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 any air construction permit at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air permit. Also use this form to apply for an air construction permit:

- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- Where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- Where the applicant proposes 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/renewal Title V air operation permit.

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

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: Covanta Lake II, Inc.
2. Site Name: Lake County Resource Recovery Facility
3. Facility Identification Number: 0690046
4. Facility Location...
   Street Address or Other Locator: 3830 Rogers Industrial Park Road
   City: Okahumpka County: Lake Zip Code: 34762
5. Relocatable Facility? ☐ Yes ☒ No
6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: Viet Ta
2. Application Contact Mailing Address...
   Organization/Firm: Covanta Lake II, Inc.
   Street Address: 3830 Rogers Industrial Park Road
   City: Okahumpka State: FL Zip Code: 34762
3. Application Contact Telephone Numbers...
   Telephone: (727) 919 - 7671 ext. Fax: (727) 856 - 0007
4. Application Contact Email Address: vta@covantaenergy.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 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

PSD permit number to be revised: PSD-FL-113

This application also requests revision to the PSD permit conditions to make them consistent with conditions in the Title V permit. Please refer to Appendix E for a list of conditions in the PSD permit that need revision.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
001	Municipal Waste Combustor – Unit 1	AV05	
002	Municipal Waste Combustor – Unit 2	AV05	
003	Activated carbon storage silo	AV05	

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. N/A

1. Owner/Authorized Representative Name :

2. Owner/Authorized Representative Mailing Address...
   Organization/Firm:
   Street Address:
   City: State: Zip Code: 3

3. Owner/Authorized Representative Telephone Numbers...
   Telephone: ( ) - ext. Fax: ( ) -

4. Owner/Authorized Representative Email Address

5. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.

   Signature Date

APPLICATION INFORMATION

Application Responsible Official Certification

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

1. Application Responsible Official Name: Brad Crispell

2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):

   [X] 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.

3. Application Responsible Official Mailing Address...
   Organization/Firm: Covanta Lake II, Inc.
   Street Address: 3830 Rogers Industrial Park Road
   City: Okahumpka State: FL Zip Code: 34762

4. Application Responsible Official Telephone Numbers...
   Telephone: (727) 856 - 2917 ext. 218 Fax: (727) 856 - 0007

5. Application Responsible Official Email Address: bcrispell@covantaenergy.com

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 6/10/06 Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Joseph R. Treshler
   Registration Number: 32074
2. Professional Engineer Mailing Address...
   Organization/Firm: Covanta Energy
   Street Address: 14230 Hays Road
   City: Spring Hill State: FL Zip Code: 34610
3. Professional Engineer Telephone Numbers...
   Telephone: (727) 856 - 2917 ext. 219 Fax: (727) 856 - 0007
4. Professional Engineer Email Address: jtreshler@covantaenergy.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 [X], 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 [X], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

(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.

Signature 6/15/06
Date

JOSEPH R. TRESHLER
NO. 32074
(seal)

* Attach any exception to certification statement.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone 17 East (km) 413.12 North (km) 3179.21		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) 284422 Longitude (DD/MM/SS) 815323	
3. Governmental Facility Code: 0	4. Facility Status Code: A	5. Facility Major Group SIC Code: 49	6. Facility SIC(s): 4953
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: Gary Main
2. Facility Contact Mailing Address... Organization/Firm: Covanta Lake II, Inc. Street Address: 3830 Rogers Industrial Park Road City: Okahumpka State: FL Zip Code: 34762
3. Facility Contact Telephone Numbers: Telephone: (352) 365 - 1611 ext. 226 Fax: (352) 365 - 6359
4. Facility Contact Email Address: gmain@covantaenergy.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: Brad Crispell
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Covanta Lake II, Inc. Street Address: 14230 Hays Road City: Spring Hill State: FL Zip Code: 34610
3. Facility Primary Responsible Official Telephone Numbers... Telephone: (727) 856 - 2917 ext. Fax: (727) 856 - 0007
4. Facility Primary Responsible Official Email Address: bcrispell@covantaenergy.com

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]?
CO	B	N
DIOX	B	N
H027 (Cd)	B	N
H106 (HCl)	B	N
H114 (Hg)	B	N
NOX	A	N
PB	B	N
PM	B	N
SO2	B	N

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID No.s Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

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) [X] Attached, Document ID: Appendix A ☐ 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) [X] Attached, Document ID: Appendix B ☐ 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) [X] Attached, Document ID: Appendix F ☐ Previously Submitted, Date:_____

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location: ☐ Attached, Document ID:_____ ☐ Not Applicable (existing permitted facility)
2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): ☐ Attached, Document ID:_____
3. Rule Applicability Analysis: ☐ Attached, Document ID:_____
4. List of Exempt Emissions Units (Rule 62-210.300(3), F.A.C.): ☐ Attached, Document ID:_____ ☐ Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification: ☐ Attached, Document ID:_____ ☐ 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

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.):
   ☐ 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 Appendix G ☐ 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: Appendix D
   ☐ 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 Appendix H
   Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.

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

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

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

Additional Requirements Comment

EMISSIONS UNIT INFORMATION
Section [1] of [3]

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.)

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

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

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

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

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

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

2. Description of Emissions Unit Addressed in this Section:
Municipal Waste Combustor – Unit 1

3. Emissions Unit Identification Number: 001

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
A			49	[ ] Yes [X] No

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

EMISSIONS UNIT INFORMATION
Section [1] of [3]

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

107 Selective Noncatalytic Reduction for NOx
048 Activated Carbon Adsorption
013 Gas Scrubber (General, Not Classified)
016 Fabric Filter - High Temperature (T > 250F)

2. Control Device or Method Code(s): 107, 048, 013, 016

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: 69,000 lbs. steam per hour (4 hour ave)	
3. Maximum Heat Input Rate: 120 million Btu/hr	
4. Maximum Incineration Rate: pounds/hr 288 tons/day (daily ave)	
5. Requested Maximum Operating Schedule: 24 hours/day 52 weeks/year	7 days/week 8760 hours/year
6. Operating Capacity/Schedule Comment:	

EMISSIONS UNIT INFORMATION
Section [ ] of [ ]

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: Flue #1	2. Emission Point Type Code: 1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: V	6. Stack Height: 199 feet	7. Exit Diameter:4.3 feet
8. Exit Temperature:270 °F	9. Actual Volumetric Flow Rate: 59400 acfm	10. Water Vapor:19 %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1_ of 2_

1. Segment Description (Process/Fuel Type): Natural gas burning during boiler startup, shutdown, and combustion control periods.		
2. Source Classification Code (SCC): 10100602	3. SCC Units: million cubic feet	
4. Maximum Hourly Rate: 0.09	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 1040
10. Segment Comment:		

Segment Description and Rate: Segment 2_ of 2_

1. Segment Description (Process/Fuel Type): Municipal solid waste combustion		
2. Source Classification Code (SCC): 10101201	3. SCC Units: tons burned	
4. Maximum Hourly Rate: 12	5. Maximum Annual Rate: 105120	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 10
10. Segment Comment: Million Btu per SCC Unit calculated based on MSW heat content 5,000 BTU per pound.		

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
CO			**EL**
DIOX	**048**	**016**	**EL**
H027 (Cd)	**016**		**EL**
H106 (HCl)	**013**		**EL**
H114 (Hg)	**048**	**016**	**EL**
NOx	**107**		**EL**
PB	**016**		**EL**
PM	**016**		**EL**
SO2	**013**		**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: CO	2. Total Percent Efficiency of Control:
3. Potential Emissions: 16.13 lb/hour 78.69 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 100 ppm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 100 ppm * 28 * 43200 dscfm * 60*(20.9-9)/(20.9-7) / 385.3E6 = 16.13
tons/year = 16.13 * 8760 / 2000 = 78.69

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: DIOX	2. Total Percent Efficiency of Control:
3. Potential Emissions: 4.16E-6 lb/hour 1.82E-5 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 30 ng/dscm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 30 ng/dscm*43200*60/35.29/454/1000*(20.9-9)/(20.9-7)/1000000 = 4.16E-6
tons/year = 4.16E-6 * 8760 / 2000 = 1.82E-5

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: H027 (Cd)	2. Total Percent Efficiency of Control:
3. Potential Emissions: 5.54E-3 lb/hour 2.43E-2 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 0.04 mg/dscm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 0.04 mg/dscm*43200*60/35.29/454/1000*(20.9-9)/(20.9-7)= 5.54E-3
tons/year = 5.54E-3 * 8760 / 2000 = 2.43E-2

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: H106 (HCl)	2. Total Percent Efficiency of Control:
3. Potential Emissions: 6.09 lb/hour 26.67 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 29 ppm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 29 ppm /1000000/385.3*36.46*43200*60*(20.9-9)/(20.9-7)= 6.09
tons/year = 6.09 * 8760 / 2000 = 26.67

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: H114 (Hg)	2. Total Percent Efficiency of Control:
3. Potential Emissions: 9.7E-3 lb/hour 4.25E-2 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 0.07 mg/dscm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 0.07 mg/dscm* 43200*60/35.29/454/1000*(20.9-9)/(20.9-7)= 9.7E-3
tons/year = 9.7E-3 * 8760 / 2000 = 4.25E-2

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: NOx	2. Total Percent Efficiency of Control:
3. Potential Emissions: 54.31 lb/hour 237.88 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 205 ppm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 205 ppm /1000000/385.3*46*43200*60*(20.9-9)/(20.9-7)= 54.31
tons/year = 54.31 * 8760 / 2000 = 237.88

