Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603

Golder Associates

August 10, 2001 0137595

Mr. C. H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Fl 32399-2400

Attention: Mr. Joseph Kahn, P.E.

RE: TROPICANA PRODUCTS, INC.; BRADENTON CITRUS PROCESSING FACILITY
MINOR SOURCE CONSTRUCTION

Dear Joe:

Please find attached a minor source air construction permit application for replacement of the duct burners on the cogeneration unit at the Tropicana Products, Inc.'s Bradenton Citrus Processing Facility. The duct burner system was part of the cogeneration unit permitted by the Department on May 30, 1989 pursuant to permit numbers AC 41-157745 and PSD-FL-136.

The replacement of the duct burners and its associated control system could be considered routine, repair, or replacement. Due to wear in the hot turbine exhaust, the duct burners must be replaced and the associated control system must match the burners being installed. In addition, the heat input of the replacement duct burner system will be identical to the currently authorized production limits. The only pollutant that will have an increase in potential emissions is PM/PM_{10}. The primary reason for the increase is the result of using AP-42 emissions factors in the original permitting of the cogeneration unit, since vendor information was not available. The supplier of the replacement duct burner system has guaranteed a slightly higher emission rate. The increase in PM/PM_{10} is about 3 tons per year.

Not with standing a determination that the replacement duct burners are routine maintenance, repair, or replacement; the potential emissions of all criteria pollutants from the replacement duct burner system are less than the PSD significant emission rates in Table 62-212.400-2 in Rule 62-212.400 F.A.C. In addition, the net emission increases for the project are also lower than the PSD significant emission rates. Therefore, PSD review would not apply in any case. Given the recent EPA determinations related to utility projects, a minor source construction permit is being sought by this application for all the potential emissions for the replacement duct burner project.

Expeditious review would be appreciated. Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Janet R. Wood
for Kennard F. Kosky, P.E.
Principal

RECEIVED
AUG 13 2001
Bureau of Air Monitoring
& Mobile Sources

KFK/jkw

Enclosure

cc: Donald Antenore, Tropicana Products, Inc.
Douglas Foster, Tropicana Products, Inc.

L081001.DOC

APPLICATION FOR AIR PERMIT
REPLACEMENT OF DUCT BURNERS
FOR TROPICANA PRODUCTS, INC.
BRADENTON CITRUS PROCESSING FACILITY

Prepared For:

Tropicana Products, Inc.
Bradenton Citrus Processing Plant
1001 13th Avenue, East
Bradenton, Florida 34208

Prepared By:

Golder Associates Inc.
6241 NW 23rd Street, Suite 500
Gainesville, Florida 32653-1500

August 2001
0137595

DISTRIBUTION:
4 Copies - FDEP
2 Copies - Tropicana Products, Inc.
1 Copy - Golder Associates Inc.

TABLE OF CONTENTS

PART I

APPLICATION FOR AIR PERMIT
LONG FORM

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: **Tropicana Products, Inc.**	
2. Site Name: **Bradenton Citrus Processing Facility**	
3. Facility Identification Number: **0810007** [ ] Unknown	
4. Facility Location: Street Address or Other Locator: **1001 13th Avenue** City: **Bradenton** County: **Manatee** Zip Code: **34208**	
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [X] Yes [ ] No

Application Contact

1. Name and Title of Application Contact: **Douglas E. Foster, Director, Corporate Environmental & Safety**
2. Application Contact Mailing Address: Organization/Firm: **Tropicana Products, Inc.** Street Address: **P.O. Box 338** City: **Bradenton** State: **FL** Zip Code: **34206**
3. Application Contact Telephone Numbers: Telephone: (**941**) **742 - 2748** Fax: (**941**) **742 - 3768**

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	~~0810007-009-AC~~ 8/13/01
2. Permit Number:	0810007-009-AC
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:_____

[ ] 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)

[X] 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:
   Donald Antenore, Vice President, Manufacturing

2. Owner/Authorized Representative or Responsible Official Mailing Address:
   Organization/Firm: **Tropicana Products, Inc.**
   Street Address: **P.O. Box 338**
   City: **Bradenton** State: **FL** Zip Code: **34206**

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
   Telephone: **(941) 742 - 3349** Fax: **(941) 749 - 2049**

4. Owner/Authorized Representative or Responsible Official Statement:

   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.*

   Signature 8/9/01
   Date

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: **Kennard F. Kosky**
   Registration Number: **14996**

2. Professional Engineer Mailing Address:
   Organization/Firm: **Golder Associates Inc.**
   Street Address: **6241 NW 23rd Street, Suite 500**
   City: **Gainesville** State: **FL** Zip Code: **32653-1500**

3. Professional Engineer Telephone Numbers:
   Telephone: **(352) 336 - 5600** Fax: **(352) 336 - 6603**

Gary M. Rodkin
President

Tropicana
North America

DESIGNATION OF DOCUMENT SIGNATORY

I, Gary M. Rodkin, hereby certify that I am the Executive Vice President of Tropicana Products, Inc., ("Tropicana") and as such I am authorized to designate employees to prepare and sign documents and to certify on behalf of said company the accuracy and completeness of information in such documents.

Pursuant to the power vested in me, I hereby designate the person listed below to prepare and sign reports to the United States Environmental Protection Agency, the United Stated Department of Labor, Occupational Safety and Health, the Florida Department of Environmental Protection, the Southwest Florida Water Management District, and the County of Manatee, State of Florida, pertinent to the operation of the Tropicana plant located in Bradenton, Florida.

This designation is effective until revoked in writing.

Designated Signatory

Donald E. Antenore
Vice President, Manufacturing
1001 13th Avenue East
Bradenton, FL 34208

Gary M. Rodkin
Executive Vice President

Dated: 8/1/98

4. Professional Engineer Statement:

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

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

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

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

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

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

Signature: Thomas F. Hall

Date: 10 August 2001

(seal)

* Attach any exception to certification statement.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
016	Gas Turbine with HRSG and Duct Burners	AC1C	NA

Application Processing Fee

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

Construction/Modification Information

1. Description of Proposed Project or Alterations:

   Replacement of the existing duct burners associated with the cogeneration unit (Emission Unit 016).

