

INTRODUCTION

Tampa Electric Company (TEC) Polk Power Station (PPS) Unit 1 located in Polk County, Florida is a nominal 260 megawatt (MW) electric generation facility. Major components of PPS Unit 1 include solid fuel handling and gasification systems, a sulfuric acid plant for processing of the solid fuel gasification system gas cleanup stream, an auxiliary boiler fired with No. 2 distillate fuel oil, and one integrated coal gasification combined-cycle (ICGC) General Electric (GE) 7F combustion turbine (CT) fired with synthetic natural gas (syngas) or No. 2 distillate fuel oil.

Operation of PPS Unit 1 is currently authorized by Florida Department of Environmental Protection (FDEP) Prevention of Significant Deterioration (PSD) permit PSD-FL-194, Florida Power Plant Siting Act (PPSA) Certification PA 92-32, and Title V Air Operation Permit No. 1050233-001-AV.

In December 1999, TEC was authorized by the FDEP to conduct PPS Unit 1 performance tests using syngas developed from coal/petroleum coke (petcoke) fuel blends for comparison to baseline syngas emissions. TEC conducted the baseline syngas performance tests (i.e., syngas developed from coal) on February 7th and 8th, 2000. Performance tests using syngas developed from a 60 percent coal/40 percent petcoke blend were conducted on February 14th and 15th, 2000. Performance tests using syngas developed from a 40 percent coal/60 percent petcoke blend were conducted on April 24th through April 25th, 2000. The results of these performance tests were submitted to FDEP on March 29th and June 12th, 2000.

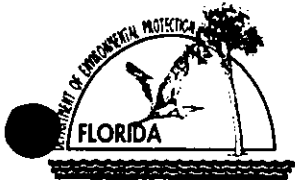
An analysis to determine whether future long-term firing of coal/petcoke fuel blends would constitute a modification subject to Prevention of Significant Deterioration (PSD) review pursuant to Rule 62-212.400, F.A.C. was prepared based on the performance test results, fuel analyses, and historical emissions data. This analysis of PSD applicability was conducted in accordance with the procedures specified in the December 13, 1999 FDEP performance test authorization letter. The analysis demonstrates that PSD review is not applicable to this permit modification request.

This submittal constitutes TEC's construction permit application for the permanent use of petcoke at PPS Unit 1 and is submitted to satisfy the requirements of Rule 62-210.300(1), F.A.C. TEC requests that the current PPS Unit 1 permits [PSD Permit PSD-FL-194, PPSA Certification PA 92-32, and Title V Permit No. 1050233-001-AV] be modified to allow for the gasification of coal and petcoke fuel blends, containing up to 60 percent petcoke, on a permanent basis as an alternative method of operation to the currently approved gasification of 100 percent coal. TEC is not requesting any revisions to any currently authorized emission limitation or standard for any PPS Unit 1 emission source.

Relevant portions of the FDEP Application for Air Permit – Title V Source are provided in Attachment A. The FDEP's performance test authorization letter dated December 13, 1999 and an analysis of PSD applicability are provided in Attachments B and C, respectively. Attachment D contains proposed permit condition language for the use of petcoke/coal blends.

ATTACHMENT A

**APPLICATION FOR AIR PERMIT—
TITLE V SOURCE**



Department of Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - TITLE V SOURCE

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: Tampa Electric Company	
2. Site Name: Polk Power Station	
3. Facility Identification Number: 0530233 1050233 [] Unknown	
4. Facility Location: Street Address or Other Locator: 9995 State Route 37, South City: Mulberry County: Polk Zip Code: 33860-0775	
5. Relocatable Facility? [] Yes [<input checked="" type="checkbox"/>] No	6. Existing Permitted Facility? [<input checked="" type="checkbox"/>] Yes [] No

Application Contact

1. Name and Title of Application Contact: Patrick Shell Administrator – Air Programs, Environmental Affairs	
2. Application Contact Mailing Address: Organization/Firm: Tampa Electric Company Street Address: 6499 U.S. Highway 41 North City: Apollo Beach State: FL Zip Code: 33572-9200	
3. Application Contact Telephone Numbers: Telephone: (813) 641 – 5210 Fax: (813) 641-5081	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	7-5-00
2. Permit Number:	1050233-003-AY, 1050233-004-AC
3. PSD Number (if applicable):	PSD-FL-194d
4. Siting Number (if applicable):	PA 92-32

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

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

Current construction permit number: _____

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

Current construction permit number: _____

Operation permit number to be revised: _____

- Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)

Operation permit number to be revised/corrected: 10500233-001-AV

- Title V air operation permit revision for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit number to be revised: _____

Reason for revision: _____

Air Construction Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

- Air construction permit to construct or modify one or more emissions units.
- Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.
- Air construction permit for one or more existing, but unpermitted, emissions units.

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official: Mark J. Hornick, General Manager
2. Application Contact Mailing Address: Organization/Firm: Tampa Electric Company Street Address: P.O. Box 775 City: Mulberry State: FL Zip Code: 33860-0775
3. Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: (813) 288-1111 Fax: (813) 641-5081
4. Owner/Authorized Representative or Responsible Official Statement: <i>I, the undersigned, am the owner or authorized representative*(check here [✓], if so) or the responsible official (check here [], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.</i> <i>Mark Hornick</i> _____ <i>7/3/00</i> _____ Signature Date

* Attach letter of authorization if not currently on file.

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
3. Professional Engineer Telephone Numbers: Telephone: (352) 332-0444 Fax: (352) 332-6722

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

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

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Thomas R. Jones
Signature

6/30/00
Date

(seal)

* Attach any exception to certification statement.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
006	Solid Fuel Gasification System Revision	ACM2	N/A

Application Processing Fee

Check one: [] Attached - Amount: \$ _____ [✓] Not Applicable

Note: No fee required pursuant to Rule 62-4.050(4)(a)2., F.A.C.

Construction/Modification Information

1. Description of Proposed Project or Alterations:

In December 1999, TEC was authorized by the FDEP to conduct PPS Unit 1 performance tests using syngas developed from coal/petroleum coke (petcoke) fuel blends for comparison to baseline syngas emissions. TEC conducted the baseline syngas performance tests (i.e., syngas developed from coal) on February 7th and 8th, 2000. Performance tests using syngas developed from a 60 percent coal/40 percent petcoke blend were conducted on February 14th and 15th, 2000. Performance tests using syngas developed from a 40 percent coal/60 percent petcoke blend were conducted on April 24th through April 25th, 2000. The results of these performance tests were submitted to FDEP on March 29th and June 12th, 2000.

An analysis to determine whether future long-term firing of coal/petcoke fuel blends would constitute a modification subject to Prevention of Significant Deterioration (PSD) review pursuant to Rule 62-212.400, F.A.C. was prepared based on the performance test results, fuel analyses, and historical emissions data. This analysis of PSD applicability was conducted in accordance with the procedures specified in the December 13, 1999 FDEP performance test authorization letter. The analysis demonstrates that PSD review is not applicable to this permit modification request.

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2. Projected or Actual Date of Commencement of Construction:

Upon receipt of FDEP approval.

3. Projected Date of Completion of Construction: Not applicable

Application Comment

[Empty box for Application Comment]

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap		4. Basis for Emissions Cap	5. Pollutant Comment
		lb/hour	tons/year		
NOX	A	N/A	N/A	N/A	
SO2	A	N/A	N/A	N/A	
CO	A	N/A	N/A	N/A	
PM10	A	N/A	N/A	N/A	
PM	A	N/A	N/A	N/A	
SAM	A	N/A	N/A	N/A	
VOC	A	N/A	N/A	N/A	
PB	B	N/A	N/A	N/A	

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
2. Facility Plot Plan: <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
3. Process Flow Diagram(s): <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
5. Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
6. Supplemental Information for Construction Permit Application: <input type="checkbox"/> Attached, Document ID: <input checked="" type="checkbox"/> Not Applicable
7. Supplemental Requirements Comment: Items 1 through 6 above previously submitted – see Polk Power Station Title V permit application.

Additional Supplemental Requirements for Title V Air Operation Permit Applications

8. List of Proposed Insignificant Activities: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
9. List of Equipment/Activities Regulated under Title VI: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities On site but Not Required to be Individually Listed <input type="checkbox"/> Not Applicable
10. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
11. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
12. Identification of Additional Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
13. Risk Management Plan Verification: <input type="checkbox"/> Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID: _____) or previously submitted to DEP (Date and DEP Office: _____) <input type="checkbox"/> Plan to be submitted to CEPPO (Date required: _____) <input type="checkbox"/> Not Applicable
14. Compliance Report and Plan: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
15. Compliance Certification (Hard-copy Required): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

Items 8. through 15. above previously submitted – see Polk Power Station Title V permit application.

