



REPORT

# AIR CONSTRUCTION PERMIT APPLICATION

**Orlando Utilities Commission  
Stanton Energy Center**

**Submitted To:** Florida Department of Environmental Protection  
Division of Air Resource Management  
Office of Permitting and Compliance  
2600 Blair Stone Rd., MS No. 5505  
Tallahassee, FL 32399-2400

**Submitted By:** Golder Associates Inc.  
5100 W. Lemon Street, Suite 208  
Tampa, FL 33609 USA

**Distribution:** Florida Department of Environmental Protection  
Orlando Utilities Commission  
Golder Associates Inc.

**October 2014**

**Project No. 14-07700**

**A world of  
capabilities  
delivered locally**





# Table of Contents

## PART I—FDEP APPLICATION REPORT

- 1.0 INTRODUCTION..... 2
- 2.0 PROJECT DESCRIPTION..... 4
  - 2.1 Installation of FLGR System ..... 4
  - 2.2 Installation of ACI System and Chemical Additives ..... 4
  - 2.3 Proposed Unit 2 FGD Scrubber Upgrades ..... 5
- 3.0 REGULATORY APPLICABILITY ..... 8
  - 3.1 Prevention of Significant Deterioration (PSD) Applicability..... 8
    - 3.1.1 Emissions Analysis ..... 9
      - 3.1.1.1 Proposed Projects’ Effects on Emissions Change from the Boilers ..... 9
      - 3.1.1.2 Proposed Projects’ Effects on Emissions Change from Material Handling Systems ..... 10
    - 3.1.2 Project Emissions Increase and PSD Applicability ..... 11
    - 3.1.3 Record Keeping and Reporting Requirements ..... 11
  - 3.2 NSPS Subpart A -- General Provisions ..... 11
  - 3.3 NSPS Subpart Da -- Standards of Performance for EUSGUs..... 12
  - 3.4 NESHAP, Subpart UUUUU -- Coal- and Oil-Fired EUSGUs ..... 12

## List of Figures

- Figure 2-1 Proposed FLGR System
- Figure 2-2 Proposed ACI System

## List of Tables

- Table 3-1 SEC Units 1 and 2 Annual Heat Inputs (2009- 2013)
- Table 3-2 SEC Units 1 and 2 AOR Data (2009- 2013)
- Table 3-3 SEC Units 1 and 2 GHG Emission Estimates (2009- 2013)
- Table 3-4a Baseline Emissions for Units 1 and 2 for Consecutive 2-Year Periods – Combined
- Table 3-4b Baseline Emissions for Units 1 and 2 for Consecutive 2-Year Periods – Individual
- Table 3-5a Emissions and Activity Factors for Unit 1 in Baseline Years
- Table 3-5b Emissions and Activity Factors for Unit 2 in Baseline Years
- Table 3-6 Projected Actual Emissions for SEC Units 1 and 2
- Table 3-7a Projected Actual Emissions from ACI System
- Table 3-7b Projected Fugitive Emissions from Material Handling
- Table 3-7c Projected Actual PM Emissions from Units 1 and 2 Using Sulfide Donating Reagent
- Table 3-8 Summary of Projected Actual to Baseline Emissions Comparison

## List of Appendices

- Appendix A MSDS Sheets for Proposed Chemical Reagents

## PART II—FDEP APPLICATION FOR AIR PERMIT





## 1.0 INTRODUCTION

The Orlando Utilities Commission (OUC) Stanton Energy Center (SEC) is a nominal 1,876 megawatt (MW) electric generation facility. This facility consists of two fossil fuel fired boiler electrical generating units (Units 1 and 2); two combined cycle combustion turbine-electrical generators (Units A and B); solid fuels, fly ash, limestone, gypsum, slag, bottom ash storage and handling facilities; and, fuel oil storage tanks. The facility is located in Orange County at 5100 South Alafaya Trail in Orlando, Florida. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).

Units 1 and 2 fire coal and natural gas and have a combined electrical generating output of 936 MW. Unit A fires natural gas and diesel fuel and has a total nominal capacity of 640 MW. Unit B fires natural gas and fuel oil and has a design electrical generating capacity of 300 MW.

The two coal units are equipped with the following control equipment: dry electrostatic precipitators (ESP) for control of particulate matter (PM) emissions; wet flue gas desulfurization (FGD) systems for control of sulfur dioxide (SO<sub>2</sub>) emissions; low NO<sub>x</sub> burners (LNB) and overfire air systems (OFA) for control of nitrogen oxide (NO<sub>x</sub>) emissions. In addition, Unit 2 has a selective catalytic reduction (SCR) system to further control NO<sub>x</sub>. These units are equipped with continuous opacity monitoring systems (COMS) and continuous emissions monitoring systems (CEMS) to measure carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), NO<sub>x</sub> and SO<sub>2</sub>. Unit 1 began operation in 1987 and Unit 2 began operation in 1996.

The purpose of this permit application is to request authorization for the installation of several pollutant reduction systems. Specifically, OUC is requesting the installation of a Fuel Lean Gas Reburn (FLGR) system on Units 1 and 2 for additional NO<sub>x</sub> reduction. This is in response to the US EPA's requested implementation of the Cross State Air Pollution Rule (CSAPR) by 2015, which will require NO<sub>x</sub> reductions from Stanton. In addition, OUC is proposing upgrades to the wet FGD system on Unit 2. These proposed upgrades to the wet FGD system would be similar to the upgrades already completed on Unit 1. Finally, OUC proposes to install an activated carbon injection (ACI) system similar to the temporary system previously authorized by Permit No. 0950137-042-AC. This system will be used in combination with chemical spray technology to mitigate mercury emissions. The proposed portable ACI system may be used on either Unit 1 or Unit 2. The proposed chemical spray technology is based on spray application of halogen-based additives such as calcium bromide (CaBr<sub>2</sub>) into the coal feeder and sodium hydrosulfide (NaHS) into the wet flue gas desulfurization (WFGD) system.

This air permit application consists of the appropriate application form required by the Florida Department of Environmental Protection (FDEP) Form 62-210.900(1), effective 3/11/2010 (see Part II of this



application package), as well as required supporting documentation and attachments for the installation of these proposed emission control systems.



## 2.0 PROJECT DESCRIPTION

As previously stated, the purpose of this permit application is to request authorization for the installation of a Fuel Lean Gas Reburn (FLGR) system on Units 1 and 2, to request upgrades to the wet FGD system on Unit 2 and to install a permanent portable ACI system, to be used in combination with chemical spray technology to mitigate mercury emissions. The proposed portable ACI system may be used on Unit 1 or Unit 2. The proposed chemical spray technology is based on spray application of halogen-based additives such as calcium bromide ( $\text{CaBr}_2$ ) into the coal feeder and sodium hydrosulfide ( $\text{NaHS}$ ) into the wet flue gas desulfurization (WFGD) system.

### 2.1 Installation of FLGR System

The proposed FLGR installation on Units 1 and 2 would theoretically reduce  $\text{NO}_x$  on Unit 1 by 30 percent and on Unit 2 by an amount to be determined. The proposed system would require approximately 5 to 10 percent firing of natural gas above the “over-fire air” (OFA) zone in each of the boilers. Specifically, 10 percent of the total coal heat input of each unit would be replaced by natural gas above the OFA zone. The heat input to each steam unit is not expected to increase as a result of this project; rather, 10 percent of the total coal heat input of each unit would be replaced by natural gas, thereby lowering overall emissions. The proposed project schematic for the FLGR installation is shown in Figure 2-1.

### 2.2 Installation of ACI System and Chemical Additives

On March 18, 2014, Orlando Utilities Commission submitted an application requesting to install and operate a calcium bromide ( $\text{CaBr}_2$ ) and activated carbon injection demonstration project at the Stanton Energy Center. The purpose of this project was to explore mercury mitigation measures by ACI testing and  $\text{CaBr}_2$  spray application to the coal to reduce emissions of mercury to meet the applicable Mercury and Air Toxics (MATS) compliance standards in 40 Code of Federal Regulations Part 63, Subpart UUUUU - National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units. Permit No. 0950137-042-AC was subsequently issued that authorized the testing project. The proposed demonstration project duration was authorized for 90 non-consecutive operational days.

During the tests with ACI, mitigation of mercury by using the ACI system and applying  $\text{CaBr}_2$  sorbents was found to be effective. No detrimental effects on precipitator performance were observed. Therefore, this requested authorization is to allow for the permanent operation of the ACI system, as well as sorbents such as calcium bromide ( $\text{CaBr}_2$ ) to be applied to the coal. The ACI system will be engineered so as to be portable between Units 1 or 2, as needed. The proposed project schematic for the permanent portable ACI installation is shown in Figure 2-2.



Also, as requested in a letter to the Department, dated October 14, 2104, OUC now proposes that the injection of halogen based additives ( $\text{CaBr}_2$ ) be followed by injection of sodium hydrosulfide ( $\text{NaHS}$ )—or equivalent, a sulfide-donating liquid agent, into the recirculating pumps of the wet flue gas desulfurization (WFGD) system. Halogen-based additives, which have been injected onto the coal during the current testing program, will oxidize mercury into mercury ions inside the boiler. Since the mercury ions are soluble in water,  $\text{NaHS}$  will be injected into the WFGD, which will react with the mercury ions to create insoluble mercury sulfide ( $\text{HgS}$ ) solids. The  $\text{HgS}$  may be emitted into the atmosphere along with the water droplets. However, WFGD has a mist eliminator to reduce the emission of water droplets and a conservatively low drift rate of 0.1% was used in estimating  $\text{HgS}$  emissions. OUC will monitor mercury emissions during the testing period to determine the optimum feed rates of halogen-based additives and  $\text{NaHS}$ .

Based on engineering design data, OUC expects that all of these processes combined would provide adequate reduction in mercury emissions to meet the MATS standard of 1.2 lb per trillion British Thermal Units ( $\text{lb}/10^{12}$  Btu) with sufficient margin. Therefore, OUC has requested authorization to conduct testing over a sufficient period of time to accumulate enough mercury data to determine what chemical feed rates are necessary to adequately reduce mercury emissions. The time remaining on the current authorization should be sufficient to accomplish the additional testing.

### 2.3 Proposed Unit 2 FGD Scrubber Upgrades

Phase 1 of the WFGD, or scrubber, upgrades was previously completed and included the installation of a dibasic acid (DBA) chemical feed system and a forced oxidation system to improve scrubber performance. Installation of the DBA chemical feed system was covered under Permit No. 0950137-011-AC, issued January 2007, and the forced oxidation system was approved under Permit No. 0950137-014-AC, issued September 2007. Further scrubber upgrades were authorized under Permit No. 0950137-012-AC to modify the spray nozzles and their arrangement and piping. Additionally, minor upgrades to the mist eliminator vanes and fixed grid wash system on the Unit 1 WFGD were authorized and installed under Permit No. 0950137-034-AC, issued June 2010. Finally, Permit No. 0950137-040-AC authorized additional upgrades (Phase 2) to the existing components of the WFGD system for Unit 1.

Phase 2 of the scrubber upgrades has been completed for Unit 1, and is now requested for Unit 2. Similar to Unit 1, this would involve installation of spray header modifications, along with possible gas/liquid contact devices such as dual flow tray and/or wall rings on the inside of the absorber to improve the contact of the slurry and the flue gas. These modifications were previously authorized for Unit 1 under Air Permit 0950137-012-AC. As was previously the case, these modifications are expected to reduce the emissions of the Unit 2 WFGD system and improve its reliability. In addition, the modifications will assist in meeting the MATS requirements.



The existing WFGD system consists of three 50 percent capacity absorber modules, with normal operation consisting of two operating absorber modules with one module designated as a spare. The absorber chemistry is limestone based, operating in forced oxidation mode. Four recycle pumps per module are provided, with three used for normal operation and the fourth acting as an installed spare.

To increase reliability of the WFGD System, OUC had previously commissioned a study to evaluate improvements in SO<sub>2</sub> removal capability of the WFGD system for Unit 1. This study was performed by Black & Veatch with assistance from Wheelabrator Air Pollution Control Company (WAPC). WAPC is a major supplier of WFGD systems. The study provided guidance on the most cost effective means to improve SO<sub>2</sub> removal performance, mitigate process problems, and improve reliability. OUC is currently in the evaluation process to determine which WFGD vendor can provide the most cost effective upgrades for Unit 2, for meeting the new SO<sub>2</sub> emission target of 0.2 lb/MMBtu (30-day average) and the exact nature of the FGD improvements necessary. The final upgrades will work in conjunction with the previous upgrades to reduce SO<sub>2</sub> emissions. All of the absorber modifications being evaluated are essentially internal to the absorber and may be used alone or in combination with others depending on the optimized improvement approach developed by the selected vendor.

Although the final design of the FGD upgrades is still underway, the upgrades should be very similar to those conducted for Unit 1. The following descriptions of the possible modifications being evaluated are provided below.

- **Distribution Trays:** Industry experience has shown FGD system performance can be significantly improved with the addition of a perforated distribution tray. The use of the distribution trays have commonly been used by the industry in the design of new scrubber systems and have been used as a retrofit option to improve performance of existing FGD systems. The distribution trays provide intimate contact between the gas and liquid phases and the resulting increased mass transfer surface area improves the amount of SO<sub>2</sub> absorbed in the scrubbers.
- **Wall Rings:** Much like the distribution trays above, industry experience has shown FGD system performance can be significantly improved with the addition of wall rings between the spray headers. Wall rings have been commonly used by the industry in the design of new scrubber systems and have been used as a retrofit option to improve performance of existing FGD systems. The wall rings are attached to the inner circumference of the absorber between the spray headers. The rings direct both the flue gas and the slurry away from the wall where contact between the two phases is limited towards areas where gas-liquid contact is enhanced.
- **Improved Spray Header and Nozzle Design:** New spray headers with a modified nozzle arrangement with more modern nozzles can be used to maximize spray coverage. Improvements in recycle spray nozzles and their arrangement provide a more uniform and denser spray coverage pattern which provides better interaction between the sprays and better gas/liquid contact. Changes in the direction of the sprays (use of both counter and co-current sprays), dual nozzles to allow the sprays to interact better, and flatter



spray patterns are all options that are currently presented by the various vendors and are being evaluated. Modification of the nozzles may provide a lower pressure drop that may allow the existing pumps to produce higher flow rates (thus increasing the L/G ratio) without changing the current pump operating speeds.

Ultimately, the purpose of the Unit 2 scrubber upgrades is to improve the SO<sub>2</sub> removal efficiency. The only expected effect of the Unit 2 scrubber upgrade on facility air emissions would involve a decrease in Unit 2 SO<sub>2</sub> emissions and possibly small increases in limestone/limestone slurry material handling and waste byproduct handling/transport associated with improved SO<sub>2</sub> removal. These emissions changes are discussed in detail in Section 3.0. Modifications to the WFGD system will not increase the capacity of or change the heat input to Unit 2.





### 3.0 REGULATORY APPLICABILITY

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

The facility is a major source of air pollution under the Title V program [Chapter 62-213, Florida Administrative Code (F.A.C.)] and the Prevention of Significant Deterioration (Rule 62-212.400, F.A.C.) program and is subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C. The facility is subject to 40 CFR 60, New Source Performance Standards (NSPS), Subparts A (General Provisions), Da (Standards of Performance for Fossil Fuel-Fired Steam Generating Units), GG (Standards of Performance for Stationary Gas Turbines), KKKK (Standards of Performance for Stationary Combustion Turbines that Commence Construction after February 18, 2005), and Y (Standards of Performance for Coal Preparation Plants), and operates units subject to the Acid Rain provisions of the Clean Air Act. This facility is a major source of hazardous air pollutants (HAP) and is subject to the Mercury and Air Toxics (MATS) compliance standards in 40 Code of Federal Regulations Part 63, Subpart UUUUU - National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units.

#### 3.1 Prevention of Significant Deterioration (PSD) Applicability

The Department regulates major stationary sources in accordance with Florida's PSD program pursuant to Rule 62-212.400, F.A.C. PSD preconstruction review is required in areas that are currently in attainment with the state and federal ambient air quality standards (AAQS) or areas designated as “unclassifiable” for these regulated pollutants. As defined in Rule 62-210.200(189)(a)1, F.A.C., a stationary source is a “major stationary source” (major PSD source) if it emits or has the potential to emit



(PTE): 250 tons per year (TPY) or more of any PSD pollutant; or 100 TPY or more of any PSD pollutant and the facility belongs to one of the 28 listed PSD major facility categories.

The list given in the citation includes the category of “fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input”. This category applies to the Stanton Energy Center before and after the proposed project. The facility is a major stationary source based on actual emissions of and potential to emit 100 TPY or more of several individual PSD pollutants.

For major stationary sources such as the Stanton Energy Center, PSD applicability for modification projects is based on thresholds known as the significant emission rates (SER) as defined in Rule 62-210.200(274), F.A.C. Any “net emissions increase” as defined in Rule 62-210.200(204), F.A.C. of a PSD pollutant from the project that equals or exceeds the respective SER is considered “significant”.

While it is true that the air emission control systems proposed will ultimately result in a reduction in emissions from the boilers, the vacatur of the pollution control project (PCP) provisions under New Source Review (NSR) Reform rules means that such projects are now subject to the typical PSD regulatory review process to determine PSD applicability.

### **3.1.1 Emissions Analysis**

As stated above, a project at an existing major source will not be subject to PSD review if it does not result in a significant emissions increase. A project’s emissions increase is determined as the difference between its baseline actual emissions (BAE) and its future projected actual emissions (PAE). New emissions sources are included in the PSD analysis using their potential-to-emit (PTE). The sum total of these emissions changes from the proposed modifications to the boilers and the new material handling activities (minor emissions associated with material handling of activated carbon, limestone and gypsum) are compared with the PSD Significant Emission Rates (SERs) to determine PSD applicability. The PSD applicability analysis is detailed in Tables 3-1 through 3-7.

#### **3.1.1.1 Proposed Projects’ Effects on Emissions Change from the Boilers**

The determination of the BAE for Units 1 and 2 combined is determined in Tables 3-1 through 3-4. For this analysis, the BAE emissions were determined using historical emissions data and the methodology outlined in the current PSD regulations. The historical emissions data were derived from continuous emissions monitoring system (CEMS) data for SO<sub>2</sub>, NO<sub>2</sub>, CO, and CO<sub>2</sub> emissions and from annual operating reports (AORs) and stack tests for all other pollutants. The BAE period is chosen on a pollutant-specific basis as the 2-year period within the five year look-back period that has the highest emissions of that pollutant based on historical emissions data. The BAE period can be different for each pollutant, but must be the same for both units for each individual pollutant. The five year look back period for this air permit application ran from January 2009 through December 2013.



Once the BAE are established, the next step is to determine the PAE values. As these two coal-fired steam units are load following units, a good indication of projected future operation is an evaluation of the highest past actual operation, as these proposed projects will not have an effect on future demand. Specifically, there is not expected to be any difference between projected emission increases due to natural demand growth versus any demand increases due to the proposed “project”. Tables 3-5 and 3-6 summarize the evaluation of past actual “activity factors” that are then used to project future unit activity and projected actual emissions.

Emissions of particulate matter from Units 1 or 2 will also be affected by use of the ACI system. Table 3-7a provides a summary of the estimated emissions due to the proposed ACI injection rate and assumes an ESP control efficiency of approximately 99.7 percent. The estimated emissions are conservative, as they don’t factor in the additional PM control that is provided by the WFGD system.

Finally, it is noted that, due to the injection of NaHS (or equivalent) into the existing WFGD system, the ionic mercury will react with the HS<sup>-</sup> ion to form mercury sulfide (HgS), a solid insoluble compound. Some of the HgS could potentially be emitted as particulate matter (PM) in aerosol droplets formed from the scrubber solution and entrained in the flue gas. The vast majority of these aerosols are captured in the mist eliminator portion of the scrubber.

The generation of HgS will be limited by the amount of mercury in the coal, which is very small. Based on an assumed maximum mercury content of 0.2 ppm and the maximum coal firing rate of 369,200 lb/hr (Title V renewal application dated May 2014), the amount of HgS formed will be insignificant (<0.1 lb/hr). Using a mist eliminator efficiency of 99.9% (the typical efficiency is higher than 99.9%), the maximum estimated potential increase in PM<sub>10</sub> and PM<sub>2.5</sub> emissions from Stanton Unit 1 is estimated to be less than 4.3 x 10<sup>-6</sup> ton/yr and 3.75 x 10<sup>-7</sup> ton/yr, respectively (see Table 3-7c) due to the addition of NaHS (or equivalent) to the scrubber solution.

### 3.1.1.2 Proposed Projects’ Effects on Emissions Change from Material Handling Systems

Additional new material handling systems will be installed as part of the Project. The emissions associated with the material handling systems need to be considered in the emissions increase calculation for the Project to determine PSD applicability. This would include all new material handling emission sources and truck traffic associated with the proposed projects. The Project will not result in the addition of an activated carbon material handling system. No changes are proposed to any existing material handling units, but there will be an increase the amounts of limestone/limestone slurry transported, as well as the gypsum generated and hauled to the onsite landfill. The increases from the existing material handling will all be in the form of additional truck traffic into and around the site and are accounted for in Table 3-7c. Haul road fugitive emissions will be minimized using the management practices currently employed by OUC.



Emissions increases from the new material handling equipment are based on PTE from point sources such as dust collectors. The control efficiency achieved by the proposed dust collectors on the ACI handling and storage will be equal to or greater than 99 percent and compliance with this level of control will be assured by seeking vendor guarantees on the outlet grain loading (0.02 grains/scf). Table 3-7a provides the emissions increases associated with the material handling activities based on outlet grain loading for bin vent dust collectors.

### **3.1.2 Project Emissions Increase and PSD Applicability**

Table 3-8 presents a summary of the PSD applicability netting analysis, with the highest 2-year baseline for each pollutant, as well as the projected actual emissions from the proposed projects (i.e., the sum of the emission increases from the boiler operations and the increase in particulate emissions from the material handling sources). None of the PSD pollutants were found to trigger PSD review. Based on the baseline actual to projected actual applicability analysis, the installation of the FLGR system would result in an increase in CO and VOC emissions, but does not result in an emissions increase for these pollutants that exceeds the PSD SER thresholds. Consequently, these proposed projects will represent a minor modification, to be addressed by a minor source air construction permit.

### **3.1.3 Record Keeping and Reporting Requirements**

After resuming normal operation following completion of the Project, the PSD regulations require the facility to monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that are emitted by any of the affected emission units. In addition, annual emissions, in tons per year, are required to be calculated at the end of each year following the date that normal operation resumes after completion of the Project. These monitoring and emission calculation requirements will continue for each year of the projection period.

OUC is required to track and report emissions from Unit Nos. 1 and 2 sixty days after the end of each year for the first five years following completion of the Project to demonstrate that the units did not experience a significant emission increase over the baseline emissions which would indicate a potential for retroactive PSD permitting. That is, if the post-project actual emissions exceed the BAE by more than a significant amount, then the project may be subject to PSD review, unless a legitimate reason is identified in the emissions report, such as the actual electrical demand growth exceeded the projected growth rate and the reported emissions increase is unrelated to the project. New Source Performance Standard (NSPS) Applicability

## **3.2 NSPS Subpart A -- General Provisions**

According to NSPS Subpart A, the Steam Generator Unit Nos. 1 and 2 are affected units if there is an increase in the emission rate to the atmosphere for each pollutant to which a standard applies (see NSPS Subpart Da applicability analysis).

