Golder Associates

March 11, 2011 103-87530

Florida Department of Environmental Protection
ATTN: Mr. Ajaya Satyal, Air Program Administrator
South District Office
2295 Victoria Avenue, Suite 364
Fort Myers, FL 33902-2549

RECEIVED
MAR 14 2011
BUREAU OF
AIR REGULATION

RE: OKEELANTA CORPORATION
PERMIT NO. 0990005-017-AV
SUGAR REFINERY MODIFICATION
AIR CONSTRUCTION APPLICATION

Dear Mr. Satyal:

On behalf of Okeelanta Corporation, please find attached four copies of an air construction application for the Sugar Refinery at Okeelanta. If you have any questions concerning this matter, please call me at (352) 336-5600 or Matt Capone at (561) 993-1658.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff

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

cc: Matt Capone, Okeelanta
J. Stormer, PBCHU
J. Koerner, DEP Tallahassee

DB/nav

y:\projects\2010\103-87530 okeelanta\apps\roto-clone app\final_030911\okeelanta_ltr to dep.docx

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

APPLICATION

AIR CONSTRUCTION PERMIT APPLICATION FOR IMPROVED SUGAR DUST COLLECTION SYSTEM AT OKEELANTA SUGAR REFINERY

Submitted For: Okeelanta Corporation
21250 US Highway 27 South
South Bay, FL 33433 USA

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

Distribution:
4 copies, FDEP-SW District
1 copy, FDEP-Tallahassee
1 copy, Palm Beach County Health Dept.
2 copies, Okeelanta Refinery
2 copies, Golder Associates Inc.

March 2011

Project No. 103-87530

A world of capabilities delivered locally

Golder Associates

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; 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.

RECEIVED
MAR 14 2011
BUREAU OF AIR REGULATION

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: **Okeelanta Corporation**	
2. Site Name: **Okeelanta Sugar Refinery**	
3. Facility Identification Number: **0990005**	
4. Facility Location... Street Address or Other Locator: **21250 U.S. Highway 27 South** City: **South Bay** County: **Palm Beach** Zip Code: **33493**	
5. Relocatable Facility? ☐ Yes ☒ No	6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: **Matthew Capone**
2. Application Contact Mailing Address... Organization/Firm: **Okeelanta Corporation** Street Address: **21250 U.S. Highway 27** City: **South Bay** State: **Florida** Zip Code: **33493**
3. Application Contact Telephone Numbers... Telephone: **(561) 993-1658** ext. Fax: **(561) 992-7326**
4. Application Contact E-mail Address: **Matthew_Capone@floridacrystals.com**

Application Processing Information (DEP Use)

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

APPLICATION INFORMATION

Purpose of Application

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

Air Construction Permit

☒ Air construction permit.

☐ Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).

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

Air Operation Permit

☐ Initial Title V air operation permit.

☐ Title V air operation permit revision.

☐ Title V air operation permit renewal.

☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.

☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

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

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

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

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

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

Application Comment

Application to modify the existing AAF/Wet Rotoclone No. 2 (EU 022) and add two (2) new Roto-clones to improve dust collection and housekeeping (existing Title V Operating Permit No. 0990005-017-AV). This change will increase the number of transfer points controlled in the Sugar Refinery, which increases particulate matter (PM) emissions slightly. In addition, the AAF/Wet Rotoclone No. 1 (EU 021) will not control dust from the two proposed specialty conveyors (SP1 and SP2) as specified in Construction Permit No. 0990005-020-AC. The two proposed specialty conveyors were not constructed.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
021-025, 034, 035, 043	Okeelanta Sugar Refinery	AC1E	

Application Processing Fee

Check one: ☐ Attached - Amount: $_____ ☒ Not Applicable

APPLICATION INFORMATION

Owner/Authorized Representative Statement

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

1. Owner/Authorized Representative Name :
   Matthew Capone
2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **Okeelanta Corporation**
   Street Address: **21250 U.S. Highway 27**
   City: **South Bay** State: **FL** Zip Code: **33493**
3. Owner/Authorized Representative Telephone Numbers...
   Telephone: **(561) 993-1658** ext. Fax: **(561) 992-7326**
4. Owner/Authorized Representative E-mail Address: **Matthew_Capone@floridacrystals.com**
5. Owner/Authorized Representative Statement:

   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.

   Matthew Capone
   Signature

   3/10/11
   Date

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):

- ☐ 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.
- ☐ For a partnership or sole proprietorship, a general partner or the proprietor, respectively.
- ☐ For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.
- ☐ 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:

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.

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. **21145** Fax: **(352) 336-6603**
4. Professional Engineer E-mail Address: **dbuff@golder.com**
5. Professional Engineer Statement:

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

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

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

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

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, 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 ☐, 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.

(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 ☐, 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.

David A. Buff — Signature

3/10/11 — Date

(seal)

* Attach any exception to certification statement.
** Board of Professional Engineers Certificate of Authorization #00001670.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone **17** East (km) **524.90** North (km) **2940.10**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) **26/35/00** Longitude (DD/MM/SS) **80/45/00**	
3. Governmental Facility Code: **0**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **20**	6. Facility SIC(s): **2061** **2062**
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: **Matthew Capone**
2. Facility Contact Mailing Address... Organization/Firm: **Okeelanta Corporation** Street Address: **21250 U.S. Highway 27 South** City: **South Bay** State: **FL** Zip Code: **33493**
3. Facility Contact Telephone Numbers: Telephone: **(561) 993-1658** ext. Fax: **(561) 992-7326**
4. Facility Contact E-mail Address: **Matthew_Capone@floridacrystals.com**

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: ( ) ext. Fax: ( )
4. Facility Primary Responsible Official E-mail Address:

Facility Regulatory Classifications

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

1. ☐ Small Business Stationary Source	☐ Unknown
2. ☐ Synthetic Non-Title V Source	
3. ☒ Title V Source	
4. ☒ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. ☐ Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. ☒ Major Source of Hazardous Air Pollutants (HAPs)	
7. ☐ Synthetic Minor Source of HAPs	
8. ☒ One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. ☐ One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. ☒ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. ☐ 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]?
Particulate Matter - PM	A	N
Particulate Matter – PM_{10}	A	N
Sulfur Dioxide – SO_2	A	N
Nitrogen Oxides – NO_x	A	N
Carbon Monoxide - CO	A	N
Volatile Organic Compounds - VOCs	A	N
Lead - Pb	B	N
Hydrogen Chloride – H106	A	N
Mercury Compounds – H114	B	N
Total Hazardous Air Pollutants - HAPs	A	N

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility-Wide Cap [Y or N]? (all units)	3. Emissions Unit ID's Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

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

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **OC-F1-C1** ☐ Previously Submitted, Date:_____

2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **OC-F1-C2** ☐ Previously Submitted, Date:_____

3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID:_____ ☒ Previously Submitted, Date: **August 2007**

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location:
   ☒ Attached, Document ID: **Attachment A** ☐ Not Applicable (existing permitted facility)

2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL):
   ☒ Attached, Document ID: **Attachment A**

3. Rule Applicability Analysis:
   ☒ Attached, Document ID: **Attachment A**

4. List of Exempt Emissions Units:
   ☐ Attached, Document ID:_____ ☒ Not Applicable (no exempt units at facility)

5. Fugitive Emissions Identification:
   ☒ Attached, Document ID: **Attachment A** ☐ Not Applicable

6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.):
   ☐ Attached, Document ID:_____ ☐ Not Applicable

7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.):
   ☐ Attached, Document ID:_____ ☐ Not Applicable

8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.):
   ☐ Attached, Document ID:_____ ☐ Not Applicable

9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.):
   ☐ Attached, Document ID:_____ ☐ Not Applicable

10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.):
    ☐ Attached, Document ID:_____ ☐ Not Applicable

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units:
   ☐ Attached, Document ID:_____ ☐ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

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

2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought)
   ☐ Attached, Document ID:_____
   ☐ Not Applicable (revision application with no change in applicable requirements)

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

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

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

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

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

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

1. Acid Rain Program Forms:

   Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable (not an Acid Rain source)

   Phase II NO_X Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable

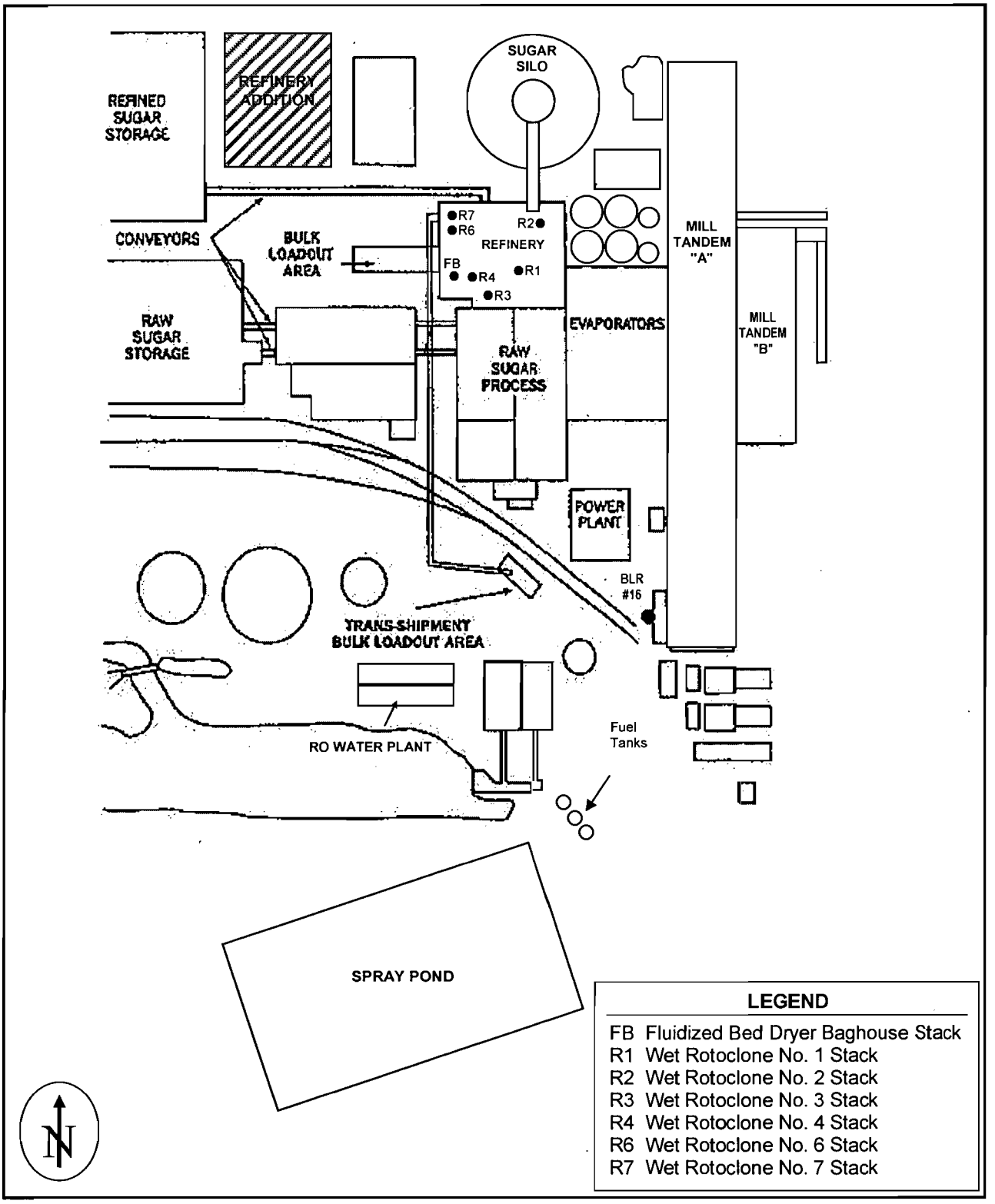
   New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable (not a CAIR source)

Additional Requirements Comment

ATTACHMENT OC-FI-C1

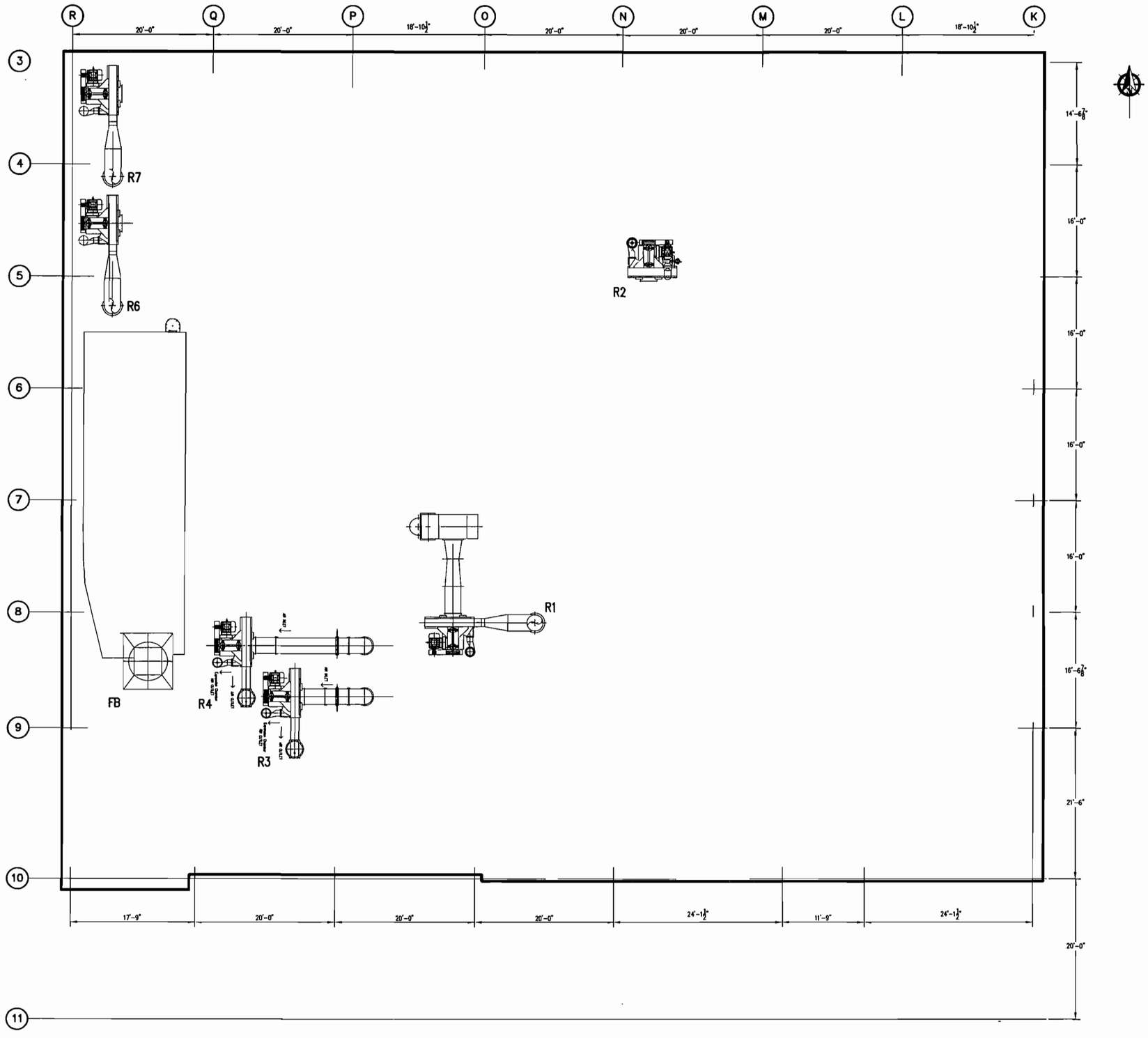
FACILITY PLOT PLAN



Attachment OC-FI-C1a
Facility Plot Plan of Okeelanta Sugar Mill and Refinery

Note: Plot Plan is a general arrangement for informational purposes only. Plot plan is not to scale.
Y:\Projects\2010\103-87530-1 Okeelanta-Transport\App_Roto-Clones\Plot Plan_OC-FI-C1.doc

Golder Associates



LEGEND

FB - FLUIDICED BED DRYER BAGHOUSE STACKS
R1 - WET ROTOCLONE No.1 STACK
R2 - WET ROTOCLONE No.2 STACK
R3 - WET ROTOCLONE No.3 STACK
R4 - WET ROTOCLONE No.4 STACK
R6 - WET ROTOCLONE No.6 STACK
R7 - WET ROTOCLONE No.7 STACK

REFERENCES

FLORIDA CRYSTALS REFINERY INC. OKEELANTA CORPORATION
DRAWING No. 03-RF-0005, EQUIPMENT DISTRIBUTION & T.ID.
ELEVATION +/- 49'-0" DATED 12/05/2008
USED AS BASE MAP.

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
1	3/9/11	XXX	REVISIONS BASED ON CLIENT COMMENTS	NRL	PT	DB

PROJECT
FLORIDA CRYSTALS REFINERY INC.
OKEELANTA CORPORATION

TITLE
SUGAR REFINERY PLOT PLAN, OKEELANTA

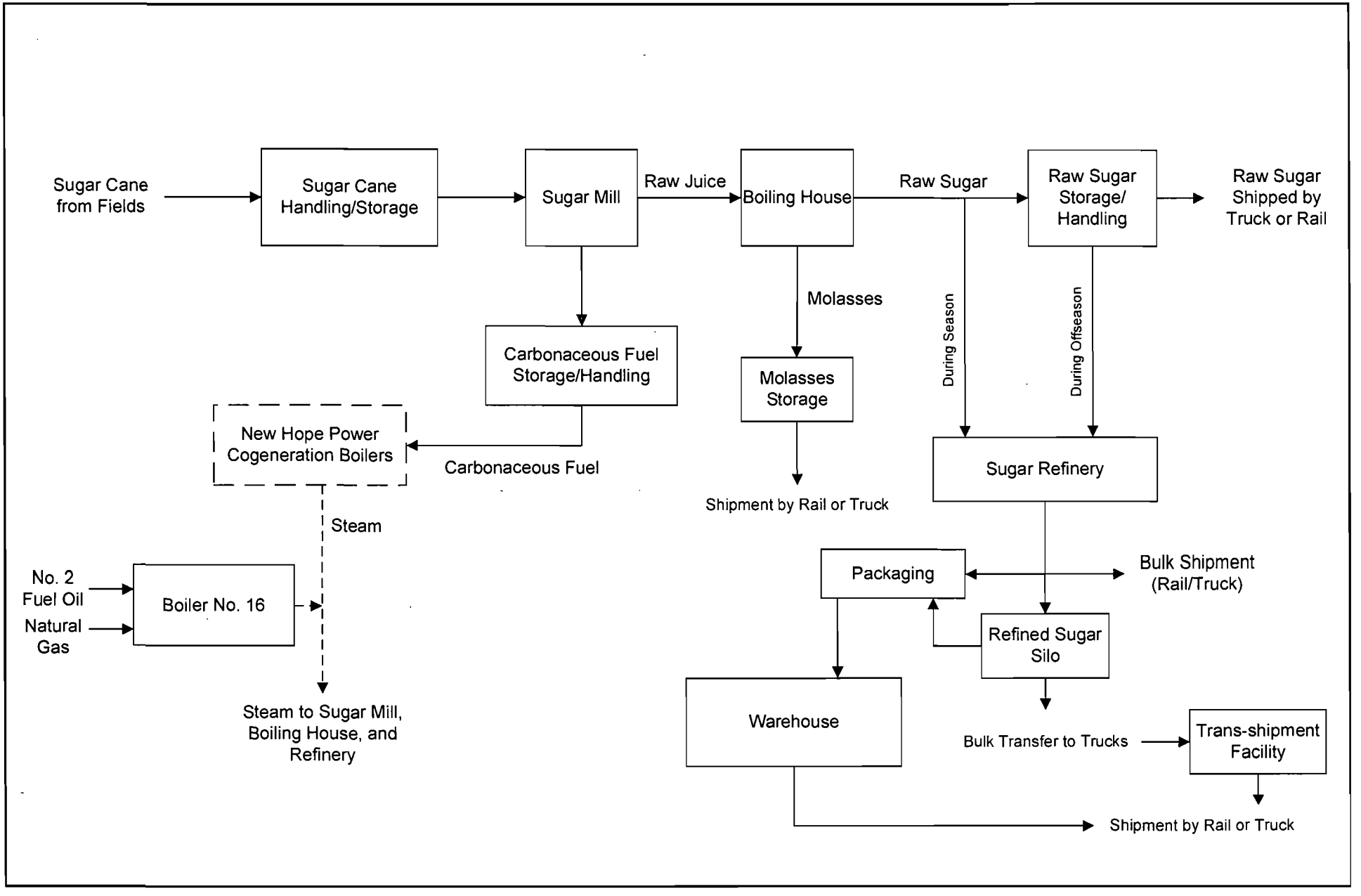
Golder Associates
Gainesville, Florida

PROJECT No.		103-87530	FILE No.	10387530_A001
DESIGN	PT	03/02/11	SCALE	NTS REV. 1
CADD	NRL	03/03/11	ATTACHMENT OC-FI-C1B	
CHECK	PT	03/03/11		
REVIEW	DB	03/03/11		

Drawing file: 10387530_A001_Rev1_PlotPlan.dwg Mar 09, 2011 - 1:54pm

ATTACHMENT OC-FI-C2

PROCESS FLOW DIAGRAM



Attachment OC-FI-C2
Sugar Manufacturing
Facility Process Flow Diagram
Okeelanta Corporation
South Bay, FL

Process Flow Legend
Solid/Liquid
Steam
Gas

Golder Associates

Y:\Projects\2010\103-87530 Okeelanta\Apps\Roto-Clone App\Final_030911\Attach\FI\OC-FI-C2.vsd

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]
Sugar Refinery

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:
Sugar Refinery

3. Emissions Unit Identification Number: **021-025, 034, 035, 043**

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

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

☐ Acid Rain Unit

☐ CAIR Unit

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:
The sugar refinery produces standard white sugar or specialty sugars from the raw sugar sent from the mill. Some of the refined sugar is sold in bulk and shipped by truck or rail car. The majority of the refined sugar produced is transferred by truck to an onsite packaging and distribution warehouse (Transshipment facility).

