCATION ENTRY219  VOLUME 340126.031 3204743.700 2.00
LOCATION ENTRY220  VOLUME 340145.947 3204743.372 2.00
LOCATION ENTRY221  VOLUME 340165.863 3204743.044 2.00
LOCATION ENTRY222  VOLUME 340185.779 3204742.717 2.00
LOCATION ENTRY223  VOLUME 340205.694 3204742.389 2.00
LOCATION ENTRY224  VOLUME 340225.610 3204742.061 2.00
LOCATION ENTRY225  VOLUME 340245.526 3204741.733 2.00
LOCATION ENTRY226  VOLUME 340265.442 3204741.405 2.00
LOCATION ENTRY227  VOLUME 340285.357 3204741.077 2.00
LOCATION ENTRY228  VOLUME 340305.273 3204740.750 2.00
LOCATION ENTRY229  VOLUME 340325.189 3204740.422 2.00
LOCATION ENTRY230  VOLUME 340345.105 3204740.094 2.00
LOCATION ENTRY231  VOLUME 340365.020 3204739.766 2.00
LOCATION ENTRY232  VOLUME 340384.936 3204739.438 2.00
LOCATION ENTRY233  VOLUME 340404.852 3204739.110 2.00
LOCATION ENTRY234  VOLUME 340424.768 3204738.783 2.00
LOCATION ENTRY235  VOLUME 340444.683 3204738.455 2.00
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   LOCATION ENTRY236   VOLUME 340464.599 3204738.127 2.00
   LOCATION ENTRY237   VOLUME 340484.515 3204737.799 2.00
   LOCATION ENTRY238   VOLUME 340504.431 3204737.471 2.00
   LOCATION ENTRY239   VOLUME 340524.346 3204737.143 2.00
   LOCATION ENTRY240   VOLUME 340544.262 3204736.816 2.00
   LOCATION ENTRY241   VOLUME 340564.178 3204736.488 2.00
   LOCATION ENTRY242   VOLUME 340584.094 3204736.160 2.00
   LOCATION ENTRY243   VOLUME 340604.009 3204735.832 2.00
** End of Line Source

** ----------------------------------------------------------------
** LINE Source ID = INTERA
** DESCRSRC Interior around coal pile
** Length of Side = 20.00
** Emission Rate = 10
** Vertical Dimension = 4.57
** SZINIT = 2.13
** Nodes = 4
** 335000.00, 3205500.00, 2.00, 0.00, 0.0
** 335090.00, 3205500.00, 2.00, 0.00, 16.28
** 335420.00, 3205370.00, 2.00, 0.00, 18.33
** 335410.00, 3204810.00, 2.00, 0.00, 17.37
** No. of Volumes = 89
** ----------------------------------------------------------------
   LOCATION INTERA01  VOLUME  335010.000 3205500.000 2.00
   LOCATION INTERA02  VOLUME  335045.000 3205500.000 2.00
   LOCATION INTERA03  VOLUME  335080.000 3205500.000 2.00
   LOCATION INTERA04  VOLUME  335117.363 3205489.221 2.00
   LOCATION INTERA05  VOLUME  335154.029 3205474.776 2.00
   LOCATION INTERA06  VOLUME  335190.696 3205460.332 2.00
   LOCATION INTERA07  VOLUME  335227.363 3205445.887 2.00
   LOCATION INTERA08  VOLUME  335264.029 3205431.443 2.00
   LOCATION INTERA09  VOLUME  335300.696 3205416.999 2.00
   LOCATION INTERA10  VOLUME  335337.363 3205402.554 2.00
   LOCATION INTERA11  VOLUME  335374.029 3205388.110 2.00
   LOCATION INTERA12  VOLUME  335410.696 3205373.665 2.00
   LOCATION INTERA13  VOLUME  335419.512 3205342.665 2.00
   LOCATION INTERA14  VOLUME  335418.845 3205305.332 2.00
   LOCATION INTERA15  VOLUME  335418.179 3205267.998 2.00
   LOCATION INTERA16  VOLUME  335417.512 3205230.665 2.00
   LOCATION INTERA17  VOLUME  335416.845 3205193.332 2.00
   LOCATION INTERA18  VOLUME  335416.179 3205155.998 2.00
   LOCATION INTERA19  VOLUME  335415.512 3205118.665 2.00
   LOCATION INTERA20  VOLUME  335414.845 3205081.332 2.00
   LOCATION INTERA21  VOLUME  335414.179 3205043.998 2.00
   LOCATION INTERA22  VOLUME  335413.512 3205006.665 2.00
   LOCATION INTERA23  VOLUME  335412.845 3204969.332 2.00
   LOCATION INTERA24  VOLUME  335412.179 3204931.998 2.00
   LOCATION INTERA25  VOLUME  335411.512 3204894.665 2.00
   LOCATION INTERA26  VOLUME  335410.845 3204857.332 2.00
   LOCATION INTERA27  VOLUME  335410.179 3204819.998 2.00

** End of Line Source

** Line Source represented by Separated Volume Sources
** ----------------------------------------------------------------
** LINE Source ID = INTERB (FROM ENTRY ROAD)
** DESCRSRC Interior
** Length of Side = 20.00
** Emission Rate = 10
** Vertical Dimension = 4.57
** SZINIT = 2.13
** Nodes = 2
** 335410.00, 3204810.00, 2.00, 2.29, 0.0
** 335780.00, 3204740.00, 2.00, 2.29, 18.43
** No. of Volumes = 10
** ----------------------------------------------------------------
   LOCATION INTERB01  VOLUME 335419.826 3204808.141 2.00
   LOCATION INTERB02  VOLUME 335458.753 3204800.776 2.00
   LOCATION INTERB03  VOLUME 335497.681 3204793.412 2.00
   LOCATION INTERB04  VOLUME 335536.609 3204786.047 2.00
   LOCATION INTERB05  VOLUME 335575.536 3204778.682 2.00
   LOCATION INTERB06  VOLUME 335614.464 3204771.318 2.00
   LOCATION INTERB07  VOLUME 335653.391 3204763.953 2.00
   LOCATION INTERB08  VOLUME 335692.319 3204756.588 2.00
   LOCATION INTERB09  VOLUME 335731.247 3204749.224 2.00
   LOCATION INTERB10  VOLUME 335770.174 3204741.859 2.00
** End of Line Source
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** ------------------------------------------------------------------
** LINE Source ID = GYPWALL
** DESCRSRC Perimeter
** Length of Side = 10.00
** Emission Rate = 10
** Vertical Dimension = 6.10
** SZINIT = 2.84
** Nodes = 2
** 334990.00, 3205488.00, 2.00, 3.05, 0.0
** 334990.00, 3205638.00, 2.00, 3.05, 9.30
** No. of Volumes = 8
** ------------------------------------------------------------------
   LOCATION GYPWAL01  VOLUME 334990.000 3205493.000 2.00
   LOCATION GYPWAL02  VOLUME 334990.000 3205513.000 2.00
   LOCATION GYPWAL03  VOLUME 334990.000 3205533.000 2.00
   LOCATION GYPWAL04  VOLUME 334990.000 3205553.000 2.00
   LOCATION GYPWAL05  VOLUME 334990.000 3205573.000 2.00
   LOCATION GYPWAL06  VOLUME 334990.000 3205593.000 2.00
   LOCATION GYPWAL07  VOLUME 334990.000 3205613.000 2.00
   LOCATION GYPWAL08  VOLUME 334990.000 3205633.000 2.00
** End of Line Source

** Background Sources
**     Progress Materials, Inc.
**SO LOCATION    PMINC1  POINT   334000  3204400 1.5
**SO LOCATION    PMINC2  POINT   334000  3204400 1.5
**SO LOCATION    PMINC3  POINT   334000  3204400 1.5
**SO LOCATION    PMINC4  POINT   334000  3204400 1.5
**SO LOCATION    PMINC5  POINT   334000  3204400 1.5
**SO LOCATION    PMINC6  POINT   334000  3204400 1.5
SO LOCATION    PMINCALL  POINT   334000  3204400 1.5

**     Holcim, Inc.
**SO LOCATION    HOLCIM1 POINT   334400  3207500 1.5

**     Cemex, Inc. - Inglis Mine (was 0750031)
**SO LOCATION    INGMINE1       POINT   337360  3210440 4.6

**     SMG, INC.
**SO LOCATION    SMG1   POINT   347790  3203140 9.1

**     Florida Crushed Stone - Brooksville Cement And Power Plants
**SO LOCATION    FCS1    POINT   361340  3162370 39.6
**SO LOCATION    FCS2    POINT   361340  3162370 39.6
SO LOCATION    FCS4    POINT   361340  3162370 39.6
**SO LOCATION    FCS6    POINT   361340  3162370 39.6
**SO LOCATION    FCS7    POINT   361340  3162370 39.6
**SO LOCATION    FCS8    POINT   361340  3162370 39.6
**SO LOCATION    FCS9    POINT   361340  3162370 39.6
**SO LOCATION    FCS10   POINT   361340  3162370 39.6
**SO LOCATION    FCS11   POINT   361340  3162370 39.6
**SO LOCATION    FCS12   POINT   361340  3162370 39.6
SO LOCATION    FCS13   POINT   361340  3162370 39.6
**SO LOCATION    FCS14   POINT   361340  3162370 39.6
**SO LOCATION    FCS15   POINT   361340  3162370 39.6
**SO LOCATION    FCS17   POINT   361340  3162370 39.6
SO LOCATION    FCS18   POINT   361340  3162370 39.6
SO LOCATION    FCS19   POINT   361340  3162370 39.6
SO LOCATION    FCS20   POINT   361340  3162370 39.6
**SO LOCATION    FCS21   POINT   361340  3162370 39.6
**SO LOCATION    FCS22   POINT   361340  3162370 39.6
**SO LOCATION    FCS23   POINT   361340  3162370 39.6
**SO LOCATION    FCS24   POINT   361340  3162370 39.6
**SO LOCATION    FCS25   POINT   361340  3162370 39.6
SO LOCATION    FCS28   POINT   361340  3162370 39.6
**SO LOCATION    FCS29   POINT   361340  3162370 39.6
**SO LOCATION    FCS30   POINT   361340  3162370 39.6
SO LOCATION    FCS35   POINT   361340  3162370 39.6
**SO LOCATION    FCS36   POINT   361340  3162370 39.6
**SO LOCATION    FCS37   POINT   361340  3162370 39.6
**SO LOCATION    FCS38   POINT   361340  3162370 39.6
**SO LOCATION    FCS39   POINT   361340  3162370 39.6
SO LOCATION    FCS40   POINT   361340  3162370 39.6
SO LOCATION    FCS44   POINT   361340  3162370 39.6
SO LOCATION    FCS45   POINT   361340  3162370 39.6
**SO LOCATION    FCS46   POINT   361340  3162370 39.6
**SO LOCATION    FCS47   POINT   361340  3162370 39.6
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**SO LOCATION    FCS48  POINT  361340 3162370 39.6
SO LOCATION    FCS49  POINT  361340 3162370 39.6
**SO LOCATION    FCS50  POINT  361340 3162370 39.6
**SO LOCATION    FCS51  POINT  361340 3162370 39.6
**SO LOCATION    FCS52  POINT  361340 3162370 39.6
**SO LOCATION    FCS53  POINT  361340 3162370 39.6
**SO LOCATION    FCS54  POINT  361340 3162370 39.6
SO LOCATION    FCS55  POINT  361340 3162370 39.6
**SO LOCATION    FCS56  POINT  361340 3162370 39.6
**SO LOCATION    FCS57  POINT  361340 3162370 39.6
**SO LOCATION    FCS58  POINT  361340 3162370 39.6
**SO LOCATION    FCS59  POINT  361340 3162370 39.6
SO LOCATION    FCS60  POINT  361340 3162370 39.6
**SO LOCATION    FCS61  POINT  361340 3162370 39.6

**    CEMEX
**SO LOCATION    CEMEX2 POINT  357470 3169190 30.5
SO LOCATION    CEMEX3 POINT  357470 3169190 30.5
SO LOCATION    CEMEX4 POINT  357470 3169190 30.5
SO LOCATION    CEMEX5 POINT  357470 3169190 30.5
**SO LOCATION    CEMEX6 POINT  357470 3169190 30.5
SO LOCATION    CEMEX9 POINT  357470 3169190 30.5
**SO LOCATION    CEMEX8 POINT  357470 3169190 30.5
**SO LOCATION    CEMEX11 POINT  357470 3169190 30.5
**SO LOCATION    CEMEX12 POINT  357470 3169190 30.5
SO LOCATION    CEMEX13 POINT  357470 3169190 30.5
SO LOCATION    CEMEX14 POINT  357470 3169190 30.5
SO LOCATION    CEMEX15 POINT  357470 3169190 30.5
SO LOCATION    CEMEX16 POINT  357470 3169190 30.5
**SO LOCATION    CEMEX17 POINT  357470 3169190 30.5
**SO LOCATION    CEMEX18 POINT  357470 3169190 30.5
**SO LOCATION    CEMEX19 POINT  357470 3169190 30.5
**SO LOCATION    CEMEX21 POINT  357470 3169190 30.5
**SO LOCATION    CEMEX22 POINT  357470 3169190 30.5
SO LOCATION    CEMEX23 POINT  357470 3169190 30.5
**SO LOCATION    CEMEX24 POINT  357470 3169190 30.5
**SO LOCATION    CEMEX25 POINT  357470 3169190 30.5
SO LOCATION    CEMEX26 POINT  357470 3169190 30.5
SO LOCATION    CEMEX27 POINT  357470 3169190 30.5

** PROP. 0.05 LB/MMBTU X 7200= 360 LB/HR PER UNIT

  SRCPARAM U45100    90.7  167.6  328.0 15.3 9.3

**  SRCPARAM CT4    22.1  135.10 311.0  3.32  65.200
**  SRCPARAM CT5    22.1  135.10 311.0  3.32  65.200
**  SRCPARAM HCT1    6.75  16.200 298.0  7.93  10.500
**  SRCPARAM HCT2    6.75  16.200 298.0  7.93  10.500
**  SRCPARAM HCT3    6.75  16.200 298.0  7.93  10.500
**  SRCPARAM HCT4    6.75  16.200 298.0  7.93  10.500
  SRCPARAM HCT1    0.71  16.2  298.0  7.93  10.5
  SRCPARAM HCT2    0.71  16.2  298.0  7.93  10.5
  SRCPARAM HCT3    0.71  16.2  298.0  7.93  10.5
  SRCPARAM HCT4    0.71  16.2  298.0  7.93  10.5
  SRCPARAM CTWRPORT 0.268 6.71   333.0  21.0  55.4

  SRCPARAM UNIT1   59.1  152.1  417.0 40.5 4.57
  SRCPARAM UNIT2   75.5  153.0  422.0 48.8 4.88

  SRCPARAM FAT1   0.44 9.150 298.0 0.10 0.240
  SRCPARAM FAS1&2  0.08 22.90 298.0 0.10 0.460
  SRCPARAM FAT2A  0.28 9.150 298.0 0.10 0.250
  SRCPARAM FAT2B  0.28 9.150 298.0 0.10 0.250
  SRCPARAM BAS12  1.64 23.80 298.0 0.10 0.240

  SRCPARAM CBO 0.161 28.400 298.150 0.01000 0.396

  SRCPARAM VOLA    0.122  7.50 3.488  4.650
  SRCPARAM VOLB    0.010  7.50 3.488  4.650
  SRCPARAM VOLC    0.078  7.50 3.488  4.650
**  SRCPARAM VOLD    0.010  7.50 3.488 4.650
  SRCPARAM VOLE    0.025  7.50 3.488  4.650
  SRCPARAM VOLF    0.018  7.50 3.488  4.650
  SRCPARAM VOLG    0.010  7.50 3.488  4.650
  SRCPARAM VOLH    0.010  7.50 3.488  4.650
  SRCPARAM VOLI    0.010  7.50 3.488  4.650
  SRCPARAM VOLM    0.008  7.50 3.488  4.650
  SRCPARAM VOLP12   0.011  7.50 3.488  4.650
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   SRCPARAM VOLRAIL  0.092  7.50 3.488  4.650
   SRCPARAM VOLC45   0.038  7.50 3.488  4.650
   SRCPARAM VOLP45   0.012  7.50 3.488  4.650

** PILE TRANSFERS & PILE TRAFFIC
**   PILE TRAFFIC = 0.127 G/S SPLIT BETWEEN PILE 1&2 PILE 4&5

   SRCPARAM PIL12TR  0.063 6.100 66.209 2.800
   SRCPARAM PIL45TR  0.141 6.100 79.791 2.800

** WIND EROSION
   SRCPARAM PIL12    0.142   3.05  66.209 2.84
   SRCPARAM PIL45    0.205   3.05  79.791 2.84
   SRCPARAM PILGYP   0.050   5.60  42.5   5.25

** NEW LIM1234 VERTICAL RELEASE
   SRCPARAM LIM1234  0.24 13.70 298.0 16.2 0.30
   SRCPARAM LIMSILO  0.14 41.80 298.0 11.2 0.25

** INCLUDES FLYASH TRUCKS FROM UNITS 1&2
** W/O FLYASH PM= 0.00203
** LINE Source ID = ENTRY
   SRCPARAM ENTRY001  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY002  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY003  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY004  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY005  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY006  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY007  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY008  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY009  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY010  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY011  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY012  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY013  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY014  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY015  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY016  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY017  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY018  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY019  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY020  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY021  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY022  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY023  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY024  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY025  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY026  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY027  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY028  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY029  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY030  0.00226  3.05 9.26 2.84
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   SRCPARAM ENTRY041  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY042  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY043  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY044  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY045  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY046  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY047  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY048  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY049  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY050  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY051  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY052  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY053  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY054  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY055  0.00226  3.05 9.26 2.84
   SRCPARAM ENTRY056  0.00226  3.05 9.26 2.84
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SRCPARAM ENTRY057 0.00226 3.05 9.26 2.84
SRCPARAM ENTRY058 0.00226 3.05 9.26 2.84
SRCPARAM ENTRY059 0.00226 3.05 9.26 2.84
SRCPARAM ENTRY060 0.00226 3.05 9.26 2.84
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** LINE Source ID = INTERA
   SRCPARAM INTERA01  0.00442  3.05 16.28 2.84
   SRCPARAM INTERA02  0.00442  3.05 16.28 2.84
   SRCPARAM INTERA03  0.00442  3.05 16.28 2.84
   SRCPARAM INTERA04  0.00442  3.05 18.33 2.84
   SRCPARAM INTERA05  0.00442  3.05 18.33 2.84
   SRCPARAM INTERA06  0.00442  3.05 18.33 2.84
   SRCPARAM INTERA07  0.00442  3.05 18.33 2.84
   SRCPARAM INTERA08  0.00442  3.05 18.33 2.84
   SRCPARAM INTERA09  0.00442  3.05 18.33 2.84
   SRCPARAM INTERA10  0.00442  3.05 18.33 2.84
   SRCPARAM INTERA11  0.00442  3.05 18.33 2.84
   SRCPARAM INTERA12  0.00442  3.05 18.33 2.84
   SRCPARAM INTERA13  0.00442  3.05 17.37 2.84
   SRCPARAM INTERA14  0.00442  3.05 17.37 2.84
   SRCPARAM INTERA15  0.00442  3.05 17.37 2.84
   SRCPARAM INTERA16  0.00442  3.05 17.37 2.84
   SRCPARAM INTERA17  0.00442  3.05 17.37 2.84
   SRCPARAM INTERA18  0.00442  3.05 17.37 2.84
   SRCPARAM INTERA19  0.00442  3.05 17.37 2.84
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   SRCPARAM INTERA22  0.00442  3.05 17.37 2.84
   SRCPARAM INTERA23  0.00442  3.05 17.37 2.84
   SRCPARAM INTERA24  0.00442  3.05 17.37 2.84
   SRCPARAM INTERA25  0.00442  3.05 17.37 2.84
   SRCPARAM INTERA26  0.00442  3.05 17.37 2.84
   SRCPARAM INTERA27  0.00442  3.05 17.37 2.84

** INCLUDES FLYASH TRUCKS FROM UNITS 1&2
** W/O FLYASH PM= 0.00397
** LINE Source ID = INTERB
   SRCPARAM INTERB01  0.00420  3.05 18.43 2.84
   SRCPARAM INTERB02  0.00420  3.05 18.43 2.84
   SRCPARAM INTERB03  0.00420  3.05 18.43 2.84
   SRCPARAM INTERB04  0.00420  3.05 18.43 2.84
   SRCPARAM INTERB05  0.00420  3.05 18.43 2.84
   SRCPARAM INTERB06  0.00420  3.05 18.43 2.84
   SRCPARAM INTERB07  0.00420  3.05 18.43 2.84
   SRCPARAM INTERB08  0.00420  3.05 18.43 2.84
   SRCPARAM INTERB09  0.00420  3.05 18.43 2.84
   SRCPARAM INTERB10  0.00420  3.05 18.43 2.84

** LINE Source ID = GYPWALL
   SRCPARAM GYPWAL01  0.00093  3.05 9.30 2.84
   SRCPARAM GYPWAL02  0.00093  3.05 9.30 2.84
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   SRCPARAM GYPWAL03 0.00093 3.05 9.30 2.84
   SRCPARAM GYPWAL04 0.00093 3.05 9.30 2.84
   SRCPARAM GYPWAL05 0.00093 3.05 9.30 2.84
   SRCPARAM GYPWAL06 0.00093 3.05 9.30 2.84
   SRCPARAM GYPWAL07 0.00093 3.05 9.30 2.84
   SRCPARAM GYPWAL08 0.00093 3.05 9.30 2.84

** Background Sources
*************          Q     H     T     V       D
*************  SRCID  (g/s)  (m)   (K)   (m/s)   (m)

**    Progress Materials, Inc.
**SO SRCPARAM    PMINC1 0.019  18.3   298    23.29  0.15
**SO SRCPARAM    PMINC2 0.010  18.3   298    11.64  0.15
**SO SRCPARAM    PMINC3 0.010  18.3   298    11.64  0.15
**SO SRCPARAM    PMINC4 0.010  18.3   298    11.64  0.15
**SO SRCPARAM    PMINC5 0.021  18.3   298    25.87  0.15
**SO SRCPARAM    PMINC6 0.135  18.3   298    11.64  0.15
SO SRCPARAM    PMINCALL 0.21  18.3   298    11.64  0.15

**    Holcim, Inc.
**SO SRCPARAM    HOLCIM1 0.403  22.86  298   7.01   0.91

**    Cemex, Inc. - Inglis Mine (was 0750031)
**SO SRCPARAM    INGMINE1     0.469  18.29  298    6.40   1.19

**    SMG, INC.
**SO SRCPARAM    SMG1   2.520  0.00   298    0.00   0.00

**    Florida Crushed Stone - Brooksville Cement And Power Plants
SO SRCPARAM    FCS13  0.643  21.34  372    10.06  1.52
SO SRCPARAM    FCS18  3.150  97.54  422    21.21  4.88
SO SRCPARAM    FCS20  6.237  91.44  378    14.33  4.88
SO SRCPARAM    FCS28  1.620  37.49  344    10.06  2.62
SO SRCPARAM    FCS44  3.629  97.54  561    12.22  4.27
SO SRCPARAM    FCS55  1.159  39.62  344    14.78  2.29

**Units 6,10,15,22,25,29,36,45,50,& 57 modeled together using FCS45 parameters
**SO SRCPARAM    FCS6   0.277  73.15  355    8.84   1.07
**SO SRCPARAM    FCS10  0.038  60.96  366    7.32   0.46
**SO SRCPARAM    FCS15  0.126  60.96  355    11.98  0.61
**SO SRCPARAM    FCS22  0.086  60.96  355    8.56   0.61
**SO SRCPARAM    FCS25  0.213  66.75  355    10.09  1.01
**SO SRCPARAM    FCS29  0.178  61.87  355    10.58  0.64
**SO SRCPARAM    FCS36  0.178  60.96  355    31.61  0.46
**SO SRCPARAM    FCS45  0.144  59.13  366    8.96   0.52
**SO SRCPARAM    FCS50  0.032  61.87  389    10.12  0.49
**SO SRCPARAM    FCS57  0.105  61.87  355    9.36   0.49
SO SRCPARAM    FCS45  1.377  59.13  366    8.96   0.52

**Units 1,2,11,12,38,49,& 52 modeled together using FCS49 parameters
**SO SRCPARAM    FCS1   0.088  38.10  298    10.97  0.61
**SO SRCPARAM    FCS2   0.050  38.10  298    6.71   0.61
**SO SRCPARAM    FCS11  0.076  41.15  366    14.33  0.46
**SO SRCPARAM    FCS12  0.151  41.15  311    9.14   0.76
**SO SRCPARAM    FCS38  0.097  45.72  311    10.03  1.07
**SO SRCPARAM    FCS49  0.040  36.58  308    10.12  0.49
**SO SRCPARAM    FCS52  0.291  39.62  373    14.14  1.22
SO SRCPARAM    FCS49  0.793  36.58  308    10.12  0.49

**Units 4,23,& 24 modeled together using FCS4 parameters
**SO SRCPARAM    FCS4   0.025  21.34  355    7.77   0.30
**SO SRCPARAM    FCS23  0.014  22.86  298    8.53   0.24
**SO SRCPARAM    FCS24  0.130  24.38  298    17.07  0.46
SO SRCPARAM    FCS4   0.169  21.34  355    7.77   0.30

**Units 35 & 39 modeled together using FCS35 parameters
**SO SRCPARAM    FCS35  0.139  30.48  294    10.88  0.76
**SO SRCPARAM    FCS39  0.146  30.48  322    6.52   0.76
SO SRCPARAM    FCS35  0.285  30.48  294    10.88  0.76

**Units 7,14,17,21,30,53,54,56,60,& 61 modeled together using FCS60 parameters
**SO SRCPARAM    FCS7   0.101  15.24  366    9.69   0.61
**SO SRCPARAM    FCS14  0.050  15.24  344    9.14   0.46
**SO SRCPARAM    FCS17  0.063  15.54  355    10.36  0.46
**SO SRCPARAM    FCS21  0.163  15.24  344    28.65  0.46
**SO SRCPARAM    FCS30  0.238  12.19  339    10.21  1.19
**SO SRCPARAM    FCS53  0.051  14.02  366    11.98  0.55
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**SO SRCPARAM    FCS54  0.051  14.02  366   11.98  0.55
**SO SRCPARAM    FCS56  0.051  14.02  366   11.98  0.55
**SO SRCPARAM    FCS60  0.202  12.19  339   9.36   1.19
**SO SRCPARAM    FCS61  0.018  12.19  339   10.70  0.34
SO SRCPARAM    FCS60  0.988  12.19  339   9.36   1.19

**Units 19,37,46,47,48,58,& 59 modeled together using FCS19 parameters
**SO SRCPARAM    FCS19  0.146  8.84   303   14.33  0.61
**SO SRCPARAM    FCS37  0.097  9.14   339   4.85   0.61
**SO SRCPARAM    FCS46  0.033  9.14   355   9.91   0.43
**SO SRCPARAM    FCS47  0.033  9.14   355   9.91   0.43
**SO SRCPARAM    FCS48  0.024  9.75   389   7.59   0.49
**SO SRCPARAM    FCS58  0.026  9.14   355   9.91   0.43
**SO SRCPARAM    FCS59  0.026  9.14   355   9.91   0.43
SO SRCPARAM    FCS19  0.385  8.84   303   14.33  0.61

**Units 8,9,40,& 51 modeled together using FCS40 parameters
**SO SRCPARAM    FCS8   0.088  4.57   294   9.45   0.61
**SO SRCPARAM    FCS9   0.083  3.05   394   32.98  0.30
**SO SRCPARAM    FCS40  0.028  4.57   298   4.97   0.46
**SO SRCPARAM    FCS51  0.105  4.57   355   14.66  0.70
SO SRCPARAM    FCS40  0.304  4.57   298   4.97   0.46

**     CEMEX
SO SRCPARAM    CEMEX3 3.742  45.72  414   10.36  3.96
SO SRCPARAM    CEMEX4 1.877  15.24  444   8.84   3.05
SO SRCPARAM    CEMEX5 4.536  25.30  364   157.89 0.91
SO SRCPARAM    CEMEX9 4.542  42.98  303   10.67  0.91
SO SRCPARAM    CEMEX13 1.701 27.43  328   19.51  0.43
SO SRCPARAM    CEMEX14 3.742 32.00  394   9.75   4.27
SO SRCPARAM    CEMEX15 1.877 15.24  478   21.64  2.29
SO SRCPARAM    CEMEX27 1.600 14.63  255   20.45  0.50

**Units 6,8,12,21,22,& 16 are modeled together using CEMEX16 parameters
**SO SRCPARAM    CEMEX6 0.183  44.20  299   48.46  0.61
**SO SRCPARAM    CEMEX8 0.471  65.84  303   24.08  0.61
**SO SRCPARAM    CEMEX12 0.247 67.06  366   18.90  0.85
**SO SRCPARAM    CEMEX16 0.183 45.72  358   7.01   0.85
**SO SRCPARAM    CEMEX21 0.126 64.01  336   15.24  0.67
**SO SRCPARAM    CEMEX22 0.126 64.01  339   15.54  0.46
SO SRCPARAM    CEMEX16 1.336 45.72  358   7.01   0.85

**Units 2,11,17,18,19,23,& 24 are modeled together using CEMEX23 parameters
**SO SRCPARAM    CEMEX2 0.129  22.86  303   7.01   0.91
**SO SRCPARAM    CEMEX11 0.271 24.38  298   15.24  0.76
**SO SRCPARAM    CEMEX17 0.064 22.86  339   19.20  0.30
**SO SRCPARAM    CEMEX18 0.183 22.86  333   7.01   0.85
**SO SRCPARAM    CEMEX19 0.504 22.86  370   18.90  1.01
**SO SRCPARAM    CEMEX23 0.063 21.34  339   15.54  0.46
**SO SRCPARAM    CEMEX24 0.076 24.69  315   11.89  0.52
SO SRCPARAM    CEMEX23 1.29  21.34  339   15.54  0.46

**Units 25 & 26 are modeled together using CEMEX26 parameters
**SO SRCPARAM    CEMEX25 0.001 9.75   294   24.08  0.61
**SO SRCPARAM    CEMEX26 0.076 7.32   319   6.10   0.61
SO SRCPARAM    CEMEX26 0.077 7.32   319   6.10   0.61

