

TAMPA ELECTRIC

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February 8, 2005

BUREAU OF AIR REGULATION

Ms. Teresa Heron,
Florida Department of
Environmental Protection
111 South Magnolia Drive, Suite 4
Tallahassee, FL 32301

Via FedEx
Airbill No. 7922 0108 1668

**Re: Tampa Electric Company
Big Bend Station
Consent Decree
Civil Action No. 99-2524 CIV-T-23F
Air Construction Permit Application for
Unit 4 Selective Catalytic Reduction (SCR) Project**

Dear Ms. Heron,

Tampa Electric Company (TEC) requests an air construction permit to install a selective catalytic reduction (SCR) system for nitrogen oxides (NO_x) control on its Big Bend Station Unit 4 coal-fired boiler. TEC entered into the agreements with the Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP) concerning the installation of additional air pollution control systems at Big Bend Station. These agreements (EPA Consent Decree and FDEP Consent Final Judgment) included requirements to install additional air pollution control systems for NO_x control on Unit 4. In response to these requirements, TEC determined that the installation of low NO_x burners (LNB), separated overfire air (SOFA), and an SCR system are the technologies to be utilized to reduce the NO_x emissions on Big Bend Unit 4 to satisfy the requirements of the agreements.

Additionally, TEC reviewed the impacts that operation of an SCR would have on the coal combustion byproducts and found that the fly ash would have limited marketability due to increased carbon content. Therefore, a large portion of the fly ash could potentially need to be disposed of in a landfill. TEC researched this issue and found that several other companies mitigate the SCR impacts on fly ash by using carbon burnout (CBO) technology to reduce the carbon content. TEC is currently evaluating use of this technology and if it is determined to be feasible at Big Bend Station a separate air construction permit will be submitted.

TAMPA ELECTRIC COMPANY
P. O. BOX 111 TAMPA, FL 33601-0111

(813) 228-4111

AN EQUAL OPPORTUNITY COMPANY
[HTTP://WWW.TAMPAELECTRIC.COM](http://www.tampaelectric.com)

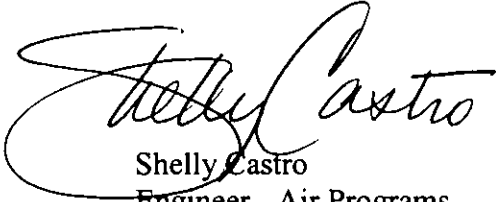
CUSTOMER SERVICE:
HILLSBOROUGH COUNTY (813) 223-0800
OUTSIDE HILLSBOROUGH COUNTY 1 (888) 223-0800

Ms. Teresa Heron
February 8, 2005
Page 2 of 2

Please find the enclosed air construction permit application for Big Bend Station's Unit 4 SCR.

TEC appreciates the cooperation of the Department in this matter. If you have any questions or comments, please contact Shelly Castro or me at (813) 228-4408.

Sincerely,

A handwritten signature in black ink that reads "Shelly Castro". The signature is written in a cursive style with a large, looping initial "S".

Shelly Castro
Engineer - Air Programs
Environmental, Health & Safety

EHS/bmr/SSC215

Enclosure

c/enc: Ms. Alice Harman, EPCHC
Mr. Jerry Kissel, FDEP SW
Mr. David Lloyd, EPA
Mr. Scott Sheplak, FDEP
Ms. Trina Vielhauer, FDEP
Mr. Sterlin Woodard, EPCHC