EMISSIONS UNIT INFORMATION
Section [1]
Sugar Refinery

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

1. Control Equipment/Method Description: **Baghouse**
2. Control Device or Method Code: **018**

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

1. Control Equipment/Method Description: **Wet Cyclonic Separators (6)**
2. Control Device or Method Code: **057**

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

1. Control Equipment/Method Description: **Process Enclosed**
2. Control Device or Method Code: **054**

Emissions Unit Control Equipment/Method: Control _____ of _____

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

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate: **490,000 TPY Refined Sugar**	
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: **The maximum production rate of 490,000 is for combined EU 021, EU 023, EU 024, and EU 025.**	

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: **See comment**	2. Emission Point Type Code:	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **See Attachment OC-EU1-C15.**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **93** feet	7. Exit Diameter: **7** feet
8. Exit Temperature: **115**°F	9. Actual Volumetric Flow Rate: **70,620** acfm	10. Water Vapor: **0.7** %
11. Maximum Dry Standard Flow Rate: **64,390** 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: **Parameters are shown for the stack with the greatest volumetric flow rate (Fluidized Bed Dryer Baghouse – EU 025). See Attachment OC-EU1-C15 for all stack parameters.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 3

1. Segment Description (Process/Fuel Type): **Food and Agriculture – Sugar Cane Processing, General**		
2. Source Classification Code (SCC): **3-02-015-01**	3. SCC Units: **Tons sugar produced**	
4. Maximum Hourly Rate: **75 (24-hr average)**	5. Maximum Annual Rate: **490,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Maximum hourly and annual rates refer to the amount of refined sugar production by the refinery from the fluidized bed and rotary drying systems [1,350 tons per day (TPD) from the fluidized bed and the rotary drying systems; 1,800 TPD for simultaneous operation].**		

Segment Description and Rate: Segment 2 of 3

1. Segment Description (Process/Fuel Type): **Food and Agricultural – Sugar Cane Processing, Other Not Classified**		
2. Source Classification Code (SCC): **3-02-015-99**	3. SCC Units: **Tons processed**	
4. Maximum Hourly Rate: **44**	5. Maximum Annual Rate: **139,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Maximum hourly and maximum annual rates refer to the maximum amount of refined sugar loaded at the Bulk Load-Out Station.**		

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

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

1. Segment Description (Process/Fuel Type): **Food and Agriculture – Sugar Cane Processing, Other Not Classified**		
2. Source Classification Code (SCC): **3-02-015-99**	3. SCC Units: **Tons processed**	
4. Maximum Hourly Rate: **72**	5. Maximum Annual Rate: **351,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Maximum hourly and maximum annual rates refer to the maximum amount of refined sugar loaded at the Transfer Bulk Load-Out Station.**		

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:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	057, 018	054	EL
PM_{10}	057, 018	054	EL
$PM_{2.5}$	057, 018	054	EL
VOC			NS

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: **PM**	2. Total Percent Efficiency of Control: **99.4**
3. Potential Emissions: **8.15** lb/hour **22.15** tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference: **Refer to Attachment OC-EU1-F1.10**	7. Emissions Method Code: **2**
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: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:
Total potential hourly and annual emissions represent sugar drying and handling (fluidized bed and rotary systems combined) and load-out operations. Refer to Attachment OC-EU1-F1.10.

11. Potential, Fugitive, and Actual Emissions Comment:
Refer to Attachments for complete calculations and description of control equipment.

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 **1** of **1**

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **22.15 TPY**	4. Equivalent Allowable Emissions: lb/hour **22.15** tons/year
5. Method of Compliance: **EPA Method 9.**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

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

Allowable Emissions Allowable Emissions _____ of _____

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

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, 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: **PM_{10}**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **1.72** lb/hour **3.00** tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference: **Refer to Attachment OC-EU1-F1.10**	7. Emissions Method Code: **2**
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: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **Total potential hourly emissions represent sugar drying and handling using the rotary drying system only and load-out operations. Total potential annual emissions represent sugar drying and handling using the fluidized bed and rotary systems combined, and load-out operations. Refer to Attachment OC-EU1-F1.10.**	
11. Potential, Fugitive, and Actual Emissions Comment: **Refer to Attachment OC-EU1-F1.10 for complete calculations and description of control equipment.**	

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 **1** of **1**

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **3.00 TPY**	4. Equivalent Allowable Emissions: lb/hour **3.00** tons/year
5. Method of Compliance: **EPA Method 9.**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

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

Allowable Emissions Allowable Emissions _____ of _____

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

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, 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: **$PM_{2.5}$**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **1.72** lb/hour **3.00** tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference: **Refer to Attachment OC-EU1-F1.10**	7. Emissions Method Code: **2**
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: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:
Total potential hourly emissions represent sugar drying and handling using the rotary drying system only and load-out operations. Total potential annual emissions represent sugar drying and handling using the fluidized bed and rotary systems combined, and load-out operations. Refer to Attachment OC-EU1-F1.10.

11. Potential, Fugitive, and Actual Emissions Comment:
Refer to Attachment OC-EU1-F1.10 for complete calculations and description of control equipment.

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 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **3.00 TPY**	4. Equivalent Allowable Emissions: lb/hour **3.00** tons/year
5. Method of Compliance: **EPA Method 9.**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

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

Allowable Emissions Allowable Emissions _____ of _____

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

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, 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: **VOC**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **10.36** lb/hour **39.0** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference: **Refer to Attachment OC-EU1-F1.10g**	7. Emissions Method Code: **2**
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: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:
Volatile organic compound (VOC) emissions based on 78,040 pounds per year (lb/yr) alcohol usage rate. Refer to Attachment OC-EU1-F1.10g.

11. Potential, Fugitive, and Actual Emissions Comment:
Refer to Attachment OC-EU1-F1.10g for complete calculations.

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 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **39.00 TPY**	4. Equivalent Allowable Emissions: lb/hour **39.00** tons/year
5. Method of Compliance: **Recordkeeping**	
6. Allowable Emissions Comment (Description of Operating Method): **Permit No. 0990005-021-AC**	

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):	

G. VISIBLE EMISSIONS INFORMATION

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

Visible Emissions Limitation: Visible Emissions Limitation **1** of **2**

1. Visible Emissions Subtype: **VE05**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **5 %** Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Method 9**	
5. Visible Emissions Comment: **Rule 62-297.620(4), Florida Administrative Code (F.A.C.) and Permit No. 0990005-021-AC. This limit applies to each point source exhaust stack.**	

Visible Emissions Limitation: Visible Emissions Limitation **2** of **2**

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **20 %** Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Method 9**	
5. Visible Emissions Comment: **Rule 62-296.310(2), F.A.C. and Permit No. 0990005-021-AC. This limit applies to all fugitive emissions points.**	

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:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial 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:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **OC-EU1-I1** ☐ Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____

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)
   ☒ Attached, Document ID: **OC-EU1-I3** ☐ Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____
   ☒ Not Applicable

6. Compliance Demonstration Reports/Records:
   ☐ Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☒ Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
   ☐ Attached, Document ID: _____ ☒ Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: ☐ Attached, Document ID: _____
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ ☐ Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☐ Not Applicable

Additional Requirements Comment

ATTACHMENT OC-EU1-C15

EMISSION POINT INFORMATION

ATTACHMENT OC-EU1-C15

EMISSION POINT INFORMATION

Descriptions of Emissions Points Comprising this Emissions Unit:

ID		
	021	Rotary Dryer/Wet Rotoclone No. 1
	022	B System/Wet Rotoclone No. 2
	023	Cooler No. 1/ Rotoclone No. 3
	024	Cooler No. 2/ Rotoclone No. 4
	025	Fluidized Bed Dryer/Cooler
	034	Bulk Load-out Operation
	035	Transfer Bulk Load-out Operation
	043	Alcohol Usage in Refinery
	NEW	A System/Wet Rotoclone No. 6
	NEW	C System/Wet Rotoclone No. 7

Emission Point Comment:

1. Identification of Point on Plot Plan or Flow Diagram:

- R1 – Rotary Dryer/Wet Rotoclone No. 1 (EU 021)
- R2 – B System/Wet Rotoclone No. 2 (EU 022)
- R3 – Cooler No. 1/Wet Rotoclone No. 3 (EU 023)
- R4 – Cooler No. 2/Wet Rotoclone No. 4 (EU 024)
- FB – Fluidized Bed Dryer/Cooler Baghouse (EU 025)
- Bulk Load-Out Area (EU 034)
- Transfer Bulk Load Out Area (EU 035)
- R6 – A System/Wet Rotoclone No. 6
- R7 – C System/Wet Rotoclone No. 7

See the following table for stack/vent information for each emission point.

Stack Parameters for the Okeelanta Sugar Refinery

EU ID	Stack Description	Stack Height[a] (ft)	Exit Diameter (ft)	Stack Temp (°F)	Actual Volumetric Flow Rate (acfm)	Percent Water Vapor (%)	Maximum Dry Standard Flow Rate (dscfm)
021	Wet Rotoclone No. 1	89	2.5	100	15,000	NA	NA
022	Wet Rotoclone No. 2	86	2.5	90	14,770	NA	NA
023	Wet Rotoclone No. 3	80	2.5	100	15,000	NA	NA
024	Wet Rotoclone No. 4	80	2.5	100	15,000	NA	NA
025	Fluidized Bed Dryer/Cooler Baghouse	93	7.0	115	70,620	0.7	64,390
NEW	Wet Rotoclone No. 6	86	2.5	90	15,078	NA	NA
NEW	Wet Rotoclone No. 7	86	2.5	90	12,895	NA	NA

Footnote:
(a) Stack height verified in 2006.

ATTACHMENT OC-EU1-F1.10

CALCULATIONS OF EMISSIONS

ATTACHMENT OC-EU1-F1.10a
POTENTIAL PARTICULATE MATTER EMISSIONS USING THE FLUIDIZED BED DRYING SYSTEM
OKEELANTA CORPORATION

Source Emission Point Description	Emission Unit ID	Maximum Refined Sugar Throughput (TPD)	(lb/hr)	(TPY)	Drop Points Controlled	PM Uncontrolled Emission Factor	Loading to Control Equipment (lb/hr)	Control Efficiency (%)	Maximum Emission Rate (lb/hr)	Maximum Annual Emissions (TPY)
Particulate Matter (PM)										
Fluidized Bed Dryer/Cooler Baghouse	025	1,350	112,500	490,000	N/A	1.5 % [a]	1,687.5	99.80 [b]	3.38	14.70
B System - AAF/Wet Rotoclone No.2	022	1,350	112,500	490,000	17	1.777 lb/ton [c]	99.95	99.90 [d]	0.100	0.435
A System - AAF/Wet Rotoclone No.6	NEW	1,350	112,500	490,000	10	1.045 lb/ton [c]	58.79	99.90 [d]	0.059	0.256
C System - AAF/Wet Rotoclone No.7	NEW	1,350	112,500	490,000	14	1.463 lb/ton [c]	82.31	99.90 [d]	0.082	0.358
								Total	**3.62**	**15.75**
Particulate Matter (PM_{10})										
Fluidized Bed Dryer/Cooler Baghouse	025	1,350	112,500	490,000	N/A	0.060 % [e]	67.5	99.80 [b]	0.14	0.59
B System - AAF/Wet Rotoclone No.2	022	1,350	112,500	490,000	17	0.071 lb/ton [e]	4.00	99.00 [d]	0.040	0.174
A System - AAF/Wet Rotoclone No.6	NEW	1,350	112,500	490,000	10	0.042 lb/ton [e]	2.35	99.00 [d]	0.024	0.102
C System - AAF/Wet Rotoclone No.7	NEW	1,350	112,500	490,000	14	0.059 lb/ton [e]	3.29	99.00 [d]	0.033	0.143
								Total	**0.23**	**1.01**
Particulate Matter ($PM_{2.5}$)										
Fluidized Bed Dryer/Cooler Baghouse	025	1,350	112,500	490,000	N/A	0.060 % [f]	67.5	N/A	0.14	0.59
B System - AAF/Wet Rotoclone No.2	022	1,350	112,500	490,000	17	0.071 lb/ton [f]	4.00	N/A	0.040	0.174
A System - AAF/Wet Rotoclone No.6	NEW	1,350	112,500	490,000	10	0.042 lb/ton [f]	2.35	N/A	0.024	0.102
C System - AAF/Wet Rotoclone No.7	NEW	1,350	112,500	490,000	14	0.059 lb/ton [f]	3.29	N/A	0.033	0.143
								Total	**0.23**	**1.01**

Note: TPD = tons per day, lb/hr = pounds per hour, TPY = tons per year.

Footnotes:

[a] Based on manufacturer's maximum estimated PM inlet loading rate of 1.5 % of throughput rate for fluidized bed dryer/cooler. Factor assumes that all of the fluidized bed dryer/cooler sugar dust is vented to this control device.

[b] Baghouse manufacturers efficiency.

[c] Based on continuous drop emission factors computed from AP-42 (USEPA, 1995) Section 13.2.4.
Formula used with multiple for drop points.
E (lb/ton) = k x 0.0032 x (U/5)^1.3 / (M/2)^1.4 ; where U is assumed to be a max of 1 mph due to the building enclosure.
M = Moisture Content = 0.03% for refined sugar.
k = 0.74 for PM.
E =0.1045 lb/ton per transfer point/operation multiplied by the number of transfer points (for PM).

[d] Manufacturers control equipment efficiency rating for total PM = 99.9% and PM_{10} = 99.0%.

[e] Based on sugar dust analysis, uncontrolled PM_{10} is less than 4% of total sugar dust loading to the control equipment.

[f] $PM_{2.5}$ is assumed to equal PM_{10}.

ATTACHMENT OC-EU1-F1.10b
POTENTIAL PARTICULATE MATTER EMISSIONS USING THE ROTARY DRYING SYSTEM
OKEELANTA CORPORATION

Source Emission Point Description	Emission Unit ID	Maximum Refined Sugar Throughput (TPD)	(lb/hr)	(TPY)	Drop Points Controlled	PM Uncontrolled Emission Factor	Loading to Control Equipment (lb/hr)	Control Efficiency[d] (%)	Maximum Emission Rate (lb/hr)	Maximum Annual Emissions (TPY)
SCENARIO 1 - ROTARY DRYER AND COOLER NOS. 1 AND 2										
Particulate Matter (PM)										
Cooler No. 1 /Wet Rotoclone No. 3	023	1,350	112,500	130,000	N/A	0.175 %[a]	197	99.9	0.20	0.23
Cooler No. 2 /Wet Rotoclone No. 4	024	1,350	112,500	130,000	N/A	0.175 %[a]	197	99.9	0.20	0.23
Rotary Dryer / AAF Skimmer/Wet Rotoclone No. 1	021	1,350	112,500	130,000	N/A	3.150 %[a]	3,544	99.9	3.54	4.09
A System - AAF/Wet Rotoclone No.6	NEW	1,350	112,500	130,000	10	1.045 lb/ton[c]	58.79	99.9	0.059	0.068
C System - AAF/Wet Rotoclone No.7	NEW	1,350	112,500	130,000	1	0.105 lb/ton[c]	5.88	99.9	0.006	0.007
								Total	**4.00**	**4.62**
Particulate Matter (PM_{10})										
Cooler No. 1 /Wet Rotoclone No. 3	023	1,350	112,500	130,000	N/A	0.007 %[e]	7.9	99.0	0.079	0.091
Cooler No. 2 /Wet Rotoclone No. 4	024	1,350	112,500	130,000	N/A	0.007 %[e]	7.9	99.0	0.079	0.091
Rotary Dryer / AAF Skimmer/Wet Rotoclone No. 1	021	1,350	112,500	130,000	N/A	0.126 %[e]	141.8	99.0	1.418	1.638
A System - AAF/Wet Rotoclone No.6	NEW	1,350	112,500	130,000	10	0.0418 lb/ton[e]	2.352	99.0	0.024	0.027
C System - AAF/Wet Rotoclone No.7	NEW	1,350	112,500	130,000	1	0.0042 lb/ton[e]	0.235	99.0	0.002	0.003
								Total	**1.60**	**1.85**
Particulate Matter ($PM_{2.5}$)										
Cooler No. 1 /Wet Rotoclone No. 3	023	1,350	112,500	130,000	N/A	0.007 %[f]	7.9	NA	0.079	0.091
Cooler No. 2 /Wet Rotoclone No. 4	024	1,350	112,500	130,000	N/A	0.007 %[f]	7.9	NA	0.079	0.091
Rotary Dryer / AAF Skimmer/Wet Rotoclone No. 1	021	1,350	112,500	130,000	N/A	0.126 %[f]	141.8	NA	1.418	1.638
A System - AAF/Wet Rotoclone No.6	NEW	1,350	112,500	130,000	10	0.0418 lb/ton[f]	2.352	NA	0.024	0.027
C System - AAF/Wet Rotoclone No.7	NEW	1,350	112,500	130,000	1	0.0042 lb/ton[f]	0.235	NA	0.002	0.003
								Total	**1.60**	**1.85**
SCENARIO 2 - COOLER NOS. 1 AND 2										
Particulate Matter (PM)										
Cooler No. 1 /Wet Rotoclone No. 3	023	600	50,000	130,000	N/A	3.150 %[b]	1575	99.9	1.57	4.09
Cooler No. 2 /Wet Rotoclone No. 4	024	600	50,000	130,000	N/A	0.350 %[b]	175	99.9	0.17	0.45
Rotary Dryer / AAF Skimmer/Wet Rotoclone No. 1	021	0	0	0	N/A	0.000 %[b]	0.00	99.9	0.00	0.00
A System - AAF/Wet Rotoclone No.6	NEW	0	0	0	10	1.045 lb/ton[c]	0.00	99.9	0.00	0.00
C System - AAF/Wet Rotoclone No.7	NEW	0	0	0	1	0.105 lb/ton[c]	0.00	99.9	0.00	0.00
								Total	**1.75**	**4.55**
Particulate Matter (PM_{10})										
Cooler No. 1 /Wet Rotoclone No. 3	023	600	50,000	130,000	N/A	0.126 %[e]	63.0	99.0	0.630	1.638
Cooler No. 2 /Wet Rotoclone No. 4	024	600	50,000	130,000	N/A	0.014 %[e]	7.0	99.0	0.070	0.182
Rotary Dryer / AAF Skimmer/Wet Rotoclone No. 1	021	0	0	0	N/A	0.000 %[e]	0.00	99.0	0.00	0.00
A System - AAF/Wet Rotoclone No.6	NEW	0	0	0	10	0.0418 lb/ton[e]	0.00	99.0	0.00	0.00
C System - AAF/Wet Rotoclone No.7	NEW	0	0	0	1	0.0042 lb/ton[e]	0.00	99.0	0.00	0.00
								Total	**0.70**	**1.82**
Particulate Matter ($PM_{2.5}$)										
Cooler No. 1 /Wet Rotoclone No. 3	023	600	50,000	130,000	N/A	0.126 %[f]	63.0	NA	0.630	1.638
Cooler No. 2 /Wet Rotoclone No. 4	024	600	50,000	130,000	N/A	0.014 %[f]	7.0	NA	0.070	0.182
Rotary Dryer / AAF Skimmer/Wet Rotoclone No. 1	021	0	0	0	N/A	0.000 %[f]	0.0	NA	0.00	0.00
A System - AAF/Wet Rotoclone No.6	NEW	0	0	0	10	0.0418 lb/ton[f]	0.00	NA	0.00	0.00
C System - AAF/Wet Rotoclone No.7	NEW	0	0	0	1	0.0042 lb/ton[f]	0.00	NA	0.00	0.00
								Total	**0.70**	**1.82**

Note: TPD = tons per day, lb/hr = pounds per hour, TPY = tons per year.

Footnotes:

[a] Based on sugar industry data, uncontrolled sugar dust loading (PM and PM_{10}) is a max of 3.5% of the total refined sugar throughput when rotary dryers/coolers are used. Factor assumes that 5% of the uncontrolled sugar dust is vented to each Cooler No. 1 and No. 2 Wet Cyclone and 90% is vented to Wet Rotoclone No. 1.

[b] Based on sugar industry data, uncontrolled sugar dust loading (PM and PM_{10}) is a max of 3.5% of the total refined sugar throughput when rotary dryers/coolers are used. Factor assumes that 90% of the uncontrolled sugar dust is vented to Wet Rotoclone No. 3 and 10% is vented to Wet Rotoclone No. 4.