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: PM	2. Total Percent Efficiency of Control:
3. Potential Emissions: 3.74 lb/hour 16.38 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 27 mg/dscm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 27 mg/dscm* 43200*60/35.29/454/1000*(20.9-9)/(20.9-7) = 3.74
tons/year = 3.74 * 8760 / 2000 = 16.38

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: SO2	2. Total Percent Efficiency of Control:
3. Potential Emissions: 10.69 lb/hour 46.82 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 29 ppm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 29 ppm /1000000/385.3*64*43200*60*(20.9-9)/(20.9-7)= 10.69
tons/year = 10.69 * 8760 / 2000 = 46.82

11. Potential, Fugitive, and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

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

Allowable Emissions Allowable Emissions 1_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: CO 100 ppm (4-hr block ave)	4. Equivalent Allowable Emissions: 16.13 lb/hour 78.69 tons/year
5. Method of Compliance: 40CFR60.58b(i)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.34b(a) and PSD-FL-113	

Allowable Emissions Allowable Emissions 2_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: DIOX 30 ng/dscm	4. Equivalent Allowable Emissions: 4.16E-6 lb/hour 1.82E-5 tons/year
5. Method of Compliance: 40CFR60.58b(g)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(c)(1)(ii) and PSD-FL-113	

Allowable Emissions Allowable Emissions 3_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: H027 (Cd) 0.04 mg/dscm	4. Equivalent Allowable Emissions: 5.54E-3 lb/hour 2.43E-2 tons/year
5. Method of Compliance: 40CFR60.58b(d)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(a)(2)(i) and PSD-FL-113	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Allowable Emissions Allowable Emissions 4_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: H106 (HCl) 29 ppm or 95% reduction	4. Equivalent Allowable Emissions: 6.09 lb/hour 26.67 tons/year
5. Method of Compliance: 40CFR60.58b(f)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(b)(3)(ii) and PSD-FL-113	

Allowable Emissions Allowable Emissions 5_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: H114 (Hg) 0.07 mg/dscm or 85% reduction	4. Equivalent Allowable Emissions: 9.7E-3 lb/hour 4.25E-2 tons/year
5. Method of Compliance: 40CFR60.58b(d)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(a)(2)(i), FAC 296.416(3)(a)1 and PSD-FL-113	

Allowable Emissions Allowable Emissions 6_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: NOx 205 ppm (24-hr block ave)	4. Equivalent Allowable Emissions: 54.31 lb/hour 237.88 tons/year
5. Method of Compliance: 40CFR60.58b(h)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(d) and PSD-FL-113	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Allowable Emissions Allowable Emissions 7_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: PB 0.44 mg/dscm	4. Equivalent Allowable Emissions: 6.09E-2 lb/hour 2.67E-1 tons/year
5. Method of Compliance: 40CFR60.58b(d)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(a)(4) and PSD-FL-113	

Allowable Emissions Allowable Emissions 8_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: PM 27 mg/dscm	4. Equivalent Allowable Emissions: 3.74 lb/hour 16.38 tons/year
5. Method of Compliance: 40CFR60.58b(d)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(a)(1)(i) and PSD-FL-113	

Allowable Emissions Allowable Emissions 9_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: SO2 29 ppm or 75% reduction(24-hr geo. Ave)	4. Equivalent Allowable Emissions: 10.69 lb/hour 46.82 tons/year
5. Method of Compliance: 40CFR60.58b(e)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(b)(3)(i) and PSD-FL-113	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Allowable Emissions Allowable Emissions 10 of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 110% demonstrated load, klb/hr	4. Equivalent Allowable Emissions: NA
5. Method of Compliance: 40CFR60.58b(i)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.53b(b) and PSD-FL-113	

Allowable Emissions Allowable Emissions 11 of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 17°C above demonstrated temp., degree	4. Equivalent Allowable Emissions: NA
5. Method of Compliance: 40CFR60.58b(i)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.53b(c) and PSD-FL-113	

Allowable Emissions Allowable Emissions 12 of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: carbon = or > demonstrated feed rate, lb/hr	4. Equivalent Allowable Emissions: NA
5. Method of Compliance: 40CFR60.58b(m)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.58b(m) and PSD-FL-113	

G. VISIBLE EMISSIONS INFORMATION

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

Visible Emissions Limitation: Visible Emissions Limitation 1_ of 2___

1. Visible Emissions Subtype: VE10	2. Basis for Allowable Opacity: [X] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: 10 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: 40CFR60.58b(c)	
5. Visible Emissions Comment:	

Visible Emissions Limitation: Visible Emissions Limitation 2__ of 2_

1. Visible Emissions Subtype: VE	2. Basis for Allowable Opacity: [X] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: 40CFR60.58b(k)	
5. Visible Emissions Comment: RULE 40CFR60.55b standards for fugitive ash emissions from ash conveying system: 5% of the observation period (I.e. 9 minutes per 3-hour) as per EPA Method 22	

EMISSIONS UNIT INFORMATION
Section [1] of [3]

H. CONTINUOUS MONITOR INFORMATION

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

Continuous Monitoring System: Continuous Monitor 1__ of 11_

1. Parameter Code: EM	2. Pollutant(s): SO2
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Bovar/Western Research Model Number: 721M	Serial Number: VD-721M-8635-4
5. Installation Date: 1/1/97	6. Performance Specification Test Date: 1/9/97
7. Continuous Monitor Comment: RULE 40CFR60.58b(e) Stack CEMS	

Continuous Monitoring System: Continuous Monitor 2__ of 11_

1. Parameter Code: EM	2. Pollutant(s): SO2
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Bovar/Western Research Model Number: 721M	Serial Number: VD-721M-8535-3
5. Installation Date: 1/1/97	6. Performance Specification Test Date: 1/9/97
7. Continuous Monitor Comment: RULE 40CFR60.58b(e) Scrubber Inlet CEMS	

Continuous Monitoring System: Continuous Monitor 3__ of 11_

1. Parameter Code: O2	2. Pollutant(s): dilluent correction
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Servomex Model Number: 1400	Serial Number: 01420/B530
5. Installation Date: 1/1/95	6. Performance Specification Test Date: 2/21/95
7. Continuous Monitor Comment: RULE 40CFR60.58b(b) Stack CEMS	

Continuous Monitoring System: Continuous Monitor 4__ of 11_

1. Parameter Code: O2	2. Pollutant(s): dilluent correction
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Servomex Model Number: 1400	Serial Number: 01420/B525
5. Installation Date: 1/1/95	6. Performance Specification Test Date: 2/21/95
7. Continuous Monitor Comment: RULE 40CFR60.58b(b) Scrubber Inlet CEMS	

Continuous Monitoring System: Continuous Monitor 5__ of 11_

1. Parameter Code: EM	2. Pollutant(s): CO
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Fuji/California Analytical Model Number: ZRH2	Serial Number: N3P4354T
5. Installation Date: 1/1/95	6. Performance Specification Test Date: 2/21/95
7. Continuous Monitor Comment: RULE 40CFR60.58b(i) Stack CEMS	

Continuous Monitoring System: Continuous Monitor 6__ of 11_

1. Parameter Code: EM	2. Pollutant(s): CO
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Fuji/California Analytical Model Number: ZRH1	Serial Number: A9M0431T
5. Installation Date:	6. Performance Specification Test Date: 2/15/00
7. Continuous Monitor Comment: RULE 40CFR60.58b(i) Scrubber Inlet CEMS	

Continuous Monitoring System: Continuous Monitor 7__ of 11_

1. Parameter Code: EM	2. Pollutant(s): NOx
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: TECO Model Number: 42CHL	Serial Number: 65510-348
5. Installation Date:	6. Performance Specification Test Date: 2/15/00
7. Continuous Monitor Comment: RULE 40CFR60.58b(h)	

Continuous Monitoring System: Continuous Monitor 8__ of 11_

1. Parameter Code: VE	2. Pollutant(s): Opacity
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Sick Model Number: OMD41	Serial Number: 4438004
5. Installation Date: 7/28/05	6. Performance Specification Test Date: 7/28/05
7. Continuous Monitor Comment: RULE 40CFR60.58b(c)	

Continuous Monitoring System: Continuous Monitor 9__ of 11_

1. Parameter Code: TEMP	2. Pollutant(s): Baghouse inlet temperature
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information... Manufacturer: Westronics Model Number: 3000 Serial Number: 4841	
5. Installation Date:	6. Performance Specification Test Date: NA
7. Continuous Monitor Comment: RULE 40CFR60.58b(i)	

Continuous Monitoring System: Continuous Monitor 10_ of 11_

1. Parameter Code: Steam load	2. Pollutant(s): Steam load
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information... Manufacturer: Odessa Model Number: DSM-3260 Serial Number: 105037	
5. Installation Date:	6. Performance Specification Test Date: NA
7. Continuous Monitor Comment: RULE 40CFR60.58b(i)	

Continuous Monitoring System: Continuous Monitor 11_ of 11_

1. Parameter Code: Carbon feed rate	2. Pollutant(s): carbon feed rate
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information... Manufacturer: Odessa Model Number: DSM-3260 Serial Number: 104976	
5. Installation Date:	6. Performance Specification Test Date: NA
7. Continuous Monitor Comment: RULE 40CFR60.58b(m)	

EMISSIONS UNIT INFORMATION
Section [1] of [3]

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)
   [X] Attached, Document ID Appendix B [ ] 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)
   [X] Attached, Document ID: Appendix K [ ] 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)
   [X] Attached, Document ID: Appendix I, J, M, and L [ ] 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)
   [X] Attached, Document ID: Appendix N [ ] 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)
   [X] Attached, Document ID: Appendix O [ ] Previously Submitted, Date _____
   [ ] Not Applicable

6. Compliance Demonstration Reports/Records

☐ Attached, Document ID: _____

Test Date(s)/Pollutant(s) Tested: _____

_____

☒ Previously Submitted, Date: 3/3/06

Test Date(s)/Pollutant(s) Tested: January 2006/PM, Pb, Cd, Hg, HCl, DF, CO, SO_2, NOx, VE

_____

☐ 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

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 (Rule 62-212.400(4)(d), F.A.C., and Rule 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: Appendix D

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

5. Acid Rain Part Application
   - ☐ Certificate of Representation (EPA Form No. 7610-1)
     - ☐ Copy Attached, Document ID:
   - ☐ Acid Rain Part (Form No. 62-210.900(1)(a))
     - ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   - ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
     - ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   - ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
     - ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   - ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
     - ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   - ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
     - ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   - ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
     - ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   - ☐ Not Applicable

Additional Requirements Comment

EMISSIONS UNIT INFORMATION
Section [2] of [3]

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.)