**§60.14 Modification.**

*(a) Except as provided under paragraphs (e) and (f) of this section, any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.*

**3.3 NSPS Subpart Da -- Standards of Performance for EUSGUs**

This subpart applies to Steam Generator Unit Nos. 1 and 2 since both generators are over 250 million British thermal units per hour and construction commenced after September 18, 1978. Standards for PM: 99% reduction; SO<sub>2</sub>: 90% reduction; NO<sub>x</sub>: 0.6 lb/MMBtu. However, since only emissions of CO and VOCs will have a potential increase due to the proposed projects and neither of these pollutants is addressed by Subpart Da, this requirement would not apply.

**3.4 NESHAP, Subpart UUUUU -- Coal- and Oil-Fired EUSGUs**

The requirements of the Utility Mercury and Air Toxics Standards (MATS) under the NESHAP, Subpart UUUUU will become applicable on April 16, 2015.

## TABLES

**Table 3-1 SEC Electric Steam Generator Nos. 1 and 2 Annual Heat Inputs, 2009-2013**

Year	Heat Input from Bituminous Coal (MMBtu/yr)			Heat Input from Natural Gas (MMBtu/yr)			Total Actual Heat Input (MMBtu/yr)			Actual Operating Hours (hr/yr)	
	No. 1	No. 2	Total	No. 1	No. 2	Total	No. 1	No. 2	Total	No. 1	No. 2
2013	14,924,114	19,636,088	34,560,202	778,256	1,383,792	2,162,048	15,702,370	21,019,880	36,722,250	5019	7254
2012	10,211,119	20,856,390	31,067,508	1,598,168	502,944	2,101,112	11,809,287	21,359,334	33,168,620	4,354	7,883
2011	21,392,590	25,561,301	46,953,891	--	--	0	21,392,590	25,561,301	46,953,891	7,278	7,720
2010	26,570,128	30,343,708	56,913,836	--	--	0	26,570,128	30,343,708	56,913,836	7,361	8,079
2009	29,138,202	29,134,842	58,273,044	--	--	0	29,138,202	29,134,842	58,273,044	8,642	7,841

**Individual Fuel Heat Input as a Percent of Total Heat Input**

Year	Heat Input from Bituminous Coal (MMBtu/yr)			Heat Input from Natural Gas (MMBtu/yr)		
	No. 1	No. 2	Total	No. 1	No. 2	Total
2013	40.6%	53.5%	94.1%	2.1%	3.8%	5.9%
2012	30.8%	62.9%	93.7%	4.8%	1.5%	6.3%
2011	45.6%	54.4%	100.0%	--	--	0.0%
2010	46.7%	53.3%	100.0%	--	--	0.0%
2009	50.0%	50.0%	100.0%	--	--	0.0%

Note: All values are based on annual operating reports for the period 2009 - 2013.

**Table 3-2 Annual Emissions Reported In 2009 - 2013 Annual Operating Reports**

Year	Pollutant	Steam Generator No. 1 (tons)	Steam Generator No. 2 (tons)	Total (tons)
<b>2013</b>	NO <sub>x</sub>	2,247.7	1,680.9	3,928.6
	CO	498.0	626.3	1,124.4
	SO <sub>2</sub>	415.9	918.9	1,334.9
	VOC	20.9	13.6	34.4
	PM	39.5	79.8	119.3
	PM <sub>10</sub>	27.4	55.2	82.6
	PM <sub>2.5</sub>	13.5	26.8	40.3
	SAM <sup>a</sup>	62.4	126.9	189.3
	PB	0.13	0.00	0.13
	HCl	45.5	17.7	63.2
	Fluorides	0.5	0.9	1.4
	NH <sub>3</sub>	0.2	132.8	133.0
	Cyanides	0.78	1.02	1.80
	Beryllium <sup>b</sup>	2.72E-04	3.93E-04	6.65E-04
Mercury <sup>c</sup>	1.22E-02	5.20E-03	1.74E-02	
<b>2012</b>	NO <sub>x</sub>	1,553.7	1,575.1	3,128.7
	CO	242.2	472.0	714.2
	SO <sub>2</sub>	916.5	1,058.3	1,974.8
	VOC	16.8	11.8	28.6
	PM	33.0	68.6	101.7
	PM <sub>10</sub>	24.1	46.6	70.7
	PM <sub>2.5</sub>	13.8	21.2	35.1
	SAM <sup>a</sup>	137.5	128.8	266.3
	PB	0.088	0.001	0.1
	HCl	31.1	18.8	49.9
	Fluorides	0.33	0.99	1.3
	NH <sub>3</sub>	0.12	132.77	132.9
	Cyanides	0.52	1.05	1.57
	Beryllium <sup>b</sup>	2.30E-04	4.17E-04	6.47E-04
Mercury <sup>c</sup>	8.33E-03	5.53E-03	1.39E-02	
<b>2011</b>	NO <sub>x</sub>	3,075.7	1,876.0	4,951.7
	CO	738.6	657.3	1,395.9
	SO <sub>2</sub>	1,454.0	931.8	2,385.8
	VOC	25.5	12.8	38.3
	PM	64.2	102.2	166.4
	PM <sub>10</sub>	43.0	68.5	111.5
	PM <sub>2.5</sub>	18.6	29.7	48.3
	SAM <sup>a</sup>	218.1	153.4	371.5
	PB	0.2	0.0	0.2
	HCl	65	23	88.3
	Fluorides	0.68	0.97	1.6
	NH <sub>3</sub>	0.24	157.35	157.6
	Cyanides	1.06	--	1.06
	Beryllium <sup>b</sup>	4.82E-04	5.11E-04	9.93E-04
Mercury <sup>c</sup>	1.75E-02	6.77E-03	2.42E-02	
<b>2010</b>	NO <sub>x</sub>	4,039.5	2,400.6	6,440.1
	CO	996.4	669.4	1,665.8
	SO <sub>2</sub>	2,397.7	2,077.6	4,475.3
	VOC	31.4	15.2	46.6
	PM	79.7	121.4	201.1
	PM <sub>10</sub>	53.4	81.3	134.7
	PM <sub>2.5</sub>	23.1	35.2	58.3
	SAM <sup>a</sup>	359.7	182.1	541.7
	PB	0.2	0.0	0.2
	HCl	--	--	--
	Fluorides	--	1.01	1.0
	NH <sub>3</sub>	0.30	186.27	186.6
	Cyanides	--	6.07E-04	6.07E-04
	Beryllium <sup>b</sup>	5.53E-05	6.07E-05	1.16E-04
Mercury <sup>c</sup>	2.17E-02	8.04E-03	2.97E-02	
<b>2009</b>	NO <sub>x</sub>	4,889.4	2,359.4	7,248.8
	CO	982.7	1,034.5	2,017.2
	SO <sub>2</sub>	2,581.3	2,004.7	4,586.0
	VOC	36.7	14.6	51.2
	PM	87.4	87.4	174.8
	PM <sub>10</sub>	58.6	58.6	117.1
	PM <sub>2.5</sub>	25.4	25.3	50.7
	SAM <sup>a</sup>	--	174.8	174.8
	PB	0.3	0.0	0.3
	HCl	--	--	--
	Fluorides	--	0.98	0.98
	NH <sub>3</sub>	--	179.70	179.7
	Cyanides	--	--	--
	Beryllium <sup>b</sup>	6.43E-04	5.83E-04	1.23E-03
Mercury <sup>c</sup>	2.38E-02	7.72E-03	3.15E-02	

<sup>a</sup> SAM was not reported in AORs; based on assuming 10% of SO<sub>2</sub> converts to SO<sub>3</sub>, all of which converts to SAM.

<sup>b</sup> Emissions of Beryllium for Steam Generator No. 1 were calculated using hourly emissions and operating hours assuming the same hourly emissions as those for Steam Generator No. 2 from stack tests. The estimated emissions of Beryllium for Steam Generator No. 1 were underestimated for baseline calculation, which is a conservative estimation.

<sup>c</sup> Emissions of Mercury for Steam Generator No. 1 were calculated using the activity factors from AORs and emissions factors from stack tests. Emissions factor for EU1 based on the stack test of 2009; Emissions factor for EU2 based on the average of stack test of 2009 and 2010.

Source: Annual Operating Reports (AORs) for 2009 - 2013.



**Table 3-3 Estimated Actual Annual Emissions of CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> for 2009 - 2013**

**Steam Generator No. 1**

	Actual Annual Heat Input <sup>a</sup> (MMBtu/yr)	CO <sub>2</sub> Emissions				N <sub>2</sub> O Emissions			CH <sub>4</sub> Emissions			CO <sub>2</sub> e <sup>c</sup> Rate (TPY)
		Emission Factor <sup>b</sup> (lb/MMBtu)	Annual Emissions		Emission Factor <sup>b</sup> (lb/MMBtu)	Annual Emissions		CO <sub>2</sub> e <sup>c</sup> Rate (TPY)	Emission Factor <sup>b</sup> (lb/MMBtu)	Annual Emissions		
			(lb/yr)	(TPY)		(lb/yr)	(TPY)			(lb/yr)	(TPY)	
<b>Bituminous Coal</b>												
2013	14,924,114	205.6	3,068,235,392	1,534,118	3.53E-03	52,628	26.31	7,842	2.4E-02	361,820	181	4,523
2012	10,211,119	205.6	2,099,294,875	1,049,647	3.53E-03	36,008	18.00	5,365	2.4E-02	247,558	124	3,094
2011	21,392,590	205.6	4,398,083,753	2,199,042	3.53E-03	75,439	37.72	11,240	2.4E-02	518,642	259	6,483
2010	26,570,128	205.6	5,462,529,203	2,731,265	3.53E-03	93,697	46.85	13,961	2.4E-02	644,166	322	8,052
2009	29,138,202	205.6	5,990,497,225	2,995,249	3.53E-03	102,753	51.38	15,310	2.4E-02	706,427	353	8,830
<b>Natural Gas</b>												
2013	778,256	116.9	91,012,556	45,506	2.20E-04	172	0.09	25.6	2.2E-03	1,715	0.9	21.4
2012	1,598,168	116.9	186,896,542	93,448	2.20E-04	352	0.18	52.5	2.2E-03	3,522	1.8	44.0
2011	--	116.9	--	--	2.20E-04	--	--	--	2.2E-03	--	--	--
2010	--	116.9	--	--	2.20E-04	--	--	--	2.2E-03	--	--	--
2009	--	116.9	--	--	2.20E-04	--	--	--	2.2E-03	--	--	--
<b>Total</b>												
2013	--	--	--	1,579,624	--	--	26.40	7,867.2	--	--	182	4,544
2012	--	--	--	1,143,096	--	--	18.18	5,417.7	--	--	126	3,139
2011	--	--	--	2,199,042	--	--	37.72	11,240.4	--	--	259	6,483
2010	--	--	--	2,731,265	--	--	46.85	13,960.8	--	--	322	8,052
2009	--	--	--	2,995,249	--	--	51.38	15,310.2	--	--	353	8,830

**Steam Generator No. 2**

	Actual Annual Heat Input <sup>a</sup> (MMBtu/yr)	CO <sub>2</sub> Emissions				N <sub>2</sub> O Emissions			CH <sub>4</sub> Emissions			CO <sub>2</sub> e <sup>c</sup> Rate (TPY)
		Emission Factor <sup>b</sup> (lb/MMBtu)	Annual Emissions		Emission Factor <sup>b</sup> (lb/MMBtu)	Annual Emissions		CO <sub>2</sub> e <sup>c</sup> Rate (TPY)	Emission Factor <sup>b</sup> (lb/MMBtu)	Annual Emissions		
			(lb/yr)	(TPY)		(lb/yr)	(TPY)			(lb/yr)	(TPY)	
<b>Bituminous Coal</b>												
2013	19,636,088	205.6	4,036,966,126	2,018,483	3.53E-03	69,245	34.62	10,317	2.4E-02	476,057	238	5,951
2012	20,856,390	205.6	4,287,846,772	2,143,923	3.53E-03	73,548	36.77	10,959	2.4E-02	505,642	253	6,321
2011	25,561,301	205.6	5,255,125,325	2,627,563	3.53E-03	90,139	45.07	13,431	2.4E-02	619,708	310	7,746
2010	30,343,708	205.6	6,238,336,174	3,119,168	3.53E-03	107,004	53.50	15,944	2.4E-02	735,653	368	9,196
2009	29,134,842	205.6	5,989,806,621	2,994,903	3.53E-03	102,741	51.37	15,308	2.4E-02	706,345	353	8,829
<b>Natural Gas</b>												
2013	1,383,792	116.9	161,826,504	80,913	2.20E-04	305	0.15	45.4	2.2E-03	3,050	1.5	38.1
2012	502,944	116.9	58,816,404	29,408	2.20E-04	111	0.06	16.5	2.2E-03	1,108	0.6	13.9
2011	--	116.9	--	--	2.20E-04	--	--	--	2.2E-03	--	--	--
2010	--	116.9	--	--	2.20E-04	--	--	--	2.2E-03	--	--	--
2009	--	116.9	--	--	2.20E-04	--	--	--	2.2E-03	--	--	--
<b>Total</b>												
2013	--	--	--	2,099,396	--	--	34.77	10,362.9	--	--	240	5,989
2012	--	--	--	2,173,332	--	--	36.83	10,975.2	--	--	253	6,334
2011	--	--	--	2,627,563	--	--	45.07	13,430.8	--	--	310	7,746
2010	--	--	--	3,119,168	--	--	53.50	15,943.6	--	--	368	9,196
2009	--	--	--	2,994,903	--	--	51.37	15,308.4	--	--	353	8,829

<sup>a</sup> Based on AOR data - see Table 3-1.

<sup>b</sup> Table C-2, Subpart C, 40 CFR 98. Emission factors in kg/MMBtu

Pollutant	Bituminous Coal	Natural Gas
CO <sub>2</sub>	93.28	53.06
CH <sub>4</sub>	1.10E-02	1.00E-03
N <sub>2</sub> O	1.60E-03	1.00E-04

<sup>c</sup> CH<sub>4</sub> and N<sub>2</sub>O are multiplied by CO<sub>2</sub>e factor

Pollutant	CO <sub>2</sub> e Factor
CH <sub>4</sub>	25
N <sub>2</sub> O	298

Conversion factor from kg/MMBtu to lb/MMBtu: 2.204

**Table 3-4a Baseline Emissions for Steam Generator Nos. 1 and 2 (Combined) for Each Consecutive Two-Year Period, 2009-2013**

Pollutant	Annual Emissions for Steam Generator Nos. 1 & 2					Two-Year Average Emissions				(TPY)	Years
	2013 (tons)	2012 (tons)	2011 (tons)	2010 (tons)	2009 (tons)	2012-2013 (tons)	2011-2012 (tons)	2010-2011 (tons)	2009-2010 (tons)		
NO <sub>x</sub>	3,928.57	3,128.74	4,951.70	6,440.10	7,248.82	3,528.66	4,040.22	5,695.90	6,844.46	6,844.46	2009-2010
CO	1,124.35	714.21	1,395.89	1,665.78	2,017.23	919.28	1,055.05	1,530.84	1,841.50	1,841.50	2009-2010
SO <sub>2</sub>	1,334.87	1,974.75	2,385.84	4,475.34	4,586.00	1,654.81	2,180.29	3,430.59	4,530.67	4,530.67	2009-2010
VOC	34.44	28.60	38.30	46.59	51.23	31.52	33.45	42.44	48.91	48.91	2009-2010
PM	119.27	101.66	166.42	201.09	174.82	110.46	134.04	183.75	187.95	187.95	2009-2010
PM <sub>10</sub>	82.58	70.71	111.50	134.73	117.13	76.64	91.11	123.12	125.93	125.93	2009-2010
PM <sub>2.5</sub>	40.33	35.06	48.26	58.31	50.70	37.70	41.66	53.29	54.51	54.51	2009-2010
SAM <sup>a</sup>	189.28	266.26	371.47	541.72	174.81	227.77	318.87	456.59	358.26	456.59	2010-2011
Pb	0.13	0.09	0.18	0.22	0.26	0.11	0.13	0.20	0.24	0.24	2009-2010
HCl	63.19	49.91	88.25	--	--	56.55	69.08	88.25	--	88.25	2010-2011
Fluorides	1.41	1.32	1.65	1.01	0.98	1.36	1.48	1.33	1.00	1.48	2011-2012
NH <sub>3</sub>	132.98	132.88	157.59	186.56	179.70	132.93	145.24	172.08	183.13	183.13	2009-2010
Cyanides	1.80	1.57	1.06	0.00	--	1.69	1.32	0.53	0.00	1.69	2012-2013
Beryllium	6.65E-04	6.47E-04	9.93E-04	1.16E-04	1.23E-03	6.56E-04	8.20E-04	5.54E-04	6.71E-04	8.20E-04	2011-2012
Mercury	1.74E-02	1.39E-02	2.42E-02	2.97E-02	3.15E-02	1.56E-02	1.90E-02	2.70E-02	3.06E-02	3.06E-02	2009-2010
Greenhouse Gases (CO <sub>2</sub> e) <sup>b</sup>	3,707,783	3,342,293	4,865,505	5,894,724	6,038,430	3,525,038	4,103,899	5,380,114	5,966,577	5,966,577	2009-2010

<sup>a</sup> Not reported in AORs - based on assuming 10% of SO<sub>2</sub> converts to SO<sub>3</sub>, all of which converts to SAM.

<sup>b</sup> Based on AOR data and emission factors from Table C-2, Subpart C, 40 CFR 98.

Source: Annual Operating Report (AOR) for 2009 - 2013

**Table 3-4b. Baseline Emissions for Steam Generator Nos. 1 and 2 (Individual) for Each Consecutive Two-Year Period, 2009-2013**

**Steam Generator No. 1**

Pollutant	Annual Emissions					Two-Year Average Emissions				(TPY)	Years
	2013 (tons)	2012 (tons)	2011 (tons)	2010 (tons)	2009 (tons)	2012-2013 (tons)	2011-2012 (tons)	2010-2011 (tons)	2009-2010 (tons)		
NO <sub>x</sub>	2,247.69	1,553.67	3,075.70	4,039.52	4,889.42	1,900.68	2,314.68	3,557.61	4,464.47	4,464.47	2009-2010
CO	498.02	242.16	738.55	996.36	982.75	370.09	490.36	867.46	989.55	989.55	2009-2010
SO <sub>2</sub>	415.94	916.49	1,454.02	2,397.71	2,581.30	666.22	1,185.26	1,925.87	2,489.51	2,489.51	2009-2010
VOC	20.88	16.81	25.52	31.42	36.67	18.84	21.16	28.47	34.04	34.04	2009-2010
PM	39.47	33.04	64.18	79.71	87.41	36.26	48.61	71.94	83.56	83.56	2009-2010
PM <sub>10</sub>	27.41	24.11	43.00	53.41	58.57	25.76	33.55	48.20	55.99	55.99	2009-2010
PM <sub>2.5</sub>	13.51	13.82	18.61	23.12	25.35	13.67	16.22	20.86	24.23	24.23	2009-2010
SAM <sup>a</sup>	62.39	137.47	218.10	359.66	--	99.93	177.79	288.88	359.66	288.88	2010-2011
Pb	0.13	0.09	0.18	0.22	0.26	0.11	0.13	0.20	0.24	0.24	2009-2010
HCl	45.52	31.14	65.25	--	--	38.33	48.20	65.25	--	65.25	2010-2011
Fluorides	0.50	0.33	0.68	--	--	0.42	0.51	0.68	--	0.51	2011-2012
NH <sub>3</sub>	0.18	0.12	0.24	0.30	--	0.15	0.18	0.27	0.30	0.30	2009-2010
Cyanides	0.78	0.52	1.06	--	--	0.65	0.79	1.06	--	0.65	2012-2013
Beryllium	2.72E-04	2.30E-04	4.82E-04	5.53E-05	6.43E-04	2.51E-04	3.56E-04	2.69E-04	3.49E-04	0.00	2011-2012
Mercury	1.22E-02	8.33E-03	1.75E-02	2.17E-02	2.38E-02	1.03E-02	1.29E-02	1.96E-02	2.27E-02	2.27E-02	2009-2010
Greenhouse Gases (CO <sub>2</sub> e) <sup>b</sup>	1,592,035	1,151,652	2,216,765	2,753,278	3,019,389	1,371,844	1,684,209	2,485,021	2,886,333	2,886,333	2009-2010

**Steam Generator No. 2**

Pollutant	Annual Emissions					Two-Year Average Emissions				Highest 2-year Average <sup>c</sup> (TPY)	Years <sup>c</sup>
	2013 (tons)	2012 (tons)	2011 (tons)	2010 (tons)	2009 (tons)	2012-2013 (tons)	2011-2012 (tons)	2010-2011 (tons)	2009-2010 (tons)		
NO <sub>x</sub>	1,680.89	1,575.07	1,876.00	2,400.58	2,359.40	1,627.98	1,725.54	2,138.29	2,379.99	2,379.99	2009-2010
CO	626.33	472.05	657.34	669.42	1,034.48	549.19	564.69	663.38	851.95	851.95	2009-2010
SO <sub>2</sub>	918.93	1,058.26	931.82	2,077.63	2,004.70	988.59	995.04	1,504.72	2,041.17	2,041.17	2009-2010
VOC	13.56	11.79	12.78	15.17	14.57	12.68	12.29	13.98	14.87	14.87	2009-2010
PM	79.79	68.63	102.25	121.38	87.40	74.21	85.44	111.81	104.39	104.39	2009-2010
PM <sub>10</sub>	55.17	46.60	68.50	81.32	58.56	50.89	57.55	74.91	69.94	69.94	2009-2010
PM <sub>2.5</sub>	26.81	21.24	29.65	35.20	25.35	24.03	25.45	32.42	30.27	30.27	2009-2010
SAM <sup>a</sup>	126.89	128.79	153.37	182.06	174.81	127.84	141.08	167.72	178.44	167.72	2010-2011
Pb	1.62E-03	1.48E-03	1.66E-03	1.97E-03	1.89E-03	1.55E-03	1.57E-03	1.82E-03	1.93E-03	1.93E-03	2009-2010
HCl	17.67	18.77	23.01	--	--	18.22	20.89	23.01	--	23.01	2010-2011
Fluorides	0.91	0.99	0.97	1.01	0.98	0.95	0.98	0.99	1.00	0.98	2011-2012
NH <sub>3</sub>	132.80	132.77	157.35	186.27	179.70	132.78	145.06	171.81	182.99	182.99	2009-2010
Cyanides	1.021	1.053	--	0.001	--	1.04	1.05	0.00	0.00	1.04	2012-2013
Beryllium	3.93E-04	4.17E-04	5.11E-04	6.07E-05	5.83E-04	4.05E-04	4.64E-04	2.86E-04	3.22E-04	4.64E-04	2011-2012
Mercury	5.20E-03	5.53E-03	6.77E-03	8.04E-03	7.72E-03	5.37E-03	6.15E-03	7.41E-03	7.88E-03	7.88E-03	2009-2010
Greenhouse Gases (CO <sub>2</sub> e) <sup>b</sup>	2,115,748	2,190,641	2,648,740	3,144,307	3,019,041	2,153,195	2,419,690	2,896,524	3,081,674	3,081,674	2009-2010

<sup>a</sup> Not reported in AORs - based on assuming 10% of SO<sub>2</sub> converts to SO<sub>3</sub>, all of which converts to SAM.

<sup>b</sup> Based on AOR data and emission factors from Table C-2, Subpart C, 40 CFR 98.

<sup>c</sup> The years for highest 2-year average based on the years in Table 3-4a.