2. Projected or Actual Date of Commencement of Construction: **1 Sept 2001**

3. Projected Date of Completion of Construction: **1 Mar 2002**

Application Comment

The new duct burners will meet the existing permit conditions for heat input and emission limits with the exception of PM. The facility holds a Title V permit and, therefore, a construction permit fee is not required pursuant to Rule 62-4.050(4)(a)2. The emission unit will have potential emissions of less than PSD thresholds for a major modification. Therefore PSD review is not required. See Part II.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone: **17** East (km): **561.4** North (km): **3056.5**			
2. Facility Latitude/Longitude: Latitude (DD/MM/SS): **27 / 37 / 52** Longitude (DD/MM/SS): **80 / 22 / 33**			
3. Governmental Facility Code: **0**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **20**	6. Facility SIC(s): **2037, 2653, 3221**
7. Facility Comment (limit to 500 characters): **See Attachment Part II.**			

Facility Contact

1. Name and Title of Facility Contact: **Mr. George Cassady, Manager, Environmental Operations**
2. Facility Contact Mailing Address: Organization/Firm: **Tropicana Products, Inc.** Street Address: **P.O. Box 338** City: **Bradenton** State: **FL** Zip Code: **34206**
3. Facility Contact Telephone Numbers: Telephone: **(941) 742 - 2677** Fax: **(941) 742 - 2698**

Facility Regulatory Classifications

Check all that apply:

1. [ ] Small Business Stationary Source?	[ ] Unknown
2. [X] Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?	
3. [ ] Synthetic Minor Source of Pollutants Other than HAPs?	
4. [X] Major Source of Hazardous Air Pollutants (HAPs)?	
5. [ ] Synthetic Minor Source of HAPs?	
6. [X] One or More Emissions Units Subject to NSPS?	
7. [ ] One or More Emission Units Subject to NESHAP?	
8. [ ] Title V Source by EPA Designation?	
9. Facility Regulatory Classifications Comment (limit to 200 characters): **NSPS Subpart Db applies to the HRSG duct burners.**	

List of Applicable Regulations

Facility emissions covered under existing Title V permit, no additional facility or emissions unit applicable requirements as a result of the proposed change.	

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		

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location: [ ] Attached, Document ID: _____ [X] Not Applicable [ ] Waiver Requested
2. Facility Plot Plan: [ ] Attached, Document ID: _____ [X] Not Applicable [ ] Waiver Requested
3. Process Flow Diagram(s): [ ] Attached, Document ID: _____ [X] Not Applicable [ ] Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: [ ] Attached, Document ID: _____ [X] Not Applicable [ ] Waiver Requested
5. Fugitive Emissions Identification: [ ] Attached, Document ID: _____ [X] Not Applicable [ ] Waiver Requested
6. Supplemental Information for Construction Permit Application: [X] Attached, Document ID Part II [ ] Not Applicable
7. Supplemental Requirements Comment:

Additional Supplemental Requirements for Title V Air Operation Permit Applications

8. List of Proposed Insignificant Activities: [ ] Attached, Document ID:_____ [X] Not Applicable
9. List of Equipment/Activities Regulated under Title VI: [ ] Attached, Document ID:_____ [ ] Equipment/Activities On site but Not Required to be Individually Listed [X] Not Applicable
10. Alternative Methods of Operation: [ ] Attached, Document ID:_____ [X] Not Applicable
11. Alternative Modes of Operation (Emissions Trading): [ ] Attached, Document ID:_____ [X] Not Applicable
12. Identification of Additional Applicable Requirements: [ ] Attached, Document ID:_____ [X] Not Applicable
13. Risk Management Plan Verification: [ ] 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:_____) [ ] Plan to be submitted to CEPPO (Date required:_____) [X] Not Applicable
14. Compliance Report and Plan: [ ] Attached, Document ID:_____ [X] Not Applicable
15. Compliance Certification (Hard-copy Required): [ ] Attached, Document ID:_____ [X] Not Applicable

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)

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

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

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

2. Regulated or Unregulated Emissions Unit? (Check one)

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):

Gas turbine with heat recovery steam generator (HRSG) and duct burners (cogeneration unit)

4. Emissions Unit Identification Number: ID: **016** [ ] No ID [ ] ID Unknown

5. Emissions Unit Status Code:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
A		**20**	[ ]

9. Emissions Unit Comment: (Limit to 500 Characters)

The cogeneration units consists of a natural gas turbine with a maximum design heat input capacity of 425.5 MMBtu per hour, and a natural gas-fired duct burner with a maximum design heat input capacity of 104 MMBtu per hour. The cogeneration project has an electric generation capacity of 45.4 MW. The duct burner is subject to Federal NSPS (40 CFR 60 Subpart Db).

Emissions Unit Control Equipment

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

   Low NO_X Burner – Gas

2. Control Device or Method Code(s):

Emissions Unit Details

1. Package Unit:		
Manufacturer: **Forney Corporation**	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:			104	mmBtu/hr
2. Maximum Incineration Rate:	lb/hr			tons/day
3. Maximum Process or Throughput Rate:				
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):				
Heat input to the HRSG will not exceed 91 MMBtu/hr on a 30 day rolling average basis.				

C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

List of Applicable Regulations

See Attachment DB-EU16-C for operational requirements.	

D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram?	2. Emission Point Type Code: 1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): **Gases from the duct burner exhaust through a single stack associated with gas turbine and heat recovery steam generator.**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **Emission Unit 016**		
5. Discharge Type Code: V	6. Stack Height: 67 feet	7. Exit Diameter: 12 feet
8. Exit Temperature: 268 °F	9. Actual Volumetric Flow Rate: 368,395 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): **Based on exhaust from GT/HRSG.**		

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): **Natural gas for external combustion – industrial boiler, greater than 100 MMBtu/hr**		
2. Source Classification Code (SCC): **1-02-006-01**	3. SCC Units: **Million Cubic Feet Burned**	
4. Maximum Hourly Rate: **0.109**	5. Maximum Annual Rate: **839.1**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **950**
10. Segment Comment (limit to 200 characters): **Maximum hourly rate based on 104 MMBtu/hr maximum heat rate and minimum fuel heat content. Maximum annual rate based on 91 MMBtu/hr maximum 30-day rolling average heat input rate.**		

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters):		

F. EMISSIONS UNIT POLLUTANTS
(All Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM			EL
SO_2			EL
NO_x	024		EL
CO			EL
PM_{10}			EL
VOC			EL