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

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

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

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

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

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

2. Description of Emissions Unit Addressed in this Section:
Municipal Waste Combustor – Unit 2

3. Emissions Unit Identification Number: 002

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
A			49	[ ] Yes [X] No

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

107 Selective Noncatalytic Reduction for NOx
048 Activated Carbon Adsorption
013 Gas Scrubber (General, Not Classified)
016 Fabric Filter - High Temperature (T > 250F)

2. Control Device or Method Code(s): 107, 048, 013, 016

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: 69,000 lbs. steam per hour (4 hour ave)	
3. Maximum Heat Input Rate: 120 million Btu/hr	
4. Maximum Incineration Rate: pounds/hr 288 tons/day (daily ave)	
5. Requested Maximum Operating Schedule:	
24 hours/day	7 days/week
52 weeks/year	8760 hours/year
6. Operating Capacity/Schedule Comment:	

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: Flue #2	2. Emission Point Type Code: 1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: V	6. Stack Height: 199 feet	7. Exit Diameter:4.3 feet
8. Exit Temperature:270 °F	9. Actual Volumetric Flow Rate: 59400 acfm	10. Water Vapor:19 %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

EMISSIONS UNIT INFORMATION
Section [2] of [3]

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1_ of 2_

1. Segment Description (Process/Fuel Type): Natural gas burning during boiler startup, shutdown, and combustion control periods.		
2. Source Classification Code (SCC): 10100602	3. SCC Units: million cubic feet	
4. Maximum Hourly Rate: 0.09	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 1040
10. Segment Comment:		

Segment Description and Rate: Segment 2_ of 2_

1. Segment Description (Process/Fuel Type): Municipal solid waste combustion		
2. Source Classification Code (SCC): 10101201	3. SCC Units: tons burned	
4. Maximum Hourly Rate: 12	5. Maximum Annual Rate: 105120	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 10
10. Segment Comment: Million Btu per SCC Unit calculated based on MSW heat content 5,000 BTU per pound.		

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
CO			**EL**
DIOX	**048**	**016**	**EL**
H027 (Cd)	**016**		**EL**
H106 (HCl)	**013**		**EL**
H114 (Hg)	**048**	**016**	**EL**
NOx	**107**		**EL**
PB	**016**		**EL**
PM	**016**		**EL**
SO2	**013**		**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: CO	2. Total Percent Efficiency of Control:
3. Potential Emissions: 16.13 lb/hour 78.69 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 100 ppm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 100 ppm * 28 * 43200 dscfm * 60*(20.9-9)/(20.9-7) / 385.3E6 = 16.13
tons/year = 16.13 * 8760 / 2000 = 78.69

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: DIOX	2. Total Percent Efficiency of Control:
3. Potential Emissions: 4.16E-6 lb/hour 1.82E-5 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 30 ng/dscm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 30 ng/dscm*43200*60/35.29/454/1000*(20.9-9)/(20.9-7)/1000000 = 4.16E-6
tons/year = 4.16E-6 * 8760 / 2000 = 1.82E-5

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: H027 (Cd)	2. Total Percent Efficiency of Control:
3. Potential Emissions: 5.54E-3 lb/hour 2.43E-2 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 0.04 mg/dscm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 0.04 mg/dscm*43200*60/35.29/454/1000*(20.9-9)/(20.9-7)= 5.54E-3
tons/year = 5.54E-3 * 8760 / 2000 = 2.43E-2

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: H106 (HCl)	2. Total Percent Efficiency of Control:
3. Potential Emissions: 6.09 lb/hour 26.67 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 29 ppm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 29 ppm /1000000/385.3*36.46*43200*60*(20.9-9)/(20.9-7)= 6.09
tons/year = 6.09 * 8760 / 2000 = 26.67

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: H114 (Hg)	2. Total Percent Efficiency of Control:
3. Potential Emissions: 9.7E-3 lb/hour 4.25E-2 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 0.07 mg/dscm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 0.07 mg/dscm* 43200*60/35.29/454/1000*(20.9-9)/(20.9-7)= 9.7E-3
tons/year = 9.7E-3 * 8760 / 2000 = 4.25E-2

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: NOx	2. Total Percent Efficiency of Control:
3. Potential Emissions: 54.31 lb/hour 237.88 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 205 ppm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 205 ppm /1000000/385.3*46*43200*60*(20.9-9)/(20.9-7)= 54.31
tons/year = 54.31 * 8760 / 2000 = 237.88

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: PB	2. Total Percent Efficiency of Control:
3. Potential Emissions: 6.09E-2 lb/hour 2.67E-1 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 0.44 mg/dscm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 0.44 mg/dscm* 43200*60/35.29/454/1000*(20.9-9)/(20.9-7) = 6.09E-2
tons/year = 6.09E-2 * 8760 / 2000 = 2.67E-1

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: PM	2. Total Percent Efficiency of Control:
3. Potential Emissions: 3.74 lb/hour 16.38 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 27 mg/dscm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 27 mg/dscm* 43200*60/35.29/454/1000*(20.9-9)/(20.9-7) = 3.74
tons/year = 3.74 * 8760 / 2000 = 16.38

11. Potential, Fugitive, and Actual Emissions Comment:

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: SO2	2. Total Percent Efficiency of Control:
3. Potential Emissions: 10.69 lb/hour 46.82 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 29 ppm Reference: PSD-FL-113 permit allowable	7. Emissions Method Code: 0
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:
lb/hr = 29 ppm /1000000/385.3*64*43200*60*(20.9-9)/(20.9-7)= 10.69
tons/year = 10.69 * 8760 / 2000 = 46.82

11. Potential, Fugitive, and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

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

Allowable Emissions Allowable Emissions 1_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: CO 100 ppm (4-hr block ave)	4. Equivalent Allowable Emissions: 16.13 lb/hour 78.69 tons/year
5. Method of Compliance: 40CFR60.58b(i)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.34b(a) and PSD-FL-113	

Allowable Emissions Allowable Emissions 2_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: DIOX 30 ng/dscm	4. Equivalent Allowable Emissions: 4.16E-6 lb/hour 1.82E-5 tons/year
5. Method of Compliance: 40CFR60.58b(g)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(c)(1)(ii) and PSD-FL-113	

Allowable Emissions Allowable Emissions 3_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: H027 (Cd) 0.04 mg/dscm	4. Equivalent Allowable Emissions: 5.54E-3 lb/hour 2.43E-2 tons/year
5. Method of Compliance: 40CFR60.58b(d)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(a)(2)(i) and PSD-FL-113	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Allowable Emissions Allowable Emissions 4_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: H106 (HCl) 29 ppm or 95% reduction	4. Equivalent Allowable Emissions: 6.09 lb/hour 26.67 tons/year
5. Method of Compliance: 40CFR60.58b(f)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(b)(3)(ii) and PSD-FL-113	

Allowable Emissions Allowable Emissions 5_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: H114 (Hg) 0.07 mg/dscm or 85% reduction	4. Equivalent Allowable Emissions: 9.7E-3 lb/hour 4.25E-2 tons/year
5. Method of Compliance: 40CFR60.58b(d)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(a)(2)(i), FAC 296.416(3)(a)1 and PSD-FL-113	

Allowable Emissions Allowable Emissions 6_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: NOx 205 ppm (24-hr block ave)	4. Equivalent Allowable Emissions: 54.31 lb/hour 237.88 tons/year
5. Method of Compliance: 40CFR60.58b(h)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(d) and PSD-FL-113	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Allowable Emissions Allowable Emissions 7_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: PB 0.44 mg/dscm	4. Equivalent Allowable Emissions: 6.09E-2 lb/hour 2.67E-1 tons/year
5. Method of Compliance: 40CFR60.58b(d)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(a)(4) and PSD-FL-113	

Allowable Emissions Allowable Emissions 8_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: PM 27 mg/dscm	4. Equivalent Allowable Emissions: 3.74 lb/hour 16.38 tons/year
5. Method of Compliance: 40CFR60.58b(d)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(a)(1)(i) and PSD-FL-113	

Allowable Emissions Allowable Emissions 9_ of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: SO2 29 ppm or 75% reduction(24-hr geo. Ave)	4. Equivalent Allowable Emissions: 10.69 lb/hour 46.82 tons/year
5. Method of Compliance: 40CFR60.58b(e)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.33b(b)(3)(i) and PSD-FL-113	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Allowable Emissions Allowable Emissions 10 of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 110% demonstrated load, klb/hr	4. Equivalent Allowable Emissions: NA
5. Method of Compliance: 40CFR60.58b(i)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.53b(b) and PSD-FL-113	