Source: Annual Operating Report (AOR) for 2009 - 2013

**Table 3-5a: Emission Factors and Activity Factors for SEC Steam Generator No. 1 in Baseline Year**

Pollutant	Year of Highest 2-year Ave	Emission Factor (lb/MMBtu)			Activity Factor (MMBtu/yr)		
		Year 1	Year 2	Average	Year 1	Year 2	Average
NOx	2009-2010	0.3356	0.3041	0.3198	29,138,202	26,570,128	27,854,165
CO	2009-2010	0.0675	0.0750	0.0712	29,138,202	26,570,128	27,854,165
SO2	2009-2010	0.1772	0.1805	0.1788	29,138,202	26,570,128	27,854,165
VOC	2009-2010	0.0025	0.0024	0.0024	29,138,202	26,570,128	27,854,165
PM	2009-2010	0.0060	0.0060	0.0060	29,138,202	26,570,128	27,854,165
PM10	2009-2010	0.0040	0.0040	0.0040	29,138,202	26,570,128	27,854,165
PM2.5	2009-2010	0.0017	0.0017	0.0017	29,138,202	26,570,128	27,854,165
SAM	2010-2011	0.0271	0.0204	0.0237	26,570,128	21,392,590	23,981,359
Lead	2009-2010	1.76E-05	1.66E-05	1.71E-05	29,138,202	26,570,128	27,854,165
HCl	2010-2011	--	0.0061	0.0061	26,570,128	21,392,590	23,981,359
HF	2011-2012	6.36E-05	6.52E-05	6.44E-05	21,392,590	10,211,119	15,801,854
NH3	2012-2013	2.30E-05	2.37E-05	2.34E-05	10,211,119	14,924,114	12,567,616
Cyanides	2012-2013	1.02E-04	1.05E-04	1.03E-04	10,211,119	14,924,114	12,567,616
Beryllium	2009-2010	4.41E-08	4.16E-09	2.41E-08	29,138,202	26,570,128	27,854,165
Mercury	2009-2010	1.63E-06	1.63E-06	1.63E-06	29,138,202	26,570,128	27,854,165
Greenhouse Gases (CO <sub>2</sub> e)	2009-2010	205.6	205.6	205.6	29,138,202	26,570,128	27,854,165

**Table 3-5b: Emission Factors and Activity Factors for SEC Steam Generator No. 2 in Baseline Year**

Pollutant	Year of Highest 2-year Ave	Emission Factor (lb/MMBtu)			Activity Factor (MMBtu/yr)		
		Year 1	Year 2	Average	Year 1	Year 2	Average
NOx	2009-2010	0.1620	0.1582	0.1601	29,134,842	30,343,708	29,739,275
CO	2009-2010	0.0710	0.0441	0.0576	29,134,842	30,343,708	29,739,275
SO2	2009-2010	0.1376	0.1369	0.1373	29,134,842	30,343,708	29,739,275
VOC	2009-2010	0.0010	0.0010	0.0010	29,134,842	30,343,708	29,739,275
PM	2009-2010	0.0060	0.0080	0.0070	29,134,842	30,343,708	29,739,275
PM10	2009-2010	0.0040	0.0054	0.0047	29,134,842	30,343,708	29,739,275
PM2.5	2009-2010	0.0017	0.0023	0.0020	29,134,842	30,343,708	29,739,275
SAM	2010-2011	0.0120	0.0120	0.0120	30,343,708	25,561,301	27,952,504
Lead	2009-2010	1.30E-07	1.30E-07	1.30E-07	29,134,842	30,343,708	29,739,275
HCl	2010-2011	--	1.80E-03	1.80E-03	30,343,708	25,561,301	27,952,504
HF	2011-2012	7.55E-05	9.45E-05	8.50E-05	25,561,301	20,856,390	23,208,845
NH3	2012-2013	0.0125	0.0129	0.0127	20,856,390	19,636,088	20,246,239
Cyanides	2012-2013	1.01E-04	1.04E-04	1.02E-04	20,856,390	19,636,088	20,246,239
Beryllium	2011-2012	4.00E-08	4.00E-08	4.00E-08	25,561,301	20,856,390	23,208,845
Mercury	2009-2010	5.30E-07	5.30E-07	5.30E-07	29,134,842	30,343,708	29,739,275
Greenhouse Gases (CO <sub>2</sub> e)	2009-2010	205.6	205.6	205.6	29,134,842	30,343,708	29,739,275

**Table 3-6. Projected Emissions for Steam Generator Nos. 1 and 2**

Pollutant	Steam Generator No. 1					Steam Generator No. 2				
	Bituminous Coal		Natural Gas		Total Projected Emissions (TPY)	Bituminous Coal		Natural Gas		Total Projected Emissions (TPY)
	Activity Factor (MMBtu/yr) <sup>a</sup>	Emission Factor (lb/MMBtu) <sup>b</sup>	Activity Factor (MMBtu/yr) <sup>a</sup>	Emission Factor (lb/MMBtu)		Activity Factor (MMBtu/yr) <sup>a</sup>	Emission Factor (lb/MMBtu) <sup>b</sup>	Activity Factor (MMBtu/yr) <sup>a</sup>	Emission Factor (lb/MMBtu)	
NOx	27,854,165	0.3198	--	--	3,118.0 <sup>c</sup>	29,739,275	0.1601	--	--	1,666.4 <sup>c</sup>
CO	25,068,748	0.0712	2,785,416	0.0824 <sup>f</sup>	1,007.5	26,765,348	0.0576	2,973,928	0.0824 <sup>f</sup>	892.9
SO2	25,068,748	0.1788	2,785,416	5.88E-05 <sup>g</sup>	2,241.6	26,765,348	0.1373	2,973,928	0.0001 <sup>g</sup>	1,837.2
VOC	25,068,748	0.0024	2,785,416	0.0054 <sup>g</sup>	38.1	26,765,348	0.0010	2,973,928	0.0054 <sup>g</sup>	21.4
PM	25,068,748	0.0060	2,785,416	7.45E-05 <sup>g</sup>	75.3	26,765,348	0.0070	2,973,928	7.45E-05 <sup>g</sup>	93.8
PM10	25,068,748	0.0040	2,785,416	7.45E-05 <sup>g</sup>	50.5	26,765,348	0.0047	2,973,928	7.45E-05 <sup>g</sup>	62.9
PM2.5	25,068,748	0.0017	2,785,416	7.45E-05 <sup>g</sup>	21.9	26,765,348	0.0020	2,973,928	7.45E-05 <sup>g</sup>	27.3
SAM	21,583,223	0.0237	2,398,136	8.82E-06 <sup>h</sup>	256.1	25,157,254	0.0120	2,795,250	8.82E-06 <sup>h</sup>	151.0
Pb	25,068,748	1.71E-05	2,785,416	4.90E-07 <sup>g</sup>	0.21	26,765,348	1.30E-07	2,973,928	4.90E-07 <sup>g</sup>	2.47E-03
HCl	21,583,223	0.0061	2,398,136	0.0	65.8	25,157,254	0.0018	2,795,250	0.0	22.6
Fluorides	15,660,020	6.44E-05	1,740,002	0.0	0.50	21,340,610	8.50E-05	2,371,179	0.0	0.91
NH <sub>3</sub>	12,380,245	2.34E-05	1,375,583	0.0	0.14	19,070,646	0.0127	2,118,961	0.0	121.1
Cyanides	12,380,245	1.03E-04	1,375,583	0.0	0.64	19,070,646	1.02E-04	2,118,961	0.0	0.98
Beryllium	25,068,748	2.41E-08	2,785,416	0.0	3.02E-04	21,340,610	4.00E-08	2,371,179	0.0	4.27E-04
Mercury	25,068,748	1.20E-06 <sup>d</sup>	2,785,416	0.0	1.50E-02	26,765,348	1.20E-06 <sup>d</sup>	2,973,928	0.0	1.61E-02
Greenhouse Gases (CO <sub>2</sub> e)	25,068,748	205.6 <sup>e</sup>	2,785,416	116.9 <sup>e</sup>	2,739,800	26,765,348	205.6 <sup>e</sup>	2,973,928	116.9 <sup>e</sup>	2,925,224

<sup>a</sup> The total projected activity factor for each pollutant is based on the sum of the activity factors of natural gas and coal at the year of the highest 2-year average of emissions. See Tables 3-5a and 3-5b.

The projected activity factor for bituminous coal is assumed to be 90% of the total projected activity factor and that for natural gas is 10%.

<sup>b</sup> Based on the emission factor for coal burning at the year of the highest 2-year average of emissions. See Tables 3-5a and 3-5b.

<sup>c</sup> Total projected NOx emissions based on activity factor and emission factor of 100% coal burning and additional 30% removal rate due to the new fuel lean gas reburn system (with 10% natural gas burning).

<sup>d</sup> Based on future potential emission factor of 1.2 lb/TBtu per 40 CFR 63 Subpart UUUU.

<sup>e</sup> See Footnote of Table 3-3.

<sup>f</sup> Based on emission factor for NOx 140 lb/MMscf and for CO 84 lb/MMscf (Table 1.4-1, AP-42) and natural gas heating value 1,020 MMBtu/MMscf.

<sup>g</sup> Based on emission factor for SO<sub>2</sub> 0.6 lb/MMscf, VOC 5.5 lb/MMscf, PM/PM<sub>10</sub>/PM<sub>2.5</sub> 7.6 lb/MMscf, Pb 0.0005 lb/MMscf (Table 1.4-2, AP-42), and natural gas heating value 1,020 MMBtu/MMscf.

<sup>h</sup> Assuming 10% conversion from SO<sub>2</sub> to SO<sub>3</sub>, all of which is converted to SAM.

**Table 3-7a. Summary of Projected Actual PM Emissions from Activated Carbon Injection Process**

Pollutant	Emissions from Activated Carbon Silo Bin Vent Filter			Emissions from Boiler			Total Potential Controlled Emission Rate (TPY)
	Bin Bent Volumetric Flow <sup>a</sup> (ACFM)	Vent Emission Rate <sup>b</sup> (gr PM <sub>10</sub> /ASCF)	Emission Rate <sup>c</sup> (TPY)	Collection Efficiency Referenced in Permit (Before FGD) <sup>d</sup>	ACI Rate (lb/hr)	Emission Rate (TPY)	
PM	750	0.020	0.6	99.7%	800	10.5	11.1
PM <sub>10</sub>	750	0.020	0.6	99.7%	800	5.3 <sup>e</sup>	5.8
PM <sub>2.5</sub>	750	0.020	0.6	99.7%	800	1.1 <sup>e</sup>	1.6

<sup>a</sup> Vendor data.

<sup>b</sup> Vendor guarantee.

<sup>c</sup> Assuming 8,760 hours of operation per year and the emission rates of PM, PM<sub>10</sub> and PM<sub>2.5</sub> are equal; 1 lb=0.000149 gr.

<sup>d</sup> Calculations do not account for additional control efficiency of the FGD.

<sup>e</sup> PM<sub>10</sub> emission rate conservatively assumes that 50 percent of total PM is PM<sub>10</sub> and PM<sub>2.5</sub> emission rate conservatively assumes that 10 percent of total PM is PM<sub>2.5</sub>. See attached particle size distribution curve in the application for temporary testing in March 2014.

Source: Golder, 2014; OUC Stanton Energy Center, 2014.

**Table 3-7b. Summary of Projected Fugitive PM Emissions from FDG System Operation and Activated Carbon Injection Processing**

Emission Category	Vehicle Traffic Counts			Vehicle Mile Traveled <sup>b</sup> (VMT/yr)	Emissions Factors <sup>c</sup>			Potential Controlled Emissions <sup>d</sup>		
	Material	Usage Rate (TPY)	No. of Trucks <sup>a</sup> (#/yr)		PM (lb/VMT)	PM <sub>10</sub> (lb/VMT)	PM <sub>2.5</sub> (lb/VMT)	PM (TPY)	PM <sub>10</sub> (TPY)	PM <sub>2.5</sub> (TPY)
<b>FDG System</b>										
Unpaved Road	Gypsum (unit 2)	4,073	194	291	15.357	5.400	0.540	0.670	0.236	0.039
Paved Road	Gypsum (unit 2)	4,073	194	252	0.208	0.042	0.010	0.008	0.002	0.000
Paved Road	Lime Slurry (unit 2)	4,336	207	745	0.173	0.035	0.008	0.019	0.004	0.001
<b>ACI Processing</b>										
Paved Road	Activated Carbon (unit 2)	2,234	107	385	0.173	0.035	0.008	0.010	0.002	0.000
<b>Total</b>								<b>0.708</b>	<b>0.243</b>	<b>0.041</b>

<sup>a</sup> Based on truck capacity of 21 tons.

<sup>b</sup> Based on roundtrip distance and the number of trucks calculated. Roundtrip distance is 1.5 miles for gypsum transportation on unpaved roads, 1.3 miles for gypsum transportation on paved roads and 3.6 miles for lime slurry and activated carbon transportation on paved roads.

<sup>c</sup> Emission Factors for unpaved roads

$$EF = \left(k \left(\frac{s}{12}\right)^a \left(\frac{W}{3}\right)^b \left(\frac{365-P}{365}\right)\right)$$

EF= particulate emission factor, lb/VMT

k= empirical constant

- = 4.9 for PM<sup>i</sup>
- = 1.5 for PM<sub>10</sub><sup>i</sup>
- = 0.15 for PM<sub>2.5</sub><sup>i</sup>

s= surface material silt content, %

W= average weight of trucks

a= empirical constant

- = 24<sup>ii</sup>
- = 32.5 ton
- = 0.7 for PM<sup>i</sup>
- = 0.9 for PM<sub>2.5</sub>/PM<sub>10</sub><sup>i</sup>

b= empirical constant

P= number of days per year with at least 0.01 in.

of precipitation

- = 0.45 for all<sup>i</sup>
- = 117<sup>iii</sup>

Emission Factors for paved roads

$$EF = \left(k sL^{0.91} W^{1.02} \left(1 - \frac{P}{4N}\right)\right)$$

EF= particulate emission factor, lb/VMT

k= particulate size multiplier

- = 0.011 for PM<sup>iv</sup>
- = 0.0022 for PM<sub>10</sub><sup>iv</sup>
- = 0.00054 for PM<sub>2.5</sub><sup>iv</sup>

sL= surface silt loading, g/m<sup>2</sup>

W= average weight of trucks

P= number of days per year with at least 0.01 in.

of precipitation

N= number of days in the averaging period

- = 0.6<sup>v</sup>
- = 30.5 ton for gypsum
- = 25.5 ton for lime slurry and activated carbon
- = 117<sup>iii</sup>
- = 365

<sup>i</sup> Table 13.2.2-2 "Constants for Equations 1a and 1b", AP-42, Chapter 13 "Miscellaneous Sources".

<sup>ii</sup> Table 13.2.2-1 "Typical silt Content Values of Surface Material on industrial unpaved Roads", AP-42, Chapter 13 "Miscellaneous Sources".

<sup>iii</sup> From 2011 Annual Local Climatological Data (LCD) for Orlando, FL (MCO).

<sup>iv</sup> Table 13.2.2-1 "Particle Size Multipliers for Paved Road Equation".

<sup>v</sup> Table 13.2.1.-2 "Ubiquitous silt Loading Default Values with Hot Spot Contributions from Anti-Skid Abrasives (g/m<sup>2</sup>)".

<sup>d</sup> Control Method for unpaved roads is watering and control efficiency is 50%; Control Method for paved roads is broom sweeping and control efficiency is 70%. Control efficiency is based on Table 2.1.1-3 "Summary of Techniques, Efficiencies [...] for Controlling Fugitive Dust from Paved and Unpaved Surfaces", 1980.

Source: Golder, 2014; OUC Stanton Energy Center, 2014.

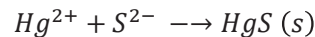


**Table 3-7c. Projected PM Emissions from Hg Control Option Testing Using A Sulfide-Donating Liquid Agent <sup>a</sup>**

Parameter	Value Unit	Comments
MerControl® 8034 Additive Injection Rate	11 gal/hr	Sodium Sulfide and Sodium Hydroxide Solution. Injection rate
Hg mass in flue gas	0.074 lb/hr	Assuming Hg content of 0.2 ppm in coal.
HgS Mass	0.086 lb/hr	Calculated (see Note a)
WFGD Droplet Removal Efficiency	99.9 %	Equivalent to drift rate of 0.001.
PM Emissions (as HgS)	8.56E-05 lb/hr 3.75E-04 tons/year	Potential PM emitted at scrubber aerosols.
PM <sub>10</sub> Emissions (as HgS)	4.28E-06 lb/hr 1.88E-05 tons/year	Conservatively assuming 5% of the mass in PM <sub>10</sub> size category based on "Realistic PM10 Emissions from Cooling Towers" by Joel Reisman and Gordon Frisbie.
PM <sub>2.5</sub> Emissions (as HgS)	8.56E-08 lb/hr 3.75E-07 tons/year	Conservatively assuming 0.1% of the PM mass in PM <sub>2.5</sub> size

NOTES

<sup>a</sup> The amount of PM/PM<sub>10</sub>/PM<sub>2.5</sub> emissions is not relevant to the amount and the type of sulfide-donating agent. The Sulfide injected will convert ionic mercury into HgS according to the following ionic equation:



molar mass S	32 lb/mol
Hg	200.6 lb/mol
HgS	232.6 lb/mol

The amount of PM emissions is only relevant to the amount of Mercury in the flue gas. The PM emissions (as HgS) are calculated using the following equation:

$$HgS (lb/hr) = Hg (lb/hr) \times 232.6 lb/mol / 200.6 lb/mol$$

**Table 3-8. Summary of Projected Actual to Baseline Emissions Comparison**

Pollutant	Projected Actual Emissions <sup>a</sup> (TPY)				Netting Calculations			Years
	Steam Generator No. 1	Steam Generator No. 2	Material Handling <sup>b</sup>	TOTAL	Maximum 2-Year Average from Existing Units <sup>c</sup>	Change	PSD Significant Emission Rate	
					(TPY)	(TPY)	(TPY)	
NO <sub>x</sub>	3,118.0	1,666.4	--	4,784.4	6,844.5	-2,060	<b>40</b>	No
CO	1,007.5	892.9	--	1,900.3	1,841.5	59	<b>100</b>	No
SO <sub>2</sub>	2,241.6	1,837.2	--	4,078.8	4,530.7	-452	<b>40</b>	No
VOC (as methane)	38.1	21.4	--	59.5	48.9	11	<b>40</b>	No
PM	75.3	93.8	11.8	183.1	188.0	-5	<b>25</b>	No
PM <sub>10</sub>	50.5	62.9	6.1	121.6	125.9	-4	<b>15</b>	No
PM <sub>2.5</sub>	21.9	27.3	1.7	53.0	54.5	-1	<b>10</b>	No
Sulfuric Acid Mist (SAM)	256.1	151.0	--	407.1	456.6	-50	<b>7</b>	No
Lead	0.2	0.0	--	0.22	0.24	-0.02	<b>0.6</b>	No
HCl	65.8	22.6	--	88.5	88.3	0.22	--	--
Fluorides	0.50	0.91	--	1.41	1.48	-0.07	<b>3</b>	No
NH <sub>3</sub>	0.1	121.1	--	121.292	183.1	-61.84	--	--
Cyanides	0.64	0.98	--	1.62	1.69	-0.07	--	--
Beryllium	3.02E-04	4.27E-04	--	7.29E-04	8.20E-04	-9.09E-05	--	--
Mercury	0.015	0.016	--	0.031	0.031	0.0005	<b>0.1</b>	No
Greenhouse Gases (CO <sub>2</sub> e) <sup>d</sup>	2,739,800	2,925,224	--	5,665,024	5,966,577	-301,553	<b>75,000</b> <sup>e</sup>	No

<sup>a</sup> Based on the maximum 2-year average of heat input of Stanton Energy Center from 2009 to 2013 and emissions factors calculated in Table 3-6.

<sup>b</sup> Sum of emissions from ACI process, FGD system and NaHS injection process (Table 3-7a, Table 3-7b and Table 3-7c).

<sup>c</sup> Based on actual emissions from Annual Operating Reports from 2009-2013.

<sup>d</sup> Based on AOR data and emission factors from Table C-2, Subpart C, 40 CFR 98.

<sup>e</sup> Based on the recent US Supreme Court decision. This is assumed to be the PSD threshold until a new *de minimus* threshold is established.

Source: Golder, 2014.