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **1.04** lb/hour **4.0** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: **0.01 lb/MMBtu** Reference: **Forney Corporation**	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **See Part II, Table1.**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): **Emission rate in lb/hour based on 104 MMBtu/hr; annual rate based on 91 MMBtu/hr, 30-day rolling average.**	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **10% opacity**	4. Equivalent Allowable Emissions: **1.04** lb/hour **4.0** tons/year
5. Method of Compliance (limit to 60 characters): **None required**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **See Part II.**	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **SO_2**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.29** lb/hour **0.60** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: **1 grain S/100 cf** Reference: **Permit Limit***	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **See Part II, Table 1.**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): ***AC41-157745/PSD-FL-136/0810007-003-AV. Emission rate in lb/hour based on 104 MMBtu/hr; annual rate based on 91 MMBtu/hr, 30 day rolling average.**	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **1 grain S/100cf**	4. Equivalent Allowable Emissions: **0.29** lb/hour **0.60** tons/year
5. Method of Compliance (limit to 60 characters): **Fuel Analysis**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **See Part II.**	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **NO_X**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **10.4** lb/hour **39.9** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: **0.1 lb/MMBtu** Reference: **Permit Limit***	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **See Part II, Table 1.**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): ***AC41-157745/PSD-FL-136/0810007-003-AV. Emission rate in lb/hour based on 104 MMBtu/hr; annual rate based on 91 MMBtu/hr, 30 day rolling average.**	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.1 lb/MMBtu**	4. Equivalent Allowable Emissions: **10.4** lb/hour **39.9** tons/year
5. Method of Compliance (limit to 60 characters): **Annual compliance test, EPA Method 7/20 or 7E**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **See Part II.**	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **CO**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **14.6** lb/hour **55.8** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: **0.14 lb/MMBtu** Reference: **Permit Limit***	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **See Part II, Table 1.**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): ***AC41-157745/PSD-FL-136/0810007-003-AV. Emission rate in lb/hour based on 104 MMBtu/hr; annual rate based on 91 MMBtu/hr, 30 day rolling average**	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.14 lb/MMBtu**	4. Equivalent Allowable Emissions: **14.6** lb/hour **55.8** tons/year
5. Method of Compliance (limit to 60 characters): **None Required**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **See Part II.**	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **PM_{10}**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **1.04** lb/hour **4.0** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: **0.01 lb/MMBtu** Reference: **Forney Corporation**	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **See Part II, Table 1.**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): **Emission rate in lb/hour based on 104 MMBtu/hr; annual rate based on 91 MMBtu/hr, 30 day rolling average.**	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **10% opacity**	4. Equivalent Allowable Emissions: **1.04** lb/hour **4.0** tons/year
5. Method of Compliance (limit to 60 characters): **None Required**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **See Part II.**	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **4.2** lb/hour **15.9** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: **0.04 lb/MMBtu** Reference: **Permit Limit***	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **See Part II, Table 1.**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): ***AC41-157745/PSD-FL-136/0810007-003-AV. Emission rate based on 104 MMBtu/hr; annual rate based on 91 MMBtu/hr, 30 day rolling average.**	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **4.16 lb/hr**	4. Equivalent Allowable Emissions: **4.2** lb/hour **15.9** tons/year
5. Method of Compliance (limit to 60 characters): **None Required**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **See Part II.**	

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

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: **VE10**	2. Basis for Allowable Opacity: [ ] Rule [X] Other
3. Requested Allowable Opacity: Normal Conditions: **10 %** Exceptional Conditions: **100 %** Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **Annual VE Test EPA Method 9**	
5. Visible Emissions Comment (limit to 200 characters): **VE of 10% proposed for gas firing. Excess opacity based on Rule 62-210.700(1) for startup/shutdown/malfunction for 2 hrs/24 hrs.**	

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

Continuous Monitoring System: Continuous Monitor _____ of _____

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

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

Supplemental Requirements

1. Process Flow Diagram [ ] Attached, Document ID: _____ [X] Not Applicable [ ] Waiver Requested	
2. Fuel Analysis or Specification [ ] Attached, Document ID: _____ [X] Not Applicable [ ] Waiver Requested	
3. Detailed Description of Control Equipment [ ] Attached, Document ID: _____ [X] Not Applicable [ ] Waiver Requested	
4. Description of Stack Sampling Facilities [ ] Attached, Document ID: _____ [X] Not Applicable [ ] Waiver Requested	
5. Compliance Test Report [ ] Attached, Document ID: _____ [ ] Previously submitted, Date: _____ [X] Not Applicable	
6. Procedures for Startup and Shutdown [ ] Attached, Document ID: _____ [X] Not Applicable [ ] Waiver Requested	
7. Operation and Maintenance Plan [ ] Attached, Document ID: _____ [X] Not Applicable [ ] Waiver Requested	
8. Supplemental Information for Construction Permit Application [X] Attached, Document ID: Part II [ ] Not Applicable	
9. Other Information Required by Rule or Statute [ ] Attached, Document ID: _____ [X] Not Applicable	
10. Supplemental Requirements Comment:	

Additional Supplemental Requirements for Title V Air Operation Permit Applications

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

ATTACHMENT DB-EU16-C

APPLICABLE REQUIREMENTS LISTING

ATTACHMENT DB-EU16-C
APPLICABLE REQUIREMENTS LISTING

EMISSION UNIT: Duct Burner System Associated with Heat Recovery Steam Generator

FDEP Rules:
Air Pollution Control-General Provisions:
62-204.800(7)(b)3. (State Only) NSPS Subpart Db (NO_x only)

Stationary Sources-General:

62-210.650	Circumvention
62-210.700(1)	Excess Emissions; startup/shutdown/malfunction; 2 hrs/24 hrs
62-210.700(4)	Excess Emissions; Excludes poor maintenance
62-210.700(6)	Excess Emissions; reporting

Stationary Sources-Emission Monitoring:

62-297.310(1)	Test Runs-Mass Emission
62-297.310(2)(b)	Operating Rate
62-297.310(3)	Calculation of Emission
62-297.310(4)(a)1.	Applicable Test Procedures; Sampling time
62-297.310(4)(b)	Sample Volume
62-297.310(4)(c)	Required Flow Rate Range-PM
62-297.310(4)(d)	Calibration
62-297.310(4)(e)	EPA Method 5
62-297.310(5)	Determination of Process Variables
62-297.310(6)(a)	Permanent Test Facilities-general
62-297.310(6)(c)	Sampling Ports
62-297.310(6)(d)	Work Platforms
62-297.310(6)(e)	Access
62-297.310(6)(f)	Electrical Power
62-297.310(6)(g)	Equipment Support
62-297.310(7)(a)1.	Renewal
62-297.310(7)(a)3.	Permit Renewal Test Required
62-297.310(7)(a)4.b.	Annual Test
62-297.310(7)(a)5.	PM exemption if < 400 hrs/yr
62-297.310(7)(a)9.	FDEP Notification 15 days
62-297.310(8)	Test Reports

Federal Rules (Only NSPS for NO_x applies):
NSPS General:

40 CFR 60.7(b)	Notification and Recordkeeping (startup/shutdown/malfunction)
40 CFR 60.7(f)	Notification and Recordkeeping (maintain records)
40 CFR 60.11(a)	Compliance (ref. S.60.8 or Subpart; other than opacity)
40 CFR 60.11(d)	Compliance (maintain air pollution control equipment)
40 CFR 60.12	Circumvention

NSPS Subpart Db:

40 CFR 60.44b(a)(4)(i)	NO_x in duct burner systems; gas (0.2 lb/mmBtu)
40 CFR 60.46b(a)	Compliance/Performance Methods; comply at all times
40 CFR 60.46b(c)	Performance test for NO_x
40 CFR 60.46b(f)	Performance test for NO_x; DB systems
40 CFR 60.48b(h)	CEMS for NO_x not required for DB systems
40 CFR 60.49b(d)	Record amounts of fuel combusted
40 CFR 60.49b(h)	Excess emissions reporting (not applicable by definition)
40 CFR 60.49b(o)	Keep records for two years

PART II

SUPPORTING INFORMATION

1.0 INTRODUCTION

Tropicana Products, Inc. is proposing to replace the duct burner and control systems at the existing Bradenton Citrus Processing Plant. The duct burner system was part of the cogeneration unit permitted by the Florida Department of Environmental Protection (FDEP) on May 30, 1989 pursuant to permit numbers AC 41-157745 and PSD-FL-136. Prevention for Significant Deterioration (PSD) review was required for nitrogen oxides and carbon monoxide. Attachment A presents the existing Title V permit conditions for the duct burner system.