[c] Based on continuous drop emission factors computed from AP-42 (USEPA, 1995) Section 13.2.4.
Formula used with multiple for drop points.
E (lb/ton) = k x 0.0032 x (U/5)^1.3 / (M/2)^1.4 ; where U is assumed to be a max of 1 mph due to the building enclosure.
M = Moisture Content = 0.03% for refined sugar.
k = 0.74 for PM.
E =0.1045 lb/ton per transfer point/operation multiplied by the number of transfer points (for PM).

[d] Manufacturers control equipment efficiency rating for total PM = 99.9% and PM_{10} = 99.0%.

[e] Based on sugar dust analysis, uncontrolled PM_{10} is less than 4% of total sugar dust loading to the control equipment.

[f] $PM_{2.5}$ is assumed to equal PM_{10}.

ATTACHMENT OC-EU1-F1.10c
POTENTIAL PARTICULATE MATTER EMISSIONS USING THE FLUIDIZED BED AND ROTARY DRYING/COOLING SYSTEMS SIMULTANEOUSLY
OKEELANTA CORPORATION

Source Emission Point Description	Emission Unit ID	Refined Sugar Throughput [a] (TPD)	(lb/hr)	(TPY)	Drop Points Controlled	PM Uncontrolled Emission Factor	Loading to Control Equipment (lb/hr)	Control Efficiency (%)	Maximum Emission Rate (lb/hr)	(TPY)
Particulate Matter (PM)										
Fluidized Bed Drying System										
Fluidized Bed Dryer/Cooler Baghouse	025	1,350	112,500	360,000	N/A	1.5 %	1687.5	99.8	3.38	10.80
Rotary Drying System										
Cooler No. 1 /Wet Rotoclone No. 3	023	450	37,500	130,000	N/A	0.175 %	65.63	99.9	0.07	0.23
Cooler No. 2 /Wet Rotoclone No. 4	024	450	37,500	130,000	N/A	0.175 %	65.63	99.9	0.07	0.23
Rotary Dryer / AAF Skimmer/Wet Rotoclone No. 1	021	450	37,500	130,000	N/A	3.150 %	1,181.3	99.9	1.18	4.09
Material Handling										
B System - AAF/Wet Rotoclone No.2	022	1,800	150,000	490,000	17	1.777 lb/ton	133.26	99.9	0.1333	0.4353
A System - AAF/Wet Rotoclone No.6	NEW	1,800	150,000	490,000	20	2.090 lb/ton	156.78	99.9	0.1568	0.5121
C System - AAF/Wet Rotoclone No.7	NEW	1,800	150,000	490,000	15	1.568 lb/ton	117.58	99.9	0.1176	0.3841
								Total	**5.10**	**16.68**
Particulate Matter (PM_{10})										
Fluidized Bed Drying System										
Fluidized Bed Dryer/Cooler Baghouse	025	1,350	112,500	360,000	N/A	0.060 %	67.50	99.8	0.135	0.43
Rotary Drying System										
Cooler No. 1 /Wet Rotoclone No. 3	023	450	37,500	130,000	N/A	0.007 %	2.63	99.0	0.03	0.09
Cooler No. 2 /Wet Rotoclone No. 4	024	450	37,500	130,000	N/A	0.007 %	2.63	99.0	0.03	0.09
Rotary Dryer / AAF Skimmer/Wet Rotoclone No. 1	021	450	37,500	130,000	N/A	0.126 %	47.25	99.0	0.47	1.64
Material Handling										
B System - AAF/Wet Rotoclone No.2	022	1,800	150,000	490,000	17	0.0711 lb/ton	5.330	99.0	0.053	0.174
A System - AAF/Wet Rotoclone No.6	NEW	1,800	150,000	490,000	20	0.0836 lb/ton	6.271	99.0	0.063	0.205
C System - AAF/Wet Rotoclone No.7	NEW	1,800	150,000	490,000	15	0.0627 lb/ton	4.703	99.0	0.047	0.154
								Total	**0.82**	**2.78**
Particulate Matter ($PM_{2.5}$)[b]										
Fluidized Bed Drying System										
Fluidized Bed Dryer/Cooler Baghouse	025	1,350	112,500	360,000	N/A	0.060 %	67.50	N/A	0.135	0.43
Rotary Drying System										
Cooler No. 1 /Wet Rotoclone No. 3	023	450	37,500	130,000	N/A	0.007 %	2.63	N/A	0.03	0.09
Cooler No. 2 /Wet Rotoclone No. 4	024	450	37,500	130,000	N/A	0.007 %	2.63	N/A	0.03	0.09
Rotary Dryer / AAF Skimmer/Wet Rotoclone No. 1	021	450	37,500	130,000	N/A	0.126 %	47.25	N/A	0.47	1.64
Material Handling										
B System - AAF/Wet Rotoclone No.2	022	1,800	150,000	490,000	17	0.0711 lb/ton	5.330	N/A	0.053	0.174
A System - AAF/Wet Rotoclone No.6	NEW	1,800	150,000	490,000	20	0.0836 lb/ton	6.271	N/A	0.063	0.205
C System - AAF/Wet Rotoclone No.7	NEW	1,800	150,000	490,000	15	0.0627 lb/ton	4.703	N/A	0.047	0.154
								Total	**0.82**	**2.78**

Note: TPD = tons per day, lb/hr = pounds per hour, TPY = tons per year.

Footnote:
[a] Based on 1,800 TPD throughput as a combined operation potential maximum for the refinery.
[b] $PM_{2.5}$ is assumed to equal PM_{10}.

ATTACHMENT OC-EU1-F1.10d
POTENTIAL PARTICULATE MATTER EMISSIONS FROM THE BULK AND TRANSFER LOAD-OUT OPERATIONS
OKEKELANTA COPORATION

Source Emission Point Description	Emission Unit ID	Maximum Refined Sugar Throughput [a] (TPD)	(lb/hr)	(TPY)	PM Uncontrolled Emission Factor	Uncontrolled PM Emissions (lb/hr)	Control Efficiency (%)	Maximum Emission Rate (lb/hr)	Annual Emissions (TPY)
Particulate Matter (PM)									
Bulk load-out Operations	034	600	88,000	139,000	0.105 lb/ton[b]	4.60	50 [d]	2.30	3.63
Transfer Bulk Load-out Operations	035	1,200	144,000	351,000	0.105 lb/ton[b]	7.53	90 [d]	0.75	1.83
							Total	**3.05**	**5.47**
Particulate Matter (PM_{10})									
Bulk load-out Operations	034	600	88,000	139,000	0.00418 lb/ton[c]	0.184	50 [d]	0.092	0.145
Transfer Bulk Load-out Operations	035	1,200	144,000	351,000	0.00418 lb/ton[c]	0.301	90 [d]	0.030	0.073
							Total	**0.12**	**0.22**
Particulate Matter ($PM_{2.5}$)									
Bulk load-out Operations	034	600	88,000	139,000	0.00418 lb/ton[e]	0.184	N/A [e]	0.092	0.145
Transfer Bulk Load-out Operations	035	1,200	144,000	351,000	0.00418 lb/ton[e]	0.301	N/A [e]	0.030	0.073
							Total	**0.12**	**0.22**

Note: TPD = tons per day, lb/hr = pounds per hour, TPY = tons per year.

Footnotes:

[a] Throughput based on 1,800 tons/day (TPD) and 490,000 tons/yr (TPY), with 30/70% split between the Bulk and Transfer Bulk load-out operations.

[b] Bulk load-out operations continuous drop emission factors are computed from AP-42 (USEPA, 1995) Section 13.2.4.
E (lb/ton) = k x 0.0032 x (U/5)^1.3 / (M/2)^1.4 ; where U is assumed to be a max of 1 mph due to the building enclosure.
M = Moisture Content = 0.03% for refined sugar.
k = 0.74 for PM.

[c] PM_{10}, based on sugar dust analysis, is less than 4% of total sugar dust loading.

[d] Represents assumed control efficiency achieved from the building load-out enclosure. Transfer bulk load-out control efficiency is higher than bulk load-out building due to improved design and operating procedures.

[e] $PM_{2.5}$ is assumed to equal PM_{10}.

ATTACHMENT OC-EU1-F1.10e
SUMMARY OFPOTENTIAL PM EMISSIONS FROM THE SUGAR REFINERY
OKEELANTA CORPORATION

Method of Operation	Maximum Potential for Each Method of Operation	
	Hourly Emissions (lb/hr)	Annual Emissions (TPY)
Particulate Matter (PM)		
Fluidized Bed Drying System	3.62	15.75
Rotary Drying System	4.00	4.62
Fluidized Bed and Rotary Drying Systems	5.10	16.68
Maximum for Any Method	5.10	16.68
Bulk and Transfer Load-Out Operations	3.05	5.47
Sugar Refinery Total	**8.15**	**22.15**
Particulate Matter (PM_{10})		
Fluidized Bed Drying System	0.23	1.01
Rotary Drying System	1.60	1.85
Fluidized Bed and Rotary Drying Systems	0.82	2.78
Maximum for Any Method	1.60	2.78
Bulk and Transfer Load-Out Operations	0.12	0.22
Sugar Refinery Total	**1.72**	**3.00**
Particulate Matter ($PM_{2.5}$)[a]		
Fluidized Bed Drying System	0.23	1.01
Rotary Drying System	1.60	1.85
Fluidized Bed and Rotary Drying Systems	0.82	2.78
Maximum for Any Method	1.60	2.78
Bulk and Transfer Load-Out Operations	0.12	0.22
Sugar Refinery Total	**1.72**	**3.00**

Note: lb/hr = pounds per hour; TPY = tons per year.

Footnotes:
[a] $PM_{2.5}$ is assumed to equal PM_{10}.

ATTACHMENT OC-EU1-F1.10f
SUMMARY OF POTENTIAL PARTICULATE MATTER EMISSIONS FROM EACH EMISSIONS UNIT WITHIN THE SUGAR REFINERY
OKEELANTA CORPORATION

Source Emission Point Description	Emission Unit ID	Maximum Potential for Each Emissions Unit	
		Hourly Emissions (lb/hr)	Annual Emissions (TPY)
Particulate Matter (PM)[a]			
Fluidized Bed Drying System			
Fluidized Bed Dryer/Cooler Baghouse	025	3.38	14.70
Rotary Drying System			
Cooler No. 1 / Rotoclone No. 3	023	1.57	4.09
Cooler No. 2 / Rotoclone No. 4	024	0.20	0.45
Rotary Dryer / AAF Skimmer/Wet Rotoclone No.1	021	3.54	4.09
Material Handling			
B System - AAF/Wet Rotoclone No.2	022	0.13	0.44
A System - AAF/Wet Rotoclone No.6	NEW	0.16	0.51
C System - AAF/Wet Rotoclone No.7	NEW	0.12	0.38
Bulk and Transfer Load-Out Operations			
Bulk load-out Operations	034	2.30	3.63
Transfer Bulk Load-out Operations	035	0.75	1.83
Particulate Matter (PM_{10})[b]			
Fluidized Bed Drying System			
Fluidized Bed Dryer/Cooler Baghouse	025	0.14	0.59
Rotary Drying System			
Cooler No. 1 / Rotoclone No. 3	023	0.63	1.64
Cooler No. 2 / Rotoclone No. 4	024	0.079	0.18
Rotary Dryer / AAF Skimmer/Wet Rotoclone No.1	021	1.42	1.64
Material Handling			
B System - AAF/Wet Rotoclone No.2	022	0.053	0.174
A System - AAF/Wet Rotoclone No.6	NEW	0.063	0.205
C System - AAF/Wet Rotoclone No.7	NEW	0.047	0.154
Bulk and Transfer Load-Out Operations			
Bulk load-out Operations	034	0.092	0.145
Transfer Bulk Load-out Operations	035	0.030	0.073
Particulate Matter ($PM_{2.5}$)[a]			
Fluidized Bed Drying System			
Fluidized Bed Dryer/Cooler Baghouse	025	0.14	0.59
Rotary Drying System			
Cooler No. 1 / Rotoclone No. 3	023	0.63	1.64
Cooler No. 2 / Rotoclone No. 4	024	0.079	0.18
Rotary Dryer / AAF Skimmer/Wet Rotoclone No.1	021	1.42	1.64
Material Handling			
B System - AAF/Wet Rotoclone No.2	022	0.053	0.174
A System - AAF/Wet Rotoclone No.6	NEW	0.063	0.205
C System - AAF/Wet Rotoclone No.7	NEW	0.047	0.154
Bulk and Transfer Load-Out Operations			
Bulk load-out Operations	034	0.092	0.145
Transfer Bulk Load-out Operations	035	0.030	0.073

Note: lb/hr = pounds per hour; TPY = tons per year.

Footnotes:
[a] $PM_{2.5}$ is assumed to equal PM_{10}.

ATTACHMENT OC-EU1-F1.10g
POTENTIAL EMISSIONS OF VOCS FROM SUGAR REFINERY CHEMICAL USAGE
OKEELANTA CORPORATION

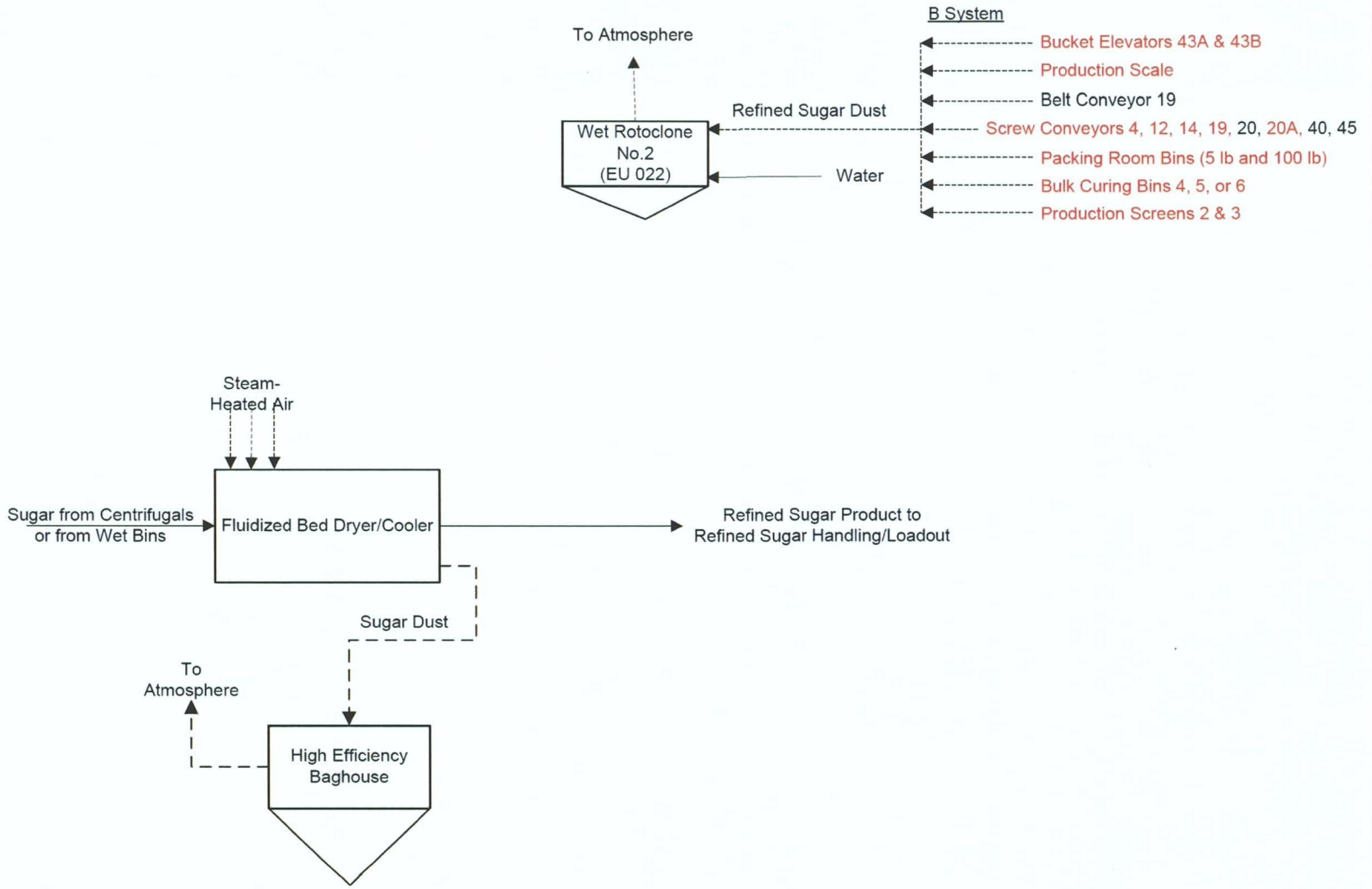
Material	Chemical	VOC Content	Potential Chemical Usage[a] (lb/yr)	Potential VOC Emissions (TPY)
Alcohol	Isopropyl Alcohol or Ethanol	100 %	78,040	39.02
		Total VOCs	**10.36 lb/hr[b]**	**39.0 TPY**

Note: lb/hr = pounds per hour; TPY = tons per year.

Footnotes:
[a] Based on estimates for maximum usage rates.
[b] Based on 7,531 hours per year (hr/yr) for the Fluidized Bed dryers reported in the facility's 2007 Annual Operating Report (a minimum for the most recent 3 years, 2007-2009), assuming that 100% of compound is emitted to the atmosphere.

ATTACHMENT OC-EU1-I1

PROCESS FLOW DIAGRAMS



Proposed changes are shown in red.

Attachment OC-EU1-I1a
Process Flow Diagram
Operations with Fluidized Bed Dryer/Cooler
Okeelanta Refinery
South Bay, Florida

Process Flow Legend
Solid/Liquid ——→
Gas - - - →

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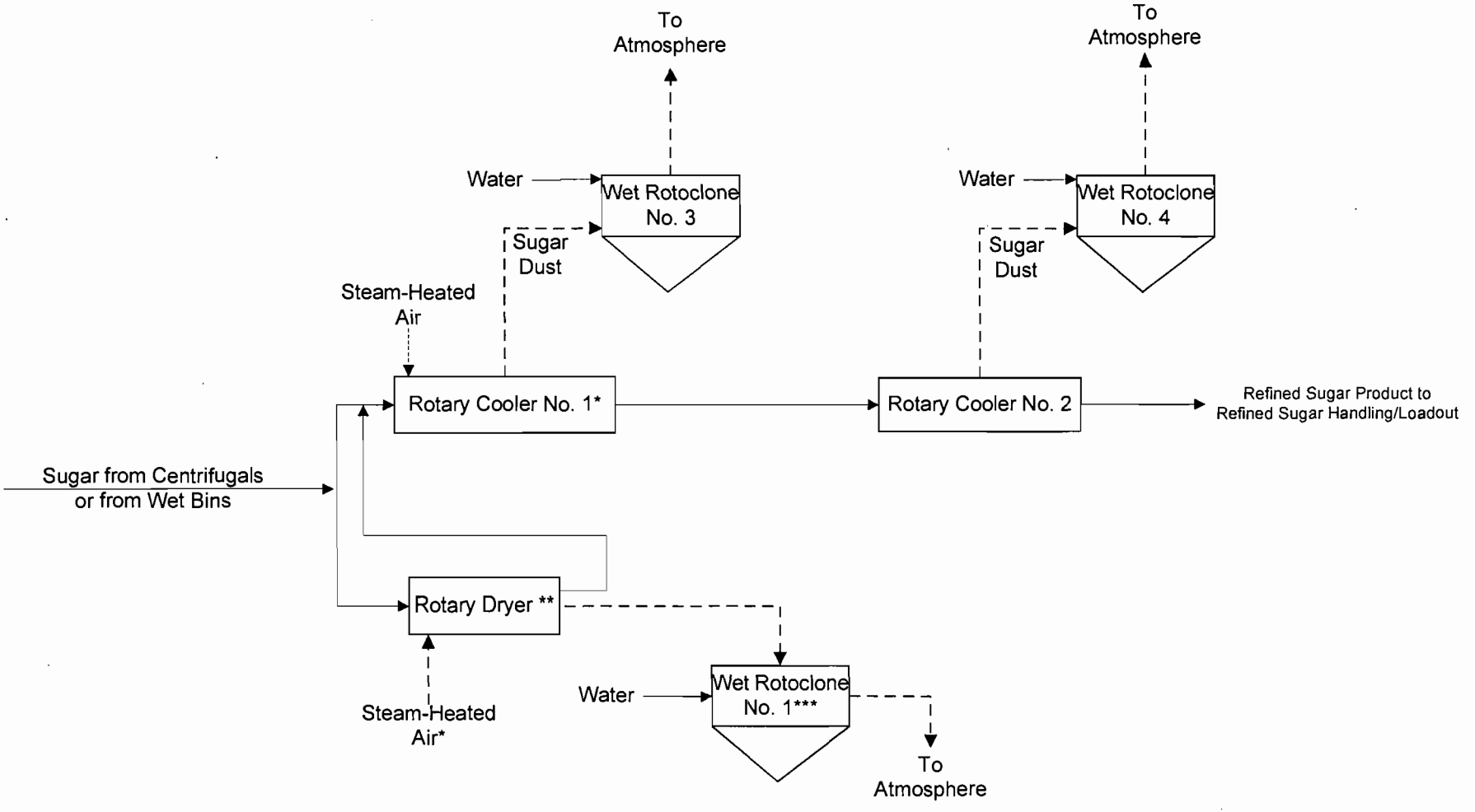
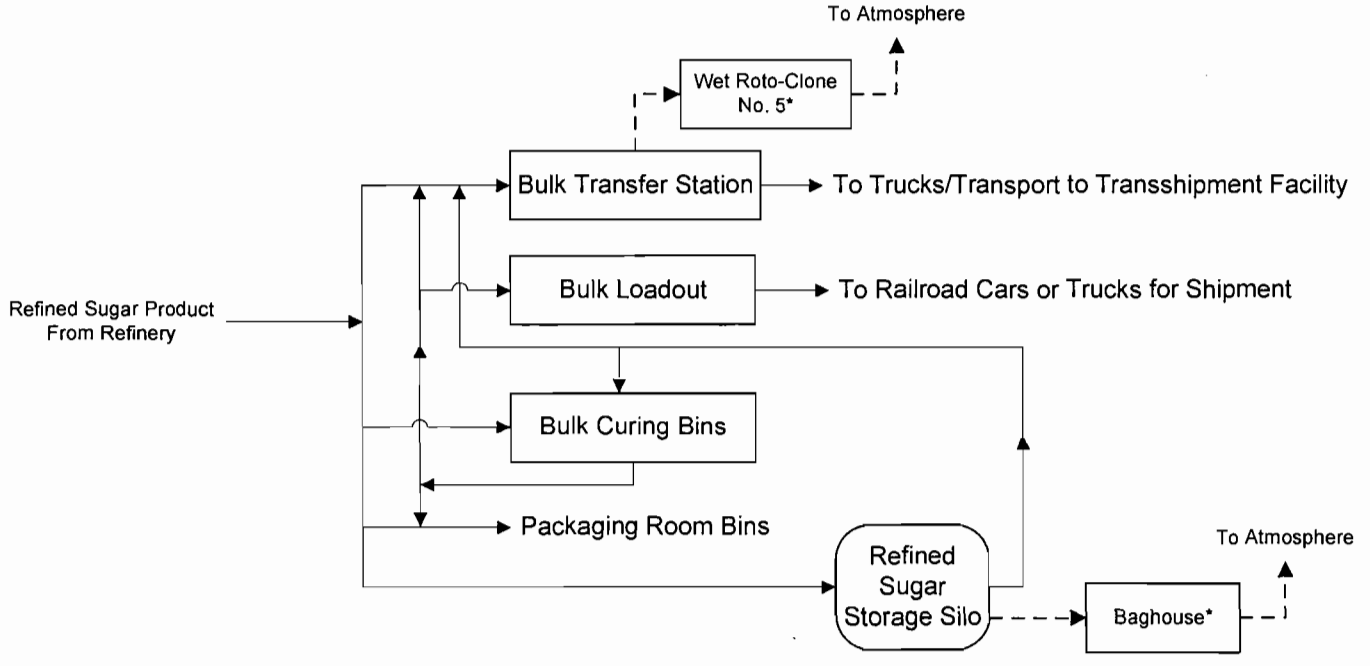


* For specialty sugar with low-production loads (<450 TPD), Rotary Cooler No. 1 functions as Dryer (Rotary Dryer not Operated).
** Rotary dryer typically run only for high-production loads.
*** Operated only when Rotary Dryer is needed.