## FIGURES

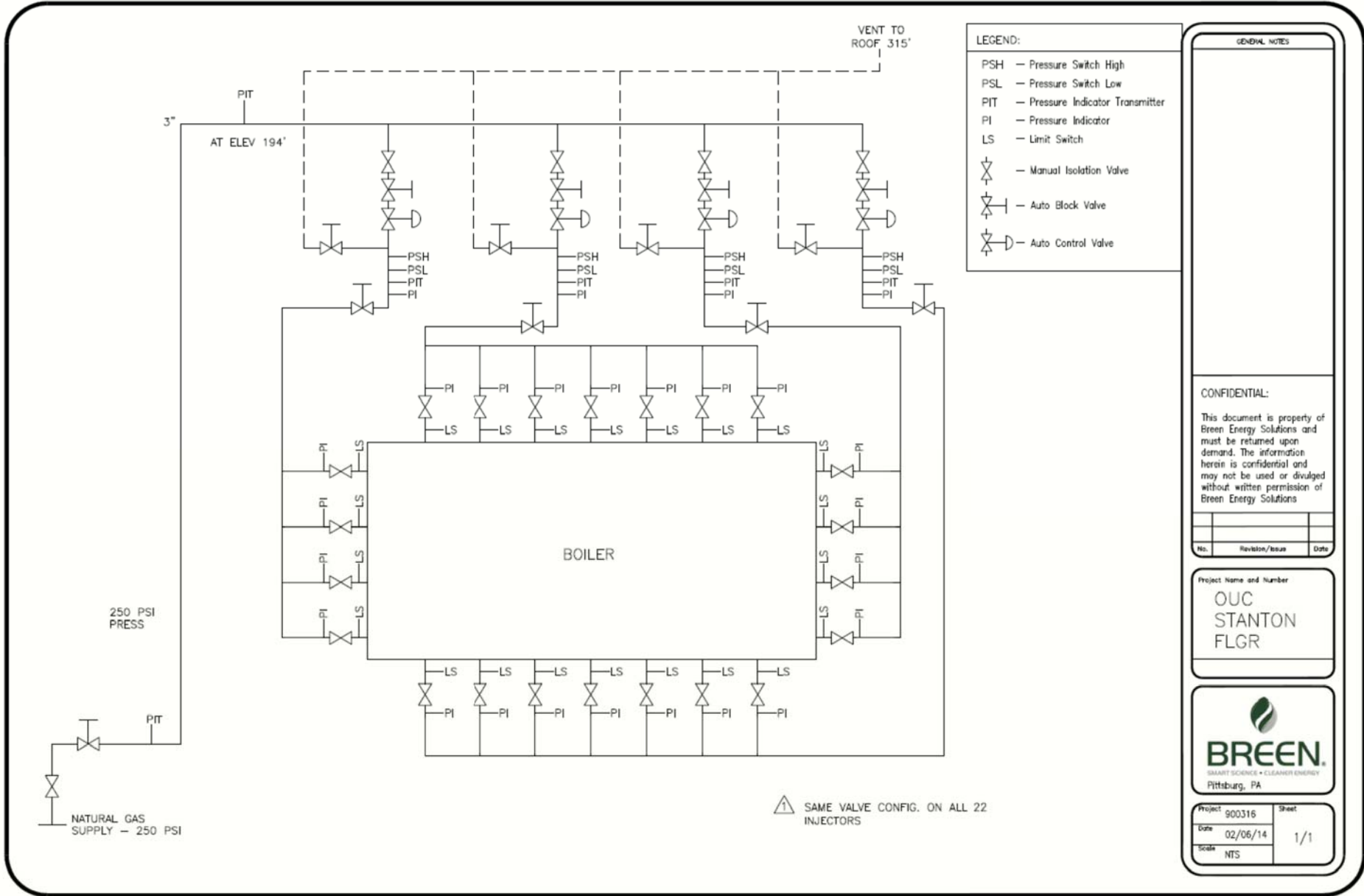
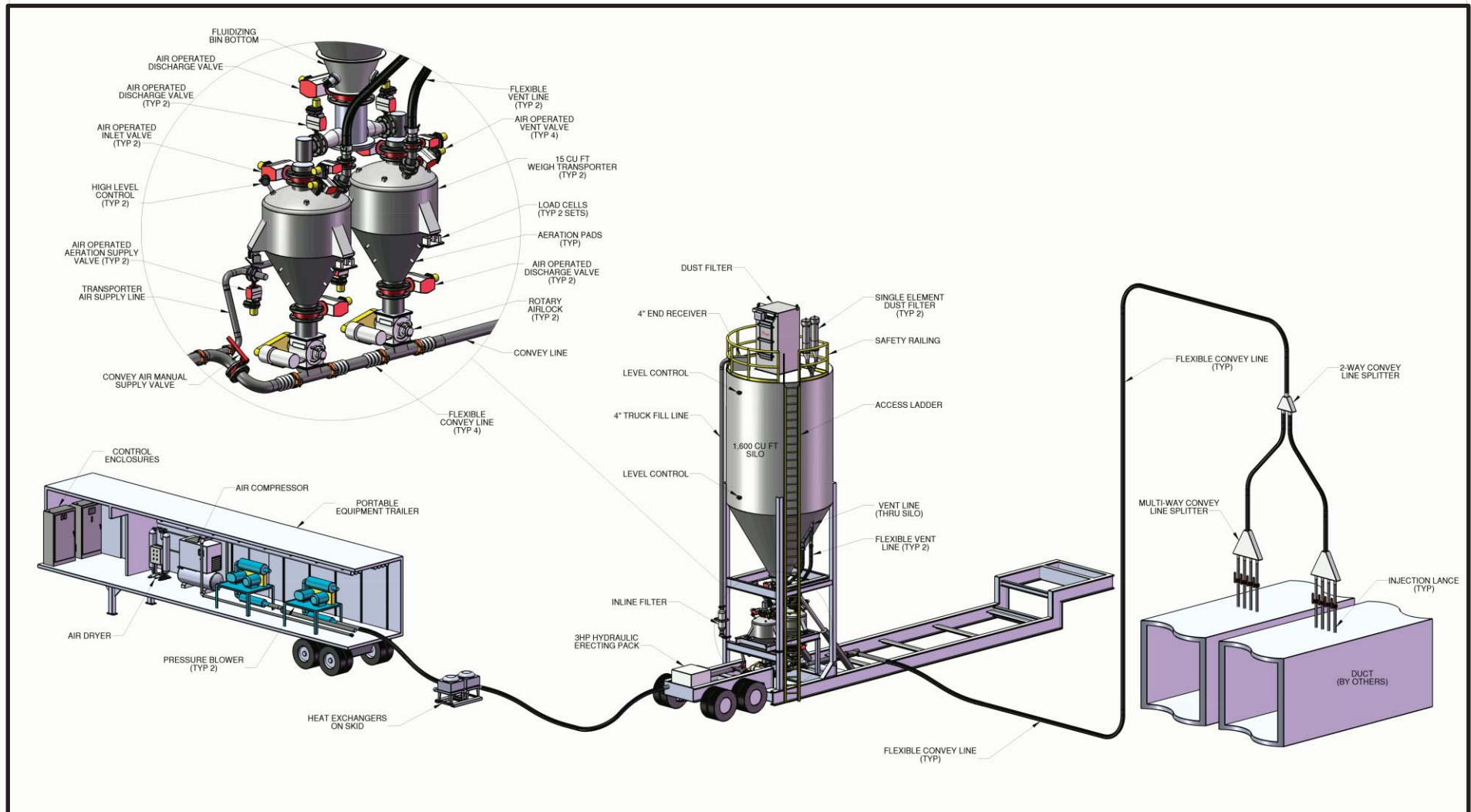



Figure 2-1 Proposed FLGR System



PORTABLE SILO IN OPERATION CONFIGURATION FOR ACTIVATED CARBON

**SORB-N-JECT™**  
Technology

TITLE:	SELF ERECTING PORTABLE SILO OPERATING CONFIGURATION	DATE:	05AUG13	
DRAWN BY:	LTS	RSM:	MGT	
CUSTOMER:	UNIT 3 GEN 3 UPDATE	SCALE:	1:58	www.nol-tec.com
		SHEET:	4 OF	DRAWING NUMBER: UNIT-3-GEN-3 UPDATE

PROPRIETARY AND CONFIDENTIAL  
The information contained in this drawing is the sole property of NOL-TEC SYSTEMS. Any reproduction in part or as a whole without the written permission of NOL-TEC SYSTEMS is prohibited.

Figure 2-2 Proposed ACI System

## APPENDICES



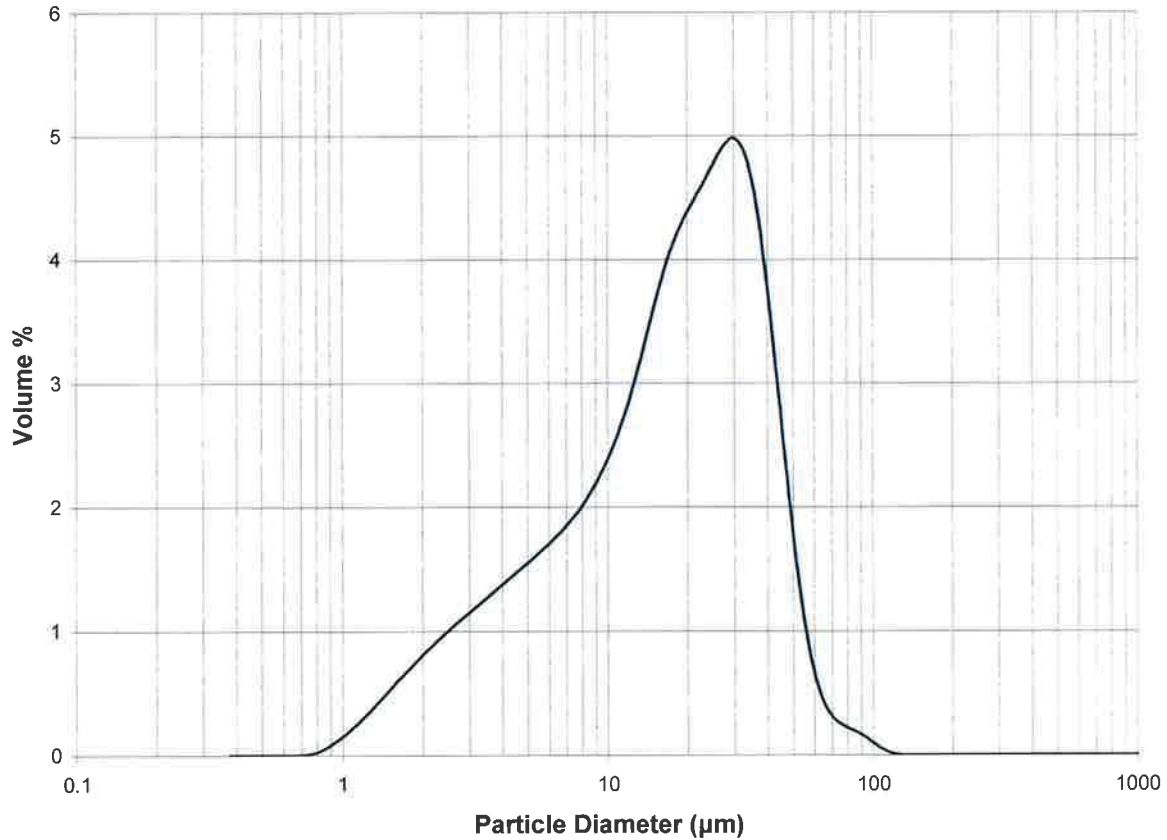
# DARCO Hg

## Typical Laser Particle Size Distribution

File Name:  
Comments:

Hg.\$01  
No Sonic/SAM #8051

Sample ID: Rep Hg  
Operator: louis



### Calculations from 0.375124 µm to 2000 µm

Volume:	100 %
Mean:	21.58 µm
Median:	18.85 µm
Mode:	31.50 µm
S.D.:	15.89 µm
Variance:	252.5 µm <sup>2</sup>

	<u>&lt;5%</u>	<u>&lt;10%</u>	<u>&lt;50%</u>	<u>&lt;90%</u>	<u>&lt;95%</u>
Particle Size, µm:	2.402	3.663	18.85	42.48	49.78

### NORIT Americas Inc.

3200 West University Avenue, Marshall, TX 75670  
Telephone (903) 923-1000 • 1-800-641-9245 • FAX (903) 923-1003  
www.norit-americas.com • info@norit-americas.com

Rev. 1, 200604



## SAFETY DATA SHEET

PRODUCT

**MERCONTROL® 7895**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **MERCONTROL® 7895**

APPLICATION : Mercury Control

COMPANY IDENTIFICATION :  
Nalco Company  
1601 W. Diehl Road  
Naperville, Illinois  
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING

HEALTH : 1 / 1 FLAMMABILITY : 0 / 0 INSTABILITY : 0 / 0 OTHER :  
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme \* = Chronic Health Hazard

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

### 3. HAZARDS IDENTIFICATION

#### \*\*EMERGENCY OVERVIEW\*\*

#### CAUTION

Irritating to eyes.

Do not get in eyes, on skin or on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.

Wear suitable protective clothing.

Not flammable or combustible.

PRIMARY ROUTES OF EXPOSURE :

Eye, Skin, Inhalation

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :

May cause irritation with prolonged contact.

SKIN CONTACT :

May cause irritation with prolonged contact.

**Nalco Company** 1601 W. Diehl Road • Naperville, Illinois 60563-1198 • (630)305-1000

For additional copies of an MSDS visit [www.nalco.com](http://www.nalco.com) and request access.





## SAFETY DATA SHEET

PRODUCT

**MERCONTROL® 7895**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

### INGESTION :

Not a likely route of exposure. May cause nausea and vomiting.

### INHALATION :

Not a likely route of exposure. Elevated temperatures or mechanical action may form vapors, mists or fumes which may be irritating to the eyes, nose, throat and lungs.

### HUMAN HEALTH HAZARDS - CHRONIC :

No adverse effects expected other than those mentioned above.

## 4. FIRST AID MEASURES

### EYE CONTACT :

Immediately flush with plenty of water for at least 15 minutes. If symptoms develop, seek medical advice.

### SKIN CONTACT :

Flush with large amounts of water. Use soap if available. If symptoms develop, seek medical advice.

### INGESTION :

Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. Get medical attention.

### INHALATION :

Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

### NOTE TO PHYSICIAN :

Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

## 5. FIRE FIGHTING MEASURES

FLASH POINT : None

### EXTINGUISHING MEDIA :

Not expected to burn. Use extinguishing media appropriate for surrounding fire.

### FIRE AND EXPLOSION HAZARD :

Not flammable or combustible.

### SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :

In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.



## SAFETY DATA SHEET

PRODUCT

**MERCONTROL® 7895**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

### 6. ACCIDENTAL RELEASE MEASURES

#### PERSONAL PRECAUTIONS :

Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Ventilate spill area if possible.

#### METHODS FOR CLEANING UP :

**SMALL SPILLS:** Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. **LARGE SPILLS:** Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

#### ENVIRONMENTAL PRECAUTIONS :

Do not contaminate surface water.

### 7. HANDLING AND STORAGE

#### HANDLING :

Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Avoid generating dusts. Keep the containers closed when not in use. Ensure all containers are labeled.

#### STORAGE CONDITIONS :

Store in suitable labeled containers. Store the containers tightly closed. Keep in dry place.

#### SUITABLE CONSTRUCTION MATERIAL :

Shipping and long term storage compatibility with construction materials can vary; we therefore recommend that compatibility is tested prior to use.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### OCCUPATIONAL EXPOSURE LIMITS :

This product does not contain any substance that has an established exposure limit.

#### ENGINEERING MEASURES :

General ventilation is recommended. Local exhaust ventilation may be necessary when dusts or mists are generated.

#### RESPIRATORY PROTECTION :

Respiratory protection is not normally needed. Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure,



## SAFETY DATA SHEET

PRODUCT

**MERCONTROL® 7895**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

### HAND PROTECTION :

When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

### SKIN PROTECTION :

Wear standard protective clothing.

### EYE PROTECTION :

Wear safety glasses with side-shields.

### HYGIENE RECOMMENDATIONS :

Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

### HUMAN EXPOSURE CHARACTERIZATION :

Based on our recommended product application and personal protective equipment, the potential human exposure is: Low

## 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Light yellow Amber
ODOR	
SPECIFIC GRAVITY	1.69
DENSITY	14 lb/gal
SOLUBILITY IN WATER	Complete
INITIAL BOILING POINT	262 °F / 127.7 °C

Note: These physical properties are typical values for this product and are subject to change.

## 10. STABILITY AND REACTIVITY

### STABILITY :

Stable under normal conditions.

### HAZARDOUS POLYMERIZATION :

Hazardous polymerization will not occur.



## SAFETY DATA SHEET

PRODUCT

**MERCONTROL® 7895**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

### CONDITIONS TO AVOID :

Avoid extremes of temperature.

### MATERIALS TO AVOID :

Strong acids Strong oxidizing agents

### HAZARDOUS DECOMPOSITION PRODUCTS :

Under fire conditions: Hydrogen bromide, Bromine

## 11. TOXICOLOGICAL INFORMATION

The following results are for the active components.

### ACUTE ORAL TOXICITY :

Species: Rat  
LD50: 2,210 mg/kg  
Test Descriptor: Active Substance

### SENSITIZATION :

This product is not expected to be a sensitizer.

### CARCINOGENICITY :

None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

### HUMAN HAZARD CHARACTERIZATION :

Based on our hazard characterization, the potential human hazard is: Low

## 12. ECOLOGICAL INFORMATION

### ECOTOXICOLOGICAL EFFECTS :

The following results are for the product, unless otherwise indicated.

#### Acute Fish Results :

Species	Exposure	Test Type	Value	Test Descriptor
Guppy	96 hrs	LC50	538 mg/l	Similar Product
Rainbow Trout	96 hrs	LC50	> 1,000 mg/l	Similar Product
Fathead Minnow	96 hrs	LC50	> 1,000 mg/l	Similar Product
Inland Silverside	96 hrs	LC50	> 5,000.000 mg/l	Similar Product



## SAFETY DATA SHEET

PRODUCT

**MERCONTROL® 7895**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

### ACUTE INVERTEBRATE RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Daphnia magna	48 hrs	LC50	> 1,000 mg/l	Similar Product
Mysid Shrimp (Mysidopsis bahia)	96 hrs	LC50	1,827.000 mg/l	Similar Product

### PERSISTENCY AND DEGRADATION :

Greater than 95% of this product consists of inorganic substances for which a biodegradation value is not applicable.

### MOBILITY :

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.

If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

### BIOACCUMULATION POTENTIAL

This preparation or material is not expected to bioaccumulate.

### ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: Low

Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Low

If released into the environment, see CERCLA/SUPERFUND in Section 15.

## 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

## 14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.



## SAFETY DATA SHEET

PRODUCT

**MERCONTROL® 7895**

EMERGENCY TELEPHONE NUMBER(S)  
(800) 424-9300 (24 Hours) CHEMTREC

### LAND TRANSPORT :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

### AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

### MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

## 15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

### NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :  
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

CERCLA/SUPERFUND, 40 CFR 302 :  
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :  
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :  
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :  
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :  
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)



## SAFETY DATA SHEET

PRODUCT

**MERCONTROL® 7895**

EMERGENCY TELEPHONE NUMBER(S)

**(800) 424-9300 (24 Hours) CHEMTREC**

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :

Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :

Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :

Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :

Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :

Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :

The substances in this preparation are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

AUSTRALIA

All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA

All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

EUROPE

The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN

All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).



## SAFETY DATA SHEET

PRODUCT

**MERCONTROL® 7895**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

### KOREA

All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

### NEW ZEALAND

All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996, and are listed on or are exempt from the New Zealand Inventory of Chemicals.

### PHILIPPINES

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

## 16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

\* The human risk is: Low

\* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

### REFERENCES

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.





## SAFETY DATA SHEET

PRODUCT

**MERCONTROL® 7895**

EMERGENCY TELEPHONE NUMBER(S)

**(800) 424-9300 (24 Hours) CHEMTREC**

---

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH, (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

---

Prepared By : Product Safety Department

Date issued : 11/16/2012

Version Number : 1.5



# Material Safety Data Sheet

U.S. Department of Labor  
Occupational Safety and Health Administration  
This form is consistent with ANSI standard for preparation of MSDS's in accordance with OSHA's Hazard Communication Standard, 29 CFR 1910.1200.

<b>Product Type: FLUEPAC ST</b>	
<b>Product Code: 2158</b>	<b>Profile No: 51</b>
<b>Effective Date: February 16, 2012</b>	<b>Supersedes: December 30, 2011</b>

## SECTION I - PRODUCT AND COMPANY INFORMATION


<b>Product Name</b>	Activated Carbon (Coal Based)	
<b>Product Use</b>	Used according to manufacturer's recommendation	
<b>Company Identification (USA)</b>	<b>Calgon Carbon Corporation</b> P.O. Box 717 Pittsburgh, PA 15230-0717	
<b>Telephone Number(s)</b>	Information	412-787-6700
	Emergency	412-787-6700
<b>Company Identification (Europe)</b>	<b>Chemviron Carbon</b> Zoning Industriel de Feluy B-7181 Feluy, Belgium	
<b>Telephone Number(s)</b>	Information	32 64 51 18 11
	Emergency	32 64 51 18 11
<b>Date Prepared</b>	Signature of Preparer (optional)	
September 14, 2012		

## SECTION II – HAZARD(S) IDENTIFICATION

<b>OSHA Regulatory Status</b>	None of the components in the product formulation are regulated as Hazardous by OSHA.		
<b>HMIS Ratings (NFPA)</b>	Health	2	4 = Extreme/Severe 3 = High/Serious 2 = Moderate 1 = Slight 0 = Minimum W = Water Reactive OX = Oxidizer
	Flammability	0	
	Reactivity	1	
	Special		
<b>Protective Equipment</b>	Safety glasses with side shields or goggles, gloves, long sleeve shirt or lab coat, long pants recommended.		
<b>Health Effects</b>	See Section IV.		
<b>Environmental Effects</b>	See Section XII.		

**GHS Classification:**

**NOTE:** Health effects comments refer to the pure component knowing that the concentration on the carbon is significantly less than 100%.

Hazard Symbol	Hazard / Category	Warning
	Respiratory Irritation Category 3 Skin Irritation Category 3 Eye Irritation 2B	May cause respiratory, skin and eye irritation.  Prolonged or repeated inhalation or ingestion of can cause irritation to respiratory or gastrointestinal systems.  Wet activated carbon removes oxygen from air causing a severe hazard to workers in enclosed or confined space.
<b>Precautionary Statements</b>		
<b>Prevention:</b>	Avoid generation of dust during handling. The dust or fines may be more susceptible to catalytic reaction than the large mesh product.  Avoid breathing dust. Wash thoroughly after handling. Use in a well-ventilated area. Avoid release to environment.  Avoid any hot work such as burning and welding on material containing product.	
<b>Response:</b>	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Seek medical attention for any breathing difficulty.  IF IN EYES: Rinse cautiously with water for several minutes. Seek medical attention if irritation persists.  CONTACT WITH SKIN: Remove contaminated clothing. Rinse cautiously with soap and water for several minutes. Seek medical attention if irritation persists.  IF INGESTED: Drink a large volume of water; seek medical attention.	
<b>Storage:</b>	Store in a well-ventilated place. Keep container tightly closed.	

**SECTION III – COMPOSITION /INFORMATION ON INGREDIENTS**

Nonhazardous components are listed at 3% or greater; acute hazards are listed when present at 1% or greater and chronic hazards are listed when present at 0.01% or greater. This is not intended to be a complete compositional disclosure.

Chemical Identity (% by Wt)	Ingredient / Component	CAS No	Impurities
Trade Secret	Proprietary Formulated Activated Carbon Product	7440-44-0	NA

The individual ingredients of this product are considered proprietary. All pertinent hazard information has been provided in this MSDS in accordance with the requirements of the Federal OSHA Hazard Communications Standards

(29 CFR 1910.1200). Calgon Carbon will release the information to user of this product if the conditions stated in the regulations are met.

## SECTION IV – FIRST-AID MEASURES

<b>Route of Exposure</b>	
<b>Inhalation</b>	Dust may cause mild irritation to the upper respiratory tract and lung tissue.
<b>Skin</b>	Dust may cause mild irritation, possibly reddening.
<b>Eyes</b>	Dust may cause mild irritation, possibly reddening and pain.
<b>Ingestion</b>	Dust may cause mild irritation to digestive track resulting in nausea or diarrhea.
<b>Signs/Symptoms of Exposure</b>	Dust may cause irritation of eyes and redness of eyes, irritation of skin and respiratory system.  The effects of long-term, low-level exposures to this product have not been determined; however repeated or prolonged exposure to the product may cause target organ damage.
<b>Emergency and First Aid Procedures</b>	For eye contact: Immediately flush with copious amounts of water for at least 15 minutes, lifting both the upper and lower lids occasionally; seek medical attention.  For skin contact: Wash with soap and water; seek medical attention if irritation becomes apparent.  For inhalation: Remove to fresh air and seek medical attention for any breathing difficulty.  For ingestion: Drink plenty of water; seek medical attention.
<b>Medical Conditions Generally Aggravated by Exposure</b>	People with pre-existing skin conditions or eye problems or impaired respiratory function may be more susceptible to the potential effects of the dust.

## SECTION V – FIRE FIGHTING MEASURES

<b>Suitable Extinguishing Media</b>	Use an extinguishing media suitable for the surrounding fire.
<b>Unsuitable Extinguishing Media</b>	None known
<b>Specific Hazards</b>	As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source. Activated carbon is difficult to ignite and tends to burn slowly (smolder) without producing smoke or flame.  Carbon monoxide and carbon dioxide gas as well as toxic and irritating halide gases may be generated during combustion of this material. Contact with strong oxidizers such as ozone or liquid oxygen may cause rapid combustion.
<b>Protective Equipment and</b>	Wear NIOSH approved self-contained breathing apparatus suitable for the surrounding fire.

<b>Procedures</b>	
-------------------	--

## SECTION VI – ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions</b>	Wear protective equipment, keep unnecessary personnel away, and ventilate area of spill.
<b>Environmental Precautions</b>	One of the components in the product formulation is water soluble. The carbon component is not; however, dust particles can cause a particulate emission if discharged to waterways. Dike all entrances to sewers and drains to avoid introducing the material into the waterways.
<b>Containment &amp; Clean-up</b>	Dike all entrances to sewers and drains. Vacuum or shovel spilled material and place in closed container for disposal.  Remove product to appropriate storage area until it can be properly disposed of in accordance with local, state and federal regulations. Avoid dust formation.  See section XIII.
<b>Other Information</b>	NA

## SECTION VII – HANDLING AND STORAGE

<b>Precautions for Safe Handling</b>	Avoid prolonged contact with eyes and skin. Keep away from ignition sources. Use in well ventilated areas. Protect containers from physical damage. Wash hands after handling. Do not perform any hot work such as burning and welding on material containing product due to the release of toxic halide gases.
<b>Conditions for Safe Storage</b>	Store in cool, dry, ventilated area and in closed containers. Keep away from oxidizers, heat or flames. Store away from ignition sources.