SO BUILDHGT U45100   38.00  38.00  38.00  38.00  31.10  87.60
SO BUILDHGT U45100   87.60  87.60  87.60  87.60  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00  0.00
SO BUILDHGT U45100   0.00   0.00   0.00   0.00   0.00   87.60
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00  0.00
SO BUILDWID U45100   44.50  47.24  48.53  48.36  144.98 147.63
SO BUILDWID U45100   148.86 145.57 137.85 145.57 39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49  0.00
SO BUILDWID U45100   0.00   0.00   0.00   0.00   0.00   147.63
SO BUILDWID U45100   39.28  33.70  27.10  33.70  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49  0.00
SO BUILDLEN U45100   33.67  39.25  43.64  46.71  126.46 117.84
SO BUILDLEN U45100   100.22 79.56  56.48  79.56  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70  0.00
SO BUILDLEN U45100   0.00   0.00   0.00   0.00   0.00   117.84
SO BUILDLEN U45100   47.23  44.49  40.40  44.49  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70  0.00
SO XBADJ   U45100  -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ   U45100  -293.28 -287.77 -273.51 -274.88 -72.54 -73.70
SO XBADJ   U45100  -72.63 -69.34 -63.96 -56.62 -47.57  0.00
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SO XBADJ    U45100    0.00   0.00   0.00   0.00   0.00 172.04
SO XBADJ    U45100    9.22  16.51  23.30  24.68  25.31  25.16
SO XBADJ    U45100   24.26  22.62  20.29  17.34  13.87   0.00
SO YBADJ    U45100   25.96   7.68 -10.83 -29.01  76.77  90.51
SO YBADJ    U45100   49.03   6.06 -37.10 -79.12   7.23  -1.38
SO YBADJ    U45100   -9.94 -18.20 -25.91 -32.83 -38.75   0.00
SO YBADJ    U45100    0.00   0.00   0.00   0.00   0.00 -90.51
SO YBADJ    U45100  -36.98 -30.72 -23.52 -15.61  -7.23   1.38
SO YBADJ    U45100    9.94  18.20  25.91  32.83  38.75   0.00

SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40   0.00
SO BUILDHGT UNIT1     0.00   0.00   0.00   0.00  12.20  60.40
SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40   0.00
SO BUILDHGT UNIT1     0.00   0.00   0.00   0.00  12.20  60.40
SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDWID UNIT1    98.57 101.00 100.36  96.68  90.05   0.00
SO BUILDWID UNIT1     0.00   0.00   0.00   0.00  42.31  79.92
SO BUILDWID UNIT1    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDWID UNIT1    98.57 101.00 100.36  96.68  90.05   0.00
SO BUILDWID UNIT1     0.00   0.00   0.00   0.00  42.31  79.92
SO BUILDWID UNIT1    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDLEN UNIT1    54.10  68.04  79.92  89.37  96.10   0.00
SO BUILDLEN UNIT1     0.00   0.00   0.00   0.00  57.88 100.36
SO BUILDLEN UNIT1    96.68  90.05  80.69  68.88  54.97  41.31
SO BUILDLEN UNIT1    54.10  68.04  79.92  89.37  96.10   0.00
SO BUILDLEN UNIT1     0.00   0.00   0.00   0.00  57.88 100.36
SO BUILDLEN UNIT1    96.68  90.05  80.69  68.88  54.97  41.31
SO XBADJ    UNIT1    48.68  34.97  20.19   4.80 -10.74   0.00
SO XBADJ    UNIT1     0.00   0.00   0.00   0.00 -81.32 -105.17
SO XBADJ    UNIT1  -112.58 -116.57 -117.02 -113.91 -107.35 -99.43
SO XBADJ    UNIT1  -102.78 -103.01 -100.11 -94.17 -85.36   0.00
SO XBADJ    UNIT1     0.00   0.00   0.00   0.00  23.44   4.80
SO XBADJ    UNIT1    15.90  26.52  36.33  45.03  52.37  58.12
SO YBADJ    UNIT1    31.79  44.06  54.98  64.24  71.54   0.00
SO YBADJ    UNIT1     0.00   0.00   0.00   0.00  16.81  60.15
SO YBADJ    UNIT1    49.48  37.31  24.01   9.98  -4.36 -18.56
SO YBADJ    UNIT1   -31.79 -44.06 -54.98 -64.24 -71.54   0.00
SO YBADJ    UNIT1     0.00   0.00   0.00   0.00 -16.81 -60.15
SO YBADJ    UNIT1   -49.48 -37.31 -24.01  -9.98   4.36  18.56


SO BUILDHGT UNIT2    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2    60.40   0.00   0.00  12.20  12.20  12.20
SO BUILDHGT UNIT2    12.20  12.20  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2    60.40   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT UNIT2     0.00  12.20  60.40  60.40  60.40  60.40
SO BUILDWID UNIT2    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID UNIT2    68.88   0.00   0.00  34.33  41.56  47.53
SO BUILDWID UNIT2    52.06  55.00  99.92 100.69  98.41  93.14
SO BUILDWID UNIT2    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID UNIT2    68.88   0.00   0.00   0.00   0.00   0.00
SO BUILDWID UNIT2     0.00  56.66  99.92 100.69  98.41  93.14
SO BUILDLEN UNIT2    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN UNIT2   100.69   0.00   0.00  53.70  55.84  56.28
SO BUILDLEN UNIT2    55.00  52.06  80.69  68.88  54.97  41.31
SO BUILDLEN UNIT2    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN UNIT2   100.69   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN UNIT2     0.00  53.45  80.69  68.88  54.97  41.31
SO XBADJ    UNIT2    58.90  55.08  49.60  42.61  34.32  24.99
SO XBADJ    UNIT2    14.90   0.00   0.00 -84.75 -88.92 -90.39
SO XBADJ    UNIT2   -89.10 -85.12 -87.61 -93.80 -97.13 -99.43
SO XBADJ    UNIT2  -112.99 -123.13 -129.52 -131.98 -130.42 -124.91
SO XBADJ    UNIT2  -115.60   0.00   0.00   0.00   0.00   0.00
SO XBADJ    UNIT2     0.00 -10.77   6.92  24.92  42.16  58.12
SO YBADJ    UNIT2   -26.13 -11.21   4.04  19.18  33.73  47.26
SO YBADJ    UNIT2    59.36   0.00   0.00  22.92  12.51   1.73
SO YBADJ    UNIT2    -9.10 -19.66  74.95  65.25  53.57  40.26
SO YBADJ    UNIT2    26.13  11.21  -4.04 -19.18 -33.73 -47.26
SO YBADJ    UNIT2   -59.36   0.00   0.00   0.00   0.00   0.00
SO YBADJ    UNIT2     0.00 -33.43 -74.95 -65.25 -53.57 -40.26

SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
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SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDWID HCT1    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT1    335.67 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT1    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDWID HCT1    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT1    335.66 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT1    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDLEN HCT1     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT1    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT1    648.63 560.26 454.88 335.67 206.26  70.58
SO BUILDLEN HCT1     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT1    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT1    648.63 560.26 454.88 335.66 206.26  70.58
SO XBADJ    HCT1    -14.85 -28.38 -41.04 -52.45 -62.28 -70.20
SO XBADJ    HCT1    -76.00 -79.49 -80.56 -80.80 -79.67 -76.11
SO XBADJ    HCT1    -70.24 -62.24 -52.35 -40.86 -28.14 -14.56
SO XBADJ    HCT1    -83.17 -204.39 -319.40 -424.71 -517.12 -593.81
SO XBADJ    HCT1    -652.46 -691.28 -709.10 -707.00 -684.49 -641.18
SO XBADJ    HCT1    -578.39 -498.02 -402.53 -294.80 -178.12 -56.02
SO YBADJ    HCT1    -313.10 -302.41 -282.53 -254.07 -217.89 -175.09
SO YBADJ    HCT1    -126.97 -74.99 -20.73  34.16  88.01 139.18
SO YBADJ    HCT1    186.13 227.42 261.80 288.23 305.90 314.27
SO YBADJ    HCT1    313.10 302.41 282.53 254.07 217.89 175.09
SO YBADJ    HCT1    126.97  74.99  20.73 -34.16 -88.01 -139.18
SO YBADJ    HCT1    -186.13 -227.42 -261.80 -288.23 -305.90 -314.27


SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDWID HCT2    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT2    335.67 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT2    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDWID HCT2    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT2    335.66 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT2    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDLEN HCT2     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT2    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT2    648.63 560.26 454.88 335.67 206.26  70.58
SO BUILDLEN HCT2     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT2    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT2    648.63 560.26 454.88 335.66 206.26  70.58
SO XBADJ    HCT2    -34.21 -79.37 -122.12 -161.16 -195.31 -223.52
SO XBADJ    HCT2    -244.93 -258.91 -265.02 -264.69 -257.40 -242.29
SO XBADJ    HCT2    -219.82 -190.67 -155.72 -116.05 -72.84 -27.43
SO XBADJ    HCT2    -63.81 -153.40 -238.32 -316.00 -384.09 -440.50
SO XBADJ    HCT2    -483.52 -511.86 -524.64 -523.10 -506.75 -475.00
SO XBADJ    HCT2    -428.81 -369.60 -299.15 -219.62 -133.41 -43.15
SO YBADJ    HCT2    -129.21 -124.67 -116.35 -104.50 -89.46 -71.71
SO YBADJ    HCT2    -51.79 -30.28  -7.86  14.80  37.01  58.10
SO YBADJ    HCT2     77.42  94.39 108.49 119.29 126.48 129.81
SO YBADJ    HCT2    129.21 124.67 116.35 104.50  89.46  71.71
SO YBADJ    HCT2     51.79  30.28   7.86 -14.80 -37.01 -58.10
SO YBADJ    HCT2    -77.42 -94.39 -108.49 -119.29 -126.48 -129.81


SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDWID HCT3    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT3    335.67 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT3    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDWID HCT3    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT3    335.66 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT3    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDLEN HCT3     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT3    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT3    648.63 560.26 454.88 335.67 206.26  70.58
SO BUILDLEN HCT3     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT3    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT3    648.63 560.26 454.88 335.66 206.26  70.58
SO XBADJ    HCT3    -56.90 -147.25 -233.11 -311.90 -381.21 -438.94
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SO XBADJ     HCT3   -483.33 -513.03 -527.15 -526.86 -511.65 -480.89
SO XBADJ     HCT3   -435.52 -376.92 -306.86 -227.48 -141.19  -50.61
SO XBADJ     HCT3    -41.12  -85.52 -127.33 -165.27 -198.18 -225.08
SO XBADJ     HCT3   -245.13 -257.74 -262.51 -260.93 -252.50 -236.39
SO XBADJ     HCT3   -213.11 -183.35 -148.01 -108.18  -65.07  -19.97
SO YBADJ     HCT3    132.97  129.58  122.25  111.21   96.79   79.42
SO YBADJ     HCT3     59.65   38.06   15.32   -7.89  -30.86  -52.89
SO YBADJ     HCT3    -73.32  -91.51 -106.93 -119.10 -127.65 -132.32
SO YBADJ     HCT3   -132.97 -129.58 -122.25 -111.21  -96.79  -79.42
SO YBADJ     HCT3    -59.65  -38.06  -15.32    7.89   30.86   52.89
SO YBADJ     HCT3     73.32   91.51  106.93  119.10  127.65  132.32

SO BUILDHGT HCT4     10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDHGT HCT4     10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDHGT HCT4     10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDHGT HCT4     10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDHGT HCT4     10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDHGT HCT4     10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDWID HCT4    787.80  764.15  717.29  648.63  560.26  454.88
SO BUILDWID HCT4    335.67  206.26   70.58   98.02  232.77  360.44
SO BUILDWID HCT4    477.17  579.39  664.01  728.46  770.77  789.66
SO BUILDWID HCT4    787.80  764.15  717.29  648.63  560.26  454.88
SO BUILDWID HCT4    335.66  206.26   70.58   98.02  232.77  360.44
SO BUILDWID HCT4    477.17  579.39  664.01  728.46  770.77  789.66
SO BUILDLEN HCT4     98.02  232.77  360.44  477.17  579.39  664.01
SO BUILDLEN HCT4    728.46  770.77  789.66  787.80  764.15  717.29
SO BUILDLEN HCT4    648.63  560.26  454.88  335.67  206.26   70.58
SO BUILDLEN HCT4     98.02  232.77  360.44  477.17  579.39  664.01
SO BUILDLEN HCT4    728.46  770.77  789.66  787.80  764.15  717.29
SO BUILDLEN HCT4    648.63  560.26  454.88  335.66  206.26   70.58
SO XBADJ     HCT4    -77.12 -198.81 -314.45 -420.54 -513.86 -591.56
SO XBADJ     HCT4   -651.29 -691.22 -710.16 -709.13 -687.64 -645.25
SO XBADJ     HCT4   -583.26 -503.55 -408.53 -301.11 -184.53  -62.35
SO XBADJ     HCT4    -20.90  -33.96  -45.99  -56.62  -65.53  -72.45
SO XBADJ     HCT4    -77.17  -79.55  -79.50  -78.66  -76.51  -72.03
SO XBADJ     HCT4    -65.37  -56.72  -46.34  -34.56  -21.73   -8.23
SO YBADJ     HCT4    315.24  305.57  286.61  258.95  223.42  181.10
SO YBADJ     HCT4    133.27   81.40   27.06  -28.11  -82.42 -134.23
SO YBADJ     HCT4   -181.96 -224.16 -259.55 -287.06 -305.84 -315.33
SO YBADJ     HCT4   -315.24 -305.57 -286.61 -258.95 -223.42 -181.10
SO YBADJ     HCT4   -133.27  -81.40  -27.06   28.11   82.42  134.23
SO YBADJ     HCT4    181.96  224.16  259.55  287.06  305.84  315.33

SO BUILDHGT FAT1     60.40   60.40   60.40   60.40   60.40   60.40
SO BUILDHGT FAT1     60.40   60.40   12.20   12.20   60.40   60.40
SO BUILDHGT FAT1     60.40   60.40   60.40   60.40   60.40   60.40
SO BUILDHGT FAT1     60.40   60.40   60.40   60.40   60.40   60.40
SO BUILDHGT FAT1     60.40   60.40   12.20   12.20   60.40   60.40
SO BUILDHGT FAT1     60.40   60.40   60.40   60.40   60.40   60.40
SO BUILDWID FAT1     98.57  101.00  100.36   96.68   90.05   80.69
SO BUILDWID FAT1     68.88   54.98   26.05   34.33   68.04   79.92
SO BUILDWID FAT1     89.37   96.10   99.92  100.69   98.41   93.14
SO BUILDWID FAT1     98.57  101.00  100.36   96.68   90.05   80.69
SO BUILDWID FAT1     68.88   54.98   26.05   34.33   68.04   79.92
SO BUILDWID FAT1     89.37   96.10   99.92  100.69   98.41   93.14
SO BUILDLEN FAT1     54.10   68.04   79.92   89.37   96.10   99.92
SO BUILDLEN FAT1    100.69   98.41   52.11   53.70  101.00  100.36
SO BUILDLEN FAT1     96.68   90.05   80.69   68.88   54.97   41.31
SO BUILDLEN FAT1     54.10   68.04   79.92   89.37   96.10   99.92
SO BUILDLEN FAT1    100.69   98.41   52.11   53.70  101.00  100.36
SO BUILDLEN FAT1     96.68   90.05   80.69   68.88   54.97   41.31
SO XBADJ     FAT1     28.85   29.69   29.63   28.67   26.83   24.19
SO XBADJ     FAT1     20.81   16.79    7.88  -60.59  -10.27  -21.24
SO XBADJ     FAT1    -31.57  -40.93  -49.06  -55.69  -60.63  -65.64
SO XBADJ     FAT1    -82.94  -97.73 -109.55 -118.04 -122.94 -124.10
SO XBADJ     FAT1   -121.50 -115.20  -59.98    6.88  -90.73  -79.12
SO XBADJ     FAT1    -65.11  -49.12  -31.64  -13.19    5.65   24.33
SO YBADJ     FAT1    -50.30  -40.23  -28.94  -16.77   -4.09    8.71
SO YBADJ     FAT1     21.25   33.14   -0.08   -7.13   63.71   69.59
SO YBADJ     FAT1     73.35   74.89   74.15   71.15   66.00   58.84
SO YBADJ     FAT1     50.30   40.23   28.94   16.77    4.09   -8.71
SO YBADJ     FAT1    -21.25  -33.14    0.08    7.13  -63.71  -69.59
SO YBADJ     FAT1    -73.35  -74.89  -74.15  -71.15  -66.00  -58.84

SO BUILDHGT FAS1&2    0.00   12.20   12.20   12.20   12.20   12.20
SO BUILDHGT FAS1&2   12.20   12.20   12.20   12.20   12.20   12.20
```

```
SO BUILDHGT FAS1&2   12.20  12.20   0.00   0.00   0.00   0.00
SO BUILDHGT FAS1&2    0.00  12.20  12.20  12.20  12.20  12.20
SO BUILDHGT FAS1&2   60.40  60.40  12.20  12.20  12.20  12.20
SO BUILDHGT FAS1&2    0.00  12.20   0.00   0.00   0.00   0.00
SO BUILDWID FAS1&2    0.00  57.85  57.78  57.68  57.68  57.78
SO BUILDWID FAS1&2   57.84  57.89  57.90  57.89  57.84  57.78
SO BUILDWID FAS1&2   71.33  71.33   0.00   0.00   0.00   0.00
SO BUILDWID FAS1&2    0.00  57.85  57.78  57.68  57.68  57.78
SO BUILDWID FAS1&2   68.88  54.98  57.90  57.89  57.84  57.78
SO BUILDWID FAS1&2    0.00  71.33   0.00   0.00   0.00   0.00
SO BUILDLEN FAS1&2    0.00  57.84  57.78  57.68  57.68  57.78
SO BUILDLEN FAS1&2   57.85  57.89  57.90  57.89  57.85  57.78
SO BUILDLEN FAS1&2   71.33  71.33   0.00   0.00   0.00   0.00
SO BUILDLEN FAS1&2    0.00  57.84  57.78  57.68  57.68  57.78
SO BUILDLEN FAS1&2  100.69  98.41  57.90  57.89  57.85  57.78
SO BUILDLEN FAS1&2    0.00  71.33   0.00   0.00   0.00   0.00
SO XBADJ   FAS1&2    0.00   0.11   5.32   9.51  12.49  14.16
SO XBADJ   FAS1&2   14.54  13.61  11.40   7.99   3.46  -2.04
SO XBADJ   FAS1&2 -100.72 -95.65   0.00   0.00   0.00   0.00
SO XBADJ   FAS1&2    0.00 -57.95 -63.10 -67.19 -70.17 -71.94
SO XBADJ   FAS1&2 -348.91 -353.53 -69.31 -65.87 -61.30 -55.74
SO XBADJ   FAS1&2    0.00  24.32   0.00   0.00   0.00   0.00
SO YBADJ   FAS1&2    0.00 -32.38 -26.85 -20.50 -13.53  -6.15
SO YBADJ   FAS1&2    1.42   8.95  16.20  22.96  29.03  34.21
SO YBADJ   FAS1&2  -23.51 -34.45   0.00   0.00   0.00   0.00
SO YBADJ   FAS1&2    0.00  32.38  26.85  20.50  13.53   6.15
SO YBADJ   FAS1&2   61.52   8.88 -16.20 -22.96 -29.03 -34.21
SO YBADJ   FAS1&2    0.00  34.45   0.00   0.00   0.00   0.00


SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDWID FAT2A    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2A    68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2A    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDWID FAT2A    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2A    68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2A    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDLEN FAT2A    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT2A   100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT2A    96.68  90.05  80.69  68.88  54.97  41.31
SO BUILDLEN FAT2A    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT2A   100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT2A    96.68  90.05  80.69  68.88  54.97  41.31
SO XBADJ   FAT2A     28.85  29.69  29.63  28.67  26.83  24.19
SO XBADJ   FAT2A     20.81  16.79   7.88 -60.59 -10.27 -21.24
SO XBADJ   FAT2A    -31.57 -40.93 -49.06 -55.69 -60.63 -65.64
SO XBADJ   FAT2A    -82.94 -97.73 -109.55 -118.04 -122.94 -124.10
SO XBADJ   FAT2A   -121.50 -115.20 -59.98   6.88 -90.73 -79.12
SO XBADJ   FAT2A    -65.11 -49.12 -31.64 -13.19   5.65  24.33
SO YBADJ   FAT2A    -50.30 -40.23 -28.94 -16.77  -4.09   8.71
SO YBADJ   FAT2A     21.25  33.14  -0.08  -7.13  63.71  69.59
SO YBADJ   FAT2A     73.35  74.89  74.15  71.15  66.00  58.84
SO YBADJ   FAT2A     50.30  40.23  28.94  16.77   4.09  -8.71
SO YBADJ   FAT2A    -21.25 -33.14   0.08   7.13 -63.71 -69.59
SO YBADJ   FAT2A    -73.35 -74.89 -74.15 -71.15 -66.00 -58.84


SO BUILDHGT FAT2B    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2B    60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2B    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2B    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2B    60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2B    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDWID FAT2B    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2B    68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2B    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDWID FAT2B    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2B    68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2B    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDLEN FAT2B    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT2B   100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT2B    96.68  90.05  80.69  68.88  54.97  41.31
SO BUILDLEN FAT2B    54.10  68.04  79.92  89.37  96.10  99.92
```

```
SO BUILDLEN FAT2B    100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT2B     96.68  90.05  80.69  68.88  54.97  41.31
SO XBADJ    FAT2B     28.85  29.69  29.63  28.67  26.83  24.19
SO XBADJ    FAT2B     20.81  16.79   7.88 -60.59 -10.27 -21.24
SO XBADJ    FAT2B    -31.57 -40.93 -49.06 -55.69 -60.63 -65.64
SO XBADJ    FAT2B    -82.94 -97.73 -109.55 -118.04 -122.94 -124.10
SO XBADJ    FAT2B   -121.50 -115.20 -59.98   6.88 -90.73 -79.12
SO XBADJ    FAT2B    -65.11 -49.12 -31.64 -13.19   5.65  24.33
SO YBADJ    FAT2B    -50.30 -40.23 -28.94 -16.77  -4.09   8.71
SO YBADJ    FAT2B     21.25  33.14  -0.08  -7.13  63.71  69.59
SO YBADJ    FAT2B     73.35  74.89  74.15  71.15  66.00  58.84
SO YBADJ    FAT2B     50.30  40.23  28.94  16.77   4.09  -8.71
SO YBADJ    FAT2B    -21.25 -33.14   0.08   7.13 -63.71 -69.59
SO YBADJ    FAT2B    -73.35 -74.89 -74.15 -71.15 -66.00 -58.84


SO BUILDHGT BAS12      0.00   0.00   0.00   0.00  12.20  12.20
SO BUILDHGT BAS12     12.20  12.20   0.00   0.00   0.00   0.00
SO BUILDHGT BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT BAS12      0.00   0.00   0.00  60.40  60.40  60.40
SO BUILDHGT BAS12     60.40   0.00   0.00   0.00   0.00   0.00
SO BUILDWID BAS12      0.00   0.00   0.00   0.00  57.68  57.78
SO BUILDWID BAS12     57.84  57.89   0.00   0.00   0.00   0.00
SO BUILDWID BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID BAS12      0.00   0.00   0.00  54.10  68.04  79.92
SO BUILDWID BAS12     89.37   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12      0.00   0.00   0.00   0.00  57.68  57.78
SO BUILDLEN BAS12     57.84  57.89   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12      0.00   0.00   0.00  98.57 101.00 100.36
SO BUILDLEN BAS12     96.68   0.00   0.00   0.00   0.00   0.00
SO XBADJ    BAS12      0.00   0.00   0.00   0.00 -113.15 -115.70
SO XBADJ    BAS12   -115.59 -112.84  0.00   0.00   0.00   0.00
SO XBADJ    BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    BAS12      0.00   0.00   0.00 -242.62 -250.48 -250.72
SO XBADJ    BAS12   -243.34   0.00   0.00   0.00   0.00   0.00
SO YBADJ    BAS12      0.00   0.00   0.00   0.00  21.75   6.78
SO YBADJ    BAS12     -8.40 -23.32   0.00   0.00   0.00   0.00
SO YBADJ    BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    BAS12      0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    BAS12      0.00   0.00   0.00  52.82  18.51 -16.35
SO YBADJ    BAS12    -50.72   0.00   0.00   0.00   0.00   0.00

SO BUILDHGT CBO       65.30  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CBO        0.00  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CBO        0.00  38.00  38.00  38.00   0.00   0.00
SO BUILDWID CBO       96.38 100.22 117.84 131.88 141.91 147.63
SO BUILDWID CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CBO        0.00 100.22 117.84 131.88 141.91 147.63
SO BUILDWID CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CBO        0.00  48.37  48.54  47.23   0.00   0.00
SO BUILDLEN CBO      145.57 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CBO        0.00 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CBO        0.00  46.73  43.67  39.28   0.00   0.00
SO XBADJ    CBO     -289.14 -302.96 -307.57 -302.83 -288.90 -266.18
SO XBADJ    CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    CBO        0.00 154.10 159.94 160.93 157.02 148.34
SO XBADJ    CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ    CBO        0.00 -177.51 -178.75 -174.56  0.00   0.00
SO YBADJ    CBO       80.60  50.09   9.64 -31.09 -70.89 -108.53
SO YBADJ    CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    CBO        0.00 -50.09  -9.64  31.09  70.89 108.53
SO YBADJ    CBO        0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ    CBO        0.00  29.43   2.21 -25.07   0.00   0.00
```

```
   EMISFACT PIL12    WSPEED 3*0 3*1
   EMISFACT PIL45    WSPEED 3*0 3*1
   EMISFACT PILGYP   WSPEED 3*0 3*1

   SRCGROUP BACKG FCS1-FCS61 CEMEX1-CEMEX27 1AGRI 2AGRI PMINCALL
   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED CRAUG06A.rou
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
   WINDCATS 1.54 3.09 5.39 8.23 10.8

ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
   RECTABLE ALLAVE FIRST SECOND
OU FINISHED
```

AERBOB RELEASE 020304

AERMOD OUTPUT FILE NUMBER 1 :aqpm55.o01
AERMOD OUTPUT FILE NUMBER 2 :aqpm55.o02
AERMOD OUTPUT FILE NUMBER 3 :aqpm55.o03
AERMOD OUTPUT FILE NUMBER 4 :aqpm55.o04
AERMOD OUTPUT FILE NUMBER 5 :aqpm55.o05
First title for last output file is: 2001 PGN CR, PM10 AAQS ANALYSIS - CR+BACKGROUND SOURCES 8/18/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-05 (GOLDER SURFACE PARAMETERS)

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: BACKG					
Annual					
	2001	0.1	332358.	3203372.	01123124
	2002	0.1	332595.	3203033.	02123124
	2003	0.1	334262.	3205668.	03123124
	2004	0.1	332358.	3203372.	04123124
	2005	0.1	332528.	3203104.	05123124
HIGH 24-Hour					
	2001	2.3	342800.	3195400.	01121124
	2002	1.6	334114.	3205671.	02111124
	2003	1.7	334017.	3205672.	03012124
	2004	2.0	333579.	3205678.	04120824
	2005	1.6	334163.	3205670.	05022424
HSH 24-Hour					
	2001	1.1	344800.	3195400.	01102324
	2002	1.2	333700.	3205700.	02012524
	2003	1.3	334017.	3205672.	03030724
	2004	1.2	333628.	3205677.	04102024
	2005	1.1	343800.	3195400.	05081424
SOURCE GROUP ID: ALL					
Annual					
	2001	6.92	336149.	3204837.	01123124
	2002	6.67	336099.	3204838.	02123124
	2003	7.44	336149.	3204837.	03123124
	2004	7.48	336149.	3204837.	04123124
	2005	6.65	336149.	3204837.	05123124
HIGH 24-Hour					
	2001	23.8	336348.	3204834.	01081624
	2002	29.3	335900.	3204842.	02061324
	2003	31.7	338541.	3204798.	03072124
	2004	39.1	337694.	3204812.	04011524
	2005	34.3	338740.	3204795.	05081024
HSH 24-Hour					
	2001	23.43	336697.	3204828.	01122924
	2002	25.58	336049.	3204839.	02031624
	2003	28.06	339388.	3204784.	03010924
	2004	25.92	335950.	3204841.	04022124
	2005	30.79	336049.	3204839.	05070124

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00
DISCRETE 0.00 0.00

```
CO STARTING
  TITLEONE 2001 PGN CR PM10 PSD CLASS II        SOURCES  8/15/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-05 (UPDATED SURFACE PARAMETERS)
  MODELOPT DFAULT CONC
  AVERTIME PERIOD 24
  POLLUTID GEN
  RUNORNOT RUN
** EVENTFIL EP2CRBND.I01 SOCONT

CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
  LOCATION U45100 POINT 334776.80 3205393.42  1.0

**   COOLING TOWERS FOR UNITS 4 & 5 MODELED SEPARATELY
**   DUE TO INCORRECT USE OF STACK-TIP DOWNWASH
**   LOCATION CT4 POINT 334312.560 3205466.280 1.000
**   LOCATION CT5 POINT 334313.480 3205236.260 1.000

  LOCATION HCT1 POINT 333190.920 3204586.510 1.0
  LOCATION HCT2 POINT 333375.380 3204573.640 1.0
  LOCATION HCT3 POINT 333637.510 3204550.460 1.0
  LOCATION HCT4 POINT 333820.520 3204538.720 1.0
  LOCATION CTWRPORT POINT 333014.940 3204595.010 1.0
** DESCRSRC PORTABLE COOLING TOWER
  LOCATION FAT1 POINT 334242.000 3204264.000 1.0
  LOCATION FAS1&2 POINT 334000.000 3204264.000 1.0
  LOCATION FAT2A POINT 334242.000 3204264.000 1.0
  LOCATION FAT2B POINT 334242.000 3204264.000 1.0
  LOCATION BAS12 POINT 334120.010 3204395.900 1.0
  LOCATION LIM1234 POINT 335081.370 3205560.730 1.0
  LOCATION LIMSILO POINT 335085.720 3205425.850 2.0
  LOCATION CBO POINT 334656.760 3205553.940 2.000

  LOCATION VOLA  VOLUME 334116.030 3204084.070 1.0
  LOCATION VOLB  VOLUME 334185.650 3204082.870 1.0
  LOCATION VOLC  VOLUME 334314.680 3204022.260 1.0
**   LOCATION VOLD  VOLUME 334120.830 3203977.250 1.0
  LOCATION VOLE  VOLUME 334308.680 3204091.880 1.0
  LOCATION VOLF  VOLUME 334425.400 3204037.260 1.0
  LOCATION VOLG  VOLUME 334880.910 3204184.900 1.0
  LOCATION VOLH  VOLUME 334888.110 3205023.900 1.0
  LOCATION VOLI  VOLUME 334889.910 3205173.330 1.0
  LOCATION PIL45 VOLUME 335095.630 3205080.280 1.0