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

**A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)**

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one)			
<input type="checkbox"/> 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).			
<input checked="" type="checkbox"/> 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.			
<input type="checkbox"/> 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. Regulated or Unregulated Emissions Unit? (Check one)			
<input checked="" type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.			
<input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.			
2. Description of Emissions Unit Addressed in This Section (limit to 60 characters): Emission unit consists of an existing solid fuel gasification system. Approval to input coal/petcoke blends, containing up to 60.0 percent petcoke by weight, in addition to the currently authorized input of 100.0 percent coal to the existing solid fuel gasification system is requested.			
4. Emissions Unit Identification Number: ID: 006		<input type="checkbox"/> No ID <input type="checkbox"/> ID Unknown	
5. Emissions Unit Status Code: A	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: 49	8. Acid Rain Unit? <input type="checkbox"/>
9. Emissions Unit Comment: (Limit to 500 Characters)			

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

N/A

2. Control Device or Method Code(s):

Emissions Unit Details

1. Package Unit:	
Manufacturer:	Model Number:
2. Generator Nameplate Rating: MW	
3. Incinerator Information:	
Dwell Temperature:	°F
Dwell Time:	seconds
Incinerator Afterburner Temperature:	°F

**B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)**

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate:	mmBtu/hr	
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:	2,325 tons per day of solid fuel input, on a dry basis.	
4. Maximum Production Rate:		
5. Requested Maximum Operating Schedule:	24 hours/day	7 days/week
	52 weeks/year	8,760 hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):		

**D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only) – Not Applicable**

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram?		2. Emission Point Type Code:	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code:	6. Stack Height: feet	7. Exit Diameter: feet	
8. Exit Temperature: °F	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone: East (km): North (km):			
14. Emission Point Comment (limit to 200 characters):			

Emissions Unit Information Section 1 of 2

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type) (limit to 500 characters): Gasification of coal and coal/petcoke blends.		
3. Source Classification Code (SCC): 3-10-999-99		3. SCC Units: Tons Processed
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 (limit to 200 characters): Maximum daily input rate of coal and coal/petcoke blends to the solid fuel gasification system shall not exceed 2,325 tons.		

Segment Description and Rate: Segment of

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
2. Source Classification Code (SCC):		3. SCC Units:
3. Maximum Hourly Rate:	4. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
6. Maximum % Sulfur:	7. Maximum % Ash:	8. Million Btu per SCC Unit:
9. Segment Comment (limit to 200 characters):		

H. VISIBLE EMISSIONS INFORMATION
(Only Regulated Emissions Units Subject to a VE Limitation)

Not Applicable

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. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
5. Method of Compliance:	
6. Visible Emissions Comment (limit to 200 characters):	

Visible Emissions Limitation: Visible Emissions Limitation ____ of ____

2. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
7. Method of Compliance:	
8. Visible Emissions Comment (limit to 200 characters):	

**I. CONTINUOUS MONITOR INFORMATION
(Only Regulated Emissions Units Subject to Continuous Monitoring)**

Not Applicable

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[] Rule [] Other
4. Monitor Information: Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
6. Continuous Monitor Comment (limit to 200 characters):	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[] Rule [] Other
4. Monitor Information: Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters):	

**J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)**

Supplemental Requirements

1. Process Flow Diagram <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
2. Fuel Analysis or Specification <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
3. Detailed Description of Control Equipment <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
5. Compliance Test Report <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable
6. Procedures for Startup and Shutdown <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
8. Supplemental Information for Construction Permit Application <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Supplemental Requirements Comment: <p>Items 1 through 3 above previously submitted – see Polk Power Station Title V permit application.</p>

Emissions Unit Information Section 2 of 2

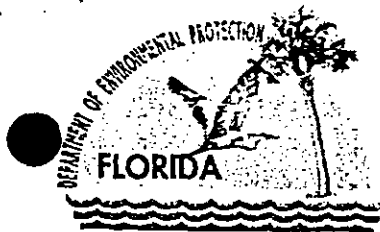
Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
12. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
13. Identification of Additional Applicable Requirements <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
14. Compliance Assurance Monitoring Plan <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
15. Acid Rain Part Application (Hard-copy Required) <input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ <input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ <input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ <input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ <input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) Attached, Document ID: _____ <input type="checkbox"/> Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

Above items previously submitted, see Polk Power Station Title V permit application.

ATTACHMENT B

**PERFORMANCE TEST
AUTHORIZATION LETTER**



Jeb Bush
Governor

Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

December 13, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Charles A. Shelnut
General Manager
Tampa Electric Company
P.O. Box 775
Tampa, Florida 33680-0775

Dear Mr. Shelnut:

Re: Modification of PSD-FL-194
Tampa Electric Polk Power Station, Unit No. 1
Petroleum Coke/Coal Performance Test Request

The Department has reviewed the request from Tampa Electric Company (TEC) dated May 21, 1998 and supplementary information dated September 8, 1998 and November 10, 1998 to conduct performance tests while firing synthetic natural gas (syngas) produced from petroleum coke/coal blends at Polk Power Station, Unit No. 1.

You are hereby authorized to conduct performance tests for pollutant emissions on Polk Power Station Unit No. 1 in Polk County while firing syngas produced from blends of petroleum coke (petcoke) and bituminous coal (coal). All Conditions of Certification and Conditions of Approval in your Site Certification and PSD Permit related to air pollution emission limits and control equipment remain in force.

The performance tests will be conducted in order to gather data regarding pollutant emissions and operational limitations while firing syngas produced from blends of petcoke and coal. The blends can contain a maximum of 70 percent (% by weight) petcoke. Screening to determine whether future long-term firing of syngas produced from blends of petcoke and coal blends syngas constitutes a modification subject to a review for Prevention of Significant Deterioration (PSD) shall be performed in accordance with Chapter 403, F.S.; Chapters 62-210 through 62-297 and 62-4, F.A.C.; and, Title 40, Code of Federal Regulations (CFR; July 1, 1998 version). The procedure will consist of a comparison of estimates of "representative actual annual emissions" while burning petcoke/coal blends syngas against past actual emissions while burning coal syngas (or estimates of past actual emissions developed from 100 percent coal syngas baseline performance tests).

The performance test results along with any modification application to allow permanent firing of syngas produced from blends of petcoke/coal will be reviewed by the Department's Bureau of Air Regulation (BAR) and interested agencies (i.e., DEP Southwest District office, U.S. EPA, U.S. Fish and Wildlife Service, National Park Service, etc.).

The performance tests shall be subject to the following conditions:

1. The permittee shall notify, in writing, the Department's BAR office, the Southwest District office, and the Site Certification office at least 15 days prior to commencement of the baseline and the petcoke/coal blend syngas performance tests. A written test result report shall be submitted to these offices within 45 days upon completion of the last test run.

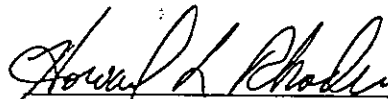
2. The petcoke/coal blend syngas performance tests shall commence on or before March 1, 2000 and be conducted for not more than 90 days. The tests shall be conducted based on the proposed testing protocol to establish steady state operation and to achieve a maximum (70%) blend. If, for any reasons, a steady state operation of 70% petroleum coke/coal blend syngas, or less, is not achieved, or the testing at 70% petcoke blend syngas or less, presents any operational or environmental concerns, the testing shall be curtailed. The Department shall be immediately notified of the problems that have prevented steady state operations and what steps will be initiated to correct the problem. All testing shall be concluded within 150 days of when petcoke is first introduced into Unit No. 1.
 - Estimated Date of Introduction of Fuel Blend Syngas: January 1, 2000
(Note: This is the date at which a run on Petcoke fuel blend syngas may be commenced. It does not indicate that Unit 1 will run continuously from January 1 to June 1, 2000)
 - Estimated Testing Schedule:
 - Scenario: 55% Petcoke/ 45% Coal
Estimated date to begin testing: March 1, 2000
 - Scenario: 60% Petcoke/40% Coal (if 55% blend emissions are less than baseline)
Estimated date to begin testing: April 1, 2000
 - Scenario: 65% Petcoke/ 35% Coal (if 60% blend emissions are less than baseline)
Estimated date to begin testing: May 1, 2000
 - Scenario: 70% Petcoke/ 30% Coal (if 65% blend emissions are less than baseline)
Estimated date to begin testing: May 15, 2000
3. Stack emissions from Unit No. 1 shall not exceed the following during baseline and petcoke/coal blend syngas performance tests (based on most stringent of present PSD Permit and Certification Conditions):
 - a. Sulfur dioxide (SO₂) - 357 pounds per hour on a 30-day rolling average.
 - b. Nitrogen oxides (NO_x) - 222.5 pounds per hour on a 30-day rolling average.
4. As-burned fuel samples shall be collected and analyzed for the sulfur and nitrogen content throughout the petroleum coke/coal blend syngas and the baseline coal syngas test periods.
5. The performance tests of the petcoke/coal blend syngas shall be limited to a maximum of 70% petcoke, by weight. The maximum weight of the petroleum coke burned during the petcoke/coal blend syngas performance tests shall not exceed 1628 tons per day, on a dry basis.
6. The maximum sulfur content of the fuel shall not exceed 3.5 percent, by weight, during the baseline tests and the petroleum coke/coal blend syngas tests.
7. SO₂, NO_x, and opacity emissions data shall be recorded using continuous emissions monitors (CEMS) during the baseline and the petcoke/coal blend syngas tests. If the plant CEMS are used for these tests, these systems shall be quality assured pursuant to 40 CFR 60, Appendix F requirements. The data assessment report per 40 CFR 60, Appendix F, for the most recent relative accuracy test audit (RATA) and most recent cylinder gas audit (CGA), shall be submitted with the test report. In addition, stack tests shall be conducted for sulfuric acid mist during the baseline and petcoke/coal blend syngas tests. A satisfactory performance test for each baseline test and each petroleum coke-coal blend syngas shall consist of a minimum of three tests at three runs per test.