## SECTION VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION

**NOTE:** PEL, TLV and Toxicological data where available are provided for the pure component knowing that the carbon product contains a lesser percentage.

Component	OSHA PEL	ACGIH TLV	Other Limits
Activated Carbon	Data not available	Data not available	
Proprietary Formulation	Data not available	Data not available	
<b>Exposure Guidelines</b>	Wet activated carbon removes oxygen from air posing a hazard to workers in enclosed or confined space. Before entering such an area, sample the air to assure sufficient oxygen supply. Use work procedures for low oxygen levels, observing all local, state and federal regulations.		
<b>Engineering Controls</b>	Exhaust ventilation should be designed to prevent accumulation and recirculation in the workplace and safely remove carbon black from the air.		

	<p>Note: Wet activated carbon removes oxygen from air causing a severe hazard to workers in enclosed or confined space.</p> <p>If risk of overexposure exists, wear an approved respirator. Provide adequate ventilation in warehouse or closed storage area.</p>
<b>Personal Protective Equipment</b>	Use of NIOSH approved particulate filter is recommended if dust is generated in handling. The usual precautionary measures for handling chemicals should be followed, i.e. gloves, safety glasses w/side shields or goggles, long sleeve shirt or lab coat, dust respirator if dusty and/or other protective clothing/equipment as determined appropriate.
<b>General Hygiene</b>	The usual precautionary measures for handling chemicals should be followed: i.e. Keep away from food and beverage; remove contaminated clothing immediately; wash hands before breaks or eating; avoid contact with eyes and skin.

## SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State (Appearance)</b>		Black powder material	
<b>Color</b>	Black	<b>Molecular Weight</b>	NA
<b>Odor</b>	None	<b>Odor Threshold</b>	None
<b>pH Value</b>	NA	<b>Vapor Pressure</b>	0
<b>Melting Point</b>	NA	<b>Vapor Density</b>	Solid
<b>Freezing Point</b>	NA	<b>Relative Density</b>	0.4 to 0.7
<b>Initial Boiling Point</b>	NA	<b>Solubility in Water</b>	One component in the product formulation is water soluble. The carbon component is not.
<b>Flashpoint</b>	NA	<b>Partition Coefficient</b>	NA
<b>Evaporation Rate</b>	NA	<b>Auto Ignition Temp.</b>	> 350° C
<b>Flammability</b>	> 350° C	<b>Decomp. Temp.</b>	NA
<b>UEL</b>	NA	<b>Viscosity</b>	NA
<b>LEL</b>	NA		

## SECTION X – STABILITY AND REACTIVITY

<b>CHEMICAL STABILITY</b>	UNSTABLE		<b>CONDITIONS TO AVOID:</b> None
	STABLE	XX	
<b>POSSIBILITY OF HAZARDOUS REACTION</b>	MAY OCCUR		<b>CONDITIONS TO AVOID:</b> None
	WILL NOT OCCUR	XX	
<b>Caution:</b> High concentrations of organics in air will cause temperature rise due to heat of adsorption. At very high concentration levels this may result in a thermal excursion, referred to as			

<b>a bed fire. High concentrations of Ketones and Aldehydes may cause a bed temperature rise due to adsorption and oxidation.</b>	
<b>Materials to Avoid</b>	Alkali metals and strong oxidizers such as ozone, oxygen, permanganate, chlorine.
<b>Hazardous Decomposition Products</b>	Carbon monoxide and carbon dioxide gas as well as toxic and irritating halide gases may be generated during combustion of this material.

## SECTION XI – TOXICOLOGICAL INFORMATION

<b>NOTE:</b> Toxicological data is provided for the pure component knowing that the carbon product contains a lesser percentage.		
<b>Acute Effects</b>		
<b>Toxicity Studies</b>	Oral LD <sub>50</sub>	Not determined on the finished product. Proprietary Formulation: Estimated LD <sub>50</sub> = 2,500 mg/kg (rat)
	Dermal LD <sub>50</sub>	Not determined on the finished product.
<b>Inhalation</b>	See section IV.	
<b>Ingestion</b>	See section IV.	
<b>Eye Irritation</b>	See section IV.	
<b>Skin Irritation</b>	See section IV.	
<b>Sensitization</b>	Not determined on the finished product.	
<b>Target Organ (s) or System</b>	Eyes, skin, upper respiratory system	
<b>Signs and Symptoms of Exposure</b>	Irritation and redness of eyes, irritation of skin and respiratory system may result from exposure to carbon dust.  See Sections III and IV.	
<b>Chronic Effects</b>		
<b>Carcinogenicity</b>	Not determined on the finished product.	
<b>Mutagenicity</b>	Not determined on the finished product.	
<b>Reproductive Effects</b>	Not determined on the finished product.	
<b>Developmental Factors</b>	Not determined on the finished product.	

## SECTION XII – ECOLOGICAL INFORMATION

<b>NOTE:</b> Ecological data is provided for the pure component knowing that the carbon product contains a lesser percentage.	
<b>Ecotoxicity</b>	Not determined on the finished product.
<b>Persistence/Degradability</b>	Not determined on the finished product.
<b>Bioaccumulation/Accumulation</b>	Not determined on the finished product.
<b>Mobility in Environmental Media</b>	Not determined on the finished product.
<b>Other Adverse Effects</b>	Not determined on the finished product.

## SECTION XIII – DISPOSAL CONSIDERATIONS

Vacuum or shovel material into a closed container. Storage and disposal should be in accordance with applicable local, state and federal laws and regulations. Local regulations may be more stringent than state or federal requirements. Activated Carbon is an adsorbent media; hazard classification is generally determined by the adsorbate that the carbon has picked up. Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal.

## SECTION XIV – TRANSPORT INFORMATION

This information as presented below only applies to the material as shipped. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

<b>Land</b>	DOT Regulations	Proper Shipping Description:	FLUEPAC ST Not Regulated
		Hazard Class:	None on finished product; see Note 1 below
		UN/NA:	None on finished product
		Packing Group:	None on finished product
		Marine Pollutant:	None on finished product
	Canadian WHMIS	Hazard Class:	None on finished product
<b>Water</b>	IMO / IMDG	Proper Shipping Description:	Not Regulated FLUEPAC ST
		Hazard Class:	None on finished product
		UN/NA:	None on finished product
		Packing Group:	None on finished product
		Marine Pollutant:	None on finished product
<b>Air</b>	ICAO / IATA	Proper Shipping Description:	Not Regulated FLUEPAC ST
		Hazard Class:	None on finished product
		UN/NA:	None on finished product
		Packing Group:	None on finished product
		Marine Pollutant:	None on finished product
	Information reported for product/size: 0.5 Kg		

**Note 1: Under the UN classification for activated carbon, all activated carbons have been identified as a class 4.2 product. However, This product has been tested according to the United Nations Transport of Dangerous Goods test protocol for a “self-heating substance” (United Nations Transportation of Dangerous Goods, Manual of Tests and Criteria, Part III, Section 33.3.1.6 - Test N.4 - Test Method for Self Heating Substances) and it has been specifically determined that this product does not meet the definition of a self heating substance (class 4.2) or any other hazard class, and therefore should not be listed as a hazardous material. This information is applicable only for the Activated Carbon Product identified in this document.**



**SECTION XV – REGULATORY INFORMATION**

<b>SARA Title III 302</b>	None of the components in the product formulation are subject to SARA Title III Section 302 regulation.	
<b>SARA Title III 313</b>	None of the components in the product formulation are subject to SARA Title III Section 313 regulation.	
<b>TSCA</b>	All of the components in the product formulation are listed.	
<b>California Proposition 65</b>	None of the components in the product formulation are listed.	
<b>Canadian Classification</b>	<b>WHMIS</b>	Only the carbon component of the product formulation is listed.
	<b>DSL #</b>	All the components in the product formulation are listed.
<b>EEC Council Directives relating to the classification, packaging, and labeling of dangerous substances and preparations.</b>		
<b>Risk and Safety Phrases</b>	R36: Irritating to the eyes. R37: Irritating to the respiratory system. R38: Irritating to the skin.	
<b>Carbon, activated (CAS: 7440-44-0) is found on the following regulatory lists:</b>	Canada - British Columbia Occupational Exposure Limits Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances Canada Domestic Substances List (DSL) International Air Transport Association (IATA) Dangerous Goods Regulations OECD Representative List of High Production Volume (HPV) Chemicals US - Hawaii Air Contaminant Limits US - Idaho - Toxic and Hazardous Substances - Mineral Dust US - Minnesota Hazardous Substance List US - Minnesota Permissible Exposure Limits (PELs) US - Rhode Island Hazardous Substance List US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants US - Washington Permissible exposure limits of air contaminants US DOE Temporary Emergency Exposure Limits (TEELs) US EPA High Production Volume Program Chemical List US FDA CFSAN Color Additive Status List 4 US FDA CFSAN Color Additive Status List 6	

**SECTION XVI – OTHER INFORMATION**

<b>Intended Use</b>	The material is generally used for treatment of gases (and liquids).
The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to determine the suitability and completeness of this information for their particular use.	
While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Calgon Carbon Corporation makes no warranty with respect to same and disclaims all liability for reliance there on.	

**Legend:**

ACGIH	- American Conference of Governmental Industrial Hygienists
ANSI	- American National Standards Institute
CAS #	- Chemical Abstracts Service Registry Number
CFR	- Code of Federal Regulations
CFSAN	- Center for Food Safety and Applied Nutrition
DOE	- Department of Energy
DOT	- Department of Transportation
DSL	- Domestic Substances List
EC <sub>50</sub>	- Effective Concentration of a material in water, in which a single dose is expected to cause a biological effect on 50% of a group of test animals.
EEC	- European Economic Community
EPA	- Environmental Protection Agency
FDA	- Food and Drug Administration
GHS	- Globally Harmonized System (of Classification and Labeling of Chemicals)
HMIS	- Hazardous Material Information System
IATA	- International Air Transportation Association
IARC	- International Agency for Research on Cancer
ICAO	- International Civil Aviation Organization
IMO	- International Maritime Organization
IMDG	- International Maritime Dangerous Goods
LC <sub>50</sub>	- The concentration of material in air expected to kill 50% of a group of test animals
LD <sub>50</sub>	- Lethal Dose expected to kill 50% of a group of test animals
LEL	- Lower Explosive Limit
NA	- Not applicable
NFPA	- National Fire Protection Association
NIOSH	- National Institute for Occupational Safety and Health
NTP	- National Toxicology Program
OECD	- Organization for Economic Cooperation and Development
OSHA	- Occupational Safety and Health Association
PEL	- Permissible Exposure Limit
SARA	- Superfund Amendments and Reauthorization Act
TLV	- Threshold Limit Value
TSCA	- Toxic Substances Control Act
TWA	- Time Weighted Average
UEL	- Upper Explosive Limit
WHMIS	- Workplace Hazardous Material Information System

\* \* \*END OF MATERIAL SAFETY DATA SHEET \* \* \*

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : MERCONTROL® 8034

Other means of identification : Not applicable.

Restrictions on use : Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.

Company : Nalco Company  
1601 W. Diehl Road  
Naperville, Illinois 60563-1198  
USA  
TEL: (630)305-1000

Emergency telephone number : (800) 424-9300 (24 Hours) CHEMTREC

Issuing date : 06/16/2014

**SECTION 2. HAZARDS IDENTIFICATION**

**GHS Classification**

Skin corrosion : Category 1A  
Serious eye damage/eye irritation : Category 1

**GHS Label element**

Hazard pictograms :



Signal Word : Danger

Hazard Statements : Causes severe skin burns and eye damage.

Precautionary Statements : **Prevention:**  
Wash skin thoroughly after handling. Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician. Wash contaminated clothing before reuse.  
**Storage:**  
Store locked up.  
**Disposal:**  
Dispose of contents/ container to an approved waste disposal plant.

# SAFETY DATA SHEET

**MERCONTROL® 8034**

**Other hazards** : None known.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Concentration: (%)
Sodium Sulphide	1313-82-2	1 - 5
Sodium Hydroxide	1310-73-2	0.1 - 1

## SECTION 4. FIRST AID MEASURES

- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
- In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes. Use a mild soap if available. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
- If swallowed : Rinse mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- If inhaled : Remove to fresh air. Treat symptomatically. Get medical attention if symptoms occur.
- Protection of first-aiders : In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.
- Notes to physician : Treat symptomatically.

**See toxicological information (Section 11)**

## SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : None known.
- Specific hazards during firefighting : Not flammable or combustible.
- Hazardous combustion products : Carbon oxides Sulphur oxides nitrogen oxides (NOx)
- Special protective equipment for firefighters : Use personal protective equipment.
- Specific extinguishing methods : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

## SAFETY DATA SHEET

### MERCONTROL® 8034

- Personal precautions, protective equipment and emergency procedures : Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : Do not allow contact with soil, surface or ground water.
- Methods and materials for containment and cleaning up : Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Flush away traces with water. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway.

### SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Do not ingest. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.
- Conditions for safe storage : Do not store near acids. Keep out of reach of children. Keep container tightly closed. Store in suitable labeled containers.
- Suitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.
- Unsuitable material : not determined

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

- Engineering measures : Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

#### Personal protective equipment

- Eye protection : Safety goggles  
Face-shield
- Hand protection : Wear the following personal protective equipment:  
Standard glove type.  
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Skin protection : Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing
- Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety

## SAFETY DATA SHEET

**MERCONTROL® 8034**

practice. Remove and wash contaminated clothing before re-use.  
Wash face, hands and any exposed skin thoroughly after handling.  
Provide suitable facilities for quick drenching or flushing of the eyes  
and body in case of contact or splash hazard.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid
Colour	: Brown
Odour	: Sulfurous
Flash point	: Method: ASTM D 93, Pensky-Martens closed cup does not flash
pH	: 11.5 - 13.1, 100 %
Odour Threshold	: no data available
Melting point/freezing point	: no data available
Initial boiling point and boiling range	: no data available
Evaporation rate	: no data available
Flammability (solid, gas)	: no data available
Upper explosion limit	: no data available
Lower explosion limit	: no data available
Vapour pressure	: no data available
Relative vapour density	: no data available
Relative density	: 1.10 - 1.35 (25 °C)
Density	: no data available
Water solubility	: completely soluble
Solubility in other solvents	: no data available
Partition coefficient: n-octanol/water	: no data available
Auto-ignition temperature	: no data available
Thermal decomposition	: Carbon oxides Sulphur oxides nitrogen oxides (NOx)
Viscosity, dynamic	: no data available
Viscosity, kinematic	: no data available
VOC	: 0 % 0 g/l

### SECTION 10. STABILITY AND REACTIVITY

Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use.
Conditions to avoid	: None known.
Incompatible materials	: Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may

## SAFETY DATA SHEET

**MERCONTROL® 8034**

generate heat, fires, explosions and/or toxic vapors.  
Contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors.

May release SO<sub>2</sub> or hydrogen sulfide on contact with acids.

Hazardous decomposition products : Carbon oxides  
Oxides of nitrogen  
Oxides of sulfur

### SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation, Eye contact, Skin contact

#### Potential Health Effects

Eyes : Causes serious eye damage.  
Skin : Causes severe skin burns.  
Ingestion : Causes digestive tract burns.  
Inhalation : May cause nose, throat, and lung irritation.  
Chronic Exposure : Health injuries are not known or expected under normal use.

#### Experience with human exposure

Eye contact : Redness, Pain, Corrosion  
Skin contact : Redness, Pain, Corrosion  
Ingestion : Corrosion, Abdominal pain  
Inhalation : Respiratory irritation, Cough

#### Toxicity

##### Product

Acute oral toxicity : Acute toxicity estimate : > 5,000 mg/kg  
Acute inhalation toxicity : no data available  
Acute dermal toxicity : Acute toxicity estimate : > 5,000 mg/kg  
Skin corrosion/irritation : no data available  
Serious eye damage/eye irritation : no data available  
Respiratory or skin sensitization : no data available  
Carcinogenicity : no data available

## SAFETY DATA SHEET

### MERCONTROL® 8034

Reproductive effects : no data available  
Germ cell mutagenicity : no data available  
Teratogenicity : no data available  
STOT - single exposure : no data available  
STOT - repeated exposure : no data available  
Aspiration toxicity : no data available

### SECTION 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

Environmental Effects : Harmful to aquatic life.

#### Product

Toxicity to fish : LC50 Rainbow Trout: 74 mg/l  
Exposure time: 96 hrs  
Test substance: Product  
  
LC50 Sheepshead Minnow: > 1,000 mg/l  
Exposure time: 96 hrs  
Test substance: Product  
  
LC50 Fathead Minnow: 602 mg/l  
Exposure time: 96 h  
Test substance: Product

Toxicity to daphnia and other aquatic invertebrates : LC50 Daphnia magna: 73 mg/l  
Exposure time: 48 hrs  
Test substance: Product  
  
EC50 Daphnia magna: 18 mg/l  
Exposure time: 48 hrs  
Test substance: Product

Toxicity to algae : no data available

Toxicity to fish (Chronic toxicity) : NOEC: 38 mg/l  
Exposure time: 7 d  
Species: Fathead Minnow  
Test substance: Product  
  
EC25 / IC25: 72 mg/l  
Exposure time: 7 d  
Species: Fathead Minnow  
Test substance: Product  
  
LOEC: 75 mg/l  
Exposure time: 7 d  
Species: Fathead Minnow  
Test substance: Product



## SAFETY DATA SHEET

### MERCONTROL® 8034

#### Persistence and degradability

The organic portion of this preparation is expected to be poorly biodegradable.

Chemical Oxygen Demand (COD): 420,000 mg/l

#### Mobility

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.

If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	:	<5%
Water	:	30 - 50%
Soil	:	> 90%

The portion in water is expected to be soluble or dispersible.

#### Bioaccumulative potential

This preparation or material is not expected to bioaccumulate.

#### Other information

no data available

### SECTION 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste.

Hazardous Waste: : D002

Disposal methods : The product should not be allowed to enter drains, water courses or the soil. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

### SECTION 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

#### Land transport (DOT)

Proper shipping name	:	SODIUM HYDROXIDE SOLUTION
Technical name(s)	:	
UN/ID No.	:	UN 1824

## SAFETY DATA SHEET

### MERCONTROL® 8034

Transport hazard class(es) : 8  
Packing group : III

#### Air transport (IATA)

Proper shipping name : SODIUM HYDROXIDE SOLUTION  
Technical name(s) :  
UN/ID No. : UN 1824  
Transport hazard class(es) : 8  
Packing group : III

#### Sea Transport (IMDG/IMO)

Proper shipping name : SODIUM HYDROXIDE SOLUTION  
Technical name(s) :  
UN/ID No. : UN 1824  
Transport hazard class(es) : 8  
Packing group : III

### SECTION 15. REGULATORY INFORMATION

#### EPCRA - Emergency Planning and Community Right-to-Know Act

##### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

**SARA 311/312 Hazards** : Acute Health Hazard

**SARA 302** : SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313** : SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### California Prop 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

#### INTERNATIONAL CHEMICAL CONTROL LAWS :

##### TOXIC SUBSTANCES CONTROL ACT (TSCA)

The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

##### CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

This product contains substance(s) which are not listed on the Domestic Substances List (DSL) or the Non-Domestic Substances List (NDSL).

##### AUSTRALIA

All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

##### EUROPE

The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

# SAFETY DATA SHEET

## MERCONTROL® 8034

### JAPAN

All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

### KOREA

All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

### NEW ZEALAND

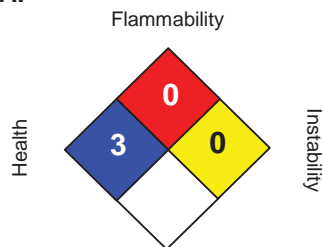
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996, and are listed on or are exempt from the New Zealand Inventory of Chemicals.

### PHILIPPINES

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

## SECTION 16: OTHER INFORMATION

### NFPA:



Special hazard.

### HMIS III:

HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,  
2 = Moderate, 3 = High  
4 = Extreme, \* = Chronic

Revision Date : 06/16/2014  
Version Number : 1.0  
Prepared By : Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

For additional copies of an MSDS visit [www.nalco.com](http://www.nalco.com) and request access.

### 1. IDENTIFICATION

#### 1.1 Product Identifiers

Product name	Remotox
Chemical family	Inorganic Salt
Formula	CaSx
CAS No	1344-81-6

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Remediation of heavy metals in soil, groundwater and wastewater
-----------------	---

#### 1.3 Details of the supplier of the Safety Data Sheet

Company	Graus Chemicals, LLC 7800 N 55 Ave #102 Glendale, AZ 85301 Phone #: 1-623-328-5175 Fax #: 1-623-398-8945 E-mail: info@grauschem.com
---------	--

#### 1.4 Emergency telephone no.

1-800-424-9300 or 1-703-527-3887 CHEMTREC (24/7)

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Acute inhalation toxicity	Category 4
Skin corrosion/irritation	Category 2
Eye damage/irritation	Category 2B

#### 2.2 Labeling elements

Signal word	Warning
Hazard Statements	Harmful if swallowed Harmful in contact with skin Harmful if inhaled Causes skin irritation Causes eye irritation

Symbols



Precautionary statements

- IF ON SKIN, wash with plenty of water.
- IF IN EYES, rinse cautiously with water for several minutes.
- IF SWALLOWED, promptly drink large amounts of milk, egg whites or gelatin solution, or if these are not available, water. Do NOT induce vomiting.
- IF INHALED, remove person to fresh air and keep at rest.

#### 2.3 Other hazards

Potential aquatic toxicity

### 3. INFORMATION ON INGREDIENTS

#### 3.1 Product composition

Chemical Name	Formula	CAS No.	EINECS No.	By wt.
Calcium Polysulfide	CaSx	1344-81-6	215-709-2	25-32%
Water	H2O	7732-18-5	231-791-2	68-75%

### 4. FIRST AID MEASURES

#### 4.1 Description of First Aid Measures

<b>Eyes</b>	Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Seek medical treatment if irritation occurs.
<b>Skin</b>	Wash skin with soap and water. Remove contaminated clothing under a safety shower. Seek medical treatment if irritation occurs.
<b>Ingestion</b>	If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. Seek medical treatment. Show this Health and Safety Data Sheet.
<b>Inhalation</b>	In case of accident by inhalation: remove person to fresh air and keep at rest. If breathing is labored, oxygen should be administered by qualified personnel. Apply artificial respiration if breathing has ceased or shows signs of failing. Seek medical treatment.

**Notes to a physician:** Treat symptomatically.

#### 4.2 Most important symptoms and effects both acute and chronic

May cause irritation to skin and eyes. Ingestion may irritate the gastrointestinal tract.  
No known chronic effects.

# SAFETY DATA SHEET

## 5. FIRE FIGHTING MEASURES

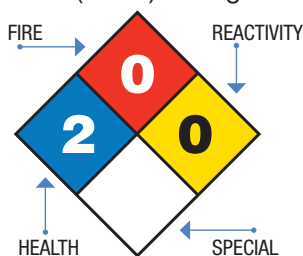
- 5.1 Extinguishing media**  
Non-combustible
- 5.2 Hazards arising from the substance or mixture**  
Heating of containers may cause pressure rise, with risk of bursting.  
Heating causes release of hydrogen sulfide. Acidic materials cause release of hydrogen sulfide.
- 5.3 Advise to firefighters**  
Due to the possible presence of gases and the irritating nature of the product, wear self-contained breathing apparatus, positive pressure and full protective gear. Keep containers/storage vessels in fire area cooled with water spray.