Allowable Emissions Allowable Emissions 11 of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 17°C above demonstrated temp., degree	4. Equivalent Allowable Emissions: NA
5. Method of Compliance: 40CFR60.58b(i)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.53b(c) and PSD-FL-113	

Allowable Emissions Allowable Emissions 12 of 12_

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: carbon = or > demonstrated feed rate, lb/hr	4. Equivalent Allowable Emissions: NA
5. Method of Compliance: 40CFR60.58b(m)	
6. Allowable Emissions Comment (Description of Operating Method): RULE 40CFR60.58b(m) and PSD-FL-113	

EMISSIONS UNIT INFORMATION
Section [2] of [3]

G. VISIBLE EMISSIONS INFORMATION

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

Visible Emissions Limitation: Visible Emissions Limitation 1_ of 2___

1. Visible Emissions Subtype: VE10	2. Basis for Allowable Opacity: [X] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: 10 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: 40CFR60.58b(c)	
5. Visible Emissions Comment:	

Visible Emissions Limitation: Visible Emissions Limitation 2__ of 2_

1. Visible Emissions Subtype: VE	2. Basis for Allowable Opacity: [X] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: 40CFR60.58b(k)	
5. Visible Emissions Comment: RULE 40CFR60.55b standards for fugitive ash emissions from ash conveying system: 5% of the observation period (I.e. 9 minutes per 3-hour) as per EPA Method 22	

EMISSIONS UNIT INFORMATION
Section [2] of [3]

H. CONTINUOUS MONITOR INFORMATION

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

Continuous Monitoring System: Continuous Monitor 1__ of 11_

1. Parameter Code: EM	2. Pollutant(s): SO2
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Bovar/Western Research Model Number: 721M	Serial Number: VD-721M-8535-6
5. Installation Date: 1/1/97	6. Performance Specification Test Date: 1/9/97
7. Continuous Monitor Comment: RULE 40CFR60.58b(e) Stack CEMS	

Continuous Monitoring System: Continuous Monitor 2__ of 11_

1. Parameter Code: EM	2. Pollutant(s): SO2
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Bovar/Western Research Model Number: 721M	Serial Number: VD-721M-8535-5
5. Installation Date: 1/1/97	6. Performance Specification Test Date: 1/9/97
7. Continuous Monitor Comment: RULE 40CFR60.58b(e) Scrubber Inlet CEMS	

Continuous Monitoring System: Continuous Monitor 3__ of 11_

1. Parameter Code: O2	2. Pollutant(s): dilluent correction
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Servomex Model Number: 1400	Serial Number: 01420/B527
5. Installation Date: 1/1/95	6. Performance Specification Test Date: 2/21/95
7. Continuous Monitor Comment: RULE 40CFR60.58b(b) Stack CEMS	

Continuous Monitoring System: Continuous Monitor 4__ of 11_

1. Parameter Code: O2	2. Pollutant(s): dilluent correction
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Servomex Model Number: 1400	Serial Number: 01420/B528
5. Installation Date: 1/1/95	6. Performance Specification Test Date: 2/21/95
7. Continuous Monitor Comment: RULE 40CFR60.58b(b) Scrubber Inlet CEMS	

Continuous Monitoring System: Continuous Monitor 5__ of 11_

1. Parameter Code: EM	2. Pollutant(s): CO
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Fuji/California Analytical Model Number: ZRH2	Serial Number: N3P4355T
5. Installation Date: 1/1/95	6. Performance Specification Test Date: 2/21/95
7. Continuous Monitor Comment: RULE 40CFR60.58b(i) Stack CEMS	

Continuous Monitoring System: Continuous Monitor 6__ of 11_

1. Parameter Code: EM	2. Pollutant(s): CO
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Fuji/California Analytical Model Number: ZRH1	Serial Number: A9M0434T
5. Installation Date:	6. Performance Specification Test Date: 2/15/00
7. Continuous Monitor Comment: RULE 40CFR60.58b(i) Scrubber Inlet CEMS	

Continuous Monitoring System: Continuous Monitor 7__ of 11_

1. Parameter Code: EM	2. Pollutant(s): NOx
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: TECO Model Number: 42CHL	Serial Number: 65513-348
5. Installation Date:	6. Performance Specification Test Date: 2/15/00
7. Continuous Monitor Comment: RULE 40CFR60.58b(h)	

Continuous Monitoring System: Continuous Monitor 8__ of 11_

1. Parameter Code: VE	2. Pollutant(s): Opacity
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information... Manufacturer: Sick Model Number: OMD41	Serial Number: 4438017
5. Installation Date: 7/28/05	6. Performance Specification Test Date: 7/28/05
7. Continuous Monitor Comment: RULE 40CFR60.58b(c)	

Continuous Monitoring System: Continuous Monitor 9__ of 11_

1. Parameter Code: TEMP	2. Pollutant(s): Baghouse inlet temperature
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information... Manufacturer: Westronics Model Number: 3000 Serial Number: 4842	
5. Installation Date:	6. Performance Specification Test Date: NA
7. Continuous Monitor Comment: RULE 40CFR60.58b(i)	

Continuous Monitoring System: Continuous Monitor 10_ of 11_

1. Parameter Code: Steam load	2. Pollutant(s): Steam load
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information... Manufacturer: Odessa Model Number: DSM-3260 Serial Number: 105037	
5. Installation Date:	6. Performance Specification Test Date: NA
7. Continuous Monitor Comment: RULE 40CFR60.58b(i)	

Continuous Monitoring System: Continuous Monitor 11_ of 11_

1. Parameter Code: Carbon feed rate	2. Pollutant(s): carbon feed rate
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information... Manufacturer: Odessa Model Number: DSM-3260 Serial Number: 104978	
5. Installation Date:	6. Performance Specification Test Date: NA
7. Continuous Monitor Comment: RULE 40CFR60.58b(m)	

EMISSIONS UNIT INFORMATION
Section [2] of [3]

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)
   [X] Attached, Document ID: Appendix B [ ] 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)
   [X] Attached, Document ID: Appendix K [ ] 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)
   [X] Attached, Document ID: Appendix I, J, M, and L [ ] 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)
   [X] Attached, Document ID: Appendix N [ ] 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)
   [X] Attached, Document ID: Appendix O [ ] Previously Submitted, Date _____
   [ ] Not Applicable

6. Compliance Demonstration Reports/Records
   [ ] Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [X] Previously Submitted, Date: 3/3/06_
   Test Date(s)/Pollutant(s) Tested: January 2006/PM, Pb, Cd, Hg, HCl, DF, CO, SO_2, NOx, VE
   [ ] 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: _____ [X] Not Applicable

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: _____ [X] Not Applicable

2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.)
☐ Attached, Document ID: _____ [X] Not Applicable

3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only)
☐ Attached, Document ID: _____ [X] Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements
[X] Attached, Document ID: Appendix D

2. Compliance Assurance Monitoring
☐ Attached, Document ID: _____ [X] Not Applicable

3. Alternative Methods of Operation
☐ Attached, Document ID: _____ [X] Not Applicable

4. Alternative Modes of Operation (Emissions Trading)
☐ Attached, Document ID: _____ [X] Not Applicable

5. Acid Rain Part Application
☐ Certificate of Representation (EPA Form No. 7610-1)
☐ Copy Attached, Document ID:
☐ Acid Rain Part (Form No. 62-210.900(1)(a))
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ Not Applicable

Additional Requirements Comment

EMISSIONS UNIT INFORMATION
Section [3] of [3]

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.)

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

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

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

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

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

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

2. Description of Emissions Unit Addressed in this Section:
Carbon silo

3. Emissions Unit Identification Number: 003

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
A			49	[ ] Yes [X] No

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

   018 Fabric Filter - Low Temperature (T < 180F)

2. Control Device or Method Code(s): 018

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:	
3. Maximum Heat Input Rate:	
4. Maximum Incineration Rate: pounds/hr	
5. Requested Maximum Operating Schedule:	
24 hours/day	7 days/week
52 weeks/year	8760 hours/year
6. Operating Capacity/Schedule Comment:	

The silo is expected to be filled with no more than 1 truck monthly. Each truck holds approximately 20 tons. Each transfer of carbon from the truck into the silo may take up to 4 hours.

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: Carbon silo	2. Emission Point Type Code: 1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: H	6. Stack Height: 53 feet	7. Exit Diameter:0.8 feet
8. Exit Temperature:77 °F	9. Actual Volumetric Flow Rate: 650 acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

EMISSIONS UNIT INFORMATION
Section [3] of [3]

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1_ of 1_

1. Segment Description (Process/Fuel Type): Carbon storage silo.		
2. Source Classification Code (SCC): 39999994	3. SCC Units: pounds	
4. Maximum Hourly Rate: 20,000	5. Maximum Annual Rate: 480,000	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: Maximum Hourly Rate calculated based on truck unloading in 2 hours (it may take up to 4 hours) Maximum Annual Rate calculated based 12 truck unloadings.		