8. The pollutant emission results from the petroleum coke/coal blend syngas performance tests shall be used to estimate "representative actual annual emissions" following an operational change per 62-210.200 (12)(d), F.A.C., for comparison with actual emissions per Rule 62-210.200(12)(a), F.A.C. The comparison will form the basis of a PSD applicability determination pursuant to 40 CFR 52.21. The results of baseline performance tests when firing coal syngas will be used only to the extent that such information does not already exist or is insufficient to determine actual emissions.
9. Performance tests shall be conducted using EPA Reference Methods, as contained in 40 CFR 60 (Standards of Performance for New Stationary Sources), or any other method approved by the Department, in writing, in accordance with Chapter 62-297, F.A.C.
10. If additional time is needed, the permittee shall request an extension of time and provide the Department with documentation of the progress accomplished to-date and shall identify the work required to complete the performance tests.
11. Daily records (e.g., heat input, MW, fuel input rates, etc.) of IGCC operations while firing the petcoke/coal blend syngas and while firing only coal syngas (baseline) during the tests shall be required.
12. The Southwest District office may conduct a Type I or II stack audit.
13. Complete documentation (recording) of any firing of the petroleum coke-coal blend syngas shall be required (i.e., all CEMs records; testing results; materials utilized, by weight; etc.) and kept on file for a minimum of five years.
14. The authorized petroleum coke/coal blend syngas performance tests shall not result in the release of objectionable odors pursuant to Rule 62-296.320(2), F.A.C.
15. Performance testing shall cease as soon as possible if Unit No. 1 operations are not in accordance with the conditions in the air section of Site Certification No. PA 92-32, PSD Permit No. PSD-FL-194, or this authorization protocol. Performance testing shall not resume until appropriate measures to correct the problem(s) have been implemented.
16. The performance tests for pollutant emissions shall be conducted under the direct supervision of a professional engineer registered in Florida.
17. This Department action is only to authorize the petroleum coke-coal blend syngas performance tests. Any firing of petroleum coke beyond the 90 days of testing within the 150 day period approved to conduct such tests will be deemed a violation of the Site Certification No. PA 92-32 and Permit No. PSD-FL-194.
18. The Southwest District office shall be immediately notified, in writing upon completion of the final test.
19. The testing series shall include emissions tests for each of the petroleum coke/coal blends syngas and pollutants with the source operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the capacity allowed by Site Certification PA 92-32 and Permit PSD-FL-194. If it is impracticable to test at permitted capacity, then the source may be tested at a lesser rate. However, the tests shall be conducted at capacities within 10 percent of each other and corrected to the same heat input basis. Furthermore, subsequent source operation with a petroleum coke-coal blend syngas, if requested and approved by the Department, shall be limited to 110 percent of the tested capacity for that blend syngas until new tests are conducted, which requires prior Department authorization.
20. Attachments to be incorporated:
 - Tampa Electric Company letters dated May 21, September 8 and November 10, 1998.
 - FDEP letters dated June 16 and October 5, 1998.

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permit modification is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.


Howard L. Rhodes, Director
Division of Air Resources
Management


CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this permit modification was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 12-14-99 to the person(s) listed:

Charles A. Shelnut, TEC*
Buck Oven, DEP PPS
Bill Thomas, DEP SWD
Gregg Worley, EPA
John Bunyak, NPS
Patrick Shell, TEC

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

 12-14-99
(Clerk) (Date)

FINAL DETERMINATION

Tampa Electric Company

Permit No. 1050233-002-AC, PSD-FL-194C

Polk Power Station, Unit No. 1

An Intent to Issue PSD Permit modification to Tampa Electric Company, to temporarily burn syngas made from blends of petroleum coke and coal in Unit 1, in Polk County, was distributed on November 4, 1999. The Notice of Intent was published in the Lakeland Ledger on November 17, 1999. Copies of the draft construction permit were available for public inspection at the Department offices in Tampa and Tallahassee.

No comments were submitted by the National Park Service or the public. Telephonic comments were received from the Environmental Protection Agency (EPA) asking for clarification in the modification letter. The clarification sought was to include the word syngas after petroleum coke/coal blends. This addition will provide reasonable assurance that the blend of petroleum coke/coal will have to be converted to syngas prior to firing. The Department agrees with EPA's request and will make the necessary changes to the modification letter.

The final action of the Department is to issue the PSD permit modification with the changes noted above.

ATTACHMENT C

PSD APPLICABILITY ANALYSIS



June 23, 2000

Mr. A.A. Linero, P.E.
Administrator
New Source Review Section
Florida Department of Environmental Protection
111 South Magnolia Drive, Suite 4
Tallahassee, FL 32301

Via FedEx
Airbill No. 7908 5510 1818

**Re: Tampa Electric Company (TEC) -- Polk Power Station Unit 1
Petcoke Test Burn Report**

Dear Mr. Linero:

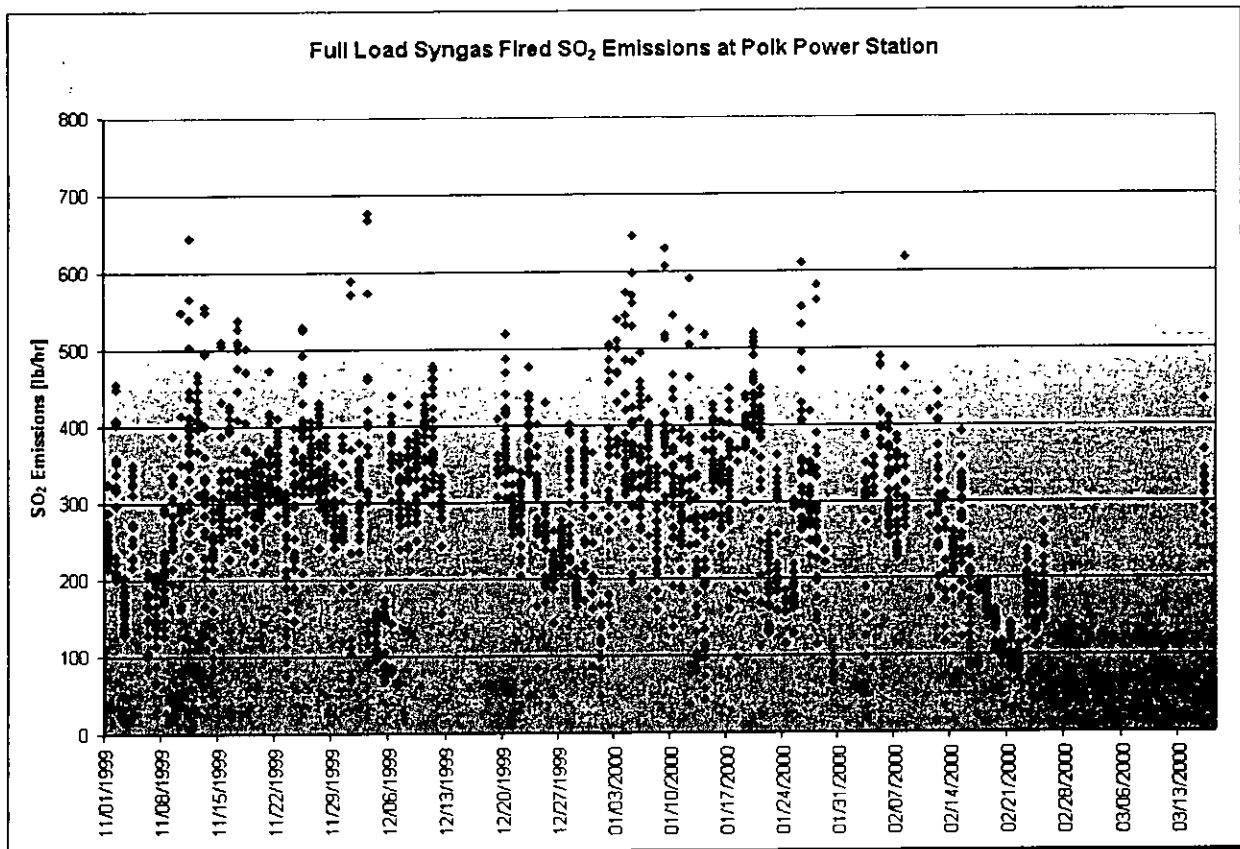
In correspondence dated May 30, 2000, the Department reiterated concerns that the combustion of syngas produced from the gasification of a fuel blend of 40% petcoke and 60% coal results in a significant increase in sulfuric acid (H_2SO_4) mist emissions as defined in Table 212.400-2 F.A.C. This is due to the fact that when compared to the baseline coal test, H_2SO_4 mist emissions measured during the 40% petcoke 60% coal test were slightly elevated.

Tampa Electric Company, however, does not feel that comparing either blend test directly to the baseline test can be considered an accurate comparison, since operating conditions tend to vary over time at Polk Power Station.

The main constituents of clean syngas are hydrogen, carbon monoxide, carbon dioxide and nitrogen. Hydrogen sulfide and carbonyl sulfide are the important sulfur compounds since they are the source of all HRSO stack SO_2 and H_2SO_4 mist emissions, but they are present only at ppm levels. The clean syngas composition is independent of the originating fuel, but the composition does depend on the performance of many plant systems including the acid gas removal system when considering sulfur-containing compounds. Since the performance of the acid gas removal system varies depending on several operating factors, syngas composition experiences slight short-term variances which are absorbed over the course of a year. As such, in comparing petcoke blend test emissions for the purpose of determining PSD applicability, TEC believes that a statistical analysis better demonstrates how actual emissions of H_2SO_4 mist emissions are affected as a result of firing syngas produced from the gasification of petcoke and coal blends.