INTRODUCTION

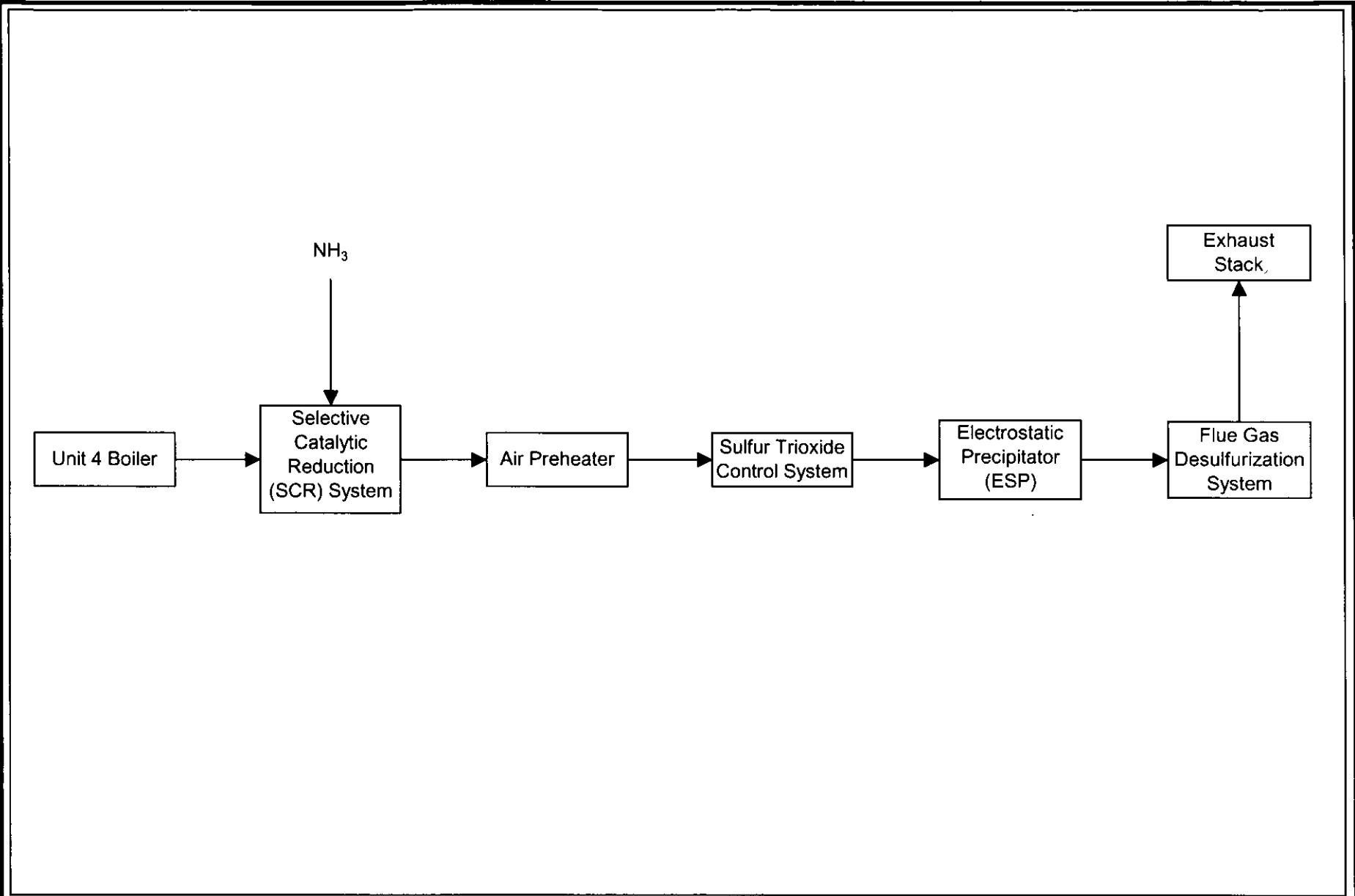
Tampa Electric Company (TEC) requests an air construction permit to add a selective catalytic reduction (SCR) system for nitrogen oxides (NO_x) control to its Big Bend Station Unit 4 coal-fired boiler. TEC entered into agreements with the U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP) concerning the installation of additional air pollution control systems at the Big Bend Station. These agreements (EPA Consent Decree and FDEP Consent Final Judgment) included requirements to install additional systems for NO_x control on Unit 4. In response to these requirements, TEC determined that the installation of low-NO_x burners, separated overfire air (SOFA), and a SCR system are the technologies to be utilized to reduce Big Bend Station Unit 4 NO_x emissions.

Figure 1 shows the location of the SCR, which will be installed downstream of the economizer and upstream of the air preheater. The SCR reactor is designed as a two plus one catalyst configuration. The third catalyst management layer, designed to maximize the residual catalyst life and lower operating costs, will be initially empty and will be charged as the initial two catalyst layers lose activation.

TEC is currently evaluating available options with respect to ammonia type and supply, and will notify FDEP when TEC's plans are finalized. SCR tuning (i.e., adjustment of the ammonia injection grid) will be performed during the initial commissioning of the system.

TEC proposes to install a system immediately downstream of the Unit 4 preheater to control the inherent increases of sulfur trioxide (SO₃) that result from the use of vanadium-containing catalyst in SCR control systems.

TEC is proposing that ammonia slip, measured at the stack downstream of all emission control systems, be targeted at 5 parts per million by volume (ppmv). TEC is also proposing to conduct annual testing of ammonia slip and perform corrective measures if the target level is being exceeded.