Attachment OC-EU1-I1b
Process Flow Diagram
Operations with Rotary Dryer/Coolers
Okeelanta Refinery
South Bay, Florida

Process Flow Legend
Solid/Liquid →
Gas ⇢

Golder Associates



* These sources were determined to be exempt from permitting.

Attachment OC-EU1-I1c
Process Flow Diagram
Refined Sugar Handling/Loadout
Okeelanta Refinery
South Bay, Florida

Process Flow Legend
Solid/Liquid ——→
Gas - - - - - →

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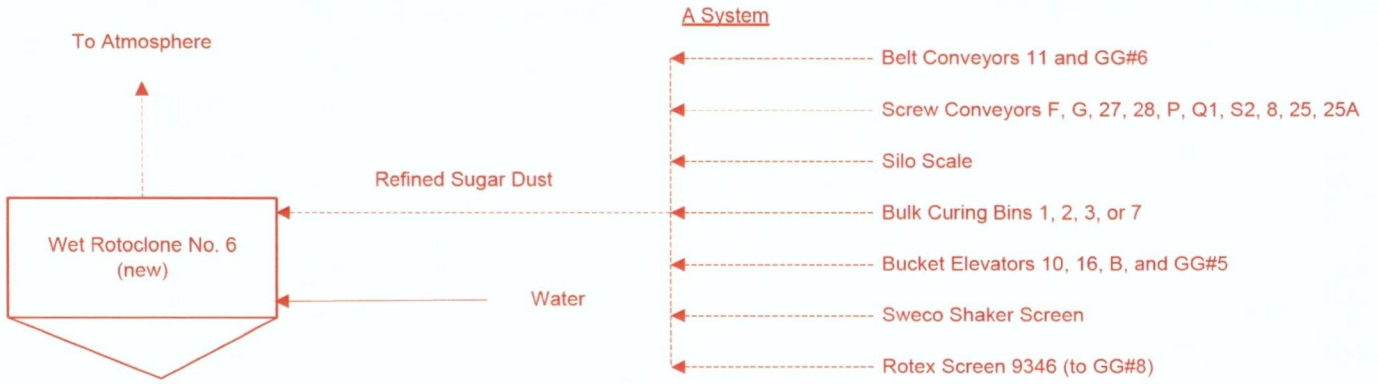

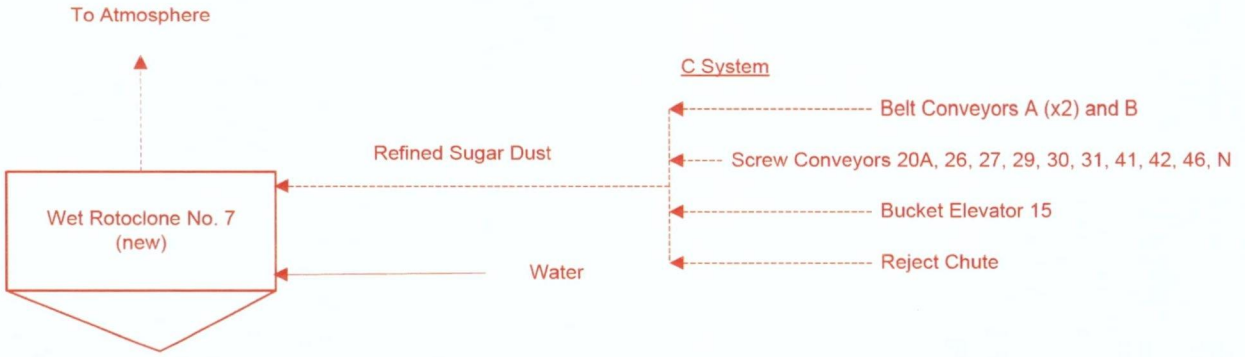

Proposed changes are shown in red.

Attachment OC-EU1-I1d
Process Flow Diagram
New Dust Collection Systems for Rotary Dryer/Coolers and Fluidized Bed Dryer/Cooler
Okeelanta Refinery
South Bay, Florida

Process Flow Legend
Solid/Liquid ——→
Gas - - - →

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ATTACHMENT OC-EU1-I3

DETAILED DESCRIPTION OF CONTROL EQUIPMENT

Attachment OC-EU1-I3a: Control Parameters and Particulate Removal Efficiencies for Sugar Dust Wet Collection Systems at the Sugar Refinery, Okeelanta Corporation

Name	Rotary Dryer Wet Rotoclone No. 1	B System Wet Rotoclone No. 2	Rotary Cooler No. 1 Wet Rotoclone No. 3	Rotary Cooler No. 2 Wet Rotoclone No. 4	A System Wet Rotoclone No. 6	C System Wet Rotoclone No. 7
Emission Unit ID No.	021	022	023	024	NEW	NEW
Manufacturer	American Air Filter (AAF)	American Air Filter (AAF)	American Air Filter (AAF)	American Air Filter (AAF)	American Air Filter (AAF)	American Air Filter (AAF)
Type/Design	Wet Rotoclone Type W, Size 27	Wet Rotoclone Type W, Size 27	Wet Rotoclone Type W, Size 27	Wet Rotoclone Type W, Size 27	Wet Rotoclone Type W, Size 27	Wet Rotoclone Type W, Size 27
Outlet Gas Temp (°F) Outlet Gas Flow Rate (acfm)	100 15,000	100 14,770	100 15,000	100 15,000	100 15,078	100 12,895
Water Injection Rate (gal/min) (minimum)[a]	2	2	2	2	2	2
Total PM Control Efficiency (%)[b] Total PM_{10} Control Efficiency (%)[b] Total $PM_{2.5}$ Control Efficiency (%)[b]	99.9 99.0 88	99.9 99.0 88	99.9 99.0 88	99.9 99.0 88	99.9 99.0 88	99.9 99.0 88

Sample calculations:
Control efficiency (%) = [(inlet loading rate - outlet loading rate) / inlet loading rate] × 100.

Footnotes:
[a] Based on 2002 stack testing for Rotoclones Nos. 1 and 2, and manufacturer's data for Rotoclones Nos. 3, 4, 6, and 7.
[b] Control efficiency is manufacturer's efficiency rating.

Attachment OC-EU1-I3b: Control Equipment Parameters and Particulate Removal Efficiency Derivation for Fluidized Bed Dryer/Cooler Pulse Jet Baghouse (EU 025) at Sugar Refinery - Okeelanta Corporation

Manufacturer	BETH GmbH, 23556 Lobeck
Type	BETHPULS 6.60 x 7.5.10
Outlet Gas Temp (°F)	115
Outlet Gas Flow Rate (acfm)	70,620
Exhaust Gas Moisture Content (%)	0.7
Cleaning Method	Pulse Jet Compressed Air
Compressed Air Consumption (cfm)	51.8
Number of Bags	420
Total Filter Media Surface Area (sq. ft)	9,041
Air to Cloth Ratio (cfm per sq ft.)	7.81
Outlet Loading (grains/dscf)	0.00348 [a]

Pollutants	Inlet[b] Loading lb/hr	Control[c] Efficiency (%)	Outlet Loading lb/hr
Particulate Matter	960	99.80	1.92

Note: All parameters are based on manufacturers design information.

Footnotes:

[a] Calculated based on expected outlet loading rate (lb/hr) and outlet gas flow rate (scfm) at operational conditions.

[b] Inlet loading to the filter specified by the fluidized bed dryer manufacturer while operating at Okeelanta's estimated maximum refined sugar production (includes a 20% design safety factor).

[c] Control efficiency based on baghouse manufacturers design information for dust content in raw gas (10g/m³ at standard conditions) and for dust content in clean gas (20 mg/m³ at standard conditions).

Sample calculations:

Outlet loading rate = inlet loading rate x [1-(control efficiency/100)].

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DUST COLLECTION SYSTEM DESIGN FOR FLORIDA CRYSTALS CORPORATION
OKEELANTA REFINERY, SOUTH BAY FLORIDA
March 23, 2010

Proposed workscope:
The work to be completed includes:

- Field sketches of existing, and new, dust collection points
- Confirm viability of using 2 existing Rotoclones
- Design balanced systems to operate without slidegates at velocities greater than 4000 FPM, fully balanced on pressure as specified in the Vent Manual and NFPA
- Specify dust collectors for Storage Silo and Transfer Station
- Provide system design conditions
- Produce system drawings on your existing CAD drawings that can be used for equipment and installation costs
- Assist Florida Crystals in filling out any Air Permits required by providing dust collector specification and design airflows

System design guidelines:
Fluid Engineering systems are designed in accordance with applicable standards from:

- *ASHRAE Handbook on HVAC Fundamentals*, 1991.
- *Industrial Ventilation, A Manual of Recommended Practices*, 22nd Edition.
- *Sheet Metal and Air Conditioning National Standards*, guidelines and practices.
- *Fan Engineering*, An engineer's handbook on fans and their applications, Buffalo Forge, 1983.
- *TCF Engineering Data – Make-Up Air*, ED-1500, 2000.
- *Industrial Air Pollution Control Systems*, Heumann.

Work Completed:

1. A complete system design in accordance with well established industry guidelines.
2. A layout drawing of the new dust collection system.
3. Complete design specifications for the systems.

Upon completion of our system design for the refinery building, it became necessary to divide the airflow requirements into 3 separate systems. Rotoclones will be used for collection of dust on these 3 systems. Wet collection does not require explosion vents.

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(334) 702-4456 phone (334) 702-7568 fax

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Dust collection duct, unless the loading is very- very high, does not need explosion vents since 25% of the "lower flammable limit" is not reached. Our scope of supply does not include explosion suppression or isolation that may be required on your process equipment. (At Imperial Sugar, a newly enclosed belt conveyor under 3 silos exploded after a bearing overheated.) Enclosed belts, screws, bucket elevators and silos need explosion protection per NFPA.

REFINERY DUST COLLECTION SYSTEM A
System design airflow: 15,078 ACFM
System static pressure requirement: 11.03" W.G.
Collection Device: AAF Rotoclone Model 27

REFINERY DUST COLLECTION SYSTEM B
System design airflow: 14,770 ACFM
System static pressure requirement: 10.85" W.G.
Collection Device: AAF Rotoclone Model 27

REFINERY DUST COLLECTION SYSTEM C
System design airflow: 12,895 ACFM
System static pressure requirement: 10.38" W.G.
Collection Device: AAF Rotoclone Model 27

DUCTWORK
All ductwork shall be of a clamp-together design using a die-formed, rolled edge in which is then joined together by a single lever clamp of similar material. All clamp together ducting shall be of continuous laser welded construction along the longitudinal seam of the rolled form duct. All connections shall have a Gortex seal for food grade applications. Duct material sheet blanks are five feet long, which is then rolled and fused together with a laser weld process along the longitudinal seam. The ends of the duct are then pressed in a die to from a rolled bead on each end of the duct. This rolled-end is used for clamping components together as well as reinforcement every 5 feet. Straight duct and other connecting components to be constructed of stainless steel to be 304 2B finish (2B finish is annealed, pickled and bright cold rolled). Diameters larger than 24" will have flanged connections. All elbows will be 1.5D radius. All tapins will be in enlargements at a 45° angle. All duct will be supported every 10'.

SCREW CONVEYOR FILTERED INLETS
It will be necessary to provide filter air inlets on the screw conveyor covers specified to provide inlet air to convey dust from the screw conveyors.

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TYPE W ROTO-CLONE

COLLECTS MORE DUST FOR FEWER DOLLARS!

The Type W Roto-Clone has become a dust control favorite throughout industry. The reason: Type W is the lowest priced high efficiency wet dust collector in its class.

The distinguishing feature of the Type W is the addition of water sprays to the basic principle of dynamic precipitation. The spray maintains a flowing film of water on all collecting surfaces which:

1. **Lowers water requirements to a minimum.**
2. **Traps even the lightest and finest dust particles.**
3. **Delivers collected dust in slurry form for easy disposal.**

Type W Roto-Clone provides everything you need, except duct connections, in one complete, shop-assembled package — high efficiency collector, exhauster, motor and drive. Available in 12 sizes from 1,000 to 50,000 cfm.

For heavy dust concentrations, a Precleaner is used with the Type W. The Precleaner removes the bulk of the dust, either wet or dry, leaving only the fines to be collected by the Roto-Clone.

Highest Efficiency
Combines dynamic precipitation with a water spray. Maintains efficiency over entire operation range, regardless of speed or air volume. **98% or better dust removal for most applications.**

Minimum Water Requirement
Water consumption is limited to a small amount required to maintain a flowing film on all collecting surfaces. **From ½ to 1 gallon per 1,000 cfm of air cleaned.**

Small Space Requirements
Roto-Clone combines exhauster and dust collector. **Basically no larger than a centrifugal exhaustar.**

Low Installation Cost
Factory-assembled, tested, and shipped in sub-assemblies convenient to handle and easy to erect. **As simple to install as a centrifugal fan with the exception that furnace type ducting is not recommended — use welded duct. Water supply and drain are the only additional connections.**

Continuous Operation
Uniform performance at peak efficiency without interruption for reconditioning or servicing of any kind. **Will operate around the clock — day after day.**

Great Flexibility
Variety of sizes for any exhaust requirement. Compact design allows relocation at minimum expense. **Sizes with capacities from 1,000 to 50,000 cfm.**

Constant Exhaust Volume
Proper conveying velocity in ducts and effective dust control at hoods maintained by constant exhaust air volume. **Build-up in ducts and escapement from hoods is prevented.**

No Secondary Dust Problem
Collected dust discharges as slurry to process, sewer or sump.

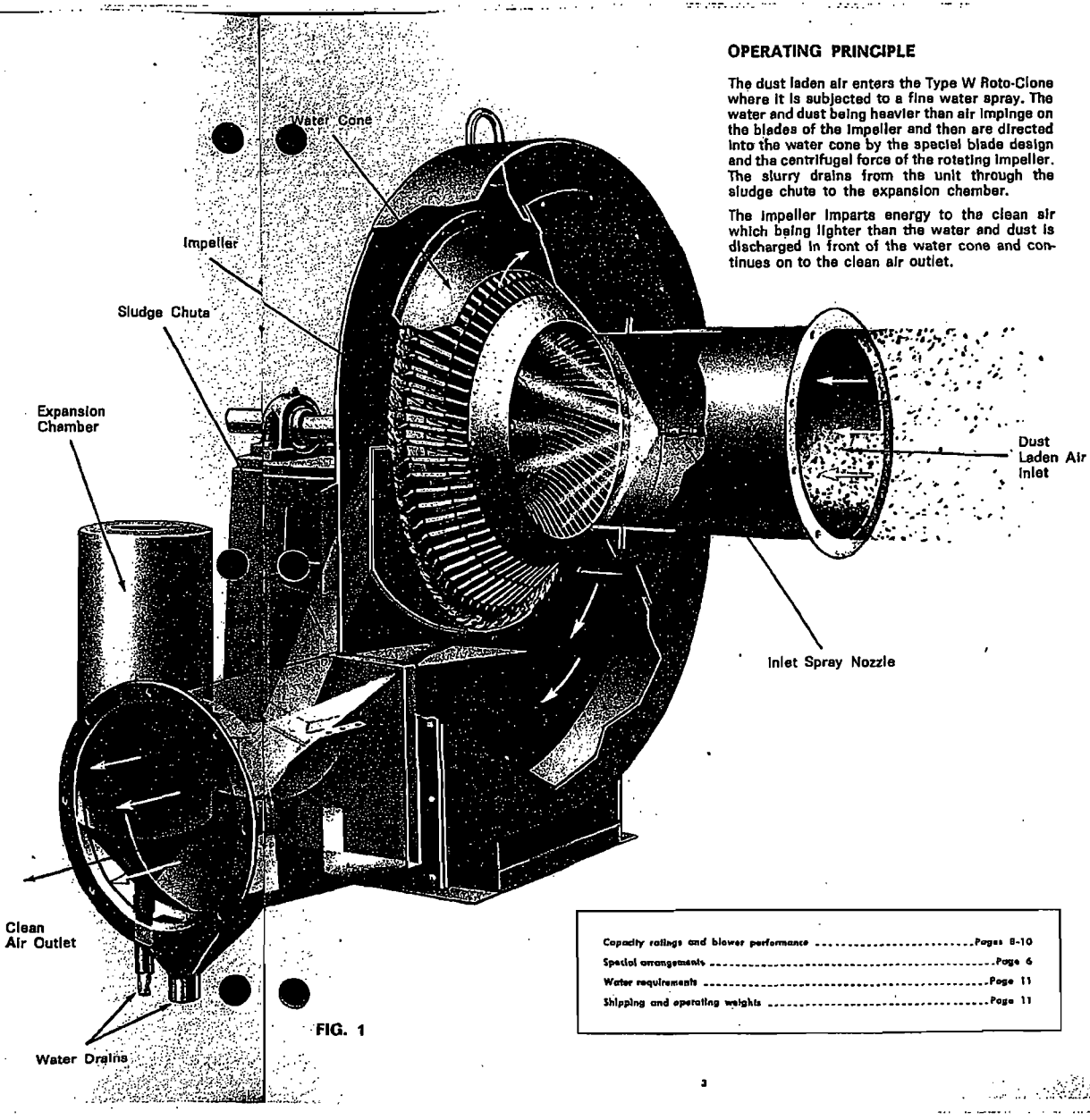


FIG. 1

OPERATING PRINCIPLE

The dust laden air enters the Type W Roto-Clone where it is subjected to a fine water spray. The water and dust being heavier than air impinge on the blades of the impeller and then are directed into the water cone by the special blade design and the centrifugal force of the rotating impeller. The slurry drains from the unit through the sludge chute to the expansion chamber.

The impeller imparts energy to the clean air which being lighter than the water and dust is discharged in front of the water cone and continues on to the clean air outlet.

