



RECEIVED 103-87544
APR 22 2011
BUREAU OF
AIR REGULATION

April 21, 2011

Mr. Jeffery Koerner, P.E.
FDEP, Division of Air Resources
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32399

RE: PSD APPLICATION FOR H₂S DEGASIFICATION SYSTEM
U.S. SUGAR CLEWISTON FACILITY
FACILITY ID: 0510003
0510003-048-AL/PSD-F4-415

Dear Mr. Koerner:

Golder Associates Inc. is submitting the attached seven (7) copies of a PSD application on behalf of the U.S. Sugar Corporation (Facility ID 0510003). The PSD application is for the installation of a hydrogen sulfide (H₂S) degasification system at the U.S. Sugar facility located at 111 Ponce De Leon Avenue in Clewiston, Florida. The \$7,500 application processing fee will be submitted directly by the facility in the near future.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff

David A. Buff, P.E., Q.E.P.
Principal Engineer

Philip D. Cobb

Philip D. Cobb, Ph.D., P.E.
Senior Project Engineer

cc: K. Tingberg – U.S. Sugar

Attachments

PC

*Note: Fee received on 5/2/11.
Elizabeth Walker*

y:\projects\2010\103-87544 us sugar h2s degasification\final\042111_544-ussc-h2spsd.docx

Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607 USA

Tel: (352) 336-5600 Fax: (352) 336-6603 www.golder.com



Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

Golder, Golder Associates and the GA globe design are trademarks of Golder Associates Corporation



Application

PSD APPLICATION FOR H₂S DEGASIFICATION SYSTEM

U.S. Sugar Clewiston Facility

RECEIVED
APR 22 2011
BUREAU OF
AIR REGULATION

Prepared For: U.S. Sugar Corporation
111 Ponce De Leon Ave.
Clewiston, FL 33440

Submitted By: Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607 USA

Distribution: 4 copies -- FDEP
2 copies -- U.S. Sugar
1 copy -- Golder Associates

April 2011

103-87544

A world of
capabilities
delivered locally



APPLICATION FOR AIR PERMIT – LONG FORM



Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

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

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

Air Operation Permit – Use this form to apply for:

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

RECEIVED

APR 22 2011

BUREAU OF AIR REGULATION

To ensure accuracy, please see form instructions

Identification of Facility

1. Facility Owner/Company Name: United States Sugar Corporation	
2. Site Name: U.S. Sugar Clewiston Facility	
3. Facility Identification Number: 0510003	
4. Facility Location... Street Address or Other Locator: W.C. Owens Ave. and S.R. 832 City: Clewiston County: Hendry Zip Code: 33440	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Application Contact Name: Keith Tingberg, Environmental Manager, Sugar Manufacturing	
2. Application Contact Mailing Address... Organization/Firm: United States Sugar Corporation Street Address: 111 Ponce De Leon Ave. City: Clewiston State: FL Zip Code: 33440	
3. Application Contact Telephone Numbers... Telephone: (863) 902-3186 ext. Fax: (863) 902-3149	
4. Application Contact E-mail Address: ktingberg@ussugar.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 5/2/11	3. PSD Number (if applicable): 475
2. Project Number(s): 0510003-048-A2	4. Siting Number (if applicable):

APPLICATION INFORMATION

Purpose of Application

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

Air Construction Permit

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

Air Operation Permit

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

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

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

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

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

Application Comment

This application is being submitted for an after-the-fact PSD construction permit for a hydrogen sulfide (H₂S) degasification system that serves up to five water supply wells.

The installation of the existing water wells and degasification system was performed under authorization of Permit No. 284958-001-WC, and it was believed that an air permit was not required. After further analysis, it was determined that an air construction application should have been submitted for this project.

APPLICATION INFORMATION

Owner/Authorized Representative Statement

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

1. Owner/Authorized Representative Name : Neil Smith, Vice President and General Manager, Sugar Manufacturing
2. Owner/Authorized Representative Mailing Address... Organization/Firm: United States Sugar Corporation Street Address: 111 Ponce De Leon Ave. City: Clewiston State: FL Zip Code: 33440
3. Owner/Authorized Representative Telephone Numbers... Telephone: (863) 902-2703 ext. Fax: (863) 902-2729
4. Owner/Authorized Representative E-mail Address: nsmith@ussugar.com
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i> <p>Signature  _____ Date <u>4/20/11</u></p>

APPLICATION INFORMATION

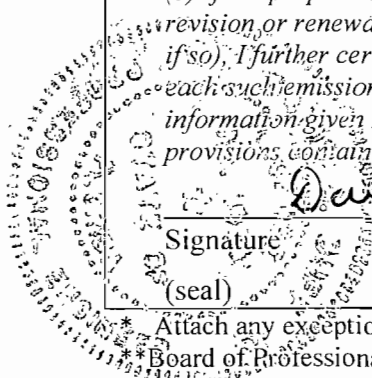
Application Responsible Official Certification

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

1. Application Responsible Official Name:			
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):			
<input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.			
<input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively.			
<input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.			
<input type="checkbox"/> The designated representative at an Acid Rain source or CAIR source.			
3. Application Responsible Official Mailing Address...			
Organization/Firm:			
Street Address:			
City:		State:	Zip Code:
4. Application Responsible Official Telephone Numbers...			
Telephone: ()		ext.	Fax: ()
5. Application Responsible Official E-mail Address:			
6. Application Responsible Official Certification:			
<p>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</p>			
_____		_____	
Signature		Date	

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: David A. Buff Registration Number: 19011
2. Professional Engineer Mailing Address... Organization/Firm: Golder Associates Inc.** Street Address: 6026 NW 1st Place City: Gainesville State: FL Zip Code: 32607
3. Professional Engineer Telephone Numbers... Telephone: (352) 336-5600 ext. Fax: (352) 336-6603
4. Professional Engineer E-mail Address: dbuff@golder.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/> , if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/> , if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/> , if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/> , if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  Signature: <u>David A. Buff</u> Date: <u>4/14/11</u> (seal)

Attach any exception to certification statement.

*Board of Professional Engineers Certificate of Authorization #00001670.

Facility Regulatory Classifications

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

1. <input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input checked="" type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input checked="" type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
Ammonia – NH3	B	N
Particulate Matter – PM	A	N
Particulate Matter – PM10	A	N
Particulate Matter – PM2.5	A	N
Sulfur Dioxide – SO2	A	N
Nitrogen Oxides – NOx	A	N
Carbon Monoxide – CO	A	N
Sulfuric Acid Mist – SAM	A	N
Total Hazardous Air Pollutants – HAPS	A	N
Volatile Organic Compounds – VOC	A	N
Hydrogen Sulfide – H2S	A	N
Acetaldehyde – H001	A	N
Benzene – H017	A	N
Chlorine – H038	A	N
p-Cresol – H052	A	N
Dibenzofuran – H058	A	N
Formaldehyde – H095	A	N
Hydrochloric Acid – H106	A	N
Manganese Compounds – H113	A	N
Mercury – H114	B	N
Naphthalene – H132	A	N
Phenol – H144	A	N
Polycyclic Organic Matter – H151	A	N
Styrene – H163	A	N
Toluene – H169	A	N

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

<p>1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)</p> <p><input checked="" type="checkbox"/> Attached, Document ID: <u>UC-FI-C1</u> <input type="checkbox"/> Previously Submitted, Date: _____</p>
<p>2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)</p> <p><input checked="" type="checkbox"/> Attached, Document ID: <u>UC-FI-C2</u> <input type="checkbox"/> Previously Submitted, Date: _____</p>
<p>3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)</p> <p><input checked="" type="checkbox"/> Attached, Document ID: <u>UC-FI-C3</u> <input type="checkbox"/> Previously Submitted, Date: _____</p>

Additional Requirements for Air Construction Permit Applications

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

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

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

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

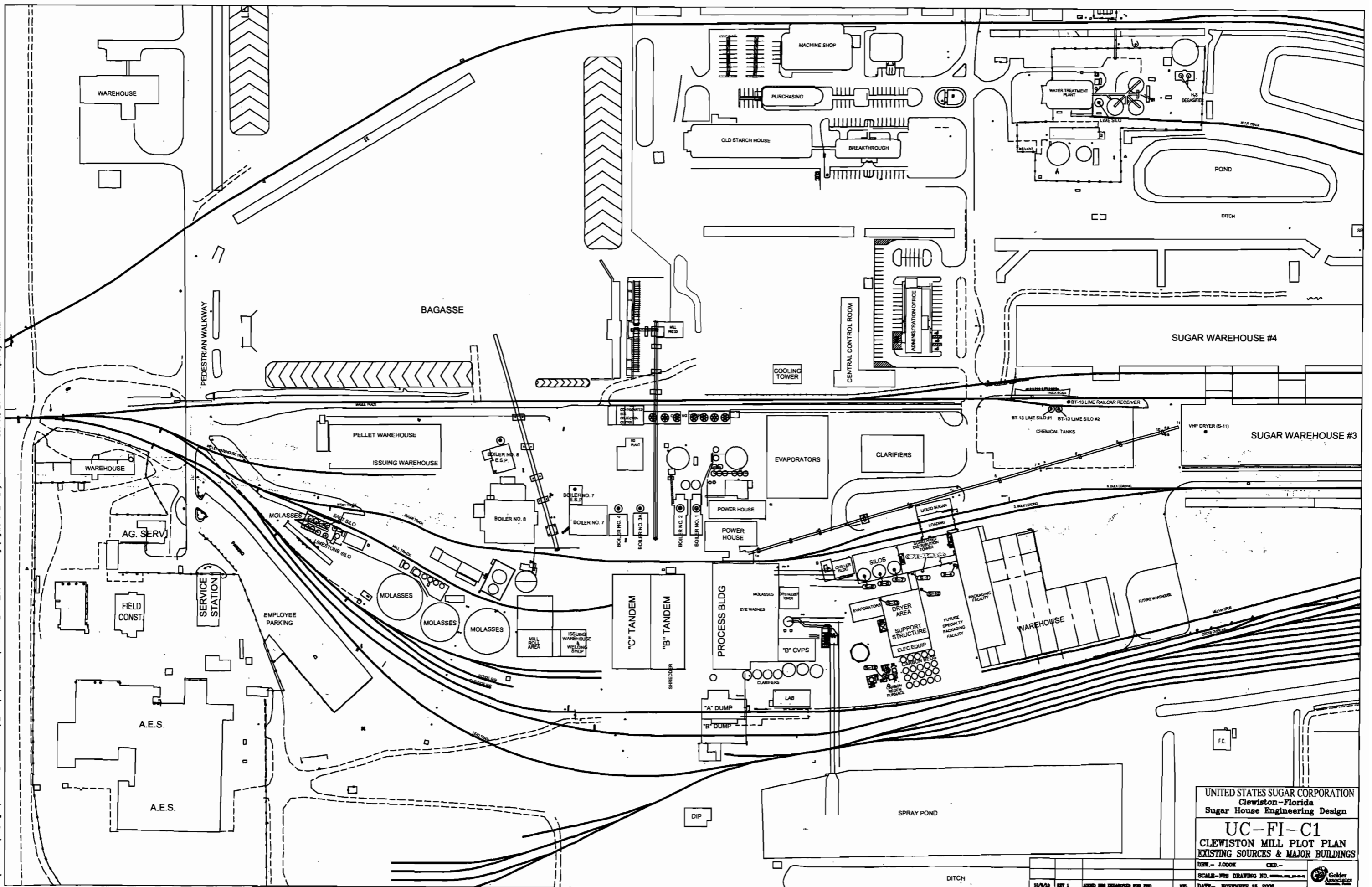
Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program

<p>1. Acid Rain Program Forms:</p> <p>Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input checked="" type="checkbox"/> Not Applicable (not an Acid Rain source)</p> <p>Phase II NO_x Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input checked="" type="checkbox"/> Not Applicable</p> <p>New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input checked="" type="checkbox"/> Not Applicable</p>
<p>2. CAIR Part (DEP Form No. 62-210.900(1)(b)):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input checked="" type="checkbox"/> Not Applicable (not a CAIR source)</p>

Additional Requirements Comment

ATTACHMENT UC-FI-C1
FACILITY PLOT PLAN

G:\PROJECTS\US_Sugar\10387544_Clewiston\MapDocument\10387544_A001_UC-FI-C1.dwg (Figure 3-2-NEW) Plotted on: Oct 06, 2010 - 1:11pm by riamar



UNITED STATES SUGAR CORPORATION
 Clewiston-Florida
 Sugar House Engineering Design