** LOCATION PILGYP  VOLUME 336471.50 3203967.17 0.0
  LOCATION VOLM    VOLUME 334428.44 3203986.80 1.0
  LOCATION VOLRAIL VOLUME 334533.81 3203987.81 1.0
  LOCATION VOLC45  VOLUME 334894.28 3205366.67 1.0
  LOCATION VOLP45  VOLUME 334611.45 3205366.16 1.0
  LOCATION PIL45TR VOLUME 335095.63 3205080.28 1.0

** Baseline Coal Yard Sources
  LOCATION VOLAb  VOLUME 334116.030 3204084.070 1.0
  LOCATION VOLBb  VOLUME 334185.650 3204082.870 1.0
  LOCATION VOLCb  VOLUME 334314.680 3204022.260 1.0
  LOCATION VOLDb  VOLUME 334120.830 3203977.250 1.0
  LOCATION VOLEb  VOLUME 334308.680 3204091.880 1.0

** ------------------------------------------------------------------------
** ------------------------------------------------------------------------
** LINE Source ID = ENTRY
** DESCRSRC New Entrance Road (90 ft buffer)
** Length of Side = 10.00
** Emission Rate = 10
** Vertical Dimension = 4.57
** SZINIT = 2.13
** Nodes = 2
** 335779.42, 3204815.23, 2.00, 2.29, 0.0
** 340609.00, 3204735.67, 2.00, 2.29, 9.26
** ------------------------------------------------------------------------
** No. of Volumes = 243
** ------------------------------------------------------------------------
```

```
LOCATION ENTRY001  VOLUME 335784.406 3204815.168 2.00
LOCATION ENTRY002  VOLUME 335804.321 3204814.840 2.00
LOCATION ENTRY003  VOLUME 335824.237 3204814.512 2.00
LOCATION ENTRY004  VOLUME 335844.153 3204814.184 2.00
LOCATION ENTRY005  VOLUME 335864.068 3204813.856 2.00
LOCATION ENTRY006  VOLUME 335883.984 3204813.529 2.00
LOCATION ENTRY007  VOLUME 335903.900 3204813.201 2.00
LOCATION ENTRY008  VOLUME 335923.815 3204812.873 2.00
LOCATION ENTRY009  VOLUME 335943.731 3204812.545 2.00
LOCATION ENTRY010  VOLUME 335963.647 3204812.217 2.00
LOCATION ENTRY011  VOLUME 335983.562 3204811.889 2.00
LOCATION ENTRY012  VOLUME 336003.478 3204811.562 2.00
LOCATION ENTRY013  VOLUME 336023.394 3204811.234 2.00
LOCATION ENTRY014  VOLUME 336043.309 3204810.906 2.00
LOCATION ENTRY015  VOLUME 336063.225 3204810.578 2.00
LOCATION ENTRY016  VOLUME 336083.141 3204810.250 2.00
LOCATION ENTRY017  VOLUME 336103.057 3204809.922 2.00
LOCATION ENTRY018  VOLUME 336122.972 3204809.595 2.00
LOCATION ENTRY019  VOLUME 336142.888 3204809.267 2.00
LOCATION ENTRY020  VOLUME 336162.804 3204808.939 2.00
LOCATION ENTRY021  VOLUME 336182.719 3204808.611 2.00
LOCATION ENTRY022  VOLUME 336202.635 3204808.283 2.00
LOCATION ENTRY023  VOLUME 336222.551 3204807.955 2.00
LOCATION ENTRY024  VOLUME 336242.466 3204807.628 2.00
LOCATION ENTRY025  VOLUME 336262.382 3204807.300 2.00
LOCATION ENTRY026  VOLUME 336282.298 3204806.972 2.00
LOCATION ENTRY027  VOLUME 336302.214 3204806.644 2.00
LOCATION ENTRY028  VOLUME 336322.129 3204806.316 2.00
LOCATION ENTRY029  VOLUME 336342.045 3204805.988 2.00
LOCATION ENTRY030  VOLUME 336361.961 3204805.661 2.00
LOCATION ENTRY031  VOLUME 336381.876 3204805.333 2.00
LOCATION ENTRY032  VOLUME 336401.792 3204805.005 2.00
LOCATION ENTRY033  VOLUME 336421.708 3204804.677 2.00
LOCATION ENTRY034  VOLUME 336441.623 3204804.349 2.00
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LOCATION ENTRY040  VOLUME 336561.118 3204802.382 2.00
LOCATION ENTRY041  VOLUME 336581.033 3204802.054 2.00
LOCATION ENTRY042  VOLUME 336600.949 3204801.727 2.00
LOCATION ENTRY043  VOLUME 336620.865 3204801.399 2.00
LOCATION ENTRY044  VOLUME 336640.780 3204801.071 2.00
LOCATION ENTRY045  VOLUME 336660.696 3204800.743 2.00
LOCATION ENTRY046  VOLUME 336680.612 3204800.415 2.00
LOCATION ENTRY047  VOLUME 336700.527 3204800.087 2.00
LOCATION ENTRY048  VOLUME 336720.443 3204799.760 2.00
LOCATION ENTRY049  VOLUME 336740.359 3204799.432 2.00
LOCATION ENTRY050  VOLUME 336760.275 3204799.104 2.00
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LOCATION ENTRY064  VOLUME 337039.094 3204794.514 2.00
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LOCATION ENTRY068  VOLUME 337118.756 3204793.203 2.00
LOCATION ENTRY069  VOLUME 337138.672 3204792.875 2.00
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LOCATION ENTRY071  VOLUME 337178.503 3204792.219 2.00
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LOCATION ENTRY078  VOLUME 337317.913 3204789.925 2.00
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LOCATION ENTRY157 VOLUME 338891.254 3204764.026 2.00
LOCATION ENTRY158 VOLUME 338911.170 3204763.698 2.00
LOCATION ENTRY159 VOLUME 338931.086 3204763.370 2.00
LOCATION ENTRY160 VOLUME 338951.002 3204763.042 2.00
LOCATION ENTRY161 VOLUME 338970.917 3204762.714 2.00
LOCATION ENTRY162 VOLUME 338990.833 3204762.387 2.00
LOCATION ENTRY163 VOLUME 339010.749 3204762.059 2.00
LOCATION ENTRY164 VOLUME 339030.665 3204761.731 2.00
LOCATION ENTRY165 VOLUME 339050.581 3204761.403 2.00
LOCATION ENTRY166 VOLUME 339070.496 3204761.075 2.00
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LOCATION ENTRY169 VOLUME 339130.244 3204760.092 2.00
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LOCATION ENTRY180 VOLUME 339349.317 3204756.486 2.00
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LOCATION ENTRY183 VOLUME 339409.064 3204755.502 2.00
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LOCATION ENTRY185 VOLUME 339448.896 3204754.846 2.00
LOCATION ENTRY186 VOLUME 339468.811 3204754.519 2.00
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LOCATION ENTRY188 VOLUME 339508.643 3204753.863 2.00
LOCATION ENTRY189 VOLUME 339528.559 3204753.535 2.00
LOCATION ENTRY190 VOLUME 339548.474 3204753.207 2.00
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LOCATION ENTRY195 VOLUME 339648.053 3204751.568 2.00
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LOCATION ENTRY198 VOLUME 339707.801 3204750.585 2.00
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LOCATION ENTRY202 VOLUME 339787.464 3204749.273 2.00
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LOCATION ENTRY209 VOLUME 339926.874 3204746.978 2.00
LOCATION ENTRY210 VOLUME 339946.789 3204746.651 2.00
LOCATION ENTRY211 VOLUME 339966.705 3204746.323 2.00
LOCATION ENTRY212 VOLUME 339986.621 3204745.995 2.00
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LOCATION ENTRY230 VOLUME 340345.105 3204740.094 2.00
LOCATION ENTRY231 VOLUME 340365.020 3204739.766 2.00
LOCATION ENTRY232 VOLUME 340384.936 3204739.438 2.00
LOCATION ENTRY233 VOLUME 340404.852 3204739.110 2.00
LOCATION ENTRY234 VOLUME 340424.768 3204738.783 2.00

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   LOCATION ENTRY235  VOLUME 340444.683 3204738.455 2.00
   LOCATION ENTRY236  VOLUME 340464.599 3204738.127 2.00
   LOCATION ENTRY237  VOLUME 340484.515 3204737.799 2.00
   LOCATION ENTRY238  VOLUME 340504.431 3204737.471 2.00
   LOCATION ENTRY239  VOLUME 340524.346 3204737.143 2.00
   LOCATION ENTRY240  VOLUME 340544.262 3204736.816 2.00
   LOCATION ENTRY241  VOLUME 340564.178 3204736.488 2.00
   LOCATION ENTRY242  VOLUME 340584.094 3204736.160 2.00
   LOCATION ENTRY243  VOLUME 340604.009 3204735.832 2.00
** End of Line Source

** ------------------------------------------------------------------
** LINE Source ID = INTERA
** DESCRSRC Interior around coal pile
** Length of Side = 20.00
** Emission Rate = 10
** Vertical Dimension = 4.57
** SZINIT = 2.13
** Nodes = 4
** 335000.00, 3205500.00, 2.00, 0.00, 0.0
** 335090.00, 3205500.00, 2.00, 0.00, 16.28
** 335420.00, 3205370.00, 2.00, 0.00, 18.33
** 335410.00, 3204810.00, 2.00, 0.00, 17.37
** No. of Volumes = 89
** ------------------------------------------------------------------
   LOCATION INTERA01  VOLUME  335010.000 3205500.000 2.00
   LOCATION INTERA02  VOLUME  335045.000 3205500.000 2.00
   LOCATION INTERA03  VOLUME  335080.000 3205500.000 2.00
   LOCATION INTERA04  VOLUME  335117.363 3205489.221 2.00
   LOCATION INTERA05  VOLUME  335154.029 3205474.776 2.00
   LOCATION INTERA06  VOLUME  335190.696 3205460.332 2.00
   LOCATION INTERA07  VOLUME  335227.363 3205445.887 2.00
   LOCATION INTERA08  VOLUME  335264.029 3205431.443 2.00
   LOCATION INTERA09  VOLUME  335300.696 3205416.999 2.00
   LOCATION INTERA10  VOLUME  335337.363 3205402.554 2.00
   LOCATION INTERA11  VOLUME  335374.029 3205388.110 2.00
   LOCATION INTERA12  VOLUME  335410.696 3205373.665 2.00
   LOCATION INTERA13  VOLUME  335419.512 3205342.665 2.00
   LOCATION INTERA14  VOLUME  335418.845 3205305.332 2.00
   LOCATION INTERA15  VOLUME  335418.179 3205267.998 2.00
   LOCATION INTERA16  VOLUME  335417.512 3205230.665 2.00
   LOCATION INTERA17  VOLUME  335416.845 3205193.332 2.00
   LOCATION INTERA18  VOLUME  335416.179 3205155.998 2.00
   LOCATION INTERA19  VOLUME  335415.512 3205118.665 2.00
   LOCATION INTERA20  VOLUME  335414.845 3205081.332 2.00
   LOCATION INTERA21  VOLUME  335414.179 3205043.998 2.00
   LOCATION INTERA22  VOLUME  335413.512 3205006.665 2.00
   LOCATION INTERA23  VOLUME  335412.845 3204969.332 2.00
   LOCATION INTERA24  VOLUME  335412.179 3204931.998 2.00
   LOCATION INTERA25  VOLUME  335411.512 3204894.665 2.00
   LOCATION INTERA26  VOLUME  335410.845 3204857.332 2.00
   LOCATION INTERA27  VOLUME  335410.179 3204819.998 2.00

** End of Line Source

** Line Source represented by Separated Volume Sources
** ------------------------------------------------------------------
** LINE Source ID = INTERB (FROM ENTRY ROAD)
** DESCRSRC Interior
** Length of Side = 20.00
** Emission Rate = 10
** Vertical Dimension = 4.57
** SZINIT = 2.13
** Nodes = 2
** 335410.00, 3204810.00, 2.00, 2.29, 0.0
** 335780.00, 3204740.00, 2.00, 2.29, 18.43
** No. of Volumes = 10
** ------------------------------------------------------------------
   LOCATION INTERB01  VOLUME 335419.826 3204808.141 2.00
   LOCATION INTERB02  VOLUME 335458.753 3204800.776 2.00
   LOCATION INTERB03  VOLUME 335497.681 3204793.412 2.00
   LOCATION INTERB04  VOLUME 335536.609 3204786.047 2.00
   LOCATION INTERB05  VOLUME 335575.536 3204778.682 2.00
   LOCATION INTERB06  VOLUME 335614.464 3204771.318 2.00
   LOCATION INTERB07  VOLUME 335653.391 3204763.953 2.00
   LOCATION INTERB08  VOLUME 335692.319 3204756.588 2.00
   LOCATION INTERB09  VOLUME 335731.247 3204749.224 2.00
   LOCATION INTERB10  VOLUME 335770.174 3204741.859 2.00
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** End of Line Source

** ------------------------------------------------------------------
** LINE Source ID = GYPWALL
** DESCRSRC Perimeter
** Length of Side = 10.00
** Emission Rate = 10
** Vertical Dimension = 6.10
** SZINIT = 2.84
** Nodes = 2
** 334990.00, 3205488.00, 2.00, 3.05, 0.0
** 334990.00, 3205638.00, 2.00, 3.05, 9.30
** No. of Volumes = 8
** ------------------------------------------------------------------
   LOCATION GYPWAL01  VOLUME 334990.000 3205493.000 2.00
   LOCATION GYPWAL02  VOLUME 334990.000 3205513.000 2.00
   LOCATION GYPWAL03  VOLUME 334990.000 3205533.000 2.00
   LOCATION GYPWAL04  VOLUME 334990.000 3205553.000 2.00
   LOCATION GYPWAL05  VOLUME 334990.000 3205573.000 2.00
   LOCATION GYPWAL06  VOLUME 334990.000 3205593.000 2.00
   LOCATION GYPWAL07  VOLUME 334990.000 3205613.000 2.00
   LOCATION GYPWAL08  VOLUME 334990.000 3205633.000 2.00
** End of Line Source

**Background Sources
**     Progress Materials, Inc.
SO LOCATION    PMINCALL  POINT   334000  3204400 1.5

**     Holcim, Inc.
**SO LOCATION    HOLCIM1 POINT   334400  3207500 1.5

**     Cemex, Inc. - Inglis Mine (was 0750031)
**SO LOCATION    INGMINE1      POINT   337360  3210440 4.6

**     SMG, INC.
**SO LOCATION    SMG1   POINT   347790  3203140 9.1

**     Florida Crushed Stone - Brooksville Cement And Power Plants
**SO LOCATION    FCS1   POINT   361340  3162370 39.6
**SO LOCATION    FCS2   POINT   361340  3162370 39.6
SO LOCATION    FCS4   POINT   361340  3162370 39.6
**SO LOCATION    FCS6   POINT   361340  3162370 39.6
**SO LOCATION    FCS7   POINT   361340  3162370 39.6
**SO LOCATION    FCS8   POINT   361340  3162370 39.6
**SO LOCATION    FCS9   POINT   361340  3162370 39.6
**SO LOCATION    FCS10  POINT   361340  3162370 39.6
**SO LOCATION    FCS11  POINT   361340  3162370 39.6
**SO LOCATION    FCS12  POINT   361340  3162370 39.6
SO LOCATION    FCS13  POINT   361340  3162370 39.6
**SO LOCATION    FCS14  POINT   361340  3162370 39.6
**SO LOCATION    FCS15  POINT   361340  3162370 39.6
**SO LOCATION    FCS17  POINT   361340  3162370 39.6
SO LOCATION    FCS18  POINT   361340  3162370 39.6
SO LOCATION    FCS19  POINT   361340  3162370 39.6
SO LOCATION    FCS20  POINT   361340  3162370 39.6
**SO LOCATION    FCS21  POINT   361340  3162370 39.6
**SO LOCATION    FCS22  POINT   361340  3162370 39.6
**SO LOCATION    FCS23  POINT   361340  3162370 39.6
**SO LOCATION    FCS24  POINT   361340  3162370 39.6
**SO LOCATION    FCS25  POINT   361340  3162370 39.6
SO LOCATION    FCS28  POINT   361340  3162370 39.6
**SO LOCATION    FCS29  POINT   361340  3162370 39.6
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SO LOCATION    FCS35  POINT   361340  3162370 39.6
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**SO LOCATION    FCS37  POINT   361340  3162370 39.6
**SO LOCATION    FCS38  POINT   361340  3162370 39.6
**SO LOCATION    FCS39  POINT   361340  3162370 39.6
SO LOCATION    FCS40  POINT   361340  3162370 39.6
SO LOCATION    FCS44  POINT   361340  3162370 39.6
SO LOCATION    FCS45  POINT   361340  3162370 39.6
**SO LOCATION    FCS46  POINT   361340  3162370 39.6
**SO LOCATION    FCS47  POINT   361340  3162370 39.6
**SO LOCATION    FCS48  POINT   361340  3162370 39.6
SO LOCATION    FCS49  POINT   361340  3162370 39.6
**SO LOCATION    FCS50  POINT   361340  3162370 39.6
**SO LOCATION    FCS51  POINT   361340  3162370 39.6
**SO LOCATION    FCS52  POINT   361340  3162370 39.6
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**SO LOCATION   FCS54  POINT  361340 3162370 39.6
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**SO LOCATION   FCS57  POINT  361340 3162370 39.6
**SO LOCATION   FCS58  POINT  361340 3162370 39.6
**SO LOCATION   FCS59  POINT  361340 3162370 39.6
SO LOCATION   FCS60  POINT  361340 3162370 39.6
**SO LOCATION   FCS61  POINT  361340 3162370 39.6

**    CEMEX
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**SO LOCATION   CEMEX12 POINT  357470 3169190 30.5
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SO LOCATION   CEMEX14 POINT  357470 3169190 30.5
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**SO LOCATION   CEMEX17 POINT  357470 3169190 30.5
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**SO LOCATION   CEMEX25 POINT  357470 3169190 30.5
SO LOCATION   CEMEX26 POINT  357470 3169190 30.5
SO LOCATION   CEMEX27 POINT  357470 3169190 30.5

**    IMC Agrico (Pierce)
SO LOCATION   1AGRI  POINT  404100 3079000 39.6
SO LOCATION   2AGRI  POINT  404100 3079000 39.6


** PROP. 0.05 LB/MMBTU X 7200= 360 LB/HR PER UNIT

  SRCPARAM U45100   90.7  167.6  328.0 15.3 9.3

**  SRCPARAM CT4    22.1  135.10 311.0  3.32  65.200
**  SRCPARAM CT5    22.1  135.10 311.0  3.32  65.200
**  SRCPARAM HCT1    6.75  16.200 298.0 7.93  10.500
**  SRCPARAM HCT2    6.75  16.200 298.0 7.93  10.500
**  SRCPARAM HCT3    6.75  16.200 298.0 7.93  10.500
**  SRCPARAM HCT4    6.75  16.200 298.0 7.93  10.500
  SRCPARAM HCT1    0.71  16.2  298.0  7.93  10.5
  SRCPARAM HCT2    0.71  16.2  298.0  7.93  10.5
  SRCPARAM HCT3    0.71  16.2  298.0  7.93  10.5
  SRCPARAM HCT4    0.71  16.2  298.0  7.93  10.5
  SRCPARAM CTWRPORT 0.268 5.79   333.0  20.5  6.64

  SRCPARAM FAT1   0.44 9.150 298.0 0.10 0.240
  SRCPARAM FAS1&2  0.08 22.90 298.0 0.10 0.460
  SRCPARAM FAT2A  0.28 9.150 298.0 0.10 0.250
  SRCPARAM FAT2B  0.28 9.150 298.0 0.10 0.250
  SRCPARAM BAS12  1.64 23.80 298.0 0.10 0.240

  SRCPARAM CBO 0.161 28.400 298.150 0.01000 0.396

  SRCPARAM VOLA    0.122  7.50 3.488  6.980
  SRCPARAM VOLB    0.010  7.50 3.488  6.980
  SRCPARAM VOLC    0.078  7.50 3.488  6.980
**  SRCPARAM VOLD    0.010  7.50 3.488 6.980
  SRCPARAM VOLE    0.025  7.50 3.488  6.980
  SRCPARAM VOLF    0.018  7.50 3.488  6.980
  SRCPARAM VOLG    0.010  7.50 3.488  6.980
  SRCPARAM VOLH    0.010  7.50 3.488  6.980
  SRCPARAM VOLI   0.010  7.50 3.488  6.980
  SRCPARAM VOLM    0.008  7.50 3.488  6.980
  SRCPARAM VOLRAIL  0.092  7.50 3.488  6.980
  SRCPARAM VOLC45   0.038  7.50 3.488  6.980
  SRCPARAM VOLP45   0.012  7.50 3.488  6.980

 ** Baseline Coal Yard Sources
  SRCPARAM VOLAb    -0.057  7.50 3.488  6.980
  SRCPARAM VOLBb    -0.005  7.50 3.488  6.980
  SRCPARAM VOLCb    -0.012  7.50 3.488  6.980
  SRCPARAM VOLDb    -0.084  7.50 3.488 6.980
  SRCPARAM VOLEb    -0.030  7.50 3.488  6.980
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 PILE TRANSFERS & PILE TRAFFIC
  PILE TRAFFIC = 0.127 G/S SPLIT BETWEEN PILE 1&2 PILE 4&5

 SRCPARAM PIL45TR   0.141 6.100 79.791 2.800

** WIND EROSION
 SRCPARAM PIL45    0.205   3.05  79.791 2.84
** SRCPARAM PILGYP   0.050   5.60  42.5   5.25

** NEW LIM1234 VERTICAL RELEASE
 SRCPARAM LIM1234  0.24 13.70 298.0 16.2 0.30
 SRCPARAM LIMSILO  0.14 41.80 298.0 11.2 0.25

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SRCPARAM INTERB08 0.00397 3.05 18.43 2.84
SRCPARAM INTERB09 0.00397 3.05 18.43 2.84
SRCPARAM INTERB10 0.00397 3.05 18.43 2.84

** LINE Source ID = GYPWALL
SRCPARAM GYPWAL01 0.00093 3.05 9.30 2.84
SRCPARAM GYPWAL02 0.00093 3.05 9.30 2.84
SRCPARAM GYPWAL03 0.00093 3.05 9.30 2.84
SRCPARAM GYPWAL04 0.00093 3.05 9.30 2.84
SRCPARAM GYPWAL05 0.00093 3.05 9.30 2.84
SRCPARAM GYPWAL06 0.00093 3.05 9.30 2.84
SRCPARAM GYPWAL07 0.00093 3.05 9.30 2.84
SRCPARAM GYPWAL08 0.00093 3.05 9.30 2.84

**Background Sources
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*************          Q     H      T      V      D
*************  SRCID  (g/s)  (m)    (K)   (m/s)   (m)

**    Progress Materials, Inc.
SO SRCPARAM    PMINCALL 0.21  18.3   298    11.6  0.15

**    Holcim, Inc.
**SO SRCPARAM    HOLCIM1 0.403  22.86  298    7.01   0.91

**    Cemex, Inc. - Inglis Mine (was 0750031)
**SO SRCPARAM    INGMINE1     0.469  18.29  298    6.40   1.19

**    SMG, INC.
**SO SRCPARAM    SMG1   2.520  0.00   298    0.00   0.00

**    Florida Crushed Stone - Brooksville Cement And Power Plants
SO SRCPARAM    FCS13  0.643  21.34  372    10.06  1.52
SO SRCPARAM    FCS18  3.150  97.54  422    21.21  4.88
SO SRCPARAM    FCS20  6.237  91.44  378    14.33  4.88
SO SRCPARAM    FCS28  1.620  37.49  344    10.06  2.62
SO SRCPARAM    FCS44  3.629  97.54  561    12.22  4.27
SO SRCPARAM    FCS55  1.159  39.62  344    14.78  2.29

**Units 6,10,15,22,25,29,36,45,50,& 57 modeled together using FCS45 parameters
**SO SRCPARAM    FCS6   0.277  73.15  355    8.84   1.07
**SO SRCPARAM    FCS10  0.038  60.96  366    7.32   0.46
**SO SRCPARAM    FCS15  0.126  60.96  355    11.98  0.61
**SO SRCPARAM    FCS22  0.086  60.96  355    8.56   0.61
**SO SRCPARAM    FCS25  0.213  66.75  355    10.09  1.01
**SO SRCPARAM    FCS29  0.178  61.87  355    10.58  0.64
**SO SRCPARAM    FCS36  0.178  60.96  355    31.61  0.46
**SO SRCPARAM    FCS45  0.144  59.13  366    8.96   0.52
**SO SRCPARAM    FCS50  0.032  61.87  389    10.12  0.49
**SO SRCPARAM    FCS57  0.105  61.87  355    9.36   0.49
SO SRCPARAM    FCS45  1.377  59.13  366    8.96   0.52

**Units 1,2,11,12,38,49,& 52 modeled together using FCS49 parameters
**SO SRCPARAM    FCS1   0.088  38.10  298    10.97  0.61
**SO SRCPARAM    FCS2   0.050  38.10  298    6.71   0.61
**SO SRCPARAM    FCS11  0.076  41.15  366    14.33  0.46
**SO SRCPARAM    FCS12  0.151  41.15  311    9.14   0.76
**SO SRCPARAM    FCS38  0.097  45.72  311    10.03  1.07
**SO SRCPARAM    FCS49  0.040  36.58  308    10.12  0.49
**SO SRCPARAM    FCS52  0.291  39.62  373    14.14  1.22
SO SRCPARAM    FCS49  0.793  36.58  308    10.12  0.49

**Units 4,23,& 24 modeled together using FCS4 parameters
**SO SRCPARAM    FCS4   0.025  21.34  355    7.77   0.30
**SO SRCPARAM    FCS23  0.014  22.86  298    8.53   0.24
**SO SRCPARAM    FCS24  0.130  24.38  298    17.07  0.46
SO SRCPARAM    FCS4   0.169  21.34  355    7.77   0.30

**Units 35 & 39 modeled together using FCS35 parameters
**SO SRCPARAM    FCS35  0.139  30.48  294    10.88  0.76
**SO SRCPARAM    FCS39  0.146  30.48  322    6.52   0.76
SO SRCPARAM    FCS35  0.285  30.48  294    10.88  0.76

**Units 7,14,17,21,30,53,54,56,60,& 61 modeled together using FCS60 parameters
**SO SRCPARAM    FCS7   0.101  15.24  366    9.69   0.61
**SO SRCPARAM    FCS14  0.050  15.24  344    9.14   0.46
**SO SRCPARAM    FCS17  0.063  15.54  355    10.36  0.46
**SO SRCPARAM    FCS21  0.163  15.24  344    28.65  0.46
**SO SRCPARAM    FCS30  0.238  12.19  339    10.21  1.19
**SO SRCPARAM    FCS53  0.051  14.02  366    11.98  0.55
**SO SRCPARAM    FCS54  0.051  14.02  366    11.98  0.55
**SO SRCPARAM    FCS56  0.051  14.02  366    11.98  0.55
**SO SRCPARAM    FCS60  0.202  12.19  339    9.36   1.19
**SO SRCPARAM    FCS61  0.018  12.19  339    10.70  0.34
SO SRCPARAM    FCS60  0.988  12.19  339    9.36   1.19

**Units 19,37,46,47,48,58,& 59 modeled together using FCS19 parameters
**SO SRCPARAM    FCS19  0.146  8.84   303    14.33  0.61
**SO SRCPARAM    FCS37  0.097  9.14   339    4.85   0.61
**SO SRCPARAM    FCS46  0.033  9.14   355    9.91   0.43
**SO SRCPARAM    FCS47  0.033  9.14   355    9.91   0.43
**SO SRCPARAM    FCS48  0.024  9.75   389    7.59   0.49
**SO SRCPARAM    FCS58  0.026  9.14   355    9.91   0.43
**SO SRCPARAM    FCS59  0.026  9.14   355    9.91   0.43
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SO SRCPARAM    FCS19  0.385  8.84   303    14.33  0.61

**Units 8,9,40,& 51 modeled together using FCS40 parameters
**SO SRCPARAM    FCS8   0.088  4.57   294    9.45   0.61
**SO SRCPARAM    FCS9   0.083  3.05   394    32.98  0.30
**SO SRCPARAM    FCS40  0.028  4.57   298    4.97   0.46
**SO SRCPARAM    FCS51  0.105  4.57   355    14.66  0.70
SO SRCPARAM    FCS40  0.304  4.57   298    4.97   0.46

**    CEMEX
SO SRCPARAM    CEMEX13 1.701  27.43  328   19.51  0.43
SO SRCPARAM    CEMEX14 3.742  32.00  394   9.75   4.27
SO SRCPARAM    CEMEX15 1.877  15.24  478   21.64  2.29
SO SRCPARAM    CEMEX27 1.600  14.63  255   20.45  0.50
**Units 8, 12, 21, 22, & 16 are modeled together using CEMEX16 parameters
**SO SRCPARAM    CEMEX8  0.471  65.84  303   24.08  0.61
**SO SRCPARAM    CEMEX12 0.247  67.06  366   18.90  0.85
**SO SRCPARAM    CEMEX21 0.126  64.01  336   15.24  0.67
**SO SRCPARAM    CEMEX22 0.126  64.01  339   15.54  0.46
**SO SRCPARAM    CEMEX16 0.183  45.72  358   7.01   0.85
SO SRCPARAM    CEMEX16 1.153  45.72  358   7.01   0.85

**Units 17, 18, 19, 23, & 24 are modeled together using CEMEX23 parameters
**SO SRCPARAM    CEMEX17 0.064  22.86  339   19.20  0.30
**SO SRCPARAM    CEMEX18 0.183  22.86  333   7.01   0.85
**SO SRCPARAM    CEMEX19 0.504  22.86  370   18.90  1.01
**SO SRCPARAM    CEMEX23 0.063  21.34  339   15.54  0.46
**SO SRCPARAM    CEMEX24 0.076  24.69  315   11.89  0.52
SO SRCPARAM    CEMEX23 0.890  21.34  339   15.54  0.46

**Units 25 & 26 are modeled together using CEMEX26 parameters
**SO SRCPARAM    CEMEX25 0.001  9.75   294   24.08  0.61
**SO SRCPARAM    CEMEX26 0.076  7.32   319   6.10   0.61
SO SRCPARAM    CEMEX26 0.077  7.32   319   6.10   0.61

**    IMC Agrico (Pierce)
SO SRCPARAM    1AGRI  -5.040 24.38  321    21.24  2.44
SO SRCPARAM    2AGRI  -3.919 28.96  683    14.87  1.77