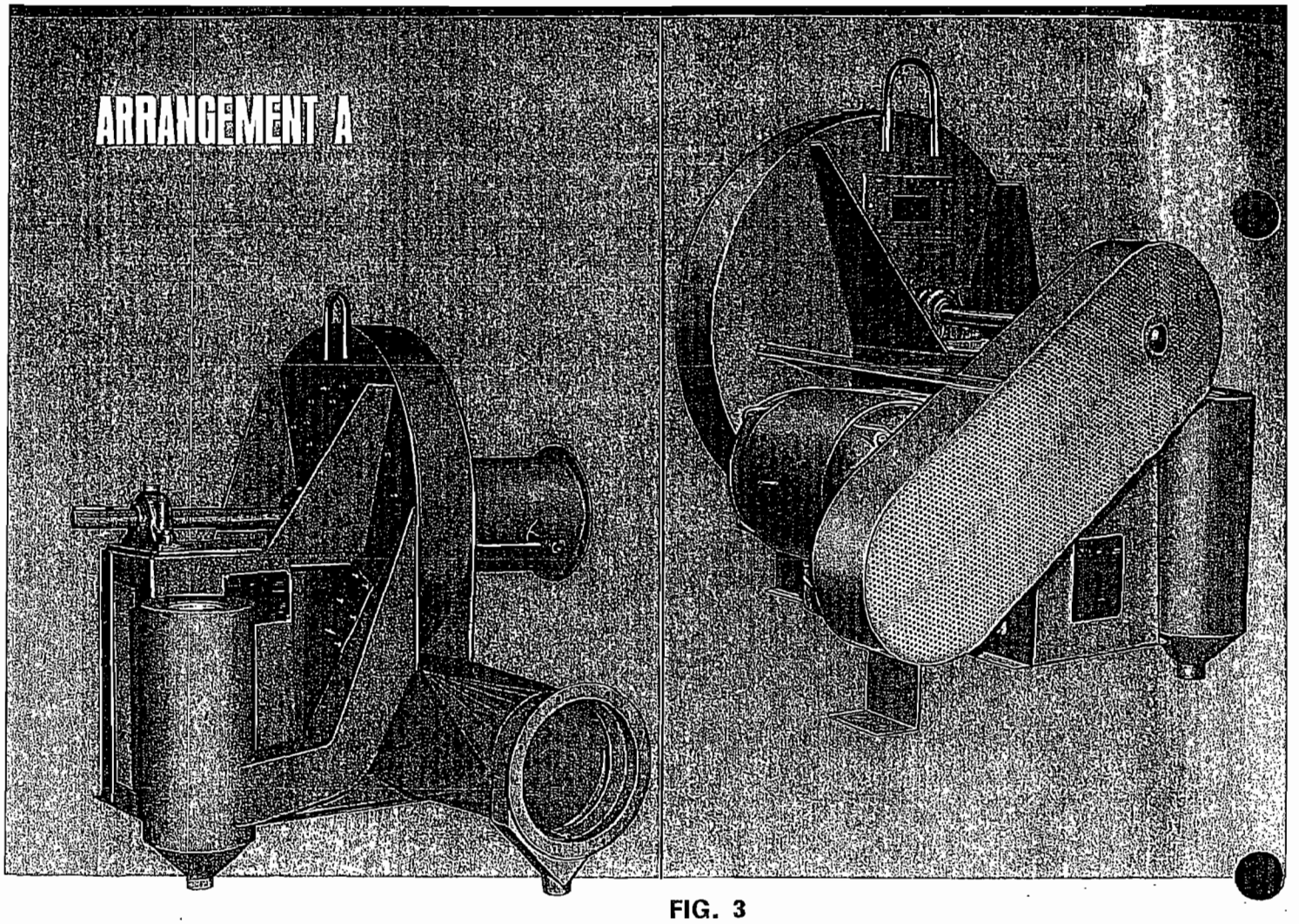


FIG. 2

Type W Roto-Clone, Arrangement A, from drive side. Clean air outlet may be horizontal duct, as shown, or rectangular elbow.

The Type W Roto-Clone, Arrangement A, is recommended for the collection of light loadings of granular dusts and mist. Dynamic forces developed by the rotating impeller cause even the finest particles to impinge on and be trapped by the flowing water film which covers all blade surfaces. The slurry formed by water and collected dust drains from the bottom of the Roto-Clone expansion chamber (see Figure 1). Slurry may be piped to a sump or sewer, returned to process, or discharged to a settling tank where the collected solids precipitate by gravity and clear water overflows to the sewer or drain.

The Type W Roto-Clone has the performance characteristics of a centrifugal fan. The relation between pressure, volume, and horsepower follows the standard laws of fan performance. Maximum operating speeds are shown in Table C, page 11.

If high temperature, corrosive, or toxic exhaust gases are cleaned, the expansion chamber should be vented to the outside of the building as illustrated in Figure 11, page 11.

FIG. 3

Type W Roto-Clone, Arrangement A, is available in Arrangement 9 motor mounting where dimensions permit mounting motor on bearing pedestal.

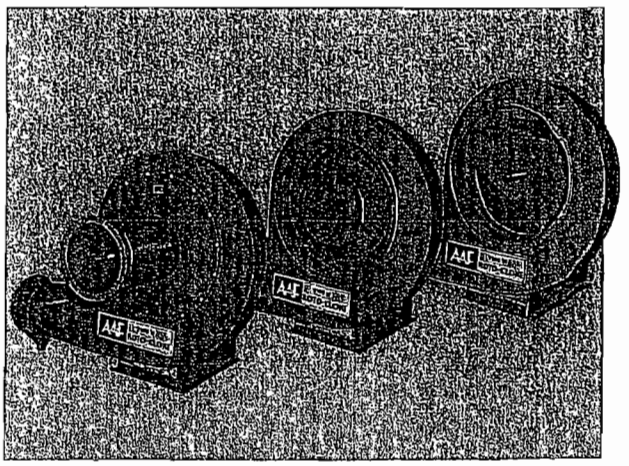
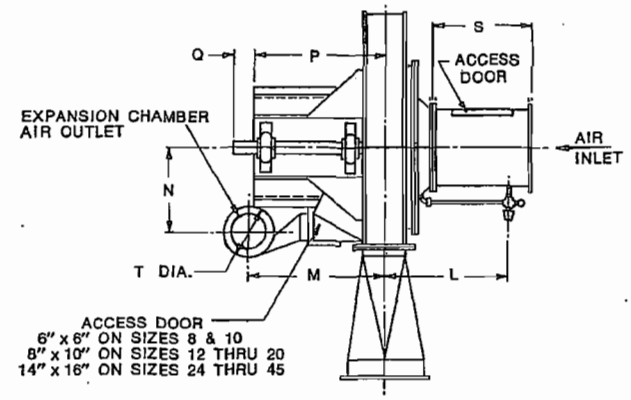


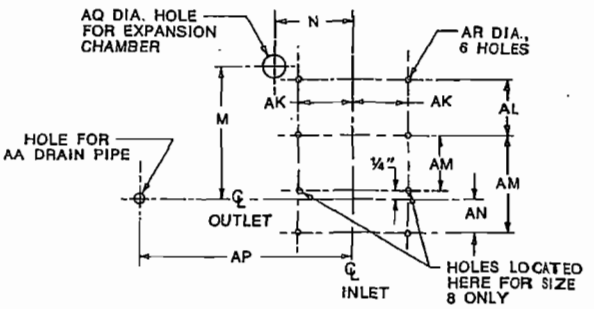
FIG. 4

Standard construction includes brass spray nozzles, stainless steel impeller blades and rivets. Water cone, impeller discs, and welded housing are hot rolled steel plate. All parts can be supplied of aluminum, stainless steel or other metals or the internal housing can be protected with corrosion resistant material (the impeller cannot be coated). See Fig. 5 for additional construction data.

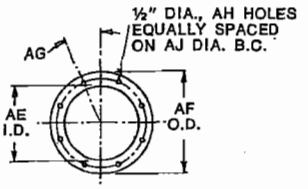
ARRANGEMENT A



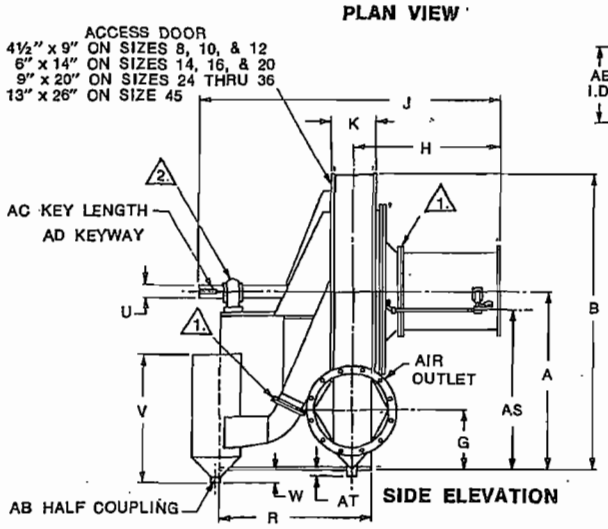
PLAN VIEW



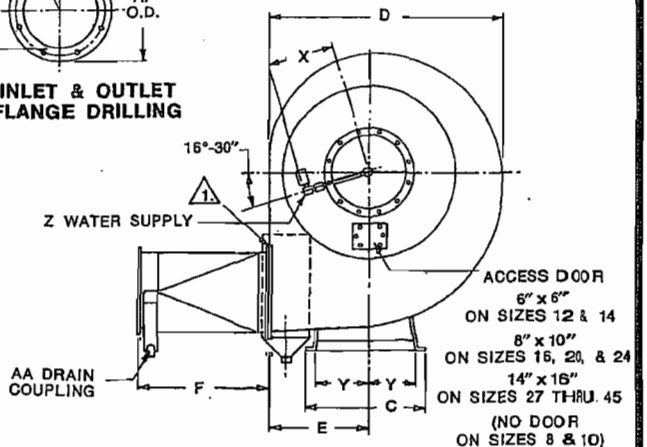
BASE DRILLING



INLET & OUTLET FLANGE DRILLING



SIDE ELEVATION



FRONT ELEVATION

1. STANDARD ROTO-CLONES SIZES 20 AND SMALLER HAVE INLET, OUTLET, AND EXPANSION CHAMBER WELDED TO HOUSING IN LIEU OF FLANGED AND BOLTED CONNECTION.

2. 5 15/16" DIA. BEARING ON SIZE 45; BEARING SIZE SAME AS "U" ON OTHERS.

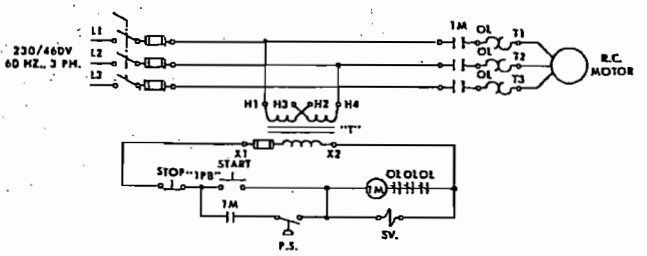
SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W
8	20"	2'-8 15/16"	12¾"	2'-1⅜"	11⅛"	14"	7⅜"	18 3/16"	3'-7¼"	4⅜"	11 9/16"	20 1/16"	10"	21⅜"	3½"	23 9/16"	14"	7⅛"	1⅛"	18¾"	1 1/16"
10	24"	3'-3 13/16"	15"	2'-7⅜"	13 1/16"	17½"	8¼"	21 13/16"	4'-3¾"	5⅜"	14 13/16"	2'-1⅛"	10¾"	2'-2 1/16"	3⅞"	2'-4⅜"	16"	6⅛"		22⅛"	2 1/16"
12	2'-5"	4'-0¼"	19¾"	3'-2½"	16 5/16"	21"	10"	2'-1"	4'-10 1/16"	6⅜"	17⅞"	2'-3⅛"	14½"	2'-4 9/16"	4½"	2'-7⅛"	18"	10⅛"	1 13/16"	2'-3¼"	3 1/16"
14	2'-8½"	4'-8¾"	21½"	3'-8½"	19⅛"	24½"	10 1/16"	2'-4"	5'-2 13/16"	7¼"	20⅛"		16 1/16"	2'-5 1/16"	5⅞"	2'-8 9/16"	20"	11⅛"	2 1/16"	2'-5 11/16"	4⅛"
16	3'-1½"	5'-3⅛"	2'-4½"	4'-3¼"	22"	2'-4"	12⅛"	2'-7 3/16"	5'-6½"	8¼"	22 1/16"	2'-6 1/16"	18½"	2'-5 15/16"	5¾"	2'-9 1/16"	22"	12¼"		2'-8¼"	2 1/16"
20	3'-10"	6'-5 1/16"	2'-8½"	5'-3⅛"	2'-3 1/16"	2'-11"	14⅛"	2'-11½"	6'-9 1/16"	10¼"	2'-8⅛"	3'-0 13/16"	21⅜"	3'-3 1/16"	6⅝"	3'-8 1/16"	24"	13¼"		3'-0¾"	2½"
24	4'-8⅛"	7'-10 1/16"	3'-2½"	6'-3⅛"	2'-8¼"	3'-6"	18 1/16"	3'-9 1/16"	7'-10 5/16"	12¾"	3'-2 1/16"	3'-7¾"	2'-2"	3'-6 13/16"	6 9/16"	4'-0 1/16"	2'-8"	15¼"	2 1/16"	3'-4 13/16"	3 1/16"
27	5'-2"	8'-8¼"	3'-8½"	7'-0½"	3'-0⅛"	3'-11"	20"	4'-2¼"	8'-8¼"	13⅞"	3'-6¾"	4'-1⅞"	2'-5"	3'-9 1/16"	8 1/16"	4'-4 1/16"	2'-11"	17¼"	3 1/16"	3'-9 13/16"	4"
30	5'-7¼"	9'-5¾"		7'-9"	3'-3⅜"	4'-4½"	21"	4'-7 1/16"	9'-3 1/16"	15⅞"	4'-0 1/16"	4'-6 1/16"	2'-8"	3'-10 1/16"	9 1/16"	4'-5 1/16"	3'-2"	18¾"	3 1/16"	4'-2 5/16"	5¾"
33	6'-2"	10'-5 13/16"	4'-2½"	8'-7⅝"	3'-8 5/16"	4'-10"	22½"	4'-11 13/16"	10'-1 7/16"	17"	4'-4 13/16"	5'-0 7/16"	3'-1"	4'-3"	10⅜"	4'-11¼"	3'-5"	19½"	3 13/16"	4'-6⅝"	5 1/16"
36	6'-7½"	11'-3¼"		9'-3½"	3'-11⅝"	5'-3½"	24"	5'-4¼"	10'-11⅛"	18½"	4'-9¼"	5'-3 5/16"	3'-3"	4'-5 3/16"	12⅛"	5'-3⅛"	3'-8"	20¼"		4'-10"	4¼"
45	8'-0¾"	13'-9 1/16"	5'-2½"	11'-4⅞"	4'-10 13/16"	6'-7"	2'-4½"	6'-8 5/16"	12'-1 9/16"	23"	5'-10 11/16"	6'-7¼"	4'-0"	4'-5 3/16"	11 3/16"	5'-5"	4'-7"	23⅜"	4¼"	6'-0½"	5¼"

SIZE	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	AN	AP	AQ	AR	AS	AT
8	11½"	4⅞"				3"		6"	11⅛"	30°	6	9⅛"	5¾"	12"	7"		22 5/16"	4¾"		16¾"	1½"
10	11¾"	6"	¾"	1½"	1½"	3¼"	⅜"	10"	13⅛"			11⅝"	6⅞"		10"	1/4"	2'-4⅛"	6¼"	5/16"	20¾"	2¼"
12	14"	7⅞"				3¾"		12"	15⅛"			14"	9"	14"	13"	¾"	2'-11"	7¼"		2'-1"	1¾"
14	15 3/16"	8¾"					½"	14"	17⅛"	22½°	8	15¾"	9⅞"	14½"	13½"	1¼"	3'-4"	9⅛"		2'-3⅛"	2 1/16"
16	18¾"	11¼"			2"	5¼"		16"	20⅛"			18¾"	13"	16"	13"	1¼"	3'-10⅜"			2'-8⅜"	2½"
20	19 5/16"	13¼"					5/8"	20"	24⅛"			22½"	15"	19½"	20"	2¾"	4'-10 7/16"	6"	1 1/16"	3'-4½"	2¾"
24	21 13/16"	16¼"				6"		24"	2'-4½"	15°	12	2'-2¼"	18"	24"	20½"	3¼"	5'-10⅝"	8½"	1 3/16"	4'-2¼"	1 3/16"
27	23⅝"		1"	2"	2½"	7¾"	¾"	2'-3"	2'-7⅛"			2'-5⅛"		23½"		4½"	6'-7½"	9½"		4'-7¼"	2¼"
30	2'-1½"	19¼"				9"	⅞"	2'-6"	2'-10⅛"			2'-8⅜"	21"	2'-1"	24¼"	5¼"	7'-4⅝"	12½"	⅞"	5'-0"	3½"
33	2'-3⅞"					9½"		2'-9"	3'-1⅛"			2'-11¾"		2'-3"	2'-3¾"	6"	8'-2 1/16"	12"		5'-6¼"	4¼"
36	2'-5 5/16"	22¼"			3"	11"	1"	3'-0"	3'-4⅛"	11¼°	16	3'-2⅛"	24"	2'-5"	2'-6¼"	6¾"	8'-11½"	11¼"	1½"	5'-11¼"	4¾"
45	2'-10 13/16"	2'-4¼"		2½"	3½"	10"		3'-9"	4'-3⅛"	9°	20	4'-0⅜"	2'-6"	2'-3"	2'-9½"	9"	11'-2 9/16"	14"		7'-2¾"	7 1/16"

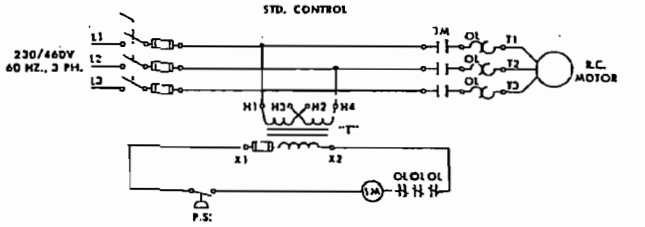
FEATURES & OPTIONS

WIRING DIAGRAM
FIG. 6

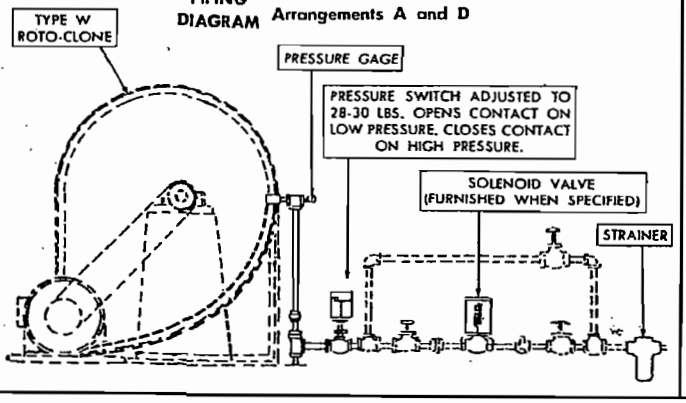
WITH MOD. "SV" CONTROL



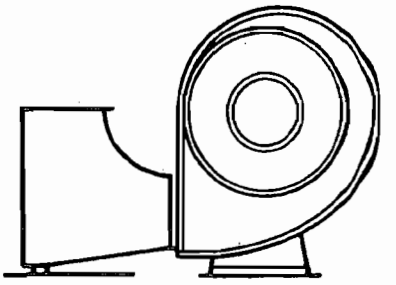
STD. CONTROL



PIPING DIAGRAM
Arrangements A and D



90° OUTLET ELBOW



The 90° outlet elbow is recommended where a vertical stack is required immediately at the Roto-Clone discharge. Refer to Drawing 48P-870790 for dimensions.

FIG. 6

CENTRIFUGAL OUTLET

The centrifugal outlet is recommended where cleaned air is recirculated back to work area or where corrosive mists may be exhausted. It protects against possible damage from accosional water droplets. The centrifugal outlet replaces and is interchangeable with the standard air outlet. Ask for Drawing 48P-1023266 showing dimensions of this accessory.

If the centrifugal outlet is used there is an additional loss of 2VP based on the inlet velocity of the Type W Roto-Clone.