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FIGURE 1.
SIMPLIFIED FLOW DIAGRAM OF BIG BEND UNIT 4 CONTROL SYSTEMS

Source: ECT, 2004.



The addition of the SCR system will allow Unit 4 to meet the NO_x emission limit, specified in the Consent Decree, of 0.10 pound per million British thermal unit (lb/MMBtu) based on a 30-day rolling average. NO_x will be continuously monitored, using the existing Unit 4 NO_x continuous emissions monitoring system, to confirm compliance. The SCR system does not add significant mass flow to the stack other than the addition of dilution air for ammonia injection. The stack temperature will be unaffected.

The basic boiler startup and shutdown procedures will not need to be altered with the addition of the SCR (i.e., the existing Unit 4 boiler ramp rate is adequate for the SCR catalyst).

Major construction activities for the Big Bend Station Unit 4 SCR control system are scheduled to begin July 1, 2005, and be completed by June 1, 2007.

FDEP's Application for Air Permit, Long Form, follows this introduction. Attachment A provides a process flow diagram of Unit 4 SCR.

APPLICATION INFORMATION

I. APPLICATION INFORMATION

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

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

Air Operation Permit – Use this form to apply for:

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

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

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: Tampa Electric Company	
2. Site Name: Big Bend Station	
3. Facility Identification Number: 0570039	
4. Facility Location...: Street Address or Other Locator: 13031 Wyandotte Road City: Apollo Beach County: Hillsborough Zip Code: 33572	
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: Shelly Castro, Engineer – Air Programs	
2. Application Contact Mailing Address... Organization/Firm: Tampa Electric Company Street Address: P. O. Box 111 City: Tampa State: FL Zip Code: 33601	
3. Application Contact Telephone Numbers... Telephone: (813) 228-4408 ext. Fax: (813) 228-1308	
4. Application Contact Email Address: sscastro@tecoenergy.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	2-15-05
2. Project Number(s):	0570039-020-AC
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

APPLICATION INFORMATION

Purpose of Application

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

Air Construction Permit

Air construction permit.

Air Operation Permit

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

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

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

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

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

Application Comment

Project consists of the addition of selective catalytic reduction (SCR) to emissions unit (E.U.) 004. This NO_x control system is being installed in accordance with agreements between Tampa Electric Company (TEC) and the U.S. Environmental Protection Agency (EPA Consent Decree) and the Florida Department of Environmental Protection (FDEP Consent Final Judgment).

The Big Bend Station SCR NO_x control system constitutes a pollution control project and therefore is exempt from Prevention of Significant Deterioration (PSD) New Source Review (NSR). As requested by FDEP, this application constitutes TEC's request for an air construction permit for the Big Bend Station SCR NO_x pollution control project.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
004	Unit No. 4 Steam Generator	N/A	N/A

Application Processing Fee

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

APPLICATION INFORMATION

Owner/Authorized Representative Statement

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

1. Owner/Authorized Representative Name: Karen Sheffield, General Manager, Big Bend Station		
2. Owner/Authorized Representative Mailing Address... Organization/Firm: Tampa Electric Company Street Address: P.O. Box 111 City: Tampa State: Florida Zip Code: 33601-0111		
3. Owner/Authorized Representative Telephone Numbers... Telephone: 813-228-4111 ext. Fax: 813-228-1308		
4. Owner/Authorized Representative Email Address: kasheffield@tecoenergy.com		
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.</i> <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <p><u>Karen Sheffield</u> Signature</p> </div> <div style="text-align: center;"> <p><u>2/8/05</u> Date</p> </div> </div>		

APPLICATION INFORMATION

Application Responsible Official Certification N/A

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

1. Application Responsible Official Name:			
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):			
<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.			
3. Application Responsible Official Mailing Address...			
Organization/Firm:			
Street Address:			
City:	State:	Zip Code:	
4. Application Responsible Official Telephone Numbers...			
Telephone:	ext.	Fax:	
5. Application Responsible Official Email Address:			
6. Application Responsible Official Certification:			
<i>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.</i>			
<hr style="width: 80%; margin: 0 auto;"/> Signature			<hr style="width: 80%; margin: 0 auto;"/> Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Thomas W. Davis Registration Number: 36777
2. Professional Engineer Mailing Address... Organization/Firm: Environmental Consulting & Technology, Inc. Street Address: 3701 Northwest 98th Street City: Gainesville State: FL Zip Code: 32606-5004
3. Professional Engineer Telephone Numbers... Telephone: (352) 332-0444 ext. Fax: (352) 332-6722
4. Professional Engineer Email Address: tdavis@ectinc.com
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> Signature <u>Thomas W. Davis</u> Date <u>1/27/05</u> (seal)