To demonstrate the variability associated with the Polk process, TEC analyzed sulfur dioxide (SO_2) emissions while firing syngas in the combustion turbine at 90% - 100% load during the

period beginning on November 1, 1999 and continuing to April 1, 2000. November 1, 1999 was selected as the start date because the newly installed COS hydrolysis system had achieved stability in mid-October. April 1, 2000 was chosen as the end date because TEC does not have officially reportable data past that point. As shown below, emission rates in lb/hr varied within a range over the five-month period.



The accompanying statistical analysis details the degree of data variation.

Statistical Analysis	
Mean	283
Median	295
Mode	325
Standard Deviation	107
Sample Variance	11517
Range	638
Minimum	38.2
Maximum	677
Count	2212

Since H₂SO₄ mist emissions track closely to SO₂ emissions, TEC feels that the same variability exists in H₂SO₄ mist emissions as in SO₂ emissions. In fact, upon examination of the H₂SO₄

mist emissions from the baseline and each blend test, the variability is very similar to that seen for the SO₂ emissions.

	Baseline Test	First Blend Test (40% Petcoke)	Second Blend Test (60% Petcoke)
H ₂ SO ₄ Mist Emissions (lb/hr)	31.1	33.4	19.1

Statistical Analysis	
Mean	27.9
Median	31.1
Standard Deviation	7.64
Sample Variance	58.4
Range	14.2
Minimum	19.1
Maximum	33.4
Count	3.00

As shown in the statistical analysis, the H₂SO₄ mist emissions vary between tests. During the first blend test, for example, Polk Power Station personnel were in the process of cleaning filters that serve the MDEA system. This tends to increase short-term H₂SO₄ mist emissions by temporarily reducing the removal efficiency of the acid gas removal system. Although this is a procedure that takes place on a routine basis, it did not take place during the baseline test. An inspection of the hourly emission rate of the first blend test compared to the baseline test shows that the emission rate, although higher, is well within one standard deviation of the mean. This suggests that emissions as a result of the first blend test burn did not vary significantly compared to standard operations. Therefore, over the course of one year, emissions would not be expected to vary significantly when combusting syngas produced from the gasification of a blend of petcoke and coal.

Further evidence of emissions variability is shown in the results of the 60% petcoke 40% coal blend test. Although a greater amount of petcoke was gasified, the unit emitted less H₂SO₄ (and less SO₂) than during the baseline test or the 40% petcoke 60% coal test. This occurred despite the fact that the plant operated within normal operating parameters during all three tests.

TEC feels that the above variability analysis provides the Department with reasonable assurance that the combustion of syngas produced from a blend of petcoke and coal up to 60% petcoke will not result in a significant increase of any regulated pollutant. Therefore, TEC requests permission from the Department to combust syngas produced from a fuel blend containing no greater than 60% petcoke and 40% coal.

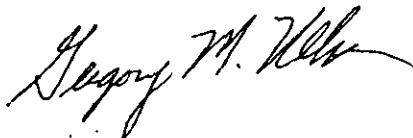
Mr. A.A. Linero, P.E.

June 23, 2000

Page 4 of 4

Should you have any questions, please feel free to contact Shannon K. Todd or me at (813) 641-5016.

Sincerely,



Gregory M. Nelson, P.E.

Director

Environmental Affairs

EP\gm\SKT178

c: Syed Arif, FDEP
Buck Oven, FDEP
Bill Thomas, FDEP - SWD

ATTACHMENT D

PROPOSED PERMIT CONDITIONS

**Tampa Electric Company – Polk Power Station Unit 1
Attachment D - Proposed Permit Revisions**

A. Proposed Revisions to Permit PSD-PSD-FL-194(A)

SPECIFIC CONDITIONS

1. Revise Specific Condition F. on Page 6 of 16 as follows:

F. Fuel Consumption

Solid fuels input to the solid fuel gasification plant shall consist of coal or coal/petroleum coke blends containing a maximum of 60.0 percent petroleum coke by weight. The maximum input of coal solid fuels input to the coal solid fuel gasification plant shall not exceed 2,325 tons per day, on a dry basis.

2. Revise Specific Condition G. on Page 6 of 16 as follows:

G. Fugitive Dust

Fugitive dust emissions during the construction period shall be minimized by covering or watering dust generation areas. Particulate matter emissions from the ~~coal~~ handling of solid fuels shall be controlled by enclosing all ~~coal~~ solid fuel storage, conveyors and conveyor transfer points. Fugitive emissions shall be tested as specified in Specific Condition No. J. Water sprays or chemical wetting agents and stabilizers shall be applied to uncovered storage piles, roads, handling equipment, etc. during dry periods, as necessary, to all facilities to maintain an opacity of less than or equal to five percent.

3. Revise Specific Condition H. on Page 8 of 18 as follows:

H. Emission Limits

(a) Syngas lb/MMBtu values based on heat input (HHV) to the coal solid fuel gasifier and includes emissions from the H₂SO₄ plant thermal oxidizer. Pollutant concentrations are corrected to 15% oxygen.

4. Revise Specific Condition M. on Page 14 of 18 as follows:

M. Notification, Reporting, and Recordkeeping

To determine compliance with the syngas and fuel oil firing heat input limitation, the permittee shall maintain daily records of syngas and fuel oil consumption for the turbine and heating value for each fuel. All records shall be maintained for a minimum of two years after the date of each record and shall be made available to representatives of the Department upon request. Documentation verifying that the coal/petroleum coke blends input to the solid fuel gasification system have not exceeded the 60.0 percent maximum petroleum coke by weight

**Tampa Electric Company – Polk Power Station Unit 1
Attachment D - Proposed Permit Revisions**

limit specified by Specific Condition F. shall be maintained and submitted to the Department's Southwest District Office with each annual report.

B. Proposed Revisions to Site Certification PA 92-32

XIII. AIR

1. Revise Condition of Certification XIII. F. on Page 14 as follows:

F. Fuel Consumption

Solid fuels input to the solid fuel gasification plant shall consist of coal or coal/petroleum coke blends containing a maximum of 60.0 percent petroleum coke by weight. The maximum input of ~~coal~~ solid fuels input to the ~~coal~~ solid fuel gasification plant shall not exceed 2,325 tons per day, on a dry basis.

2. Revise Condition of Certification XIII.G. on Page 15 as follows:

G. Fugitive Dust

Fugitive dust emissions during the construction period shall be minimized by covering or watering dust generation areas. Particulate matter emissions from the ~~coal~~ handling of solid fuels shall be controlled by enclosing all ~~coal~~ solid fuel storage conveyors and conveyor transfer points. Fugitive emissions shall be tested as specified in Condition No. XIII.J. Water sprays or chemical wetting agents and stabilizers shall be applied to uncovered storage piles, roads, handling equipment, etc. during dry periods, as necessary, to all facilities to maintain an opacity of less than or equal to five percent.

3. Revise Condition of Certification XIII.H. on Page 17 as follows:

H. Emission Limits

(a) Syngas lb/MMBtu values based on heat input (HHV) to the ~~coal~~ solid fuel gasifier and includes emissions from the H₂SO₄ plant thermal oxidizer. Pollutant concentrations are corrected to 15% oxygen.

4. Revise Condition of Certification XIII.M. on Page 21 as follows:

To determine compliance with the syngas and fuel oil firing heat input limitation, the permittee shall maintain daily records of syngas and fuel oil consumption for the turbine and heating value for each fuel. All records shall be maintained for a minimum of two years after the date of each record and shall be made available to representatives of the Department upon request. Documentation verifying that the coal/petroleum coke blends input to the solid fuel

**Tampa Electric Company – Polk Power Station Unit 1
Attachment D - Proposed Permit Revisions**

gasification system have not exceeded the 60.0 percent maximum petroleum coke by weight limit specified by Condition XIII.F. shall be maintained and submitted to the Department's Southwest District Office with each annual report.

C. Proposed Revisions to Title V Permit No. 1050233-001-AV

Section II. Facility-wide Conditions

Revise Condition 8. on Page 5 as follows:

8. Not federally enforceable. Reasonable precautions to prevent emissions of unconfined particulate matter at this facility include: enclosing all ~~coal~~ solid fuel storage, conveyors, and conveyor transfer points; chemical or water application to unpaved road and unpaved yard areas; paving and maintenance of roads, parking areas, and yards; landscaping or planting of vegetation; confining abrasive blasting where possible; and other techniques, as necessary.

[Rule 62-296.320(4)(c)2., F.A.C.; Proposed by applicant in the initial Title V permit application received October 4, 1996]

Section III. Emissions Unit(s) and Conditions

1. Revise Condition A.5 on Page 8 as follows:

- (a) Syngas lb/MMBtu values based on heat input (HHV) to the ~~coal~~ solid fuel gasifier and includes emissions from the H₂SO₄ plant thermal oxidizer. Pollutant concentrations are corrected to 15% oxygen.

2. Revise Condition D.1 on Page 44 as follows:

D.1. Methods of Operation

- a. All ~~coal~~ solid fuel storage, conveyors and transfer points shall be enclosed.

3. Revise Conditions E.1 and E.3 on Page 48 as follows:

E.1. Permitted Capacity. Solid fuels input to the solid fuel gasification plant shall consist of coal or coal/petroleum coke blends containing a maximum of 60.0 percent petroleum coke by weight. The maximum ~~coal~~ input of solid fuels to the ~~coal~~ solid fuel gasification plant shall not exceed 2,325 tons per day, on a dry basis.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.; and, PSD-FL-194]

E.3. Record daily the actual ~~coal~~ input of solid fuels to the emissions unit, in tons per day.