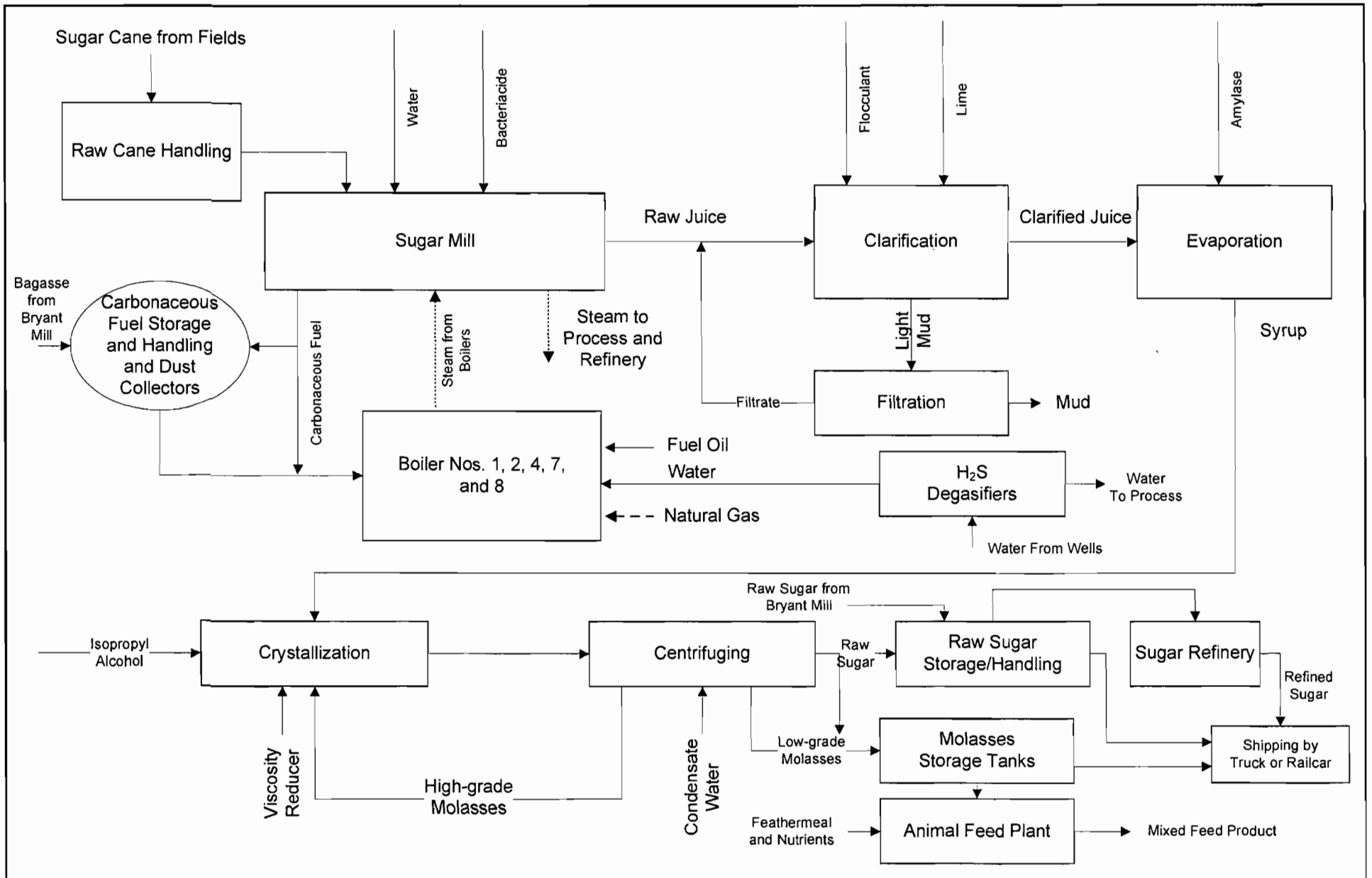
UC-FI-C1
 CLEWISTON MILL PLOT PLAN
 EXISTING SOURCES & MAJOR BUILDINGS

DES. - J. COOK CKD. -
 SCALE - 1/8" = 1' DRAWING NO. 10387544-001
 DATE - NOVEMBER 15, 2008

Golden Associates
 Engineers & Architects

NOV 15 2008	REV 1	ISSUED FOR CONSTRUCTION PER P&ID	10387544-001
-------------	-------	----------------------------------	--------------

**ATTACHMENT UC-FI-C2
PROCESS FLOW DIAGRAM**



Attachment UC-FI-C2
 Process Flow Diagram
 U.S. Sugar Corporation
 Clewiston Mill, Florida

Process Flow Legend	
Solid/Liquid	—————▶
Steam▶
Gaseous	- - - - -▶

Clewiston Sugar Mill Facility

Filename: 103-87544/UC-FI-C2.vsd

Date: 04/14/11



ATTACHMENT UC-FI-C3
PRECAUTIONS TO PREVENT EMISSIONS OF
UNCONFINED PARTICULATE MATTER

ATTACHMENT UC-FI-C3
PRECAUTIONS TO PREVENT EMISSIONS OF
UNCONFINED PARTICULATE MATTER

The Clewiston Mill has the potential to emit unconfined particulate matter (PM) as a result of the operation of the facility. Examples of fugitive PM emissions include:

- Fugitive PM from carbonaceous fuel storage and handling
- Fugitive dust from boiler ash removal and handling
- Fugitive PM from cane handling operations
- Fugitive PM from painting operations
- Fugitive dust from paved and unpaved roads
- Fugitive PM from the use of bagged chemical products

The following measures are undertaken at the Clewiston Mill to minimize fugitive PM emissions, in accordance with 62-296.320(4)(c), F.A.C. These measures are described below:

- The use of covered conveyors on the carbonaceous fuel handling systems
- The use of enclosed material transfer points where feasible
- Minimization of the distance carbonaceous fuel is dropped during handling
- The use of windbreaks around the material handling equipment and storage piles
- The use of enclosures and curtains to reduce fugitive PM emissions from painting operations
- The use of water to control boiler ash dust during disposal
- Maintenance of paved areas as needed
- The use of reasonable precautions when reclaiming dry bagasse for the boilers

EMISSIONS UNIT INFORMATION

Section [1]

H₂S Degasification System

III. EMISSIONS UNIT INFORMATION

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

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

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

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

EMISSIONS UNIT INFORMATION

Section [1]

H₂S Degasification System

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)
- The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)
- This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:

Hydrogen Sulfide (H₂S) Degasification System

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: A	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: 20
--	--------------------------------	--------------------------	--

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

- Acid Rain Unit
- CAIR Unit

9. Package Unit:

Manufacturer: **Loren Cook**

Model Number: **CPSA 270**

10. Generator Nameplate Rating: **MW**

11. Emissions Unit Comment:

This emissions unit removes the hydrogen sulfide from the water pumped from five water supply wells. The water is used as supply water for the sugar processing operation and boilers.

EMISSIONS UNIT INFORMATION

Section [1]

H₂S Degasification System

Emissions Unit Control Equipment/Method: Control ____ of ____

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ____ of ____

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ____ of ____

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ____ of ____

1. Control Equipment/Method Description:
2. Control Device or Method Code:

EMISSIONS UNIT INFORMATION

Section [1]

H₂S Degasification System

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: 4,000 gallons per minute of well water
2. Maximum Production Rate: 1,500,000,000 gallons per year
3. Maximum Heat Input Rate: million Btu/hr
4. Maximum Incineration Rate: pounds/hr tons/day
5. Requested Maximum Operating Schedule: 24 hours/day 7 days/week 52 weeks/year 8,760 hours/year
6. Operating Capacity/Schedule Comment: Maximum throughput rate is based on a maximum design rate of 2,000 gallons per minute (GPM) for each of the two H₂S degasification systems. Maximum annual rate based on projected highest annual water usage.

EMISSIONS UNIT INFORMATION

Section [1]

H₂S Degasification System

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: H₂S Degasifier		2. Emission Point Type Code: 3	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: V	6. Stack Height: 30 feet	7. Exit Diameter: 3 feet	
8. Exit Temperature: 80°F	9. Actual Volumetric Flow Rate: 16,042 acfm	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: Actual volumetric flow rate are for the two stacks combined. Each stack has a maximum design flow rate of 8,021 acfm. The stack parameters for each of the two stacks are identical.			

EMISSIONS UNIT INFORMATION

Section [1]

H₂S Degasification System

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): Industrial Processes; Chemical Manufacturing; Wastewater Treatment; Wastewater Stripper		
2. Source Classification Code (SCC): 3-01-82-001		3. SCC Units: Thousand Gallons Water treated
4. Maximum Hourly Rate: 240	5. Maximum Annual Rate: 1,500,000	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: Maximum hourly rate based on maximum design rate of 2,000 GPM per degasification unit. Maximum annual rate based on highest 12-month rolling total plus a safety factor.		

Segment Description and Rate: Segment ____ of ____

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

EMISSIONS UNIT INFORMATION

POLLUTANT DETAIL INFORMATION

Section [1]
H₂S Degasification System

Page [1] of [1]
Hydrogen Sulfide – H₂S

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS
(Optional for unregulated emissions units.)**

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: H₂S		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 5.74 lb/hour 17.94 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: 2,867 micrograms H₂S per liter Reference: Based on Water Sampling		7. Emissions Method Code: 1	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <p>H₂S Concentration: $2,867 \mu\text{g/L} \times 1 \text{ lb}/453,592,400 \mu\text{g} \times 3.785412 \text{ L/gal} = 2.39 \times 10^{-5} \text{ lb/gal}$</p> <p>Hourly Emissions: $2.39 \times 10^{-5} \text{ lb/gal} \times 4,000 \text{ gal/min} \times 60 \text{ min/hr} = 5.74 \text{ lb/hr}$</p> <p>Annual Emissions: $2.39 \times 10^{-5} \text{ lb/gal} \times 1,500,000,000 \text{ gal/yr} \times 1 \text{ ton}/2,000 \text{ lb} = 17.94 \text{ TPY}$</p>			
11. Potential, Fugitive, and Actual Emissions Comment: Emission factor based on average H₂S concentration in well water.			

EMISSIONS UNIT INFORMATION

Section [1]
H₂S Degasification System

POLLUTANT DETAIL INFORMATION

Page [1] of [1]
Hydrogen Sulfide – H₂S

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

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions ____ of ____

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

Allowable Emissions Allowable Emissions ____ of ____

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

Allowable Emissions Allowable Emissions ____ of ____

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

EMISSIONS UNIT INFORMATION

Section [1]

H₂S Degasification System

H. CONTINUOUS MONITOR INFORMATION

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

Continuous Monitoring System: Continuous Monitor _____ of _____

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

Continuous Monitoring System: Continuous Monitor _____ of _____

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

EMISSIONS UNIT INFORMATION

Section [1]

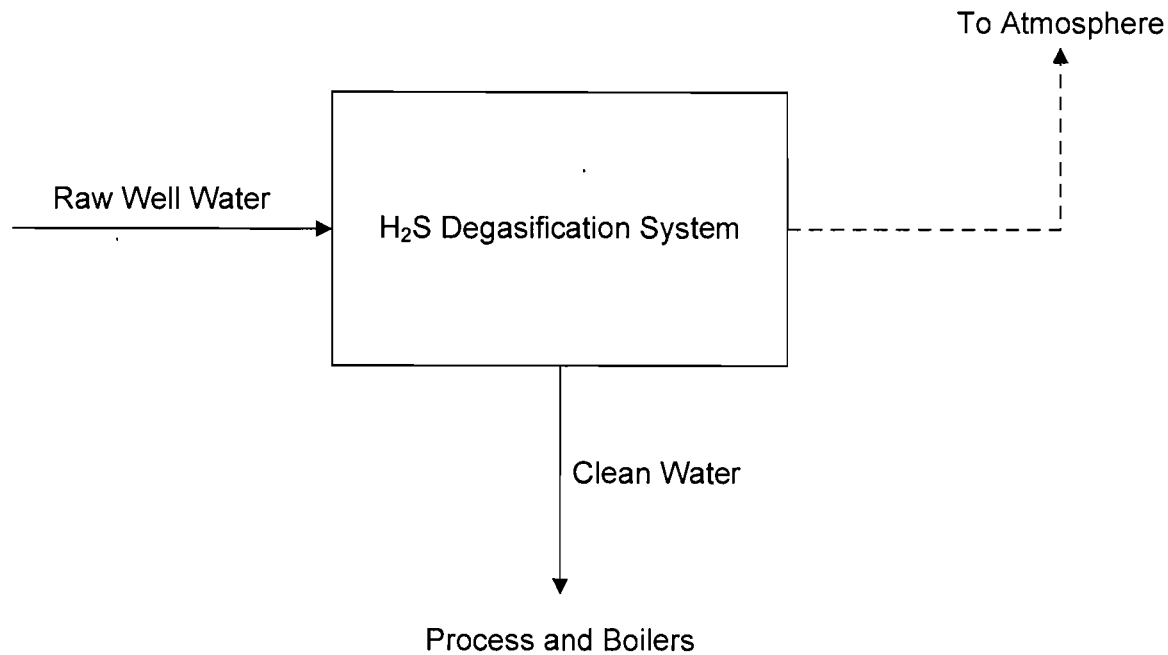
H₂S Degasification System

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated




<p>1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)</p> <p><input checked="" type="checkbox"/> Attached, Document ID: <u>UC-EU1-11</u> <input type="checkbox"/> Previously Submitted, Date _____</p>
<p>2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____</p>
<p>3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____</p>
<p>4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____</p> <p><input checked="" type="checkbox"/> Not Applicable (construction application)</p>
<p>5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____</p> <p><input checked="" type="checkbox"/> Not Applicable</p>
<p>6. Compliance Demonstration Reports/Records:</p> <p><input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____</p> <p><input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____</p> <p><input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____</p> <p><input checked="" type="checkbox"/> Not Applicable</p> <p>Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.</p>
<p>7. Other Information Required by Rule or Statute:</p> <p><input checked="" type="checkbox"/> Attached, Document ID: <u>PSD Report</u> <input type="checkbox"/> Not Applicable</p>