SO BUILDHGT U45100   38.00  38.00  38.00  38.00  31.10  87.60
SO BUILDHGT U45100   87.60  87.60  87.60  87.60  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDHGT U45100    0.00   0.00   0.00   0.00   0.00  87.60
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDWID U45100   44.50  47.24  48.53  48.36 144.98 147.63
SO BUILDWID U45100  148.86 145.57 137.85 145.57  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDWID U45100    0.00   0.00   0.00   0.00   0.00 147.63
SO BUILDWID U45100   39.28  33.70  27.10  33.70  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDLEN U45100   33.67  39.25  43.64  46.71 126.46 117.84
SO BUILDLEN U45100  100.22  79.56  56.48  79.56  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO BUILDLEN U45100    0.00   0.00   0.00   0.00   0.00 117.84
SO BUILDLEN U45100   47.23  44.49  40.40  44.49  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO XBADJ    U45100 -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45100 -293.28 -287.77 -273.51 -274.88  -72.54  -73.70
SO XBADJ    U45100  -72.63  -69.34  -63.96  -56.62  -47.57    0.00
SO XBADJ    U45100    0.00    0.00    0.00    0.00    0.00  172.04
SO XBADJ    U45100    9.22   16.51   23.30   24.68   25.31   25.16
SO XBADJ    U45100   24.26   22.62   20.29   17.34   13.87    0.00
SO YBADJ    U45100   25.96    7.68  -10.83  -29.01   76.77   90.51
SO YBADJ    U45100   49.03    6.06  -37.10  -79.12    7.23   -1.38
SO YBADJ    U45100   -9.94  -18.20  -25.91  -32.83  -38.75    0.00
SO YBADJ    U45100    0.00    0.00    0.00    0.00    0.00  -90.51
SO YBADJ    U45100  -36.98  -30.72  -23.52  -15.61   -7.23    1.38
SO YBADJ    U45100    9.94   18.20   25.91   32.83   38.75    0.00

SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT1     10.00  10.00  10.00  10.00  10.00  10.00
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```
SO BUILDWID HCT1    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT1    335.67 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT1    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDWID HCT1    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT1    335.66 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT1    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDLEN HCT1     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT1    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT1    648.63 560.26 454.88 335.67 206.26  70.58
SO BUILDLEN HCT1     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT1    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT1    648.63 560.26 454.88 335.66 206.26  70.58
SO XBADJ    HCT1    -14.85 -28.38 -41.04 -52.45 -62.28 -70.20
SO XBADJ    HCT1    -76.00 -79.49 -80.56 -80.80 -79.67 -76.11
SO XBADJ    HCT1    -70.24 -62.24 -52.35 -40.86 -28.14 -14.56
SO XBADJ    HCT1    -83.17 -204.39 -319.40 -424.71 -517.12 -593.81
SO XBADJ    HCT1    -652.46 -691.28 -709.10 -707.00 -684.49 -641.18
SO XBADJ    HCT1    -578.39 -498.02 -402.53 -294.80 -178.12 -56.02
SO YBADJ    HCT1    -313.10 -302.41 -282.53 -254.07 -217.89 -175.09
SO YBADJ    HCT1    -126.97 -74.99 -20.73  34.16  88.01 139.18
SO YBADJ    HCT1    186.13 227.42 261.80 288.23 305.90 314.27
SO YBADJ    HCT1    313.10 302.41 282.53 254.07 217.89 175.09
SO YBADJ    HCT1    126.97  74.99  20.73 -34.16 -88.01 -139.18
SO YBADJ    HCT1    -186.13 -227.42 -261.80 -288.23 -305.90 -314.27

SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT2     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDWID HCT2    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT2    335.67 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT2    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDWID HCT2    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT2    335.66 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT2    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDLEN HCT2     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT2    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT2    648.63 560.26 454.88 335.67 206.26  70.58
SO BUILDLEN HCT2     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT2    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT2    648.63 560.26 454.88 335.66 206.26  70.58
SO XBADJ    HCT2    -34.21 -79.37 -122.12 -161.16 -195.31 -223.52
SO XBADJ    HCT2    -244.93 -258.91 -265.02 -264.69 -257.40 -242.29
SO XBADJ    HCT2    -219.82 -190.67 -155.72 -116.05 -72.84 -27.43
SO XBADJ    HCT2    -63.81 -153.40 -238.32 -316.00 -384.09 -440.50
SO XBADJ    HCT2    -483.52 -511.86 -524.64 -523.10 -506.75 -475.00
SO XBADJ    HCT2    -428.81 -369.60 -299.15 -219.62 -133.41 -43.15
SO YBADJ    HCT2    -129.21 -124.67 -116.35 -104.50 -89.46 -71.71
SO YBADJ    HCT2    -51.79 -30.28  -7.86  14.80  37.01  58.10
SO YBADJ    HCT2     77.42  94.39 108.49 119.29 126.48 129.81
SO YBADJ    HCT2    129.21 124.67 116.35 104.50  89.46  71.71
SO YBADJ    HCT2     51.79  30.28   7.86 -14.80 -37.01 -58.10
SO YBADJ    HCT2    -77.42 -94.39 -108.49 -119.29 -126.48 -129.81

SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDHGT HCT3     10.00  10.00  10.00  10.00  10.00  10.00
SO BUILDWID HCT3    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT3    335.67 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT3    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDWID HCT3    787.80 764.15 717.29 648.63 560.26 454.88
SO BUILDWID HCT3    335.66 206.26  70.58  98.02 232.77 360.44
SO BUILDWID HCT3    477.17 579.39 664.01 728.46 770.77 789.66
SO BUILDLEN HCT3     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT3    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT3    648.63 560.26 454.88 335.67 206.26  70.58
SO BUILDLEN HCT3     98.02 232.77 360.44 477.17 579.39 664.01
SO BUILDLEN HCT3    728.46 770.77 789.66 787.80 764.15 717.29
SO BUILDLEN HCT3    648.63 560.26 454.88 335.66 206.26  70.58
SO XBADJ    HCT3    -56.90 -147.25 -233.11 -311.90 -381.21 -438.94
SO XBADJ    HCT3    -483.33 -513.03 -527.15 -526.86 -511.65 -480.89
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SO XBADJ    HCT3    -435.52 -376.92 -306.86 -227.48 -141.19  -50.61
SO XBADJ    HCT3     -41.12  -85.52 -127.33 -165.27 -198.18 -225.08
SO XBADJ    HCT3    -245.13 -257.74 -262.51 -260.93 -252.50 -236.39
SO XBADJ    HCT3    -213.11 -183.35 -148.01 -108.18  -65.07  -19.97
SO YBADJ    HCT3     132.97  129.58  122.25  111.21   96.79   79.42
SO YBADJ    HCT3      59.65   38.06   15.32   -7.89  -30.86  -52.89
SO YBADJ    HCT3     -73.32  -91.51 -106.93 -119.10 -127.65 -132.32
SO YBADJ    HCT3    -132.97 -129.58 -122.25 -111.21  -96.79  -79.42
SO YBADJ    HCT3     -59.65  -38.06  -15.32    7.89   30.86   52.89
SO YBADJ    HCT3      73.32   91.51  106.93  119.10  127.65  132.32


SO BUILDHGT HCT4      10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDHGT HCT4      10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDHGT HCT4      10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDHGT HCT4      10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDHGT HCT4      10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDHGT HCT4      10.00   10.00   10.00   10.00   10.00   10.00
SO BUILDWID HCT4     787.80  764.15  717.29  648.63  560.26  454.88
SO BUILDWID HCT4     335.67  206.26   70.58   98.02  232.77  360.44
SO BUILDWID HCT4     477.17  579.39  664.01  728.46  770.77  789.66
SO BUILDWID HCT4     787.80  764.15  717.29  648.63  560.26  454.88
SO BUILDWID HCT4     335.66  206.26   70.58   98.02  232.77  360.44
SO BUILDWID HCT4     477.17  579.39  664.01  728.46  770.77  789.66
SO BUILDLEN HCT4      98.02  232.77  360.44  477.17  579.39  664.01
SO BUILDLEN HCT4     728.46  770.77  789.66  787.80  764.15  717.29
SO BUILDLEN HCT4     648.63  560.26  454.88  335.67  206.26   70.58
SO BUILDLEN HCT4      98.02  232.77  360.44  477.17  579.39  664.01
SO BUILDLEN HCT4     728.46  770.77  789.66  787.80  764.15  717.29
SO BUILDLEN HCT4     648.63  560.26  454.88  335.66  206.26   70.58
SO XBADJ    HCT4     -77.12 -198.81 -314.45 -420.54 -513.86 -591.56
SO XBADJ    HCT4    -651.29 -691.22 -710.16 -709.13 -687.64 -645.25
SO XBADJ    HCT4    -583.26 -503.55 -408.53 -301.11 -184.53  -62.35
SO XBADJ    HCT4     -20.90  -33.96  -45.99  -56.62  -65.53  -72.45
SO XBADJ    HCT4     -77.17  -79.55  -79.50  -78.66  -76.51  -72.03
SO XBADJ    HCT4     -65.37  -56.72  -46.34  -34.56  -21.73   -8.23
SO YBADJ    HCT4     315.24  305.57  286.61  258.95  223.42  181.10
SO YBADJ    HCT4     133.27   81.40   27.06  -28.11  -82.42 -134.23
SO YBADJ    HCT4    -181.96 -224.16 -259.55 -287.06 -305.84 -315.33
SO YBADJ    HCT4    -315.24 -305.57 -286.61 -258.95 -223.42 -181.10
SO YBADJ    HCT4    -133.27  -81.40  -27.06   28.11   82.42  134.23
SO YBADJ    HCT4     181.96  224.16  259.55  287.06  305.84  315.33

SO BUILDHGT FAT1      60.40   60.40   60.40   60.40   60.40   60.40
SO BUILDHGT FAT1      60.40   60.40   12.20   12.20   60.40   60.40
SO BUILDHGT FAT1      60.40   60.40   60.40   60.40   60.40   60.40
SO BUILDHGT FAT1      60.40   60.40   60.40   60.40   60.40   60.40
SO BUILDHGT FAT1      60.40   60.40   12.20   12.20   60.40   60.40
SO BUILDHGT FAT1      60.40   60.40   60.40   60.40   60.40   60.40
SO BUILDWID FAT1      98.57  101.00  100.36   96.68   90.05   80.69
SO BUILDWID FAT1      68.88   54.98   26.05   34.33   68.04   79.92
SO BUILDWID FAT1      89.37   96.10   99.92  100.69   98.41   93.14
SO BUILDWID FAT1      98.57  101.00  100.36   96.68   90.05   80.69
SO BUILDWID FAT1      68.88   54.98   26.05   34.33   68.04   79.92
SO BUILDWID FAT1      89.37   96.10   99.92  100.69   98.41   93.14
SO BUILDLEN FAT1      54.10   68.04   79.92   89.37   96.10   99.92
SO BUILDLEN FAT1     100.69   98.41   52.11   53.70  101.00  100.36
SO BUILDLEN FAT1      96.68   90.05   80.69   68.88   54.97   41.31
SO BUILDLEN FAT1      54.10   68.04   79.92   89.37   96.10   99.92
SO BUILDLEN FAT1     100.69   98.41   52.11   53.70  101.00  100.36
SO BUILDLEN FAT1      96.68   90.05   80.69   68.88   54.97   41.31
SO XBADJ    FAT1      28.85   29.69   29.63   28.67   26.83   24.19
SO XBADJ    FAT1      20.81   16.79    7.88  -60.59  -10.27  -21.24
SO XBADJ    FAT1     -31.57  -40.93  -49.06  -55.69  -60.63  -65.64
SO XBADJ    FAT1     -82.94  -97.73 -109.55 -118.04 -122.94 -124.10
SO XBADJ    FAT1    -121.50 -115.20  -59.98    6.88  -90.73  -79.12
SO XBADJ    FAT1     -65.11  -49.12  -31.64  -13.19    5.65   24.33
SO YBADJ    FAT1     -50.30  -40.23  -28.94  -16.77   -4.09    8.71
SO YBADJ    FAT1      21.25   33.14   -0.08   -7.13   63.71   69.59
SO YBADJ    FAT1      73.35   74.89   74.15   71.15   66.00   58.84
SO YBADJ    FAT1      50.30   40.23   28.94   16.77    4.09   -8.71
SO YBADJ    FAT1     -21.25  -33.14    0.08    7.13  -63.71  -69.59
SO YBADJ    FAT1     -73.35  -74.89  -74.15  -71.15  -66.00  -58.84


SO BUILDHGT FAS1&2     0.00   12.20   12.20   12.20   12.20   12.20
SO BUILDHGT FAS1&2    12.20   12.20   12.20   12.20   12.20   12.20
SO BUILDHGT FAS1&2    12.20   12.20    0.00    0.00    0.00    0.00
```

```
SO BUILDHGT FAS1&2    0.00  12.20  12.20  12.20  12.20  12.20
SO BUILDHGT FAS1&2   60.40  60.40  12.20  12.20  12.20  12.20
SO BUILDHGT FAS1&2    0.00  12.20   0.00   0.00   0.00   0.00
SO BUILDWID FAS1&2    0.00  57.85  57.78  57.68  57.68  57.78
SO BUILDWID FAS1&2   57.84  57.89  57.90  57.89  57.84  57.78
SO BUILDWID FAS1&2   71.33  71.33   0.00   0.00   0.00   0.00
SO BUILDWID FAS1&2    0.00  57.85  57.78  57.68  57.68  57.78
SO BUILDWID FAS1&2   68.88  54.98  57.90  57.89  57.84  57.78
SO BUILDWID FAS1&2    0.00  71.33   0.00   0.00   0.00   0.00
SO BUILDLEN FAS1&2    0.00  57.84  57.78  57.68  57.68  57.78
SO BUILDLEN FAS1&2   57.85  57.89  57.90  57.89  57.85  57.78
SO BUILDLEN FAS1&2   71.33  71.33   0.00   0.00   0.00   0.00
SO BUILDLEN FAS1&2    0.00  57.84  57.78  57.68  57.68  57.78
SO BUILDLEN FAS1&2  100.69  98.41  57.90  57.89  57.85  57.78
SO BUILDLEN FAS1&2    0.00  71.33   0.00   0.00   0.00   0.00
SO XBADJ    FAS1&2    0.00   0.11   5.32   9.51  12.49  14.16
SO XBADJ    FAS1&2   14.54  13.61  11.40   7.99   3.46  -2.04
SO XBADJ    FAS1&2 -100.72 -95.65   0.00   0.00   0.00   0.00
SO XBADJ    FAS1&2    0.00 -57.95 -63.10 -67.19 -70.17 -71.94
SO XBADJ    FAS1&2 -348.91 -353.53 -69.31 -65.87 -61.30 -55.74
SO XBADJ    FAS1&2    0.00  24.32   0.00   0.00   0.00   0.00
SO YBADJ    FAS1&2    0.00 -32.38 -26.85 -20.50 -13.53  -6.15
SO YBADJ    FAS1&2    1.42   8.95  16.20  22.96  29.03  34.21
SO YBADJ    FAS1&2  -23.51 -34.45   0.00   0.00   0.00   0.00
SO YBADJ    FAS1&2    0.00  32.38  26.85  20.50  13.53   6.15
SO YBADJ    FAS1&2   61.52   8.88 -16.20 -22.96 -29.03 -34.21
SO YBADJ    FAS1&2    0.00  34.45   0.00   0.00   0.00   0.00


SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2A    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDWID FAT2A    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2A    68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2A    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDWID FAT2A    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2A    68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2A    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDLEN FAT2A    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT2A   100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT2A    96.68  90.05  80.69  68.88  54.97  41.31
SO BUILDLEN FAT2A    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT2A   100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT2A    96.68  90.05  80.69  68.88  54.97  41.31
SO XBADJ    FAT2A    28.85  29.69  29.63  28.67  26.83  24.19
SO XBADJ    FAT2A    20.81  16.79   7.88 -60.59 -10.27 -21.24
SO XBADJ    FAT2A   -31.57 -40.93 -49.06 -55.69 -60.63 -65.64
SO XBADJ    FAT2A   -82.94 -97.73 -109.55 -118.04 -122.94 -124.10
SO XBADJ    FAT2A  -121.50 -115.20 -59.98   6.88 -90.73 -79.12
SO XBADJ    FAT2A   -65.11 -49.12 -31.64 -13.19   5.65  24.33
SO YBADJ    FAT2A   -50.30 -40.23 -28.94 -16.77  -4.09   8.71
SO YBADJ    FAT2A    21.25  33.14  -0.08  -7.13  63.71  69.59
SO YBADJ    FAT2A    73.35  74.89  74.15  71.15  66.00  58.84
SO YBADJ    FAT2A    50.30  40.23  28.94  16.77   4.09  -8.71
SO YBADJ    FAT2A   -21.25 -33.14   0.08   7.13 -63.71 -69.59
SO YBADJ    FAT2A   -73.35 -74.89 -74.15 -71.15 -66.00 -58.84


SO BUILDHGT FAT2B    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2B    60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2B    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2B    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT FAT2B    60.40  60.40  12.20  12.20  60.40  60.40
SO BUILDHGT FAT2B    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDWID FAT2B    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2B    68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2B    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDWID FAT2B    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID FAT2B    68.88  54.98  26.05  34.33  68.04  79.92
SO BUILDWID FAT2B    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDLEN FAT2B    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT2B   100.69  98.41  52.11  53.70 101.00 100.36
SO BUILDLEN FAT2B    96.68  90.05  80.69  68.88  54.97  41.31
SO BUILDLEN FAT2B    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN FAT2B   100.69  98.41  52.11  53.70 101.00 100.36
```

```
SO BUILDLEN FAT2B    96.68  90.05  80.69  68.88  54.97  41.31
SO XBADJ   FAT2B    28.85  29.69  29.63  28.67  26.83  24.19
SO XBADJ   FAT2B    20.81  16.79   7.88 -60.59 -10.27 -21.24
SO XBADJ   FAT2B   -31.57 -40.93 -49.06 -55.69 -60.63 -65.64
SO XBADJ   FAT2B   -82.94 -97.73 -109.55 -118.04 -122.94 -124.10
SO XBADJ   FAT2B  -121.50 -115.20 -59.98   6.88 -90.73 -79.12
SO XBADJ   FAT2B   -65.11 -49.12 -31.64 -13.19   5.65  24.33
SO YBADJ   FAT2B   -50.30 -40.23 -28.94 -16.77  -4.09   8.71
SO YBADJ   FAT2B    21.25  33.14  -0.08  -7.13  63.71  69.59
SO YBADJ   FAT2B    73.35  74.89  74.15  71.15  66.00  58.84
SO YBADJ   FAT2B    50.30  40.23  28.94  16.77   4.09  -8.71
SO YBADJ   FAT2B   -21.25 -33.14   0.08   7.13 -63.71 -69.59
SO YBADJ   FAT2B   -73.35 -74.89 -74.15 -71.15 -66.00 -58.84


SO BUILDHGT BAS12     0.00   0.00   0.00   0.00  12.20  12.20
SO BUILDHGT BAS12    12.20  12.20   0.00   0.00   0.00   0.00
SO BUILDHGT BAS12     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT BAS12     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT BAS12     0.00   0.00   0.00  60.40  60.40  60.40
SO BUILDHGT BAS12    60.40   0.00   0.00   0.00   0.00   0.00
SO BUILDWID BAS12     0.00   0.00   0.00   0.00  57.68  57.78
SO BUILDWID BAS12    57.84  57.89   0.00   0.00   0.00   0.00
SO BUILDWID BAS12     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID BAS12     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID BAS12     0.00   0.00   0.00  54.10  68.04  79.92
SO BUILDWID BAS12    89.37   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12     0.00   0.00   0.00   0.00  57.68  57.78
SO BUILDLEN BAS12    57.84  57.89   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN BAS12     0.00   0.00   0.00  98.57 101.00 100.36
SO BUILDLEN BAS12    96.68   0.00   0.00   0.00   0.00   0.00
SO XBADJ   BAS12     0.00   0.00   0.00   0.00 -113.15 -115.70
SO XBADJ   BAS12  -115.59 -112.84   0.00   0.00   0.00   0.00
SO XBADJ   BAS12     0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ   BAS12     0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ   BAS12     0.00   0.00   0.00 -242.62 -250.48 -250.72
SO XBADJ   BAS12  -243.34   0.00   0.00   0.00   0.00   0.00
SO YBADJ   BAS12     0.00   0.00   0.00   0.00  21.75   6.78
SO YBADJ   BAS12    -8.40 -23.32   0.00   0.00   0.00   0.00
SO YBADJ   BAS12     0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ   BAS12     0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ   BAS12     0.00   0.00   0.00  52.82  18.51 -16.35
SO YBADJ   BAS12   -50.72   0.00   0.00   0.00   0.00   0.00

SO BUILDHGT CBO      65.30  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CBO       0.00  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CBO       0.00  38.00  38.00  38.00   0.00   0.00
SO BUILDWID CBO      96.38 100.22 117.84 131.88 141.91 147.63
SO BUILDWID CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CBO       0.00 100.22 117.84 131.88 141.91 147.63
SO BUILDWID CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID CBO       0.00  48.37  48.54  47.23   0.00   0.00
SO BUILDLEN CBO     145.57 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CBO       0.00 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN CBO       0.00  46.73  43.67  39.28   0.00   0.00
SO XBADJ   CBO    -289.14 -302.96 -307.57 -302.83 -288.90 -266.18
SO XBADJ   CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ   CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ   CBO       0.00 154.10 159.94 160.93 157.02 148.34
SO XBADJ   CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO XBADJ   CBO       0.00 -177.51 -178.75 -174.56   0.00   0.00
SO YBADJ   CBO      80.60  50.09   9.64 -31.09 -70.89 -108.53
SO YBADJ   CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ   CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ   CBO       0.00 -50.09  -9.64  31.09  70.89 108.53
SO YBADJ   CBO       0.00   0.00   0.00   0.00   0.00   0.00
SO YBADJ   CBO       0.00  29.43   2.21 -25.07   0.00   0.00

   EMISFACT PIL45    WSPEED 3*0 3*1
```

```
** EMISFACT PILGYP   WSPEED 3*0 3*1

   SRCGROUP U45100 U45100

   SRCGROUP ALL

SO FINISHED
**
*****************************************
** AERMOD Receptor Pathway
*****************************************
**
**
RE STARTING

   INCLUDED CRAUG06A.rou

RE FINISHED
**
*****************************************
** AERMOD Meteorology Pathway
*****************************************
**
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
   WINDCATS 1.54 3.09 5.39 8.23 10.8

ME FINISHED
**
*****************************************
** AERMOD Output Pathway
*****************************************


OU STARTING
   RECTABLE ALLAVE FIRST SECOND
OU FINISHED
```

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :C2P255.O01
AERMOD OUTPUT FILE NUMBER 2 :C2P255.O02
AERMOD OUTPUT FILE NUMBER 3 :C2P255.O03
AERMOD OUTPUT FILE NUMBER 4 :C2P255.O04
AERMOD OUTPUT FILE NUMBER 5 :C2P255.O05
First title for last output file is: 2001 PGN CR PM10 PSD CLASS II SOURCES 8/15/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-05 (UPDATED SURFACE PARAMETERS)

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	0.62384	336500.	3205200.	01123124
	2002	0.66060	333434.	3205679.	02123124
	2003	0.62738	336400.	3205100.	03123124
	2004	0.64687	336400.	3205100.	04123124
	2005	0.66278	336400.	3205100.	05123124
HIGH 24-Hour					
	2001	6.72891	336600.	3205400.	01052624
	2002	6.57486	333800.	3205800.	02060524
	2003	6.22251	336800.	3205500.	03053024
	2004	7.53404	336600.	3205400.	04052724
	2005	8.77922	336500.	3205000.	05052424
HSH 24-Hour					
	2001	6.18043	336700.	3205500.	01071224
	2002	5.73347	333531.	3205678.	02052424
	2003	5.55350	333482.	3205679.	03081524
	2004	6.04141	336400.	3205300.	04082924
	2005	7.15927	336300.	3205100.	05032824
SOURCE GROUP ID: ALL					
Annual					
	2001	6.15640	336049.	3204839.	01123124
	2002	5.93062	336049.	3204839.	02123124
	2003	6.61089	336099.	3204838.	03123124
	2004	6.53733	336099.	3204838.	04123124
	2005	5.90698	336099.	3204838.	05123124
HIGH 24-Hour					
	2001	22.48584	336348.	3204834.	01081624
	2002	24.50613	335100.	3205700.	02012124
	2003	28.45001	337843.	3204809.	03072124
	2004	34.75616	337594.	3204814.	04011524
	2005	31.02207	338740.	3204795.	05081024
HSH 24-Hour					
	2001	20.85495	335200.	3205700.	01071124
	2002	22.40025	335100.	3205700.	02012524
	2003	25.12480	336498.	3204832.	03010924
	2004	23.06524	336348.	3204834.	04080524
	2005	26.77573	336099.	3204838.	05012024

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00
DISCRETE 0.00 0.00

```
CO STARTING
  TITLEONE 2001 PGN CR PROJECT 550 FT SO2 0.27 LB/MMBTU  8/16/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-2005
  MODELOPT DFAULT CONC
  AVERTIME PERIOD 24 3
  POLLUTID GEN
  RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION

** Source Location **
** Source ID - Type - X Coord. - Y Coord. **

  LOCATION U45100 POINT 334776.800 3205393.420 1.000

  LOCATION BLR4 POINT 334665.270 3205401.840 1.000
  LOCATION BLR5 POINT 334665.270 3205310.430 1.000

** Source Parameters **
** PROP. 0.27 LB/MMBTU X 7200= 1944 LB/HR PER UNIT

  SRCPARAM U45100   489.9 167.700 328.000 15.300 9.300

  SRCPARAM BLR4   -1008.8 178.200 300.000 21.00000 7.770
  SRCPARAM BLR5   -1008.8 178.200 300.000 21.00000 7.770

** Building Downwash **
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  31.10  87.60
SO BUILDHGT U45100   87.60  87.60  87.60  87.60  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDHGT U45100    0.00   0.00   0.00   0.00   0.00  87.60
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDWID U45100   44.50  47.24  48.53  48.36 144.98 147.63
SO BUILDWID U45100  148.86 145.57 137.85 145.57  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDWID U45100    0.00   0.00   0.00   0.00   0.00 147.63
SO BUILDWID U45100   39.28  33.70  27.10  33.70  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDLEN U45100   33.67  39.25  43.64  46.71 126.46 117.84
SO BUILDLEN U45100  100.22  79.56  56.48  79.56  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO BUILDLEN U45100    0.00   0.00   0.00   0.00   0.00 117.84
SO BUILDLEN U45100   47.23  44.49  40.40  44.49  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO XBADJ    U45100 -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45100 -293.28 -287.77 -273.51 -274.88  -72.54  -73.70
SO XBADJ    U45100  -72.63  -69.34  -63.96  -56.62  -47.57   0.00
SO XBADJ    U45100    0.00   0.00   0.00   0.00   0.00 172.04
SO XBADJ    U45100    9.22  16.51  23.30  24.68  25.31  25.16
SO XBADJ    U45100   24.26  22.62  20.29  17.34  13.87   0.00
SO YBADJ    U45100   25.96   7.68 -10.83 -29.01  76.77  90.51
SO YBADJ    U45100   49.03   6.06 -37.10 -79.12   7.23  -1.38
SO YBADJ    U45100   -9.94 -18.20 -25.91 -32.83 -38.75   0.00
SO YBADJ    U45100    0.00   0.00   0.00   0.00   0.00 -90.51
SO YBADJ    U45100  -36.98 -30.72 -23.52 -15.61  -7.23   1.38
SO YBADJ    U45100    9.94  18.20  25.91  32.83  38.75   0.00

 SO BUILDHGT BLR4     27.80  65.30  84.40  84.40  84.40  84.40
 SO BUILDHGT BLR4     84.40  84.40  84.40  84.40  84.40  84.40
 SO BUILDHGT BLR4     27.80  27.80  27.80   0.00   0.00   0.00
 SO BUILDHGT BLR4      0.00  65.30  84.40  84.40  84.40  84.40
 SO BUILDHGT BLR4     84.40  84.40  84.40  84.40  84.40  84.40
 SO BUILDHGT BLR4     38.00  38.00  38.00  38.00   0.00   0.00
 SO BUILDWID BLR4    138.19 129.98 117.84 131.88 141.91 147.63
 SO BUILDWID BLR4    148.86 145.57 137.85 145.57 148.86 147.63
 SO BUILDWID BLR4    125.54 134.97 140.30   0.00   0.00   0.00
 SO BUILDWID BLR4      0.00 129.98 117.84 131.88 141.91 147.63
 SO BUILDWID BLR4    148.86 145.57 137.85 145.57 148.86 147.63
 SO BUILDWID BLR4     46.71  48.36  48.53  47.24   0.00   0.00
```

```
SO BUILDLEN BLR4     75.81 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN BLR4    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR4    135.12 125.72 112.50   0.00   0.00   0.00
SO BUILDLEN BLR4      0.00 148.86 147.63 141.91 131.88 117.84
SO BUILDLEN BLR4    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR4     48.36  46.71  43.64  39.25   0.00   0.00
SO XBADJ    BLR4   -140.83 -162.94 -180.10 -191.79 -197.65 -197.50
SO XBADJ    BLR4   -191.35 -179.39 -161.98 -163.58 -160.22 -151.98
SO XBADJ    BLR4   -139.13 -122.05 -101.26   0.00   0.00   0.00
SO XBADJ    BLR4      0.00  14.08  32.48  49.88  65.77  79.66
SO XBADJ    BLR4     91.13  99.83 105.50  84.02  60.00  34.14
SO XBADJ    BLR4   -144.04 -147.81 -147.09 -141.90   0.00   0.00
SO YBADJ    BLR4     78.62  95.23  93.06  73.19  51.10  27.45
SO YBADJ    BLR4      2.97 -21.60 -45.52 -68.05 -88.51 -106.29
SO YBADJ    BLR4    -59.01 -71.42 -81.66   0.00   0.00   0.00
SO YBADJ    BLR4      0.00 -95.23 -93.06 -73.19 -51.10 -27.45
SO YBADJ    BLR4     -2.97  21.60  45.52  68.05  88.51 106.29
SO YBADJ    BLR4     36.93  15.56  -6.29 -27.95   0.00   0.00