[Rule 62-213.440(1)(b), F.A.C.]

**Tampa Electric Company – Polk Power Station Unit 1
Attachment D - Proposed Permit Revisions**

4. Add new Condition E.5 on Page 48 as follows:

E.5. Documentation verifying that the coal/petroleum coke blends input to the solid fuel gasification system have not exceeded the 60.0 percent maximum petroleum coke by weight limit specified by Condition E.1. shall be maintained and submitted to the Department's Southwest District Office with each annual report.

JUL 07 2000

INTRODUCTION

BUREAU OF AIR REGULATION

Tampa Electric Company (TEC) Polk Power Station (PPS) Unit 1 located in Polk County, Florida is a nominal 260 megawatt (MW) electric generation facility. Major components of PPS Unit 1 include solid fuel handling and gasification systems, a sulfuric acid plant for processing of the solid fuel gasification system gas cleanup stream, an auxiliary boiler fired with No. 2 distillate fuel oil, and one integrated coal gasification combined-cycle (ICGC) General Electric (GE) 7F combustion turbine (CT) fired with synthetic natural gas (syngas) or No. 2 distillate fuel oil.

Operation of PPS Unit 1 is currently authorized by Florida Department of Environmental Protection (FDEP) Prevention of Significant Deterioration (PSD) permit PSD-FL-194, Florida Power Plant Siting Act (PPSA) Certification PA 92-32, and Title V Air Operation Permit No. 1050233-001-AV.

In December 1999, TEC was authorized by the FDEP to conduct PPS Unit 1 performance tests using syngas developed from coal/petroleum coke (petcoke) fuel blends for comparison to baseline syngas emissions. TEC conducted the baseline syngas performance tests (i.e., syngas developed from coal) on February 7th and 8th, 2000. Performance tests using syngas developed from a 60 percent coal/40 percent petcoke blend were conducted on February 14th and 15th, 2000. Performance tests using syngas developed from a 40 percent coal/60 percent petcoke blend were conducted on April 24th through April 25th, 2000. The results of these performance tests were submitted to FDEP on March 29th and June 12th, 2000.

An analysis to determine whether future long-term firing of coal/petcoke fuel blends would constitute a modification subject to Prevention of Significant Deterioration (PSD) review pursuant to Rule 62-212.400, F.A.C. was prepared based on the performance test results, fuel analyses, and historical emissions data. This analysis of PSD applicability was conducted in accordance with the procedures specified in the December 13, 1999 FDEP performance test authorization letter. The analysis demonstrates that PSD review is not applicable to this permit modification request.

This submittal constitutes TEC's construction permit application for the permanent use of petcoke at PPS Unit 1 and is submitted to satisfy the requirements of Rule 62-210.300(1), F.A.C. TEC requests that the current PPS Unit 1 permits [PSD Permit PSD-FL-194, PPSA Certification PA 92-32, and Title V Permit No. 1050233-001-AV] be modified to allow for the gasification of coal and petcoke fuel blends, containing up to 60 percent petcoke, on a permanent basis as an alternative method of operation to the currently approved gasification of 100 percent coal. TEC is not requesting any revisions to any currently authorized emission limitation or standard for any PPS Unit 1 emission source.

Relevant portions of the FDEP Application for Air Permit – Title V Source are provided in Attachment A. The FDEP's performance test authorization letter dated December 13, 1999 and an analysis of PSD applicability are provided in Attachments B and C, respectively. Attachment D contains proposed permit condition language for the use of petcoke/coal blends.

ATTACHMENT A

**APPLICATION FOR AIR PERMIT—
TITLE V SOURCE**



Department of Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - TITLE V SOURCE

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: Tampa Electric Company	
2. Site Name: Polk Power Station	
3. Facility Identification Number: 0530233 [] Unknown	
4. Facility Location: Street Address or Other Locator: 9995 State Route 37, South City: Mulberry County: Polk Zip Code: 33860-0775	
5. Relocatable Facility? [] Yes [<input checked="" type="checkbox"/>] No	6. Existing Permitted Facility? [<input checked="" type="checkbox"/>] Yes [] No

Application Contact

1. Name and Title of Application Contact: Patrick Shell Administrator – Air Programs, Environmental Affairs	
2. Application Contact Mailing Address: Organization/Firm: Tampa Electric Company Street Address: 6499 U.S. Highway 41 North City: Apollo Beach State: FL Zip Code: 3572-9200	
3. Application Contact Telephone Numbers: Telephone: (813) 641 - 5210 Fax: (813) 641-5081	

Application Processing Information (DEP Use)

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

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

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

Current construction permit number: _____

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

Current construction permit number: _____

Operation permit number to be revised: _____

- Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)

Operation permit number to be revised/corrected: 10500233-001-AV

- Title V air operation permit revision for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit number to be revised: _____

Reason for revision: _____

Air Construction Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

- Air construction permit to construct or modify one or more emissions units.
- Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.
- Air construction permit for one or more existing, but unpermitted, emissions units.

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

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

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Thomas W. Owen

Signature

6/30/00

Date

(seal)

* Attach any exception to certification statement.

Construction/Modification Information

1. Description of Proposed Project or Alterations:

In December 1999, TEC was authorized by the FDEP to conduct PPS Unit 1 performance tests using syngas developed from coal/petroleum coke (petcoke) fuel blends for comparison to baseline syngas emissions. TEC conducted the baseline syngas performance tests (i.e., syngas developed from coal) on February 7th and 8th, 2000. Performance tests using syngas developed from a 60 percent coal/40 percent petcoke blend were conducted on February 14th and 15th, 2000. Performance tests using syngas developed from a 40 percent coal/60 percent petcoke blend were conducted on April 24th through April 25th, 2000. The results of these performance tests were submitted to FDEP on March 29th and June 12th, 2000.

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This submittal constitutes TEC's construction permit application for the permanent use of petcoke at PPS Unit 1 and is submitted to satisfy the requirements of Rule 62-210.300(1), F.A.C. TEC requests that the current PPS Unit 1 permits [PSD Permit PSD-FL-194, PPSA Certification PA 92-32, and Title V Permit No. 1050233-001-AV] be modified to allow for the gasification of coal and petcoke fuel blends, containing up to 60 percent petcoke, on a permanent basis as an alternative method of operation to the currently approved gasification of 100 percent coal. TEC is not requesting any revisions to any currently authorized emission limitation or standard for any PPS Unit 1 emission source.

2. Projected or Actual Date of Commencement of Construction:

Upon receipt of FDEP approval.

3. Projected Date of Completion of Construction: Not applicable

Application Comment

[Empty box for Application Comment]

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap		4. Basis for Emissions Cap	5. Pollutant Comment
		lb/hour	tons/year		
NOX	A	N/A	N/A	N/A	
SO2	A	N/A	N/A	N/A	
CO	A	N/A	N/A	N/A	
PM10	A	N/A	N/A	N/A	
PM	A	N/A	N/A	N/A	
SAM	A	N/A	N/A	N/A	
VOC	A	N/A	N/A	N/A	
PB	B	N/A	N/A	N/A	

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
2. Facility Plot Plan: <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
3. Process Flow Diagram(s): <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
5. Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
6. Supplemental Information for Construction Permit Application: <input type="checkbox"/> Attached, Document ID: <input checked="" type="checkbox"/> Not Applicable
7. Supplemental Requirements Comment: Items 1 through 6 above previously submitted – see Polk Power Station Title V permit application.

Additional Supplemental Requirements for Title V Air Operation Permit Applications

8. List of Proposed Insignificant Activities: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
9. List of Equipment/Activities Regulated under Title VI: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities On site but Not Required to be Individually Listed <input type="checkbox"/> Not Applicable
10. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
11. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
12. Identification of Additional Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
13. Risk Management Plan Verification: <input type="checkbox"/> Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID: _____) or previously submitted to DEP (Date and DEP Office: _____) <input type="checkbox"/> Plan to be submitted to CEPPO (Date required: _____) <input type="checkbox"/> Not Applicable
14. Compliance Report and Plan: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
15. Compliance Certification (Hard-copy Required): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

Items 8. through 15. above previously submitted – see Polk Power Station Title V permit application.

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

**A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)**

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one) <input type="checkbox"/> 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). <input checked="" type="checkbox"/> 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. <input type="checkbox"/> 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. Regulated or Unregulated Emissions Unit? (Check one) <input checked="" type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit. <input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.			
2. Description of Emissions Unit Addressed in This Section (limit to 60 characters): Emission unit consists of an existing solid fuel gasification system. Approval to input coal/petcoke blends, containing up to 60.0 percent petcoke by weight, in addition to the currently authorized input of 100.0 percent coal to the existing solid fuel gasification system is requested.			
4. Emissions Unit Identification Number: ID: 006		<input type="checkbox"/> No ID <input type="checkbox"/> ID Unknown	
5. Emissions Unit Status Code: <p style="text-align: center;">A</p>	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: <p style="text-align: center;">49</p>	8. Acid Rain Unit? <input type="checkbox"/>
9. Emissions Unit Comment: (Limit to 500 Characters)			

Emissions Unit Information Section 1 of 1

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

N/A

2. Control Device or Method Code(s):

Emissions Unit Details

1. Package Unit:

Manufacturer:

Model Number:

2. Generator Nameplate Rating: MW

3. Incinerator Information:

Dwell Temperature:

°F

Dwell Time:

seconds

Incinerator Afterburner Temperature:

°F

**B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)**

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate:	mmBtu/hr	
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:	2,325 tons per day of solid fuel input, on a dry basis.	
4. Maximum Production Rate:		
5. Requested Maximum Operating Schedule:		
	24 hours/day	7 days/week
	52 weeks/year	8,760 hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):		

**D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only) – Not Applicable**

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram?		2. Emission Point Type Code:	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code:	6. Stack Height: feet	7. Exit Diameter: feet	
8. Exit Temperature: °F	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone: East (km): North (km):			
14. Emission Point Comment (limit to 200 characters):			

Emissions Unit Information Section 1 of 2

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type) (limit to 500 characters): Gasification of coal and coal/petcoke blends.		
3. Source Classification Code (SCC): 3-10-999-99		3. SCC Units: Tons Processed
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 (limit to 200 characters): Maximum daily input rate of coal and coal/petcoke blends to the solid fuel gasification system shall not exceed 2,325 tons.		