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	**018**		**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

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

1. Pollutant Emitted: PM	2. Total Percent Efficiency of Control:
3. Potential Emissions: 0.1 lb/hour 0.438 tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 0.1 lb/hr Reference: AC35-264176 permit allowable	7. Emissions Method Code: 0
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:

tons/year = 0.1 * 8760 / 2000 = 0.438

11. Potential, Fugitive, and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

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

Allowable Emissions Allowable Emissions 1_ of 1__

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.1 lb/hr	4. Equivalent Allowable Emissions: 0.1 lb/hour 0.438 tons/year
5. Method of Compliance: 62-296.320(4) and 62-297.310(7)	
6. Allowable Emissions Comment (Description of Operating Method): RULE AC35-264176	

EMISSIONS UNIT INFORMATION
Section [3] of [3]

G. VISIBLE EMISSIONS INFORMATION

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

Visible Emissions Limitation: Visible Emissions Limitation 1_ of 1___

1. Visible Emissions Subtype: VE05	2. Basis for Allowable Opacity: [X] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: 5 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: 62-296.320(4) and 62-297.310(7)	
5. Visible Emissions Comment:	

EMISSIONS UNIT INFORMATION
Section [3] of [3]

H. CONTINUOUS MONITOR INFORMATION

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

Continuous Monitoring System: Continuous Monitor ___ of___

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

EMISSIONS UNIT INFORMATION
Section [3] of [3]

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)
   [X] Attached, Document ID: Appendix P [ ] 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: Appendix Q [ ] 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)
   [X] Attached, Document ID: Appendix R [ ] 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)
   [X] Attached, Document ID: Appendix R [ ] 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)
   [X] Attached, Document ID: Appendix R [ ] Previously Submitted, Date _____
   [ ] Not Applicable

6. Compliance Demonstration Reports/Records
   [ ] Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [X] Previously Submitted, Date: 3/3/06
   Test Date(s)/Pollutant(s) Tested: January 2006/VE
   _____
   [ ] 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: _____ [X] Not Applicable

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: _____ [X] Not Applicable

2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.)
☐ Attached, Document ID: _____ [X] Not Applicable

3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only)
☐ Attached, Document ID: _____ [X] Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements
[X] Attached, Document ID: Appendix D

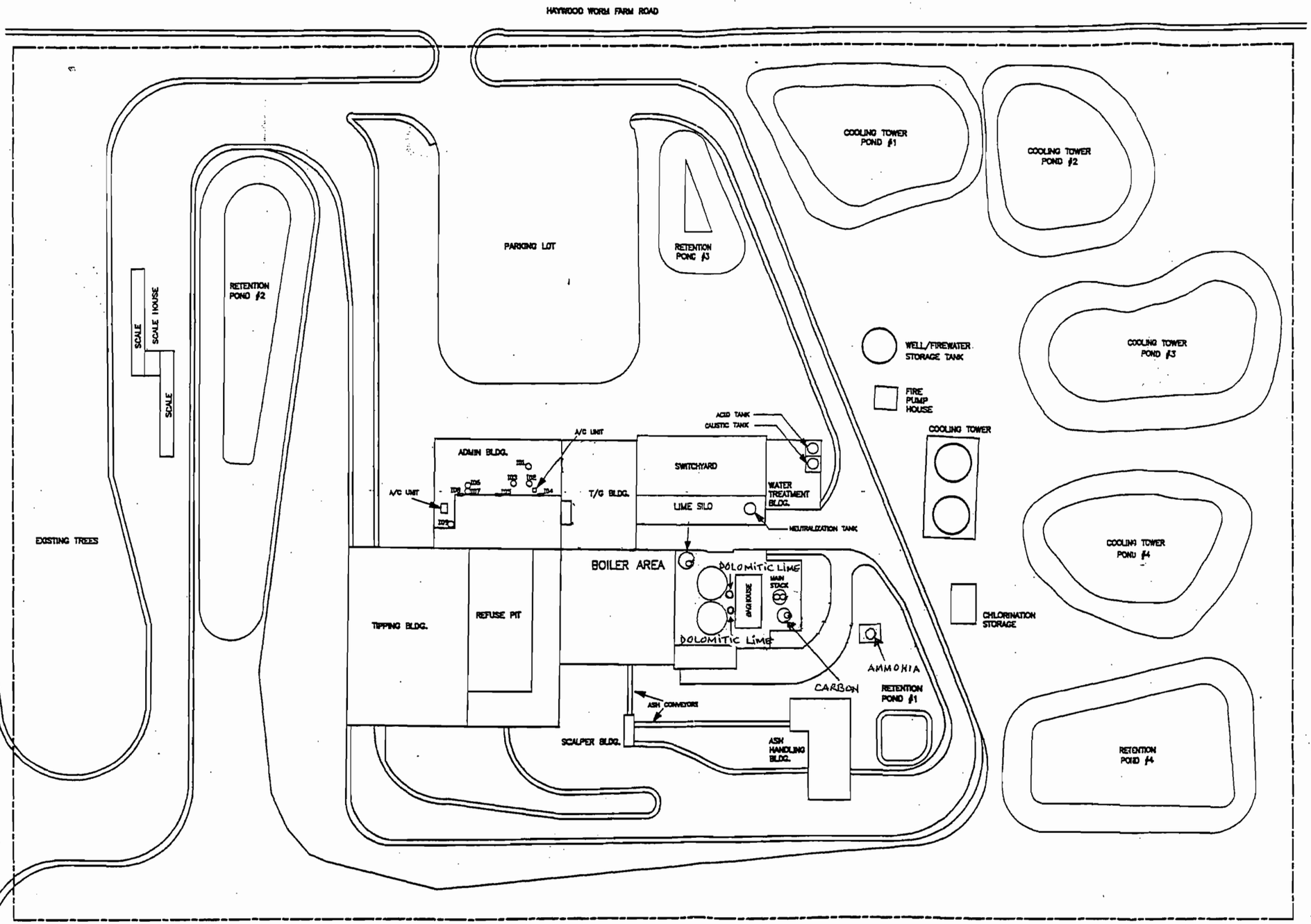
2. Compliance Assurance Monitoring
☐ Attached, Document ID: _____ [X] Not Applicable

3. Alternative Methods of Operation
☐ Attached, Document ID: _____ [X] Not Applicable

4. Alternative Modes of Operation (Emissions Trading)
☐ Attached, Document ID: _____ [X] Not Applicable

5. Acid Rain Part Application
☐ Certificate of Representation (EPA Form No. 7610-1)
☐ Copy Attached, Document ID:
☐ Acid Rain Part (Form No. 62-210.900(1)(a))
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
☐ Not Applicable

Additional Requirements Comment



LEGEND

----	PROPERTY LINE
▬	WALL EXHAUST/VENT
○	ROOF STACK/VENT
EU #1	EMISSION UNIT #1
S/V #1	STACK/VENT #1
I25	INSIGNIFICANT UNIT NUMBER 25

NOTE: LOCATIONS OF STACK/VENTS, SPRAY DRYERS, AND BAGHOUSE ARE APPROXIMATE.

P:\DWG\WIL\OGDEN\FIG2.DWG

ADDED DOLOMITIC LIME 10/03
ADDED AMMONIA 2/00

BASED ON ZURN SITE PLAN DATED 6/28/94

0 40 80
SCALE IN FEET

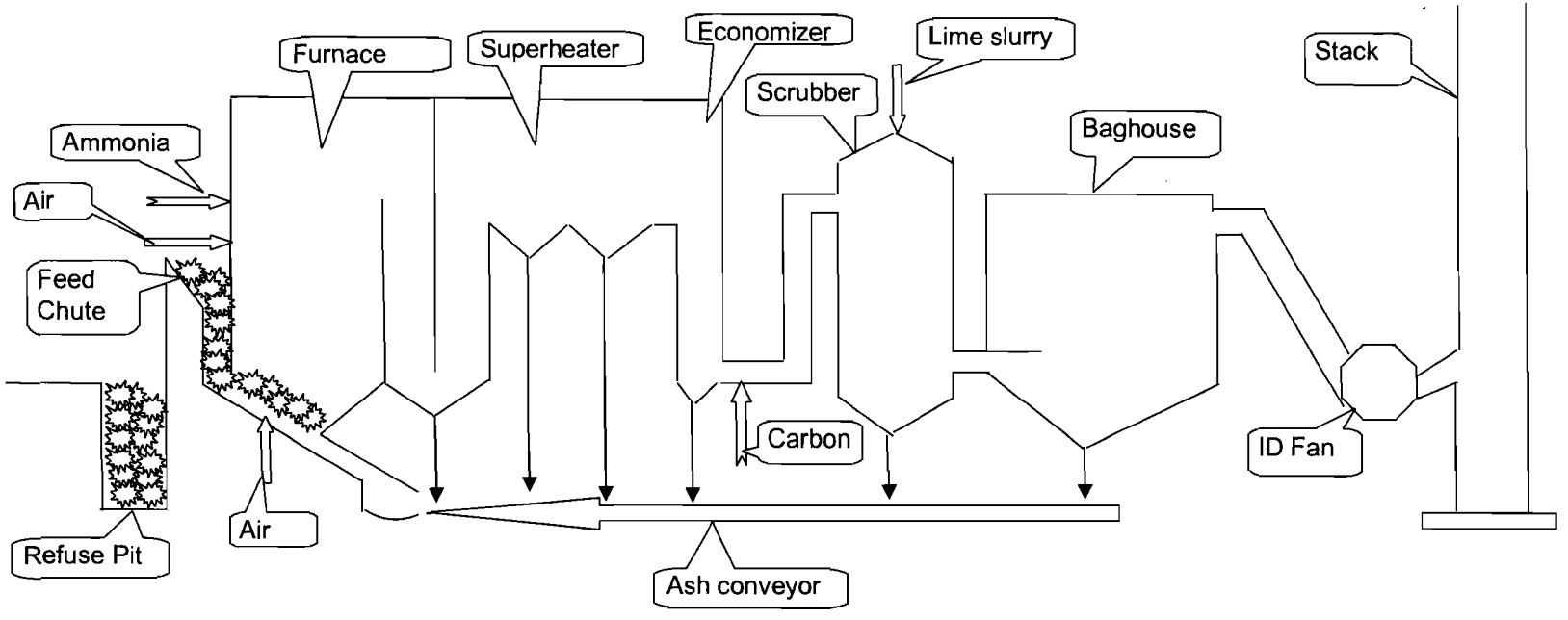
PLOT PLAN
OGDEN MARTIN SYSTEMS OF LAKE, INC.
OKAHUMPKA, FLORIDA