SO BUILDHGT BLR5      0.00   0.00  27.80  27.80  27.80  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  65.30  27.80   0.00
SO BUILDHGT BLR5      0.00  38.00  38.00  38.00  38.00  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  84.40  84.40  84.40
SO BUILDHGT BLR5     84.40  84.40  84.40  65.30   0.00   0.00
SO BUILDWID BLR5      0.00   0.00 140.52 135.27 125.90 147.63
SO BUILDWID BLR5    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR5    141.91 131.88 117.84 129.86 138.13   0.00
SO BUILDWID BLR5      0.00  47.23  48.54  48.37  46.73 147.63
SO BUILDWID BLR5    148.86 145.57 137.85 145.57 148.86 147.63
SO BUILDWID BLR5    141.91 131.88 117.84 129.86   0.00   0.00
SO BUILDLEN BLR5      0.00   0.00 112.05 125.31 134.77 117.84
SO BUILDLEN BLR5    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR5    131.88 141.91 147.63 148.86  76.31   0.00
SO BUILDLEN BLR5      0.00  39.28  43.67  46.73  48.37 117.84
SO BUILDLEN BLR5    100.22  79.56  56.48  79.56 100.22 117.84
SO BUILDLEN BLR5    131.88 141.91 147.63 148.86   0.00   0.00
SO XBADJ    BLR5      0.00   0.00 -100.94 -121.76 -138.89 -151.80
SO XBADJ    BLR5   -160.09 -163.52 -161.98 -179.46 -191.48 -197.69
SO XBADJ    BLR5   -197.89 -192.08 -180.43 -163.30 -141.20   0.00
SO XBADJ    BLR5      0.00 -143.00 -148.09 -148.69 -144.76  33.96
SO XBADJ    BLR5     59.87  83.96 105.50  99.90  91.26  79.85
SO XBADJ    BLR5     66.01  50.17  32.80  14.44   0.00   0.00
SO YBADJ    BLR5      0.00   0.00  81.74  71.52  59.12 106.61
SO YBADJ    BLR5     88.87  68.42  45.89  21.97  -2.62 -27.13
SO YBADJ    BLR5    -50.81 -72.95 -92.88 -95.16 -78.58   0.00
SO YBADJ    BLR5      0.00  27.50   5.66 -16.35 -37.86 -106.61
SO YBADJ    BLR5    -88.87 -68.42 -45.89 -21.97   2.62  27.13
SO YBADJ    BLR5     50.81  72.95  92.88  95.16   0.00   0.00

   SRCGROUP U45100 U45100
   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED CRAUG06A.ROU
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
ME FINISHED
**
```

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*****************************************
** AERMOD Output Pathway
*****************************************

OU STARTING
   RECTABLE ALLAVE FIRST
OU FINISHED
```

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :PRS55A27.O01
AERMOD OUTPUT FILE NUMBER 2 :PRS55A27.O02
AERMOD OUTPUT FILE NUMBER 3 :PRS55A27.O03
AERMOD OUTPUT FILE NUMBER 4 :PRS55A27.O04
AERMOD OUTPUT FILE NUMBER 5 :PRS55A27.O05
First title for last output file is: 2001 PGN CR PROJECT 550 FT SO2 0.27 LB/MMBTU 8/16/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-2005

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	3.36498	336500.	3205200.	01123124
	2002	3.56507	333434.	3205679.	02123124
	2003	3.38574	336400.	3205100.	03123124
	2004	3.49031	336400.	3205100.	04123124
	2005	3.57649	336400.	3205100.	05123124
HIGH 24-Hour					
	2001	35.29628	336700.	3205400.	01052624
	2002	35.48179	333800.	3205800.	02060524
	2003	33.57984	336800.	3205500.	03053024
	2004	40.64769	336600.	3205400.	04052724
	2005	47.38185	336500.	3205000.	05052424
HIGH 3-Hour					
	2001	153.37410	336700.	3205600.	01071215
	2002	129.07887	336700.	3206000.	02051718
	2003	143.32951	336700.	3206000.	03030915
	2004	151.59546	336600.	3205600.	04060215
	2005	142.98541	336500.	3205100.	05052418
SOURCE GROUP ID: ALL					
Annual					
	2001	0.00000	0.	0.	01123124
	2002	0.00000	0.	0.	02123124
	2003	0.00000	0.	0.	03123124
	2004	0.00000	0.	0.	04123124
	2005	0.00000	0.	0.	05123124
HIGH 24-Hour					
	2001	4.22576	343800.	3211400.	01070624
	2002	5.64717	344800.	3210400.	02011124
	2003	2.70538	340800.	3214400.	03060924
	2004	3.19574	337800.	3215400.	04033024
	2005	2.81214	340800.	3215400.	05012124
HIGH 3-Hour					
	2001	29.06048	340800.	3214400.	01052709
	2002	44.38533	339800.	3213400.	02021212
	2003	43.37156	339800.	3213400.	03020715
	2004	32.99739	340800.	3213400.	04101212
	2005	17.32894	340800.	3215400.	05012112

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00
DISCRETE 0.00 0.00

```
CO STARTING
  TITLEONE 2001 PGN CR PROJECT 550 FT SO2 0.27 LB/MMBTU CLASS I 8/16/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-2005
  MODELOPT DFAULT CONC
  AVERTIME PERIOD 24 3
  POLLUTID GEN
  RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION

** Source Location **
** Source ID - Type - X Coord. - Y Coord. **

  LOCATION U45100 POINT 334776.800 3205393.420 1.000

  LOCATION BLR4 POINT 334665.270 3205401.840 1.000
  LOCATION BLR5 POINT 334665.270 3205310.430 1.000

** Source Parameters **
** PROP. 0.27 LB/MMBTU X 7200= 1944 LB/HR PER UNIT

  SRCPARAM U45100   489.9 167.700 328.000 15.300 9.300

  SRCPARAM BLR4   -1008.8 178.200 300.000 21.00000 7.770
  SRCPARAM BLR5   -1008.8 178.200 300.000 21.00000 7.770

** Building Downwash **
SO BUILDHGT U45100    38.00   38.00   38.00   38.00   31.10   87.60
SO BUILDHGT U45100    87.60   87.60   87.60   87.60   38.00   38.00
SO BUILDHGT U45100    38.00   38.00   38.00   38.00   38.00    0.00
SO BUILDHGT U45100     0.00    0.00    0.00    0.00    0.00   87.60
SO BUILDHGT U45100    38.00   38.00   38.00   38.00   38.00   38.00
SO BUILDHGT U45100    38.00   38.00   38.00   38.00   38.00    0.00
SO BUILDWID U45100    44.50   47.24   48.53   48.36  144.98  147.63
SO BUILDWID U45100   148.86  145.57  137.85  145.57   39.28   43.67
SO BUILDWID U45100    46.73   48.37   48.54   47.23   44.49    0.00
SO BUILDWID U45100     0.00    0.00    0.00    0.00    0.00  147.63
SO BUILDWID U45100    39.28   33.70   27.10   33.70   39.28   43.67
SO BUILDWID U45100    46.73   48.37   48.54   47.23   44.49    0.00
SO BUILDLEN U45100    33.67   39.25   43.64   46.71  126.46  117.84
SO BUILDLEN U45100   100.22   79.56   56.48   79.56   47.23   48.54
SO BUILDLEN U45100    48.37   46.73   43.67   39.28   33.70    0.00
SO BUILDLEN U45100     0.00    0.00    0.00    0.00    0.00  117.84
SO BUILDLEN U45100    47.23   44.49   40.40   44.49   47.23   48.54
SO BUILDLEN U45100    48.37   46.73   43.67   39.28   33.70    0.00
SO XBADJ    U45100 -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45100 -293.28 -287.77 -273.51 -274.88  -72.54  -73.70
SO XBADJ    U45100  -72.63  -69.34  -63.96  -56.62  -47.57    0.00
SO XBADJ    U45100     0.00    0.00    0.00    0.00    0.00  172.04
SO XBADJ    U45100     9.22   16.51   23.30   24.68   25.31   25.16
SO XBADJ    U45100    24.26   22.62   20.29   17.34   13.87    0.00
SO YBADJ    U45100    25.96    7.68  -10.83  -29.01   76.77   90.51
SO YBADJ    U45100    49.03    6.06  -37.10  -79.12    7.23   -1.38
SO YBADJ    U45100    -9.94  -18.20  -25.91  -32.83  -38.75    0.00
SO YBADJ    U45100     0.00    0.00    0.00    0.00    0.00  -90.51
SO YBADJ    U45100   -36.98  -30.72  -23.52  -15.61   -7.23    1.38
SO YBADJ    U45100     9.94   18.20   25.91   32.83   38.75    0.00

SO BUILDHGT BLR4      27.80   65.30   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4      84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4      27.80   27.80   27.80    0.00    0.00    0.00
SO BUILDHGT BLR4       0.00   65.30   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4      84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR4      38.00   38.00   38.00   38.00    0.00    0.00
SO BUILDWID BLR4     138.19  129.98  117.84  131.88  141.91  147.63
SO BUILDWID BLR4     148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR4     125.54  134.97  140.30    0.00    0.00    0.00
SO BUILDWID BLR4       0.00  129.98  117.84  131.88  141.91  147.63
SO BUILDWID BLR4     148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR4      46.71   48.36   48.53   47.24    0.00    0.00
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SO BUILDLEN BLR4      75.81  148.86  147.63  141.91  131.88  117.84
SO BUILDLEN BLR4     100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR4     135.12  125.72  112.50    0.00    0.00    0.00
SO BUILDLEN BLR4       0.00  148.86  147.63  141.91  131.88  117.84
SO BUILDLEN BLR4     100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR4      48.36   46.71   43.64   39.25    0.00    0.00
SO XBADJ    BLR4    -140.83 -162.94 -180.10 -191.79 -197.65 -197.50
SO XBADJ    BLR4    -191.35 -179.39 -161.98 -163.58 -160.22 -151.98
SO XBADJ    BLR4    -139.13 -122.05 -101.26    0.00    0.00    0.00
SO XBADJ    BLR4       0.00   14.08   32.48   49.88   65.77   79.66
SO XBADJ    BLR4      91.13   99.83  105.50   84.02   60.00   34.14
SO XBADJ    BLR4    -144.04 -147.81 -147.09 -141.90    0.00    0.00
SO YBADJ    BLR4      78.62   95.23   93.06   73.19   51.10   27.45
SO YBADJ    BLR4       2.97  -21.60  -45.52  -68.05  -88.51 -106.29
SO YBADJ    BLR4     -59.01  -71.42  -81.66    0.00    0.00    0.00
SO YBADJ    BLR4       0.00  -95.23  -93.06  -73.19  -51.10  -27.45
SO YBADJ    BLR4      -2.97   21.60   45.52   68.05   88.51  106.29
SO YBADJ    BLR4      36.93   15.56   -6.29  -27.95    0.00    0.00


SO BUILDHGT BLR5       0.00    0.00   27.80   27.80   27.80   84.40
SO BUILDHGT BLR5      84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR5      84.40   84.40   84.40   65.30   27.80    0.00
SO BUILDHGT BLR5       0.00   38.00   38.00   38.00   38.00   84.40
SO BUILDHGT BLR5      84.40   84.40   84.40   84.40   84.40   84.40
SO BUILDHGT BLR5      84.40   84.40   84.40   65.30    0.00    0.00
SO BUILDWID BLR5       0.00    0.00  140.52  135.27  125.90  147.63
SO BUILDWID BLR5     148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR5     141.91  131.88  117.84  129.86  138.13    0.00
SO BUILDWID BLR5       0.00   47.23   48.54   48.37   46.73  147.63
SO BUILDWID BLR5     148.86  145.57  137.85  145.57  148.86  147.63
SO BUILDWID BLR5     141.91  131.88  117.84  129.86    0.00    0.00
SO BUILDLEN BLR5       0.00    0.00  112.05  125.31  134.77  117.84
SO BUILDLEN BLR5     100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR5     131.88  141.91  147.63  148.86   76.31    0.00
SO BUILDLEN BLR5       0.00   39.28   43.67   46.73   48.37  117.84
SO BUILDLEN BLR5     100.22   79.56   56.48   79.56  100.22  117.84
SO BUILDLEN BLR5     131.88  141.91  147.63  148.86    0.00    0.00
SO XBADJ    BLR5       0.00    0.00 -100.94 -121.76 -138.89 -151.80
SO XBADJ    BLR5    -160.09 -163.52 -161.98 -179.46 -191.48 -197.69
SO XBADJ    BLR5    -197.89 -192.08 -180.43 -163.30 -141.20    0.00
SO XBADJ    BLR5       0.00 -143.00 -148.09 -148.69 -144.76   33.96
SO XBADJ    BLR5      59.87   83.96  105.50   99.90   91.26   79.85
SO XBADJ    BLR5      66.01   50.17   32.80   14.44    0.00    0.00
SO YBADJ    BLR5       0.00    0.00   81.74   71.52   59.12  106.61
SO YBADJ    BLR5      88.87   68.42   45.89   21.97   -2.62  -27.13
SO YBADJ    BLR5     -50.81  -72.95  -92.88  -95.16  -78.58    0.00
SO YBADJ    BLR5       0.00   27.50    5.66  -16.35  -37.86 -106.61
SO YBADJ    BLR5     -88.87  -68.42  -45.89  -21.97    2.62   27.13
SO YBADJ    BLR5      50.81   72.95   92.88   95.16    0.00    0.00

   SRCGROUP U45100 U45100
   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED CHASS.ROU
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
ME FINISHED
**
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****************************************
** AERMOD Output Pathway
****************************************
**
OU STARTING
   RECTABLE ALLAVE FIRST
OU FINISHED
```

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :PRS55AC1.O01
AERMOD OUTPUT FILE NUMBER 2 :PRS55AC1.O02
AERMOD OUTPUT FILE NUMBER 3 :PRS55AC1.O03
AERMOD OUTPUT FILE NUMBER 4 :PRS55AC1.O04
AERMOD OUTPUT FILE NUMBER 5 :PRS55AC1.O05
First title for last output file is: 2001 PGN CR PROJECT 550 FT SO2 0.27 LB/MMBTU CLASS I 8/16/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-2005

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	0.32218	334447.	3183601.	01123124
	2002	0.36853	334447.	3183601.	02123124
	2003	0.32354	334447.	3183601.	03123124
	2004	0.32301	334447.	3183601.	04123124
	2005	0.36037	331926.	3178095.	05123124
HIGH 24-Hour					
	2001	4.05258	335260.	3183589.	01111624
	2002	3.34611	331926.	3178095.	02110724
	2003	4.02412	331926.	3178095.	03112024
	2004	4.21471	334447.	3183601.	04110624
	2005	4.57151	335260.	3183589.	05090824
HIGH 3-Hour					
	2001	11.92604	334447.	3183601.	01101621
	2002	13.88014	338515.	3183544.	02052909
	2003	9.81550	331926.	3178095.	03092909
	2004	11.20423	336074.	3183578.	04022703
	2005	10.94091	338515.	3183544.	05112924
SOURCE GROUP ID: ALL					
Annual					
	2001	0.00000	0.	0.	01123124
	2002	0.00000	0.	0.	02123124
	2003	0.00000	0.	0.	03123124
	2004	0.00000	0.	0.	04123124
	2005	0.00000	0.	0.	05123124
HIGH 24-Hour					
	2001	0.00000	0.	0.	00000000
	2002	0.00000	0.	0.	00000000
	2003	0.00000	0.	0.	00000000
	2004	0.00000	0.	0.	00000000
	2005	0.00000	0.	0.	00000000
HIGH 3-Hour					
	2001	0.26678	335260.	3183589.	01032509
	2002	0.08179	335260.	3183589.	02102509
	2003	0.00035	335143.	3175279.	03041706
	2004	0.16972	335260.	3183589.	04033009
	2005	0.00006	338502.	3182620.	05022021

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00
DISCRETE 0.00 0.00

```
CO STARTING
  TITLEONE 2001 PGN CR AAQS    PROPOSED 550 FT SO2 0.27 LB/MMBTU  8/12/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-2005
  MODELOPT DFAULT CONC
  AVERTIME PERIOD 24 3
  POLLUTID GEN
  RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION

** Source Location **
** Source ID - Type - X Coord. - Y Coord. **

  LOCATION U45100 POINT 334776.800 3205393.420 1.000

  LOCATION UNIT1 POINT 334319.400 3204230.210 1.0
  LOCATION UNIT2 POINT 334260.580 3204230.210 1.0

********** PSD CLASS II CONSUMING
**
** RECENT PSD (CFI INDUSTRIES): FCS, CRYSTAL RIVER QUARRIES
** PSD CLASS I INVENTORIES

**    Florida Crushed Stone Co., Inc.
**    FCRUSH18    POWER PLANT
**    FCRUSH20    BCP: Kiln, Clinker Cooler, Raw Mill, & Dryer with Baghouse
**    FCRUSH44    KILN #2 SYSTEM: preheater/precalciner, cooler,dyer,raw mill
SO LOCATION   FCRUSH18    POINT   361340  3162370  0.0
SO LOCATION   FCRUSH20    POINT   361340  3162370  0.0
SO LOCATION   FCRUSH44    POINT   361340  3162370  0.0

**    Crystal River Quarries
SO LOCATION   CRQUAR      POINT   340600  3205300  0.0

SO LOCATION   IPSPASCO    POINT   347200  3138800   0

SO LOCATION   FCS1        POINT   360000  3162500   0

SO LOCATION   ASPHALT3    POINT   359900  3162400   0

SO LOCATION   ASPHALT4    POINT   361400  3168400   0

SO LOCATION   FDOC        POINT   382200  3166100   0

SO LOCATION   FMM         POINT   356200  3169900   0

SO LOCATION   HCOA12      POINT   333400  3141000   0

SO LOCATION   OMAN        POINT   359800  3164900   0

SO LOCATION   OVERST      POINT   355900  3143700   0

SO LOCATION   PASCORRF    POINT   347100  3139200   0

SO LOCATION   CEMEX02     POINT   357470  3169190   0
SO LOCATION   CEMEX14     POINT   357470  3169190   0

SO LOCATION   SHADYHL     POINT   348720  3138370   0

SO LOCATION   CITSER1     POINT   364200  3158300   0
SO LOCATION   CITSER2     POINT   364200  3158300   0


** Source Parameters **
** PROP. 0.27 LB/MMBTU X 7200= 1944 LB/HR PER UNIT

  SRCPARAM U45100   489.9 167.700 328.000 15.300 9.300

  SRCPARAM UNIT1   992.3 152.100 417.000 40.500 4.570
  SRCPARAM UNIT2  1268.8 153.000 422.000 48.800 4.880
```

```
**     Florida Crushed Stone Co., Inc.
SO SRCPARAM   FCRUSH18     97.020 97.54  422    21.21  4.88
SO SRCPARAM   FCRUSH20     6.300  91.44  378    14.33  4.88
SO SRCPARAM   FCRUSH44     3.629  97.54  399    10.30  4.27

**     Crystal River Quarries
SO SRCPARAM   CRQUAR       3.86   18.3   335    6.4   1.19

SO SRCPARAM   IPSPASCO     38.37  18.3   853.00 37.3  6.71

SO SRCPARAM   FCS1      101.60   97.5   435.00 16.6  6.48

SO SRCPARAM   ASPHALT3     2.25   12.2   377.00 10.6  1.37

SO SRCPARAM   ASPHALT4     2.25   8.5    357.00 11    1.08

SO SRCPARAM   FDOC       2.99    9.1   478.00 4.6    0.61

SO SRCPARAM   FMM        1.45    32.0   394.00 9.9    4.27

SO SRCPARAM   HCOA12       0.16   11.0   533.00 4     0.31

SO SRCPARAM   OMAN       2.09    7.6   347.00 6.3    1.83

SO SRCPARAM   OVERST       3.67    9.1   408.00 16     1.3

SO SRCPARAM   PASCORRF     14.10   83.8   394.00 15.5  3.05

SO SRCPARAM   CEMEX02      1.90   45.7   414.00 10.4  3.96
SO SRCPARAM   CEMEX14      1.90   32.0   394.00 9.8   4.27

SO SRCPARAM   SHADYHL      4.77   18.3   874.00 35.4  6.71

SO SRCPARAM   CITSER1      3.40   10.4   515.00 14.6  0.61
SO SRCPARAM   CITSER2      0.55   19.5   339.00 8.2   0.76

** Building Downwash **
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  31.10  87.60
SO BUILDHGT U45100   87.60  87.60  87.60  87.60  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDHGT U45100    0.00   0.00   0.00   0.00   0.00  87.60
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDWID U45100   44.50  47.24  48.53  48.36 144.98 147.63
SO BUILDWID U45100  148.86 145.57 137.85 145.57  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDWID U45100    0.00   0.00   0.00   0.00   0.00 147.63
SO BUILDWID U45100   39.28  33.70  27.10  33.70  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDLEN U45100   33.67  39.25  43.64  46.71 126.46 117.84
SO BUILDLEN U45100  100.22  79.56  56.48  79.56  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO BUILDLEN U45100    0.00   0.00   0.00   0.00   0.00 117.84
SO BUILDLEN U45100   47.23  44.49  40.40  44.49  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO XBADJ    U45100 -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45100 -293.28 -287.77 -273.51 -274.88 -72.54 -73.70
SO XBADJ    U45100  -72.63 -69.34 -63.96 -56.62 -47.57   0.00
SO XBADJ    U45100    0.00   0.00   0.00   0.00   0.00 172.04
SO XBADJ    U45100    9.22  16.51  23.30  24.68  25.31  25.16
SO XBADJ    U45100   24.26  22.62  20.29  17.34  13.87   0.00
SO YBADJ    U45100   25.96   7.68 -10.83 -29.01  76.77  90.51
SO YBADJ    U45100   49.03   6.06 -37.10 -79.12   7.23  -1.38
SO YBADJ    U45100   -9.94 -18.20 -25.91 -32.83 -38.75   0.00
SO YBADJ    U45100    0.00   0.00   0.00   0.00   0.00 -90.51
SO YBADJ    U45100  -36.98 -30.72 -23.52 -15.61  -7.23   1.38
SO YBADJ    U45100    9.94  18.20  25.91  32.83  38.75   0.00

SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40   0.00
SO BUILDHGT UNIT1     0.00   0.00   0.00   0.00  12.20  60.40
SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40   0.00
SO BUILDHGT UNIT1     0.00   0.00   0.00   0.00  12.20  60.40
SO BUILDHGT UNIT1    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDWID UNIT1    98.57 101.00 100.36  96.68  90.05   0.00
SO BUILDWID UNIT1     0.00   0.00   0.00   0.00  42.31  79.92
SO BUILDWID UNIT1    89.37  96.10  99.92 100.69  98.41  93.14
```

```
SO BUILDWID UNIT1    98.57 101.00 100.36  96.68  90.05   0.00
SO BUILDWID UNIT1     0.00   0.00   0.00   0.00  42.31  79.92
SO BUILDWID UNIT1    89.37  96.10  99.92 100.69  98.41  93.14
SO BUILDLEN UNIT1    54.10  68.04  79.92  89.37  96.10   0.00
SO BUILDLEN UNIT1     0.00   0.00   0.00   0.00  57.88 100.36
SO BUILDLEN UNIT1    96.68  90.05  80.69  68.88  54.97  41.31
SO BUILDLEN UNIT1    54.10  68.04  79.92  89.37  96.10   0.00
SO BUILDLEN UNIT1     0.00   0.00   0.00   0.00  57.88 100.36
SO BUILDLEN UNIT1    96.68  90.05  80.69  68.88  54.97  41.31
SO XBADJ    UNIT1    48.68  34.97  20.19   4.80 -10.74   0.00
SO XBADJ    UNIT1     0.00   0.00   0.00   0.00 -81.32 -105.17
SO XBADJ    UNIT1  -112.58 -116.57 -117.02 -113.91 -107.35 -99.43
SO XBADJ    UNIT1  -102.78 -103.01 -100.11 -94.17 -85.36   0.00
SO XBADJ    UNIT1     0.00   0.00   0.00   0.00  23.44   4.80
SO XBADJ    UNIT1    15.90  26.52  36.33  45.03  52.37  58.12
SO YBADJ    UNIT1    31.79  44.06  54.98  64.24  71.54   0.00
SO YBADJ    UNIT1     0.00   0.00   0.00   0.00  16.81  60.15
SO YBADJ    UNIT1    49.48  37.31  24.01   9.98  -4.36 -18.56
SO YBADJ    UNIT1   -31.79 -44.06 -54.98 -64.24 -71.54   0.00
SO YBADJ    UNIT1     0.00   0.00   0.00   0.00 -16.81 -60.15
SO YBADJ    UNIT1   -49.48 -37.31 -24.01  -9.98   4.36  18.56


SO BUILDHGT UNIT2    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2    60.40   0.00   0.00  12.20  12.20  12.20
SO BUILDHGT UNIT2    12.20  12.20  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2    60.40  60.40  60.40  60.40  60.40  60.40
SO BUILDHGT UNIT2    60.40   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT UNIT2     0.00  12.20  60.40  60.40  60.40  60.40
SO BUILDWID UNIT2    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID UNIT2    68.88   0.00   0.00  34.33  41.56  47.53
SO BUILDWID UNIT2    52.06  55.00  99.92 100.69  98.41  93.14
SO BUILDWID UNIT2    98.57 101.00 100.36  96.68  90.05  80.69
SO BUILDWID UNIT2    68.88   0.00   0.00   0.00   0.00   0.00
SO BUILDWID UNIT2     0.00  56.66  99.92 100.69  98.41  93.14
SO BUILDLEN UNIT2    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN UNIT2   100.69   0.00   0.00  53.70  55.84  56.28
SO BUILDLEN UNIT2    55.00  52.06  80.69  68.88  54.97  41.31
SO BUILDLEN UNIT2    54.10  68.04  79.92  89.37  96.10  99.92
SO BUILDLEN UNIT2   100.69   0.00   0.00   0.00   0.00   0.00
SO BUILDLEN UNIT2     0.00  53.45  80.69  68.88  54.97  41.31
SO XBADJ    UNIT2    58.90  55.08  49.60  42.61  34.32  24.99
SO XBADJ    UNIT2    14.90   0.00   0.00 -84.75 -88.92 -90.39
SO XBADJ    UNIT2   -89.10 -85.12 -87.61 -93.80 -97.13 -99.43
SO XBADJ    UNIT2  -112.99 -123.13 -129.52 -131.98 -130.42 -124.91
SO XBADJ    UNIT2  -115.60   0.00   0.00   0.00   0.00   0.00
SO XBADJ    UNIT2     0.00 -10.77   6.92  24.92  42.16  58.12
SO YBADJ    UNIT2   -26.13 -11.21   4.04  19.18  33.73  47.26
SO YBADJ    UNIT2    59.36   0.00   0.00  22.92  12.51   1.73
SO YBADJ    UNIT2    -9.10 -19.66  74.95  65.25  53.57  40.26
SO YBADJ    UNIT2    26.13  11.21  -4.04 -19.18 -33.73 -47.26
SO YBADJ    UNIT2   -59.36   0.00   0.00   0.00   0.00   0.00
SO YBADJ    UNIT2     0.00 -33.43 -74.95 -65.25 -53.57 -40.26


   SRCGROUP U45100 U45100
   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED CRAUG06A.ROU
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
```

```
  UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
  PROFBASE 19 FEET
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
  RECTABLE ALLAVE FIRST SECOND
OU FINISHED
```

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :AQS55A27.O01
AERMOD OUTPUT FILE NUMBER 2 :AQS55A27.O02
AERMOD OUTPUT FILE NUMBER 3 :AQS55A27.O03
AERMOD OUTPUT FILE NUMBER 4 :AQS55A27.O04
AERMOD OUTPUT FILE NUMBER 5 :AQS55A27.O05
First title for last output file is: 2001 PGN CR AAQS PROPOSED 550 FT SO2 0.27 LB/MMBTU 8/12/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-2005

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	3.36498	336500.	3205200.	01123124
	2002	3.56507	333434.	3205679.	02123124
	2003	3.38574	336400.	3205100.	03123124
	2004	3.49031	336400.	3205100.	04123124
	2005	3.57649	336400.	3205100.	05123124
HIGH 24-Hour					
	2001	35.29628	336700.	3205400.	01052624
	2002	35.48179	333800.	3205800.	02060524
	2003	33.57984	336800.	3205500.	03053024
	2004	40.64769	336600.	3205400.	04052724
	2005	47.38185	336500.	3205000.	05052424
HSH 24-Hour					
	2001	33.35896	336700.	3205500.	01071224
	2002	30.94106	333531.	3205678.	02052424
	2003	29.97574	333482.	3205679.	03081524
	2004	32.60637	336400.	3205300.	04082924
	2005	38.62300	336300.	3205100.	05032824
HIGH 3-Hour					
	2001	153.37410	336700.	3205600.	01071215
	2002	129.07887	336700.	3206000.	02051718
	2003	143.32951	336700.	3206000.	03030915
	2004	151.59546	336600.	3205600.	04060215
	2005	142.98541	336500.	3205100.	05052418
HSH 3-Hour					
	2001	116.21026	336800.	3206300.	01061215
	2002	109.94534	336500.	3205200.	02031312
	2003	101.33315	336700.	3206100.	03060818
	2004	129.14613	336600.	3205500.	04052718
	2005	131.32732	336500.	3205000.	05052415
SOURCE GROUP ID: ALL					
Annual					
	2001	12.12693	332319.	3203398.	01123124
	2002	12.21435	332996.	3205685.	02123124
	2003	11.03612	340511.	3204937.	03123124
	2004	11.95528	340800.	3205400.	04123124
	2005	13.02716	332663.	3202963.	05123124
HIGH 24-Hour					
	2001	133.46278	333800.	3202150.	01110524
	2002	105.51767	335063.	3202438.	02022724
	2003	124.58272	333717.	3202438.	03112924
	2004	147.36174	334166.	3202438.	04092524
	2005	109.70304	333767.	3202438.	05090324
HSH 24-Hour					
	2001	111.24711	333567.	3202438.	01041824
	2002	95.62583	334664.	3202438.	02030424
	2003	109.01365	333033.	3202578.	03110924
	2004	118.17327	333817.	3202438.	04092524
	2005	105.57790	333667.	3202438.	05041524
HIGH 3-Hour					
	2001	321.81363	335200.	3206600.	01061115
	2002	306.91324	333866.	3202438.	02101712
	2003	354.19897	340800.	3205400.	03050712
	2004	321.88919	334315.	3202438.	04012315
	2005	315.59543	333617.	3202438.	05101112
HSH 3-Hour					
	2001	305.30988	340800.	3207400.	01072912
	2002	298.49911	334166.	3202438.	02021112
	2003	289.58899	334664.	3202438.	03090818
	2004	292.85342	334265.	3202438.	04092524
	2005	284.80466	334764.	3202438.	05050618