* Attach any exception to certification statement.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone 17 East (km) 361.9 North (km) 3,075.0		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
3. Governmental Facility Code: 0	4. Facility Status Code: A	5. Facility Major Group SIC Code: 49	6. Facility SIC(s): 4911
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: Karen Zwolak, Senior Environmental Consultant
2. Facility Contact Mailing Address... Organization/Firm: Tampa Electric Company Street Address: P. O. Box 111 <div style="display: flex; justify-content: space-between; margin-top: 10px;"> City: Tampa State: FL Zip Code: 33601 </div>
3. Facility Contact Telephone Numbers: Telephone: (813) 228-4111 ext. Fax: (813) 228-1308
4. Facility Contact Email Address: kozwolak@tecoenergy.com

Facility Primary Responsible Official **N/A**

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: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> City: State: Zip Code: </div>
3. Facility Primary Responsible Official Telephone Numbers... Telephone: () - ext. Fax: () -
4. Facility Primary Responsible Official Email 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 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:	

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
NOX	A	N
SO2	A	Y
CO	A	N
PM10	A	Y
PM	A	Y
VOC	A	N
H106 (Hydrogen Chloride)	A	N
H107 (Hydrogen Fluoride)	A	N
H133 (Nickel Compounds)	A	N
HAPS (Total)	A	N

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID No.s Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap
SO2	N	001 - 004		71,810	ESCPSD
PM/PM10	N	001 - 004		2,767	ESCPSD

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

Additional SO₂ caps for Units 001 – 003 are 31.5 ton/hr (3-hour average) and 25 ton/hr (24-hour block average). In addition, Units 001 and 002 are limited to 16.5 ton/hr SO₂ (24-hour block average).

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 type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: Oct. 2004
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: <u>Att. A</u> <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 type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: Oct. 2004

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: June 30, 2004
2. Description of Proposed Construction or Modification: <input checked="" type="checkbox"/> Attached, Document ID: <u>See comment below</u> <input type="checkbox"/> Not Applicable
3. Rule Applicability Analysis: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: June 30, 2004
4. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
5. Fugitive Emissions Identification (Rule 62-212.400(2), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: June 30, 2004
6. Preconstruction Air Quality Monitoring and Analysis (Rule 62-212.400(5)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7. Ambient Impact Analysis (Rule 62-212.400(5)(d), 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(5)(h)5., F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(5)(e)1. 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

Additional Requirements for FESOP Applications N/A

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.):
 Attached, Document ID: _____ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications N/A

See comment below

1. List of Insignificant Activities (Required for initial/renewal applications only):
 Attached, Document ID: _____ Not Applicable

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

3. Compliance Report and Plan (Required for all initial/revision/renewal applications):
 Attached, Document ID: _____
Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.

4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only):
 Attached, Document ID: _____
 Equipment/Activities On site but Not Required to be Individually Listed
 Not Applicable

5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) :
 Attached, Document ID: _____ Not Applicable

6. Requested Changes to Current Title V Air Operation Permit:
 Attached, Document ID: _____ Not Applicable

Additional Requirements Comment

A description of the proposed addition of a selective catalytic NO_x control system to Unit 4 is provided in the Introduction and also in the Application Comment section on Page 2 of this application.

EMISSIONS UNIT INFORMATION

EMISSIONS UNIT INFORMATION

Section [1] of [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:
Combustion Engineering dry bottom, tangentially fired fossil fuel steam boiler

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

4. Emissions Unit Status Code: A	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: 49	8. Acid Rain Unit? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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9. Package Unit:
Manufacturer: **Combustion Engineering** Model Number:

10. Generator Nameplate Rating: **486 MW**

11. Emissions Unit Comment:

EMISSIONS UNIT INFORMATION

Section [1] of [1]

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

Low-NO_x Burners (LNB) - NO_x
[Control Device Code 205]

Separated Overfire Air (SOFA) - NO_x
[Control Device Code 024]

Selective Catalytic Reduction (SCR) - NO_x
[Control Device Code 139]

Miscellaneous Control Devices - SO₃
[Control Device Code 099]