ATTACHMENT UC-EU1-I1
PROCESS FLOW DIAGRAM



Attachment UC-EU1-11
H₂S Degasification System
Process Flow Diagram
U.S. Sugar - Clewiston

Process Flow Legend

- Solid/Liquid 
- Gas 
- Steam 

H₂S Degasification System

Filename: UC-EU1-11

Date: 04/14/11



PSD REPORT



Table of Contents

- 1.0 INTRODUCTION..... 1
- 2.0 PROJECT DESCRIPTION..... 2
 - 2.1 General..... 2
 - 2.2 Proposed Project..... 2
 - 2.3 Air Emissions..... 3
 - 2.4 Stack Parameters..... 4
- 3.0 AIR QUALITY REVIEW REQUIREMENTS 5
 - 3.1 National and State Ambient Air Quality Standards 5
 - 3.2 PSD Requirements 5
 - 3.2.1 General Requirements 5
 - 3.2.2 Control Technology Review 6
 - 3.3 Source Impact Analysis..... 9
 - 3.3.1 Air Quality Monitoring Requirements 11
 - 3.3.2 Source Information/GEP Stack Height..... 12
 - 3.3.3 Additional Impact Analysis 13
 - 3.3.4 Limited PSD Review 13
 - 3.4 Nonattainment Rules..... 13
 - 3.5 Emission Standards 13
 - 3.5.1 New Source Performance Standards..... 13
 - 3.5.2 National Emission Standards for Hazardous Air Pollutants 14
 - 3.5.3 Florida Rules 14
 - 3.5.4 Florida Air Permitting Requirements 14
 - 3.6 Source Applicability..... 14
 - 3.6.1 Area Classification..... 14
 - 3.6.2 PSD Review 14
- 4.0 BEST AVAILABLE CONTROL TECHNOLOGY ANALYSIS..... 16
 - 4.1 Introduction..... 16
 - 4.2 Previous BACT Determinations 16
 - 4.4 Identification of Potentially Applicable Control Technologies 17
 - 4.4.1 Wet Scrubbers..... 17
 - 4.4.2 Thermal Oxidizers 18
 - 4.4.3 Summary 18
 - 4.5 Identification of Technically Feasible Control Alternatives..... 18
 - 4.5.1 Wet Scrubbers..... 18
 - 4.5.2 Thermal Oxidizers 18
 - 4.5.3 Summary 18
 - 4.6 Evaluation of Economic, Environmental, and Energy Impacts of Feasible Technologies 19
 - 4.7 Selection of BACT and Rationale..... 19



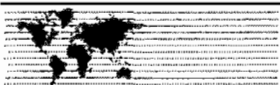


List of Tables

Table 2-1	H ₂ S Concentrations in Well Water, U.S. Sugar – Clewiston Mill H ₂ S Degasification Project
Table 2-2	Amounts of Well Water Pumped from Water Supply Wells, U.S. Sugar – Clewiston Mill H ₂ S Degasification Project
Table 2-3	Potential Emissions and PSD Applicability, U.S. Sugar – Clewiston Mill H ₂ S Degasification Project
Table 3-1	National and State AAQS, Allowable PSD Increments, and Significant Impact Levels
Table 3-2	PSD Significant Emission Rates and <i>De Minimis</i> Monitoring Concentrations
Table 4-1	Cost Effectiveness of Chlorine/Caustic Scrubber for H ₂ S Control, U.S. Sugar – Clewiston Mill H ₂ S Degasification Project

List of Acronyms and Abbreviations

µg/m ³	micrograms per cubic meter
AAQS	ambient air quality standard
acfm	actual cubic feet per minute
BACT	best available control technology
CAA	Clean Air Act
CFR	Code of Federal Regulations
ENP	Everglades National Park
EPA	U.S. Environmental Protection Agency
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
ft	feet
GEP	Good Engineering Practice
GPM	gallons per minute
GPY	gallons per year
H ₂ S	hydrogen sulfide
HAPs	hazardous air pollutants
HSH	highest, second-highest
km	kilometer
lb/hr	pounds per hour
LAER	lowest achievable emission rate
MACT	Maximum Available Control Technology
MGD	million gallons per day
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NO ₂	nitrogen dioxide
NSPS	new source performance standards
NSR	new source review
O ₃	ozone
Pb	lead
PM	particulate matter
PM ₁₀	particulate matter below 10 microns
PSD	prevention of significant deterioration
RBLC	RACT/BACT/LAER Clearinghouse
SIP	Florida's State Implementation Plan
SO ₂	sulfur dioxide
TPY	tons per year
TRS	total reduced sulfur
U.S. Sugar	United States Sugar Corporation



1.0 INTRODUCTION

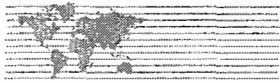
United States Sugar Corporation (U.S. Sugar) owns and operates a sugar mill and refinery located in Clewiston, Hendry County, Florida. The mill and refinery currently operate under Title V Operating Permit No. 0510003-032-AV, issued August 20, 2010.

Sugarcane is harvested from adjacent, neighboring and remote fields in Glades, Hendry, Martin, and Palm Beach counties, and transported to the mill by train. In the mill, sugarcane is cut into small pieces and processed in a series of presses to squeeze juice from the cane. The juice undergoes clarification, separation, evaporation, and crystallization to produce raw, unrefined sugar. In the refinery, raw sugar is decolorized, concentrated, crystallized, dried, conditioned, screened, packaged, stored, and distributed as refined sugar. The fibrous byproduct remaining from the sugarcane is called bagasse and is burned as boiler fuel to provide steam and heating requirements for the mill and refinery. Molasses is also produced as a byproduct. Molasses is stored and processed into an animal feed product for sale.

On February 14, 2008, U.S. Sugar was issued a water permit (Permit No. 284958-001-WC) that authorized the construction of five new water wells and two hydrogen sulfide (H₂S) degasification systems. At the time the water permit was issued, U.S. Sugar believed that no air permit was required for the water wells and H₂S degasification systems. Therefore, the five water wells and both H₂S degasification systems were constructed after the water permit was issued.

After further review, it was determined that the H₂S emissions to the air from the H₂S degasification system would require an air permit. Based on the maximum water usage rate and H₂S concentration in the raw water, the maximum annual H₂S emissions from the degasifiers is estimated to be approximately 18 tons per year (TPY), which is greater than the prevention of significant deterioration (PSD) significant emission rate for total reduced sulfur (TRS) compounds of 10 TPY. Therefore, U.S. Sugar is requesting an after-the-fact PSD permit for the five water wells and two H₂S degasification systems.

This PSD permit application is divided into five major sections. A description of the project, including air emissions, is presented in Section 2.0. The regulatory applicability analysis for the proposed project is presented in Section 3.0. The best available control technology (BACT) analysis is presented in Section 4.0.



2.0 PROJECT DESCRIPTION

2.1 General

U.S. Sugar owns and operates a raw sugar mill and sugar refinery located in Clewiston, Hendry County, Florida. The Clewiston sugar mill receives sugarcane by train from nearby cane fields and processes it into raw sugar. The cane is first cut into small pieces, and is then passed through a series of presses (mills) where the sugar cane juices are squeezed from the cane. The mills are steam or hydraulically driven. The fibrous coproduct material remaining is called bagasse, and is burned in on-site steam boilers for fuel.

The cane juice is further processed and purified through a series of steps involving clarification, separation, evaporation, and crystallization. The final product is raw, unrefined sugar. U.S. Sugar began operating an on-site sugar refinery in 1997, wherein raw sugar is refined into white sugar suitable for human consumption. Steam is also used in the raw sugar refining process. Both raw and refined sugar are shipped off-site to customers.

The Clewiston mill uses water throughout the mill for process water, cooling water, and other uses. Steam is produced in the boilers using this water.

The Clewiston mill is currently operated under Title V Operation Permit No. 0510003-032-AV, issued August 20, 2010.

2.2 Proposed Project

On February 14, 2008, U.S. Sugar was issued a water permit (Permit No. 284958-001-WC). This permit authorized the following activities:

- Installation of five new vertical turbine or submersible well pumps with a capacity of 1,050 gallons per minute (GPM) each (5,250 GPM total)
- Installation of two new H₂S degasification systems using forced draft aeration with a capacity of 2,100 GPM each (4,200 GPM total), or 3.0 million gallons per day (MGD) each (6.0 MGD total)
- Installation of three new transfer pumps with a capacity of 2,100 GPM each
- Installation of one new 600-gallon day tank and one approximately 17,100-gallon horizontal bulk storage tank for the sulfuric acid feed system
- Installation of piping for transport of the raw well water from the wells to the degasification system, and then to the mill

Prior to the installation of the new water wells, U.S. Sugar withdrew water directly from Lake Okeechobee. The addition of the water wells at the U.S. Sugar mill allowed for the elimination of water withdrawn from Lake Okeechobee. The elimination of water drawdown from Lake Okeechobee will help stabilize the lake's water level during periods of drought and low rainfall. The water from Lake Okeechobee also is



much higher in total dissolved solids than the well water, so the addition of the wells has resulted in a reduction of chemical and polymer usage in the facility's wastewater treatment facility.

At the time the water permit was issued, U.S. Sugar believed that no air permit was required for the water wells and H₂S degasification systems. Therefore, the five water wells and both H₂S degasification systems were constructed after the water permit was issued. The final design specifications of the H₂S degasification systems varied slightly from the permitted specifications. The maximum design water flow rate through each of the degasification systems that were installed is 2,000 GPM.

After further review, it was determined that the H₂S emissions to the air from the H₂S degasification system would require an air permit. This determination was based on the following:

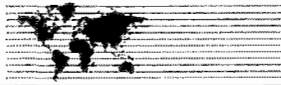
- Daily samples taken from the wells between April 7, 2010 and May 27, 2010 (51 days) showed an average H₂S concentration of 2,867 micrograms per liter (µg/L)
- The total water pumped from the five wells could reach as high as 1,500,000,000 gallons per year
- If all of the H₂S in the water is assumed to be emitted to the air through the degasification process, this would result in maximum H₂S emissions of 5.74 pounds per hour (lb/hr), and 17.94 TPY

The increase in H₂S emissions is greater than the PSD significant emission rate for TRS compounds of 10 TPY. Therefore, U.S. Sugar is requesting an after-the-fact PSD permit for the five water wells and two H₂S degasification systems.

2.3 Air Emissions

Air emissions from each of the two H₂S degasification systems come from a stack serving each degasifier. Emissions from the degasification systems are estimated based on the measured H₂S concentration in the well water, and the maximum annual water usage from the five new wells (Well Nos. 4, 5, 6, 7, and 8). Daily measurements of the H₂S concentration in the well water were taken between April 7, 2010 and May 27, 2010 (see Table 2-1). The average H₂S concentration measured in the well water was 2,867 µg/L.

The total water drawn from each well on a monthly basis since the first four wells came online, in February 2008, through November 2010 is shown in Table 2-2. A 12-month rolling total of the water drawn from the five wells was calculated starting in January 2009, and the highest 12-month rolling total was 1,058,183,000 gallons. To be conservative, maximum future water usage from all five wells was estimated at 1,500,000,000 gallons per year (GPY).



The H₂S degasification systems have a maximum design capacity of 2,000 GPM each, or 4,000 GPM total. Based on the average measured H₂S concentration of 2,867 µg/L, the hourly H₂S emissions are 5.74 lb/hr. Based on the maximum water usage rate of 1,500,000,000 GPY, the maximum annual emissions from the H₂S degasification systems are 17.94 TPY, as shown in Table 2-3.

2.4 Stack Parameters

The stack for each H₂S degasification system is identical. The parameters for each stack are as follows:

- Stack Discharge Type: Vertical
- Stack Height: 30 feet
- Stack Diameter: 3 feet
- Stack Flow Rate: 8,021 actual cubic feet per minute (acfm)



3.0 AIR QUALITY REVIEW REQUIREMENTS

Federal and state air regulatory requirements for a major new or modified source of air pollution are discussed in Sections 3.1 through 3.5. The applicability of these regulations to the H₂S degasification systems is presented in Section 3.6.

3.1 National and State Ambient Air Quality Standards

The existing applicable national and Florida Ambient Air Quality Standards (AAQS) are presented in Table 3-1. Primary national AAQS were promulgated to protect the public health, and secondary national AAQS were promulgated to protect the public welfare from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air. Areas of the country in violation of AAQS are designated as nonattainment areas and new sources to be located in or near these areas may be subject to more stringent air permitting requirements.