### 5.4 Additional information

National Fire Protection Association (NFPA) Ratings

Health	2
Flammability	0
Reactivity	0
Special	not applicable

HAZARD RATING: 4 SEVERE,  
3 SERIOUS, 2 MODERATE,  
1 SLIGHT 0 MINIMAL






## 6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures**  
Wear suitable protective clothing, gloves and eye/face protection.
- 6.2 Environmental precautions**  
Do not empty into drains; dispose of this material and its container in a safe way.  
Avoid release to the aquatic environment because of potential aquatic toxicity.
- 6.3 Methods and materials for containment and cleaning up**  
**SMALL RELEASE:** Adsorb spillages onto sand, earth or any suitable adsorbent material. Spilled material may contain residual sulfides. Spray with weak (~5%) hydrogen peroxide to oxidize sulfides.  
**LARGE RELEASE:** Confine area to qualified personnel. Wear proper protective equipment. Shut off release. Dike spill area to prevent runoff into sewers or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible by using pump and hoses, and place in containers for disposal as a chemical waste. Treat remaining material as a small release.

## 7. HANDLING AND STORAGE

- 7.1 Precautions for safe handling**  
Provide adequate ventilation when using the material and follow the principles of good occupational hygiene to control personal exposures. Avoid contact with eyes. Wash thoroughly after handling. Avoid prolonged or repeated breathing of vapors. Avoid prolonged or repeated contact with the skin.
- 7.2 Conditions for safe storage, including any incompatibilities**  
Keep container tightly closed and dry. Keep in a cool, well-ventilated place away from acids and combustibles. Keep away from direct sunlight. Use dry plastic or stainless steel containers for repacking.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 Exposure parameters**  
OSHA (TWA, STEL) < 20 ppm of hydrogen sulfide  
ACGIH (TLV, STEL) < 10 ppm of hydrogen sulfide
- 8.2 Engineering controls**  
Use adequate exhaust ventilation to prevent inhalation of product vapors. See section 7.1
- 8.3 Personal protection measures**
-  Eye protection: Wear eye/face protection. Safety glasses with side-shields. Use equipment for eye protection tested and approved under appropriate government standards such as MSHA/NIOSH (US) or EN 166 (EU).
  -  Skin Protection: Neoprene rubber gloves and apron should be worn to prevent repeated or prolonged contact with the material. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
  -  Respiratory Protection: Have self-contained breathing apparatus, positive pressure, MSHA/NIOSH (approved or equivalent) available in case of spillage or equipment failure.
- 8.4 Other**  
Handle in accordance with good industrial hygiene and safety practice. Wash hands thoroughly after handling.

# SAFETY DATA SHEET

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance	Ruby-red aqueous solution
Odor	Moderate sulfide odor (rotten eggs)
pH	10.0 - 11.9
Specific Gravity	1.20 – 1.28 (~10.6 lbs/gal)
Crystallization Temperature	20 – 32 °F
Viscosity	2.95 cSt @ 20 °C, 2.5 cSt @ 30 °C
Water Solubility	Complete
Vapor Pressure	Minimal to none at ambient temperature
Freezing Point	Not determined
Vapor Density	Not determined
Boiling Point	Not determined
Decomposition Temperature	Not determined
Volatile	Not applicable
Flammability	Not applicable

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

Strong oxidizers, acids, metals

### 10.2 Chemical stability

Stable. Storage life at recommended conditions: (Minimum) 1 year

### 10.3 Possible hazardous interactions

Keep away from strong oxidizing agents. Keep away from acids.

### 10.4 Conditions to avoid

Direct sunlight, excessive heat and freezing conditions.

### 10.5 Incompatible materials

Oxidizing agents, acids, attacks many metals

### 10.6 Hazardous composition products

Hydrogen sulfide

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

Oral	LD50: 820 mg/kg	Species: Rat
Inhalation	LC50: 3.6 mg/l (4 hr exposure)	Species: Rat
Dermal	LD50: 2,000 mg/kg	Species: Rabbit
Chronic/Carcinogenicity	No evidence available	
Teratology	Data not available	
Reproduction	Data not available	
Mutagenicity	Data not available	

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Green Algae, EC50	16.4 mg/l
Water Flea, EC50	13.7 mg/l
Bluegill, LC50	52.9 mg/l
Flathead minnow, LC50	42.9 mg/l
Rainbow trout, LC50	8.8 mg/l

### 12.1 Persistence and degradability

No data available

### 12.3 Bioaccumulation potential

Not applicable

### 12.4 Mobility in soil

No data available

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

If material, as supplied, becomes a waste, it should be checked for reactive sulfides prior to disposal. Consult state and local regulations for different or more restrictive disposal regulations.

## 14. TRANSPORTATION

### 14.1 Basic shipping information

UN number	Not applicable
UN proper shipping name	Calcium polysulfide solution (not regulated by DOT)
Class	Not applicable
Packing group	Not applicable
Environmental hazard(s)	No
Special precautions for user	No data available

### 14.2 Other DOT requirements

DOT reportable quantity	No
Placard(s)	Not applicable
Label(s)	Not applicable

### 14.3 International transportation

IMO	Environmentally hazardous substance, liquid, n.o.s.
IATA	Non-hazardous under IATA regulations
TDG (Canada)	Not regulated. See section 14.2
ADR (Europe)	Environmentally hazardous substance, liquid, n.o.s.
RR STCC	2899991



# SAFETY DATA SHEET

## 15. REGULATORY INFORMATION

### 15.1 US Regulations

OSHA	Substance meets Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200.
TSCA	Substance is listed
CERCLA	Not applicable
SARA TITLE III	
a) EHS (Extremely Hazardous Substance)	No
b) Section 312, (Tier II): Immediate (acute)	Yes
Fire	No
Sudden release	No
Reactivity	Yes
Delayed (chronic)	No
c) Section 313 (Toxic Release Report Form R)	No
RCRA	Not applicable
CAA, HAP	Not applicable
FIFRA	No

### 15.2 International Regulations

WHMIS	Not determined
DSL/NDSL	Listed in NDSL, Record No. 28636

## 16. OTHER INFORMATION

### 16.1 Use of Substance/Preparation

Heavy metals fixation reagent, agricultural soil amendment and crop protection agent. This product should not be used without appropriate guidance and supervision. The supplier cannot be held liable for the inappropriate use, storage, transport or handling of this product.

### 16.2 Abbreviations

ACGIH	American Conference of Gov. Industrial Hygienists	IMO	International Maritime Organization
ADG	Australian Dangerous Goods	OSHA	Occupational Safety Health Administration
ADR	Carriage of Dangerous Goods by Road (Europe)	RCRA	Resource Conservation and Recovery Act
CAA	Clean Air Act	STCC	Standard Transportation Commodity Code
CAS	Chemical Abstracts Service Registry Number	STEL	Short Term Exposure Limit (15 minutes)
CERCLA	Comprehensive Environmental Response Compensation and Liability Act	TDG	Transportation of Dangerous Goods (Canada)
DSL	Domestic/Non-Domestic Substance List	TLV	Threshold Limit Value
ERAP	Emergency Response Assistance Plan (Canada)	TSCA	Toxic Substance Control Act Inventory
FIFRA	Federal Insecticide, Fungicide, Rodenticide Act	TWA	Time Weighted Average (8 hours)
GHS	Globally Harmonized System of Classification	WHMIS	Workplace Hazardous Materials Information System
IATA	Integrated Approaches to Testing and Assessment		

The information compiled in this safety data sheet is believed to be accurate and is given in good faith, but it is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. No warranty or guarantee, expressed or implied, is made regarding performance, stability or otherwise, of this product, as the manner and conditions of use, handling, storage and other factors may involve other additional safety or performance considerations. No suggestions for use are intended as, and nothing herein shall be construed as a recommendation to infringe any existing patents or violate Federal, State or local laws.

Date of Revision: 5/01/2014 (formatted to comply to GHS standards)

Date of Issue: 11/1/2012



**APPLICATION FOR AIR PERMIT - LONG FORM**  
**DEP Form No. 62-210.900(1)**





# Department of Environmental Protection

## 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 any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

**Air Operation Permit** – Use this form to apply for:

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

**To ensure accuracy, please see form instructions.**

#### Identification of Facility

1. Facility Owner/Company Name: <b>Orlando Utilities Commission</b>	
2. Site Name: <b>Stanton Energy Center</b>	
3. Facility Identification Number: <b>0950137</b>	
4. Facility Location... Street Address or Other Locator: <b>5100 South Alafaya Trail</b> City: <b>Orlando</b> County: <b>Orange</b> Zip Code: <b>32193</b>	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

#### Application Contact

1. Application Contact Name: <b>David R. Baez</b>	
2. Application Contact Mailing Address... Organization/Firm: <b>Orlando Utilities Commission</b> Street Address: <b>P.O. Box 3193</b> City: <b>Orlando</b> State: <b>FL</b> Zip Code: <b>32802</b>	
3. Application Contact Telephone Numbers... Telephone: <b>(407) 434-3072</b> ext.      Fax: <b>(407) 244-8794</b>	
4. Application Contact E-mail Address: <b>dbaez@ouc.com</b>	

#### Application Processing Information (DEP Use)

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

## APPLICATION INFORMATION

### Purpose of Application

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

#### **Air Construction Permit**

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

#### **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

The purpose of this permit application is to request authorization for the installation of several pollutant reduction systems. Specifically, OUC is requesting the installation of a Fuel Lean Gas Reburn (FLGR) system on Units 1 and 2 for additional NOx reduction. This is in response to the US EPA's requested implementation of the Cross State Air Pollution Rule (CSAPR) by 2015, which will require NOx reductions from the Stanton Energy Center. In addition, OUC is proposing upgrades to the wet FGD system on Unit 2. These proposed upgrades to the wet FGD system would be similar to the upgrades already completed on Unit 1. Finally, OUC proposes to install an activated carbon injection (ACI) system similar to the temporary system previously authorized by Permit No. 0950137-042-AC. This system will be used in combination with chemical spray technology to mitigate mercury emissions. The proposed portable ACI system may be used on either Unit 1 or Unit 2. The proposed chemical spray technology is based on spray application of halogen-based additives such as calcium bromide (CaBr<sub>2</sub>) into the coal feeder and sodium hydrosulfide (NaHS) into the wet FGD system.

**Scope of Application**

<b>Emissions Unit ID Number</b>	<b>Description of Emissions Unit</b>	<b>Air Permit Type</b>	<b>Air Permit Processing Fee</b>
001	Fossil Fuel Fired Steam Electric Generator No. 1	AC1B	N/A
002	Fossil Fuel Fired Steam Electric Generator No. 2	AC1B	N/A

**Application Processing Fee**

Check one:  Attached - Amount: \$\_\_\_\_\_  Not Applicable

**Owner/Authorized Representative Statement**

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

1. Owner/Authorized Representative Name : <b>Chip Merriam, VP Legislative and Regulatory Affairs</b>
2. Owner/Authorized Representative Mailing Address... Organization/Firm: <b>Orlando Utilities Commission</b> Street Address: <b>Reliable Plaza, 100 West Anderson Street</b> City: <b>Orlando</b> State: <b>FL</b> Zip Code: <b>32801</b>
3. Owner/Authorized Representative Telephone Numbers... Telephone: <b>(407) 434-2201</b> ext. Fax: <b>(407) 275-4120</b>
4. Owner/Authorized Representative E-mail Address: <b>cmerriam@ouc.com</b>
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>  _____ Signature  _____ Date

**Application Responsible Official Certification**

**Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation 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):			
<input type="checkbox"/> 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.			
<input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively.			
<input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.			
<input type="checkbox"/> The designated representative at an Acid Rain source or CAIR 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 E-mail Address:			
6. Application Responsible Official Certification:			
<p>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.</p>			
_____		_____	
Signature		Date	

**Professional Engineer Certification**

1. Professional Engineer Name: <b>Scott H. Osbourn</b> Registration Number: <b>57557</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Golder Associates Inc.**</b> Street Address: <b>5100 West Lemon Street, Suite 208</b> City: <b>Tampa</b> State: <b>FL</b> Zip Code: <b>33609</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(813) 287-1717</b> ext. <b>53304</b> Fax: <b>(813) 287-1716</b>
4. Professional Engineer E-mail Address: <b>sosbourn@golder.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(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</i> <i>(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.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/> , 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.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/> , 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 <input type="checkbox"/> , 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.</i> <i>(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 <input type="checkbox"/> , 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.</i>  <div style="display: flex; justify-content: space-between;"><div style="width: 45%;"><p>_____</p><p>Signature</p><p>(seal)</p></div><div style="width: 45%; text-align: right;"><p><u>October 29, 2014</u></p><p>Date</p></div></div>

\* 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 <b>17</b> East (km) <b>483.5</b> North (km) <b>3150.6</b>		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) <b>28° 29' 1" N</b> Longitude (DD/MM/SS) <b>81° 10' 7" W</b>	
3. Governmental Facility Code: <b>4</b>	4. Facility Status Code: <b>A</b>	5. Facility Major Group SIC Code: <b>49</b>	6. Facility SIC(s):  <b>4911</b>
7. Facility Comment :			

#### Facility Contact

1. Facility Contact Name: <b>David R. Baez, Project Engineer, Environmental Affairs</b>
2. Facility Contact Mailing Address... Organization/Firm: <b>Orlando Utilities Commission</b> Street Address: <b>P.O. Box 3193</b> City: <b>Orlando</b> State: <b>FL</b> Zip Code: <b>32802</b>
3. Facility Contact Telephone Numbers: Telephone: <b>(407) 434-3072</b> ext.                                  Fax: <b>(407) 244-8794</b>
4. Facility Contact E-mail Address:

#### 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 E-mail Address:



**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. <input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input checked="" type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input checked="" type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:  <b>Orlando Utilities Commission plans to comply with the Utility Mercury and Air Toxics Standards (MATS) under the NESHAP, Subpart UUUUU when the requirements become applicable on April 16, 2015.</b>	

**List of Pollutants Emitted by Facility**

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
<b>Total PM/PM<sub>10</sub>/PM<sub>2.5</sub></b>	<b>A</b>	<b>N</b>
<b>CO</b>	<b>A</b>	<b>N</b>
<b>SAM/SO<sub>2</sub></b>	<b>A</b>	<b>N</b>
<b>NOx</b>	<b>A</b>	<b>N</b>
<b>VOC</b>	<b>A</b>	<b>N</b>
<b>Pb – Lead</b>	<b>A</b>	<b>N</b>
<b>Be – Beryllium Compounds</b>	<b>A</b>	<b>N</b>
<b>Hg – Mercury</b>	<b>A</b>	<b>N</b>
<b>FL – Fluorides</b>	<b>A</b>	<b>N</b>
<b>CO<sub>2e</sub></b>	<b>B</b>	<b>N</b>

**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'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) <input checked="" type="checkbox"/> Attached, Document ID: <b>SEC-FI-C1</b> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>SEC-FI-C2</b> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>SEC-FI-C3</b> <input type="checkbox"/> Previously Submitted, Date: _____

#### Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (existing permitted facility)
2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): <input checked="" type="checkbox"/> Attached, Document ID: <b>Report, Section 2</b> _____
3. Rule Applicability Analysis: <input checked="" type="checkbox"/> Attached, Document ID: <b>Report, Section 3</b> _____
4. List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**C. FACILITY ADDITIONAL INFORMATION (CONTINUED)**

**Additional Requirements for FESOP Applications**

1. List of Exempt Emissions Units:  
 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 Onsite 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

**C. FACILITY ADDITIONAL INFORMATION (CONTINUED)**

**Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program**

1. Acid Rain Program Forms:

Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: 05/20/2014

Not Applicable (not an Acid Rain source)

Phase II NO<sub>x</sub> Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: 05/20/2014

Not Applicable

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

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: \_\_\_\_\_

Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: 05/20/2014

Not Applicable (not a CAIR source)

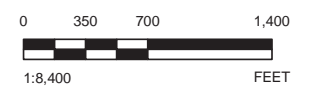
**Additional Requirements Comment**





All Golder Associates work products remain the property of Golder Associates. All rights reserved. All work products are the property of Golder Associates.

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aergrid, IGN, IGP, swisstopo, and the GIS User Community



**REFERENCE**  
 COORDINATE SYSTEM: NAD 1983 STATE PLANE FLORIDA EAST FIPS 0901 FEET  
 PROJECTION: TRANSVERSE MERCATOR  
 DATUM: NORTH AMERICAN 1983

**CLIENT**  
 ORLANDO UTILITIES COMMISSION  
 STANTON ENERGY CENTER

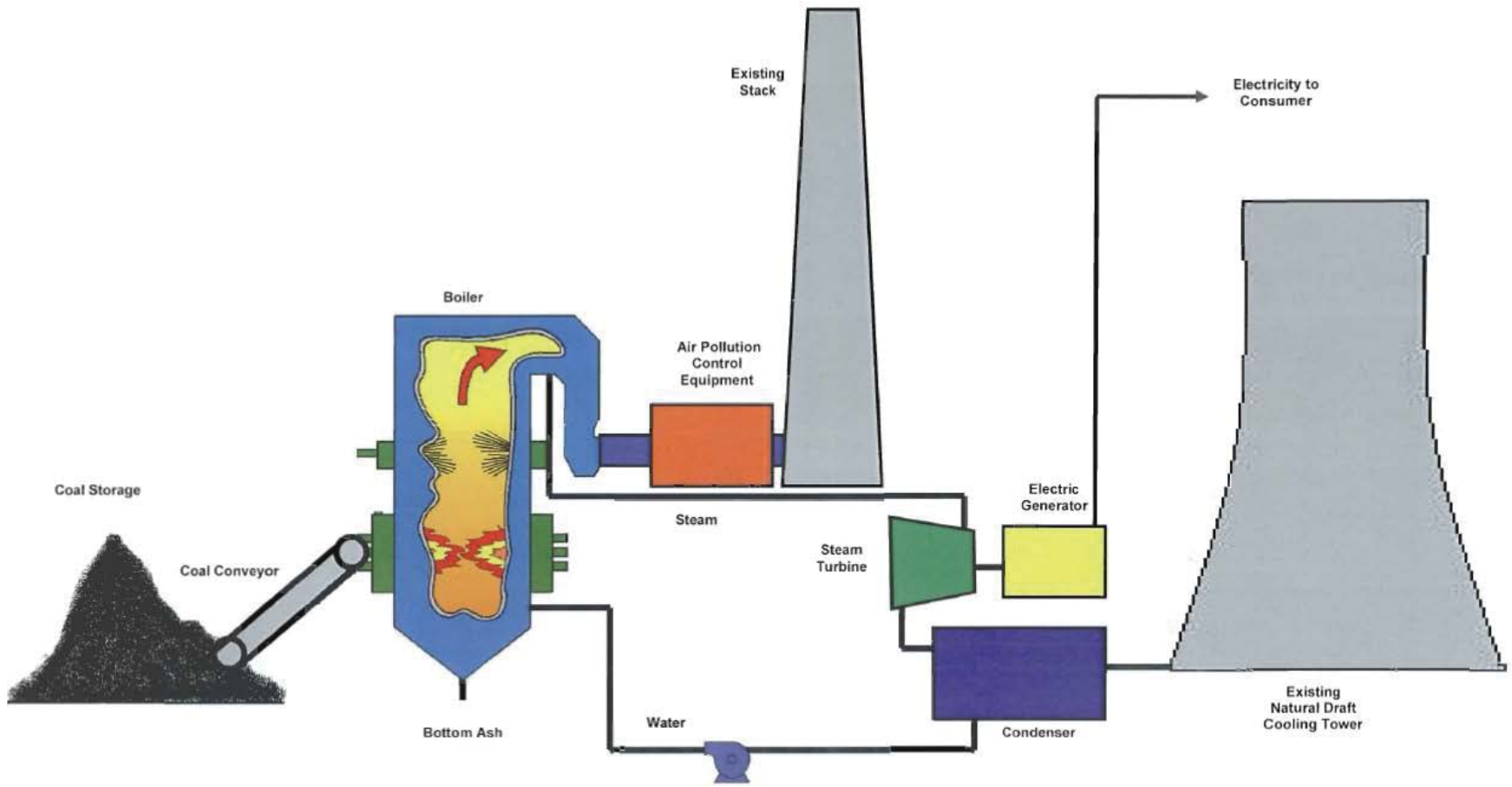
**PROJECT**  
 TITLE V RENEWAL APPLICATION


**TITLE**  
 FACILITY PLOT PLAN

CONSULTANT	YYYY-MM-DD	2014-05-12
	PREPARED	GD
	DESIGN	GD
	REVIEW	NRL
	APPROVED	MT

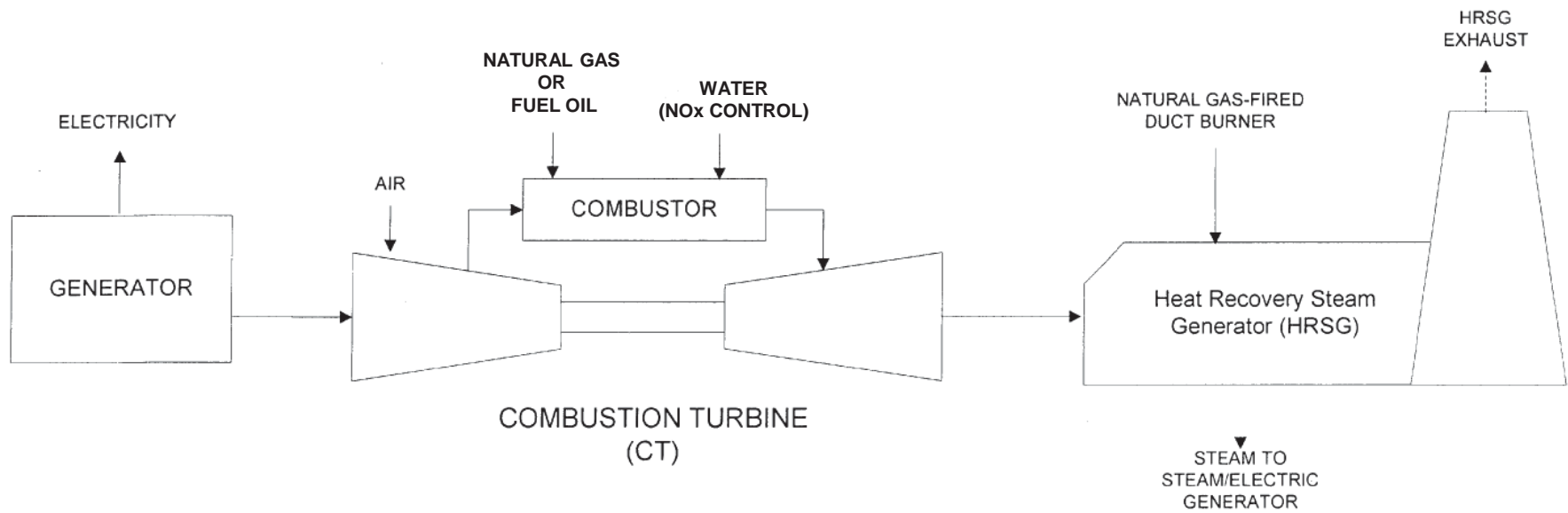
PROJECT No. 1400166	CONTROL 003	Rev. 0	FIGURE 1
------------------------	----------------	-----------	-------------

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM



CLIENT/PROJECT Orlando Utilities Commission – Stanton Energy Center SOURCE: GOLDER 2014			GAINESVILLE, FLORIDA 			TITLE <b>Process Flow Diagram</b> <b>OUC – Stanton Energy Center</b> <b>Orlando, Florida</b>			
CHECKED MDT	REVIEWED SHO	DATE 5/8/2014	SCALE	FILE NO.	Job No. 14-00166	DWG NO.	SUBTITLE	REV. NO.	<b>SEC-FI-C2a</b>





CLIENT/PROJECT <b>Orlando Utilities Commission – Stanton Energy Center</b> SOURCE: GOLDER 2014			GAINESVILLE, FLORIDA 			TITLE <b>Process Flow Diagram          OUC – Stanton Energy Center          Orlando, Florida</b>			
CHECKED MDT	REVIEWED SHO	DATE 5/8/2014	SCALE	FILE NO.	Job No. 14-00166	DWG NO.	SUBTITLE	REV. NO.	<b>SEC-FI-C2b</b>

## ATTACHMENT SEC-FI-C3

### PRECAUTIONS TO PREVENT EMISSIONS OF UNCONFINED PARTICULATE MATTER

Unconfined particulate matter (PM) emissions that may result from operations at the Stanton Energy Center include:

- Vehicular traffic on paved and unpaved roads;
- Wind-blown dust from yard areas; and
- Periodic abrasive blasting.