Electrostatic Precipitator (ESP) - PM/PM₁₀
[Control Device Code 010]

Wet Limestone Injection Flue Gas Desulfurization (FGD) - SO₂ & PM/PM₁₀
[Control Device Code 042]

2. Control Device or Method Code(s): **205, 024, 139, 099, 010, 042**

EMISSIONS UNIT INFORMATION

Section [1] of [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: 486 MW
3. Maximum Heat Input Rate: 4,330 million Btu/hr
4. Maximum Incineration Rate: pounds/hr tons/day
5. Requested Maximum Operating Schedule: 24 hours/day 7 days/week 52 weeks/year 8,760 hours/year
6. Operating Capacity/Schedule Comment:

EMISSIONS UNIT INFORMATION

Section [1] of [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: Unit 4 Exhaust Stack		2. Emission Point Type Code: 2	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: N/A			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: 003 and 004 (when operating in FGD integrated mode)			
5. Discharge Type Code: V	6. Stack Height: 490 feet		7. Exit Diameter: 24 feet
8. Exit Temperature: 127 °F	9. Actual Volumetric Flow Rate: 1,614,250 acfm		10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: Stack data is for Unit 4, scrubbed.			

EMISSIONS UNIT INFORMATION

Section [1] of [1]

D. SEGMENT (PROCESS/FUEL) INFORMATION**Segment Description and Rate:** Segment 1 of 5

1. Segment Description (Process/Fuel Type): Coal burned in Unit No. 4.		
2. Source Classification Code (SCC): 1-01-002-01		3. SCC Units: Tons Burned
4. Maximum Hourly Rate: 196.8	5. Maximum Annual Rate: 1,724,127	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 5.4	8. Maximum % Ash: 13.3	9. Million Btu per SCC Unit: 22
10. Segment Comment: Btu per SCC unit value (Field 9) based on a nominal coal heat content of 11,000 Btu/lb.		

Segment Description and Rate: Segment 2 of 5

1. Segment Description (Process/Fuel Type): No. 2 fuel oil burned in Unit No. 4.		
2. Source Classification Code (SCC): 1-01-005-01		3. SCC Units: 1,000 Gallons Burned
4. Maximum Hourly Rate: N/A	5. Maximum Annual Rate: N/A	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.5	8. Maximum % Ash: 0.1	9. Million Btu per SCC Unit: 139
10. Segment Comment: No. 2 fuel oil burned only during startup, shutdown, flame stabilization, and during the start of a mill.		

EMISSIONS UNIT INFORMATION

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

Segment Description and Rate: Segment 3 of 5

1. Segment Description (Process/Fuel Type): Petroleum coke burned in Unit No. 4.		
2. Source Classification Code (SCC): 1-01-008-01		3. SCC Units: Tons Burned
4. Maximum Hourly Rate: 39.4	5. Maximum Annual Rate: 344,825	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 7.0	8. Maximum % Ash: 0.8	9. Million Btu per SCC Unit: 28
10. Segment Comment: Maximum petcoke rates (Fields 4 and 5) based on 20% of coal rates.		

Segment Description and Rate: Segment 4 of 5

1. Segment Description (Process/Fuel Type): Raw coal residual burned in Unit No. 4.		
2. Source Classification Code (SCC): 1-01-002-01		3. SCC Units: Tons Burned
4. Maximum Hourly Rate: *	5. Maximum Annual Rate: 73,000	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 1.43	8. Maximum % Ash: 57.7	9. Million Btu per SCC Unit: 6.1
10. Segment Comment: *Firing of raw coal residual is limited to 200 tons per day total for Units 1 through 4. Maximum annual coal residual rate (Field 5) is the total for Units 1 through 4.		

EMISSIONS UNIT INFORMATION

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

Segment Description and Rate: Segment 5 of 5

1. Segment Description (Process/Fuel Type): Beneficiated coal residual burned in Unit No. 4.		
2. Source Classification Code (SCC): 1-01-002-01		3. SCC Units: Tons Burned
4. Maximum Hourly Rate: *	5. Maximum Annual Rate: 182,500	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 1.5	8. Maximum % Ash: 35.4	9. Million Btu per SCC Unit: 17.95
10. Segment Comment: *Firing of beneficiated coal residual is limited to 500 tons per day total for Units 1 through 4. Maximum annual coal residual rate (Field 5) is the total for Units 1 through 4. Sulfur, ash, and heat contents are on a dry basis.		