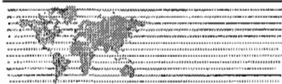
Florida has adopted state AAQS in Rule 62-204.240, Florida Administrative Code (F.A.C.) These standards are the same as the national AAQS, except in the case of sulfur dioxide (SO₂). For SO₂, Florida has adopted the former 24-hour secondary standard of 260 micrograms per cubic meter (µg/m³) and the former annual average secondary standard of 60 µg/m³. In addition, Florida has not yet adopted the revised AAQS for ozone (O₃) or lead (Pb). The U.S. Environmental Protection Agency (EPA) also recently promulgated a 1-hour nitrogen dioxide (NO₂) AAQS, which Florida has not yet adopted. Finally, EPA has adopted a 1-hour SO₂ AAQS.

3.2 PSD Requirements

3.2.1 General Requirements

Under federal and state of Florida PSD review requirements, all new major sources (facilities) and all major modifications to existing major sources (facilities) of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. Florida's State Implementation Plan (SIP), which contains PSD regulations, has been approved by the EPA; therefore, PSD approval authority has been granted to the Florida Department of Environmental Protection (FDEP).

A "major facility" is defined as any one of 28 named source categories that have the potential to emit 100 TPY or more, or any other stationary facility that has the potential to emit 250 TPY or more, of any pollutant regulated under the CAA. Potential to emit means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. Once a new source is determined to be a "major facility" for a particular pollutant, any pollutant emitted in amounts greater than the PSD significant emission rate is subject to PSD review. For an existing major source for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions due to the



modification is greater than the PSD significant emission rate for any pollutant (i.e., a major modification). The PSD significant emission rates are shown in Table 3-2.

The PSD regulations limit the amount of allowable air quality concentration increase over a specified "baseline" concentration for SO₂, particulate matter below 10 microns (PM₁₀), and NO₂. The magnitude of the allowable increment depends on the classification of the area in which a new source (or modification) will be located or have an impact. Three classifications are designated based on criteria established in the CAA Amendments. Congress promulgated areas as Class I (international parks, national wilderness areas, and memorial parks larger than 5,000 acres, and national parks larger than 6,000 acres) or as Class II (all areas not designated as Class I). No Class III areas, which would be allowed greater deterioration than Class II areas, were designated. EPA's class designation and allowable PSD increments are presented in Table 3-1. The state of Florida has adopted EPA's class designations and allowable PSD increments for SO₂, PM₁₀, and NO₂.

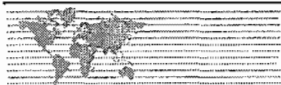
PSD review is used to determine whether significant air quality deterioration will result from the new or modified facility. Federal PSD requirements are contained in Title 40, Part 52.21 of the Code of Federal Regulations (40 CFR 52.21), Prevention of Significant Deterioration of Air Quality. The state of Florida has adopted its own PSD regulations (Rule 62-212.400, F.A.C.), consistent with the federal PSD regulations. Major new facilities and major modifications are required to undergo the following analysis related to PSD for each pollutant emitted in significant amounts:

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

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

3.2.2 Control Technology Review

The control technology review requirements of the federal and state PSD regulations require that all applicable federal and state emission-limiting standards be met, and that BACT be applied to control emissions from the source. The BACT requirements are applicable to all regulated pollutants for which the increase in emissions from the facility exceeds the respective significant emission rate (see Table 3-2).



BACT is defined in 40 CFR 52.21 (b)(12) as:

An emissions limitation (including a visible emission standard) based on the maximum degree of reduction of each pollutant subject to regulation under the Act which would be emitted by any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts, and other costs, determination is achievable through application of production processes and available methods, systems, and techniques) for control of such pollutant. In no event shall application of best available control technology (BACT) result in emissions of any pollutant, which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular part of a source or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice, or operation and shall provide for compliance by means, which achieve equivalent results.

BACT is defined in Rule 62-210.200(40), F.A.C., as:

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

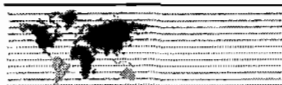




BACT was promulgated within the framework of the PSD requirements in the 1977 amendments of the CAA [Public Law 95-95; Part C, Section 165(a)(4)]. The primary purpose of BACT is to optimize consumption of PSD air quality increments and thereby enlarge the potential for future economic growth without significantly degrading air quality (EPA, 1978; 1980). Guidelines for the evaluation of BACT can be found in EPA's *Guidelines for Determining Best Available Control Technology (BACT)* (EPA, 1978), in the *PSD Workshop Manual-Draft* (EPA, 1980), and in the *New Source Review Workshop Manual-Draft* (EPA, 1990). These guidelines were promulgated by the EPA to provide a consistent approach to BACT and to ensure that the impacts of alternative emission control systems are measured by the same set of parameters. In addition, through implementation of these guidelines, BACT analyses must be conducted on a case-by-case basis, and BACT in one area may differ than BACT in another area. According to the EPA (1980), "BACT analyses for the same types of emissions unit and the same pollutants in different locations or situations may determine that different control strategies should be applied to the different sites, depending on site-specific factors."

BACT requirements are intended to ensure that the control systems incorporated in the design of a facility reflect the latest in control technologies used in a particular industry and take into consideration existing and future air quality in the vicinity of the proposed facility. BACT cannot be less stringent than any applicable new source performance standards (NSPS) for a source. An evaluation of the air pollution control techniques and systems is required, including a cost-benefit analysis of alternative control technologies capable of achieving a higher degree of emission reduction than the proposed control technology. The cost-benefit analysis requires the documentation of the material, energy, and economic penalties associated with the proposed and alternative control systems, as well as the environmental benefits derived from these systems. A decision on BACT is to be based on sound judgment, balancing environmental benefits with energy, economic, and other impacts (EPA, 1978).

The EPA has issued a draft guidance document on the top-down approach entitled, *Top-Down Best Available Control Technology Guidance Document* (EPA, 1990). EPA's BACT guidelines include a "top-down" approach to determine the "best available control technology" for application at a particular facility. These guidelines discuss the BACT as a "case-by-case" analysis to identify the most stringent emission control technologies that have been applied to the same or similar source categories, and then to select a BACT emission rate, taking into account technical feasibility and energy, environmental, and economic impacts specific to the project. The most effective control alternative not rejected from the analysis is proposed as BACT.



EPA's BACT guidelines establish a specific five-step analytical process for conducting a BACT determination. The five steps consist of:

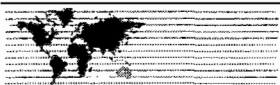
1. Identifying the potentially applicable control technologies for the proposed process or source
2. Evaluating the technical options for feasibility taking into consideration source-specific factors
3. Comparing the remaining control technologies based on effectiveness
4. Evaluating the remaining options taking into consideration energy, environmental and economic impacts
5. Selecting BACT based on the above analyses

3.3 Source Impact Analysis

A source impact analysis must be performed for a proposed major source or major modification subject to PSD review, and for each pollutant for which the increase in emissions exceeds the PSD significant emission rate (Table 3-2). PSD regulations specifically provide for the use of atmospheric dispersion models in performing impact analyses, estimating baselines and future air quality levels, and determining compliance with AAQS and allowable PSD increments. Models designated by the EPA must normally be used in performing the impact analysis. Specific applications for other than EPA-approved models require EPA's consultation and prior approval. Guidance for the use and application of dispersion models is presented in EPA's publication *Guideline on Air Quality Models* (EPA, 1980).

To address compliance with AAQS and PSD Class II increments, a source impact analysis must be performed for the criteria pollutants. However, this analysis is not required for a specific pollutant if the net increase in impacts as a result of the new source or modification is below significant impact levels, as presented in Table 3-1. The significant impact levels are threshold levels that are used to determine the level of air impact analyses needed for the project. If the new or modified source's impacts are predicted to be less than significant, then the source's impacts will not have a significant adverse affect on air quality, and additional modeling with other sources is not required. However, if the source's impacts are predicted to be greater than the significant impact levels, additional modeling with other sources is required to demonstrate compliance with AAQS and PSD increments. The EPA has proposed significant impact levels for Class I areas as follows:

SO ₂	3-hour	1 µg/m ³
	24-hour	0.2 µg/m ³
	Annual	0.1 µg/m ³
PM ₁₀	24-hour	0.3 µg/m ³
	Annual	0.2 µg/m ³
NO ₂	Annual	0.1 µg/m ³



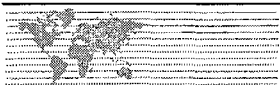
Although these levels have not been officially promulgated as part of the PSD review process and may not be binding for states in performing PSD reviews, the proposed levels serve as a guideline in assessing a source's impact in a Class I area. EPA's action to incorporate Class I significant impact levels in the PSD process is part of implementing the new source review (NSR) provisions of the 1990 CAA Amendments. Because the process of developing the regulations will be lengthy, the EPA believes that the proposed rules concerning the significant impact levels are appropriate to assist states in implementing the PSD permitting process. The FDEP has accepted the use of these significant impact levels. Source impact analyses for PSD Class I areas are performed if the source is within 200 kilometers (km) of the Class I Area.

Various lengths of record for meteorological data can be used for impact analysis. A 5-year period is normally used with corresponding evaluation of highest, second-highest (HSH) short-term concentrations for comparison to AAQS or PSD increments. The meteorological data are selected based on an evaluation of measured weather data from a nearby weather station that represents weather conditions at the project site. The criteria used in this evaluation include determining the distance of the project site to the weather station, comparing topographical and land use features between the locations, and determining availability of necessary weather parameters.

The term "HSH" refers to the highest of the second-highest concentrations at each receptor for each year (i.e., the highest concentration at each receptor is discarded, and the highest of the remaining concentrations at each receptor is identified). The second-highest concentration is important because short-term AAQS specify that the standard cannot be exceeded at any location more than once a year. If fewer than 5 years of meteorological data are used in the modeling analysis, the highest concentration at each receptor normally must be used for comparison to air quality standards.

Similarly, the term "H6H" refers to the highest of the sixth-highest concentrations at each receptor over 5 years (i.e., the six highest concentrations at each receptor for 5 years combined are identified, and the highest five concentrations at each receptor are discarded; the highest remaining concentration is identified).

The term "baseline concentration" evolves from federal and state PSD regulations and refers to a concentration level corresponding to a specified baseline date and certain additional baseline sources.



By definition, in the PSD regulations as amended August 7, 1980, baseline concentration means the ambient concentration level that exists in the baseline area at the time of the applicable baseline date. A baseline concentration is determined for each pollutant for which a baseline date is established and includes:

1. The actual emissions representative of facilities in existence on the applicable date
2. The allowable emissions of major stationary facilities that commenced before January 6, 1975, for SO₂ and PM₁₀ concentrations, or February 8, 1988, for NO₂ concentrations, but that were not in operation by the applicable baseline date

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

1. Actual emissions from any major stationary facility on which construction commenced after January 6, 1975, for SO₂ and PM₁₀ concentrations, and after February 8, 1988, for NO₂ concentrations
2. Actual emission increases and decreases at any stationary facility occurring after the baseline date

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

1. The major facility baseline date, which is January 6, 1975, in the cases of SO₂ and PM₁₀, and February 8, 1988, in the case of NO₂
2. The minor facility baseline date, which is the earliest date after the trigger date on which a major stationary facility or major modification subject to PSD regulations submits a complete PSD application
3. The trigger date, which is August 7, 1977, for SO₂ and PM₁₀, and February 8, 1988, for NO₂

The minor source baseline date for SO₂ and particulate matter (PM) total suspended particulate (TSP) has been set as December 27, 1977, for the entire state of Florida [Rules 62-204.200(22) and 204.360, F.A.C.]. The minor source baseline for NO₂ has been set as March 28, 1988 [Rules 62-204.200(22) and 204.360, F.A.C.]. It should be noted that references to PM (TSP) are also applicable to PM₁₀.

3.3.1 Air Quality Monitoring Requirements

In accordance with requirements of 40 CFR 52.21(m) and Rule 62-212.400(5)(f), F.A.C., any application for a PSD permit must contain an analysis of continuous ambient air quality data in the area affected by the proposed major stationary facility or major modification. For a new major facility, the affected pollutants are those that the facility would potentially emit in significant amounts. For a major modification, the pollutants are those for which the net emissions increase exceeds the significant emission rate (see Table 3-2).



Ambient air monitoring for a period of up to 1 year is generally appropriate to satisfy the PSD monitoring requirements. A minimum of 4 months of data is required. Existing data from the vicinity of the proposed source may be used if the data meet certain quality assurance requirements; otherwise, additional data may need to be gathered. Guidance in designing a PSD monitoring network is provided in EPA's *Ambient Monitoring Guidelines for Prevention of Significant Deterioration* (EPA, 1987a).