WESTON MANAGERS ENGINEERS/CONSULTANTS

FIGURE 2

Lake County Resource Recovery Facility

Appendix B: MWC Process Flow Diagram



APPENDIX C

REQUESTED CHANGE TO TITLE V PERMIT 0690046

The permittee requests that the Specific Conditions identified below be modified to bring this permit in conformance with the revised MACT for MWC combustors as published on May 10, 2006 (71 FR 27324) and on November 16, 2001 (66FR 57824) and to make certain clarifications as noted below. Proposed modifications are highlighted with "track changes". Note that Subpart E is no longer an applicable requirement pursuant to the revised MACT standards referenced above in 71 FR 27333 codified at 60.32b(n). This EPA action is based with the understanding that the capacity of MWC facilities should only be determined on load by the monitoring of steam production. Subpart E was the underlying requirement to determine daily mass loading as identified in condition A.7 and A.93.

{**Permitting notes.** These emissions units are regulated under NSPS - 40 CFR 60, Subpart Cb, Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That Are Constructed on or Before September 20, 1994, adopted and incorporated by reference, subject to provisions, in Rule 62-204.800(8)(b), F.A.C.; NSPS - 40 CFR 60, , F.A.C.; Rule 62-212.400(5), F.A.C., Prevention of Significant Deterioration (PSD; PSD-FL-113/AC35-115379; and, amendments); Rule 62-212.400(6), F.A.C., Best Available Control Technology (BACT); and, Rule 62-296.416, F.A.C., Waste-to-Energy Facilities. Also, please note that conditions in 40 CFR 60, Subpart Cb, reference requirements that are contained in 40 CFR 60, Subpart Eb.}

Deleted: Subpart E, Standards of Performance for Incinerators, adopted and incorporated by reference in Rule 62-204.800(7)

A.7. Capacity.

(a) Each of the two municipal waste combustors (MWC) shall have a design rated capacity of 250 tons Municipal Solid Waste (MSW) per day, 104 million Btu input per hour and 60,200 pounds steam output per hour with MSW having a heating value of 5,000 Btu per pound.

(b) The maximum individual MWC throughput shall not exceed 69,000 pounds steam per hour, (4-hour block arithmetic average) or the load level determined by condition A.13., whichever is more stringent. ,

Deleted: not exceed 288 tons per day, 120 million Btu per hour and

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A.13. No owner or operator of an affected facility shall cause such facility to operate at a load level greater than 110 percent of the maximum demonstrated municipal waste combustor unit load as defined in specific condition **A.9.** except as specified below. The averaging time is specified in specific condition **A.15.**

(1) During the annual dioxin/furan performance test and the two weeks preceding the annual dioxin/furan performance test, no municipal waste combustor unit load limit is applicable if the provisions of condition A.13 (2) of this section are met.

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(2) The municipal waste combustor unit load limit may be waived in accordance with permission granted by the Administrator or delegated State regulatory authority for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions. The

municipal waste combustor unit load limit continues to apply, and remains enforceable, until and unless the Administrator grants the waiver.

A.14. No owner or operator of an affected facility shall cause such facility to operate at a temperature, measured at the particulate matter control device inlet, exceeding 17°C above the maximum demonstrated particulate matter control device temperature as defined in specific condition **A.10.** except as specified below. The averaging time is specified in specific condition **A.15.** These requirements apply to each particulate matter control device utilized at the affected facility.
(1) During the annual dioxin/furan performance test and the two weeks preceding the annual dioxin/furan performance test, no particulate matter control device temperature limitations are applicable if the provisions of condition A.14.(2) of this section are met.
(2) The particulate matter control device temperature limits may be waived in accordance with permission granted by the Administrator or delegated State regulatory authority for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions. The temperature limits continue to apply, and remains enforceable, until and unless the Administrator grants the waiver.

A.15. (10) At a minimum, valid continuous emission monitoring system hourly averages shall be obtained as specified in paragraphs (i) and (ii) for 90 percent of the operating hours per calendar quarter for 95 percent of the operating hours per calendar year that the affected facility is combusting municipal solid waste.

A.16. (c) No owner or operator of an affected facility shall allow the facility to be operated at any time unless one of the following persons is on duty and at the affected facility: A fully certified chief facility operator, a provisionally certified chief facility operator who is scheduled to take the full certification exam according to the schedule specified in paragraph (b), a fully certified shift supervisor, a provisionally certified shift supervisor who is scheduled to take the full certification exam according to the schedule specified in paragraph (b).
(1) The requirement specified in paragraph (c) shall take effect 6 month after the date of startup of the affected facility or 12 months after State plan approval [40 CFR 60.39b(c)(4)(ii)], whichever is later.
(2) If both the certified chief facility operator and certified shift supervisor are unavailable, a provisionally certified control room operator on site at the municipal waste combustion unit may fulfill the certified operator requirement. Depending on the length of time that a certified chief facility operator and certified shift supervisor are away, the owner or operator of the affected facility must meet one of three criteria:
(i) When the certified chief facility operator and certified shift supervisor are both off site for 12 hours or less, and no other certified operator is on site, the provisionally certified control room operator may perform the duties of the certified chief facility operator or certified shift supervisor.

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Deleted: If one of the persons listed in paragraph (c) must leave the affected facility during their operating shift, a provisionally certified control room operator who is onsite at the affected facility may fulfill the requirement in paragraph (c).

(ii) When the certified chief facility operator and certified shift supervisor are off site for more than 12 hours, but for two weeks or less, and no other certified operator is on site, the provisionally certified control room operator may perform the duties of the certified chief facility operator or certified shift supervisor without notice to, or approval by, the Administrator. However, the owner or operator of the affected facility must record the period when the certified chief facility operator and certified shift supervisor are off site and include that information in the annual report as specified under § 60.59b(g)(5).
(iii) When the certified chief facility operator and certified shift supervisor are off site for more than two weeks, and no other certified operator is on site, the provisionally certified control room operator may perform the duties of the certified chief facility operator or certified shift supervisor without approval by the Administrator. However, the owner or operator of the affected facility must take two actions:

(A) Notify the Administrator in writing. In the notice, state what caused the absence and what actions are being taken by the owner or operator of the facility to ensure that a certified chief facility operator or certified shift supervisor is on site as expeditiously as practicable.
(B) Submit a status report and corrective action summary to the Administrator every four weeks following the initial notification. If the Administrator provides notice that the status report or corrective action summary is disapproved, the municipal waste combustion unit may continue operation for 90 days, but then must cease operation. If corrective actions are taken in the 90-day period such that the Administrator withdraws the disapproval, municipal waste combustion unit operation may continue.
(3) A provisionally certified operator who is newly promoted or recently transferred to a shift supervisor position or a chief facility operator position at the municipal waste combustion unit may perform the duties of the certified chief facility operator or certified shift supervisor without notice to, or approval by, the Administrator for up to six months before taking the ASME QRO certification exam.

A.20. The maximum emission limit for particulate matter contained in the gases discharged to the atmosphere is 24 milligrams per dry standard cubic meter, corrected to 7 percent oxygen.

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A.22. The maximum emission limit for cadmium contained in the gases discharged to the atmosphere is 35 micrograms per dry standard cubic meter, corrected to 7 percent oxygen.

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A.23. The maximum emission limit for mercury contained in the gases discharged to the atmosphere is:
(1) 50 micrograms per dry standard cubic meter, corrected to 7 percent oxygen; or,
(2) 15 percent of the potential mercury emission concentration (85-percent reduction by weight), corrected to 7 percent oxygen, whichever is less stringent.

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A.27. The maximum emission limit for lead contained in the gases discharged to the atmosphere is 40 micrograms per dry standard cubic meter, corrected to 7 percent oxygen.

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A.36. Startup, Shutdown and Malfunction. The provisions for startup, shutdown, and malfunction are provided in paragraph (1).

(1) Except as provided by 40 CFR 60.56b, the standards under 40 CFR 60, Subpart Cb, as incorporated in Rule 62-204.800(8)(b), F.A.C., apply at all times except during periods of startup, shutdown, or malfunction. Duration of startup or shutdown periods are limited to 3 hours per occurrence, except as provided in condition A.36.(1)(iii) of this section. During periods of startup, shutdown, or malfunction, monitoring data shall be dismissed or excluded from compliance calculations, but shall be recorded and reported in accordance with the provisions of 40 CFR 60.59b(d)(7).

(i) The startup period commences when the affected facility begins the continuous burning of municipal solid waste and does not include any warm-up period when the affected facility is combusting fossil fuel or other non-municipal solid waste fuel, and no municipal solid waste is being fed to the combustor.

(ii) Continuous burning is the continuous, semicontinuous, or batch feeding of municipal solid waste for purposes of waste disposal, energy production, or providing heat to the combustion system in preparation for waste disposal or energy production. The use of municipal solid waste solely to provide thermal protection of the grate or hearth during the startup period when municipal solid waste is not being fed to the grate is not considered to be continuous burning.