EMISSIONS UNIT INFORMATION

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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
1 - NOX	205 (Low NO _x Burners)	024 (Modified Furnace or Burner Design [SOFA] and 139 [SCR])	EL
2 - CO			EL
3 - PM	010 (ESP)	042 (FGD)	EL
4 - PM10	010 (ESP)	042 (FGD)	NS
5 - SO2	042 (FGD)		EL
6 - VOC			NS
7 - H106 (HCl)			NS
8 - H107 (HF)			NS
9- HAPS			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: NO_x	2. Total Percent Efficiency of Control: 50 to 70 percent
3. Potential Emissions: 433 lb/hour 1,897 tons/year	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): N/A to tons/year	
6. Emission Factor: N/A Reference:	7. Emissions Method Code: 0
8. Calculation of Emissions: $\frac{0.10 \text{ lb } NO_x}{MMBtu} \times \frac{4,330 \text{ MMBtu}}{hr} = 433 \text{ lb } \frac{NO_x}{hr}$ $433 \text{ lb } \frac{NO_x}{hr} \times 8,760 \frac{hr}{yr} \times \frac{ton}{2,000} = 1,897 \frac{ton}{yr}$	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:	

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
ALLOWABLE EMISSIONS**

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

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: Other	2. Future Effective Date of Allowable Emissions: June 1, 2007
3. Allowable Emissions and Units: 0.10 lb/MBtu, 30-day rolling average	4. Equivalent Allowable Emissions: 433 lb/hour 1,897 tons/year
5. Method of Compliance: NO_x CEMS	
6. Allowable Emissions Comment (Description of Operating Method): Basis for allowable emissions is the EPA Consent Decree and the FDEP Consent Final Judgment	

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:		2. Total Percent Efficiency of Control:	
3. Emissions: lb/hour		Potential tons/year	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: Reference:		7. Emissions Method Code: 0	
8. Calculation of Emissions:			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: Other than NO_x, TEC is not requesting any revisions to currently authorized emission standards as specified in FINAL Title V Permit No. 0570039-017-AV. The information requested by Section F1 regarding Unit 4 allowable emissions for pollutants other than NO_x can be found in FINAL Title V Permit No. 0570039-017-AV.			

**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): Other than NO_x, TEC is not requesting any revisions to currently authorized emission standards as specified in FINAL Title V Permit No. 0570039-017-AV. The information requested by Section F2 regarding allowable emissions for pollutants other than NO_x for Unit No. 4 can be found in FINAL Title V Permit No. 0570039-017-AV.	

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

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G. VISIBLE EMISSIONS INFORMATION

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

Visible Emissions Limitation: Visible Emissions Limitation ___ of

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <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: TEC is not requesting any revisions to currently authorized visible emission standards as specified in FINAL Title V Permit No. 0570039-017-AV. The information requested by Section G regarding visible emissions for Unit No. 4 can be found in FINAL Title V Permit No. 0570039-017-AV.	

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] of [1]

H. CONTINUOUS MONITOR INFORMATION

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

Continuous Monitoring System: Continuous Monitor ___ of

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information: Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: Information regarding Unit No. 4 CEMS remains unchanged from the data previously provided to the Department.	

Continuous Monitoring System: Continuous Monitor ___ of

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

EMISSIONS UNIT INFORMATION

Section [1] of [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 checked="" type="checkbox"/> Attached, Document ID: <u>A</u> <input type="checkbox"/> Previously Submitted, Date
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: ___ <input checked="" type="checkbox"/> Previously Submitted, Date June 2004
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 checked="" type="checkbox"/> Attached, Document ID: Intro. <input type="checkbox"/> Previously Submitted, Date
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: ___ <input checked="" type="checkbox"/> Previously Submitted, Date June 2004 <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 checked="" type="checkbox"/> Previously Submitted, Date June 2004 <input 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

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Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) 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 (Rule 62-212.400(5)(h)6., F.A.C., and Rule 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 N/A