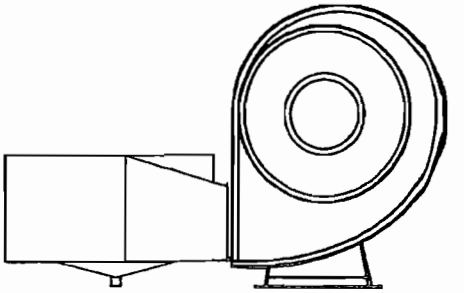


FIG. 7

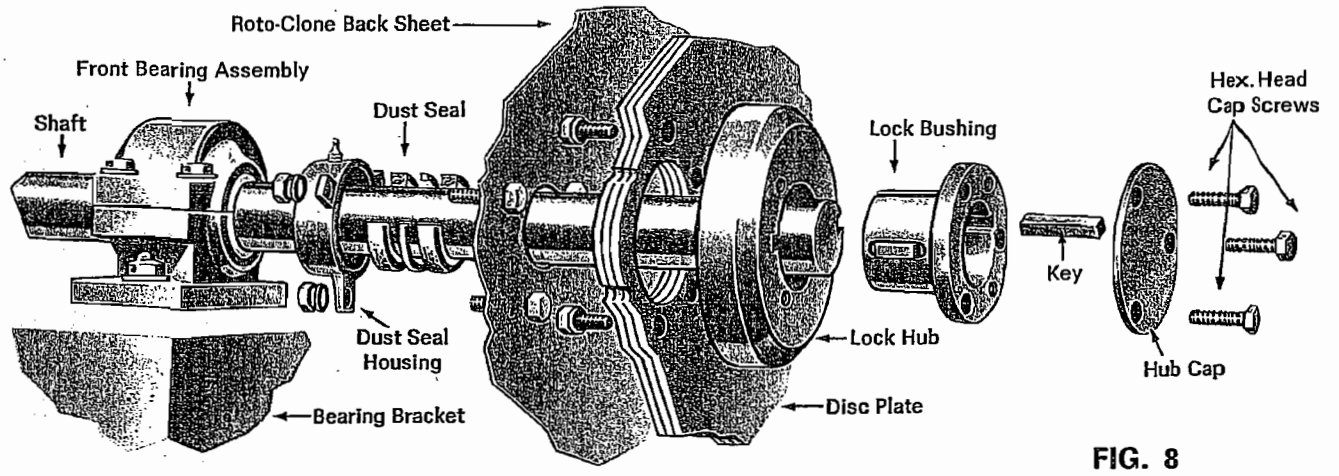
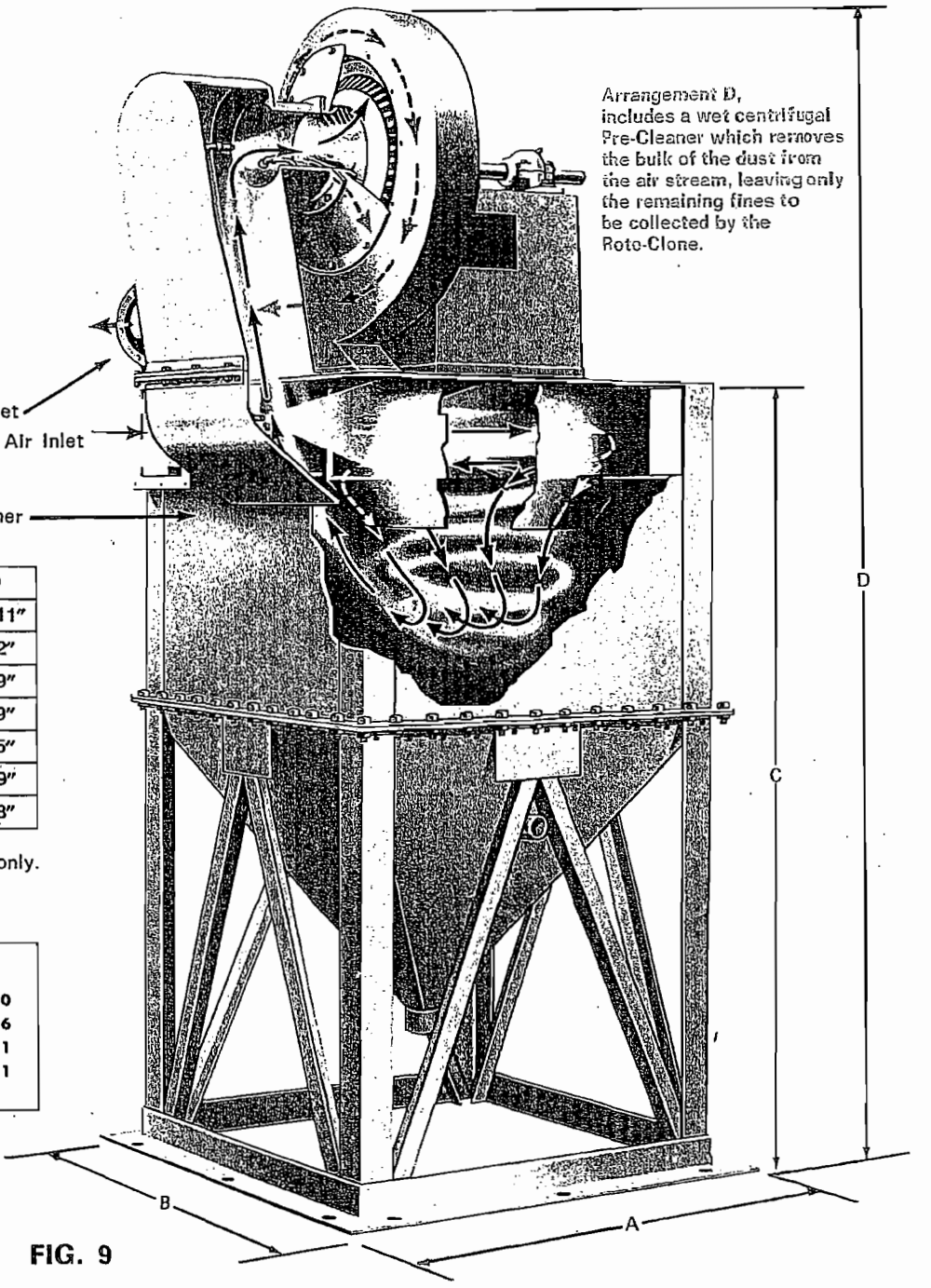


FIG. 8

SHAFT ASSEMBLY

Construction details of Type W Roto-Clone shaft assembly showing heavy duty bearings, oversized shaft, watertight, shaft seal, laminated impeller disc, and cast iron hub with taper lock for easy impeller removal.

ARRANGEMENT D



Size	A	B	C	D
8	3'-6"	3'-1"	6'-2"	8'-11"
10	4'-2"	3'-1"	6'-10"	10'-2"
12	4'-8"	3'-1"	6'-9"	10'-9"
14	5'-3"	5'-3"	7'-2"	11'-9"
16	5'-9"	5'-9"	7'-1"	12'-5"
20	6'-11"	6'-11"	8'-4"	14'-9"
24	8'-1"	8'-1"	8'-10"	16'-8"

Note: These dimensions are approximate only. See drawing 48P-851964 for final dimensions.

FIG. 9

The Type W Roto-Clone, Arrangement D, is designed to collect heavy concentrations of granular dust. It is recommended where facilities for separating the collected dust from the clean water are available, or where the slurry can be returned to process or discharged to a sump or waste tract.

The Arrangement D is equipped with an integral wet centrifugal Precleaner which removes a high percentage of the incoming dust from the airstream. The wet Precleaner is more effective than the dry-type Skimmer Precleaner or other dry centrifugal collectors, and minimizes the dust loading to the Roto-Clone even where very heavy concentrations of fine material are encountered.

The pressure loss in the wet Precleaner section is approximately twice the value of the inlet velocity pressure for an Arrangement A Roto-Clone of the same size. Precleaner loss has been included in the Arrangement D performance tables on pages 8-10.

Collected dust and water are continuously discharged as a slurry through a single hopper drain.

Arrangement D is available in Roto-Clone sizes 8 thru 24.

PERFORMANCE CHARACTERISTICS

These performance tables cover the usual operating range for each size ROTO-CLONE.

Maximum speeds for Standard design are shown on page 11.

Capacities are based on standard air — .07488 lbs. per cubic foot (dry air @ 70°F) and barometric pressure of 29.92 inches of mercury. The total pressure values represent the sum of all resistance and velocity pressure losses in the system.

The resistance of the Arrangement D pre-cleaner has been included in the mechanical efficiency of the ROTO-CLONE and need not be considered.

No. 8 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
1000	2860	1680	1.2	1920	1.5	2160	1.9	2400	2.4	2600	2.9	2800	3.5	3000	4.0	3150	4.7
1100	3150	1720	1.3	1970	1.7	2200	2.1	2420	2.6	2620	3.2	2820	3.7	3010	4.3	3170	4.9
1200	3430	1800	1.5	2030	1.9	2250	2.3	2450	2.9	2650	3.4	2830	3.9	3020	4.6	3180	5.2
1300	3720	1890	1.8	2100	2.2	2300	2.6	2500	3.2	2680	3.6	2850	4.2	3040	4.9	3200	5.5
1400	4000	1950	2.2	2170	2.5	2360	2.9	2530	3.4	2710	4.0	2900	4.5	3070	5.2	3220	5.8
1500	4290	2040	2.5	2240	2.8	2420	3.3	2590	3.8	2760	4.3	2920	4.9	3100	5.5	3250	6.1
1600	4580	2140	2.8	2300	3.2	2490	3.7	2650	4.2	2800	4.7	2980	5.3	3120	5.9	3190	6.5
1700	4870	2200	3.2	2400	3.5	2560	4.1	2720	4.6	2880	5.2	3020	5.7	3180	6.3	3320	6.9
1750	5010	2260	3.4	2440	3.8	2600	4.4	2750	4.8	2910	5.4	3050	6.0	3200	6.6	3340	7.2

No. 8 TYPE W ROTO-CLONE Arrangement D

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
1000	2860	1920	1.5	2160	1.9	2400	2.4	2600	2.9	2800	3.5	3000	4.0	3150	4.7	3310	5.2
1100	3150	2020	1.8	2250	2.2	2470	2.7	2670	3.3	2860	3.8	3030	4.5	3210	5.1	3320	5.5
1200	3430	2120	2.1	2320	2.5	2530	3.1	2720	3.6	2900	4.2	3100	4.9	3250	5.4	3380	5.9
1300	3720	2230	2.5	2440	3.0	2610	3.5	2800	4.0	2980	4.7	3150	5.3	3310	5.8	3420	6.3
1400	4000	2360	2.9	2530	3.4	2710	4.0	2900	4.5	3070	5.2	3220	5.8	3370	6.3	3460	7.0
1500	4290	2470	3.4	2640	4.0	2810	4.5	2980	5.2	3140	5.7	3300	6.3	3420	6.8	3580	8.1
1600	4580	2600	4.0	2750	4.5	2920	5.1	3060	5.7	3220	6.2	3380	6.8	3500	8.4	3660	9.2
1700	4870	2700	4.5	2860	5.1	3000	5.7	3150	6.3	3310	6.8	3460	8.8	3590	9.6	3740	10.0
1750	5010	2750	4.8	2910	5.4	3050	6.0	3200	6.6	3340	7.2	3600	9.6	3620	10.0	3760	10.4

No. 10 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
1600	2930	1590	1.9	1820	2.5	2050	3.2	2240	3.9	2430	4.6	2605	5.3	2770	6.0	2920	6.9
1750	3210	1620	2.1	1860	2.8	2090	3.6	2280	4.4	2460	5.1	2630	5.9	2795	6.8	2950	7.4
1900	3480	1700	2.5	1910	3.2	2110	4.0	2310	4.8	2490	5.6	2660	6.4	2820	7.2	2970	8.1
2050	3760	1750	2.9	1970	3.6	2170	4.5	2350	5.3	2520	6.2	2690	7.0	2850	7.9	3000	8.9
2200	4030	1810	3.3	2020	4.0	2205	4.9	2400	5.9	2570	6.9	2730	7.8	2880	8.7	3030	9.6
2350	4310	1900	3.8	2080	4.6	2270	5.5	2440	6.5	2610	7.5	2770	8.4	2910	9.2	3070	10.4
2500	4580	1980	4.3	2150	5.1	2310	6.0	2490	7.1	2650	8.0	2800	9.1	2950	10.2	3100	11.2
2650	4760	2050	5.0	2210	5.8	2380	6.8	2540	7.8	2700	8.9	2850	9.9	2990	11.0	3130	12.2
2700	4930	2100	5.2	2230	6.0	2400	7.0	2560	8.0	2710	9.1	2870	10.2	3010	11.3	3150	12.5

No. 10 TYPE W ROTO-CLONE Arrangement D

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
1600	2910	1820	2.5	2050	3.2	2240	3.9	2430	4.6	2605	5.3	2770	6.0	2920	6.9	3080	7.7
1750	3210	1940	3.1	2140	3.8	2330	4.5	2510	5.2	2660	6.0	2820	6.9	2980	7.6	3120	8.5
1900	3480	2010	3.6	2210	4.4	2400	5.2	2575	6.0	2740	6.8	2900	7.7	3050	8.6	3180	9.4
2050	3760	2130	4.3	2320	5.1	2500	6.0	2660	6.9	2820	7.8	2970	8.7	3120	9.8	3230	10.6
2200	4030	2205	4.9	2400	5.9	2570	6.9	2730	7.8	2880	8.7	3030	9.6	3160	10.7	3300	11.8
2350	4310	2320	5.8	2500	6.8	2660	7.7	2810	8.7	2960	9.7	3105	10.8	3240	12.0	3370	13.0
2500	4580	2430	6.8	2600	7.7	2750	8.8	2900	9.8	3050	10.8	3180	12.0	3320	13.3	3430	14.3
2650	4760	2520	7.6	2680	8.7	2830	9.7	2980	11.0	3120	12.0	3250	13.2	3380	14.2	3500	15.3
2700	4930	2580	8.0	2730	9.2	2880	10.3	3030	11.5	3160	12.6	3300	13.8	3420	15.0	3550	16.1

No. 12 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
2200	2810	1200	2.0	1400	2.8	1575	3.6	1730	4.5	1875	5.4	2010	6.4	2140	7.5	2250	8.8
2400	3060	1230	2.3	1430	3.1	1600	4.0	1750	4.9	1890	5.9	2030	7.0	2150	8.0	2270	9.2
2600	3310	1260	2.6	1450	3.5	1625	4.5	1775	5.4	1910	6.4	2050	7.6	2170	8.8	2290	9.8
2800	3570	1300	2.9	1480	3.9	1650	4.9	1800	6.0	1940	7.0	2070	8.2	2190	9.3	2300	10.4
3000	3820	1350	3.4	1510	4.3	1680	5.4	1825	6.6	1960	7.7	2090	8.8	2210	9.9	2320	11.1
3200	4080	1380	3.8	1550	4.9	1710	6.0	1850	7.1	1990	8.3	2110	9.4	2230	10.7	2340	11.9
3400	4330	1420	4.2	1590	5.4	1740	6.6	1880	7.8	2020	9.0	2140	10.2	2250	11.4	2370	12.8
3600	4580	1480	4.8	1630	6.0	1775	7.2	1910	8.4	2040	9.6	2170	11.0	2280	12.1	2390	13.6
3800	4840	1540	5.5	1660	6.7	1810	7.9	1940	9.2	2070	10.5	2200	11.9	2310	13.0	2420	14.5

No. 12 TYPE W ROTO-CLONE Arrangement D

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
2200	2810	1400	2.8	1575	3.6	1730	4.5	1875	5.4	2010	6.4	2140	7.5	2250	8.8	2370	9.7
2400	3060	1460	3.3	1625	4.2	1780	5.2	1925	6.2	2050	7.2	2175	8.2	2290	9.4	2410	10.4
2600	3310	1525	3.9	1680	4.8	1830	6.9	1970	6.9	2100	8.0	2220	9.1	2330	10.2	2450	11.3
2800	3570	1590	4.5	1750	5.6	1890	6.7	2020	7.7	2150	8.9	2265	10.0	2380	11.2	2490	12.4
3000	3820	1650	5.2	1800	6.3	1940	7.4	2065	8.6	2190	9.7	2300	10.9	2415	12.1	2520	13.4
3200	4080	1710	6.0	1850	7.1	1990	8.3	2110	9.4	2230	10.7	2340	11.9	2450	13.1	2560	14.4
3400	4330	1800	7.0	1930	8.3	2060	9.3	2180	10.6	2300	11.8	2410	13.1	2510	14.4	2620	15.8
3600	4580	1860	8.0	1990	9.3	2120	10.5	2240	11.7	2350	13.1	2470	14.4	2560	15.8	2660	17.2
3800	4840	1930	9.0	2065	10.4	2180	11.7	2300	13.0	2410	14.4	2520	15.9	2620	17.5	2710	18.9

No. 14 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
3200	2990	1070	3.2	1230	4.2	1370	5.5	1490	6.5	1610	8.0	1715	9.4	1825	11.0	1920	12.5
3450	3230	1100	3.6	1260	4.6	1400	6.0	1515	7.3	1630	8.7	1740	10.4	1845	12.0	1940	13.5
3700	3460	1140	4.0	1290	5.0	1425	6.7	1540	8.0	1660	9.6	1770	11.4	1870	13.0	1960	14.5
3950	3700	1175	4.5	1320	5.6	1450	7.3	1570	8.8	1680	11.0	1790	12.5	1890	14.0	1980	15.5
4200	3930	1215	5.0	1350	6.4	1475	8.0	1590	9.8	1700	12.2	1815	13.7	1910	15.5	2000	17.0
4450	4160	1260	5.8	1380	7.2	1510	9.0	1620	11.0	1730	13.0	1840	15.0	1930	17.0	2020	19.0
4700	4400	1300	7.0	1420	8.1	1540	10.0	1650	12.0	1760	14.0	1865	16.2	1950	18.5	2040	21.0
4950	4630	1350	8.0	1460	9.0	1575	11.2	1680	13.0	1790	15.0	1880	17.5	1975	19.5	2070	22.0
5200	4870	1390	9.0	1500	10.6	1605	12.3	1710	14.0	1820	16.5	1910	18.6	2000	21.5	2095	23.5

No. 14 TYPE W ROTO-CLONE Arrangement D

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
3200	2990	1250	4.2	1380	5.5	1515	6.7	1620	8.1	1730	9.4	1840	11.0	1930	12.7	2020	14.0
3450	3230	1300	4.9	1430	6.3	1555	7.7	1670	9.0	1775	11.0	1875	12.5	1970	14.0	2060	16.0
3700	3460	1360	5.9	1485	7.0	1600	8.8	1715	10.5	1820	12.2	1915	13.7	2000	16.0	2090	18.0
3950	3700	1410	6.9	1530	8.2	1650	10.2	1755	12.0	1860	13.6	1950	15.5	2030	17.8	2125	19.0
4200	3930	1470	8.0	1580	9.5	1695	11.0	1800	13.3	1900	15.5	1990	17.6	2080	19.3	2170	21.5
4450	4160	1525	9.0	1640	11.2	1750	13.0	1850	15.0	1945	17.0	2030	19.4	2120	21.2	2210	23.0
4700	4400	1580	10.7	1690	12.5	1800	14.6	1900	17.0	1990	19.0	2080	21.5	2170	23.2	2250	25.5
4950	4630	1650	12.5	1755	14.3	1855	16.4	1950	18.7	2040	21.0	2125	23.5	2220	25.5	2300	28.0
5200	4870	1710	14.0	1820	16.5	1910	18.6	2000	21.5	2095	23.5	2180	26.0	2270	28.0	2350	31.0

No. 16 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
4000	2870	925	4.0	1070	5.5	1200	7.0	1325	8.7	1425	11.0	1535	13.0	1625	14.5	1720	17.0
4400	3150	955	4.8	1095	6.5	1220	8.0	1340	9.5	1450	12.0	1550	14.0	1645	16.5	1740	18.0
4800	3440	990	6.5	1120	7.0	1245	9.0	1360	11.0	1470	13.0	1570	15.0	1665	17.5	1755	20.0
5200	3730	1030	7.0	1150	8.0	1270	10.0	1380	12.0	1485	14.0	1590	17.0	1680	19.0	1770	22.0
5600	4010	1075	8.0	1180	9.0	1300	12.0	1405	13.0	1510	16.0	1610	18.0	1700	21.0	1785	23.0
6000	4300	1125	9.0	1225	11.0	1330	13.0	1430	15.0	1535	17.0	1630	19.0	1720	22.0	1810	25.0
6400	4580	1170	11.0	1255	12.0	1365	14.0	1465	17.0	1555	18.0	1650	22.0	1740	24.0	1830	27.0
6800	4870	1220	12.0	1300	14.0	1400	16.0	1495	18.0	1585	21.0	1675	23.0	1770	26.0	1850	29.0
7200	5150	1270	13.0	1350	16.0	1440	18.0	1530	20.0	1620	23.0	1700	26.0	1790	28.0	1870	32.0

No. 16 TYPE W ROTO-CLONE Arrangement D

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
4000	2870	1070	5.5	1200	7.0	1325	8.7	1425	11.0	1535	13.0	1625	14.5	1720	17.0	1815	19.0
4400	3150	1125	6.5	1250	8.5	1370	11.0	1475	12.0	1575	14.0	1670	17.0	1760	18.0	1850	22.0
4800	3440	1180	8.0	1305	10.0	1410	12.0	1520	14.0	1620	17.0	1710	18.0	1800	22.0	1885	23.0
5200	3730	1235	9.5	1355	12.0	1460	14.0	1560	16.0	1660	18.0	1750	21.0	1830	23.0	1910	25.0
5600	4010	1300	12.0	1405	13.0	1510	16.0	1610	18.0	1700	21.0	1785	23.0	1875	26.0	1950	28.0
6000	4300	1365	13.0	1465	16.0	1560	18.0	1655	21.0	1750	23.0	1830	26.0	1920	28.0	1990	31.0
6400	4580	1425	16.0	1525	18.0	1620	21.0	1720	23.0	1805	27.0	1890	28.0	1970	32.0	2040	34.0
6800	4870	1490	18.0	1580	21.0	1675	23.0	1770	26.0	1850	29.0	1930	32.0	2000	35.0	2080	37.0
7200	5150	1540	21.0	1625	23.0	1715	26.0	1805	28.0	1880	32.0	1960	34.0	2040	37.0	2120	40.0