(iii) For the purpose of compliance with the carbon monoxide emission limits in Sec. 60.53b(a), if a loss of boiler water level control (e.g., boiler waterwall tube failure) or a loss of combustion air control (e.g., loss of combustion air fan, induced draft fan, combustion grate bar failure) is determined to be a malfunction, the duration of the malfunction period is limited to 15 hours per occurrence.

[40 CFR 60.38b and 40 CFR 60.58b(a)]

A.45. The procedures and test methods specified in paragraphs (1) through (13) shall be used to determine compliance with the emission limits for particulate matter and opacity.

(1) The EPA Reference Method 1 shall be used to select sampling site and number of traverse points.

(2) The EPA Reference Method 3, 3A, or 3B, as applicable shall be used for gas analysis.

(3) The EPA Reference Method 4 shall be used for the moisture content in the stack gases.

(4) The EPA Reference Method 5 shall be used for determining compliance with the particulate matter emission limit. The minimum sample volume shall be 1.7 cubic meters. The probe and filter holder heating systems in the sample train shall be set to provide a gas temperature no greater than 160 °C. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 5 run.

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(10) Following the date that the initial performance test for particulate matter is completed or is required to be completed under 40 CFR 60.8 for an affected facility, the owner or operator shall conduct a performance test for particulate matter on a calendar year basis (no less than 9 calendar months and no more than 15 calendar months

following the previous performance test; and must complete five performance tests within each 5-year calendar period).

(11) [reserved](12) Following the date that the initial performance test for opacity is completed or is required to be completed under 40 CFR 60.8 for an affected facility, the owner or operator shall conduct a performance test for opacity on a calendar year basis (no less than 9 calendar months and no more than 15 calendar months following the previous performance test; and must complete five performance tests within each 5-year calendar period). using the test method specified in paragraph (6).

A.46. The procedures and test methods specified in paragraphs (1) and (2) shall be used to determine compliance with the emission limits for cadmium, lead, and mercury.
(1) The procedures and test methods specified in paragraphs (1)(i) through (1)(x) shall be used to determine compliance with the emission limits for cadmium and lead.

(vii) Following the date of the initial performance test or the date on which the initial performance test is required to be completed under 40 CFR 60.8, the owner or operator of an affected facility shall conduct a performance test for compliance with the emission limits for cadmium and lead on a calendar year basis (no less than 9 calendar months and no more than 15 calendar months following the previous performance test; and must complete five performance tests within each 5-year calendar period),

(ix) Following the date that the initial performance test for mercury is completed or is required to be completed under 40 CFR 60.8, the owner or operator of an affected facility shall conduct a performance test for mercury emissions on a calendar year basis (no less than 9 calendar months and no more than 15 calendar months following the previous performance test; and must complete five performance tests within each 5-year calendar period),

A.48. The procedures and test methods specified in paragraphs (1) through (14) shall be used for determining compliance with the sulfur dioxide emission limit.
(14) When sulfur dioxide emissions data are not obtained because of continuous emission monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained by using other monitoring systems as approved by the Administrator or EPA Reference Method 19 to provide, as necessary, valid emissions data for a minimum of 90 percent of the operating hours per calendar quarter and 95 percent of the operating days per calendar year that the affected facility is combusting municipal solid waste.

A.49. The procedures and test methods specified in paragraphs (1) through (8) shall be used for determining compliance with the hydrogen chloride emission limit.
(7) Following the date that the initial performance test for hydrogen chloride is completed or is required to be completed under 40 CFR 60.8, the owner or operator of an affected facility shall conduct a performance test for hydrogen chloride emissions on a calendar year basis (no less than 9 calendar months and no more than 15 calendar months following the previous performance test; and must complete five performance tests within each 5-year calendar period),

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A.50. The procedures and test methods specified in paragraphs (1) through (10) shall be used to determine compliance with the limits for dioxin/furan emissions.

(4) The owner or operator of an affected facility shall conduct an initial performance test for dioxin/furan emissions in accordance with paragraph (3), as required under 40 CFR 60.8.

(5) Following the date that the initial performance test for dioxins/furans is completed or is required to be completed under 40 CFR 60.8, the owner or operator of an affected facility shall conduct performance tests for dioxin/furan emissions in accordance with paragraph (3), according to one of the schedules specified in paragraphs (i) through (iii).

(i) For affected facilities, performance tests shall be conducted on on a calendar year basis (no less than 9 calendar months and no more than 15 calendar months following the previous performance test; and must complete five performance tests within each 5-year calendar period). (ii) For the purpose of evaluating system performance to establish new operating parameter levels, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions, the owner or operator of an affected facility that qualifies for the performance testing schedule specified in condition A.50.(5)(iii) of this section, may test one unit for dioxin/furan and apply the dioxin/furan operating parameters to similarly designed and equipped units on site by meeting the requirements specified in condition A.50.(5)(ii)(A) through A.50.(5)(ii)(D) of this section.

Deleted: an annual basis (no more than 12 calendar months following the previous performance test.)¶

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(A) Follow the testing schedule established in paragraph (g)(5)(iii) of this section. For example, each year a different affected facility at the municipal waste combustor plant shall be tested, and the affected facilities at the plant shall be tested in sequence (*e.g.*, unit 1, unit 2, unit 3, as applicable).

(B) Upon meeting the requirements in condition A.50.(5)(iii) of this section for one affected facility, the owner or operator may elect to apply the average carbon mass feed rate and associated carbon injection system operating parameter levels for dioxin/furan as established in 40 CFR 60.58b (m) to similarly designed and equipped units on site.

(C) Upon testing each subsequent unit in accordance with the testing schedule established in condition A.50.(5)(iii) of this section, the dioxin/furan and mercury emissions of the subsequent unit shall not exceed the dioxin/furan and mercury emissions measured in the most recent test of that unit prior to the revised operating parameter levels.

(D) The owner or operator of an affected facility that selects to follow the performance testing schedule specified in paragraph (g)(5)(iii) of this section and apply the carbon injection system operating parameters to similarly designed and equipped units on site shall follow the procedures specified in condition A.50.(4) for reporting.

(iii) Where all performance tests over a 2-year period indicate that dioxin/furan emissions are less than or equal to 15 nanograms per dry standard cubic meter (total mass) for all affected facilities located within a municipal waste combustor plant, the owner or operator of the municipal waste combustor plant may elect to conduct annual performance tests for one affected facility (i.e., unit) per year at the municipal waste combustor plant. At a minimum, a performance test for dioxin/furan emissions shall be conducted on a calendar year basis (no less than 9 calendar months and no more than 15 months following the previous performance test; and must complete five performance tests in each 5-year calendar period) for one affected facility at the municipal waste combustor plant. Each year a different affected facility at the municipal waste combustor plant shall be tested, and the affected facilities at the plant shall be tested in sequence (e.g., Unit 1, Unit 2, Unit 3, as applicable). If each annual performance test continues to indicate a dioxin/furan emission level less than or equal to 15 nanograms per dry standard cubic meter (total mass), the owner or operator may continue conducting a performance test on only one affected facility per year. If any annual performance test indicates a dioxin/furan emission level greater than 15 nanograms per dry standard cubic meter (total mass), performance tests thereafter shall be conducted annually on all affected facilities at the plant until and unless all annual performance tests for all affected facilities at the plant over a 2-year period indicate a dioxin/furan emission level less than or equal to 15 nanograms per dry standard cubic meter (total mass).

Deleted: annually (no more than 12 months following the previous performance test)

A.51. The procedures and test methods specified in paragraphs (1) through (12) shall be used to determine compliance with the nitrogen oxides emission limit for affected facilities under 40 CFR 60.52b(d).

(6) At a minimum, valid continuous emission monitoring system hourly averages shall be obtained as specified in paragraphs (i) and (ii) for 90 percent of the operating hours per day, per calendar quarter and 95% of the operating hours per calendar year that the affected facility is combusting municipal solid waste.

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(12) When nitrogen oxides continuous emissions data are not obtained because of continuous emission monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained using other monitoring systems as approved by the Administrator or EPA Reference Method 19 to provide, as necessary, valid emissions data for a minimum of 90 percent of the hours per calendar quarter and 95 percent of the hours per calendar year the unit is operated and combusting municipal solid waste.

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A.52. The procedures specified in paragraphs (1) through (4) shall be used for determining compliance with the fugitive ash emission limit under 40 CFR 60.55b. (See specific condition **A.33**.)

(4) Following the date that the initial performance test for fugitive ash emissions is completed or is required to be completed under 40 CFR 60.8 for an affected facility, the owner or operator shall conduct a performance test for fugitive ash emissions on on a calendar year basis (no less than 9 calendar months and no more than 15 months

following the previous performance test; and must complete five performance tests in each 5-year calendar period).

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Additional Clarification: Add nitrogen oxide to the CEMS requirements and add baghouse inlet temperatures and carbon injection to the CMS requirements below.