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00

DISCRETE 0.00 0.00

```
CO STARTING
  TITLEONE 2001 PGN CR PSD CLASS II PROPOSED 550 FT SO2 0.27 LB/MMBTU  8/12/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-2005
  MODELOPT DFAULT CONC
  AVERTIME PERIOD 24 3
  POLLUTID GEN
  RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

** U45100= UNITS 4 & 5 AT 100% LOAD WITH EXCURSION

** Source Location **
** Source ID - Type - X Coord. - Y Coord. **

  LOCATION U45100 POINT 334776.800 3205393.420 1.000

********** PSD CLASS II CONSUMING
**
** RECENT PSD (CFI INDUSTRIES): FCS, CRYSTAL RIVER QUARRIES
** PSD CLASS I INVENTORIES

**     Florida Crushed Stone Co., Inc.
**     FCRUSH18     POWER PLANT
**     FCRUSH20     BCP: Kiln, Clinker Cooler, Raw Mill, & Dryer with Baghouse
**     FCRUSH44     KILN #2 SYSTEM: preheater/precalciner, cooler,dyer,raw mill
SO LOCATION   FCRUSH18    POINT  361340  3162370  0.0
SO LOCATION   FCRUSH20    POINT  361340  3162370  0.0
SO LOCATION   FCRUSH44    POINT  361340  3162370  0.0

**     Crystal River Quarries
SO LOCATION   CRQUAR      POINT  340600  3205300  0.0

SO LOCATION   IPSPASCO    POINT  347200  3138800   0

SO LOCATION   FCS1        POINT  360000  3162500   0

SO LOCATION   ASPHALT3    POINT  359900  3162400   0

SO LOCATION   ASPHALT4    POINT  361400  3168400   0

SO LOCATION   FDOC        POINT  382200  3166100   0

SO LOCATION   FMM         POINT  356200  3169900   0

SO LOCATION   HCOA12      POINT  333400  3141000   0

SO LOCATION   OMAN        POINT  359800  3164900   0

SO LOCATION   OVERST      POINT  355900  3143700   0

SO LOCATION   PASCORRF    POINT  347100  3139200   0

SO LOCATION   CEMEX14     POINT  357470  3169190   0

SO LOCATION   SHADYHL     POINT  348720  3138370   0

********** PSD CLASS II EXPANDING
**
** PSD CLASS I INVENTORIES

SO LOCATION   CRYRIV1B    POINT  334300  3204500   0
SO LOCATION   CRYRIV2B    POINT  334300  3204500   0


** Source Parameters **
** PROP. 0.27 LB/MMBTU X 7200= 1944 LB/HR PER UNIT

SO SRCPARAM U45100   489.9 167.700 328.000 15.300 9.300

**     Florida Crushed Stone Co., Inc.
SO SRCPARAM   FCRUSH18     97.020  97.54   422    21.21   4.88
```

```
SO SRCPARAM   FCRUSH20    6.300  91.44  378    14.33  4.88
SO SRCPARAM   FCRUSH44    3.629  97.54  399    10.30  4.27

**   Crystal River Quarries
SO SRCPARAM   CRQUAR      3.86   18.3   335    6.4   1.19

SO SRCPARAM   IPSPASCO    38.37  18.3   853.00 37.3  6.71

SO SRCPARAM   FCS1      101.60   97.5   435.00 16.6  6.48

SO SRCPARAM   ASPHALT3    2.25   12.2   377.00 10.6  1.37

SO SRCPARAM   ASPHALT4    2.25   8.5    357.00 11    1.08

SO SRCPARAM   FDOC       2.99    9.1   478.00 4.6   0.61

SO SRCPARAM   FMM       1.45    32.0   394.00 9.9   4.27

SO SRCPARAM   HCOA12     0.16    11.0   533.00 4     0.31

SO SRCPARAM   OMAN       2.09    7.6   347.00 6.3   1.83

SO SRCPARAM   OVERST      3.67    9.1   408.00 16    1.3

SO SRCPARAM   PASCORRF    14.10   83.8   394.00 15.5  3.05

SO SRCPARAM   CEMEX14     1.90   32.0   394.00 9.8   4.27

SO SRCPARAM   SHADYHL     4.77   18.3   874.00 35.4  6.71

SO SRCPARAM   CRYRIV1B   -314.00  152.0  422.00 42.1  4.57

SO SRCPARAM   CRYRIV2B  -1860.00  153.0  422.00 42.1  4.88


** Building Downwash **
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  31.10  87.60
SO BUILDHGT U45100   87.60  87.60  87.60  87.60  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDHGT U45100    0.00   0.00   0.00   0.00   0.00  87.60
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00  38.00
SO BUILDHGT U45100   38.00  38.00  38.00  38.00  38.00   0.00
SO BUILDWID U45100   44.50  47.24  48.53  48.36 144.98 147.63
SO BUILDWID U45100  148.86 145.57 137.85 145.57  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDWID U45100    0.00   0.00   0.00   0.00   0.00 147.63
SO BUILDWID U45100   39.28  33.70  27.10  33.70  39.28  43.67
SO BUILDWID U45100   46.73  48.37  48.54  47.23  44.49   0.00
SO BUILDLEN U45100   33.67  39.25  43.64  46.71 126.46 117.84
SO BUILDLEN U45100  100.22  79.56  56.48  79.56  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO BUILDLEN U45100    0.00   0.00   0.00   0.00   0.00 117.84
SO BUILDLEN U45100   47.23  44.49  40.40  44.49  47.23  48.54
SO BUILDLEN U45100   48.37  46.73  43.67  39.28  33.70   0.00
SO XBADJ    U45100 -119.83 -125.56 -127.48 -125.53 -210.42 -289.88
SO XBADJ    U45100 -293.28 -287.77 -273.51 -274.88 -72.54 -73.70
SO XBADJ    U45100  -72.63 -69.34 -63.96 -56.62 -47.57   0.00
SO XBADJ    U45100    0.00   0.00   0.00   0.00   0.00 172.04
SO XBADJ    U45100    9.22  16.51  23.30  24.68  25.31  25.16
SO XBADJ    U45100   24.26  22.62  20.29  17.34  13.87   0.00
SO YBADJ    U45100   25.96   7.68 -10.83 -29.01  76.77  90.51
SO YBADJ    U45100   49.03   6.06 -37.10 -79.12   7.23  -1.38
SO YBADJ    U45100   -9.94 -18.20 -25.91 -32.83 -38.75   0.00
SO YBADJ    U45100    0.00   0.00   0.00   0.00   0.00 -90.51
SO YBADJ    U45100  -36.98 -30.72 -23.52 -15.61  -7.23   1.38
SO YBADJ    U45100    9.94  18.20  25.91  32.83  38.75   0.00


   SRCGROUP U45100 U45100
   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
```

```
RE STARTING
  INCLUDED CRAUG06A.ROU
RE FINISHED
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
  SURFFILE C:\amodmet\TAMPA_2001.SFC
  PROFFILE C:\amodmet\TAMPA_2001.PFL
  SURFDATA 12842 2001 TAMPA/INT'L_ARPT
  UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
  PROFBASE 19 FEET
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
  RECTABLE ALLAVE FIRST SECOND
OU FINISHED
```

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :C2S55A27.O01
AERMOD OUTPUT FILE NUMBER 2 :C2S55A27.O02
AERMOD OUTPUT FILE NUMBER 3 :C2S55A27.O03
AERMOD OUTPUT FILE NUMBER 4 :C2S55A27.O04
AERMOD OUTPUT FILE NUMBER 5 :C2S55A27.O05
First title for last output file is: 2001 PGN CR PSD CLASS II PROPOSED 550 FT SO2 0.27 LB/MMBTU 8/12/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-2005

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: U45100					
Annual					
	2001	3.36498	336500.	3205200.	01123124
	2002	3.56507	333434.	3205679.	02123124
	2003	3.38574	336400.	3205100.	03123124
	2004	3.49031	336400.	3205100.	04123124
	2005	3.57649	336400.	3205100.	05123124
HIGH 24-Hour					
	2001	35.29628	336700.	3205400.	01052624
	2002	35.48179	333800.	3205800.	02060524
	2003	33.57984	336800.	3205500.	03053024
	2004	40.64769	336600.	3205400.	04052724
	2005	47.38185	336500.	3205000.	05052424
HSH 24-Hour					
	2001	33.35896	336700.	3205500.	01071224
	2002	30.94106	333531.	3205678.	02052424
	2003	29.97574	333482.	3205679.	03081524
	2004	32.60637	336400.	3205300.	04082924
	2005	38.62300	336300.	3205100.	05032824
HIGH 3-Hour					
	2001	153.37410	336700.	3205600.	01071215
	2002	129.07887	336700.	3206000.	02051718
	2003	143.32951	336700.	3206000.	03030915
	2004	151.59546	336600.	3205600.	04060215
	2005	142.98541	336500.	3205100.	05052418
HSH 3-Hour					
	2001	116.21026	336800.	3206300.	01061215
	2002	109.94534	336500.	3205200.	02031312
	2003	101.33315	336700.	3206100.	03060818
	2004	129.14613	336600.	3205500.	04052718
	2005	131.32732	336500.	3205000.	05052415
SOURCE GROUP ID: ALL					
Annual					
	2001	2.29558	340420.	3204937.	01123124
	2002	2.44583	340511.	3204937.	02123124
	2003	1.94436	340511.	3204937.	03123124
	2004	2.24404	340800.	3205400.	04123124
	2005	3.25734	340420.	3204937.	05123124
HIGH 24-Hour					
	2001	34.51078	340602.	3204937.	01111624
	2002	36.76392	340511.	3204937.	02112724
	2003	33.82766	340420.	3204937.	03110124
	2004	36.19138	340602.	3204937.	04110624
	2005	46.89188	336300.	3205100.	05052424
HSH 24-Hour					
	2001	30.49697	336600.	3205500.	01071224
	2002	34.74818	340511.	3204937.	02122624
	2003	30.81038	340420.	3204937.	03011224
	2004	29.03656	340420.	3204937.	04111624
	2005	38.33672	336300.	3205100.	05032824
HIGH 3-Hour					
	2001	152.60400	336700.	3205600.	01071215
	2002	119.33990	336600.	3206000.	02051718
	2003	139.84874	336600.	3206000.	03030915
	2004	146.98141	336600.	3205600.	04060215
	2005	142.55235	336500.	3205100.	05052418
HSH 3-Hour					
	2001	107.21988	336600.	3205400.	01071215
	2002	107.83080	336500.	3205200.	02031312
	2003	94.17541	336800.	3205600.	03053018
	2004	125.35758	336800.	3205400.	04091718
	2005	129.77434	336300.	3205100.	05052415

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00

DISCRETE	0.00	0.00

```
CO STARTING
  TITLEONE 2001 PGN CR COOLING TOWER PM            8/20/06
  TITLETWO TAMPA/RUSKIN METDATA 2001-2005
  MODELOPT CONC NOSTD
  AVERTIME PERIOD 24
  POLLUTID GEN
  RUNORNOT RUN
CO FINISHED
**
***************************************
** AERMOD Source Pathway
***************************************
**
**
SO STARTING

  LOCATION CT4 POINT 334312.560 3205466.280 1.000
  LOCATION CT5 POINT 334313.480 3205236.260 1.000

** Source Parameters **
**
** EACH TOWER PM10= 10.2 LB/HR BASED ON REALISTIC PM10 EMISSIONS

  SRCPARAM CT4   1.28   135.10  311.0  3.32  65.200
  SRCPARAM CT5   1.28   135.10  311.0  3.32  65.200

  SRCGROUP ALL

SO FINISHED
**
***************************************
** AERMOD Receptor Pathway
***************************************
**
**
RE STARTING
  INCLUDED CRAUG06A.ROU
RE FINISHED
**
***************************************
** AERMOD Meteorology Pathway
***************************************
**
**
ME STARTING
  SURFFILE C:\amodmet\TAMPA_2001.SFC
  PROFFILE C:\amodmet\TAMPA_2001.PFL
  SURFDATA 12842 2001 TAMPA/INT'L_ARPT
  UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
  PROFBASE 19 FEET
ME FINISHED
**
***************************************
** AERMOD Output Pathway
***************************************
**
**
OU STARTING
  RECTABLE ALLAVE FIRST
OU FINISHED
```

```
CO STARTING
   TITLEONE 2001 PGN CR COOLING TOWER PM                8/20/06
   TITLETWO TAMPA/RUSKIN METDATA 2001-2005
   MODELOPT CONC NOSTD
   AVERTIME PERIOD 24
   POLLUTID GEN
   RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING

   LOCATION CT4 POINT 334312.560 3205466.280 1.000
   LOCATION CT5 POINT 334313.480 3205236.260 1.000

** Source Parameters **
**
** EACH TOWER PM10= 10.2 LB/HR BASED ON REALISTIC PM10 EMISSIONS

   SRCPARAM CT4   1.28   135.10  311.0  3.32  65.200
   SRCPARAM CT5   1.28   135.10  311.0  3.32  65.200

   SRCGROUP ALL

SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED CRAUG06A.ROU
RE FINISHED

****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE C:\amodmet\TAMPA_2001.SFC
   PROFFILE C:\amodmet\TAMPA_2001.PFL
   SURFDATA 12842 2001 TAMPA/INT'L_ARPT
   UAIRDATA 12842 2001 TAMPA/INT'L_ARPT
   PROFBASE 19 FEET
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
   RECTABLE ALLAVE FIRST
OU FINISHED
```

AERBOB RELEASE 020304
AERMOD OUTPUT FILE NUMBER 1 :PMCTWR45.O01
AERMOD OUTPUT FILE NUMBER 2 :PMCTWR45.O02
AERMOD OUTPUT FILE NUMBER 3 :PMCTWR45.O03
AERMOD OUTPUT FILE NUMBER 4 :PMCTWR45.O04
AERMOD OUTPUT FILE NUMBER 5 :PMCTWR45.O05
First title for last output file is: 2001 PGN CR COOLING TOWER PM 8/20/06
Second title for last output file is: TAMPA/RUSKIN METDATA 2001-2005

AVERAGING TIME	YEAR	CONC (ug/m3)	X (m)	Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	2001	0.00725	332996.	3205685.	01123124
	2002	0.00926	333045.	3205684.	02123124
	2003	0.00741	333300.	3206200.	03123124
	2004	0.00788	332996.	3205685.	04123124
	2005	0.00705	336100.	3205000.	05123124
HIGH 24-Hour					
	2001	0.10927	335900.	3204900.	01061624
	2002	0.11683	333300.	3205800.	02060524
	2003	0.11111	333093.	3205684.	03083124
	2004	0.10629	333100.	3205700.	04051324
	2005	0.12195	333800.	3206300.	05071624

All receptor computations reported with respect to a user-specified origin
GRID 0.00 0.00
DISCRETE 0.00 0.00

```
2001 PGN CRYSTAL RIVER 4 AND 5 ONLY - NEW STACK 550 FT          7/05/06
CHASSAHOWITZKA & ST. MARKS NWA, 4-km FLORIDA DOMAIN
SO2 0.27 LB/MMBTU
---------------- Run title (3 lines) ------------------------------------------

               CALPUFF MODEL CONTROL FILE
               --------------------------

-------------------------------------------------------------------------------

INPUT GROUP: 0 -- Input and Output File Names

--------------
Default Name  Type          File Name
------------  ----          ---------
CALMET.DAT     input    * METDAT =          *
   or
ISCMET.DAT     input    * ISCDAT =          *
   or
PLMMET.DAT     input    * PLMDAT =          *
   or
PROFILE.DAT    input    * PRFDAT =          *
SURFACE.DAT    input    * SFCDAT =          *
RESTARTB.DAT   input    * RSTARTB=          *
-------------------------------------------------------------------------------
CALPUFF.LST    output   ! PUFLST = PUFCR550.LST !
CONC.DAT       output   ! CONDAT = PUFCR550.CON !
DFLX.DAT       output   * DFDAT  =          *
WFLX.DAT       output   * WFDAT  =          *

VISB.DAT       output   * VISDAT =          *
TK2D.DAT       output   * T2DDAT =          *
RHO2D.DAT      output   * RHODAT =          *
RESTARTE.DAT   output   * RSTARTE=          *
-------------------------------------------------------------------------------
Emission Files
--------------
PTEMARB.DAT    input    * PTDAT  =          *
VOLEMARB.DAT   input    * VOLDAT =          *
BAEMARB.DAT    input    * ARDAT  =          *
LNEMARB.DAT    input    * LNDAT  =          *
-------------------------------------------------------------------------------
Other Files
-----------
OZONE.DAT      input    * OZDAT  =          *
VD.DAT         input    * VDDAT  =          *
CHEM.DAT       input    * CHEMDAT=          *
H2O2.DAT       input    * H2O2DAT=          *
HILL.DAT       input    * HILDAT=           *
HILLRCT.DAT    input    * RCTDAT=           *
COASTLN.DAT    input    * CSTDAT=           *
FLUXBDY.DAT    input    * BDYDAT=           *
BCON.DAT       input    * BCNDAT=           *
DEBUG.DAT      output   * DEBUG =           *
MASSFLX.DAT    output   * FLXDAT=           *
MASSBAL.DAT    output   * BALDAT=           *
FOG.DAT        output   * FOGDAT=           *
-------------------------------------------------------------------------------
All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
         T = lower case      ! LCFILES = T !
         F = UPPER CASE
NOTE: (1) file/path names can be up to 70 characters in length


Provision for multiple input files
----------------------------------

     Number of CALMET.DAT files for run (NMETDAT)
                                 Default: 1       ! NMETDAT =  36  !

     Number of PTEMARB.DAT files for run (NPTDAT)
                                 Default: 0       ! NPTDAT =  0  !

     Number of BAEMARB.DAT files for run (NARDAT)
                                 Default: 0       ! NARDAT =  0  !

     Number of VOLEMARB.DAT files for run (NVOLDAT)
```

```
                    Default: 0      ! NVOLDAT =  0  !

!END!

-------------
Subgroup (0a)
-------------

 The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name  Type        File Name
------------  ----        ---------
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-01A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-01B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-01C.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-02A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-02B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-02C.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-03A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-03B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-03C.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-04A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-04B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-04C.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-05A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-05B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-05C.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-06A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-06B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-06C.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-07A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-07B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-07C.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-08A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-08B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-08C.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-09A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-09B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-09C.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-10A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-10B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-10C.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-11A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-11B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-11C.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-12A.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-12B.DAT ! !END!
CALMET.DAT   input   ! METDAT =E:\FLA4KM\2001\MET2001-DOM2-12C.DAT ! !END!


--------------------------------------------------------------------------------

INPUT GROUP: 1 -- General run control parameters
--------------

    Option to run all periods found
    in the met. file     (METRUN)   Default: 0       ! METRUN =   0  !

         METRUN = 0 - Run period explicitly defined below
         METRUN = 1 - Run all periods in met. file

     Starting date:    Year (IBYR) -- No default       ! IBYR =  2001 !
     (used only if    Month (IBMO) -- No default       ! IBMO =  1    !
      METRUN = 0)       Day (IBDY) -- No default       ! IBDY =  1    !
                       Hour (IBHR) -- No default       ! IBHR =  1    !

     Base time zone        (XBTZ) -- No default        ! XBTZ =  5.   !
        PST = 8., MST = 7.
        CST = 6., EST = 5.

     Length of run (hours) (IRLG) -- No default        ! IRLG = 8760 !

     Number of chemical species (NSPEC)
                            Default: 5      ! NSPEC = 7    !

     Number of chemical species
     to be emitted  (NSE)          Default: 3      ! NSE =  5    !
```

```
   Flag to stop run after
   SETUP phase (ITEST)          Default: 2     ! ITEST = 2  !
   (Used to allow checking
   of the model inputs, files, etc.)
      ITEST = 1 - STOPS program after SETUP phase
      ITEST = 2 - Continues with execution of program
            after SETUP

   Restart Configuration:

     Control flag (MRESTART)     Default: 0     ! MRESTART = 0  !

       0 = Do not read or write a restart file
       1 = Read a restart file at the beginning of
           the run
       2 = Write a restart file during run
       3 = Read a restart file at beginning of run
           and write a restart file during run

     Number of periods in Restart
     output cycle (NRESPD)      Default: 0      ! NRESPD = 0  !

       0 = File written only at last period
      >0 = File updated every NRESPD periods

   Meteorological Data Format (METFM)
                          Default: 1      ! METFM = 1  !

       METFM = 1 - CALMET binary file (CALMET.MET)
       METFM = 2 - ISC ASCII file (ISCMET.MET)
       METFM = 3 - AUSPLUME ASCII file (PLMMET.MET)
       METFM = 4 - CTDM plus tower file (PROFILE.DAT) and
              surface parameters file (SURFACE.DAT)

   PG sigma-y is adjusted by the factor (AVET/PGTIME)**0.2
   Averaging Time (minutes) (AVET)
                          Default: 60.0   ! AVET = 60.  !
   PG Averaging Time (minutes) (PGTIME)
                          Default: 60.0   ! PGTIME = 60. !

!END!


-------------------------------------------------------------------------------

INPUT GROUP: 2 -- Technical options
--------------


   Vertical distribution used in the
   near field (MGAUSS)            Default: 1     ! MGAUSS = 1  !
     0 = uniform
     1 = Gaussian

   Terrain adjustment method
   (MCTADJ)                    Default: 3     ! MCTADJ = 3  !
     0 = no adjustment
     1 = ISC-type of terrain adjustment
     2 = simple, CALPUFF-type of terrain
        adjustment
     3 = partial plume path adjustment

   Subgrid-scale complex terrain
   flag (MCTSG)                 Default: 0     ! MCTSG = 0  !
     0 = not modeled
     1 = modeled

   Near-field puffs modeled as
   elongated 0 (MSLUG)           Default: 0     ! MSLUG = 0  !
     0 = no
     1 = yes (slug model used)

   Transitional plume rise modeled ?
   (MTRANS)                    Default: 1     ! MTRANS = 1  !
     0 = no  (i.e., final rise only)
     1 = yes (i.e., transitional rise computed)
```

```
Stack tip downwash? (MTIP)          Default: 1     ! MTIP =  1  !
  0 = no  (i.e., no stack tip downwash)
  1 = yes (i.e., use stack tip downwash)

Vertical wind shear modeled above
stack top? (MSHEAR)             Default: 0     ! MSHEAR =  0  !
  0 = no  (i.e., vertical wind shear not modeled)
  1 = yes (i.e., vertical wind shear modeled)

Puff splitting allowed? (MSPLIT)     Default: 0     ! MSPLIT =  0  !
  0 = no (i.e., puffs not split)
  1 = yes (i.e., puffs are split)

Chemical mechanism flag (MCHEM)      Default: 1     ! MCHEM =  1  !
  0 = chemical transformation not
      modeled
  1 = transformation rates computed
      internally (MESOPUFF II scheme)
  2 = user-specified transformation
      rates used
  3 = transformation rates computed
      internally (RIVAD/ARM3 scheme)
  4 = secondary organic aerosol formation
      computed (MESOPUFF II scheme for OH)

Aqueous phase transformation flag (MAQCHEM)
(Used only if MCHEM = 1, or 3)      Default: 0     ! MAQCHEM =  0  !
  0 = aqueous phase transformation
      not modeled
  1 = transformation rates adjusted
      for aqueous phase reactions

Wet removal modeled ? (MWET)         Default: 1     ! MWET =  1  !
  0 = no
  1 = yes

Dry deposition modeled ? (MDRY)      Default: 1     ! MDRY =  1  !
  0 = no
  1 = yes
  (dry deposition method specified
   for each species in Input Group 3)

Method used to compute dispersion
coefficients (MDISP)              Default: 3     ! MDISP =  3  !

  1 = dispersion coefficients computed from measured values
      of turbulence, sigma v, sigma w
  2 = dispersion coefficients from internally calculated
      sigma v, sigma w using micrometeorological variables
      (u*, w*, L, etc.)
  3 = PG dispersion coefficients for RURAL areas (computed using
      the ISCST multi-segment approximation) and MP coefficients in
      urban areas
  4 = same as 3 except PG coefficients computed using
      the MESOPUFF II eqns.
  5 = CTDM sigmas used for stable and neutral conditions.
      For unstable conditions, sigmas are computed as in
      MDISP = 3, described above.  MDISP = 5 assumes that
      measured values are read

Sigma-v/sigma-theta, sigma-w measurements used? (MTURBVW)
(Used only if MDISP = 1 or 5)       Default: 3     ! MTURBVW =  3  !
  1 = use sigma-v or sigma-theta measurements
      from PROFILE.DAT to compute sigma-y
      (valid for METFM = 1, 2, 3, 4)
  2 = use sigma-w measurements
      from PROFILE.DAT to compute sigma-z
      (valid for METFM = 1, 2, 3, 4)
  3 = use both sigma-(v/theta) and sigma-w
      from PROFILE.DAT to compute sigma-y and sigma-z
      (valid for METFM = 1, 2, 3, 4)
  4 = use sigma-theta measurements
      from PLMMET.DAT to compute sigma-y
      (valid only if METFM = 3)

Back-up method used to compute dispersion
when measured turbulence data are
missing (MDISP2)                  Default: 3     ! MDISP2 =  3  !
```

```
(used only if MDISP = 1 or 5)
  2 = dispersion coefficients from internally calculated
      sigma v, sigma w using micrometeorological variables
      (u*, w*, L, etc.)
  3 = PG dispersion coefficients for RURAL areas (computed using
      the ISCST multi-segment approximation) and MP coefficients in
      urban areas
  4 = same as 3 except PG coefficients computed using
      the MESOPUFF II eqns.

PG sigma-y,z adj. for roughness?    Default: 0    ! MROUGH =  0  !
(MROUGH)
  0 = no
  1 = yes

Partial plume penetration of        Default: 1    ! MPARTL =  1  !
elevated inversion?
(MPARTL)
  0 = no
  1 = yes

Strength of temperature inversion   Default: 0    ! MTINV =  0  !
provided in PROFILE.DAT extended records?
(MTINV)
  0 = no (computed from measured/default gradients)
  1 = yes

PDF used for dispersion under convective conditions?
                              Default: 0    ! MPDF =  0  !
(MPDF)
  0 = no
  1 = yes

Sub-Grid TIBL module used for shore line?
                              Default: 0    ! MSGTIBL = 0  !
(MSGTIBL)
  0 = no
  1 = yes

Boundary conditions (concentration) modeled?
                              Default: 0    ! MBCON = 0  !
(MBCON)
  0 = no
  1 = yes

Analyses of fogging and icing impacts due to emissions from
arrays of mechanically-forced cooling towers can be performed
using CALPUFF in conjunction with a cooling tower emissions
processor (CTEMISS) and its associated postprocessors.  Hourly
emissions of water vapor and temperature from each cooling tower
cell are computed for the current cell configuration and ambient
conditions by CTEMISS. CALPUFF models the dispersion of these
emissions and provides cloud information in a specialized format
for further analysis. Output to FOG.DAT is provided in either
'plume mode' or 'receptor mode' format.

Configure for FOG Model output?
                              Default: 0    ! MFOG =  0  !
(MFOG)
  0 = no
  1 = yes  - report results in PLUME Mode format
  2 = yes  - report results in RECEPTOR Mode format


Test options specified to see if
they conform to regulatory
values? (MREG)                  Default: 1    ! MREG =  1  !

  0 = NO checks are made
  1 = Technical options must conform to USEPA
      Long Range Transport (LRT) guidance
           METFM    1 or 2
           AVET     60. (min)
           PGTIME   60. (min)
           MGAUSS   1
           MCTADJ   3
           MTRANS   1
           MTIP     1
```

```
            MCHEM   1 or 3 (if modeling SOx, NOx)
            MWET    1
            MDRY    1
            MDISP   2 or 3
            MPDF    0 if MDISP=3
                    1 if MDISP=2
            MROUGH  0
            MPARTL  1
            SYTDEP  550. (m)
            MHFTSZ  0

!END!

-------------------------------------------------------------------------------

INPUT GROUP: 3a, 3b -- Species list
-------------------

------------
Subgroup (3a)
------------

  The following species are modeled:

! CSPEC =        SO2 !      !END!
! CSPEC =        SO4 !      !END!
! CSPEC =        NOX !      !END!
! CSPEC =       HNO3 !      !END!
! CSPEC =        NO3 !      !END!
! CSPEC =       PM10 !      !END!
! CSPEC =         CO !      !END!

                                            Dry            OUTPUT GROUP
   SPECIES      MODELED        EMITTED     DEPOSITED              NUMBER
    NAME     (0=NO, 1=YES)  (0=NO, 1=YES)  (0=NO,             (0=NONE,
  (Limit: 12                               1=COMPUTED-GAS      1=1st CGRUP,
   Characters                              2=COMPUTED-PARTICLE 2=2nd CGRUP,
   in length)                              3=USER-SPECIFIED)   3= etc.)

!       SO2  =     1,          1,        1,            0  !
!       SO4  =     1,          1,        2,            0  !
!       NOX  =     1,          1,        1,            0  !
!      HNO3  =     1,          0,        1,            0  !
!       NO3  =     1,          0,        2,            0  !
!      PM10  =     1,          1,        2,            0  !
!        CO  =     1,          1,        0,            0  !

!END!

-------------
Subgroup (3b)
-------------
  The following names are used for Species-Groups in which results
  for certain species are combined (added) prior to output.  The
  CGRUP name will be used as the species name in output files.
  Use this feature to model specific particle-size distributions
  by treating each size-range as a separate species.
  Order must be consistent with 3(a) above.


INPUT GROUP: 4 -- Map Projection and Grid control parameters
--------------

     Projection for all (X,Y):
     -------------------------

     Map projection
     (PMAP)              Default: UTM    ! PMAP = LCC  !

         UTM :  Universal Transverse Mercator
         TTM :  Tangential Transverse Mercator
         LCC :  Lambert Conformal Conic
          PS :  Polar Stereographic
          EM :  Equatorial Mercator
        LAZA :  Lambert Azimuthal Equal Area
```

```
False Easting and Northing (km) at the projection origin
(Used only if PMAP= TTM, LCC, or LAZA)
(FEAST)              Default=0.0    ! FEAST  = 0.000  !
(FNORTH)             Default=0.0    ! FNORTH = 0.000  !

UTM zone (1 to 60)
(Used only if PMAP=UTM)
(IUTMZN)             No Default     ! IUTMZN =  0 !

Hemisphere for UTM projection?
(Used only if PMAP=UTM)
(UTMHEM)             Default: N     ! UTMHEM = N  !
   N  : Northern hemisphere projection
   S  : Southern hemisphere projection

Latitude and Longitude (decimal degrees) of projection origin
(Used only if PMAP= TTM, LCC, PS, EM, or LAZA)
(RLAT0)              No Default     ! RLAT0 =  40N !
(RLON0)              No Default     ! RLON0 =  97W !

   TTM :  RLON0 identifies central (true N/S) meridian of projection
          RLAT0 selected for convenience
   LCC :  RLON0 identifies central (true N/S) meridian of projection
          RLAT0 selected for convenience
   PS  :  RLON0 identifies central (grid N/S) meridian of projection
          RLAT0 selected for convenience
   EM  :  RLON0 identifies central meridian of projection
          RLAT0 is REPLACED by 0.0N (Equator)
   LAZA:  RLON0 identifies longitude of tangent-point of mapping plane
          RLAT0 identifies latitude of tangent-point of mapping plane

Matching parallel(s) of latitude (decimal degrees) for projection
(Used only if PMAP= LCC or PS)
(XLAT1)              No Default     ! XLAT1 = 33N  !
(XLAT2)              No Default     ! XLAT2 = 45N  !

   LCC :  Projection cone slices through Earth's surface at XLAT1 and XLAT2
   PS  :  Projection plane slices through Earth at XLAT1
          (XLAT2 is not used)

----------
Note:  Latitudes and longitudes should be positive, and include a
       letter N,S,E, or W indicating north or south latitude, and
       east or west longitude.  For example,
       35.9  N Latitude  =  35.9N
       118.7 E Longitude = 118.7E


Datum-region
------------

The Datum-Region for the coordinates is identified by a character
string.  Many mapping products currently available use the model of the
Earth known as the World Geodetic System 1984 (WGS-84).  Other local
models may be in use, and their selection in CALMET will make its output
consistent with local mapping products.  The list of Datum-Regions with
official transformation parameters is provided by the National Imagery and
Mapping Agency (NIMA).

NIMA Datum - Regions(Examples)
------------------------------------------------------------------------------
WGS-84    WGS-84 Reference Ellipsoid and Geoid, Global coverage (WGS84)
NAS-C     NORTH AMERICAN 1927 Clarke 1866 Spheroid, MEAN FOR CONUS (NAD27)
NAR-C     NORTH AMERICAN 1983 GRS 80 Spheroid, MEAN FOR CONUS (NAD83)
NWS-84    NWS 6370KM Radius, Sphere
ESR-S     ESRI REFERENCE 6371KM Radius, Sphere

Datum-region for output coordinates
(DATUM)              Default: WGS-G    ! DATUM = NWS-84 !


METEOROLOGICAL Grid:

Rectangular grid defined for projection PMAP,
with X the Easting and Y the Northing coordinate

     No. X grid cells (NX)     No default    ! NX = 263   !
     No. Y grid cells (NY)     No default    ! NY = 206   !
```

```
     No. vertical layers (NZ)     No default     ! NZ =  10   !

      Grid spacing (DGRIDKM)      No default     ! DGRIDKM = 4. !
                          Units: km

         Cell face heights
           (ZFACE(nz+1))      No defaults
                          Units: m
    ! ZFACE = 0.,20.,40.,80.,160.,320.,640.,1200.,2000.,3000.,4000. !

       Reference Coordinates
      of SOUTHWEST corner of
          grid cell(1, 1):

       X coordinate (XORIGKM)     No default     ! XORIGKM =  721.995 !
       Y coordinate (YORIGKM)     No default     ! YORIGKM = -1598.000 !
                          Units: km

COMPUTATIONAL Grid:

   The computational grid is identical to or a subset of the MET. grid.
   The lower left (LL) corner of the computational grid is at grid point
   (IBCOMP, JBCOMP) of the MET. grid.  The upper right (UR) corner of the
   computational grid is at grid point (IECOMP, JECOMP) of the MET. grid.
   The grid spacing of the computational grid is the same as the MET. grid.

     X index of LL corner (IBCOMP)      No default      ! IBCOMP =  1   !
           (1 <= IBCOMP <= NX)

     Y index of LL corner (JBCOMP)      No default      ! JBCOMP =  1   !
           (1 <= JBCOMP <= NY)


     X index of UR corner (IECOMP)      No default      ! IECOMP = 263 !
           (1 <= IECOMP <= NX)

     Y index of UR corner (JECOMP)      No default      ! JECOMP = 206 !
           (1 <= JECOMP <= NY)


SAMPLING Grid (GRIDDED RECEPTORS):

   The lower left (LL) corner of the sampling grid is at grid point
   (IBSAMP, JBSAMP) of the MET. grid.  The upper right (UR) corner of the
   sampling grid is at grid point (IESAMP, JESAMP) of the MET. grid.
   The sampling grid must be identical to or a subset of the computational
   grid.  It may be a nested grid inside the computational grid.
   The grid spacing of the sampling grid is DGRIDKM/MESHDN.

     Logical flag indicating if gridded
     receptors are used (LSAMP)         Default: T      ! LSAMP = F !
     (T=yes, F=no)

     X index of LL corner (IBSAMP)      No default      ! IBSAMP =  1   !
      (IBCOMP <= IBSAMP <= IECOMP)

     Y index of LL corner (JBSAMP)      No default      ! JBSAMP =  1   !
      (JBCOMP <= JBSAMP <= JECOMP)


     X index of UR corner (IESAMP)      No default      ! IESAMP =  263 !
      (IBCOMP <= IESAMP <= IECOMP)

     Y index of UR corner (JESAMP)      No default      ! JESAMP =  206  !
      (JBCOMP <= JESAMP <= JECOMP)


     Nesting factor of the sampling
      grid (MESHDN)                Default: 1      ! MESHDN =  1  !
      (MESHDN is an integer >= 1)

 !END!


--------------------------------------------------------------------------------
```