The cogeneration unit consists of a General Electric LM6000 gas turbine with a 45.4 MW electric generator, an associated heat recovery steam generator (HRSG) with a duct burner system. The steam produced by the turbine exhaust and duct burners is used as process steam in the Tropicana plant and replaced the steam previously generated by 6 boilers. These boilers were shutdown after the cogeneration unit became operational. The duct burners can only run when the gas turbine operates with the exhaust through the HRSG and fire only pipeline quality natural gas. There is no by-pass stack for the gas turbine or separate combustion air supply to the duct burners. The existing duct burner system is being replaced due to the inability of the system to operate as originally constructed. The high temperature environment of the turbine exhaust results in considerable wear on the duct burner components making replacement necessary.

1.1 EXISTING FACILITY

The Tropicana facility is located at 1001 13th Avenue East, Bradenton, Florida. The existing industrial complex includes glass manufacturing, and citrus processing that includes juice extracting, processing, packaging, warehousing, and distribution. Fruit is graded and carried to an extractor room where the juice is removed and pumped to either carton filling, glass filling, plastic filling, block freezing, aseptic storage or to evaporators for concentrate production.

The plant contains three citrus feed mills, four citrus pellet mills (including two pellet coolers and associated pellet, bulk cooling reels, and Ross coolers), two glass plants, cogeneration facility [including combustion turbine, HRSG, duct burner, auxiliary boiler, sanitary process steam boiler (used to produce 5-fold citrus oil)], and a wastewater treatment system (including a package steam boiler and an anaerobic reactor with a biogass flare).

The facility operates under a Title V permit issued by FDEP on February 27, 2000 (Final Permit No. 0810007-003-AV).

1.2 DUCT BURNER SYSTEM

The project will consist of replacing the duct burners located in the HRSG, the control system and the addition of augmentation air to improve combustion (see Attachment A). The operating parameters of the duct burners will not change from that currently authorized in the Title V permit. The maximum hourly heat input will remain at 104 million British thermal units per hour (MMBtu/hr) and the 30-day rolling average will remain at 91 MMBtu/hr. The fuel will continue to be pipeline-quality natural gas.

The potential hourly and annual criteria pollutant emissions associated with the duct burner system are provided in Table 1. The maximum hourly emissions are based on the maximum heat input rate of 104 MMBtu/hr, while the annual emissions in tons/year are based on the 30-day rolling average will remain at 91 MMBtu/hr. The maximum potential emissions, with the exception of PM/PM_{10} emissions, will remain unchanged. The emissions for PM/PM_{10} are slightly higher than the current PM/PM_{10} emission limit. The current emissions limits are 0.25 lb/hour and 0.95 tons/year, which were based on AP-42 emission factors. The manufacturer for the replacement duct burners has guaranteed an emission rate of 1.04 lb/hr equivalent to 0.01 lb/MMBtu.

1.3 APPLICABLE REQUIREMENTS AND PERMITTING CONDITIONS

A modification is defined in Rule 62-210.200 Florida Administrative Code (F.A.C.) as any physical change in, or a change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Clean Air Act. A physical change or a change in the method of operation does not include routine replacement, repair or replacement of components part of an emission unit. A modification to a major source of air pollution, such as the Tropicana Bradenton Citrus Processing Plant, may be subject to review under the Department's PSD rules codified in Rule 62-212.400 F.A.C.

The replacement of the duct burners and its associated control system could be considered routine, repair or replacement. Due to wear in the hot turbine exhaust, the duct burners must be replaced and the associated control system must match the burners being installed. In addition, the heat input of the replacement duct burner system will be identical to the currently authorized production limits.

The only pollutant that will have an increase in potential emissions is PM/PM_{10}. The primary reason for the increase is the result of using AP-42 emissions factors in the original permitting of the cogeneration unit, since vendor information was not available. The supplier of the replacement duct burner system has guaranteed a slightly higher emission rate. The increase in PM/PM_{10} is about 3 tons/year.

Not with standing a determination that the replacement duct burners are routine maintenance, repair or replacement, the potential emissions of all criteria pollutants from the replacement duct burner system are less than the PSD significant emission rates in Table 62-212.400-2 in Rule 62-212.400 F.A.C. In addition, the net emission increases for the project are also lower than the PSD significant emission rates. Therefore, PSD review would not apply in any case. Given the recent EPA determinations related to utility projects related to the confounding nature of determining routine maintenance, repair, or replacement; a minor source construction permit is being sought by this application for all the potential emissions for the replacement duct burner project.

The duct burner will also be subject to specific standards in 40 CFR 60 Subpart Db – *Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units* adopted and incorporated by reference in Rule 62-204.800(7)(b)3, F.A.C. The NO_x limit will also satisfy the less stringent requirements of Subpart Db – 40 CFR 60.44b(a)(4)(i) which specifies a NO_x limit of 0.2 lb/MMBtu for duct burners used in a combined cycle system. EPA Method 7/ 20 or 7E will be used to test NO_x compliance.

Table 1. Performance, Stack Parameters and Emissions for Heat Recovery Steam Generator Duct Burners, Tropicana Brandenton

	Potential Duct Burner Parameters	Actual Duct Burner Parameters[e]	Net Emission Increase	PSD Significant Emission Rate (tons/year)
Performance				
Fuel	Natural gas			
Heat Content (Btu/scf)	950			
Maximum Heat Input (MMBtu/hr)[a]	104			
Maximum Fuel Usage (MMscf/hr)	0.109			
Average Heat Input (MMBtu/hr)[a,b]	91.00			
Maximum Hours per Year	8,760			
Maximum Fuel Usage (MMscf/yr)	839.1	9.325		
Stack Parameters (Gas Turbine and Duct Burner				
Diameter (ft)	12.00			
Height (ft)	67			
Temperature (°F)	268			
Velocity (ft/sec)	54			
Flow (acfm)	368,395			
Emissions				
SO_2 -Basis (grains S/100 scf-gas) [a,c]	1			
(lb/hr)	0.290			
(tpy)	0.6000	0.007	0.59	40
NO_x - (lb/MMBtu) [a,d]	0.100			
(lb/hr)	10.4			
(tpy)	39.9	0.443	39.42	40
CO - (lb/MMBtu) [a,d]	0.140			
(lb/hr)	14.6			
(tpy)	55.8	0.620	55.18	100
VOC - (lb/MMBtu) [a,d]	0.040			
(lb/hr)	4.16			
(tpy)	15.9	0.177	15.77	40
PM/PM10 - (lb/MMBtu) [a,d]	0.010			
(lb/hr)	1.04			
(tpy)	4.0	0.044	3.94	25/15

[a] AC41-157745; PSD-FL-136.

[b] 30-day rolling average.

[c] Typical maximum sulfur content for pipeline natural gas; permit limit.

[d] Manufacturer information (Forney Corporation, 2001)

[e] Based on Fuel Usage Reported in the 1999 & 2000 AOR (actual emissions = 839.1/9.325 x pollutant tpy)

ATTACHMENT A

TITLE V PERMIT CONDITIONS FOR DUCT BURNER
AND
MANUFACTURER INFORMATION FOR
THE DUCT BURNER AND CONTROL SYSTEM

Subsection D. This section addresses the following emissions unit(s).