No. 20 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
6500	2980	710	6.0	825	7.6	935	10.5	1025	13.0	1120	16.0	1205	18.0	1275	22.0	1345	24.0
7000	3210	725	6.5	835	8.5	940	11.5	1040	14.0	1125	17.0	1210	19.0	1285	23.0	1355	26.0
7500	3440	750	7.0	850	9.5	950	12.5	1050	15.0	1135	18.0	1215	21.0	1295	24.0	1365	27.0
8000	3670	775	8.0	870	11.0	970	13.0	1060	16.0	1145	19.0	1220	22.0	1300	25.0	1375	28.0
8500	3900	790	9.0	885	12.0	980	14.0	1070	17.0	1150	20.0	1230	23.0	1310	27.0	1385	30.0
9000	4130	810	11.0	910	13.0	990	16.0	1080	18.0	1165	22.0	1240	24.0	1320	28.0	1390	32.0
9500	4360	850	12.0	930	14.0	1010	17.0	1090	20.0	1175	23.0	1250	26.0	1330	30.0	1395	34.0
10000	4590	890	14.0	960	17.0	1030	18.0	1110	21.0	1185	24.0	1265	28.0	1340	32.0	1405	36.0
10500	4820	930	17.0	980	18.0	1050	20.0	1125	23.0	1200	27.0	1275	30.0	1350	34.0	1415	38.0

No. 20 TYPE W ROTO-CLONE Arrangement D

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
6500	2980	835	8.0	950	11.0	1040	13.0	1125	16.0	1215	18.0	1295	22.0	1350	24.0	1425	28.0
7000	3210	870	9.0	975	12.0	1070	14.0	1150	17.0	1240	20.0	1310	23.0	1380	26.0	1445	31.0
7500	3440	900	11.0	1000	13.0	1095	17.0	1180	18.0	1255	22.0	1325	25.0	1400	28.0	1465	33.0
8000	3670	935	12.0	1030	15.0	1120	18.0	1200	21.0	1275	24.0	1350	27.0	1425	32.0	1480	35.0
8500	3900	970	14.0	1060	17.0	1145	20.0	1225	23.0	1300	27.0	1380	30.0	1440	34.0	1500	37.0
9000	4130	1005	16.0	1095	18.0	1175	22.0	1255	25.0	1330	28.0	1400	33.0	1460	37.0	1520	41.0
9500	4360	1045	18.0	1130	21.0	1205	24.0	1280	28.0	1355	32.0	1420	35.0	1480	39.0	1550	44.0
10000	4590	1075	20.0	1160	23.0	1235	27.0	1310	31.0	1380	34.0	1445	38.0	1515	42.0	1570	47.0
10500	4820	1120	23.0	1195	26.0	1270	29.0	1340	33.0	1410	37.0	1475	42.0	1535	46.0	1590	49.0

No. 24 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
9000	2860	570	8.5	655	12.0	743	14.0	815	18.0	890	22.0	955	25.0	1020	28.0	1075	32.0
9500	3020	575	9.0	665	13.0	750	16.0	825	19.0	895	23.0	960	26.0	1025	29.0	1080	33.0
10000	3180	585	11.0	675	14.0	755	17.0	830	20.0	900	24.0	965	27.0	1030	31.0	1085	35.0
11000	3500	605	13.0	695	16.0	770	18.0	840	23.0	910	27.0	970	31.0	1035	35.0	1090	38.0
12000	3820	630	14.0	710	18.0	785	22.0	855	26.0	920	30.0	985	34.0	1040	38.0	1095	42.0
13000	4140	650	17.0	737	21.0	800	25.0	870	28.0	935	34.0	995	38.0	1055	43.0	1110	47.0
14000	4460	675	19.0	755	23.0	820	28.0	887	32.0	950	38.0	1010	42.0	1065	47.0	1120	51.0
15000	4780	710	23.0	780	27.0	840	32.0	905	36.0	965	42.0	1025	46.0	1080	51.0	1130	56.0
15500	4940	735	25.0	795	29.0	850	34.0	915	39.0	975	44.0	1030	49.0	1085	54.0	1135	59.0

No. 24 TYPE W ROTO-CLONE Arrangement D

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
9000	2860	655	12.0	743	14.0	815	18.0	890	22.0	955	25.0	1020	28.0	1075	32.0	1125	36.0
9500	3020	675	13.0	760	16.0	835	19.0	900	23.0	960	26.0	1030	29.0	1090	33.0	1135	37.0
10000	3180	695	14.0	775	18.0	850	22.0	915	24.0	980	28.0	1040	33.0	1100	36.0	1145	40.0
11000	3500	732	17.0	805	21.0	875	25.0	945	29.0	1003	33.0	1063	37.0	1117	41.0	1160	45.0
12000	3820	768	22.0	835	25.0	905	28.0	970	34.0	1030	38.0	1090	42.0	1140	46.0	1190	51.0
13000	4140	815	26.0	880	30.0	940	35.0	1008	39.0	1060	43.0	1115	47.0	1165	51.0	1215	55.0
14000	4460	853	30.0	920	35.0	980	40.0	1037	45.0	1092	49.0	1143	53.0	1198	59.0	1238	62.0
15000	4780	895	36.0	957	41.0	1015	46.0	1070	51.0	1125	56.0	1175	61.0	1230	69.0	1273	71.0
15500	4940	915	39.0	975	44.0	1030	49.0	1185	54.0	1135	59.0	1190	64.0	1250	71.0	1285	76.0

No. 27 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
12000	3020	507	12.0	587	16.0	662	19.0	727	23.0	790	28.0	850	32.0	906	38.0	958	42.0
13000	3270	523	13.0	600	18.0	670	22.0	(735)	26.0	800	31.0	856	35.0	908	40.0	960	46.0
14000	3520	540	16.0	612	20.0	680	24.0	745	28.0	805	35.0	860	38.0	915	44.0	965	49.0
15000	3770	555	18.0	625	22.0	692	27.0	755	32.0	815	37.0	870	42.0	925	47.0	970	53.0
16000	4020	575	20.0	640	24.0	705	29.0	765	35.0	825	40.0	879	46.0	932	51.0	978	57.0
17000	4270	590	23.0	655	27.0	716	32.0	775	38.0	832	44.0	890	50.0	940	55.0	987	62.0
18000	4530	610	26.0	675	31.0	730	36.0	790	42.0	843	48.0	900	54.0	950	59.0	992	66.0
19000	4780	625	29.0	690	34.0	750	40.0	805	46.0	855	52.0	910	58.0	956	64.0	1003	70.0
20000	5030	650	33.0	710	38.0	762	44.0	815	50.0	870	56.0	920	63.0	968	70.0	1015	76.0

No. 30 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
14000	2860	440	12.0	515	16.0	585	20.0	646	24.0	702	28.0	755	34.0	805	38.0	855	44.0
15500	3160	450	13.0	525	18.0	590	23.0	650	27.0	705	33.0	756	38.0	807	43.0	857	48.0
17000	3460	475	16.0	537	21.0	600	26.0	655	31.0	710	37.0	760	42.0	810	47.0	860	53.0
18500	3760	490	18.0	555	24.0	615	29.0	670	35.0	718	40.0	768	46.0	813	52.0	863	58.0
20000	4070	505	22.0	568	27.0	625	33.0	680	39.0	730	45.0	775	51.0	818	57.0	865	63.0
21500	4380	525	25.0	590	32.0	640	37.0	690	43.0	740	50.0	785	56.0	830	63.0	870	69.0
23000	4680	550	29.0	602	36.0	656	42.0	705	48.0	750	55.0	795	62.0	840	69.0	881	76.0
24500	5000	575	34.0	620	40.0	675	47.0	720	54.0	765	62.0	809	68.0	850	75.0	890	83.0
25000	5090	590	36.0	630	42.0	680	49.0	725	57.0	772	64.0	815	71.0	855	78.0	895	85.0

No. 33 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
17000	2860	400	15.0	470	21.0	530	27.0	590	33.0	640	38.0	690	45.0	735	51.0	775	58.0
18500	3110	405	17.0	475	23.0	535	29.0	595	36.0	644	42.0	694	49.0	739	56.0	778	65.0
20000	3370	410	20.0	482	26.0	540	33.0	600	39.0	648	46.0	697	53.0	743	60.0	781	68.0
21500	3620	430	23.0	490	29.0	550	36.0	605	43.0	652	50.0	700	58.0	747	66.0	785	74.0
23000	3870	445	26.0	500	33.0	558	40.0	610	47.0	656	55.0	705	64.0	750	72.0	790	79.0
24500	4125	460	29.0	512	37.0	568	44.0	615	52.0	662	60.0	710	69.0	753	77.0	795	85.0
26000	4370	475	34.0	525	41.0	575	48.0	625	57.0	668	66.0	715	74.0	756	82.0	800	91.0
27500	4625	490	39.0	537	46.0	587	54.0	635	63.0	678	72.0	720	80.0	762	89.0	805	99.0
29000	4880	510	44.0	550	51.0	600	59.0	640	68.0	688	77.0	728	86.0	768	96.0	810	106

No. 36 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
20000	2830	362	16.0	425	24.0	485	31.0	540	38.0	587	45.0	630	54.0	675	61.0	710	69.0
22000	3110	375	21.0	435	28.0	490	35.0	545	43.0	592	51.0	635	58.0	675	67.0	712	76.0
24000	3400	388	24.0	440	32.0	500	39.0	550	48.0	596	56.0	640	65.0	680	74.0	720	83.0
26000	3680	400	27.0	450	36.0	508	45.0	555	53.0	600	62.0	645	72.0	685	81.0	725	90.0
28000	3960	410	32.0	462	41.0	515	50.0	560	59.0	604	68.0	650	78.0	690	88.0	730	98.0
30000	4250	425	38.0	475	46.0	525	56.0	568	66.0	610	75.0	655	86.0	695	96.0	735	106
32000	4525	440	45.0	490	53.0	535	63.0	577	73.0	617	83.0	660	94.0	700	105	740	115
34000	4820	465	50.0	505	60.0	550	70.0	587	80.0	625	90.0	665	103	705	113	745	125
36000	5100	480	55.0	520	68.0	565	77.0	600	88.0	635	99.0	675	111	710	123	750	136

No. 45 TYPE W ROTO-CLONE Arrangement A

Capacity in C.F.M.	Inlet Velocity F.P.M.	TOTAL PRESSURE OF SYSTEM—INCHES W. G.															
		2"		3"		4"		5"		6"		7"		8"		9"	
		R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.	R.P.M.	B.H.P.
32500	2940	290	19.0	345	40.0	390	50.0	430	62.0	470	75.0	510	87.0	540	100	570	112
35000	3170	300	25.0	350	44.0	395	55.0	435	68.0	475	80.0	512	94.0	540	108	573	120
37500	3390	310	35.0	355	48.0	400	62.0	440	75.0	480	88.0	515	102	545	115	575	130
40000	3620	315	43.0	365	54.0	405	68.0	445	82.0	485	95.0	517	110	548	123	578	138
42500	3850	325	48.0	370	60.0	410	74.0	450	89.0	488	103	520	119	550	132	582	148
45000	4075	335	55.0	375	67.0	415	81.0	455	96.0	490	110	523	125	552	140	585	158
47500	4300	345	62.0	380	75.0	420	90.0	460	105	493	120	525	134	556	150	587	168
50000	4525	360	70.0	390	84.0	428	97.0	463	113	500	130	528	144	559	160	590	178
52500	4750	380	80.0	400	90.0	437	105.0	470	122	506	138	532	155	562	170	592	190

ROTO-CLONE ERECTION DIAGRAM
Arrangements A and D

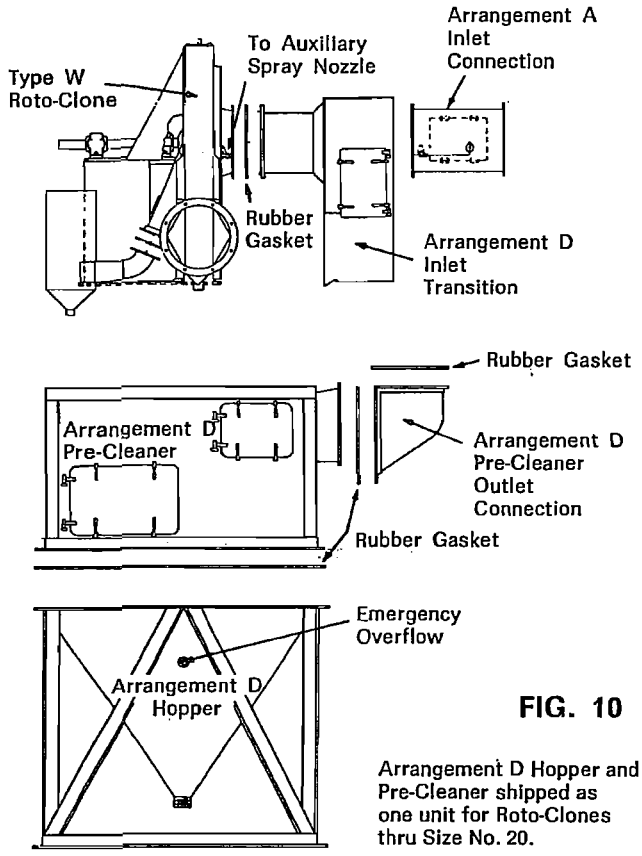


FIG. 10

Arrangement D Hopper and Pre-Cleaner shipped as one unit for Roto-Clones thru Size No. 20.

VENTING SECONDARY AIR

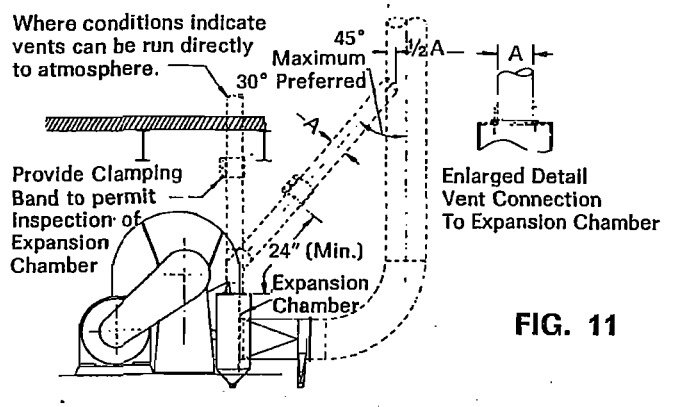


FIG. 11

DIMENSION TABLE IN INCHES

R. C. Size	8	10	12	14	16	20	24	27	30	33	36	45
Vent Dia. "A"	3½"	4"	5"	6"	7"	8"	10"	11"	12"	14"	15"	18"

TABLE A
NORMAL WATER SUPPLY RATES
TYPE W ROTO-CLONES

Roto-Clone Size	Arrangement A GPM Supplied			Arrangement D GPM Supplied		
	40 PSIG	50 PSIG	60 PSIG	40 PSIG	50 PSIG	60 PSIG
8	1.1	1.2	1.3	2.1	2.2	2.5
10	1.5	1.6	1.8	3.1	3.4	3.8
12	1.8	2.0	2.2	4.6	5.0	5.4
14	2.3	2.5	2.9	5.1	5.5	6.3
16	3.4	3.7	4.1	7.2	7.9	8.7
20	4.4	4.8	5.4	8.2	9.0	10.0
24	5.4	6.0	6.5	13.2	14.9	16.1
27	7.4	8.2	8.9	—	—	—
30	7.9	8.8	9.7	—	—	—
33	11.9	13.3	14.6	—	—	—
36	13.9	15.7	17.0	—	—	—
45	20.9	25.1	25.2	—	—	—

NOTE: 1: For air temperatures in excess of 300°F, cooling spray nozzles should be provided in inlet duct to compensate for evaporation. A safe approximation will be 0.2 gpm of additional water per 1000 cfm for each 100°F temperature reduction.

TABLE B
SHIPPING AND OPERATING WEIGHTS

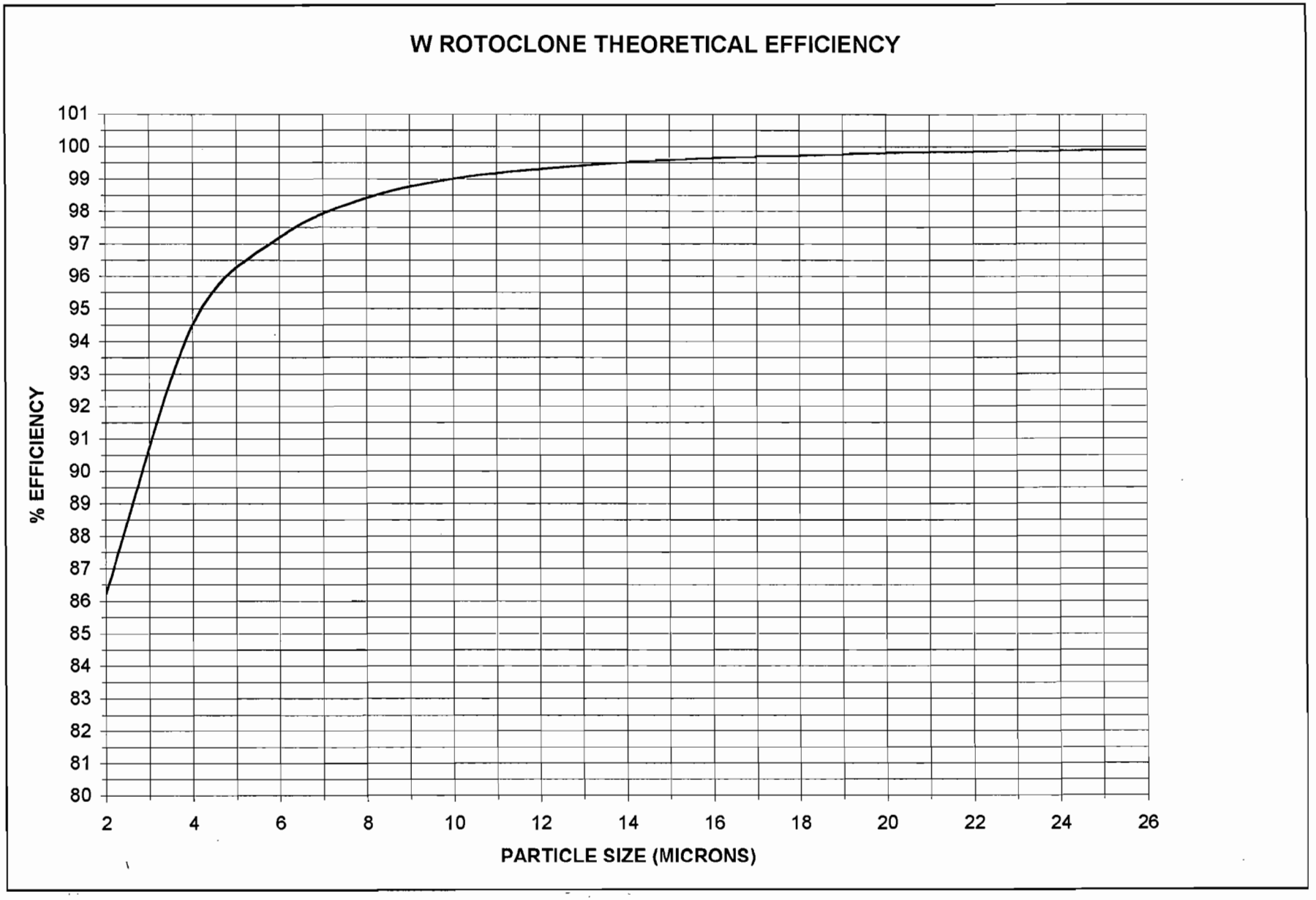
Roto-Clone Size	Arrangement A		Arrangement D	
	Shipping Weight (lbs.)	Operating Weight (lbs.)	Shipping Weight (lbs.)	Operating Weight (lbs.)
8	225	425	1,725	2,625
10	360	610	1,810	3,010
12	630	880	2,030	3,380
14	990	1,340	2,790	5,320
16	1,260	1,710	3,760	6,310
20	1,620	2,270	5,420	9,650
24	1,890	2,590	7,190	13,290
27	2,970	3,720	—	—
30	3,870	5,020	—	—
33	4,860	6,360	—	—
36	5,850	7,350	—	—
45	13,500	16,000	—	—

NOTE 1: Shipping weight does not include motor and drive.

NOTE 2: Operating weight includes motor and drive for Arrangements, "A" and "D". Also includes maximum sludge capacity based on 100 lbs. per cubic foot for Arrangement D hopper in the event of plugged drain line.

TABLE C
TYPE W ROTO-CLONE
IMPELLER CHARACTERISTICS

Roto-Clone Size	Maximum Speed (RPM)	Fly Wheel Effect - WR^2 (Lb. - $Ft.^2$)
8	4100	2.03
10	3300	6.28
12	2800	14.7
14	2400	30.7
16	2100	50.8
20	1700	150.8
24	1400	372.0
27	1250	596.0
30	1100	1026.0
33	1000	1400.0
36	925	2410.0
45	730	6250.0


W ROTOCLONE THEORETICAL EFFICIENCY
% EFFICIENCY
101
100
99
98
97
96
95
94
93
92
91
90
89
88
87
86
85
84
83
82
81
80
2
4
6
8
10
12
14
16
18
20
22
24
26
PARTICLE SIZE (MICRONS)

ATTACHMENT A

1.0 INTRODUCTION

The Okeelanta Sugar Mill and Refinery, owned and operated by Okeelanta Corporation (Okeelanta), is located near South Bay, in Palm Beach County, Florida. The facility location is shown in Figure A-1, Area Map. The purpose of this application is to modify the existing Central Dust Collection System AAF/Wet Rotoclone No. 2 (EU 022) and add two new dust collection systems with AAF/Wet Rotoclones. The additional dust collection systems and rotoclones are being installed to improve sugar dust control and housekeeping in the sugar mill. In addition, the AAF/Wet Rotoclone No. 1 (EU 021) will not control dust from the two proposed specialty conveyors (SP1 and SP2) as specified in Construction Permit No. 0990005-020-AC. The two proposed specialty conveyors were not constructed. No change to the sugar refinery production capacity or the maximum refined sugar throughput will result from these changes.