INPUT GROUP: 5 -- Output Options

FILE	DEFAULT VALUE *	VALUE THIS RUN *
Concentrations (ICON)	1	! ICON = 1 !
Dry Fluxes (IDRY)	1	! IDRY = 0 !
Wet Fluxes (IWET)	1	! IWET = 0 !
Relative Humidity (IVIS) (relative humidity file is required for visibility analysis)	1	! IVIS = 0 !
Use data compression option in output file? (LCOMPRS)	Default: T	! LCOMPRS = T !

*
0 = Do not create file, 1 = create file

DIAGNOSTIC MASS FLUX OUTPUT OPTIONS:

Mass flux across specified boundaries
for selected species reported hourly?
(IMFLX) Default: 0 ! IMFLX = 0 !
0 = no
1 = yes (FLUXBDY.DAT and MASSFLX.DAT filenames
are specified in Input Group 0)

Mass balance for each species
reported hourly?
(IMBAL) Default: 0 ! IMBAL = 0 !
0 = no
1 = yes (MASSBAL.DAT filename is
specified in Input Group 0)

LINE PRINTER OUTPUT OPTIONS:

Print concentrations (ICPRT) Default: 0 ! ICPRT = 0 !
Print dry fluxes (IDPRT) Default: 0 ! IDPRT = 0 !
Print wet fluxes (IWPRT) Default: 0 ! IWPRT = 0 !
(0 = Do not print, 1 = Print)

Concentration print interval
(ICFRQ) in hours Default: 1 ! ICFRQ = 24 !
Dry flux print interval
(IDFRQ) in hours Default: 1 ! IDFRQ = 1 !
Wet flux print interval
(IWFRQ) in hours Default: 1 ! IWFRQ = 1 !

Units for Line Printer Output
(IPRTU) Default: 1 ! IPRTU = 3 !

	for Concentration	for Deposition
1 =	g/m**3	g/m**2/s
2 =	mg/m**3	mg/m**2/s
3 =	ug/m**3	ug/m**2/s
4 =	ng/m**3	ng/m**2/s
5 =	Odour Units	

Messages tracking progress of run
written to the screen ?
(IMESG) Default: 2 ! IMESG = 2 !
0 = no
1 = yes (advection step, puff ID)
2 = yes (YYYYJJJHH, # old puffs, # emitted puffs)

SPECIES (or GROUP for combined species) LIST FOR OUTPUT OPTIONS

	SPECIES /GROUP	CONCENTRATIONS PRINTED?	CONCENTRATIONS SAVED ON DISK?	DRY FLUXES PRINTED?	DRY FLUXES SAVED ON DISK?	WET FLUXES PRINTED?	WET FLUXES SAVED ON DISK?	MASS FLUX SAVED ON DISK?	
!	SO2 =	0,	1,	0,	0,	0,	0,	0	!
!	SO4 =	0,	1,	0,	0,	0,	0,	0	!

```
!      NOX =   0,      1,      0,      0,      0,      0,      0 !
!     HNO3 =   0,      1,      0,      0,      0,      0,      0 !
!      NO3 =   0,      1,      0,      0,      0,      0,      0 !
!     PM10 =   0,      1,      0,      0,      0,      0,      0 !
!       CO =   0,      1,      0,      0,      0,      0,      0 !

   OPTIONS FOR PRINTING "DEBUG" QUANTITIES (much output)

     Logical for debug output
     (LDEBUG)                      Default: F    ! LDEBUG = F !

     First puff to track
     (IPFDEB)                      Default: 1    ! IPFDEB =  1  !

     Number of puffs to track
     (NPFDEB)                      Default: 1    ! NPFDEB =  1  !

     Met. period to start output
     (NN1)                         Default: 1    ! NN1 =  1   !

     Met. period to end output
     (NN2)                         Default: 10   ! NN2 =  10  !

!END!

-------------------------------------------------------------------------------

INPUT GROUP: 6a, 6b, & 6c -- Subgrid scale complex terrain inputs
-------------------------

---------------
Subgroup (6a)
---------------
      Number of terrain features (NHILL)       Default: 0     ! NHILL =  0   !

      Number of special complex terrain
      receptors  (NCTREC)                 Default: 0     ! NCTREC =  0   !

      Terrain and CTSG Receptor data for
      CTSG hills input in CTDM format ?
      (MHILL)                         No Default     ! MHILL =  2   !
      1 = Hill and Receptor data created
         by CTDM processors & read from
         HILL.DAT and HILLRCT.DAT files
      2 = Hill data created by OPTHILL &
         input below in Subgroup (6b);
         Receptor data in Subgroup (6c)

      Factor to convert horizontal dimensions  Default: 1.0   ! XHILL2M = 1. !
      to meters (MHILL=1)

      Factor to convert vertical dimensions    Default: 1.0   ! ZHILL2M = 1. !
      to meters (MHILL=1)

      X-origin of CTDM system relative to      No Default     ! XCTDMKM = 0.0E00 !
      CALPUFF coordinate system, in Kilometers (MHILL=1)

      Y-origin of CTDM system relative to      No Default     ! YCTDMKM = 0.0E00 !
      CALPUFF coordinate system, in Kilometers (MHILL=1)

! END !

---------------
Subgroup (6b)
---------------

                1 **
     HILL information


HILL     XC      YC     THETAH  ZGRID  RELIEF    EXPO 1   EXPO 2  SCALE 1   SCALE 2   AMAX1     AMAX2
 NO.    (km)    (km)    (deg.)   (m)     (m)      (m)      (m)      (m)       (m)       (m)
----    ----    ----    ------  -----  ------    ------   ------  -------   -------    -----     -----

---------------
Subgroup (6c)
```

```
---------------

COMPLEX TERRAIN RECEPTOR INFORMATION

              XRCT       YRCT       ZRCT        XHH
              (km)       (km)       (m)
              ------     -----     ------       ----


-------------------
1
   Description of Complex Terrain Variables:
      XC, YC  = Coordinates of center of hill
      THETAH  = Orientation of major axis of hill (clockwise from
            North)
      ZGRID   = Height of the  0  of the grid above mean sea
            level
      RELIEF  = Height of the crest of the hill above the grid elevation
      EXPO 1  = Hill-shape exponent for the major axis
      EXPO 2  = Hill-shape exponent for the major axis
      SCALE 1 = Horizontal length scale along the major axis
      SCALE 2 = Horizontal length scale along the minor axis
      AMAX    = Maximum allowed axis length for the major axis
      BMAX    = Maximum allowed axis length for the major axis

      XRCT, YRCT = Coordinates of the complex terrain receptors
      ZRCT    = Height of the ground (MSL) at the complex terrain
            Receptor
      XHH     = Hill number associated with each complex terrain receptor
            (NOTE: MUST BE ENTERED AS A REAL NUMBER)

  **
   NOTE: DATA for each hill and CTSG receptor are treated as a separate
        input subgroup and therefore must end with an input group terminator.

-------------------------------------------------------------------------------


INPUT GROUP: 7 -- Chemical parameters for dry deposition of gases
--------------

    SPECIES   DIFFUSIVITY    ALPHA STAR    REACTIVITY   MESOPHYLL RESISTANCE    HENRY'S LAW COEFFICIENT
     NAME      (cm**2/s)                                  (s/cm)              (dimensionless)
    -------   -----------    ----------    ----------   --------------------   ----------------------

!      SO2 =    0.1509,        1000,          8,            0,              0.04 !
!      NOX =    0.1656,          1,           8,            5,               3.5 !
!     HNO3 =    0.1628,          1,          18,            0,         0.00000008 !

!END!


-------------------------------------------------------------------------------


INPUT GROUP: 8 -- Size parameters for dry deposition of particles
--------------

   For SINGLE SPECIES, the mean and standard deviation are used to
   compute a deposition velocity for NINT (see group 9) size-ranges,
   and these are then averaged to obtain a mean deposition velocity.

   For GROUPED SPECIES, the size distribution should be explicitly
   specified (by the 'species' in the group), and the standard deviation
   for each should be entered as 0.  The model will then use the
   deposition velocity for the stated mean diameter.

    SPECIES    GEOMETRIC MASS MEAN       GEOMETRIC STANDARD
     NAME            DIAMETER                  DEVIATION
                    (microns)                  (microns)
    -------    ------------------       ------------------
!      SO4 =         0.48,                      2.  !
!      NO3 =         0.48,                      2.  !
!     PM10 =         0.48,                      2.  !

!END!
```

INPUT GROUP: 9 -- Miscellaneous dry deposition parameters

```
   Reference cuticle resistance (s/cm)
   (RCUTR)                    Default: 30   ! RCUTR = 30.0 !
   Reference ground resistance  (s/cm)
   (RGR)                      Default: 10   !  RGR = 10.0 !
   Reference pollutant reactivity
   (REACTR)                   Default: 8    ! REACTR = 8.0 !

   Number of particle-size intervals used to
   evaluate effective particle deposition velocity
   (NINT)                     Default: 9    !  NINT =  9  !

   Vegetation state in unirrigated areas
   (IVEG)                     Default: 1    !  IVEG =  1   !
     IVEG=1 for active and unstressed vegetation
     IVEG=2 for active and stressed vegetation
     IVEG=3 for inactive vegetation

!END!
```

INPUT GROUP: 10 -- Wet Deposition Parameters

```
              Scavenging Coefficient -- Units: (sec)**(-1)

     Pollutant    Liquid Precip.     Frozen Precip.
     ---------    --------------     --------------
!     SO2 =        3.0E-05,           0.0E00 !
!     SO4 =        1.0E-04,           3.0E-05 !
!    HNO3 =        6.0E-05,           0.0E00 !
!     NO3 =        1.0E-04,           3.0E-05 !
!    PM10 =        1.0E-04,           3.0E-05 !

!END!
```

INPUT GROUP: 11 -- Chemistry Parameters

```
   Ozone data input option (MOZ)    Default: 1          ! MOZ =  0   !
   (Used only if MCHEM = 1, 3, or 4)
     0 = use a monthly background ozone value
     1 = read hourly ozone concentrations from
         the OZONE.DAT data file

   Monthly ozone concentrations
   (Used only if MCHEM = 1, 3, or 4 and
    MOZ = 0 or MOZ = 1 and all hourly O3 data missing)
   (BCKO3) in ppb                 Default: 12*80.
   ! BCKO3 = 12*50. !

   Monthly ammonia concentrations
   (Used only if MCHEM = 1, or 3)
   (BCKNH3) in ppb                Default: 12*10.
   ! BCKNH3 = 12*0.5 !

   Nighttime SO2 loss rate (RNITE1)
   in percent/hour              Default: 0.2        ! RNITE1 = .2 !

   Nighttime NOx loss rate (RNITE2)
   in percent/hour              Default: 2.0        ! RNITE2 = 2.0 !

   Nighttime HNO3 formation rate (RNITE3)
   in percent/hour              Default: 2.0        ! RNITE3 = 2.0 !
```

```
H2O2 data input option (MH2O2)    Default: 1          ! MH2O2 =  1  !
(Used only if MAQCHEM = 1)
  0 = use a monthly background H2O2 value
  1 = read hourly H2O2 concentrations from
     the H2O2.DAT data file

Monthly H2O2 concentrations
(Used only if MQACHEM = 1 and
 MH2O2 = 0 or MH2O2 = 1 and all hourly H2O2 data missing)
(BCKH2O2) in ppb              Default: 12*1.
!  BCKH2O2 = 12*1 !


--- Data for SECONDARY ORGANIC AEROSOL (SOA) Option
   (used only if MCHEM = 4)

   The SOA module uses monthly values of:
      Fine particulate concentration in ug/m^3 (BCKPMF)
      Organic fraction of fine particulate     (OFRAC)
      VOC / NOX ratio (after reaction)         (VCNX)
   to characterize the air mass when computing
   the formation of SOA from VOC emissions.
   Typical values for several distinct air mass types are:

     Month    1    2    3    4    5    6    7    8    9   10   11   12
             Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec

   Clean Continental
     BCKPMF   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
     OFRAC  .15  .15  .20  .20  .20  .20  .20  .20  .20  .20  .20  .15
     VCNX   50.  50.  50.  50.  50.  50.  50.  50.  50.  50.  50.  50.

   Clean Marine (surface)
     BCKPMF  .5   .5   .5   .5   .5   .5   .5   .5   .5   .5   .5   .5
     OFRAC  .25  .25  .30  .30  .30  .30  .30  .30  .30  .30  .30  .25
     VCNX   50.  50.  50.  50.  50.  50.  50.  50.  50.  50.  50.  50.

   Urban - low biogenic (controls present)
     BCKPMF  30.  30.  30.  30.  30.  30.  30.  30.  30.  30.  30.  30.
     OFRAC  .20  .20  .25  .25  .25  .25  .25  .25  .20  .20  .20  .20
     VCNX     4.   4.   4.   4.   4.   4.   4.   4.   4.   4.   4.   4.

   Urban - high biogenic (controls present)
     BCKPMF  60.  60.  60.  60.  60.  60.  60.  60.  60.  60.  60.  60.
     OFRAC  .25  .25  .30  .30  .30  .55  .55  .55  .35  .35  .35  .25
     VCNX    15.  15.  15.  15.  15.  15.  15.  15.  15.  15.  15.  15.

   Regional Plume
     BCKPMF  20.  20.  20.  20.  20.  20.  20.  20.  20.  20.  20.  20.
     OFRAC  .20  .20  .25  .35  .25  .40  .40  .40  .30  .30  .30  .20
     VCNX    15.  15.  15.  15.  15.  15.  15.  15.  15.  15.  15.  15.

   Urban - no controls present
     BCKPMF 100. 100. 100. 100. 100. 100. 100. 100. 100. 100. 100. 100.
     OFRAC  .30  .30  .35  .35  .35  .55  .55  .55  .35  .35  .35  .30
     VCNX     2.   2.   2.   2.   2.   2.   2.   2.   2.   2.   2.   2.

   Default: Clean Continental
   !  BCKPMF = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00 !
   !  OFRAC  = 0.15, 0.15, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.15 !
   !  VCNX   = 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00 !


!END!


-------------------------------------------------------------------------------


INPUT GROUP: 12 -- Misc. Dispersion and Computational Parameters
---------------

   Horizontal size of puff (m) beyond which
   time-dependent dispersion equations (Heffter)
   are used to determine sigma-y and
   sigma-z (SYTDEP)                    Default: 550.   ! SYTDEP = 5.5E02 !

   Switch for using Heffter equation for sigma z
```

as above (0 = Not use Heffter; 1 = use Heffter
(MHFTSZ) Default: 0 ! MHFTSZ = 0 !

Stability class used to determine plume
growth rates for puffs above the boundary
layer (JSUP) Default: 5 ! JSUP = 5 !

Vertical dispersion constant for stable
conditions (k1 in Eqn. 2.7-3) (CONK1) Default: 0.01 ! CONK1 = .01 !

Vertical dispersion constant for neutral/
unstable conditions (k2 in Eqn. 2.7-4)
(CONK2) Default: 0.1 ! CONK2 = .1 !

Factor for determining Transition-point from
Schulman-Scire to Huber-Snyder Building Downwash
scheme (SS used for Hs < Hb + TBD * HL)
(TBD) Default: 0.5 ! TBD = .5 !
TBD < 0 ==> always use Huber-Snyder
TBD = 1.5 ==> always use Schulman-Scire
TBD = 0.5 ==> ISC Transition-point

Range of land use categories for which
urban dispersion is assumed
(IURB1, IURB2) Default: 10 ! IURB1 = 10 !
19 ! IURB2 = 19 !

Site characterization parameters for single-point Met data files ---------
(needed for METFM = 2,3,4)

Land use category for modeling domain
(ILANDUIN) Default: 20 ! ILANDUIN = 20 !

Roughness length (m) for modeling domain
(Z0IN) Default: 0.25 ! Z0IN = .25 !

Leaf area index for modeling domain
(XLAIIN) Default: 3.0 ! XLAIIN = 3.0 !

Elevation above sea level (m)
(ELEVIN) Default: 0.0 ! ELEVIN = .0 !

Latitude (degrees) for met location
(XLATIN) Default: -999. ! XLATIN = -999.0 !

Longitude (degrees) for met location
(XLONIN) Default: -999. ! XLONIN = -999.0 !

Specialized information for interpreting single-point Met data files -----

Anemometer height (m) (Used only if METFM = 2,3)
(ANEMHT) Default: 10. ! ANEMHT = 10.0 !

Form of lateral turbulance data in PROFILE.DAT file
(Used only if METFM = 4 or MTURBVW = 1 or 3)
(ISIGMAV) Default: 1 ! ISIGMAV = 1 !
0 = read sigma-theta
1 = read sigma-v

Choice of mixing heights (Used only if METFM = 4)
(IMIXCTDM) Default: 0 ! IMIXCTDM = 0 !
0 = read PREDICTED mixing heights
1 = read OBSERVED mixing heights

Maximum length of a slug (met. grid units)
(XMXLEN) Default: 1.0 ! XMXLEN = 1.0 !

Maximum travel distance of a puff/slug (in
grid units) during one sampling step
(XSAMLEN) Default: 1.0 ! XSAMLEN = 1.0 !

Maximum Number of slugs/puffs release from
one source during one time step
(MXNEW) Default: 99 ! MXNEW = 99 !