E.U. ID No.	Brief Description
-016	Gas Turbine

The natural gas fired General Electric (GE) LM 5000 gas turbine (GT) has a maximum design heat input capacity of 425.5 MMBtu per hour, and a natural gas fired Heat Recovery Steam Generator (HRSG) with a maximum design heat input capacity of 104 MMBtu per hour. The cogeneration project has an electric generation capacity of 45.4 MW.

{Permitting note(s): This emission unit is regulated under NSPS - 40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, adopted and incorporated by reference in Rule 62-204.800(7)(b)3, F.A.C.; NSPS - 40 CFR 60 Subpart GG - Standards of Performance for Stationary Gas Turbines, adopted and incorporated by reference in Rule 62-204.800(7)(b)39, F.A.C.; and Rule 62-296.405, F.A.C., Fossil Fuel Steam Generators with more than 250 Million Btu per Hour Heat Input. The gas turbine is subject to and shall meet all the applicable requirements of 40 CFR 60 Subpart GG. Based on the heat input capacity of the turbine and the fact that it is not an electric utility stationary gas turbine, the nitrogen oxides standards of 40 CFR 60 Subpart GG do not apply to this source. The heat recovery steam generator duct burner is subject to 40 CFR 60 Subpart Db.}

The following specific conditions apply to the emissions unit(s) listed above:

Essential Potential to Emit (PTE) Parameters

D.1. Capacity.

a. The maximum heat input to the Gas Turbine shall not exceed 425.5 MMBtu per hour (405.3 MCF/hr of natural gas).
b. The maximum heat input to the Heat Recovery Steam Generator shall not exceed 104 MMBtu per hour (99 MCF/hr of natural gas).
c. Heat input to the Heat Recovery Steam Generator shall not exceed 91 MMBtu per hour on a 30 day rolling average basis.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.; Air Construction Permit AC41-157745]

D.2. Methods of Operation - (i.e., Fuels) The Gas Turbine/Heat Recovery Steam Generator shall fire natural gas only. The sulfur content of the fuel (natural gas) used in the Gas Turbine shall not exceed 0.8% by weight.

[Rules 62-4.160(2), 62-204.800(7)(b)39, and 62-213.440(1), F.A.C.; 40 CFR 60.333(b); Air Construction Permit AC41-157745]

Emission Limitations and Standards

D.3. Visible emissions from the Gas Turbine and Heat Recovery Steam Generator shall not exceed 10% opacity.
[Air Construction Permit AC41-157745]

D.4. Carbon monoxide (CO) emissions shall not exceed the following:

a. 10 ppm (corrected to 15% O_2), dry basis, for the Gas Turbine;
b. 0.14 pounds/MMBtu for the Heat Recovery Steam Generator.

[BACT Determination of May 29, 1989 in accordance with Rule 62-212.400, F.A.C.]

D.5. Nitrogen oxides (NOx) emissions shall not exceed the following:

a. 42 ppm (corrected to 15% O_2), dry basis, for the Gas Turbine;
b. 0.1 pounds/MMBtu for the Heat Recovery Steam Generator.[1]

[BACT Determination of May 29, 1989 in accordance with Rule 62-212.400, F.A.C.]
{[1]Permitting Note: Compliance with this BACT limit will also satisfy the less stringent requirements of Subpart Db - 40 CFR 60.44b(a)(4)(i) which specifies a NOx limit of 0.2 lb/MMBtu for duct burners used in a combined cycle system.}

D.6. Emissions from the Gas Turbine and Heat Recovery Steam Generator shall not exceed any of the following:

Pollutant	Gas Turbine		Heat Recovery Steam Generator	
	Pounds per Hour	Tons per Year	Pounds per Hour[1]	Tons per Year[1]
NOx	62.6	274.6	10.4	39.9
CO	9.1	39.8	14.56	55.8
PM/PM_{10}	1.5	6.6	0.25	0.95
SO_2	1.2	2.63	0.29	0.60
VOC	3.6	15.9	4.16	15.9

[1]Note: Heat Recovery Steam Generator lb/hr emissions are based on 104 MMBtu/hr maximum heat input rate, while the tons/yr emissions are based on the 91 MMBtu/hr maximum 30 day rolling average heat input rate.
[Air Construction Permit AC41-157745 as amended May 20, 1992]

Test Methods and Procedures

D.7. Test the Gas Turbine/Heat Recovery Steam Generator for emissions of the following pollutants annually on or during the 60 day period prior to March 1.

a. Visible emissions (VE)
b. Nitrogen Oxides (NOx)
c. Sulfur Dioxide (SO_2)

[Air Construction Permit AC41-157745/PSD-FL-136]

{Permitting Notes: (1) A fuel analysis, including sulfur content, of a representative fuel sample and a calculation of the sulfur dioxide emission rate based on the fuel analysis may be submitted in lieu of the required sulfur oxides emission test. (2) Although CO, PM, and VOC are limited in Condition D.6, the referenced construction permit specified that testing for these pollutants shall be conducted upon initial operation only. (3) The compliance test due date is for planning purposes only. Rule 62-297.310(7)(a)4, F.A.C. allows the permittee to conduct a formal compliance test any time during the federal fiscal year (October 1 – September 30).}

D.8. Compliance with the emission limitations of Conditions D.3 through D.6 shall be determined using the following EPA Methods contained in 40 CFR 60, Appendix A and adopted by reference in Chapter 62-297, F.A.C.

a. EPA Method 5, 5B, or 17 for PM
b. EPA Method 201 or 201A for PM_{10} (recommended)
c. EPA Method 7/ 20 or 7E for NOx
d. EPA Method 9 for VE
e. EPA Method 10 for CO
f. EPA Method 25A for VOC

The minimum requirements for stationary point source emission test procedures and reporting shall be in accordance with 40 CFR 60 Appendix A and Chapter 62-297, F.A.C. [Chapter 62-297, F.A.C.; Air Construction Permit AC41-157745]

D.9. The visible emissions tests shall be conducted by a certified observer and be a minimum of sixty (60) minutes in duration. The test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. [Rule 62-297.310(4)(a), F.A.C.]

D.10. Testing of emissions must be conducted during operation of the Gas Turbine at a heat input rate within 95-100% of the maximum capacity achievable for the average ambient temperature during the compliance tests (or at a heat input rate between 90-100% of the maximum permitted heat input rate of 425 MMBTU per hour) and operation of the Heat Recovery Steam Generator at a heat input rate within 90 to 100% of the maximum

permitted rate of 104 MMBTU per hour. The turbine manufacturer's capacity vs. ambient temperature curve shall be included with the test report. A compliance test submitted at operating rates less than those specified above will automatically constitute

an amended permit at the lesser rates until another test showing compliance at higher rates is submitted. Failure to submit the operating (heat input) rates or operation at conditions that do not represent normal operating conditions may invalidate the test.
[Rule 62-4.070(3), F.A.C.]