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

3.3.2 Source Information/GEP Stack Height

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

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

1. 65 meters, or
2. A height established by applying the formula:
$$H_g = H + 1.5L$$
where: H_g = GEP stack height,
 H = Height of the structure or nearby structure, and
 L = Lesser dimension (height or projected width) of nearby structure(s); or
3. A height demonstrated by a fluid model or field study.

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

The stack height regulations also allow increased GEP stack height beyond that resulting from the above formula in cases where plume impaction occurs. Plume impaction is defined as concentrations measured



or predicted to occur when the plume interacts with elevated terrain. Elevated terrain is defined as terrain that exceeds the height calculated by the GEP stack height formula.

3.3.3 Additional Impact Analysis

In addition to air quality impact analyses, federal and state of Florida regulations require analyses of the impairment to visibility and the impacts on soils and vegetation that would occur as a result of the proposed source [40 CFR 52.21(o) and Rule 62-212.400(8), F.A.C.]. These analyses are to be conducted primarily for PSD Class I areas. Impacts as a result of general commercial, residential, industrial, and other growth associated with the source also must be addressed. These analyses are required for each pollutant emitted in significant amounts (Table 3-2).

3.3.4 Limited PSD Review

An exemption from many of the PSD review requirements is contained in Rule 62-212.400(3)(d), F.A.C.:

The requirements of subsections 62-212.400(5), (7), and (8), F.A.C., as they relate to any maximum allowable increase for a Class II area shall not apply to a major modification at a stationary source that was in existence on March 1, 1978, if the net increase in allowable emissions of each PSD pollutant from the modification after the application of best available control technology would be less than 50 tons per year.

This rule provides that facilities that have been in existence since March 1, 1978, and that are subject to preconstruction review for a proposed modification that results in a net emissions increase of all pollutants listed in Table 212.440-2, Regulated Air Pollutants – Significant Emission Rates, F.A.C., of less than 50 TPY after the application of BACT, are exempt from the requirements of Rule 62-212.400(5), (7), and (8), F.A.C. This exempts such modifications from all requirements of PSD review except for application of BACT, for all pollutants that exceed the PSD significant emission rate.

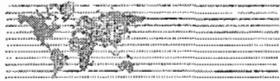
3.4 Nonattainment Rules

Based on the current nonattainment provisions (Rule 62-212.500, F.A.C.), all major new facilities and modifications to existing major facilities located in a nonattainment area must undergo nonattainment review. A new major facility is required to undergo this review if the proposed pieces of equipment have the potential to emit 100 TPY or more of the nonattainment pollutant. The U.S. Sugar Clewiston sugar mill is located in Hendry County, which is classified as an attainment area for all criteria pollutants (Rule 62-204.340, F.A.C.).

3.5 Emission Standards

3.5.1 New Source Performance Standards

The NSPS are a set of national emission standards that apply to specific categories of new sources. As stated in the CAA Amendments of 1977, these standards "shall reflect the degree of emission limitation and the percentage reduction achievable through application of the best technological system of



continuous emission reduction the Administrator determines has been adequately demonstrated.” The NSPS are contained in 40 CFR 60. There are no NSPS that currently apply to an H₂S degasification system.

3.5.2 National Emission Standards for Hazardous Air Pollutants

EPA has issued National Emission Standards for Hazardous Air Pollutants (NESHAPs) for various source categories under 40 CFR 63. These standards are referred to as Maximum Achievable Control Technology (MACT) standards because they require that MACT be applied to control the emissions of hazardous air pollutants (HAPs). There are no HAP emissions from the H₂S degasification systems, and therefore no applicable NESHAPs requirements.

3.5.3 Florida Rules

There are no Florida rules that cover H₂S degasification systems, and therefore no additional requirements or emissions standards in Florida.

3.5.4 Florida Air Permitting Requirements

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

3.6 Source Applicability

3.6.1 Area Classification

The Clewiston sugar mill is located in Hendry County, which has been designated by the EPA and FDEP as an attainment area for all criteria pollutants. Hendry and surrounding counties are designated as PSD Class II areas for SO₂, PM₁₀, and NO₂. The nearest Class I area to the site is the Everglades National Park (ENP), located about 102 km (60 miles) south of the Clewiston sugar mill.

3.6.2 PSD Review

Pollutant Applicability

The existing U.S. Sugar Clewiston sugar mill is considered to be a “major existing facility” because the potential emissions of several pollutants from the mill are greater than 100 TPY. Therefore, PSD review is required for any modification that results in a net increase in emissions greater than the PSD significant emission rates.



The potential annual emissions from the H₂S degasification systems at the Clewiston sugar mill are presented in Table 2-3. As shown, the potential emissions of 17.94 TPY exceed the PSD significant emission rate for H₂S of 10 TPY. As a result, PSD review applies for this pollutant. Based on the limited PSD review requirements described in Section 3.3.4, a BACT analysis was performed for the degasification system. The BACT analysis is presented in Section 4.0.

Ambient Monitoring Analysis

Based on the increase in emissions from the Clewiston sugar mill (see Table 2-3), a preconstruction ambient monitoring analysis is required for H₂S, and monitoring data is required to be submitted as part of the application. However, as discussed in Section 3.3.1, if the net increase in impacts of a pollutant is less than the applicable *de minimis* monitoring concentration, then an exemption from submittal of preconstruction ambient monitoring data may be obtained [40 CFR 52.21(i)(8) and Rule 62-212.400(3)(e), F.A.C.]. In addition, if the EPA has not established an acceptable ambient monitoring method for the pollutant, monitoring is not required.

The EPA has not established an acceptable ambient monitoring method for H₂S; therefore, an ambient monitoring analysis is not required.

GEP Stack Height Impact Analysis

The H₂S degasification systems have stack heights of 30 feet (ft). The maximum stack height does not exceed the *de minimis* GEP stack height of 65 meters (213 ft), and therefore is in compliance with the GEP stack height rules.



4.0 BEST AVAILABLE CONTROL TECHNOLOGY ANALYSIS

4.1 Introduction

The 1977 CAA Amendments established requirements for the approval of pre-construction permit applications under the PSD program. As discussed in Subsection 3.2, one of these requirements is that BACT be installed for applicable pollutants. This section presents the proposed BACT for these pollutants. The approach to the BACT analysis is based on the regulatory definitions of BACT, as well as consideration of EPA's current policy guidelines requiring a "top-down" approach. A BACT determination requires a site-specific analysis of the technical, economic, environmental, and energy impacts of the proposed and alternative control technologies (see Rule 62-212.400, F.A.C.).

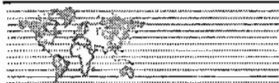
The "top-down" approach consists of the following five steps, as described in the *NSR Workshop Manual-Draft* (EPA, 1990):

- 1) Identification of all available control technologies
- 2) Elimination of technically infeasible control options
- 3) Ranking of the technically feasible control technologies based on their effectiveness
- 4) Evaluation of the economic, environmental, and energy impacts of the feasible control options
- 5) Selection of BACT based on consideration of the above factors

The PSD regulations require that new major stationary sources and major modifications to existing major sources undergo a control technology review for each pollutant that may potentially be emitted above significant amounts. In the case of the H₂S degasification systems, H₂S emissions require a BACT analysis utilizing the top-down approach. In this case, BACT is an emission limitation that meets the maximum degree of emission reduction after taking into account U.S. Sugar's specific economic, environmental and energy impacts, as well as consideration of the application of the technologies proposed. If it is impractical to impose an emission limit, a work practice standard may be specified.

4.2 Previous BACT Determinations

As part of the BACT analysis, a review was performed of previous BACT determinations for H₂S or TRS emissions from degasification systems and other similar processes listed in the RACT/BACT/LAER Clearinghouse (RBLC) on EPA's web page. BACT determinations issued within the last 10 years (i.e., since 2000) were searched. However, no information was found in the clearinghouse for TRS or H₂S emissions from degasification systems or similar processes.



4.3 Previous Permits Issued in Florida

The FDEP air permit database was also searched in order to identify other water treatment or water disposal facilities in Florida that have controls in place for H₂S emissions. The following two facilities were identified:

- Miami-Dade Water and Sewer Department (Permit No. 0250060-007-AV)
- City of Largo Environmental Services Department (Permit No. 1030060-007-AV)

The Miami-Dade Water and Sewer Department operates a publicly owned treatment works (POTW) that processes a maximum of 49 billion GPY of water, based on a design treatment capacity of 135 MGD. All liquid process units are covered and vented to a wet scrubbing system to reduce the odor associated with H₂S emissions, but the wet scrubbing system is not considered to be an air pollution control device. The Miami-Dade facility is approximately 50 times larger than the U.S. Sugar H₂S degasification system in terms of water treatment capacity.

The City of Largo Environmental Services Department operates a wastewater reclamation facility. As part of its pelletizing building, which contains a sewage sludge drying operation, a wet scrubbing system is included to control odor associated with H₂S emissions from the process. However, the operating permit (Permit No. 1030060-007-AV) states that the odor control system is allowed to remain in cold storage until an odor complaint is received.

It is believed that there are many more H₂S degasification systems in operation at POTW facilities and industrial/electric utility plants throughout Florida, but these systems are generally not listed in their Title V operating permits. However, most of these Title V operating permits have "wastewater liquid processes" included in the list of unregulated emissions units, which most likely include H₂S degasification systems.

4.4 Identification of Potentially Applicable Control Technologies

This section identifies potentially applicable H₂S control technologies, based upon the review conducted above, and review of the published literature regarding H₂S control devices.

4.4.1 Wet Scrubbers

Wet scrubbers are systems that involve removal of the gaseous H₂S using liquid scrubbing media. The gaseous H₂S is captured in the liquid by several different mechanisms. Wet scrubbers create a liquid waste that may require additional treatment prior to disposal. Typical wet scrubber types are as follows:

- | | |
|---------------------|----------------|
| ■ Spray Chamber | ■ Venturi |
| ■ Packed-Bed | ■ Orifice |
| ■ Impingement Plate | ■ Condensation |



Of the types of wet scrubbers listed above, only packed-bed scrubbers work efficiently to remove gaseous (non-particulate) pollutants.

4.4.2 Thermal Oxidizers

Incineration or thermal oxidation is the process of oxidizing combustible materials by raising the temperature of the material above its auto-ignition point in the presence of oxygen, and maintaining it at high temperature for sufficient time to complete combustion. In the case of H_2S , this combustion results in water and SO_2 emissions to the atmosphere. Time, temperature, turbulence (for mixing), and the availability of oxygen all affect the rate and efficiency of the combustion process. The auto-ignition temperature of H_2S is 500 degrees Fahrenheit ($^{\circ}F$). Therefore, combustion of gases containing H_2S would require an auxiliary fuel source. The use of catalytic oxidation could reduce the temperature requirement for H_2S oxidation.

Thermal oxidation systems include direct flame incinerators, thermal oxidizers, and afterburners. Afterburners are normally used to more completely combust the exhaust gases from an incinerator, where the combustion is incomplete.

4.4.3 Summary

The potentially applicable control technologies for the H_2S degasification systems are wet scrubbers and thermal oxidizers.

4.5 Identification of Technically Feasible Control Alternatives

In this section, the technical feasibility of each potentially applicable control technology is assessed. Those technologies that are found to be technically infeasible will not be considered further in the BACT analysis.

4.5.1 Wet Scrubbers

Wet scrubbers are technically feasible for the H_2S degasification systems.

4.5.2 Thermal Oxidizers

Thermal oxidizers are not technically feasible for the H_2S degasification systems. The gas exiting the degasification systems is saturated with water vapor, and the concentration of H_2S in the gas stream would be too low to maintain an effective combustion oxidation temperature.

4.5.3 Summary

The only technically feasible TRS control technology for the H_2S degasification systems is a wet scrubber to remove H_2S from the gas stream. The estimated control efficiency in a wet scrubber is 99 percent.



4.6 Evaluation of Economic, Environmental, and Energy Impacts of Feasible Technologies

Wet scrubbers are feasible for the H₂S degasification systems. The cost analysis for a chlorine/caustic wet scrubbing system is shown in Table 4-1. The capital costs include the following:

- Direct capital costs
 - Purchased equipment costs (vendor quote for the scrubber and pumps, instrumentation and controls, freight, and taxes)
 - Estimated costs of ductwork (degasifiers to scrubber) and blower (required for increased pressure drop across scrubber)
 - Direct installation costs (foundation and structure support, handling and erection, electrical, piping, painting, and insulation)
- Indirect capital costs
 - Engineering, construction and field expenses, contractor fees, start-up, performance tests, and contingencies

The total capital investment (direct capital costs plus indirect capital costs) is approximately \$423,000. Using a capital recovery cost factor of 0.1098 (15-year depreciation at 7 percent per year), the capital recovery costs are approximately \$46,500 per year. The annual operating costs include the following:

- Direct operating costs
 - Operating Labor (operator and supervisor), maintenance (labor and materials), operating materials (aqueous sodium hydroxide reagent), wastewater disposal, and electricity
- Indirect operating costs
 - Overhead, property taxes, insurance, and administration

The total annual operating costs are estimated at approximately \$134,000 per year. Combining the capital recovery costs and the annual operating costs results in a total annual cost of the scrubbing system of approximately \$181,000 per year.