The following techniques may be used to control unconfined PM emissions on an as-needed basis:

- Paving and maintenance of roads, parking areas, and yards;
- Chemical (dust suppressants) or water application to:
  - Unpaved roads
  - Unpaved yard areas
- Removal of PM from roads and other paved areas to prevent re-entrainment and from buildings or work areas to prevent airborne particulate;
- Landscaping or planting of vegetation;
- Confining abrasive blasting where possible; and
- Other techniques, as necessary.

## Available Fugitive Dust Control Methods for Disturbed Surface Areas

Control Method	Description/Remarks
Work Practice Controls	Paving identified roads and access points early in the construction process, phasing of earth moving activities to reduce disturbed surface extent, compaction and/or stabilization of disturbed surfaces as quickly as practical. Onsite traffic control program to direct, control, and restrict unnecessary traffic.
Watering	Use of water or water plus a wetting agent to suppress fugitive dust over disturbed areas. Typically applied with spray nozzles attached to a special truck adapted for this purpose. Temporary in nature, but cost-effective even with frequent reapplication.
Graveling	Graveling of high volume traffic areas within the disturbed area of the construction site provides a physical stabilization of the exposed surface and covers the surface with a material having a lower silt content.
Wind Fencing	Wind fencing provides a sheltered region behind the fence line which reduces the mechanical turbulence generated by the ambient winds. The sheltered area of dust control is proportional to the physical height of the fence around the disturbed surface.
Physical Stabilization	Physical stabilization methods involve the application of materials such as bark, wood chips, straw, or other suitable materials to cover the exposed surface, thus preventing the wind from disturbing the surface particles. Graveling is one example of physical stabilization.
Vegetative Stabilization	Vegetative cover provides a physical stabilization and wind shelter of the disturbed surface. However, it is effective only on inactive areas of the disturbed surfaces where frequent mechanical (i.e., earth moving) activities are not anticipated. As such, it is typically not implemented during short-term construction activities.
Chemical Stabilization	Chemical stabilization is a dust suppressant method that uses binding agents that, upon application, bind the surface particles to form a protective crust over the disturbed surface. Typically, the temporary nature of construction activities does not warrant their use as they are not cost-effective over such a small scale of application and reapplication.

## Available Fugitive Dust Control Methods for Storage Piles

Control Method	Description/Remarks
Work Practice Controls	Minimize temporary material storage pile(s) size and number by utilizing phased earth moving activities. Minimized drop height when adding material to the pile(s), and perform loading and unloading operations on the leeward (downwind) side of the pile. Cleanup spillage and maintain material to the confines of the pile.
Watering	Use of water or water plus a wetting agent to suppress fugitive dust from the storage pile. Temporary in nature, but cost-effective even with frequent reapplication.
Wind Fencing / Barriers	Wind fencing or partial temporary barriers or enclosures provides a sheltered region in the vicinity of the storage pile which reduces the mechanical turbulence generated by the ambient winds. The sheltered area of dust control is proportional to the physical height of the fence or barrier.
Chemical Stabilization	Chemical stabilization is a dust suppressant method that uses binding agents that, upon application, bind the surface particles to form a protective crust over the disturbed surface. Typically, the temporary nature of construction activities does not warrant their use as they are not cost-effective over such a small scale of application and reapplication.

## Available Fugitive Dust Control Methods for Earth Moving

Control Method	Description/Remarks
Work Practice Controls	Onsite traffic control program to direct, control speed, and restrict unnecessary traffic. Reduce offsite hauling with balanced cut and fill operations and construction management. Cover truck beds during material hauling operations.
Watering	Pre-application of water or water plus a wetting agent to suppress fugitive dust prior to, and to the extent possible, during each moving operations. Temporary in nature, but cost-effective even with frequent reapplication.
Wheel Washing	Water washing of heavy construction equipment wheels and undercarriages at construction site egress points to prevent material trackout and deposition outside of the construction site. System may include automatic or manual sprayers, and/or drive-through wheel washing basins.
Wind Fencing / Barriers	Wind fencing or partial temporary barriers or enclosures provides a sheltered region in the vicinity of the storage pile which reduces the mechanical turbulence generated by the ambient winds. The sheltered area of dust control is proportional to the physical height of the fence barrier.
Chemical Stabilization	Chemical stabilization is a dust suppressant method that uses binding agents that, upon application, bind the surface particles to form a protective crust over the disturbed surface. Typically, the temporary nature of construction activities does not warrant their use as they are not cost-effective over such a small scale of application and reapplication.

## Available Fugitive Dust Control Methods for Vehicular Traffic

Control Method	Description/Remarks
Work Practice Controls	Onsite traffic control program to direct, control speed, and restrict unnecessary traffic. Reduce offsite hauling with balanced cut and fill operations and construction management. Cover truck beds during material hauling operations.
Watering	<p>UNPAVED ROADS</p> <p>Application of water or water plus a wetting agent to suppress fugitive dust prior to, and the extent possible, during earth moving operations. Temporary in nature, but cost-effective even with frequent reapplication.</p>
Graveling	Graveling of high volume traffic areas within the disturbed area of the construction site provides a physical stabilization of the exposed surface and covers the surface with a material having a lower silt content.
Chemical Stabilization	Chemical stabilization is a dust suppressant method that uses binding agents that, upon application, bind the surface particles to form a protective crust over the disturbed surface. Typically, the temporary nature of construction activities does not warrant their use as they are not cost-effective over such a small scale of application and reapplication.

## EMISSIONS UNIT INFORMATION

### Section [1]

#### Fossil Fuel Fired Steam Electric Generator No. 1

### 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.

# EMISSIONS UNIT INFORMATION

## Section [1]

### Fossil Fuel Fired Steam Electric Generator No. 1

#### 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 Fired Steam Electric Generator No. 1**

3. Emissions Unit Identification Number: **001**

4. Emissions Unit Status Code: <b>A</b>	5. Commence Construction Date:	6. Initial Startup Date: <b>01-JUL-85</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
--	--------------------------------	--	--

8. Federal Program Applicability: (Check all that apply)

- Acid Rain Unit
- CAIR Unit

9. Package Unit:  
Manufacturer:

Model Number:

10. Generator Nameplate Rating: **468 MW**

11. Emissions Unit Comment:



**EMISSIONS UNIT INFORMATION**

**Section [1]**

**Fossil Fuel Fired Steam Electric Generator No. 1**

**Emissions Unit Control Equipment/Method: Control 1 of 3**

1. Control Equipment/Method Description:  
**Wet Scrubber Flue Gas Desulfurization (WFGD)**

2. Control Device or Method Code: **013**

**Emissions Unit Control Equipment/Method: Control 2 of 3**

1. Control Equipment/Method Description:  
**Electrostatic Precipitator High Efficiency (95.0 – 99.0%)**

2. Control Device or Method Code: **010**

**Emissions Unit Control Equipment/Method: Control 3 of 3**

1. Control Equipment/Method Description:  
**Low NOx Burners with Overfire Air**

2. Control Device or Method Code: **204/205**

**Emissions Unit Control Equipment/Method: Control \_\_\_\_ of \_\_\_\_**

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**EMISSIONS UNIT INFORMATION**

**Section [1]**

**Fossil Fuel Fired Steam Electric Generator No. 1**

**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:	<b>468 MW</b>	
3. Maximum Heat Input Rate:	<b>4,800</b> million Btu/hr	
4. Maximum Incineration Rate:	pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	<b>24</b> hours/day <b>52</b> weeks/year	<b>7</b> days/week <b>8,760</b> hours/year
6. Operating Capacity/Schedule Comment:		

**EMISSIONS UNIT INFORMATION**

Section [1]

Fossil Fuel Fired Steam Electric Generator No. 1

**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: <b>See Attachment SEC-FI-C1</b>		2. Emission Point Type Code: <b>1</b>	
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:	6. Stack Height: <b>560 feet</b>	7. Exit Diameter: <b>19 Feet</b>	
8. Exit Temperature: <b>127 °F</b>	9. Actual Volumetric Flow Rate: <b>1,420,000 acfm</b>	10. Water Vapor: <b>%</b>	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: <b>17</b> East (km): <b>483.05</b> North (km): <b>3150.06</b>		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) <b>28° 28' 43" N</b> Longitude (DD/MM/SS) <b>81° 10' 30" W</b>	
15. Emission Point Comment:			

## EMISSIONS UNIT INFORMATION

Section [1]

Fossil Fuel Fired Steam Electric Generator No. 1

### D. SEGMENT (PROCESS/FUEL) INFORMATION

**Segment Description and Rate:** Segment 1 of 3

1. Segment Description (Process/Fuel Type): <b>External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom (Bituminous Coal)</b>		
2. Source Classification Code (SCC): <b>1-01-002-02</b>		3. SCC Units: <b>Tons Bituminous Coal Burned</b>
4. Maximum Hourly Rate: <b>184.6</b>	5. Maximum Annual Rate: <b>1,617,096</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>Attachment SEC-EU1-I2</b>	8. Maximum % Ash: <b>Attachment SEC-EU1-I2</b>	9. Million Btu per SCC Unit: <b>Attachment SEC-EU1-I2</b>
10. Segment Comment: <b>See Attachment SEC-EU1-I2 submitted in May 2014.</b>		

### D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

**Segment Description and Rate:** Segment 2 of 3

1. Segment Description (Process/Fuel Type): <b>External Combustion Boilers; Electric Generation; Process Gas; Boilers &gt; 100 Million Btu/hr</b>		
2. Source Classification Code (SCC): <b>1-01-007-01</b>		3. SCC Units: <b>Million Cubic Feet Gas Burned</b>
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>&lt;1%</b>	8. Maximum % Ash: <b>&lt;1%</b>	9. Million Btu per SCC Unit: <b>500</b>
10. Segment Comment:		

# EMISSIONS UNIT INFORMATION

Section [1]

Fossil Fuel Fired Steam Electric Generator No. 1

## D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

**Segment Description and Rate:** Segment 3 of 3

1. Segment Description (Process/Fuel Type): <b>External Combustion Boilers; Electric Generation; Natural Gas; Boilers &gt; 100 Million Btu/hr</b>		
2. Source Classification Code (SCC): <b>1-01-006-01</b>		3. SCC Units: <b>Million Cubic Feet Gas Burned</b>
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>&lt;1%</b>	8. Maximum % Ash: <b>&lt;1%</b>	9. Million Btu per SCC Unit: <b>980-1,060</b>
10. Segment Comment: <b>Based on max heat input rate of 4,800 MMBtu/hr.</b>		

**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:		

**EMISSIONS UNIT INFORMATION**

**Section [1]**

**Fossil Fuel Fired Steam Electric Generator No. 1**

**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
<b>PM</b>	<b>010</b>		<b>EL</b>
<b>PM10</b>	<b>010</b>		<b>NS</b>
<b>PM2.5</b>	<b>010</b>		<b>NS</b>
<b>SO2</b>	<b>013</b>		<b>EL</b>
<b>NOX</b>	<b>139</b>	<b>204/205</b>	<b>EL</b>
<b>CO</b>			<b>EL</b>
<b>VOC</b>			<b>NS</b>
<b>PB</b>	<b>010</b>		<b>NS</b>
<b>SAM</b>			<b>NS</b>
<b>NH3</b>			<b>NS</b>
<b>CO2e</b>			<b>NS</b>

**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: <b>PM</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>144.0 lb/hour                      630.7 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.03 lb/MMBtu (99 percent reduction)</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.5.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>83.6 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>75.3 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly: 0.03 lb/MMBtu x 4,800 MMBtu/hr = 144.0 lb/hr</b>  <b>Annual: 144.0 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 630.7 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
11. Potential Fugitive and Actual Emissions Comment: <b>Potential Emissions representative of solid fuel combustion.</b> <b>Potential increase in PM emissions of 4.3 x 10<sup>-6</sup> TPY due to the injection of NaHS in the scrubber is assumed to be negligible.</b>			

**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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.03 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>144.0 lb/hour      630.7 tons/year</b>
5. Method of Compliance: <b>EPA Method 5</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions limit when combusting solid fuel. Permit No. 0950137-037-AV 40 CFR 60.42Da</b>	

**Allowable Emissions** Allowable Emissions **1** of **2**

1. Basis for Allowable Emissions Code: <b>Rule</b>	2. Future Effective Date of Allowable Emissions: <b>4/16/15</b>
3. Allowable Emissions and Units: <b>0.03 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>144.0 lb/hour      630.7 tons/year</b>
5. Method of Compliance: <b>Stack testing (the standard is a 30-day rolling average if CEMS are used)</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions per 40 CFR 60 Subpart UUUU (effective April 16, 2015).</b>	

**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):	



**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

Section [1]

Page [2] of [11]

Fossil Fuel Fired Steam Electric Generator No. 1

Total Particulate Matter - PM10

**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: <b>PM10</b>	2. Total Percent Efficiency of Control:		
3. Potential Emissions: lb/hour	tons/year	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor:  Reference:		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>56.0</b> tons/year	8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>		
9.a. Projected Actual Emissions (if required): <b>50.5</b> tons/year	9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years		
10. Calculation of Emissions:  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
11. Potential Fugitive and Actual Emissions Comment: <b>Potential Emissions representative of solid fuel combustion. Potential increase in PM<sub>10</sub> emissions of 4.3 x 10<sup>-6</sup> TPY due to the injection of NaHS in the scrubber is assumed to be negligible.</b>			

**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:	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: <b>PM2.5</b>	2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year		
6. Emission Factor:  Reference:		7. Emissions Method Code: <b>0</b>
8.a. Baseline Actual Emissions (if required): <b>24.2 tons/year</b>	8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>21.9 tons/year</b>	9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>		
11. Potential Fugitive and Actual Emissions Comment: <b>Potential Emissions representative of solid fuel combustion. Potential increase in PM<sub>2.5</sub> emissions of 3.75 x 10<sup>-7</sup> TPY due to the injection of NaHS in the scrubber is assumed to be negligible.</b>		

**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:	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: <b>SO2</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>5,760 lb/hour      25,228.8 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to      tons/year			
6. Emission Factor: <b>1.2 lb/MMBtu (90 percent reduction)</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.7.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>2,489.5 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>2,241.6 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly: 1.2 lb/MMBtu x 4,800 MMBtu/hr = 5,760 lb/hr</b>  <b>Annual: 5,760 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 25,228.8 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
11. Potential Fugitive and Actual Emissions Comment: <b>Potential Emissions representative of solid fuel combustion.</b>			

**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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>1.2 lb/MMBtu (90 percent reduction)</b>	4. Equivalent Allowable Emissions: <b>5,760 lb/hour 25,228.8 tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions limit when combusting solid fuel. Permit No. 0950137-037-AV 40 CFR 60.43Da</b>	

**Allowable Emissions** Allowable Emissions **2** of **2**

1. Basis for Allowable Emissions Code: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.2 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>960 lb/hour 4,204.8 tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions per 40 CFR 60 Subpart UUUU (effective April 16, 2015).</b>	

**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: <b>NOx</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>2,880 lb/hour                      9,671.0 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.60 lb/MMBtu (30-day rolling average)</b> <b>0.46 lb/MMBtu (annual average)</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.8.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>4,464.5 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>2,997.4 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly: 0.60 lb/MMBtu x 4,800 MMBtu/hr = 2,880 lb/hr</b>  <b>Annual: 0.46 lb/MMBtu x 4,800 MMBtu/hr x 8,760 hr/yr x 1 ton/2,000 lb = 9,671.0 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
11. Potential Fugitive and Actual Emissions Comment: <b>Potential Emissions representative of bituminous coal combustion.</b>			

**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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.60 lb/MMBtu (30-day rolling average)</b>	4. Equivalent Allowable Emissions: <b>2,880 lb/hour</b> tons/year
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions limit when combusting bituminous coal. Permit No. 0950137-037-AV 40 CFR 60.44Da</b>	

**Allowable Emissions** Allowable Emissions **2** of **2**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.46 lb/MMBtu (annual average)</b>	4. Equivalent Allowable Emissions: lb/hour <b>9,671.0 tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions limit when combusting bituminous coal. Permit No. 0950137-037-AV 40 CFR 60.44Da</b>	

**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: <b>CO</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>864.0 lb/hour                      3,784.3 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.18 lb/MMBtu (30-day rolling average)</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.10.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>989.6 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>1,007.5 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly: 0.18 lb/MMBtu x 4,800 MMBtu/hr = 864.0 lb/hr</b>  <b>Annual: 864.0 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 3,784.3 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.18 lb/MMBtu (30-day rolling average)</b>	4. Equivalent Allowable Emissions: <b>864.0 lb/hour                      3,784.3 tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**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):	



**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):	

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

Section [1]

Page [8] of [11]

Fossil Fuel Fired Steam Electric Generator No. 1

Lead - PB

**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: <b>PB</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.092 lb/hour                      0.40 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>4.2x10<sup>-4</sup> lb/ton</b>  Reference: <b>AP-42</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>0.24 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>0.21 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>Potential Hourly Emissions= 4.2x10<sup>-4</sup> lb/ton x 4,800 MMBtu/hr / ( 22 MMBtu/ton) = 0.092 lb/hr</b>  <b>Potential Annual Emissions= 0.092 lb/hr x 8,760 hr/yr / (2000 lb/ton) = 0.40 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
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: <b>SAM</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>864.0 lb/hour      3,784.3 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to      tons/year			
6. Emission Factor: <b>15% of SO<sub>2</sub></b>  Reference:		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>373.4 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>256.1 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
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):	





**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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions: <b>4/16/15</b>
3. Allowable Emissions and Units: <b>1.2 lb/10<sup>12</sup> Btu (see comment)</b>	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>See Table 3-8. Allowable emissions per 40 CFR 60 Subpart UUUU (effective April 16, 2015). 1.2 lb/TBtu (30day rolling average) or 1.0 lb/TBtu with both units on a 90 day rolling average.</b>	

**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: <b>CO<sub>2e</sub></b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>994,800 lb/hour    4,357,224 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to            tons/year			
6. Emission Factor: <b>207.25 lb/MMBtu</b>  Reference: <b>Table C-2, Subpart C, 40 CFR 98.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>2,886,333 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>2,739,800 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <p align="center"><b>Potential Hourly Emissions= 207.25 lb/MMBtu x 4,800 MMBtu/hr = 994,800 lb/hr</b></p> <p align="center"><b>Potential Annual Emissions= 994,800 lb/hr x 8,760 hr/yr / (2000 lb/ton) = 4,357,224 TPY</b></p> <p align="center"><b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b></p>			
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):	

**EMISSIONS UNIT INFORMATION**

**Section [1]**  
**Fossil Fuel Fired Steam Electric Generator No. 1**

**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: <b>VE20</b>	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>20 %</b> Exceptional Conditions: <b>27 %</b> Maximum Period of Excess Opacity Allowed: <b>6 min/hour</b>	
4. Method of Compliance: <b>EPA Method 9</b>	
5. Visible Emissions Comment: <b>Rule 62-204.800(8), F.A.C.</b> <b>Permit No. 0950137-037-AV.</b> <b>40 CFR 60.42Da</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: _____ % Exceptional Conditions: _____ % Maximum Period of Excess Opacity Allowed: _____ min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

## EMISSIONS UNIT INFORMATION

Section [1]

Fossil Fuel Fired Steam Electric Generator No. 1

### H. CONTINUOUS MONITOR INFORMATION

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

**Continuous Monitoring System:** Continuous Monitor 1 of 8

1. Parameter Code: <b>VE</b>	2. Pollutant(s): <b>Opacity</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Teledyne Monitor Labs</b> Model Number: <b>Light Hawk 560</b> Serial Number: <b>56000377/378</b>	
5. Installation Date:	6. Performance Specification Test Date: <b>16-JAN-04</b>
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

**Continuous Monitoring System:** Continuous Monitor 2 of 8

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>SO2</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Teledyne Monitor Labs</b> Model Number: <b>TML9850</b> Serial Number: <b>S/N 745</b>	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

## EMISSIONS UNIT INFORMATION

Section [1]

Fossil Fuel Fired Steam Electric Generator No. 1

### H. CONTINUOUS MONITOR INFORMATION

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

**Continuous Monitoring System:** Continuous Monitor 3 of 8

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>SO2</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>SERVOMEX LTD.</b> Model Number: <b>1400</b> Serial Number: <b>1420C/1013</b>	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

**Continuous Monitoring System:** Continuous Monitor 4 of 8

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>SO2</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Teledyne Monitor Labs</b> Model Number: <b>TML9850</b> Serial Number: <b>S/N 363</b>	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

## EMISSIONS UNIT INFORMATION

Section [1]

Fossil Fuel Fired Steam Electric Generator No. 1

### H. CONTINUOUS MONITOR INFORMATION

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

**Continuous Monitoring System:** Continuous Monitor 5 of 8

1. Parameter Code: <b>CO2</b>	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>MONITOR LABS</b> Model Number: <b>TML9820</b> Serial Number: <b>S/N 76</b>	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

**Continuous Monitoring System:** Continuous Monitor 6 of 8

1. Parameter Code: <b>FLOW</b>	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>EMRC-DP7</b> Model Number: <b>CM60</b> Serial Number: <b>S/N 460</b>	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	



## EMISSIONS UNIT INFORMATION

Section [1]

Fossil Fuel Fired Steam Electric Generator No. 1

### H. CONTINUOUS MONITOR INFORMATION

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

**Continuous Monitoring System:** Continuous Monitor 7 of 8

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>NOx</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Teledyne Monitor Labs</b> Model Number: <b>TML 9841</b> Serial Number: <b>NO373</b>	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

**Continuous Monitoring System:** Continuous Monitor 8 of 8

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>CO</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Teledyne Monitor Labs</b> Model Number: <b>TML-30U</b> Serial Number: <b>CO155</b>	
5. Installation Date:	6. Performance Specification Test Date: <b>29-JAN-09</b>
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-4.070(3), F.A.C.</b> <b>Rule 62-210.200(BACT), F.A.C.</b>	

# EMISSIONS UNIT INFORMATION

## Section [1]

### Fossil Fuel Fired Steam Electric Generator No. 1

#### 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) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>5/20/2014</u>
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) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>5/20/2014</u>
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) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>5/20/2014</u>
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) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>5/20/2014</u> <input type="checkbox"/> 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) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> 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: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable



## EMISSIONS UNIT INFORMATION

### Section [2]

#### Fossil Fuel Fired Steam Electric Generator No. 2

### 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.

# EMISSIONS UNIT INFORMATION

## Section [2]

### Fossil Fuel Fired Steam Electric Generator No. 2

#### 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 Fired Steam Electric Generator No. 2**

3. Emissions Unit Identification Number: **002**

4. Emissions Unit Status Code: <b>A</b>	5. Commence Construction Date:	6. Initial Startup Date: <b>29-MAR-96</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
--	--------------------------------	--	--

8. Federal Program Applicability: (Check all that apply)

- Acid Rain Unit
- CAIR Unit

9. Package Unit:  
Manufacturer:

Model Number:

10. Generator Nameplate Rating: **480 MW**

11. Emissions Unit Comment:

## EMISSIONS UNIT INFORMATION

Section [2]

Fossil Fuel Fired Steam Electric Generator No. 2

### Emissions Unit Control Equipment/Method: Control 1 of 4

1. Control Equipment/Method Description:  
**Wet Scrubber Flue Gas Desulfurization (WFGD)**

2. Control Device or Method Code: **013**

### Emissions Unit Control Equipment/Method: Control 2 of 4

1. Control Equipment/Method Description:  
**Electrostatic Precipitator High Efficiency (95.0 – 99.0%)**

2. Control Device or Method Code: **010**

### Emissions Unit Control Equipment/Method: Control 3 of 4

1. Control Equipment/Method Description:  
**Low NOx Burners with Overfire Air**

2. Control Device or Method Code: **204/205**

### Emissions Unit Control Equipment/Method: Control 4 of 4

1. Control Equipment/Method Description:  
**(SCR) Selective Catalytic Reduction**

2. Control Device or Method Code: **139**



**EMISSIONS UNIT INFORMATION**

Section [2]

Fossil Fuel Fired Steam Electric Generator No. 2

**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:		2. Emission Point Type Code: <b>1</b>	
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:	6. Stack Height: <b>560 feet</b>	7. Exit Diameter: <b>19 Feet</b>	
8. Exit Temperature: <b>124 °F</b>	9. Actual Volumetric Flow Rate: <b>1,310,120 acfm</b>	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: <b>17</b> East (km): <b>484</b> North (km): <b>3150.5</b>		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) <b>28° 28' 57" N</b> Longitude (DD/MM/SS) <b>81° 09' 54" W</b>	
15. Emission Point Comment:			



## EMISSIONS UNIT INFORMATION

Section [2]

Fossil Fuel Fired Steam Electric Generator No. 2

### D. SEGMENT (PROCESS/FUEL) INFORMATION

**Segment Description and Rate:** Segment 1 of 3

1. Segment Description (Process/Fuel Type): <b>External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom (Bituminous Coal)</b>		
2. Source Classification Code (SCC): <b>1-01-002-02</b>		3. SCC Units: <b>Tons Bituminous Coal Burned</b>
4. Maximum Hourly Rate: <b>184.6</b>	5. Maximum Annual Rate: <b>1,617,096</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>Attachment SEC-EU1-I2</b>	8. Maximum % Ash: <b>Attachment SEC-EU1-I2</b>	9. Million Btu per SCC Unit: <b>Attachment SEC-EU1-I2</b>
10. Segment Comment: <b>See Attachment SEC-EU1-I2 submitted in May 2014.</b>		

### D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

**Segment Description and Rate:** Segment 2 of 3

1. Segment Description (Process/Fuel Type): <b>External Combustion Boilers; Electric Generation; Process Gas; Boilers &gt; 100 Million Btu/hr</b>		
2. Source Classification Code (SCC): <b>1-01-007-01</b>		3. SCC Units: <b>Million Cubic Feet Gas Burned</b>
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>&lt;1%</b>	8. Maximum % Ash: <b>&lt;1%</b>	9. Million Btu per SCC Unit: <b>500</b>
10. Segment Comment:		

**EMISSIONS UNIT INFORMATION**

**Section [2]**

**Fossil Fuel Fired Steam Electric Generator No. 2**

**D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)**

**Segment Description and Rate:** Segment **3** of **3**

1. Segment Description (Process/Fuel Type): <b>External Combustion Boilers; Electric Generation; Natural Gas; Boilers &gt; 100 Million Btu/hr</b>		
2. Source Classification Code (SCC): <b>1-01-006-01</b>		3. SCC Units: <b>Million Cubic Feet Gas Burned</b>
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>&lt;1%</b>	8. Maximum % Ash: <b>&lt;1%</b>	9. Million Btu per SCC Unit: <b>980-1,060</b>
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:		

**EMISSIONS UNIT INFORMATION**

**Section [2]**

**Fossil Fuel Fired Steam Electric Generator No. 2**

**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	010		EL
PM10	010		EL
PM2.5	010		NS
SO2	013		EL
NOX	139	204/205	EL
CO			EL
VOC			EL
PB	010		EL
SAM			EL
FL – Fluorides			EL
H021 – Beryllium			EL
H054 – Cyanides			NS
H114 – Mercury			EL
NH3			EL
CO2e			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: <b>PM</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>96.0 lb/hour                      420.5 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.02 lb/MMBtu (99 percent reduction)</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.5.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>104.4 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>93.8 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>Hourly: 0.02 lb/MMBtu x 4,800 MMBtu/hr = 96.0 lb/hr</b>  <b>Annual: 96.0 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 420.5 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
11. Potential Fugitive and Actual Emissions Comment: <b>Potential Emissions representative of solid fuel combustion.</b> <b>Potential increase in PM emissions of <math>4.3 \times 10^{-6}</math> TPY due to the injection of NaHS in the scrubber is assumed to be negligible.</b>			

**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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.02 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>96.0 lb/hour      420.5 tons/year</b>
5. Method of Compliance: <b>EPA Method 5</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions limit when combusting solid fuel. Permit No. 0950137-037-AV 40 CFR 60.42Da</b>	

**Allowable Emissions Allowable Emissions 2 of 3**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>96.0 lb/hr</b>	4. Equivalent Allowable Emissions: <b>96.0 lb/hour      420.5 tons/year</b>
5. Method of Compliance: <b>Stack testing (the standard is a 30-day rolling average if CEMS are used)</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV 40 CFR 60.42Da</b>	

**Allowable Emissions Allowable Emissions 3 of 3**

1. Basis for Allowable Emissions Code: <b>Rule</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.03 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>144.0 lb/hour      630.7 tons/year</b>
5. Method of Compliance: <b>Stack testing (the standard is a 30-day rolling average if CEMS are used)</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions per 40 CFR 60 Subpart UUUU (effective April 16, 2015).</b>	

**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: <b>PM10</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour                                      tons/year	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor:  Reference:	7. Emissions Method Code: <b>0</b>
8.a. Baseline Actual Emissions (if required): <b>69.9 tons/year</b>	8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>
9.a. Projected Actual Emissions (if required): <b>62.9 tons/year</b>	9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years
10. Calculation of Emissions:  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>	
11. Potential Fugitive and Actual Emissions Comment: <b>Potential Emissions representative of solid fuel combustion. Potential increase in PM<sub>10</sub> emissions of 4.3 x 10<sup>-6</sup> TPY due to the injection of NaHS in the scrubber is assumed to be negligible.</b>	

**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:	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 **2** 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):	

**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: <b>PM2.5</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour    tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                  tons/year			
6. Emission Factor:  Reference:		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>30.3 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>27.3 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
11. Potential Fugitive and Actual Emissions Comment: <b>Potential Emissions representative of solid fuel combustion. Potential increase in PM<sub>2.5</sub> emissions of 3.75 x 10<sup>-7</sup> TPY due to the injection of NaHS in the scrubber is assumed to be negligible.</b>			



**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:	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: <b>SO2</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>1,200 lb/hour                      5,256 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.25 lb/MMBtu (30-day rolling average)</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.7.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>2,041.2 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>1,837.2 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly: 0.25 lb/MMBtu x 4,800 MMBtu/hr = 1,200 lb/hr</b>  <b>Annual: 1,200 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 5,256 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
11. Potential Fugitive and Actual Emissions Comment: <b>Potential Emissions representative of solid fuel combustion.</b>			

**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 **4**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.25 lb/MMBtu (30-day rolling average)</b>	4. Equivalent Allowable Emissions: <b>1,200 lb/hour      5,256 tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions limit when combusting solid fuel. Permit No. 0950137-037-AV 40 CFR 60.43Da</b>	

**Allowable Emissions** Allowable Emissions **2** of **4**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.67 lb/MMBtu (24-hour emission rate)</b>	4. Equivalent Allowable Emissions: <b>3,216 lb/hour      14,086.1 tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions limit when combusting solid fuel. Hourly: 0.67 lb/MMBtu x 4,800 MMBtu/hr = 3,216 lb/hr Annual: 3,216 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 14,086.1 TPY Permit No. 0950137-037-AV 40 CFR 60.43Da</b>	

**Allowable Emissions** Allowable Emissions **3** of **4**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.85 lb/MMBtu (3-hour emission rate)</b>	4. Equivalent Allowable Emissions: <b>4,080 lb/hour      17,870.4 tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions limit when combusting solid fuel. Hourly: 0.85 lb/MMBtu x 4,800 MMBtu/hr = 4,080 lb/hr Annual: 4,080 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 17,870.4 TPY Permit No. 0950137-037-AV 40 CFR 60.43Da</b>	

**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 **4** of **4**

1. Basis for Allowable Emissions Code: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.2 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>960 lb/hour 4,204.8 tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions per 40 CFR 60 Subpart UUUU (effective April 16, 2015).</b>	

**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: <b>NOx</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>816.0 lb/hour                      3,574.1 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.17 lb/MMBtu (30-day rolling average)</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.8.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>2,380.0 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>1,703.8 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly: 0.17 lb/MMBtu x 4,800 MMBtu/hr = 816.0 lb/hr</b>  <b>Annual: 816.0 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 3,574.1 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
11. Potential Fugitive and Actual Emissions Comment: <b>Potential Emissions representative of bituminous coal combustion.</b>			

**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.**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.17 lb/MMBtu (30-day rolling average)</b>	4. Equivalent Allowable Emissions: <b>816.0 lb/hour      3,574.1 tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable emissions limit when combusting bituminous coal. Permit No. 0950137-037-AV 40 CFR 60.44Da</b>	

**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: <b>CO</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>643.0 lb/hour                      2,816.3 tons/year</b>	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor: <b>0.15 lb/MMBtu (30-day rolling average)</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.10.</b>	7. Emissions Method Code: <b>0</b>
8.a. Baseline Actual Emissions (if required): <b>852.0 tons/year</b>	8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>
9.a. Projected Actual Emissions (if required): <b>892.9 tons/year</b>	9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years
10. Calculation of Emissions:  <b>Annual: 643.0 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 2,816.3 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>	
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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.15 lb/MMBtu (30-day rolling average)</b>	4. Equivalent Allowable Emissions: <b>720.0 lb/hour      3,153.6 tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**Allowable Emissions** Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>643 lb/hr</b>	4. Equivalent Allowable Emissions: <b>643.0 lb/hour      2,816.3 tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**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: <b>VOC</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>64.0 lb/hour                      280.3 tons/year</b>	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor: <b>0.015 lb/MMBtu</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.11.</b>	7. Emissions Method Code: <b>0</b>
8.a. Baseline Actual Emissions (if required): <b>14.9 tons/year</b>	8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>
9.a. Projected Actual Emissions (if required): <b>21.4 tons/year</b>	9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years
10. Calculation of Emissions:  <b>Annual: 64.0 lb/hr x 8,760 hr x 1 ton/2,000 lb = 280.3 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>	
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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.015 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>72.0 lb/hour      315.4 tons/year</b>
5. Method of Compliance: <b>EPA Method 18</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**Allowable Emissions** Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>64 lb/hr</b>	4. Equivalent Allowable Emissions: <b>64.0 lb/hour      280.3 tons/year</b>
5. Method of Compliance: <b>EPA Method 18</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**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):	

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

Section [2]

Page [8] of [15]

Fossil Fuel Fired Steam Electric Generator No. 2

Lead - Pb

**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: <b>Pb</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.64 lb/hour</b> <b>2.80 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to            tons/year			
6. Emission Factor: <b>1.5x10<sup>-4</sup> lb/MMBtu</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.15.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>0.0019 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>0.0025 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>Annual: 0.64 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 2.80 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>1.5x10<sup>-4</sup> lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>0.72 lb/hour      3.15 tons/year</b>
5. Method of Compliance: <b>EPA Method 12</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**Allowable Emissions** Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.64 lb/hr</b>	4. Equivalent Allowable Emissions: <b>0.64 lb/hour      2.80 tons/year</b>
5. Method of Compliance: <b>EPA Method 12</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**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: <b>SAM</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>140.0 lb/hour                      613.2 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.033 lb/MMBtu</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.12.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>178.4 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>151.0 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>Annual: 140.0 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 613.2 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.033 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>158.4 lb/hour      693.8 tons/year</b>
5. Method of Compliance: <b>EPA Method 8 or EPA Method CTM-013 (NCASI 8A)</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**Allowable Emissions** Allowable Emissions **2** of **2**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>140 lb/hr</b>	4. Equivalent Allowable Emissions: <b>140.0 lb/hour      613.2 tons/year</b>
5. Method of Compliance: <b>EPA Method 8 or EPA Method CTM-013 (NCASI 8A)</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**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: <b>FL</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>1.80 lb/hour                      7.88 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to            tons/year			
6. Emission Factor: <b><math>4.2 \times 10^{-4}</math> lb/MMBtu</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.16.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>0.98 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2011</b> To: <b>2012</b>	
9.a. Projected Actual Emissions (if required): <b>0.91 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>Annual: 1.80 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 7.88 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>4.2x10<sup>-4</sup> lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>2.02 lb/hour      8.85 tons/year</b>
5. Method of Compliance: <b>EPA Method 13A or 13B</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**Allowable Emissions** Allowable Emissions **2** of **2**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>1.8 lb/hr</b>	4. Equivalent Allowable Emissions: <b>1.80 lb/hour      7.88 tons/year</b>
5. Method of Compliance: <b>EPA Method 13A or 13B</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**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: <b>H021- Beryllium</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.022 lb/hour                      0.096 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>5.2x10<sup>-6</sup> lb/MMBtu</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.13.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>4.64x10<sup>-4</sup> tons/year</b>		8.b. Baseline 24-month Period: From: <b>2011</b> To: <b>2012</b>	
9.a. Projected Actual Emissions (if required): <b>9.05x10<sup>-6</sup> tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>Annual: 0.022 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 0.096 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>5.2x10<sup>-6</sup> lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>0.025 lb/hour      0.11 tons/year</b>
5. Method of Compliance: <b>EPA Method 104</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**Allowable Emissions** Allowable Emissions **2** of **2**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.022 lb/hr</b>	4. Equivalent Allowable Emissions: <b>0.022 lb/hour      0.096 tons/year</b>
5. Method of Compliance: <b>EPA Method 104</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**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):	



**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: <b>H114- Mercury</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.046 lb/hour                      0.20 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>1.1x10<sup>-5</sup> lb/MMBtu</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.14.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>0.018 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>0.016 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly: 1.1x10<sup>-5</sup> lb/MMBtu x 4,800 MMBtu/hr = 0.046 lb/hr</b>  <b>Annual: 0.046 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 0.20 TPY</b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>1.1x10<sup>-5</sup> lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>0.053 lb/hour      0.23 tons/year</b>
5. Method of Compliance: <b>EPA Method 101A or 108 or EPA Method 30B</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**Allowable Emissions** Allowable Emissions **2** of **3**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.046 lb/hr</b>	4. Equivalent Allowable Emissions: <b>0.046 lb/hour      0.20 tons/year</b>
5. Method of Compliance: <b>EPA Method 101A or 108 or EPA Method 30B</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**Allowable Emissions** Allowable Emissions **3** of **3**

1. Basis for Allowable Emissions Code: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>1.2 lb/10<sup>12</sup> Btu (see comment)</b>	4. Equivalent Allowable Emissions: <b>lb/hour      tons/year</b>
5. Method of Compliance: <b>CEMS</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>See Table 3-8. Allowable emissions per 40 CFR 60 Subpart UUUU (effective April 16, 2015). 1.2 lb/TBtu (30day rolling average) or 1.0 lb/TBtu with both units on a 90 day rolling average.</b>	

**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: <b>NH3</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>94.07 lb/hour                      412.0 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>30 ppmv</b>  Reference: <b>Permit No. 0950137-037-AV, Condition A.9.</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): <b>183.0 tons/year</b>		8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>	
9.a. Projected Actual Emissions (if required): <b>121.1 tons/year</b>		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly: <math>(30 \text{ ppmv} / 10^6) \times 2116.8 \text{ lb}_f/\text{ft}^2 \times 60 \text{ min/hr} \times 1,310,120 \text{ acfm} \times 17.03 \text{ lb/lb-mol} / 1,545.6 \text{ ft-lb}_f/\text{lb}_m\text{-}^\circ\text{R} / (124 + 460.67) \text{ }^\circ\text{R} = 94.07 \text{ lb/hr}</math></b>  <b>Annual: <math>94.07 \text{ lb/hr} \times 8,760 \text{ hr/yr} \times 1 \text{ ton}/2,000 \text{ lb} = 412.0 \text{ TPY}</math></b>  <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>			
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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>30 ppmv</b>	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0950137-037-AV.</b>	

**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: <b>CO2e</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>994,800 lb/hour      4,357,224 tons/year</b>	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to            tons/year	
6. Emission Factor: <b>207.25 lb/MMBtu</b>  Reference: <b>Table C-2, Subpart C, 40 CFR 98.</b>	7. Emissions Method Code: <b>0</b>
8.a. Baseline Actual Emissions (if required): <b>3,081,674 tons/year</b>	8.b. Baseline 24-month Period: From: <b>2009</b> To: <b>2010</b>
9.a. Projected Actual Emissions (if required): <b>2,925,224 tons/year</b>	9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years
10. Calculation of Emissions:  <b>Potential Hourly Emissions= 207.25 lb/MMBtu x 4,800 MMBtu/hr = 994,800 lb/hr</b> <b>Potential Annual Emissions= 994,800 lb/hr x 8,760 hr/yr / (2000 lb/ton) = 4,357,224 TPY</b> <b>See Tables 3-4b and 3-6 for Baseline and Projected Actual Emissions in the report.</b>	
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):	

**EMISSIONS UNIT INFORMATION**

**Section [2]**

**Fossil Fuel Fired Steam Electric Generator No. 2**

**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: <b>VE20</b>	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>20 %</b> Exceptional Conditions: <b>27 %</b> Maximum Period of Excess Opacity Allowed: <b>6 min/hour</b>	
4. Method of Compliance: <b>EPA Method 9</b>	
5. Visible Emissions Comment: <b>Rule 62-204.800(8), F.A.C.</b> <b>Permit No. 0950137-037-AV.</b> <b>40 CFR 60.42Da</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: _____ % Exceptional Conditions: _____ % Maximum Period of Excess Opacity Allowed: _____ min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [2]

Fossil Fuel Fired Steam Electric Generator No. 2

**H. CONTINUOUS MONITOR INFORMATION**

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

**Continuous Monitoring System:** Continuous Monitor 1 of **8**

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>SO2</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>MONITOR LABS</b> Model Number: <b>9850</b> Serial Number: <b>593/1665</b>	
5. Installation Date:	6. Performance Specification Test Date: <b>29-JUL-96</b>
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

**Continuous Monitoring System:** Continuous Monitor 2 of **8**

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>NOx</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Teledyne Monitor Labs</b> Model Number: <b>TML41</b> Serial Number: <b>S/N 131</b>	
5. Installation Date:	6. Performance Specification Test Date: <b>29-JUL-96</b>
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

## EMISSIONS UNIT INFORMATION

Section [2]

Fossil Fuel Fired Steam Electric Generator No. 2

### H. CONTINUOUS MONITOR INFORMATION

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

**Continuous Monitoring System:** Continuous Monitor 3 of 8

1. Parameter Code: <b>VE</b>	2. Pollutant(s): <b>Opacity</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Teledyne Monitor Labs</b> Model Number: <b>Light Hawk 560</b> Serial Number: <b>5600379/5600380</b>	
5. Installation Date:	6. Performance Specification Test Date: <b>21-MAY-03</b>
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

**Continuous Monitoring System:** Continuous Monitor 4 of 8

1. Parameter Code: <b>CO2</b>	2. Pollutant(s): <b>Diluent</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>MONITOR LABS</b> Model Number: <b>9820</b> Serial Number: <b>S/N/180/1799</b>	
5. Installation Date:	6. Performance Specification Test Date: <b>29-JUL-96</b>
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

## EMISSIONS UNIT INFORMATION

Section [2]

Fossil Fuel Fired Steam Electric Generator No. 2

### H. CONTINUOUS MONITOR INFORMATION

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

**Continuous Monitoring System:** Continuous Monitor 5 of 8

1. Parameter Code: <b>FLOW</b>	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>EMRC</b> Model Number: <b>EMRC-DP1</b>	Serial Number: <b>S/N 461</b>
5. Installation Date:	6. Performance Specification Test Date: <b>29-JUL-96</b>
7. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor 6 of 8

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>SO2</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Teledyne Monitor Labs</b> Model Number: <b>TML 9850</b>	Serial Number: <b>S/N 615</b>
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

## EMISSIONS UNIT INFORMATION

Section [2]

Fossil Fuel Fired Steam Electric Generator No. 2

### H. CONTINUOUS MONITOR INFORMATION

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

**Continuous Monitoring System:** Continuous Monitor 7 of 8

1. Parameter Code: <b>CO2</b>	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Teledyne Monitor Labs</b> Model Number: <b>9820</b> Serial Number: <b>S/N 175</b>	
5. Installation Date:	6. Performance Specification Test Date: <b>29-JUL-96</b>
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-204.800(8), F.A.C.</b> <b>40 CFR 60.49Da</b>	

**Continuous Monitoring System:** Continuous Monitor 8 of 8

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>CO</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Teledyne Monitor Labs</b> Model Number: <b>TML 30</b> Serial Number: <b>S/N 151</b>	
5. Installation Date:	6. Performance Specification Test Date: <b>21-OCT-08</b>
7. Continuous Monitor Comment:  <b>Permit No. 0950137-037-AV</b> <b>Rule 62-4.070(3), F.A.C.</b> <b>Rule 62-210.200(BACT), F.A.C.</b>	

# EMISSIONS UNIT INFORMATION

## Section [2]

### Fossil Fuel Fired Steam Electric Generator No. 2

#### 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) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>5/20/2014</u>
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) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>5/20/2014</u>
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) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>5/20/2014</u>
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) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>5/20/2014</u> <input type="checkbox"/> 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) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> 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: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable



**EMISSIONS UNIT INFORMATION**

**Section [2]**

**Fossil Fuel Fired Steam Electric Generator No. 2**

**I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)**

**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)): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**Additional Requirements for Title V Air Operation Permit Applications**

1. Identification of Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____
2. Compliance Assurance Monitoring: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
3. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

**Additional Requirements Comment**

--

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

[solutions@golder.com](mailto:solutions@golder.com)  
[www.golder.com](http://www.golder.com)

**Golder Associates Inc.**  
**5100 W. Lemon Street, Suite 208**  
**Tampa, FL 33609 USA**  
**Tel: (813) 287-1717**  
**Fax: (813) 287-1716**