Operating Conditions

D.11. The sale of electrical output generated by the Gas Turbine/Heat Recovery Steam Generator unit shall not exceed one third (33.3%) of the total annual electrical output based on a 12 month rolling average. (This limitation is necessary to insure that this source (emission unit) is not considered an electric utility gas turbine under Subpart GG - 40 CFR 60.331(q).)
[Rule 62-204.800(7)(b)39, F.A.C.; 40 CFR 60.331(q)]

Recordkeeping and Reporting Requirements

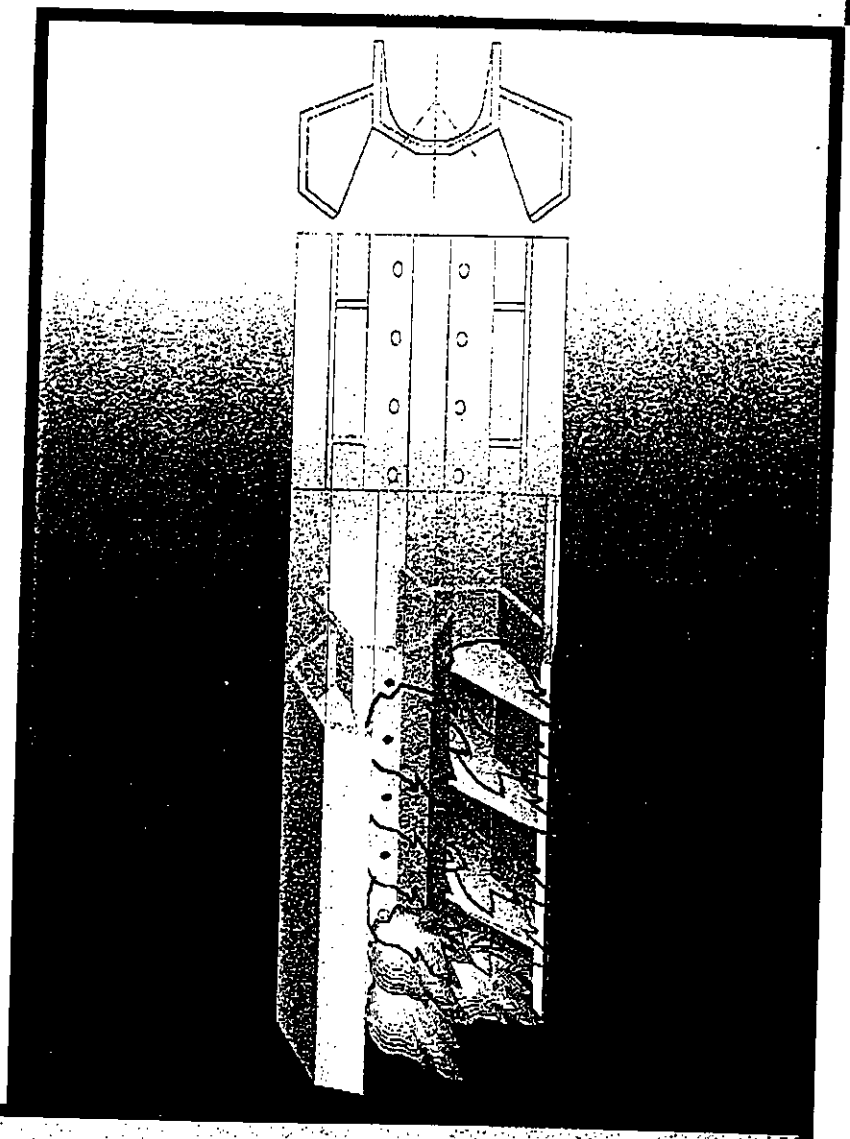
D.12. In order to document compliance with the limitations of Condition D.2 and D.6, the permittee shall maintain records of the sulfur content in the natural gas as supplied by the pipeline company. The Department may require the permittee to independently verify the sulfur content of the natural gas whenever the Department does not have reasonable assurance that the sulfur content information provided by the natural gas supplier accurately represents the sulfur content in the natural gas combusted in this source (emission unit). Compliance with the sulfur content standards shall be in accordance with the requirements of Subpart GG - 40 CFR 60.335(d). Proof of compliance with the annual SO_2 limitation (including calculations) shall be submitted along with the annual operating report each year.
[Air Construction Permit AC41-159485 as amended May 20, 1992; Rule 62-204.800(7)(b)39, F.A.C.; 40 CFR 60.335(d)]

D.13. The permittee shall keep records of total electrical generation output and electrical output sold such that compliance with Condition D.11 can be determined.
[Rule 62-213.440, F.A.C.]

D.14. The permittee shall submit quarterly SO_2 excess emission reports in accordance with 40 CFR 60.7(c) and Subpart GG - 40 CFR 60.334(c)(2). If there are no excess emissions during a calendar quarter the permittee shall submit a report stating that no excess emissions occurred during the reporting period.
[Rule 62-204.800(7)(b)39, F.A.C.; 40 CFR 60.334(c)(2)]

D.15. All reports required by 40 CFR 60 shall be submitted to the Air Compliance Sections of the MCEMD and Southwest District Office of the Department. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter. [Rule 62-213.440, F.A.C.]

FORNEY



DUCT BURNERS
FROM FORNEY CORPORATION

DUCT BURNERS FROM FORNEY

INNOVATIVE TECHNOLOGY, PROVEN QUALITY, COST-EFFECTIVE PERFORMANCE. Duct burners from Forney Corporation provide the latest designs in duct burner technology to meet the complex needs of the combined cycle and cogeneration industry. High reliability, low pressure drop, and versatile applications are the principles by which the duct burners are designed and developed.

With over 100 installations around the world, Forney's duct burner is a proven product with a solid reputation for meeting or exceeding all performance guarantees. Forney Corporation, a worldwide leader in combustion products for the utility and industrial markets.

DESIGN CHARACTERISTICS

WIDE RANGE OF CAPACITIES & FUEL-FIRING CAPABILITIES	• 5 to 800 MBtu/hr (52.74 x 10^8 j/hr to 84.39 x 10^{10} j/hr) • Most types of gaseous or liquid fuels
LOW DRAFT LOSS	• Less than 0.25 in. (6.35 mm) wc without a distribution grid • Total pressure drop with distribution grid of less than 1.0 in. (25.4 mm) wc
STABLE FLAME	• Our proprietary flame stabilizer design produces a gas or oil flame with high turndown ratios • Gas firing: 10:1 standard, 20:1 optional • Oil firing: 5:1 standard, 10:1 optional
UNIFORM HEAT DISTRIBUTION	• Highly turbulent exhaust gases are converted to ± 15% velocity distribution when using an integrated distribution grid
LOW EMISSIONS	• NO_x emissions of 0.1 lb/MBtu (4.26 x 10^{-11} kg/j) or less • CO emissions from 0.05 to 0.2 lb/MBtu (2.13 x 10^{-11} to 8.5 x 10^{-11} kg/j)
RELIABLE OPERATION IN HARSH ENVIRONMENT	• Exhaust gas as low as 12.5% oxygen and as much as 15% water vapor without fresh-air augmentation
FLEXIBLE OPERATING CONDITIONS	• Inlet gas temperatures of 0° to 1200° F (–18° to 650° C) • Firing temperatures of 600° to 3000° F (315° to 1650° C) • Turbine exhaust flow rates of 28 KPPH to 4000 KPPH (12.7 x 10^3 to 1.8 x 10^6 kg/hr)
QUALITY CONSTRUCTION	• Designed for years of trouble-free operation • Stainless steel is used for all heat-affected components • Air-cooled pilot tip
MODULAR DESIGN	• Easily reconfigured to meet specific customer requirements • Holds down costs

GAS-FIRED DUCT BURNERS

BRANCHED ELEMENT DUCT BURNER. This innovative design features a single source ignition point for improved light-off reliability. The multiple vertical elements are connected with a horizontal element that provides the ignition source which travels from one element to the other. (See Figure 1.) This design can reduce costs by eliminating the need for multiple pilot and detector systems. Forney's proprietary stabilizer design maintains flame stability without causing unnecessary pressure drop.