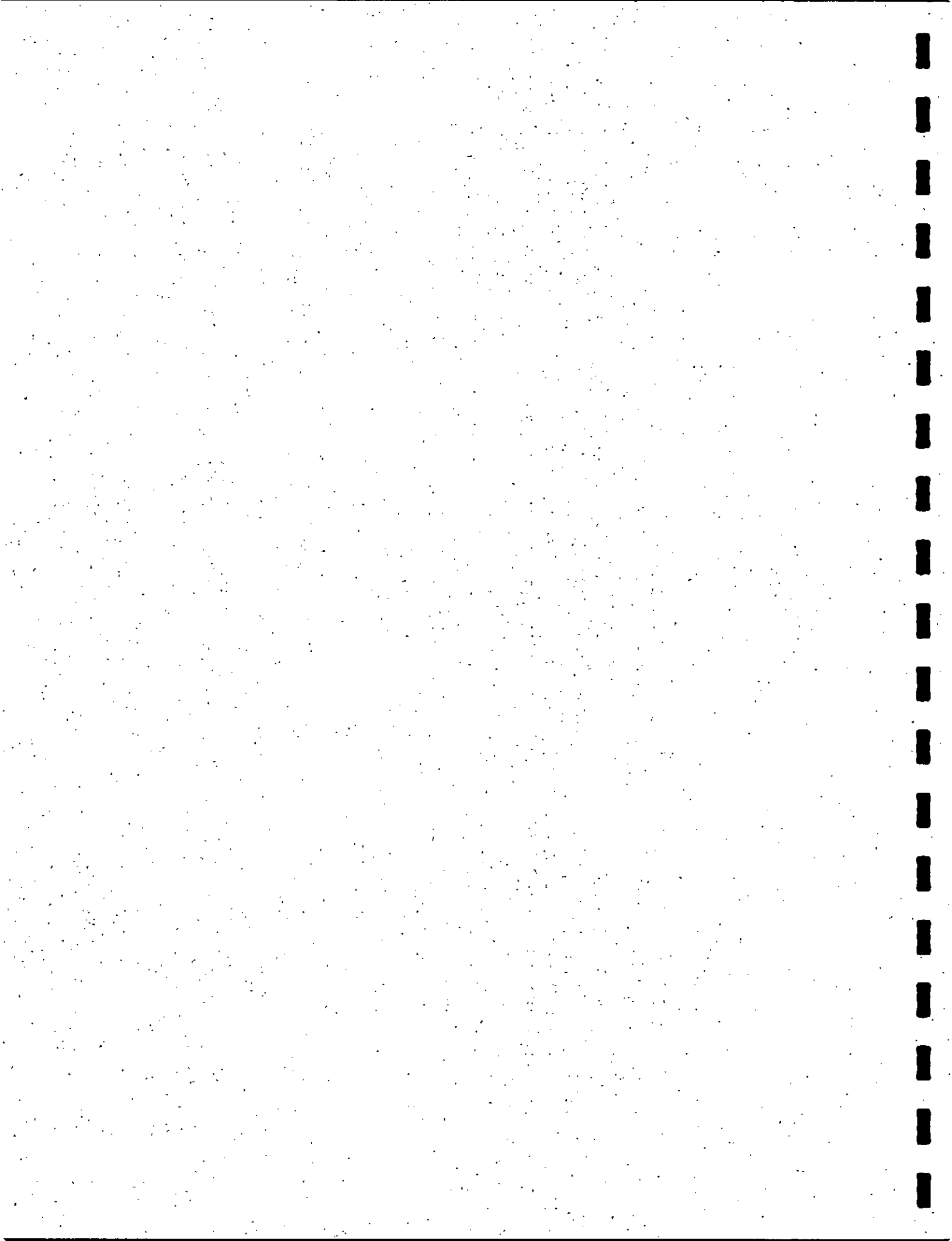
1. Identification of Applicable Requirements <input type="checkbox"/> Attached, Document ID: ___ <input type="checkbox"/> Previously Submitted, Date
2. Compliance Assurance Monitoring <input type="checkbox"/> Attached, Document ID: ___ <input type="checkbox"/> Previously Submitted, Date
3. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: ___ <input type="checkbox"/> Previously Submitted, Date
4. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: ___ <input type="checkbox"/> Not Applicable
5. Acid Rain Part Application <input type="checkbox"/> Certificate of Representation (EPA Form No. 7610-1) <input type="checkbox"/> Copy Attached, Document ID: <input type="checkbox"/> Acid Rain Part (Form No. 62-210.900(1)(a)) <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Previously Submitted, Date: <input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Previously Submitted, Date: <input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Previously Submitted, Date: <input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Previously Submitted, Date: <input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Previously Submitted, Date: <input type="checkbox"/> Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Previously Submitted, Date: <input type="checkbox"/> Not Applicable