2.0 PROJECT DESCRIPTION

2.1 Existing Operations

A detailed facility plot plan showing the Okeelanta sugar mill and refinery is presented in Attachment OC-FI-C1.

The sugar refinery at Okeelanta produces refined sugar (standard white sugar and specialty sugars) from the raw sugar produced in the Okeelanta sugar mill. Some of the refined sugar is sold in bulk and shipped by truck or rail car. The majority of the refined sugar produced is transferred by truck to an onsite packaging and distribution warehouse (Okeelanta Transshipment facility).

The primary sugar drying system utilizes the Fluidized Bed Dryer (EU 025). The Fluidized Bed Dryer is currently used for standard refined sugar. No fuels are fired in the dryer. The dryer exhaust is controlled by a high efficiency pulse jet baghouse.

The Rotary Drying System consists of one rotary dryer (EU 021) and two rotary coolers in series (EU 023 and EU 024). The rotary dryer system is used for specialty sugars and when the fluidized bed dryer is off line for repairs. No fuels are fired in the dryer. Emissions from the rotary drying system are controlled with the use of a skimmer followed by Wet Rotoclone No. 1 (American Air Filter, Type W, Size 27). It was proposed in Air Construction Permit No. 0990005-020-AC that the ductwork associated with the Wet Rotoclone No. 1 be modified to control sugar dust from two specialty sugar conveyors. The two specialty sugar conveyors have not been constructed. It should be noted that the rotary dryer has not been operated in several years.

Sugar from the rotary dryer is directed to the two coolers (EU 023 and EU 024). The exhaust from Cooler No. 1 is controlled by Rotoclone No. 3 (American Air Filter, Type W, Size 27). The exhaust from Cooler No. 2 is controlled by Rotoclone No. 4 (American Air Filter, Type W, Size 27). The Rotary Drying System may operate simultaneously with the Fluidized Bed Drying System.

Central Dust Collection System No. 2 is controlled by AAF/Wet Rotoclone No. 2 (American Air Filter, Type W, Size 27). The Central Dust Collection System No. 2 controls emissions from the following miscellaneous refined sugar drop points:

- Bucket elevator 10, 16, and 43
- Silo scale
- Belt conveyors 11, 16, 18, 19, A and B
- Screw conveyors 20, 26, 28, 40, 45, Q1, Q2, S1 and S2
- Packing room bins
- Bulk curing bins Nos. 1 through 8
- Sweco shaker screen

Rotoclone No. 2 operates when either the fluidized bed dryer or rotary drying system is operating.

Based on Permit No. 0990005-017-AV, the current maximum annual refined sugar throughput rate for the refinery is 490,000 tons during any consecutive 52-week period, with the Rotary Drying System limited to 130,000 tons during any consecutive 52-week period.

2.2 Proposed Operations

Okeelanta is proposing to modify the Central Dust Collection System No. 2 and add two new dust collection systems and AAF/Wet Rotoclones to control sugar dust from multiple drop points in the sugar refinery. Three separate systems will be used to improve control of sugar dust and housekeeping in the sugar refinery. Systems A, B, and C will control dust from 20, 17, and 15 drop points within the sugar refinery, respectively. System B will utilize the current Dust Collection System No. 2 which currently controls 22 drop points with AAF/Wet Rotoclone No. 2 (EU 022). A summary of the drop points for each system is presented below:

- System A (New Wet Rotoclone No. 6)
  - Belt Conveyors 11 and GG#6
  - Screw Conveyors F, G, 27, 28, P, Q1, S2, 8, 25, and 25A
  - Silo Scale
  - Bulk Curing Bins 1, 2, 3, or 7
  - Bucket Elevators 10, 16, B, GG#5

- Sweco Shaker Screen
- Rotex Screen 9346 (to GG#8)
- Total drop points controlled – Fluidized Bed System = 10
- Total drop points controlled – Rotary Dryer System = 10

- System B (Rotoclone No. 2)
  - Belt Conveyor 19
  - Screw Conveyors 4, 12, 14, 19, 20, 20A, 40, and 45
  - Packing Room Bins [5 pound (lb) and 100 lb]
  - Bulk Curing Bins 4, 5, or 6
  - Bucket Elevators 43A and 43B
  - Production Scale
  - Production Screens 2 and 3
  - Total drop points controlled – Fluidized Bed System = 17
  - Total drop points controlled – Rotary Dryer System = 0

- System C (Rotoclone No. 7) will control:
  - Belt Conveyors A(x2) and B
  - Screw Conveyors 20A, 26, 27, 29, 30, 31, 41, 42, 46, N
  - Bucket Elevator 15
  - Reject Chute
  - Total drop points controlled – Fluidized Bed System = 14
  - Total drop points controlled – Rotary Dryer System = 1

Flow diagrams showing the existing systems, with proposed changes in red, are presented in OC-EU1-I1. A plot plan showing the location of the new rotoclones, highlighted in red, is presented in Attachment OC-FI-C1.

Another minor change will affect the AAF/Wet Rotoclone No. 1 (EU 021). Permit No. 0990005-021-AC specifies that this unit will control dust from the two proposed specialty conveyors (SP1 and SP2). The two proposed specialty conveyors were not constructed, and EU 021 controls dust only from the rotary dryer. Okeelanta is requesting that this change be reflected in the permit.

3.0 EMISSION ESTIMATES

The emissions from the sugar refinery consist of particulate matter (PM) in the form of sugar dust, particulate matter with aerodynamic diameter equal to or less than 10 microns (PM_{10}), and particulate matter with aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$). PM emissions from the

sugar refinery are currently limited by Permit No. 0990005-017-AV to 21.7 tons per year (TPY) of PM and 2.70 TPY of PM_{10}. Currently, emissions at the sugar refinery are controlled by one baghouse and four wet rotoclones. Sugar dust from the proposed Systems A, B, and C at the sugar refinery will be controlled by one existing and two new wet rotoclones. Control equipment parameters for all the AAF wet rotoclones in the sugar refinery are presented in Attachment OC-EU1-I3a of the air application.

Maximum total PM emissions for the wet rotoclones for Systems A, B, and C have been calculated at 0.41 pounds per hour (lb/hr) and 1.33 TPY. The total maximum PM, PM_{10}, and $PM_{2.5}$ emissions from the sugar refinery after the proposed system changes are completed will be 22.15 TPY, 3.00 TPY, and 3.00 TPY, respectively. This represents an increase in PM and PM_{10} emissions of 0.45 TPY and 0.30 TPY, respectively, compared to current permitted emissions. See Attachment OC-EU1-F1.10 for the sugar refinery emission calculations. Stack data are presented in Attachment OC-EU1-I3a.

4.0 PROPOSED PERMIT WORDING CHANGES

Through this application, Okeelanta is also requesting several wording and table changes as summarized below. Okeelanta is requesting that the current annual sugar production limits based on "any consecutive 52-week period" be revised to a "consecutive 12-month rolling period." This is to be consistent with other annual average limits and EPA guidance. Other changes are requested to be consistent with this application.

Existing Table in Permit No. 0990005-017-AV, Section 3. Emissions Unit Specific Conditions, D. Sugar Refinery, Equipment Specifications:

2. Cyclonic Control Devices: The permittee shall operate and maintain the following emission units and corresponding control equipment in accordance with the specifications identified in the table below:

EU No.	Description	Control Type	Design Flow Rates acfm	Water Injection Rate (gpm, min.)	Control Efficiency	
					PM	PM_{10}
021	Rotary Dryer, Central Dust Collection System No. 1	Rotoclone No. 1	15,000	2	99.90%	99%
022	Central Dust Collection System No. 2	Rotoclone No. 2	15,000	2	99.90%	99%
023	Cooler No. 1	Rotoclone No. 3	15,000	2	99.90%	99%
024	Cooler No. 2	Rotoclone No. 4	15,000	2	99.90%	99%

Requested changes shown in red:

2. Cyclonic Control Devices: The permittee shall operate and maintain the following emission units and corresponding control equipment in accordance with the specifications identified in the table below:

EU No.	Description	Control Type	Design Flow Rates acfm	Water Injection Rate (gpm, min.)	Control Efficiency	
					PM	PM_{10}
021	Rotary Dryer, Central Dust Collection System No. 1	Rotoclone No. 1	15,000	2	99.9%	99%
022	B System	Rotoclone No. 2	14,770	2	99.90%	99%
023	Cooler No. 1	Rotoclone No. 3	15,000	2	99.90%	99%
024	Cooler No. 2	Rotoclone No. 4	15,000	2	99.90%	99%
NEW	A System	Rotoclone No. 6	15,078	2	99.9%	99%
NEW	C System	Rotoclone No. 7	12,895	2	99.9%	99%

Existing Wording in Permit No. 0990005-017-AV, Section 3. Emissions Unit Specific Conditions, D. Sugar Refinery, Capacity and Performance Restrictions:

3. Permitted Capacities: Total refined sugar production (Fluidized Bed Dryer (EU-025), Rotary Dryer (EU-021), Cooler No. 1 (EU-023) and Cooler No. 2 (EU-024) shall not exceed 490,000 tons during any consecutive 52-week period, and:

a. The Rotary System (EU-021, EU-023 and EU-024) shall not process more than 130,000 tons during any consecutive 52-week period.

b. The Bulk Load-Out Operation (EU-034) shall not process more than 139,000 tons of refined sugar during any consecutive 52-week period.

c. The Transfer Bulk Load-Out Station (EU-035) shall not process more than 351,000 tons of refined sugar during any consecutive 52-week period.

d. Isopropyl alcohol usage (EU-043) from the sugar refinery shall not exceed 78,040 pounds during any consecutive 52-week period.

[Rules 62-4.210 and 62-4.070(3), F.A.C.; and Permit No. 0990005-021-AC]

Requested wording changes shown in red:

3. Permitted Capacities: Total refined sugar production (Fluidized Bed Dryer (EU-025), Rotary Dryer (EU-021), Cooler No. 1 (EU-023) and Cooler No. 2 (EU-024) shall not exceed 490,000 tons during any consecutive 12-month rolling period, and:

e. The Rotary System (EU-021, EU-023 and EU-024) shall not process more than 130,000 tons during any consecutive 12-month rolling period.

f. The Bulk Load-Out Operation (EU-034) shall not process more than 139,000 tons of refined sugar during any consecutive 12-month rolling period.

g. The Transfer Bulk Load-Out Station (EU-035) shall not process more than 351,000 tons of refined sugar during any consecutive 12-month rolling period.

h. Isopropyl alcohol usage (EU-043) from the sugar refinery shall not exceed 78,040 pounds during any consecutive 12-month rolling period.

[Rules 62-4.210 and 62-4.070(3), F.A.C.; and Permit No. 0990005-021-AC]

Existing Condition in Permit No. 0990005-017-AV, Section 3. Emissions Unit Specific Conditions, D. Sugar Refinery, Emission Limiting Standards:

7. PM/PM10 Emissions): The sum of emissions shall not exceed 21.70 tons of PM per year and 2.70 tons of PM10 per year from the following emission units: the Rotary Dryer, Central Dust Collection System No. 1 with Rotoclone No. 1 (EU-021); the Central Dust Collection System No. 2 with Rotoclone No. 2 (EU-022); the Cooler No. 1 with Rotoclone No. 3 (EU-023); the Cooler No. 2 with Rotoclone No.4 (EU-024); the Fluidized Bed Dryer/Cooler with Baghouse (EU-025); the Bulk Load-Out Operation (EU-034); and the Transfer Bulk Load-out Station (EU-035). [Rule 62-210.200(PTE), F.A.C. and Permit No. 0990005-021-AC]

Requested wording changes shown in red:

7. PM/PM10 Emissions): The sum of emissions shall not exceed 22.15 tons of PM per year and 3.00 tons of PM10 per year from the following emission units: the Rotary Dryer, Central Dust Collection System No. 1 with Rotoclone No. 1 (EU-021); the B System with Rotoclone No. 2 (EU-022); the Cooler No. 1 with Rotoclone No. 3 (EU-023); the Cooler No. 2 with Rotoclone No.4 (EU-024); the Fluidized Bed Dryer/Cooler with Baghouse (EU-025); the Bulk Load-Out Operation (EU-034); the Transfer Bulk Load-out Station (EU-035), A System with Rotoclone No. 6, and C System with Rotoclone No. 7. [Rule 62-210.200(PTE), F.A.C. and Permit No. 0990005-021-AC]

Existing Table in Permit No. 0990005-017-AV, Section 3. Emissions Unit Specific Conditions, D. Sugar Refinery, Emission Limiting Standards:

8. Potential PM/PM10 Emissions: For informational purposes only, the following table summarizes the potential emissions from the sugar refinery emissions units:

EU No.	Description	Tons/Year	
		PM	PM_{10}
021	Rotary Dryer, Central Dust Collection System No. 1 with Rotoclone No. 1	4.104	1.645
022	Central Dust Collection System No. 2 with Rotoclone No. 2	0.563	0.225
023	Cooler No. 1 with Rotoclone No. 3	4.09	1.64
024	Cooler No. 2 with Rotoclone No.4	0.45	0.18
025	Fluidized Bed Dryer/Cooler with Baghouse	14.70	0.588
034	Bulk Load-Out Operation	3.63	0.15
035	Transfer Bulk Load-out Station	1.83	0.07

Requested changes shown in red:

8. Potential PM/PM_{10} Emissions: For informational purposes only, the following table summarizes the potential emissions from the sugar refinery emissions units:

EU No.	Description	Tons/Year	
		PM	PM_{10}
021	Rotary Dryer, Central Dust Collection System No. 1 with Rotoclone No. 1	4.09	1.645
022	B System with Rotoclone No. 2	0.44	0.174
023	Cooler No. 1 with Rotoclone No. 3	4.09	1.64
024	Cooler No. 2 with Rotoclone No.4	0.45	0.18
025	Fluidized Bed Dryer/Cooler with Baghouse	14.70	0.588
034	Bulk Load-Out Operation	3.63	0.15
035	Transfer Bulk Load-out Station	1.83	0.07
NEW	A System with Rotoclone No. 6	0.51	0.205
NEW	B System with Rotoclone No. 7	0.38	0.154

Existing Table in Permit No. 0990005-017-AV, Section 3. Emissions Unit Specific Conditions, D. Sugar Refinery, Emission Limiting Standards:

9. PM/PM_{10} Emission Factors: The permittee shall use the following emission factors to calculate PM/PM_{10} emissions (including calculations for the Annual Operating Report).

EU No.	Description	PM		PM_{10}	
		Uncontrolled	Control Efficiency	Uncontrolled	Control Efficiency
021	Rotary Dryer, Central Dust Collection System No. 1 with Rotoclone No. 1	3.150% (from dryer)plus 0.209 lb/ton (from transfer points)	99.9%	0.126% (from dryer)plus 0.00836 lb/ton (from transfer points)	99.0%
022	Central Dust Collection System No. 2 with Rotoclone No. 2	2.2994 lb/ton	99.9%	0.09198 lb/ton	99.0%
023	Cooler No. 1 with Rotoclone No. 3	0.175%	99.9%	0.007%	99.0%
024	Cooler No. 2 with Rotoclone No.4	0.175%	99.9%	0.007%	99.0%
025	Fluidized Bed Dryer/Cooler with Baghouse	1.5%	99.8%	0.060%	99.8%
034	Bulk Load-Out Operation	0.105 lb/ton	50%	0.00418 lb/ton	50%
035	Transfer Bulk Load-out Station	0.105 lb/ton	90%	0.00418 lb/ton	90%

Requested changes shown in red:

9. PM/PM_{10} Emission Factors: The permittee shall use the following emission factors to calculate PM/PM_{10} emissions (including calculations for the Annual Operating Report).

EU No.	Description	PM		PM_{10}	
		Uncontrolled	Control Efficiency	Uncontrolled	Control Efficiency
021	Rotary Dryer, Central Dust Collection System No. 1 with Rotoclone No. 1	3.150% (from dryer)	99.9%	0.126% (from dryer)	99.0%
022	B System with Rotoclone No. 2	1.777 lb/ton	99.9%	0.071 lb/ton	99.0%
023	Cooler No. 1 with Rotoclone No. 3	0.175%	99.9%	0.007%	99.0%
024	Cooler No. 2 with Rotoclone No.4	0.175%	99.9%	0.007%	99.0%
025	Fluidized Bed Dryer/Cooler with Baghouse	1.5%	99.8%	0.060%	99.8%
034	Bulk Load-Out Operation	0.105 lb/ton	50%	0.00418 lb/ton	50%
035	Transfer Bulk Load-out Station	0.105 lb/ton	90%	0.00418 lb/ton	90%
NEW	A System with Rotoclone No. 6	1.045 lb/ton	99.9%	0.042 lb/ton	99.0%
NEW	B System with Rotoclone No. 7	0.105 lb/ton (for Rotary Dryer), 1.463 lb/ton (for Fluidized Bed Drying System)	99.9%	0.0042 lb/ton (for Rotary Dryer), 0.059 lb/ton (for Fluidized Bed Drying System)	99.0%

FIGURES

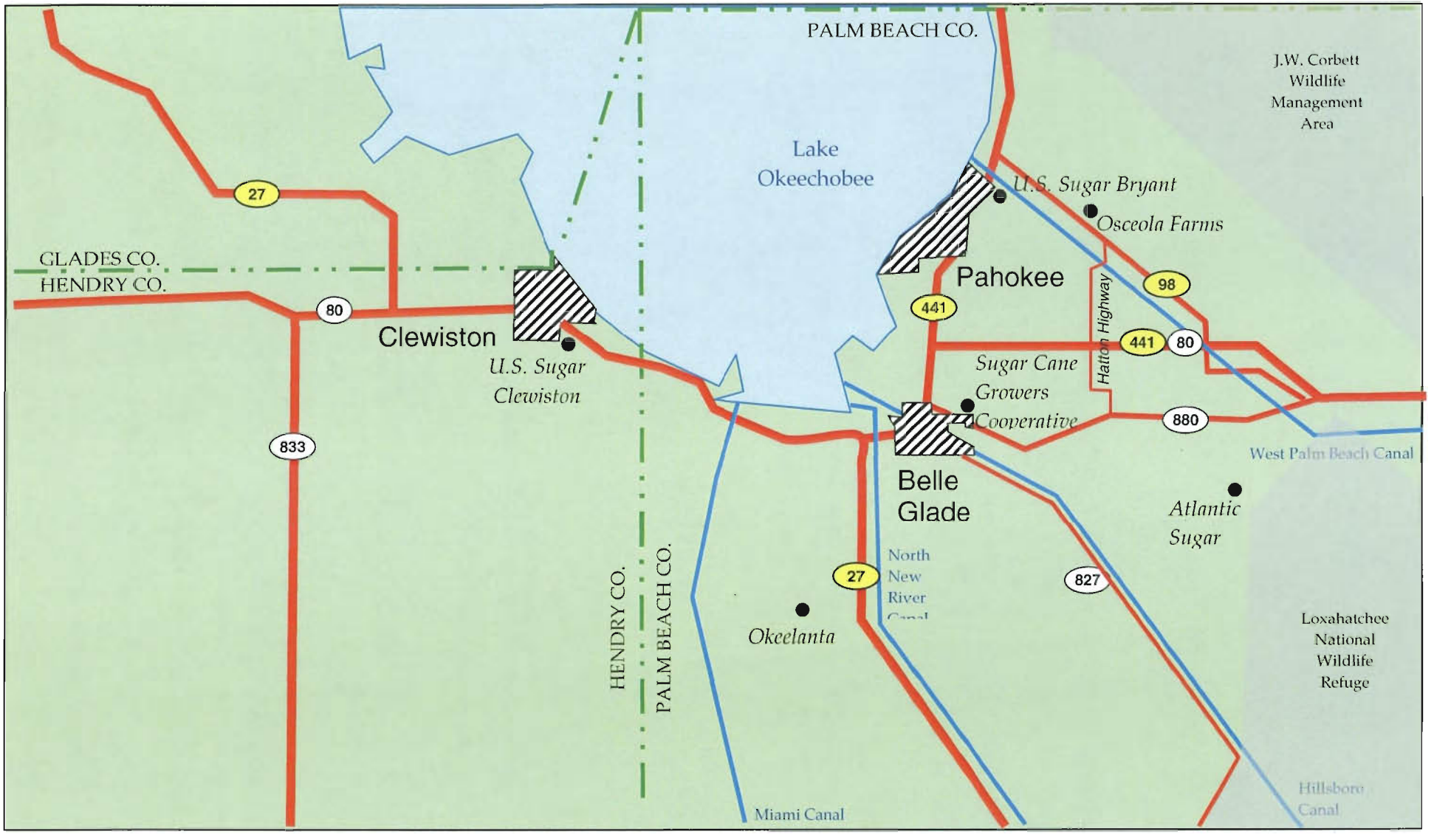


Figure A-1
Location of Florida Sugar Mills

Source: Golder Associates Inc., 2011.

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