MULTIPLE ELEMENT DUCT BURNER. This design features the conventional horizontal (or vertical) elements located one adjacent to the other. (See Figure 2.) This arrangement uses the same proprietary stainless steel stabilizer as the Branched Element design and can achieve the same outstanding levels of performance. Each element is ignited with its own pilot ignition and monitoring system.

OIL-FIRED DUCT BURNERS

IN-LINE OIL-FIRED DUCT BURNER. The In-Line Oil-Fired Duct Burner is a multiple element type burner which fires No. 2 oil through an array of externally atomized oil tips. (See Figure 3.) The same proprietary flame stabilizer is used on the In-Line Oil-Fired Duct Burner as in the Branched Element Duct Burner. This design provides flame stability, short flame lengths, and optimum heat transfer to the turbine exhaust gases. Maintenance and tip cleaning are made accessible by a track removal system that allows element removal during periods of combustion turbine/heat recovery steam generator operation.

SIDE-FIRED OIL DUCT BURNER. In large ducts, oil firing is achieved by firing perpendicular to exhaust flow. (See Figure 4.) The oil is directly ignited using a High Energy Spark Igniter (HESI) that automatically retracts for extended life. Oil guns can be removed while firing in natural gas mode, and automatic fuel changeover is standard.

COMBINATION SIMULTANEOUS GAS AND OIL FIRING. Gas and oil firing is achieved by combining the elements of the Multiple Element Duct Burner with the In-Line Oil-Fired Duct Burner in an alternating arrangement. (See Figure 5.)

AUXILIARY EQUIPMENT

PIPING AND CONTROL MODULE. Each duct burner system includes a self-contained piping and burner control module that is factory wired and tested. The piping train is designed and built to meet or exceed ANSI standards B31.1 piping code. High quality valves, switches, and pressure gages are selected to provide trouble-free operation. The Burner Management System meets the latest guidelines while providing the flexibility needed to integrate to the end user's control system.

GAS-FIRED DUCT BURNERS

Figure 1

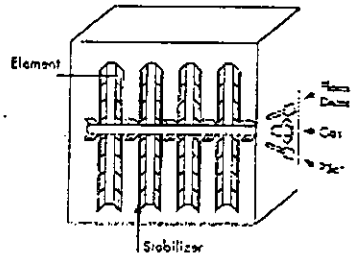
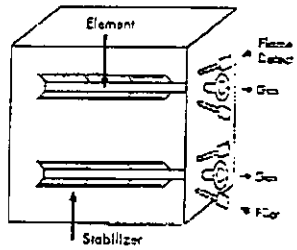


Figure 2



OIL-FIRED DUCT BURNERS

Figure 3

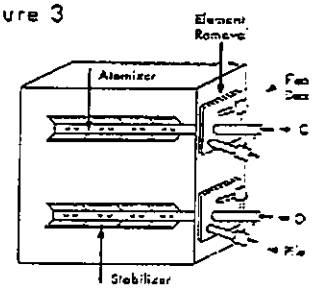
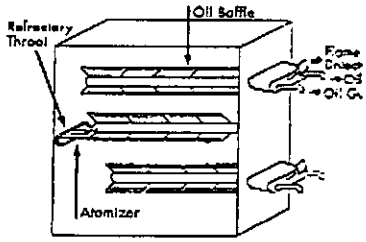
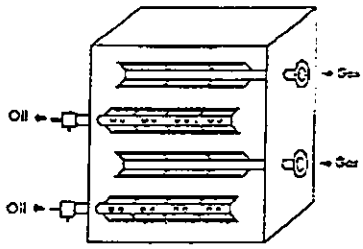


Figure 4



COMBINATION GAS AND OIL DUCT BURNERS

Figure 5



CUSTOM DESIGN APPLICATIONS

Forney Duct Burners can also operate in a variety of applications other than the conventional cogeneration or combined cycle uses.

FRESH-AIR OPERATION. The Forney Duct Burner is capable of operating on fresh air during periods of combustion turbine downtime. The Forney Duct Burner operates at a significantly lower equivalent air flow than other duct burner designs.

AUGMENTATION AIR REQUIREMENTS. Air augmentation is available when exhaust gases are less than 12.5% oxygen or the water vapor is above 15%. The Forney Duct Burner is designed to use less augmentation air than other duct burner designs.

THERMAL OXIDATORS. Forney Duct Burners are excellent thermal oxidators. The inherent mixing produced by the proprietary flame stabilizer ensures complete destruction of all combustibles in the waste gas stream. Heat recovery equipment in the form of waste gas preheaters or waste heat boilers easily interface with the Forney Duct Burner.

AIR HEATERS. Forney Duct Burners are easily adaptable to many types of direct-fired air heaters. Whenever there is a need to heat large quantities of air or process gas with low pressure drops and even heat distribution, the Forney Duct Burner can do the job. The Forney Duct Burner can operate under induced-draft conditions as well as pressurized conditions up to 100 psig (6.9×10^5 Pa).

A HISTORY OF INNOVATION

Forney Duct Burners have introduced some of the industry's most innovative designs. As part of the Forney Corporation product line, Forney Duct Burners are backed by the quality and dependability of a worldwide company recognized as an ISO 9001 organization. For more than 60 years Forney has been a leader in combustion systems, with expertise in Burner Management Systems, Flame Detection, Ignition Products, and Burners.

Forney's financial strength, superb project management, and unmatched commitment to customer service assure a thorough and complete solution to your duct burner needs. For more information, contact your Forney Representative.

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FORNEY DUCT BURNERS

Durable - Reliable - Experienced

Duct Burners from Forney Corporation provide the latest designs in duct burner technology to meet the complex needs of the combined cycle and cogeneration industry. Forney's emission performance is equal to or better than any in the industry.

Durable Construction

Maximizing performance depends upon quality and durable construction. Therefore, Forney Du Burners contain all stainless steel construction in the gas turbine exhaust stream, including inves ment cast stabilizers, baffles and distribution grids. The durable construction also allows Forney to fire its duct burners over 1150°C (2100°F).

Reliable Ignition

All Forney Duct Burners use the MAXFire® 10 Igniter, which relies on the most advanced high-energy spark ignition technology available. The high-energy spark igniter (HESI) is standard in all Forney igniters, providing unparalleled burner light off.