Maximum Number of sampling steps for
one puff/slug during one time step
(MXSAM) Default: 99 ! MXSAM = 99 !

```
Number of iterations used when computing
the transport wind for a sampling step
that includes gradual rise (for CALMET
and PROFILE winds)
(NCOUNT)                    Default: 2     ! NCOUNT =  2  !

Minimum sigma y for a new puff/slug (m)
(SYMIN)                     Default: 1.0   ! SYMIN = 1.0  !

Minimum sigma z for a new puff/slug (m)
(SZMIN)                     Default: 1.0   ! SZMIN = 1.0  !

Default minimum turbulence velocities sigma-v and sigma-w
for each stability class over land and over water (m/s)
(SVMIN(12) and SWMIN(12))

             ---------- LAND ----------      --------- WATER ----------
  Stab Class : A   B   C   D   E   F      A   B   C   D   E   F
              ---  ---  ---  ---  ---  ---     ---  ---  ---  ---  ---  ---
Default SVMIN : .50, .50, .50, .50, .50, .50,    .37, .37, .37, .37, .37, .37
Default SWMIN : .20, .12, .08, .06, .03, .016,    .20, .12, .08, .06, .03, .016

    ! SVMIN = 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.370, 0.370, 0.370, 0.370, 0.370, 0.370!
    ! SWMIN = 0.200, 0.120, 0.080, 0.060, 0.030, 0.016, 0.200, 0.120, 0.080, 0.060, 0.030, 0.016!

Divergence criterion for dw/dz across puff
used to initiate adjustment for horizontal
convergence (1/s)
Partial adjustment starts at CDIV(1), and
full adjustment is reached at CDIV(2)
(CDIV(2))                   Default: 0.0,0.0  ! CDIV = .0, .0 !

Minimum wind speed (m/s) allowed for
non-calm conditions. Also used as minimum
speed returned when using power-law
extrapolation toward surface
(WSCALM)                    Default: 0.5    ! WSCALM = .5 !

Maximum mixing height (m)
(XMAXZI)                    Default: 3000.  ! XMAXZI = 3000.0 !

Minimum mixing height (m)
(XMINZI)                    Default: 50.    ! XMINZI = 50.0 !

Default wind speed classes --
5 upper bounds (m/s) are entered;
the 6th class has no upper limit
(WSCAT(5))               Default   :
                    ISC RURAL : 1.54, 3.09, 5.14, 8.23, 10.8 (10.8+)

                 Wind Speed Class :  1    2    3    4    5
                                    ---  ---  ---  ---  ---
                    ! WSCAT = 1.54, 3.09, 5.14, 8.23, 10.80 !

Default wind speed profile power-law
exponents for stabilities 1-6
(PLX0(6))                Default   : ISC RURAL values
                    ISC RURAL : .07, .07, .10, .15, .35, .55
                    ISC URBAN : .15, .15, .20, .25, .30, .30

                 Stability Class :  A    B    C    D    E    F
                                   ---  ---  ---  ---  ---  ---
                    ! PLX0 = 0.07, 0.07, 0.10, 0.15, 0.35, 0.55 !

Default potential temperature gradient
for stable classes E, F (degK/m)
(PTG0(2))                Default: 0.020, 0.035
                    ! PTG0 = 0.020,  0.035 !

Default plume path coefficients for
each stability class (used when option
for partial plume height terrain adjustment
is selected -- MCTADJ=3)
(PPC(6))            Stability Class :  A    B    C    D    E    F
                  Default  PPC : .50,  .50,  .50,  .50,  .35,  .35
                                 ---  ---  ---  ---  ---  ---
                    !  PPC = 0.50, 0.50, 0.50, 0.50, 0.35, 0.35 !
```

```
Slug-to-puff transition criterion factor
equal to sigma-y/length of slug
(SL2PF)                    Default: 10.      ! SL2PF = 10.0 !

Puff-splitting control variables ------------------------

  VERTICAL SPLIT
  --------------

  Number of puffs that result every time a puff
  is split - nsplit=2 means that 1 puff splits
  into 2
  (NSPLIT)                 Default:  3       ! NSPLIT =  3  !

  Time(s) of a day when split puffs are eligible to
  be split once again; this is typically set once
  per day, around sunset before nocturnal shear develops.
  24 values: 0 is midnight (00:00) and 23 is 11 PM (23:00)
  0=do not re-split    1=eligible for re-split
  (IRESPLIT(24))           Default:  Hour 17 = 1
  !  IRESPLIT = 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,0 !

  Split is allowed only if last hour's mixing
  height (m) exceeds a minimum value
  (ZISPLIT)                Default: 100.     ! ZISPLIT = 100.0 !

  Split is allowed only if ratio of last hour's
  mixing ht to the maximum mixing ht experienced
  by the puff is less than a maximum value (this
  postpones a split until a nocturnal layer develops)
  (ROLDMAX)                Default: 0.25     ! ROLDMAX = 0.25 !


  HORIZONTAL SPLIT
  ----------------

  Number of puffs that result every time a puff
  is split - nsplith=5 means that 1 puff splits
  into 5
  (NSPLITH)                Default:  5       ! NSPLITH =  5  !

  Minimum sigma-y (Grid Cells Units) of puff
  before it may be split
  (SYSPLITH)               Default:  1.0     ! SYSPLITH = 1.0 !

  Minimum puff elongation rate (SYSPLITH/hr) due to
  wind shear, before it may be split
  (SHSPLITH)               Default:  2.      ! SHSPLITH = 2.0 !

  Minimum concentration (g/m^3) of each
  species in puff before it may be split
  Enter array of NSPEC values; if a single value is
  entered, it will be used for ALL species
  (CNSPLITH)               Default:  1.0E-07  ! CNSPLITH = 1.0E-07 !

Integration control variables ------------------------

  Fractional convergence criterion for numerical SLUG
  sampling integration
  (EPSSLUG)                Default:  1.0e-04  ! EPSSLUG = 1.0E-04 !

  Fractional convergence criterion for numerical AREA
  source integration
  (EPSAREA)                Default:  1.0e-06  ! EPSAREA = 1.0E-06 !

  Trajectory step-length (m) used for numerical rise
  integration
  (DSRISE)                 Default:  1.0     ! DSRISE = 1.0 !

!END!
INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters
--------------------------------

---------------
Subgroup (13a)
---------------
```

```
   Number of point sources with
   parameters provided below     (NPT1)  No default  !  NPT1 =  1 !

   Units used for point source
   emissions below             (IPTU)  Default: 1  !  IPTU =   1  !
      1 =      g/s
      2 =      kg/hr
      3 =      lb/hr
      4 =    tons/yr
      5 =    Odour Unit * m**3/s  (vol. flux of odour compound)
      6 =    Odour Unit * m**3/min
      7 =    metric tons/yr

   Number of source-species
   combinations with variable
   emissions scaling factors
   provided below in (13d)       (NSPT1) Default: 0  !  NSPT1 = 0  !

   Number of point sources with
   variable emission parameters
   provided in external file     (NPT2)  No default  !  NPT2 =  0  !

   (If NPT2 > 0, these point
   source emissions are read from
   the file: PTEMARB.DAT)

!END!

---------------
Subgroup (13b)
---------------
                          a
      POINT SOURCE: CONSTANT DATA
      -----------------------------
                                                      b        c
 Source     X UTM    Y UTM    Stack   Base    Stack   Exit  Exit   Bldg.  Emission
  No.   Coordinate Coordinate Height Elevation Diameter Vel.  Temp.  Dwash   Rates
          (km)      (km)      (m)      (m)      (m)  (m/s) (deg. K)
-----   ---------- ---------- ------  ------  -------- ----- -------- ----- --------
Subgroup (13b)

   SO2 0.27 LB/MMBTU X 7200 MMBTU/HR = 1944 LB/HR = 244.9 G/S

   174  ! SRCNAM = CRRIV45N  !
   174  ! X =   1398.848,  -1115.158,  167.70, 0.00, 9.30, 15.30, 328.0, 0.0, 489.90, 9.1, 907.2, 0.0, 0.0, 181.4, 272.2!
      !END!

  a
   Data for each source are treated as a separate input subgroup
   and therefore must end with an input group terminator.

   SRCNAM  is a 12-character name for a source
         (No default)
   X       is an array holding the source data listed by the column headings
         (No default)
   SIGYZI  is an array holding the initial sigma-y and sigma-z (m)
         (Default: 0.,0.)
   FMFAC   is a vertical momentum flux factor (0. or 1.0) used to represent
         the effect of rain-caps or other physical configurations that
         reduce momentum rise associated with the actual exit velocity.
         (Default: 1.0  -- full momentum used)

  b
   0. = No building downwash modeled, 1. = downwash modeled
   NOTE: must be entered as a REAL number (i.e., with decimal point)

  c
   An emission rate must be entered for every pollutant modeled.
   Enter emission rate of zero for secondary pollutants that are
   modeled, but not emitted.  Units are specified by IPTU
   (e.g. 1 for g/s).

---------------
ubgroup (13c)
---------------

       BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH
       -------------------------------------------------------
```

```
Source                                         a
 No.    Effective building width and height (in meters) every 10 degrees
------  --------------------------------------------------------------


---------------
Subgroup (13d)
---------------
                              a
      POINT SOURCE: VARIABLE EMISSIONS DATA
      -------------------------------------

   Use this subgroup to describe temporal variations in the emission
   rates given in 13b.  Factors entered multiply the rates in 13b.
   Skip sources here that have constant emissions.  For more elaborate
   variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

   IVARY determines the type of variation, and is source-specific:
   (IVARY)                       Default: 0
       0 =     Constant
       1 =     Diurnal cycle (24 scaling factors: hours 1-24)
       2 =     Monthly cycle (12 scaling factors: months 1-12)
       3 =     Hour & Season (4 groups of 24 hourly scaling factors,
                        where first group is DEC-JAN-FEB)
       4 =     Speed & Stab. (6 groups of 6 scaling factors, where
                        first group is Stability Class A,
                        and the speed classes have upper
                        bounds (m/s) defined in Group 12
       5 =     Temperature   (12 scaling factors, where temperature
                        classes have upper bounds (C) of:
                        0, 5, 10, 15, 20, 25, 30, 35, 40,
                        45, 50, 50+)


--------
   a
   Data for each species are treated as a separate input subgroup
   and therefore must end with an input group terminator.


-------------------------------------------------------------------------------


INPUT GROUPS: 14a, 14b, 14c, 14d -- Area source parameters
--------------------------------


---------------
Subgroup (14a)
---------------

    Number of polygon area sources with
    parameters specified below (NAR1)       No default  !  NAR1 =  0   !

    Units used for area source
    emissions below          (IARU)      Default: 1  !  IARU =   1  !
         1 =        g/m**2/s
         2 =       kg/m**2/hr
         3 =       lb/m**2/hr
         4 =     tons/m**2/yr
         5 =     Odour Unit * m/s  (vol. flux/m**2 of odour compound)
         6 =     Odour Unit * m/min
         7 =     metric tons/m**2/yr

    Number of source-species
    combinations with variable
    emissions scaling factors
    provided below in (14d)        (NSAR1) Default: 0  !  NSAR1 =  0  !

    Number of buoyant polygon area sources
    with variable location and emission
    parameters (NAR2)                   No default  !  NAR2 =  0   !
    (If NAR2 > 0, ALL parameter data for
    these sources are read from the file: BAEMARB.DAT)

 !END!

 ---------------
 Subgroup (14b)
 ---------------
```

```
                          a
        AREA SOURCE: CONSTANT DATA
        ----------------------------
                                                   b
Source        Effect.   Base      Initial   Emission
 No.          Height  Elevation  Sigma z     Rates
               (m)       (m)        (m)
-------       ------   ------   --------   ---------


--------
   a
    Data for each source are treated as a separate input subgroup
    and therefore must end with an input group terminator.
   b
    An emission rate must be entered for every pollutant modeled.
    Enter emission rate of zero for secondary pollutants that are
    modeled, but not emitted.  Units are specified by IARU
    (e.g. 1 for g/m**2/s).

---------------
Subgroup (14c)
---------------

        COORDINATES (UTM-km) FOR EACH VERTEX(4) OF EACH POLYGON
        --------------------------------------------------------
Source                                            a
 No.      Ordered list of X followed by list of Y, grouped by source
------    ------------------------------------------------------------


--------
   a
    Data for each source are treated as a separate input subgroup
    and therefore must end with an input group terminator.


---------------
Subgroup (14d)
---------------
                                a
        AREA SOURCE: VARIABLE EMISSIONS DATA
        --------------------------------------

    Use this subgroup to describe temporal variations in the emission
    rates given in 14b.  Factors entered multiply the rates in 14b.
    Skip sources here that have constant emissions.  For more elaborate
    variation in source parameters, use BAEMARB.DAT and NAR2 > 0.

    IVARY determines the type of variation, and is source-specific:
    (IVARY)                         Default: 0
         0 =       Constant
         1 =       Diurnal cycle (24 scaling factors: hours 1-24)
         2 =       Monthly cycle (12 scaling factors: months 1-12)
         3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                           where first group is DEC-JAN-FEB)
         4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                           first group is Stability Class A,
                           and the speed classes have upper
                           bounds (m/s) defined in Group 12
         5 =       Temperature  (12 scaling factors, where temperature
                           classes have upper bounds (C) of:
                           0, 5, 10, 15, 20, 25, 30, 35, 40,
                           45, 50, 50+)


--------
   a
    Data for each species are treated as a separate input subgroup
    and therefore must end with an input group terminator.

-------------------------------------------------------------------------------

INPUT GROUPS: 15a, 15b, 15c -- Line source parameters
---------------------------
```

```
---------------
Subgroup (15a)
---------------

    Number of buoyant line sources
    with variable location and emission
    parameters (NLN2)                    No default  !  NLN2 =  0   !

    (If NLN2 > 0, ALL parameter data for
     these sources are read from the file: LNEMARB.DAT)

    Number of buoyant line sources (NLINES)     No default   ! NLINES =  0  !

    Units used for line source
    emissions below             (ILNU)       Default: 1  !  ILNU =   1  !
         1 =        g/s
         2 =       kg/hr
         3 =       lb/hr
         4 =    tons/yr
         5 =    Odour Unit * m**3/s  (vol. flux of odour compound)
         6 =    Odour Unit * m**3/min
         7 =    metric tons/yr

    Number of source-species
    combinations with variable
    emissions scaling factors
    provided below in (15c)       (NSLN1) Default: 0  !  NSLN1 =  0  !

    Maximum number of segments used to model
    each line (MXNSEG)                      Default: 7   ! MXNSEG =  7  !

    The following variables are required only if NLINES > 0.  They are
    used in the buoyant line source plume rise calculations.

      Number of distances at which              Default: 6   ! NLRISE =  6  !
      transitional rise is computed

      Average building length (XL)           No default   ! XL = .0 !
                                        (in meters)

      Average building height (HBL)           No default   ! HBL = .0 !
                                        (in meters)

      Average building width (WBL)            No default   ! WBL = .0 !
                                        (in meters)

      Average line source width (WML)          No default   ! WML = .0 !
                                        (in meters)

      Average separation between buildings (DXL)  No default   ! DXL = .0 !
                                        (in meters)

      Average buoyancy parameter (FPRIMEL)        No default   ! FPRIMEL = .0 !
                                        (in m**4/s**3)

!END!

---------------
Subgroup (15b)
---------------

        BUOYANT LINE SOURCE: CONSTANT DATA
        ----------------------------------
                                                                  a
Source   Beg. X     Beg. Y     End. X    End. Y    Release   Base        Emission
 No.   Coordinate Coordinate Coordinate Coordinate Height   Elevation     Rates
        (km)       (km)       (km)       (km)       (m)      (m)
------  ---------- ---------- ---------  ---------- -------  ---------   ---------

--------

     a
      Data for each source are treated as a separate input subgroup
      and therefore must end with an input group terminator.

     b
      An emission rate must be entered for every pollutant modeled.
      Enter emission rate of zero for secondary pollutants that are
```

```
   modeled, but not emitted.  Units are specified by ILNTU
   (e.g. 1 for g/s).

---------------
Subgroup (15c)
---------------
                                     a
      BUOYANT LINE SOURCE: VARIABLE EMISSIONS DATA
      ----------------------------------------------

   Use this subgroup to describe temporal variations in the emission
   rates given in 15b.  Factors entered multiply the rates in 15b.
   Skip sources here that have constant emissions.

   IVARY determines the type of variation, and is source-specific:
   (IVARY)                    Default: 0
       0 =     Constant
       1 =     Diurnal cycle (24 scaling factors: hours 1-24)
       2 =     Monthly cycle (12 scaling factors: months 1-12)
       3 =     Hour & Season (4 groups of 24 hourly scaling factors,
                      where first group is DEC-JAN-FEB)
       4 =     Speed & Stab. (6 groups of 6 scaling factors, where
                      first group is Stability Class A,
                      and the speed classes have upper
                      bounds (m/s) defined in Group 12
       5 =     Temperature   (12 scaling factors, where temperature
                      classes have upper bounds (C) of:
                      0, 5, 10, 15, 20, 25, 30, 35, 40,
                      45, 50, 50+)



--------
  a
   Data for each species are treated as a separate input subgroup
   and therefore must end with an input group terminator.

-------------------------------------------------------------------------------


INPUT GROUPS: 16a, 16b, 16c -- Volume source parameters
---------------------------


---------------
Subgroup (16a)
---------------

   Number of volume sources with
   parameters provided in 16b,c (NVL1)     No default  !  NVL1 =  0   !

   Units used for volume source
   emissions below in 16b       (IVLU)     Default: 1  !  IVLU =   3  !
       1 =        g/s
       2 =       kg/hr
       3 =       lb/hr
       4 =    tons/yr
       5 =    Odour Unit * m**3/s  (vol. flux of odour compound)
       6 =    Odour Unit * m**3/min
       7 =    metric tons/yr

   Number of source-species
   combinations with variable
   emissions scaling factors
   provided below in (16c)      (NSVL1)    Default: 0  !  NSVL1 =  0  !

   Number of volume sources with
   variable location and emission
   parameters                   (NVL2)     No default  !  NVL2 =   0   !

   (If NVL2 > 0, ALL parameter data for
    these sources are read from the VOLEMARB.DAT file(s) )

ND!

---------------
Subgroup (16b)
---------------
```

```
                        a
     VOLUME SOURCE: CONSTANT DATA
     ------------------------------
                                                    b
   X UTM    Y UTM    Effect.  Base    Initial  Initial  Emission
 Coordinate Coordinate Height Elevation Sigma y  Sigma z   Rates
   (km)     (km)      (m)     (m)      (m)      (m)
 ---------- ---------- ------ ------ -------- -------- --------
                                              SO2   SO4   NOX  HNO3  NO3  PM10  CO

--------
  a
  Data for each source are treated as a separate input subgroup
  and therefore must end with an input group terminator.

  b
  An emission rate must be entered for every pollutant modeled.
  Enter emission rate of zero for secondary pollutants that are
  modeled, but not emitted.  Units are specified by IVLU
  (e.g. 1 for g/s).

---------------
Subgroup (16c)
---------------
                            a
     VOLUME SOURCE: VARIABLE EMISSIONS DATA
     ----------------------------------------

  Use this subgroup to describe temporal variations in the emission
  rates given in 16b.  Factors entered multiply the rates in 16b.
  Skip sources here that have constant emissions.  For more elaborate
  variation in source parameters, use VOLEMARB.DAT and NVL2 > 0.

  IVARY determines the type of variation, and is source-specific:
  (IVARY)                      Default: 0
      0 =     Constant
      1 =     Diurnal cycle (24 scaling factors: hours 1-24)
      2 =     Monthly cycle (12 scaling factors: months 1-12)
      3 =     Hour & Season (4 groups of 24 hourly scaling factors,
                    where first group is DEC-JAN-FEB)
      4 =     Speed & Stab. (6 groups of 6 scaling factors, where
                    first group is Stability Class A,
                    and the speed classes have upper
                    bounds (m/s) defined in Group 12
      5 =     Temperature  (12 scaling factors, where temperature
                    classes have upper bounds (C) of:
                    0, 5, 10, 15, 20, 25, 30, 35, 40,
                    45, 50, 50+)


--------
  a
  Data for each species are treated as a separate input subgroup
  and therefore must end with an input group terminator.


-------------------------------------------------------------------------------

INPUT GROUPS: 17a & 17b -- Non-gridded (discrete) receptor information
----------------------


---------------
Subgroup (17a)
---------------

    CHASSAHOWITZKA - 113 RECEPTORS    (#   1 - 113)
    ST. MARKS      - 101 RECEPTORS    (# 114 - 214)


    Number of non-gridded receptors (NREC)  No default  !  NREC = 214 !

!END!

---------------
Subgroup (17b)
---------------
                            a
```

```
      NON-GRIDDED (DISCRETE) RECEPTOR DATA
      ------------------------------------

            X UTM      Y UTM      Ground      Height  b
Receptor   Coordinate  Coordinate  Elevation  Above Ground
  No.        (km)       (km)        (m)         (m)
--------  ----------  ----------  ---------  ------------
RECEPTORS OBTAINED FROM THE NPS/FWS EXTRACTION PROGRAM
ALL RECEPTORS ARE IN 40-97 LCC

113 RECEPTORS INCLUDES ALL CHASSAHOWITZKA NWA RECEPTORS
   1 ! X =   1408.318, -1154.049,   0.000,   0.000!  !END!
   2 ! X =   1409.130, -1153.920,   1.000,   0.000!  !END!
   3 ! X =   1409.941, -1153.791,   1.000,   0.000!  !END!
   4 ! X =   1410.753, -1153.661,   3.000,   0.000!  !END!
   5 ! X =   1407.359, -1153.254,   0.000,   0.000!  !END!
   6 ! X =   1408.171, -1153.124,   0.000,   0.000!  !END!
   7 ! X =   1408.983, -1152.995,   1.000,   0.000!  !END!
   8 ! X =   1409.794, -1152.866,   1.000,   0.000!  !END!
   9 ! X =   1410.606, -1152.737,   2.000,   0.000!  !END!
  10 ! X =   1406.401, -1152.458,   0.000,   0.000!  !END!
  11 ! X =   1407.212, -1152.329,   0.000,   0.000!  !END!
  12 ! X =   1408.024, -1152.200,   0.000,   0.000!  !END!
  13 ! X =   1408.835, -1152.071,   1.000,   0.000!  !END!
  14 ! X =   1409.647, -1151.941,   1.000,   0.000!  !END!
  15 ! X =   1410.458, -1151.812,   2.000,   0.000!  !END!
  16 ! X =   1406.254, -1151.533,   0.000,   0.000!  !END!
  17 ! X =   1407.065, -1151.404,   0.000,   0.000!  !END!
  18 ! X =   1407.877, -1151.275,   1.000,   0.000!  !END!
  19 ! X =   1408.688, -1151.146,   1.000,   0.000!  !END!
  20 ! X =   1409.500, -1151.017,   1.000,   0.000!  !END!
  21 ! X =   1410.311, -1150.888,   2.000,   0.000!  !END!
  22 ! X =   1406.918, -1150.480,   0.000,   0.000!  !END!
  23 ! X =   1407.730, -1150.351,   1.000,   0.000!  !END!
  24 ! X =   1408.541, -1150.221,   1.000,   0.000!  !END!
  25 ! X =   1409.352, -1150.092,   1.000,   0.000!  !END!
  26 ! X =   1410.164, -1149.963,   2.000,   0.000!  !END!
  27 ! X =   1406.771, -1149.555,   0.000,   0.000!  !END!
  28 ! X =   1407.582, -1149.426,   0.000,   0.000!  !END!
  29 ! X =   1408.394, -1149.297,   1.000,   0.000!  !END!
  30 ! X =   1409.205, -1149.168,   1.000,   0.000!  !END!
  31 ! X =   1410.016, -1149.038,   3.000,   0.000!  !END!
  32 ! X =   1406.624, -1148.631,   0.000,   0.000!  !END!
  33 ! X =   1407.435, -1148.501,   1.000,   0.000!  !END!
  34 ! X =   1408.247, -1148.372,   1.000,   0.000!  !END!
  35 ! X =   1409.058, -1148.243,   1.000,   0.000!  !END!
  36 ! X =   1409.869, -1148.114,   2.000,   0.000!  !END!
  37 ! X =   1406.477, -1147.706,   0.000,   0.000!  !END!
  38 ! X =   1407.288, -1147.577,   0.000,   0.000!  !END!
  39 ! X =   1408.099, -1147.448,   0.000,   0.000!  !END!
  40 ! X =   1408.911, -1147.319,   1.000,   0.000!  !END!
  41 ! X =   1409.722, -1147.189,   1.000,   0.000!  !END!
  42 ! X =   1410.385, -1146.136,   2.000,   0.000!  !END!
  43 ! X =   1410.238, -1145.211,   1.000,   0.000!  !END!
  44 ! X =   1411.049, -1145.082,   2.000,   0.000!  !END!
  45 ! X =   1404.414, -1145.190,   0.000,   0.000!  !END!
  46 ! X =   1405.225, -1145.061,   0.000,   0.000!  !END!
  47 ! X =   1406.036, -1144.933,   0.000,   0.000!  !END!
  48 ! X =   1406.847, -1144.804,   0.000,   0.000!  !END!
  49 ! X =   1407.658, -1144.675,   0.000,   0.000!  !END!
  50 ! X =   1410.091, -1144.287,   1.000,   0.000!  !END!
  51 ! X =   1410.901, -1144.158,   1.000,   0.000!  !END!
  52 ! X =   1411.712, -1144.028,   1.000,   0.000!  !END!
  53 ! X =   1403.457, -1144.395,   0.000,   0.000!  !END!
  54 ! X =   1404.268, -1144.266,   0.000,   0.000!  !END!
  55 ! X =   1405.078, -1144.137,   0.000,   0.000!  !END!
  56 ! X =   1405.889, -1144.008,   0.000,   0.000!  !END!
  57 ! X =   1406.700, -1143.879,   0.000,   0.000!  !END!
  58 ! X =   1407.511, -1143.750,   0.000,   0.000!  !END!
  59 ! X =   1411.565, -1143.104,   1.000,   0.000!  !END!
  60 ! X =   1402.499, -1143.599,   0.000,   0.000!  !END!
  61 ! X =   1403.310, -1143.470,   0.000,   0.000!  !END!
  62 ! X =   1404.121, -1143.341,   0.000,   0.000!  !END!
  63 ! X =   1404.931, -1143.213,   1.000,   0.000!  !END!
  64 ! X =   1405.742, -1143.084,   1.000,   0.000!  !END!
  65 ! X =   1406.553, -1142.955,   1.000,   0.000!  !END!
  66 ! X =   1407.364, -1142.826,   0.000,   0.000!  !END!
  67 ! X =   1400.731, -1142.931,   0.000,   0.000!  !END!
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 68 ! X =  1401.542, -1142.803,   0.000,    0.000!  !END!
 69 ! X =  1402.353, -1142.674,   1.000,    0.000!  !END!
 70 ! X =  1403.163, -1142.546,   0.000,    0.000!  !END!
 71 ! X =  1403.974, -1142.417,   1.000,    0.000!  !END!
 72 ! X =  1404.785, -1142.288,   1.000,    0.000!  !END!
 73 ! X =  1405.595, -1142.159,   1.000,    0.000!  !END!
 74 ! X =  1406.406, -1142.030,   1.000,    0.000!  !END!
 75 ! X =  1407.217, -1141.901,   1.000,    0.000!  !END!
 76 ! X =  1402.206, -1141.750,   0.000,    0.000!  !END!
 77 ! X =  1403.017, -1141.621,   1.000,    0.000!  !END!
 78 ! X =  1403.827, -1141.493,   1.000,    0.000!  !END!
 79 ! X =  1404.638, -1141.364,   1.000,    0.000!  !END!
 80 ! X =  1405.448, -1141.235,   1.000,    0.000!  !END!
 81 ! X =  1406.259, -1141.106,   1.000,    0.000!  !END!
 82 ! X =  1407.069, -1140.977,   1.000,    0.000!  !END!
 83 ! X =  1402.870, -1140.697,   0.000,    0.000!  !END!
 84 ! X =  1403.680, -1140.568,   0.000,    0.000!  !END!
 85 ! X =  1404.491, -1140.439,   1.000,    0.000!  !END!
 86 ! X =  1405.301, -1140.311,   1.000,    0.000!  !END!
 87 ! X =  1406.112, -1140.182,   1.000,    0.000!  !END!
 88 ! X =  1406.922, -1140.053,   1.000,    0.000!  !END!
 89 ! X =  1407.733, -1139.924,   1.000,    0.000!  !END!
 90 ! X =  1402.723, -1139.772,   0.000,    0.000!  !END!
 91 ! X =  1403.534, -1139.644,   0.000,    0.000!  !END!
 92 ! X =  1404.344, -1139.515,   1.000,    0.000!  !END!
 93 ! X =  1405.154, -1139.386,   1.000,    0.000!  !END!
 94 ! X =  1405.965, -1139.257,   1.000,    0.000!  !END!
 95 ! X =  1406.775, -1139.128,   0.000,    0.000!  !END!
 96 ! X =  1402.576, -1138.848,   0.000,    0.000!  !END!
 97 ! X =  1403.387, -1138.719,   1.000,    0.000!  !END!
 98 ! X =  1404.197, -1138.591,   1.000,    0.000!  !END!
 99 ! X =  1405.007, -1138.462,   0.000,    0.000!  !END!
 100 ! X =  1405.818, -1138.333,   0.000,    0.000!  !END!
 101 ! X =  1406.628, -1138.204,   1.000,    0.000!  !END!
 102 ! X =  1402.430, -1137.924,   0.000,    0.000!  !END!
 103 ! X =  1403.240, -1137.795,   1.000,    0.000!  !END!
 104 ! X =  1404.050, -1137.666,   1.000,    0.000!  !END!
 105 ! X =  1404.860, -1137.538,   1.000,    0.000!  !END!
 106 ! X =  1405.671, -1137.409,   1.000,    0.000!  !END!
 107 ! X =  1406.481, -1137.280,   1.000,    0.000!  !END!
 108 ! X =  1402.283, -1136.999,   0.000,    0.000!  !END!
 109 ! X =  1403.093, -1136.871,   1.000,    0.000!  !END!
 110 ! X =  1403.903, -1136.742,   1.000,    0.000!  !END!
 111 ! X =  1404.713, -1136.613,   2.000,    0.000!  !END!
 112 ! X =  1405.524, -1136.485,   2.000,    0.000!  !END!
 113 ! X =  1406.334, -1136.356,   2.000,    0.000!  !END!

101 RECEPTORS INCLUDES ALL ST. MARKS NWA RECEPTORS
 114 ! X =  1212.440, -1028.300,   1.0,   0.000!  !END!
 115 ! X =  1214.040, -1028.077,   1.0,   0.000!  !END!
 116 ! X =  1212.312, -1027.376,   1.0,   0.000!  !END!
 117 ! X =  1213.112, -1027.265,   1.0,   0.000!  !END!
 118 ! X =  1212.183, -1026.452,   1.0,   0.000!  !END!
 119 ! X =  1212.983, -1026.341,   1.0,   0.000!  !END!
 120 ! X =  1210.455, -1025.751,   1.0,   0.000!  !END!
 121 ! X =  1211.255, -1025.640,   1.0,   0.000!  !END!
 122 ! X =  1212.055, -1025.529,   1.0,   0.000!  !END!
 123 ! X =  1212.855, -1025.417,   1.0,   0.000!  !END!
 124 ! X =  1211.127, -1024.716,   1.0,   0.000!  !END!
 125 ! X =  1237.268, -1013.511,   1.0,   0.000!  !END!
 126 ! X =  1238.067, -1013.398,   1.0,   0.000!  !END!
 127 ! X =  1238.866, -1013.284,   1.0,   0.000!  !END!
 128 ! X =  1239.665, -1013.171,   0.0,   0.000!  !END!
 129 ! X =  1256.438, -1010.767,   1.0,   0.000!  !END!
 130 ! X =  1237.137, -1012.588,   0.0,   0.000!  !END!
 131 ! X =  1237.936, -1012.475,   1.0,   0.000!  !END!
 132 ! X =  1239.533, -1012.248,   1.0,   0.000!  !END!
 133 ! X =  1240.332, -1012.134,   1.0,   0.000!  !END!
 134 ! X =  1256.305, -1009.845,   1.0,   0.000!  !END!
 135 ! X =  1237.805, -1011.552,   1.0,   0.000!  !END!
 136 ! X =  1240.201, -1011.211,   1.0,   0.000!  !END!
 137 ! X =  1240.999, -1011.097,   1.0,   0.000!  !END!
 138 ! X =  1241.798, -1010.983,   1.0,   0.000!  !END!
 139 ! X =  1243.395, -1010.755,   1.0,   0.000!  !END!
 140 ! X =  1244.194, -1010.641,   1.0,   0.000!  !END!
 141 ! X =  1245.791, -1010.413,   0.0,   0.000!  !END!
 142 ! X =  1246.589, -1010.299,   0.0,   0.000!  !END!
 143 ! X =  1254.575, -1009.152,   1.0,   0.000!  !END!
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144 ! X =  1256.171, -1008.922,  1.0,  0.000! !END!
145 ! X =  1235.277, -1010.969,  0.0,  0.000! !END!
146 ! X =  1236.076, -1010.855,  1.0,  0.000! !END!
147 ! X =  1236.875, -1010.742,  1.0,  0.000! !END!
148 ! X =  1237.673, -1010.629,  1.0,  0.000! !END!
149 ! X =  1238.472, -1010.515,  1.0,  0.000! !END!
150 ! X =  1240.069, -1010.288,  1.0,  0.000! !END!
151 ! X =  1240.868, -1010.174,  1.0,  0.000! !END!
152 ! X =  1241.666, -1010.060,  1.0,  0.000! !END!
153 ! X =  1242.465, -1009.946,  1.0,  0.000! !END!
154 ! X =  1243.263, -1009.832,  1.0,  0.000! !END!
155 ! X =  1244.860, -1009.604,  1.0,  0.000! !END!
156 ! X =  1245.659, -1009.490,  1.0,  0.000! !END!
157 ! X =  1246.457, -1009.376,  1.0,  0.000! !END!
158 ! X =  1247.256, -1009.261,  1.0,  0.000! !END!
159 ! X =  1248.054, -1009.147,  1.0,  0.000! !END!
160 ! X =  1248.853, -1009.032,  0.0,  0.000! !END!
161 ! X =  1249.651, -1008.918,  0.0,  0.000! !END!
162 ! X =  1250.450, -1008.803,  0.0,  0.000! !END!
163 ! X =  1251.248, -1008.689,  0.0,  0.000! !END!
164 ! X =  1252.046, -1008.574,  0.0,  0.000! !END!
165 ! X =  1252.845, -1008.459,  1.0,  0.000! !END!
166 ! X =  1253.643, -1008.344,  1.0,  0.000! !END!
167 ! X =  1254.442, -1008.229,  1.0,  0.000! !END!
168 ! X =  1255.240, -1008.114,  1.0,  0.000! !END!
169 ! X =  1235.147, -1010.046,  1.0,  0.000! !END!
170 ! X =  1235.945, -1009.932,  1.0,  0.000! !END!
171 ! X =  1236.744, -1009.819,  1.0,  0.000! !END!
172 ! X =  1237.542, -1009.705,  1.0,  0.000! !END!
173 ! X =  1238.341, -1009.592,  1.0,  0.000! !END!
174 ! X =  1240.736, -1009.251,  1.0,  0.000! !END!
175 ! X =  1241.535, -1009.137,  2.0,  0.000! !END!
176 ! X =  1247.922, -1008.224,  2.0,  0.000! !END!
177 ! X =  1248.720, -1008.110,  1.0,  0.000! !END!
178 ! X =  1249.519, -1007.995,  1.0,  0.000! !END!
179 ! X =  1250.317, -1007.880,  1.0,  0.000! !END!
180 ! X =  1251.115, -1007.766,  1.0,  0.000! !END!
181 ! X =  1251.914, -1007.651,  1.0,  0.000! !END!
182 ! X =  1252.712, -1007.536,  1.0,  0.000! !END!
183 ! X =  1253.510, -1007.421,  1.0,  0.000! !END!
184 ! X =  1254.309, -1007.306,  1.0,  0.000! !END!
185 ! X =  1255.107, -1007.191,  1.0,  0.000! !END!
186 ! X =  1235.016, -1009.122,  1.0,  0.000! !END!
187 ! X =  1235.814, -1009.009,  2.0,  0.000! !END!
188 ! X =  1236.613, -1008.896,  3.0,  0.000! !END!
189 ! X =  1237.411, -1008.782,  2.0,  0.000! !END!
190 ! X =  1238.209, -1008.669,  1.0,  0.000! !END!
191 ! X =  1239.008, -1008.555,  1.0,  0.000! !END!
192 ! X =  1251.781, -1006.728,  2.0,  0.000! !END!
193 ! X =  1252.579, -1006.613,  3.0,  0.000! !END!
194 ! X =  1253.377, -1006.498,  3.0,  0.000! !END!
195 ! X =  1254.176, -1006.383,  2.0,  0.000! !END!
196 ! X =  1254.974, -1006.268,  2.0,  0.000! !END!
197 ! X =  1255.772, -1006.153,  3.0,  0.000! !END!
198 ! X =  1234.086, -1008.313,  1.0,  0.000! !END!
199 ! X =  1234.885, -1008.199,  1.0,  0.000! !END!
200 ! X =  1235.683, -1008.086,  2.0,  0.000! !END!
201 ! X =  1236.481, -1007.973,  2.0,  0.000! !END!
202 ! X =  1252.446, -1005.690,  3.0,  0.000! !END!
203 ! X =  1253.245, -1005.575,  2.0,  0.000! !END!
204 ! X =  1254.043, -1005.461,  3.0,  0.000! !END!
205 ! X =  1254.841, -1005.346,  3.0,  0.000! !END!
206 ! X =  1255.639, -1005.230,  3.0,  0.000! !END!
207 ! X =  1233.955, -1007.389,  1.0,  0.000! !END!
208 ! X =  1234.754, -1007.276,  1.0,  0.000! !END!
209 ! X =  1253.910, -1004.538,  3.0,  0.000! !END!
210 ! X =  1254.708, -1004.423,  3.0,  0.000! !END!
211 ! X =  1255.506, -1004.308,  3.0,  0.000! !END!
212 ! X =  1233.825, -1006.466,  1.0,  0.000! !END!
213 ! X =  1234.623, -1006.353,  1.0,  0.000! !END!
214 ! X =  1234.492, -1005.430,  1.0,  0.000! !END!
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a
Data for each receptor are treated as a separate input subgroup
and therefore must end with an input group terminator.

b
Receptor height above ground is optional. If no value is entered,