Segment Description and Rate: Segment of

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
2. Source Classification Code (SCC):		3. SCC Units:
3. Maximum Hourly Rate:	4. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
6. Maximum % Sulfur:	7. Maximum % Ash:	8. Million Btu per SCC Unit:
9. Segment Comment (limit to 200 characters):		

H. VISIBLE EMISSIONS INFORMATION
 (Only Regulated Emissions Units Subject to a VE Limitation)

Not Applicable

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. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
5. Method of Compliance:	
6. Visible Emissions Comment (limit to 200 characters):	

Visible Emissions Limitation: Visible Emissions Limitation ____ of ____

2. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
7. Method of Compliance:	
8. Visible Emissions Comment (limit to 200 characters):	

I. CONTINUOUS MONITOR INFORMATION
(Only Regulated Emissions Units Subject to Continuous Monitoring)

Not Applicable

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[] Rule [] Other
4. Monitor Information: Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
6. Continuous Monitor Comment (limit to 200 characters):	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[] Rule [] Other
4. Monitor Information: Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters):	

**J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)**

Supplemental Requirements

1. Process Flow Diagram <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
2. Fuel Analysis or Specification <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
3. Detailed Description of Control Equipment <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
5. Compliance Test Report <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable
6. Procedures for Startup and Shutdown <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
8. Supplemental Information for Construction Permit Application <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Supplemental Requirements Comment: <p>Items 1 through 3 above previously submitted – see Polk Power Station Title V permit application.</p>

Emissions Unit Information Section 2 of 2

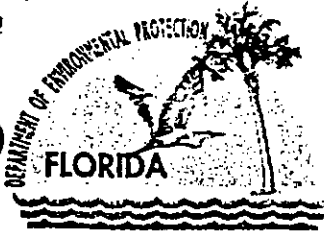
Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
12. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
13. Identification of Additional Applicable Requirements <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
14. Compliance Assurance Monitoring Plan <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
15. Acid Rain Part Application (Hard-copy Required) <input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ <input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ <input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ <input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ <input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) Attached, Document ID: _____ <input type="checkbox"/> Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

Above items previously submitted, see Polk Power Station Title V permit application.

ATTACHMENT B

**PERFORMANCE TEST
AUTHORIZATION LETTER**



Jeb Bush
Governor

Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

December 13, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Charles A. Shelnut
General Manager
Tampa Electric Company
P.O. Box 775
Tampa, Florida 33680-0775

Dear Mr. Shelnut:

Re: Modification of PSD-FL-194
Tampa Electric Polk Power Station, Unit No. 1
Petroleum Coke/Coal Performance Test Request

The Department has reviewed the request from Tampa Electric Company (TEC) dated May 21, 1998 and supplementary information dated September 8, 1998 and November 10, 1998 to conduct performance tests while firing synthetic natural gas (syngas) produced from petroleum coke/coal blends at Polk Power Station, Unit No. 1.

You are hereby authorized to conduct performance tests for pollutant emissions on Polk Power Station Unit No. 1 in Polk County while firing syngas produced from blends of petroleum coke (petcoke) and bituminous coal (coal). All Conditions of Certification and Conditions of Approval in your Site Certification and PSD Permit related to air pollution emission limits and control equipment remain in force.

The performance tests will be conducted in order to gather data regarding pollutant emissions and operational limitations while firing syngas produced from blends of petcoke and coal. The blends can contain a maximum of 70 percent (% by weight) petcoke. Screening to determine whether future long-term firing of syngas produced from blends of petcoke and coal blends syngas constitutes a modification subject to a review for Prevention of Significant Deterioration (PSD) shall be performed in accordance with Chapter 403, F.S.; Chapters 62-210 through 62-297 and 62-4, F.A.C.; and, Title 40, Code of Federal Regulations (CFR; July 1, 1998 version). The procedure will consist of a comparison of estimates of "representative actual annual emissions" while burning petcoke/coal blends syngas against past actual emissions while burning coal syngas (or estimates of past actual emissions developed from 100 percent coal syngas baseline performance tests).

The performance test results along with any modification application to allow permanent firing of syngas produced from blends of petcoke/coal will be reviewed by the Department's Bureau of Air Regulation (BAR) and interested agencies (i.e., DEP Southwest District office, U.S. EPA, U.S. Fish and Wildlife Service, National Park Service, etc.).

The performance tests shall be subject to the following conditions:

1. The permittee shall notify, in writing, the Department's BAR office, the Southwest District office, and the Site Certification office at least 15 days prior to commencement of the baseline and the petcoke/coal blend syngas performance tests. A written test result report shall be submitted to these offices within 45 days upon completion of the last test run.

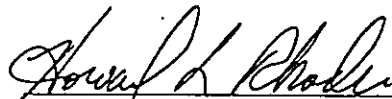
2. The petcoke/coal blend syngas performance tests shall commence on or before March 1, 2000 and be conducted for not more than 90 days. The tests shall be conducted based on the proposed testing protocol to establish steady state operation and to achieve a maximum (70%) blend. If, for any reasons, a steady state operation of 70% petroleum coke/coal blend syngas, or less, is not achieved, or the testing at 70% petcoke blend syngas or less, presents any operational or environmental concerns, the testing shall be curtailed. The Department shall be immediately notified of the problems that have prevented steady state operations and what steps will be initiated to correct the problem. All testing shall be concluded within 150 days of when petcoke is first introduced into Unit No. 1.
 - Estimated Date of Introduction of Fuel Blend Syngas: January 1, 2000
(Note: This is the date at which a run on Petcoke fuel blend syngas may be commenced. It does not indicate that Unit 1 will run continuously from January 1 to June 1, 2000)
 - Estimated Testing Schedule:
 - Scenario: 55% Petcoke/ 45% Coal
Estimated date to begin testing: March 1, 2000
 - Scenario: 60% Petcoke/40% Coal (if 55% blend emissions are less than baseline)
Estimated date to begin testing: April 1, 2000
 - Scenario: 65% Petcoke/ 35% Coal (if 60% blend emissions are less than baseline)
Estimated date to begin testing: May 1, 2000
 - Scenario: 70% Petcoke/ 30% Coal (if 65% blend emissions are less than baseline)
Estimated date to begin testing: May 15, 2000
3. Stack emissions from Unit No. 1 shall not exceed the following during baseline and petcoke/coal blend syngas performance tests (based on most stringent of present PSD Permit and Certification Conditions):
 - a. Sulfur dioxide (SO₂) - 357 pounds per hour on a 30-day rolling average.
 - b. Nitrogen oxides (NO_x) - 222.5 pounds per hour on a 30-day rolling average.
4. As-burned fuel samples shall be collected and analyzed for the sulfur and nitrogen content throughout the petroleum coke/coal blend syngas and the baseline coal syngas test periods.
5. The performance tests of the petcoke/coal blend syngas shall be limited to a maximum of 70% petcoke, by weight. The maximum weight of the petroleum coke burned during the petcoke/coal blend syngas performance tests shall not exceed 1628 tons per day, on a dry basis.
6. The maximum sulfur content of the fuel shall not exceed 3.5 percent, by weight, during the baseline tests and the petroleum coke/coal blend syngas tests.
7. SO₂, NO_x, and opacity emissions data shall be recorded using continuous emissions monitors (CEMS) during the baseline and the petcoke/coal blend syngas tests. If the plant CEMS are used for these tests, these systems shall be quality assured pursuant to 40 CFR 60, Appendix F requirements. The data assessment report per 40 CFR 60, Appendix F, for the most recent relative accuracy test audit (RATA) and most recent cylinder gas audit (CGA), shall be submitted with the test report. In addition, stack tests shall be conducted for sulfuric acid mist during the baseline and petcoke/coal blend syngas tests. A satisfactory performance test for each baseline test and each petroleum coke-coal blend syngas shall consist of a minimum of three tests at three runs per test.