HESI Features:
- Sealed spark tip is less susceptible to differential thermal expansion and even sparks underwate
- Air purge prevents condensation from collecting and disrupting operation.
- Surface gap design provides a reliable and repeatable spark.
- Spark is powerful enough to directly ignite No. 2 fuel oil.
- HESI allows for a virtually maintenance free igniter, especially in high water vapor environment such as supplementary firing.

Flexible Designs

Forney offers duct burners for liquid, gaseous, or dual fuel firing.
- Traditional straight element - Best suited for today's advanced gas turbines.
- Branched element design - Well suited for smaller cogen and industrial applications.
- Integrated dual fuel design - For use in smaller dual fuel (liquid/gas) applications.
- Side-fired duel fuel design - For use in larger dual fuel (liquid/gas) applications.

Experienced

Forney has over 70 years of combustion experience with the first supplemental firing of turbine exhaust gas in 1960. Forney has over 300 units installed worldwide for supplemental firing of tu bine exhaust gas with a capacity of over 8500 MW. Forney also has some of the longest running 7FAs in the industry with the first unit on-line in 1987.

EQUIPMENT LIST

The equipment supplied by this proposal is limited to the items listed in this equipment list.

ITEM	QTY	DESCRIPTION
1	1	**DUCT BURNER** Designed with the heat release stated in the Design Criteria with the listed Natural Gas supply pressure at the inlet to the Main Gas Train. Duct Burner will be gas-fired with gas-fired High-Energy igniters. *(The inside clear gas path is 32' 10.75" high and 10' 8.75" wide in the plane of the duct burner centerline. Insulation and lining are by others.)* **Front Plate Inserts** Each element insert consists of a fuel manifold pipe with one or more flame stabilizers attached to a maximum 24" x 30" x 3/8" 304 stainless steel front plate. The front plate is to be seal welded to the duct casing. Each front plate includes a MAXFire™ 10 igniter, and two (2) Fireye 45UV5 flame scanners. The gas supply connection is a 3" 150# RF flange that extends from front plate. A 14 g.u. 304 stainless steel liner plate holds in place an insulation plug of 8 lbs/ft^3 ceramic fiber blanket. The Augmenting Air delivery manifold will be also be included with the from plate. Opposing-end expansion end supports will be engineered and manufactured by Forney and installed by others. **Burner Element Assembly:** Each stainless steel burner assembly to include: (4) Horizontal Gas Burner Elements with Stainless Steel (HT) Investment Cast Stabilizers (4) MAXFire™ High-Energy Spark-Ignited Gas Pilots (700K BTU/HR each with a NEMA 4X power pack enclosure wired to the pilot and located on existing platforms) (8) Fireye 45UV5 Self-Checking Scanners with adjustable swivel mounts and isolation windows to allow removal during operation. (4) Automatic Element Isolation Valves (fuel) (4) Augmenting Air Manifold Ducts (Stainless Steel) (4) Automatic Isolation Dampers for Augmenting Air Manifold Ducts (8) Baffle Inserts (1) Main Gas Header (carbon steel) with Pressure Gauges (1) Pilot Gas Header (carbon steel) (1) Scanner Cooling Air Header (carbon steel) (1) Augmenting Air Plenum (carbon steel)

EQUIPMENT LIST (continued)

ITEM	QTY	DESCRIPTION
2	1	FUEL CONTROL SKID

The following components are factory assembled and mounted on a rigid steel frame, suitable for floor mounting. Skid and piping are cleaned per SSPC-SP3 and finished in ANSI 61 gray. Valves and instruments retain OEM paint. Electrical devices are prewired to the Local BMS Control Panel. Valves meet ANSI B.31.1 standards. Material scope for each of the skids includes:

Pilot Gas Train Assembly:

One (1) Pilot Gas Train Assembly to include the following:

(1) ¾" Pressure Regulating Valve
(1) ¾" Inlet Wye Strainer
(2) ¾" Shut-Off Valves with proof of closure
(1) ½" Vent Valve with proof of closure
(1) ¾" Manual Ball Valve
(1) 4½" Diameter Pressure Gauge with isolation valve (Metric/English)

Main Gas Pipe Train Assembly

One (1) Main Gas Fuel Train Assembly to include the following:

(2) 3" Safety Shut-Off Valve with open/closed limit switches
(1) 1½" Vent Valve with closed position switch
(1) 3" Fuel Flow Control Valve with Pneumatic Positioner and Low Fire Start Position Switch. 4-20 mA control signal is by others.
(1) 3" Manual Ball Valve
(2) 4½" Diameter Pressure Gauge (Metric/English)
(2) Ball valves for instrument isolation

Pressure & Temperature Switches (Safety Interlocks – Alarm/Trip)

(1) Low Gas Pressure Switch
(1) High Gas Pressure Switch
(1) Low Scanner Cooling Air Pressure Switch
(1) Low Instrument Air Pressure Switch
(1) High Furnace Temperature Switch (K-type T/C by others)

Switches/Interlocks designed into BMS (devices are by others)

Low TEG Flow/Turbine Running
High HRSG Steam Pressure
Low Drum Level
Loss of Control/Interlock Power

EQUIPMENT LIST (continued)

ITEM	QTY	DESCRIPTION
3	1	**LOCAL BMS CONTROL PANEL** One (1) NEMA 4X enclosure mounted on the Fuel Control Skid including the items listed below. All internal cabinet wiring will be 16 gauge THHN unless circuit design requires otherwise: **Burner Management System** One (1) Allen-Bradley SLC 5/04 PLC with DH+/RS232 port including: (1) Processor Type 1747-L541 (1) Power Supply 1746-P2 (4) UV Flame Worxs Module, MBUVS-100D (1) Alarm Horn **Switches and Pushbuttons** (1) "POWER – ON/OFF" Switch (1) "BURNER/PURGE – STOP(Maintain) START(Momentary)" Selector Switch (1) "EMERGENCY STOP" Red Mushroom Pushbutton (1) "ALARM SILENCE / LAMP TEST" Pushbutton (1) "RESET" Pushbutton **Indicator Lights** (1) "POWER ON" (1) "PURGE READY / LIMITS SATISFIED" (1) "PURGE IN PROGRESS" (1) "PURGE COMPLETE" (1) "PILOT SSO VALVES ENERGIZED" (1) "MAIN GAS SSO VALVES ENERGIZED" (1) "FLAME DETECTED" (1) "FLAME FAILURE" (1) "SCANNER COOLING PRESSURE NOT LOW" (1) "AUGMENTING AIR FAN RUNNING"

EQUIPMENT LIST (continued)

ITEM	QTY	DESCRIPTION
4	1	**SCANNER COOLING AIR BLOWER SKID** Redundant (skid mounted) air blowers with starting and automatic switchover through the DCS. Each blower will have a capacity of 170 scfm at 1.1 psig and includes: (1) TEFC Motor (1) Inlet filter/silencer (1) Check valve

NOTE: Each blower is sized to provide 30 scfm for customer supplied observation ports.

5	1	**AUGMENTING AIR BLOWER** Single augmenting air blower (shipped loose) with an approximate capacity of 10000 scfm at 18" w.c.