For the degasification systems, the wet scrubber would reduce H₂S emissions by 99 percent, from 17.94 TPY to 0.18 TPY, for a 17.77 TPY reduction. Therefore, the cost effectiveness of a wet scrubber for H₂S control is approximately \$10,200 per ton of H₂S reduced. The cost of the wet scrubber is therefore extremely high. In addition, a wet scrubber has a high energy usage, and creates a liquid waste stream that must be treated and properly disposed.

4.7 Selection of BACT and Rationale

Based on the identification of potential control technologies, the technical evaluation of each control device, and economic, environmental, and energy impacts of any technically feasible control technology,



no add-on controls for H₂S emissions from the degasification systems represents BACT. The potential H₂S emissions from the degasification system are only 17.94 TPY. The annual cost of the wet scrubber option is approximately \$181,000 per year, and the cost effectiveness is very high at approximately \$10,200 per ton of H₂S removed.

There are no ambient air quality standards for H₂S, and H₂S is not classified as a HAP. Therefore, the only potential air quality issue is objectionable odors. Since U.S. Sugar has begun operating the water wells in 2008, there have been no known odor complaints associated with the H₂S degasification systems. However, if the wet scrubbing system were required for H₂S removal, wastewater created by the wet scrubbing system would be sent to U.S. Sugar's on-site pond system. The additional sulfur added to the ponds would increase the likelihood of creating an objectionable odor from the ponds due to the anaerobic degradation of the sulfur compounds.

In conclusion, BACT for the H₂S degasification systems is no add-on controls.

TABLES

**TABLE 2-1
H₂S CONCENTRATIONS IN WELL WATER
U.S. SUGAR - CLEWISTON MILL H₂S DEGASIFICATION PROJECT**

Test Date	Concentration (µg/L)	Test Date	Concentration (µg/L)
4/7/2010	2,715	5/1/2010	2,815
4/8/2010	3,800	5/2/2010	2,185
4/9/2010	2,430	5/3/2010	2,415
4/10/2010	2,730	5/4/2010	3,980
4/11/2010	3,100	5/5/2010	3,655
4/12/2010	2,725	5/6/2010	4,520
4/13/2010	1,905	5/7/2010	2,800
4/14/2010	2,310	5/8/2010	2,685
4/15/2010	2,650	5/9/2010	2,600
4/16/2010	2,930	5/10/2010	4,070
4/17/2010	3,180	5/11/2010	2,480
4/18/2010	3,010	5/12/2010	1,670
4/19/2010	2,850	5/13/2010	2,870
4/20/2010	2,390	5/14/2010	2,650
4/21/2010	1,435	5/15/2010	2,435
4/22/2010	2,815	5/16/2010	2,630
4/23/2010	2,945	5/17/2010	2,045
4/24/2010	2,700	5/18/2010	2,180
4/25/2010	2,640	5/19/2010	3,875
4/26/2010	2,820	5/20/2010	3,140
4/27/2010	2,015	5/21/2010	2,990
4/28/2010	1,575	5/22/2010	2,630
4/29/2010	2,840	5/23/2010	3,010
4/30/2010	2,880	5/24/2010	4,495
		5/25/2010	3,975
		5/26/2010	3,540
		5/27/2010	4,485
Average:			2,867

**TABLE 2-2
AMOUNTS OF WELL WATER PUMPED FROM WATER SUPPLY WELLS
U.S. SUGAR - CLEWISTON MILL H₂S DEGASIFICATION PROJECT**

Date	Well Volume Pumped (gallons)					Total	
	Well 4	Well 5	Well 6	Well 7	Well 8	Monthly	12-Month Rolling
	January 2008	--	--	--	--	--	--
February 2008	10,440,250	12,044,500	12,354,250	9,295,500	--	44,134,500	--
March 2008	10,440,250	12,044,500	12,354,250	9,295,500	--	44,134,500	--
April 2008	10,440,250	12,044,500	12,354,250	9,295,500	--	44,134,500	--
May 2008	10,440,250	12,044,500	12,354,250	9,295,500	--	44,134,500	--
June 2008	13,981,000	13,960,000	11,533,000	13,278,000	--	52,752,000	--
July 2008	8,102,000	7,351,000	8,170,000	8,044,000	--	31,667,000	--
August 2008	24,132,000	24,064,000	24,202,000	11,540,000	--	83,938,000	--
September 2008	20,914,000	20,998,000	19,393,000	5,400,000	--	66,705,000	--
October 2008	26,805,000	25,825,000	26,080,000	25,649,000	--	104,359,000	--
November 2008	20,831,000	22,082,000	22,126,000	21,760,000	--	86,799,000	--
December 2008	23,918,000	24,221,000	23,971,000	23,900,000	--	96,010,000	--
January 2009	24,929,000	24,908,000	25,190,000	24,887,000	--	99,914,000	798,682,000
February 2009	22,324,000	23,102,000	3,700,000	26,046,000	--	75,172,000	829,719,500
March 2009	19,120,000	16,185,000	13,446,000	21,355,000	--	70,106,000	855,691,000
April 2009	22,082,000	24,478,000	20,677,000	22,830,000	--	90,067,000	901,623,500
May 2009	14,659,000	26,462,000	25,057,000	13,534,000	--	79,712,000	937,201,000
June 2009	13,793,000	12,503,000	8,524,000	11,062,000	--	45,882,000	930,331,000
July 2009	14,254,000	12,921,000	8,808,000	11,431,000	--	47,414,000	946,078,000
August 2009	13,921,000	14,394,000	10,835,000	12,010,000	--	51,160,000	913,300,000
September 2009	18,206,000	20,250,000	18,605,000	16,135,000	--	73,196,000	919,791,000
October 2009	19,828,000	22,471,000	22,488,000	25,064,000	--	89,851,000	905,283,000
November 2009	17,754,000	20,394,000	24,751,000	24,494,000	--	87,393,000	905,877,000
December 2009	22,023,000	25,301,000	30,047,000	29,596,000	--	106,967,000	916,834,000
January 2010	19,976,000	20,438,000	24,353,000	23,069,000	--	87,836,000	904,756,000
February 2010	18,660,000	21,878,000	25,002,000	24,817,000	--	90,357,000	919,941,000
March 2010	21,488,000	21,490,000	24,802,000	28,407,000	--	96,187,000	946,022,000
April 2010	17,633,000	23,709,000	25,160,000	21,027,000	--	87,529,000	943,484,000
May 2010	13,878,000	17,188,000	20,289,000	11,714,000	--	63,069,000	926,841,000
June 2010	11,000,000	16,967,000	16,192,000	14,037,000	--	58,196,000	939,155,000
July 2010	15,826,000	18,716,000	16,656,000	16,386,000	--	67,584,000	959,325,000
August 2010	16,923,000	19,921,000	17,221,000	16,989,000	--	71,054,000	979,219,000
September 2010	20,325,000	18,059,000	18,214,000	17,941,000	--	74,539,000	980,562,000
October 2010	30,575,000	25,080,000	23,496,000	28,914,000	8,720,000	116,785,000	1,007,496,000
November 2010	35,141,000	28,227,000	26,356,000	33,068,000	15,288,000	138,080,000	1,058,183,000
						Maximum	1,058,183,000

**TABLE 2-3
POTENTIAL EMISSIONS AND PSD APPLICABILITY
U.S. SUGAR - CLEWISTON MILL H₂S DEGASIFICATION PROJECT**

Water Pump Rate		H ₂ S Concentration (µg/L) ^c	H ₂ S Emissions	
(GPM) ^a	(GPY) ^b		(lb/hr)	(TPY)
4,000	1,500,000,000	2,867	5.74	17.94
PSD Significant Emission Rate				10
PSD Review Triggered?				Yes

^a Based on the maximum design capacity of 2,000 GPM per H₂S degasifier.

^b Based on the annual water usage from Table 2-2. Represents highest projected water usage from the five new water wells

^c Based on the average H₂S concentration from Table 2-2.

**TABLE 3-1
NATIONAL AND STATE AAQS, ALLOWABLE PSD INCREMENTS, AND SIGNIFICANT IMPACT LEVELS**

Pollutant	Averaging Time	AAQS ($\mu\text{g}/\text{m}^3$)			PSD Increments ($\mu\text{g}/\text{m}^3$)		Significant Impact Levels (mg/m^3) ^b
		National Primary ^a	National Secondary ^a	Florida ^a	Class I ^a	Class II ^a	
SO ₂	Annual Arithmetic Mean	80	NA	80	2	20	1
	24-Hour Maximum	365	NA	365	5	91	5
	3-Hour Maximum	NA	1,300	1,300	25	512	25
	1-Hour Maximum ^d	196	NA	NA	NA	NA	NA
PM ₁₀ ^c	Annual Arithmetic Mean	NA	NA	50	4	17	1
	24-Hour Maximum	150	150	150	8	30	5
PM _{2.5} ^c	Annual Arithmetic Mean	15	15	15	NA	NA	NA
	24-Hour Maximum	35	35	35	NA	NA	NA
NO ₂	Annual Arithmetic Mean	100	100	100	2.5	25	1
	1-Hour Maximum ^d	188	NA	NA	NA	NA	NA
CO	8-Hour Maximum	10,000	10,000	10,000	NA	NA	500
	1-Hour Maximum	40,000	40,000	40,000	NA	NA	2,000
Ozone ^c	8-Hour Maximum	157	157	157	NA	NA	NA
Lead	Calendar Quarter	1.5	1.5	1.5	NA	NA	NA

Note: Particulate matter (PM₁₀) = particulate matter with aerodynamic diameter less than or equal to 10 micrometers.

Particulate matter (PM_{2.5}) = particulate matter with aerodynamic diameter less than or equal to 2.5 micrometers.

NA = Not applicable, i.e., no standard exists.

^a Short-term maximum concentrations are not to be exceeded more than once per year, except where noted.

^b Maximum concentrations, which if exceeded, may require additional review. Significant impact levels for PM_{2.5} are proposed but not final. Significant impact level for 1-hour average NO₂ is not yet proposed.

^c On March 27, 2008, EPA promulgated revised AAQS for particulate matter and ozone. The ozone standard was modified to be 0.075 ppm (147 $\mu\text{g}/\text{m}^3$); achieved when 3-year average of 4th highest value is 0.075 ppm or less. On October 17, 2006, the PM_{2.5} standards were finalized: 24-hour standard of 35 $\mu\text{g}/\text{m}^3$ (3-year average of 98th percentile) and annual standard of 15 $\mu\text{g}/\text{m}^3$ (3-year average at community monitors). The annual PM₁₀ AAQS was revoked.

^d On February 9, 2010, the 1-hour average NO₂ standard was finalized, which is 100 ppb or 188 $\mu\text{g}/\text{m}^3$ (3-year average 98th percentile). On June 2, 2010, the 1-hour average SO₂ standard was finalized, which is 75 ppb or 196 $\mu\text{g}/\text{m}^3$ (3-year average 99th percentile).

Sources: Federal Register, Vol. 43, No. 118, June 19, 1978.

40 CFR 50; 40 CFR 52.21. GEPD Rules for Air Quality Control, Florida Chapter 62.204, F.A.C.

**TABLE 3-2
PSD SIGNIFICANT EMISSION RATES
AND DE MINIMIS MONITORING CONCENTRATIONS**

Pollutant	Regulated Under	Significant Emission Rate (TPY)	De Minimis Monitoring Concentration ($\mu\text{g}/\text{m}^3$) ^a
Sulfur Dioxide	NAAQS, NSPS	40	13, 24-hour
Particulate Matter [PM(TSP)]	NSPS	25	NA
Particulate Matter (PM ₁₀)	NAAQS	15	10, 24-hour
Particulate Matter (PM _{2.5}) ^c	NAAQS	10, or	NA
	NAAQS	40 of SO ₂ , or	NA
	NAAQS	40 of NO _x	NA
Nitrogen Dioxide	NAAQS, NSPS	40	14, annual
Carbon Monoxide	NAAQS, NSPS	100	575, 8-hour
Volatile Organic Compounds (Ozone)	NAAQS, NSPS	40	100 TPY ^b
Lead	NAAQS	0.6	0.1, 3-month
Sulfuric Acid Mist	NSPS	7	NM
Total Fluorides	NSPS	3	0.25, 24-hour
Total Reduced Sulfur	NSPS	10	10, 1-hour
Reduced Sulfur Compounds	NSPS	10	10, 1-hour
Hydrogen Sulfide	NSPS	10	0.2, 1-hour
Mercury	NESHAP	0.1	0.25, 24-hour
MWC Organics (dioxin/furans)	NSPS	3.5x10 ⁻⁶	NM
MWC Metals (as PM)	NSPS	15	NM
MWC Acid Gases (SO ₂ + HCl)	NSPS	40	NM
MSW Landfill Gases (as NMOC)	NSPS	50	NM

Note: Ambient monitoring requirements for any pollutants may be exempted if the impact of the increase is less than *de minimis* monitoring concentrations.