8. The pollutant emission results from the petroleum coke/coal blend syngas performance tests shall be used to estimate "representative actual annual emissions" following an operational change per 62-210.200 (12)(d), F.A.C., for comparison with actual emissions per Rule 62-210.200(12)(a), F.A.C. The comparison will form the basis of a PSD applicability determination pursuant to 40 CFR 52.21. The results of baseline performance tests when firing coal syngas will be used only to the extent that such information does not already exist or is insufficient to determine actual emissions.
9. Performance tests shall be conducted using EPA Reference Methods, as contained in 40 CFR 60 (Standards of Performance for New Stationary Sources), or any other method approved by the Department, in writing, in accordance with Chapter 62-297, F.A.C.
10. If additional time is needed, the permittee shall request an extension of time and provide the Department with documentation of the progress accomplished to-date and shall identify the work required to complete the performance tests.
11. Daily records (e.g., heat input, MW, fuel input rates, etc.) of IGCC operations while firing the petcoke/coal blend syngas and while firing only coal syngas (baseline) during the tests shall be required.
12. The Southwest District office may conduct a Type I or II stack audit.
13. Complete documentation (recording) of any firing of the petroleum coke-coal blend syngas shall be required (i.e., all CEMs records; testing results; materials utilized, by weight; etc.) and kept on file for a minimum of five years.
14. The authorized petroleum coke/coal blend syngas performance tests shall not result in the release of objectionable odors pursuant to Rule 62-296.320(2), F.A.C.
15. Performance testing shall cease as soon as possible if Unit No. 1 operations are not in accordance with the conditions in the air section of Site Certification No. PA 92-32, PSD Permit No. PSD-FL-194, or this authorization protocol. Performance testing shall not resume until appropriate measures to correct the problem(s) have been implemented.
16. The performance tests for pollutant emissions shall be conducted under the direct supervision of a professional engineer registered in Florida.
17. This Department action is only to authorize the petroleum coke-coal blend syngas performance tests. Any firing of petroleum coke beyond the 90 days of testing within the 150 day period approved to conduct such tests will be deemed a violation of the Site Certification No. PA 92-32 and Permit No. PSD-FL-194.
18. The Southwest District office shall be immediately notified, in writing upon completion of the final test.
19. The testing series shall include emissions tests for each of the petroleum coke/coal blends syngas and pollutants with the source operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the capacity allowed by Site Certification PA 92-32 and Permit PSD-FL-194. If it is impracticable to test at permitted capacity, then the source may be tested at a lesser rate. However, the tests shall be conducted at capacities within 10 percent of each other and corrected to the same heat input basis. Furthermore, subsequent source operation with a petroleum coke-coal blend syngas, if requested and approved by the Department, shall be limited to 110 percent of the tested capacity for that blend syngas until new tests are conducted, which requires prior Department authorization.
20. Attachments to be incorporated:
 - Tampa Electric Company letters dated May 21, September 8 and November 10, 1998.
 - FDEP letters dated June 16 and October 5, 1998.

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permit modification is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.


Howard L. Rhodes, Director
Division of Air Resources
Management


CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this permit modification was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 12-14-99 to the person(s) listed:

Charles A. Shelnut, TEC*
Buck Oven, DEP PPS
Bill Thomas, DEP SWD
Gregg Worley, EPA
John Bunyak, NPS
Patrick Shell, TEC

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.


(Clerk) 12-14-99
(Date)

FINAL DETERMINATION

Tampa Electric Company

Permit No. 1050233-002-AC, PSD-FL-194C

Polk Power Station, Unit No. 1

An Intent to Issue PSD Permit modification to Tampa Electric Company, to temporarily burn syngas made from blends of petroleum coke and coal in Unit 1, in Polk County, was distributed on November 4, 1999. The Notice of Intent was published in the Lakeland Ledger on November 17, 1999. Copies of the draft construction permit were available for public inspection at the Department offices in Tampa and Tallahassee.

No comments were submitted by the National Park Service or the public. Telephonic comments were received from the Environmental Protection Agency (EPA) asking for clarification in the modification letter. The clarification sought was to include the word syngas after petroleum coke/coal blends. This addition will provide reasonable assurance that the blend of petroleum coke/coal will have to be converted to syngas prior to firing. The Department agrees with EPA's request and will make the necessary changes to the modification letter.

The final action of the Department is to issue the PSD permit modification with the changes noted above.

ATTACHMENT C

PSD APPLICABILITY ANALYSIS



TAMPA ELECTRIC

June 23, 2000

Mr. A.A. Linero, P.E.
Administrator
New Source Review Section
Florida Department of Environmental Protection
111 South Magnolia Drive, Suite 4
Tallahassee, FL 32301

Via FedEx
Airbill No. 7908 5510 1818

**Re: Tampa Electric Company (TEC) – Polk Power Station Unit 1
Petcoke Test Burn Report**

Dear Mr. Linero:

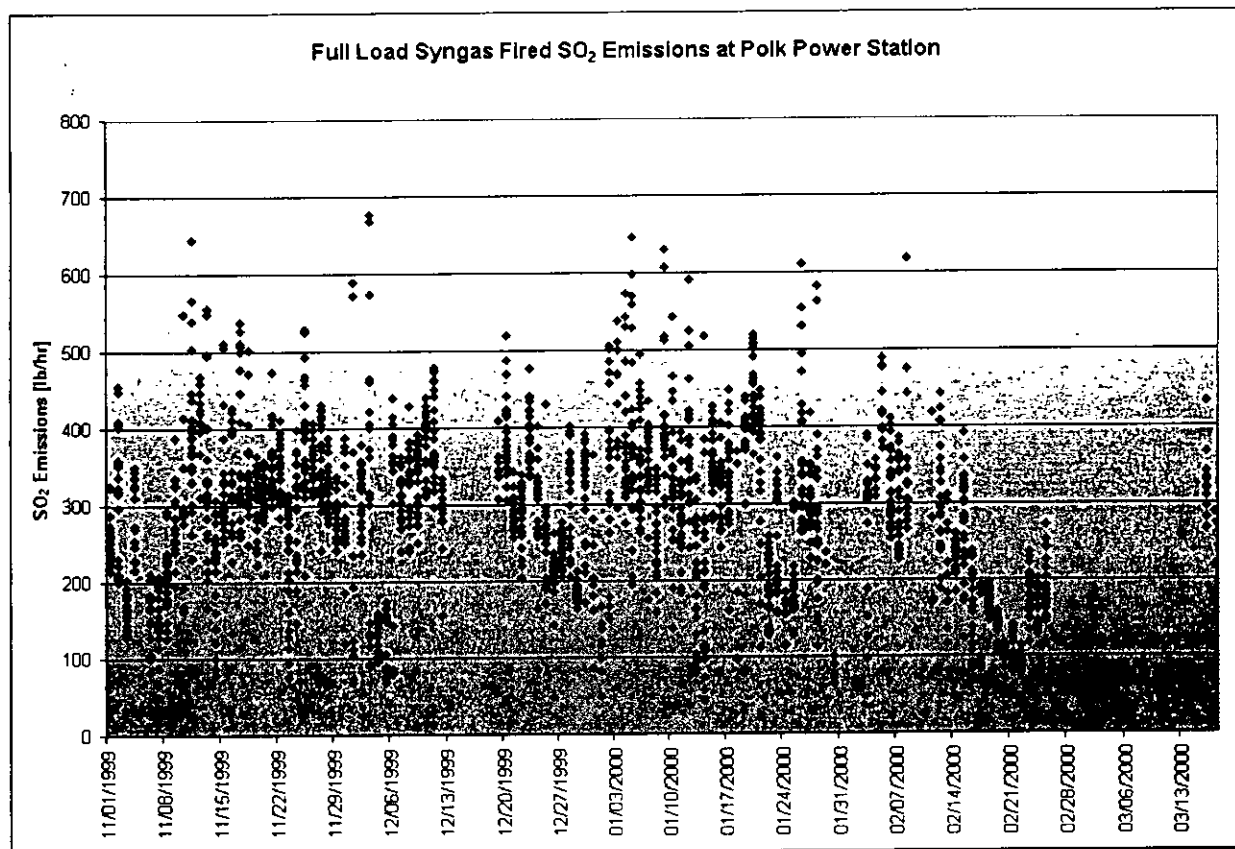
In correspondence dated May 30, 2000, the Department reiterated concerns that the combustion of syngas produced from the gasification of a fuel blend of 40% petcoke and 60% coal results in a significant increase in sulfuric acid (H_2SO_4) mist emissions as defined in Table 212.400-2 F.A.C. This is due to the fact that when compared to the baseline coal test, H_2SO_4 mist emissions measured during the 40% petcoke 60% coal test were slightly elevated.

Tampa Electric Company, however, does not feel that comparing either blend test directly to the baseline test can be considered an accurate comparison, since operating conditions tend to vary over time at Polk Power Station.

The main constituents of clean syngas are hydrogen, carbon monoxide, carbon dioxide and nitrogen. Hydrogen sulfide and carbonyl sulfide are the important sulfur compounds since they are the source of all HRSG stack SO_2 and H_2SO_4 mist emissions, but they are present only at ppm levels. The clean syngas composition is independent of the originating fuel, but the composition does depend on the performance of many plant systems including the acid gas removal system when considering sulfur-containing compounds. Since the performance of the acid gas removal system varies depending on several operating factors, syngas composition experiences slight short-term variances which are absorbed over the course of a year. As such, in comparing petcoke blend test emissions for the purpose of determining PSD applicability, TEC believes that a statistical analysis better demonstrates how actual emissions of H_2SO_4 mist emissions are affected as a result of firing syngas produced from the gasification of petcoke and coal blends.

To demonstrate the variability associated with the Polk process, TEC analyzed sulfur dioxide (SO_2) emissions while firing syngas in the combustion turbine at 90% - 100% load during the

period beginning on November 1, 1999 and continuing to April 1, 2000. November 1, 1999 was selected as the start date because the newly installed COS hydrolysis system had achieved stability in mid-October. April 1, 2000 was chosen as the end date because TEC does not have officially reportable data past that point. As shown below, emission rates in lb/hr varied within a range over the five-month period.