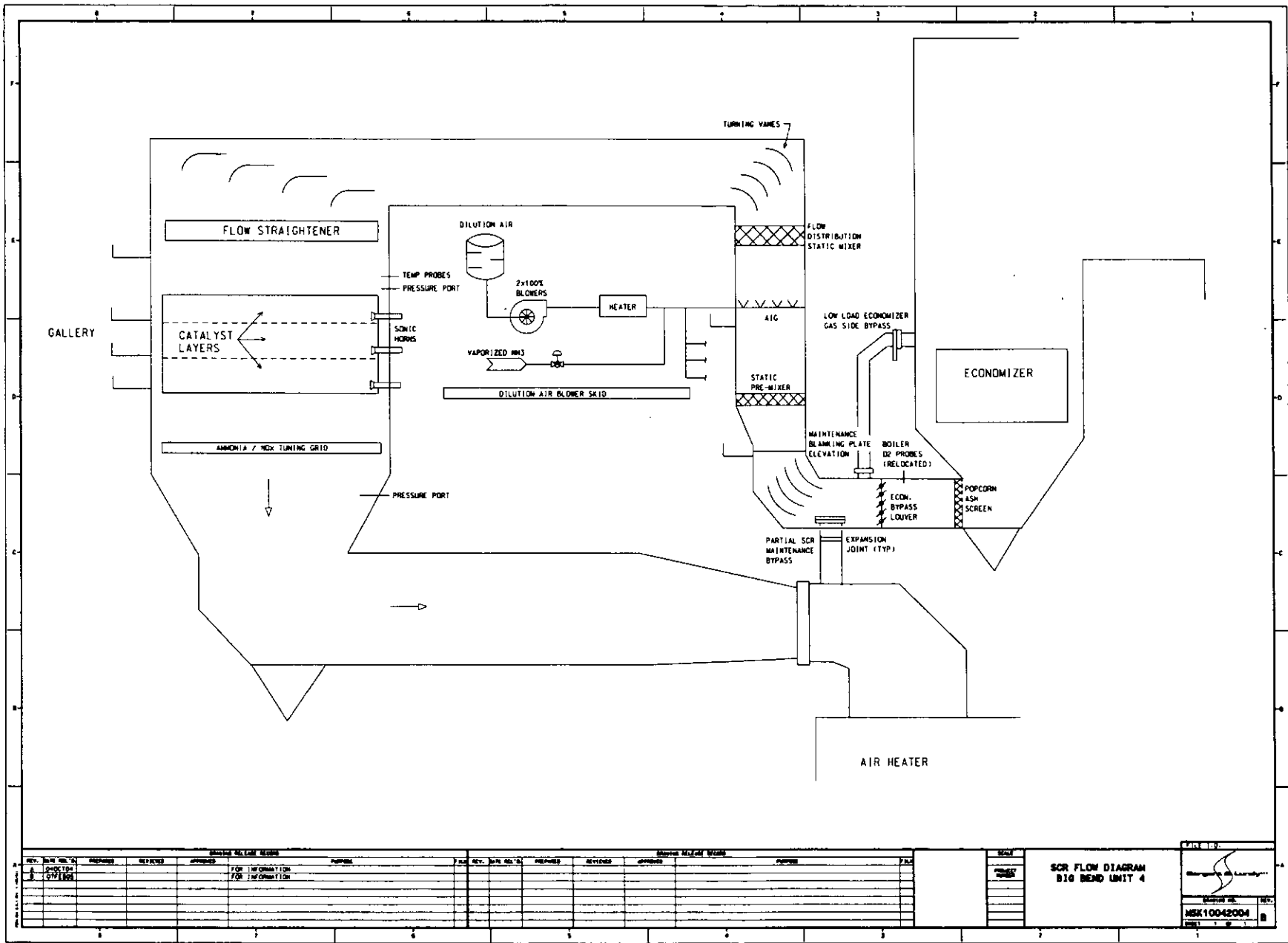
EMISSIONS UNIT INFORMATION

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Additional Requirements Comment

ATTACHMENT A
PROCESS FLOW DIAGRAM





Big Bend Unit 4 SCR Flow Diagram 02/07/05 03:42:16 PM

Drawing Revisions				Drawing Revisions				Scale		Title	
REV.	DATE	BY	CHK'D	REV.	DATE	BY	CHK'D	SCALE	TITLE	DATE	BY
A									SCR FLOW DIAGRAM BIG BEND UNIT 4		
B											
FOR INFORMATION				FOR INFORMATION						MSK10042004	
FOR INFORMATION				FOR INFORMATION							