NA = not applicable

NM = no ambient measurement method established; therefore, no *de minimis* concentration has been established

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

MWC = municipal waste combustor

MSW = municipal solid waste

NMOC = non-methane organic compounds

^a Short-term concentrations are not to be exceeded

^b No *de minimis* concentration; an increase in VOC emissions of 100 TPY or more will require a monitoring analysis for ozone

^c Any emission rate of these pollutants.

Source: 40 CFR 52.21

Rule 62-212.400, F.A.C.

**TABLE 4-1
COST EFFECTIVENESS OF CHLORINE/CAUSTIC SCRUBBER FOR H₂S CONTROL
U.S. SUGAR - CLEWISTON MILL H₂S DEGASIFICATION PROJECT**

Cost Items	Cost Factors ^a	Cost (\$)
DIRECT CAPITAL COSTS (DCC):		
Purchased Equipment Cost (PEC)		
Caustic Scrubber & Pump skid	Vendor Quote ^b	130,000
Ducting	Engineering Estimate	20,000
Blower	Engineering Estimate	15,000
Instruments and Controls	10% of Scrubber Cost	13,000
Freight	5% of Scrubber Cost	6,500
Taxes	6% of Scrubber Cost	7,800
Total PEC:		192,300
Direct Installation Costs		
Foundation and Structure Support	12% of PEC	23,076
Handling & Erection	40% of PEC	76,920
Electrical	1% of PEC	1,923
Piping	30% of PEC	57,690
Painting & Insulation	2% of PEC	3,846
Total Direct Installation Costs		163,455
Total DCC:	Total PEC + Total Direct Installation Costs	355,755
INDIRECT CAPITAL COSTS (ICC):		
Engineering	10% of PEC	19,230
Construction and field expenses	10% of PEC	19,230
Contractor Fees	10% of PEC	19,230
Start-Up	1% of PEC	1,923
Performance test	1% of PEC	1,923
Contingencies	3% of PEC	5,769
Total ICC:		67,305
TOTAL CAPITAL INVESTMENT (TCI):	DCC + ICC	423,060
DIRECT OPERATING COSTS (DOC):		
(1) Operating Labor		
Operator	0.5 hr/shift, 3 shifts/day, \$30/hr, 365 days/yr	16,425
Supervisor	15% of operator cost	2,464
(2) Maintenance		
Labor	Engineering estimate, 1% PEC	1,923
Labor	0.5 hr/shift, 3 shifts/day, \$30/hr, 365 days/yr	16,425
Material	100% of Maintenance Labor	16,425
(3) Operating Materials		
NaOH Reagent	\$0.50/lb, 2.5 lb NaOH/lb H ₂ S	44,861
(4) Wastewater Disposal		
	\$0.01/gal, 30 GPH, 8,760 hr/yr	2,628
(5) Electricity		
	\$0.06/kWh, 7 kW blower, 8,760 hr/yr	3,679
Total DOC:		104,830
INDIRECT OPERATING COSTS (IOC):		
Overhead	60% of oper. labor & maintenance	12,487
Property Taxes	1% of total capital investment	4,231
Insurance	1% of total capital investment	4,231
Administration	2% of total capital investment	8,461
Total IOC:		29,409
CAPITAL RECOVERY COSTS (CRC):	CRF of 0.1098 times TCI (15 yrs @ 7%)	46,452
ANNUALIZED COSTS (AC):	DOC + IOC + CRC	180,692
BASELINE H₂S EMISSIONS (TPY)	Table 2-3	17.94
MAXIMUM H₂S EMISSIONS (TPY) :	Based on 99 Percent Reduction	0.18
REDUCTION IN H₂S EMISSIONS (TPY):		17.77
COST EFFECTIVENESS:	\$ per ton of H₂S Removed	10,171

Notes:

^a Unless otherwise specified, factors and cost estimates reflect OAQPS Cost Manual, Sixth edition.

^b Shutte & Koerting, 2510 Metropolitan Drive, Trevose, PA 19053

APPENDIX A

H₂S DEGASIFIER AND SCRUBBER MANUFACTURER'S QUOTES

De Loach Industries, Inc.

818 Cartlemen Road, Sarasota, Florida 34232
(941) 371-4995 • Fax (941) 377-2649

VIA EMAIL:rcarter@ussugar.com

US Sugar
Attn: Roy Carter

RE: Cost proposal to furnish two (2) fiberglass degasification units with option

PROJECT / REF: Unknown

PROPOSAL: 3196

Dear Roy,

Pursuant to your request, please find enclosed the following amended budgetary proposal with option identified as Exhibit A, which describes in detail the requested information and price details. If after your review you should have any further questions or need additional assistance, please do not hesitate to call. On behalf of DeLoach Industries, Inc., I would like to thank you for allowing us to participate on this project.

Sincerely yours,

DELOACH INDUSTRIES, INC.

Mark D. Gorrell
G.M., DeLoach Industries, Inc.

EXHIBIT A

DeLoach Industries Inc.
818 Cattleman Road
Sarasota Florida 34240

Jan. 30, 2008

RE: Cost Proposal For Two (2) Fiberglass Degasification Units With Option
PROJECT/REF #: US SUGAR
PROPOSAL #: 3196
ATTENTION: Roy Carter

SCOPE:

1. DeLoach Industries (DI) will prepare and submit complete shop drawings and submittals for review and approval prior to fabrication. The drawings shall fully detail all sizing requirements for the equipment and all flange or fitting locations.
2. Upon receipt of approved shop drawings, DI will fabricate (2) two complete Fiberglass Forced Draft Degasification units as detailed in the approved drawings. Each unit will be complete with the following items:
 - a) One (1) fiberglass reinforced 10'-0" dia. X 13'-0" tall vessel which will have an exterior gelcoat finish containing U.V. inhibitors. The interior will be sealed with an NSF approved epoxy liner suitable for use with potable water.
 - b) One (1) water separation demister will be attached to the vessel exhaust to prevent moisture droplets from leaving within the air stream.
 - c) One (1) NSF approved distribution system. The distributor shall be a header lateral design and will be equipped nozzles for even distribution of water. The nozzles shall be sized to allow a design flow rate of 2000 GPM.
 - d) One (1) exhaust stack with 316 stainless steel screen
 - e) Eight (8) feet of #3K Tellerette media of polypropylene construction
 - f) One (1) media support plate with underbracing
 - g) Two (2) media access hatches with neoprene gasket and 316 ss 1/4" bolts.
 - h) Eight (8) anchor cleats
 - i) Four (4) lifting lugs
 - j) One (1) 12" diameter flanged inlet
 - k) One (1) 16" diameter effluent fitting
 - l) One (1) 4" dia. clean-out drain with plug
 - m) One (1) 48" dia. x 12'-0" tall fiberglass exhaust stack. Stack will be equipped with base flange, gasket and stainless steel hardware for attachment to the exhaust flange on the degasifier. Stack will also be equipped with a 48" x 36" reducer at the top of the stack.

← Height above
gasket

- n) One (1) centrifugal type blower with connecting ductwork. Blower will also be equipped with inlet filters and filter housings. Filter housing will be of galvanized construction and be equipped with fixed, screened inlet louvers. One (1) installed and one (1) spare set of disposable filters will also be supplied

Make: Loren Cook	Model# CPSA 270
S.P. 2"	CFM 8,021
Hp 5	RPM 1725
Volts 230/460	Phase 3

- o) One (1) lot structural calculations signed and sealed by a P.E. registered in the state of Florida. Calculations will be performed to assure compliance with applicable building codes for windload considerations as they relate to the anchoring system.

SUB-TOTAL COST Two (2) units.....\$188,070.00
 FREIGHT (Estimated Will prepay and add at time of delivery)\$2,400.00
 TAX.....\$Not Included

OPTION A

DI will supply personnel for one (1) eight (8) hour day to perform inspection of installation and operator training services.

SUB-TOTAL COST.....\$850.00

*Additional time required to perform these services that are not the responsibility of DI will be billed at the rate of \$850.00 per day plus expenses.

Removal Efficiency: Based on given design parameters, and an influent pH of 5.0, the above described equipment should achieve a removal efficiency of 96.4%. This equates to an effluent H2S concentration of 107.9 ug/L.

Weights: The following is an estimation of dry and operating weight for the above described equipment:

Dry Weight (Each unit).....5,100 lbs. (Includes blower)

Operating weight (Each unit).....16,500 lbs.

Operating weight allows for a thirty (30) second hold-up of the water in the media bed, and a 6" operating depth in the sump area.

TERMS AND CONDITIONS:

20% deposit, Balance Net 30.

The above prices are valid for a period of thirty (30) days from the date quoted. Taxes have not been included. Delivery can be made within ten (10) to twelve (12) weeks after receipt of approved shop drawings. All cancellations after contract award or purchase order issuance are subject to restocking fees. DI is not responsible for hydraulic flow design requirements or pipe size before the inlet flange or beyond the effluent fitting. All shipments are subject to DeLoach Standard Terms and Conditions of sale which are incorporated herein by reference.



2510 Metropolitan Drive • Trevoise, PA 19053
Tel.: (215) 639-0900 • Fax: (215) 639-1597
Email: sales@s-k.com
Web: www.s-k.com

Client/Inquiry: Golder Associates, Inc./ 8-10-10 Email Inquiry
S&K Ref. No.: 1002433
Date: August 11, 2010

QUOTATION

We are pleased to quote as follows:

Quantity: One (1)

Item: 84" Fig. 7055 Packed Tower Scrubber with system components

Description: Please see attached "System Component List".

Net Budgetary Price Estimate (FOB Shops): \$ 130,000.00

Alternate Budgetary Price Estimate: 84" Fig. 7055 Packed Tower only: \$ 88,000.000

Price Validity: Pricing is estimated only at this time.

Estimated Delivery: Submittal of approval drawing approximately 5 - 6 weeks after receipt of purchase order. Shipment (exit shop) approximately 18 weeks after receipt of returned drawing approval

Payment Terms: To be proposed when and if a formal, firm priced proposal is issued.

Notes, Comments, and Exceptions

S&K "Terms of Sale" (attached) shall apply.

Quoted by: Robert J. (Bob) Chironna 215-639-0900 ext. 269 (email: bob-c@s-k.com)



2510 Metropolitan Drive • Trevoise, PA 19053
Tel.: (215) 639-0900 • Fax: (215) 639-1597
Email: sales@s-k.com
Web: www.s-k.com

Client/Inquiry: Golder Associates, Inc./ 8-10-10 Email Inquiry
S&K Ref. No.: 1002433
Date: August 11, 2010

PACKED TOWER SCRUBBER

TYPE: 84" Fig. 7055

EQUIPMENT DIMENSIONS (approximate)

Gas Inlet: 36" Gas Outlet: 36" Scrubbing Liquid Inlet: 4"
Tower Diameter: 7' Height: 23'-10" Liq. Storage Cap.: 1000 U.S. Gallons
Vessel Connections: Drain 6", Fill 2", Overflow 6", Recycle 6", Manway (3) 24", Instrument Spares (3) 3"

INTERNALS

Packing Type: 2" Hiflow or eq.
Mist Eliminator Type: Mesh Pad

CONSTRUCTION MATERIALS

Tower Shell: FRP-Derakane 411 or eq. with double Nexus veil
Packing: Polypropylene
Mist Eliminator: Polypropylene
Spray Nozzle(s): PVC

CONSTRUCTION DESIGN

In general accordance with: S&K Standards & NBS PS 15-69
Design Pressure: Flooded Design Temperature: 150 F
Type of Support: Hold down lugs & Lifting Lugs

CONDITIONS OF OPERATION

Gas Inlet Rate Capacity: 16,000 Acfm
Temperature: Ambient Pressure: Atmospheric
Gas Composition: Air saturated with water vapor and containing 10 lb/hr H₂S
Liquid Inlet Rate: 250 gpm,
Spray Nozzle Differential Pressure: 7 psi x s.g.
Liquid Composition: dilute aqueous NaOH
Maximum Liquid Inlet Temperature: approx. 90 F
Pressure Drop Across Tower: approx. 4 - 4 ½ Inches w.c.

PERFORMANCE

99 % Removal efficiency of H₂S
Based upon above listed operating conditions.

NOTES

Estimated make-up = approx. 30 gals./hr. of 10% by weight aq. NaOH; Estimated blow-down = approx. 30 gals./hr.



2510 Metropolitan Drive • Trevoise, PA 19053
Tel.: (215) 639-0900 • Fax: (215) 639-1597
Email: sales@s-k.com
Web: www.s-k.com

Client/Inquiry: Golder Associates, Inc./ 8-10-10 Email Inquiry
S&K Ref. No.: 1002433
Date: August 11, 2010

SYSTEM COMPONENT LIST

Air Pollution Control Device: (1) 84" Dia. Fig. 7055 Packed Tower. Please see attached "Packed Tower Scrubber" data sheet.

Recycle Pump: (1) FTI or eq. ETFE lined magnetic drive, seal-less, centrifugal pump w/10 HP (typical), TEFC motor.