The accompanying statistical analysis details the degree of data variation.

Statistical Analysis	
Mean	283
Median	295
Mode	325
Standard Deviation	107
Sample Variance	11517
Range	638
Minimum	38.2
Maximum	677
Count	2212

Since H₂SO₄ mist emissions track closely to SO₂ emissions, TEC feels that the same variability exists in H₂SO₄ mist emissions as in SO₂ emissions. In fact, upon examination of the H₂SO₄

mist emissions from the baseline and each blend test, the variability is very similar to that seen for the SO₂ emissions.

	Baseline Test	First Blend Test (40% Petcoke)	Second Blend Test (60% Petcoke)
H ₂ SO ₄ Mist Emissions (lb/hr)	31.1	33.4	19.1

<i>Statistical Analysis</i>	
Mean	27.9
Median	31.1
Standard Deviation	7.64
Sample Variance	58.4
Range	14.2
Minimum	19.1
Maximum	33.4
Count	3.00

As shown in the statistical analysis, the H₂SO₄ mist emissions vary between tests. During the first blend test, for example, Polk Power Station personnel were in the process of cleaning filters that serve the MDEA system. This tends to increase short-term H₂SO₄ mist emissions by temporarily reducing the removal efficiency of the acid gas removal system. Although this is a procedure that takes place on a routine basis, it did not take place during the baseline test. An inspection of the hourly emission rate of the first blend test compared to the baseline test shows that the emission rate, although higher, is well within one standard deviation of the mean. This suggests that emissions as a result of the first blend test burn did not vary significantly compared to standard operations. Therefore, over the course of one year, emissions would not be expected to vary significantly when combusting syngas produced from the gasification of a blend of petcoke and coal.

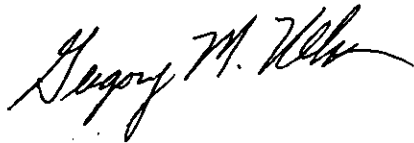
Further evidence of emissions variability is shown in the results of the 60% petcoke 40% coal blend test. Although a greater amount of petcoke was gasified, the unit emitted less H₂SO₄ (and less SO₂) than during the baseline test or the 40% petcoke 60% coal test. This occurred despite the fact that the plant operated within normal operating parameters during all three tests.

TEC feels that the above variability analysis provides the Department with reasonable assurance that the combustion of syngas produced from a blend of petcoke and coal up to 60% petcoke will not result in a significant increase of any regulated pollutant. Therefore, TEC requests permission from the Department to combust syngas produced from a fuel blend containing no greater than 60% petcoke and 40% coal.

Mr. A.A. Linero, P.E.
June 23, 2000
Page 4 of 4

Should you have any questions, please feel free to contact Shannon K. Todd or me at (813) 641-5016.

Sincerely,



Gregory M. Nelson, P.E.
Director
Environmental Affairs

EP\gm\SKT178

c: Syed Arif, FDEP
Buck Oven, FDEP
Bill Thomas, FDEP - SWD

ATTACHMENT D

PROPOSED PERMIT CONDITIONS

**Tampa Electric Company – Polk Power Station Unit 1
Attachment D - Proposed Permit Revisions**

A. Proposed Revisions to Permit PSD-PSD-FL-194(A)

SPECIFIC CONDITIONS

1. Revise Specific Condition F. on Page 6 of 16 as follows:

F. Fuel Consumption

Solid fuels input to the solid fuel gasification plant shall consist of coal or coal/petroleum coke blends containing a maximum of 60.0 percent petroleum coke by weight. The maximum input of ~~coal~~ solid fuels input to the ~~coal~~ solid fuel gasification plant shall not exceed 2,325 tons per day, on a dry basis.

2. Revise Specific Condition G. on Page 6 of 16 as follows:

G. Fugitive Dust

Fugitive dust emissions during the construction period shall be minimized by covering or watering dust generation areas. Particulate matter emissions from the ~~coal~~ handling of solid fuels shall be controlled by enclosing all ~~coal~~ solid fuel storage, conveyors and conveyor transfer points. Fugitive emissions shall be tested as specified in Specific Condition No. J. Water sprays or chemical wetting agents and stabilizers shall be applied to uncovered storage piles, roads, handling equipment, etc. during dry periods, as necessary, to all facilities to maintain an opacity of less than or equal to five percent.

3. Revise Specific Condition H. on Page 8 of 18 as follows:

H. Emission Limits

(a) Syngas lb/MMBtu values based on heat input (HHV) to the ~~coal~~ solid fuel gasifier and includes emissions from the H₂SO₄ plant thermal oxidizer. Pollutant concentrations are corrected to 15% oxygen.

4. Revise Specific Condition M. on Page 14 of 18 as follows:

M. Notification, Reporting, and Recordkeeping

To determine compliance with the syngas and fuel oil firing heat input limitation, the permittee shall maintain daily records of syngas and fuel oil consumption for the turbine and heating value for each fuel. All records shall be maintained for a minimum of two years after the date of each record and shall be made available to representatives of the Department upon request. Documentation verifying that the coal/petroleum coke blends input to the solid fuel gasification system have not exceeded the 60.0 percent maximum petroleum coke by weight

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limit specified by Specific Condition F. shall be maintained and submitted to the Department's Southwest District Office with each annual report.

B. Proposed Revisions to Site Certification PA 92-32

XIII. AIR

1. Revise Condition of Certification XIII. F. on Page 14 as follows:

F. Fuel Consumption

Solid fuels input to the solid fuel gasification plant shall consist of coal or coal/petroleum coke blends containing a maximum of 60.0 percent petroleum coke by weight. The maximum input of ~~coal~~ solid fuels input to the ~~coal~~ solid fuel gasification plant shall not exceed 2,325 tons per day, on a dry basis.

2. Revise Condition of Certification XIII.G. on Page 15 as follows:

G. Fugitive Dust

Fugitive dust emissions during the construction period shall be minimized by covering or watering dust generation areas. Particulate matter emissions from the ~~coal~~ handling of solid fuels shall be controlled by enclosing all ~~coal~~ solid fuel storage conveyors and conveyor transfer points. Fugitive emissions shall be tested as specified in Condition No. XIII.J. Water sprays or chemical wetting agents and stabilizers shall be applied to uncovered storage piles, roads, handling equipment, etc. during dry periods, as necessary, to all facilities to maintain an opacity of less than or equal to five percent.

3. Revise Condition of Certification XIII.H. on Page 17 as follows:

H. Emission Limits

(a) Syngas lb/MMBtu values based on heat input (HHV) to the ~~coal~~ solid fuel gasifier and includes emissions from the H₂SO₄ plant thermal oxidizer. Pollutant concentrations are corrected to 15% oxygen.

4. Revise Condition of Certification XIII.M. on Page 21 as follows:

To determine compliance with the syngas and fuel oil firing heat input limitation, the permittee shall maintain daily records of syngas and fuel oil consumption for the turbine and heating value for each fuel. All records shall be maintained for a minimum of two years after the date of each record and shall be made available to representatives of the Department upon request. Documentation verifying that the coal/petroleum coke blends input to the solid fuel

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gasification system have not exceeded the 60.0 percent maximum petroleum coke by weight limit specified by Condition XIII.F. shall be maintained and submitted to the Department's Southwest District Office with each annual report.

C. Proposed Revisions to Title V Permit No. 1050233-001-AV

Section II. Facility-wide Conditions

Revise Condition 8. on Page 5 as follows:

8. Not federally enforceable. Reasonable precautions to prevent emissions of unconfined particulate matter at this facility include: enclosing all ~~coal~~ solid fuel storage, conveyors, and conveyor transfer points; chemical or water application to unpaved road and unpaved yard areas; paving and maintenance of roads, parking areas, and yards; landscaping or planting of vegetation; confining abrasive blasting where possible; and other techniques, as necessary.
[Rule 62-296.320(4)(c)2., F.A.C.; Proposed by applicant in the initial Title V permit application received October 4, 1996]

Section III. Emissions Unit(s) and Conditions

1. Revise Condition A.5 on Page 8 as follows:

- (a) Syngas lb/MMBtu values based on heat input (HHV) to the ~~coal~~ solid fuel gasifier and includes emissions from the H₂SO₄ plant thermal oxidizer. Pollutant concentrations are corrected to 15% oxygen.

2. Revise Condition D.1 on Page 44 as follows:

D.1. Methods of Operation

- a. All ~~coal~~ solid fuel storage, conveyors and transfer points shall be enclosed.

3. Revise Conditions E.1 and E.3 on Page 48 as follows:

E.1. Permitted Capacity. Solid fuels input to the solid fuel gasification plant shall consist of coal or coal/petroleum coke blends containing a maximum of 60.0 percent petroleum coke by weight. The maximum ~~coal~~ input of solid fuels to the ~~coal~~ solid fuel gasification plant shall not exceed 2,325 tons per day, on a dry basis.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.; and, PSD-FL-194]

E.3. Record daily the actual ~~coal~~ input of solid fuels to the emissions unit, in tons per day.

[Rule 62-213.440(1)(b), F.A.C.]

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4. Add new Condition E.5 on Page 48 as follows:

E.5. Documentation verifying that the coal/petroleum coke blends input to the solid fuel gasification system have not exceeded the 60.0 percent maximum petroleum coke by weight limit specified by Condition E.1. shall be maintained and submitted to the Department's Southwest District Office with each annual report.