Instrumentation:

- (1) Rosemount or eq. magmeter type flow indicator/transmitter for liquid flow to scrubber liquid inlet.
- (1) Ashcroft or eq. pressure gauge for pump discharge.
- (1) Honeywell or eq. STF128 level indicator/transmitter for integral sump.
- (1) Great Lakes Instruments or eq. pH analyzer with 6028 type sensor.

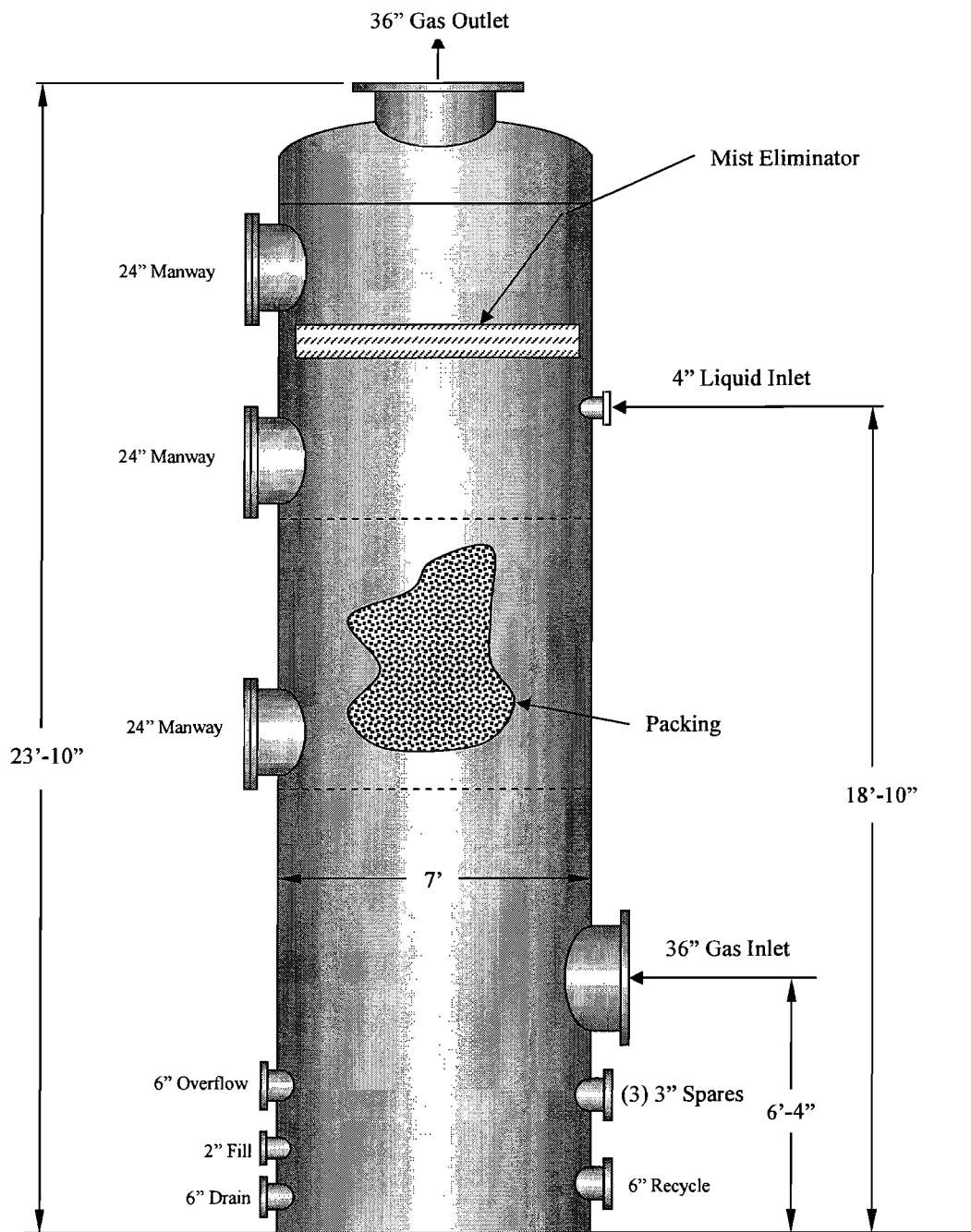
Recycle Piping: FRP with manual valves for "Pump Skid" only.

Pump Skid: Nominal 4'W x 5'L epoxy coated carbon steel for mounting of recycle pump, "pump skid" piping, and those instruments to be installed on the "pump skid" piping.

The "Pump Skid" would be pre-assembled to ensure proper fit-up, then disassembled as necessary for safe shipment. Partial re-assembly at the site by others would be required.

All piping external to the "Pump Skid" (interconnecting between scrubber and skid to be provided by others.

Only those items specifically stated above are made part of this offering. No control panel, junction box, or wiring included.



ALL DIMENSIONS ARE APPROXIMATE

SCHUTTE & KOERTING
 TREVOSE, PENNSYLVANIA, USA

THIS DRAWING AND ITS CONTENTS ARE CONSIDERED TO BE PROPRIETARY AND CONFIDENTIAL, USE OR DISCLOSURE IS STRICTLY PROHIBITED.
 COPYRIGHT © 2010 SCHUTTE & KOERTING, AS AN UNPUBLISHED WORK. ALL RIGHTS RESERVED.

Description:	84" Packed Tower Scrubber – Fig. 7055
Ref. No.:	1002433
Scale:	None
Date:	August 11, 2010



2510 Metropolitan Drive • Treose, PA 19053 • USA
Tel.: (215) 639-0900 • Fax: (215) 639-1597
Email: sales@s-k.com
Web: www.s-k.com

TERMS OF SALE

GUARANTEES, ERECTION, SHIPMENT, PAYMENT, QUOTATIONS AND ILLUSTRATIONS

GUARANTEES: If at any time within twelve months after shipment, but not thereafter, it is proved that the subject matter of this contract, or any part thereof, or any replacement thereof, furnished by us was defective when supplied, or was not adequate for the performance specified, we will replace the same free of charge f.o.b. our plant. Notice of claim must be made to us within twelve months after delivery. Our liability is limited to the supplying of a new part. There are no guarantees nor warranties expressed or implied other than those herein specifically mentioned. We shall not in any event be liable for any consequential damages, secondary charges, expenses for erection or disconnecting, or losses resulting from any alleged defect or alleged inadequacy above-mentioned.

It is also understood that corrosion or erosion of materials is not covered by this guarantee.

ERECTION: All machinery will be installed by and at the expense of the purchaser unless otherwise expressly stipulated. The Company will furnish, on request, competent engineers for supervising the installation and instructing the purchaser regarding the proper operation of the equipment. Charges for this service will be made at the prevailing rates per day. Board and traveling expenses shall also be paid by the purchaser, it being understood and agreed that during the term of such service the said engineers shall be the purchaser's employees for whose acts this Company shall assume no responsibility.

SHIPMENT: Shipment promises are made in good faith. If for any reason, whether due to the fault of this Company or otherwise, delivery is delayed, it must be understood that this Company is not liable for any consequential damages or secondary charges of any nature resulting therefrom.

TERMS OF PAYMENT: When single apparatus is supplied, our prices are f.o.b. shipping point, terms net cash in thirty days from date of invoice, payable in U.S. funds. In supplying customers not known to us or not rates satisfactorily in commercial books, we ship C.O.D. unless satisfactory reference or check accompanies order. Right to reserve to request trade acceptance.

QUOTATIONS: Quotations are subject to acceptance within 30 days from date thereof at the Bensalem office. Orders are not subject to cancellation.

CHANGES: The products covered by this quotation are custom engineered to your requirements. After receipt of order, changes in specifications or requirements resulting in redesign will be subject to an additional charge for the engineering as well as manufacturing costs incurred.

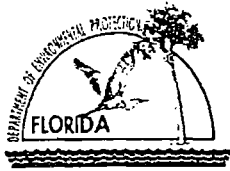
ILLUSTRATIONS: The illustrations and engravings in our catalogs are intended to show the general features of our apparatus, but we reserve the right to supply the apparatus in our latest construction.

TAXES: The Purchaser shall pay to the Company in addition to the purchase price, the amount of any excise, sale, privilege, or use tax, local, state or Federal, which are payable by the Company because of the execution of this contract, or sale or delivery of the apparatus covered hereby.

WE MUST GIVE PREFERENCE to the manufacture and delivery of merchandise which we now have on order or which may hereafter be ordered from us either directly by the United States or ultimately intended for the United States Army or Navy or other department of the United States Government, and we therefore accept your order with the understanding that delivery of the merchandise covered by your order may be postponed accordingly.

NONTRANSFER: Customer cannot transfer or assign the account relationship without Schutte & Koerting's written consent.

GOVERNING LAWS: All disputes between Schutte & Koerting and the purchaser will be governed by the laws of the Commonwealth of Pennsylvania, litigation of all disputes will be held in the Commonwealth of Pennsylvania court system.



Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

RECEIVED
MAY 04 2011
BUREAU OF
AIR REGULATION

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

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

Air Operation Permit – Use this form to apply for:

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

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: United States Sugar Corporation	
2. Site Name: U.S. Sugar Clewiston Facility	
3. Facility Identification Number: 0510003	
4. Facility Location... Street Address or Other Locator: W.C. Owens Ave. and S.R. 832 City: Clewiston County: Hendry Zip Code: 33440	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Application Contact Name: Keith Tingberg, Environmental Manager, Sugar Manufacturing	
2. Application Contact Mailing Address... Organization/Firm: United States Sugar Corporation Street Address: 111 Ponce De Leon Ave. City: Clewiston State: FL Zip Code: 33440	
3. Application Contact Telephone Numbers... Telephone: (863) 902-3186 ext. Fax: (863) 902-3149	
4. Application Contact E-mail Address: ktingberg@ussugar.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 5/2/11	3. PSD Number (if applicable): 4/15
2. Project Number(s): 0510003 - 098-Ac	4. Siting Number (if applicable):

APPLICATION INFORMATION

Purpose of Application

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

Air Construction Permit

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

Air Operation Permit

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

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

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

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

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

Application Comment

This application is being submitted for an after-the-fact PSD construction permit for a hydrogen sulfide (H₂S) degasification system that serves up to five water supply wells.

The installation of the existing water wells and degasification system was performed under authorization of Permit No. 284958-001-WC, and it was believed that an air permit was not required. After further analysis, it was determined that an air construction application should have been submitted for this project.

APPLICATION INFORMATION

Owner/Authorized Representative Statement

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

1. Owner/Authorized Representative Name : Neil Smith, Vice President and General Manager, Sugar Manufacturing
2. Owner/Authorized Representative Mailing Address... Organization/Firm: United States Sugar Corporation Street Address: 111 Ponce De Leon Ave. City: Clewiston State: FL Zip Code: 33440
3. Owner/Authorized Representative Telephone Numbers... Telephone: (863) 902-2703 ext. Fax: (863) 902-2729
4. Owner/Authorized Representative E-mail Address: nsmith@ussugar.com
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>  _____ Signature 4/20/11 _____ Date



April 21, 2011

103-87544

Mr. Jeffery Koerner, P.E.
FDEP, Division of Air Resources
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32399

45 78654
✓

**RE: PSD APPLICATION FOR H₂S DEGASIFICATION SYSTEM
U.S. SUGAR CLEWISTON FACILITY
FACILITY ID: 0510003**

Dear Mr. Koerner:

Golder Associates Inc. is submitting the attached seven (7) copies of a PSD application on behalf of the U.S. Sugar Corporation (Facility ID 0510003). The PSD application is for the installation of a hydrogen sulfide (H₂S) degasification system at the U.S. Sugar facility located at 111 Ponce De Leon Avenue in Clewiston, Florida. The \$7,500 application processing fee will be submitted directly by the facility in the near future.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff
David A. Buff, P.E., Q.E.P.
Principal Engineer

Philip D. Cobb
Philip D. Cobb, Ph.D., P.E.
Senior Project Engineer

cc: K. Tingberg – U.S. Sugar

Attachments

PC

y:\projects\2010\103-87544 us sugar h2s degasification\final\042111_544-ussc-h2spsd.docx

Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607 USA
Tel: (352) 336-5600 Fax: (352) 336-6603 www.golder.com



Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

Golder, Golder Associates and the GA globe design are trademarks of Golder Associates Corporation



UNITED STATES
SUGAR
 CORPORATION
 FLORIDA DEP

Vendor: 100991

Check: 3039851

Date: 04/29/2011

Page No: 1

SOUTHERN
GARDENS
COFFEES

CORPORATION DESCRIPTION	INVC DATE	GROSS AMOUNT	DISCOUNT AMT	NET AMOUNT
5100115881 103-87544 USSC	04/21/2011	7,500.00	0.00	7,500.00
TOTALS		7,500.00	0.00	7,500.00

United States Sugar Corporation

United States Sugar Corporation

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

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

solutions@golder.com
www.golder.com

Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607 USA
(352) 336-5600 - Phone
(352) 336-6603 - Fax