A.70. Continuous Emissions Monitoring Systems (CEMS) or Continuous Monitoring Systems (CMS). The permittee shall install, calibrate, maintain, and operate (1) CEMS devices for opacity, oxygen, carbon monoxide, nitrogen oxide and sulfur dioxide; and, (2) CMS devices to continuously monitor and record steam production, baghouse inlet temperatures and carbon injection.

a. The CEMS and CMS devices shall meet the applicable requirements of Chapter 62-297, F.A.C. (see specific conditions **A 69** and **A71**) and 40 CFR 60.13 (see specific conditions **A 62** thru **A 68**), including certification of each device.

b. Each CEMS shall meet performance specifications of 40 CFR 60, Appendix B. The SO_2 CEMS sample point shall be located downstream of the control device.

c. CEMS data shall be recorded during periods of startup, shutdown and malfunction, but shall be excluded from emission averaging calculations for CO, SO_2, NOx and opacity.

d. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

e. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

f. Opacity monitoring system data shall be reduced to 6-minute averages, based on 36 or more data points, and gaseous CEMS data shall be reduced to 1-hour averages, based on 4 or more data points, in accordance with 40 CFR 60.13(h).

g. Average SO_2, NOx and CO emission concentrations, corrected for O_2, shall be computed in accordance with the appropriate averaging time periods included in specific conditions **A28, A31** and **A32.**

[40 CFR 60.13; AC35-115379/PSD-FL-113; and, 0690046-003-AC/PSD-FL-113(E)]

Additional Clarification: Replace CMS below with CEMS/COMS. This request is being made to clarify that only emissions monitors (opacity, CO, NOx, O_2 and SO_2) are subject to excess emissions and monitoring systems performance report.

A.75. Each owner or operator required to install a continuous emission or opacity monitoring system (CEMS/COMS) shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form [see 40 CFR 60.7(d)] to the Administrator semiannually, except when: more frequent reporting is specifically required by an applicable subpart; or, the CEMS/COMS data are to be used directly for compliance determination, in which case quarterly reports shall be submitted; or, the Administrator, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. All reports shall be postmarked by the 30th day following the end of each calendar half (or quarter, as appropriate). Written reports of excess emissions shall include the following information:

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(1) The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.
(2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
(3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
(4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
[40 CFR 60.7(c)(1), (2), (3) and (4)]

A.80. The owner or operator of an affected facility subject to the standards under 40 CFR. 60.53b, 60.54b, and 60.55b shall maintain records of the information specified in paragraphs (1) through (15), as applicable, for each affected facility for a period of at least 5 years.
(1) The calendar date of each record.
(2) The emission concentrations and parameters measured using continuous monitoring systems as specified under paragraphs (i) and (ii).

(ii) The average concentrations and percent reductions, as applicable, specified in paragraphs (2)(ii)(A) through (2)(ii)(D) shall be computed and recorded, and shall be available for submittal to the Administrator or review on-site by EPA or a State inspector.

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(12) The records specified in paragraphs (i) through (iv).

(iii) Records showing the names of the municipal waste combustor chief facility operator, shift supervisors, and control room operators who have completed the EPA municipal waste combustor operator training course or a State-approved equivalent course as required by 40 CFR 60.54b(d) including documentation of training completion.

(iv) Records of when a certified operator is temporarily off site. Include two main items:

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(A) If the certified chief facility operator and certified shift supervisor are off site for more than 12 hours, but for 2 weeks or less, and no other certified operator is on site, record the dates that the certified chief facility operator and certified shift supervisor were off site.

(B) When all certified chief facility operators and certified shift supervisors are off site for more than 2 weeks and no other certified operator is on site, keep records of four items:

(1) Time of day that all certified persons are off site.
(2) The conditions that cause those people to be off site.

(3) The corrective actions taken by the owner or operator of the affected facility to ensure a certified chief facility operator or certified shift supervisor is on site as soon as practicable.
(4) Copies of the written reports submitted every 4 weeks that summarize the actions taken by the owner or operator of the affected facility to ensure that a certified chief facility operator or certified shift supervisor will be on site as soon as practicable.

A.82. Following the first year of municipal combustor operation, the owner or operator of an affected facility shall submit an annual report including the information specified in paragraphs (1) through (5), as applicable, no later than February 1 of each year following the calendar year in which the data were collected (once the unit is subject to permitting requirements under Title V of the Act, the owner or operator of an affected facility must submit these reports semiannually).
(4) A notification of intent to begin the reduced dioxin/furan performance testing schedule specified in 40 CFR 60.58b(g)(5)(iii) during the following calendar year.
and notification of intent to apply the average carbon mass feed rate and associated carbon injection system operating parameter levels as established in § 60.58b(m) to similarly designed and equipped units on site.
(5) Documentation of periods when all certified chief facility operators and certified shift supervisors are off site for more than 12 hours.

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Additional Clarification: This request is being made to clarify that only emissions measured by continuous emission and opacity monitors (CO, NOx, Opacity and SO_2) are subject to written report of emissions in excess of emission limiting standards for each calendar quarter specified in specific condition **A.89.**

A.89. For purposes of reports required under this permit, excess emissions are defined as any calculated average emission concentration, as determined pursuant to this specific condition, which exceeds the applicable emission limit in specific conditions A21, A28, **A31, A32.**
[AC35-115379/PSD-FL-113]

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Deleted: A.93. MSW Charging Rate Monitoring. The average daily solid waste charging rate shall be determined on a monthly basis and recorded for each MWC unit. The daily charging rate shall be determined each month on an average daily basis for each MWC unit using the Facility's truck scale weight data, refuse pit inventory data and MWC operating data for the preceding calendar month. Monthly truck scale weight records of the weight of solid waste received and processed at the Facility, and refuse pit inventory data, shall be used to determine the amount of solid waste charged during the preceding calendar month on an average daily basis. The MWC load level measurements or other operating data shall be used to determined the number of operating hours per MWC unit for each day during the preceding calendar month.¶ [Rule 62-213.440(1), F.A.C.; and, 40 CFR 60.53(a)]¶

APPENDIX D

LIST OF APPLICABLE REGULATIONS

Facility Applicable Regulations

FAC 62-4	Permits (core list)
FAC 62-103	Rules of Administrative Procedures (core list)
FAC 62-204	Air Pollution Control - General Provisions
FAC 62-210	Stationary Sources - General Requirements
FAC 62-212	Stationary Sources – Preconstruction Review
FAC 62-213	Operating Permits for Major Sources of Air Pollution (core list)
FAC 62-296	Stationary Sources – Emissions Standards
FAC 62-210	Stationary Sources – Emissions Monitoring
40 CFR 60	Standards of Performance for New Stationary Sources
40 CFR 61	National Emissions Standards for Hazardous Air Pollutants
40 CFR 62	Approval and Promulgation of State Plans
40 CFR 60	State Operating Permit Programs

APPENDIX E

REQUESTED CHANGE TO PERMIT PSD-FL-113(AC35-115379)

The permittee requests that permit Specific Condition 3.j. regarding emission limit for Visible Emission be changed as followed:

FROM: "Opacity of MWC emissions shall not exceed 15% opacity (6-min. average), except for one 6-min. period per hour of not more than 20% opacity..."

TO: "Opacity of MWC emissions shall not exceed 10% opacity (6-min. average), ..."

This request is being made to streamline multiple requirements.

APPENDIX F

PRECAUTIONS TO PREVENT EMISSIONS OF UNCONFINED PARTICULATE MATTER/FUGITIVE EMISSIONS IDENTIFICATION

There are no significant sources of fugitive emissions at the facility. Minor amounts of fugitive emissions could potentially be associated with the ash generated at the facility. All reasonable precautions are taken to control/prevent emissions of unconfined particulate matter and fugitive emissions at the facility. These include the following:

- All roads and parking areas are paved, and unpaved areas are landscaped with plants or vegetation.
- Application of water would be performed as required during any demolition, grading, construction, or land clearing operations.
- Potential emissions of particulate matter from MWC Emission Unit Nos. 1,2 and Carbon injection sysem are controlled using control devices as detailed in this permit application.
- Potential emissions of particulate matter from the ash generated at the facility is controlled as detailed in the Lake County Resource Recovery Facility Ash Residue Management Plan.

APPENDIX G

SUMMARY OF INSIGNIFICANT ACTIVITIES/EMISSION UNITS

Building Exhausts and Vents
Steam Release Vents
Turbine Air Ejector Vent
Steam Relief Valves
Ash Conveyors/Transfers
Part washer/ Degreaser
Torches and Welders
200-gal and 500-gal Diesel Tanks
185 HP Diesel—fired Fire Water Pump
CEM Vent Lines
Aqueous ammonia tank storage/transfer
Lime silos storage/transfer
Plant maintenance activities
Water treatment chemicals storage/transfer
Waste storage/transfer

APPENDIX H

COMPLIANCE REPORT AND CERTIFICATION

Compliance Report

All emission units at the facility are currently in compliance with all applicable requirements. Thus no compliance plan or compliance schedule is required.

Compliance Certification

Compliance certification by the responsible official will be provided to the FDEP annually throughout the permit term. The following compliance certification statement is included to certify to the truth, accuracy, and completeness of the Compliance Report:
I hereby certify that, based on information and belief formed after reasonable inquiry, the statement and information in the document are true, accurate, and complete.

APPENDIX I

LAKE COUNTY RESOURCE RECOVERY FACILITY

BAGHOUSE SYSTEM DESCRIPTION

I. INTRODUCTION

Treated gas is ducted from the Spray Dry Absorber to the Fabric Filter(Baghouse) for cleaning. Entrained particulate is filtered from the gas stream as the gas passes through cloth filter bags within the Baghouse. Filtered gas is delivered to the stack via induced draft fan for exhaust. Captured particulate is periodically released into the Baghouse hoppers for delivery to the ash conveying system.

II. SYSTEM OVERVIEW

The Baghouse is a self-cleaning modular dust collector designed to remove dust particles from flue gas streams. It consists of four standard modules, each containing one hundred seventy six, 20'-0" long by 6" diameter, fiberglass bags. The inlet and outlet of each of the six modules is connected to a common inlet and outlet of manifold. Dampers included in the duct connecting the modules to the manifolds allow on-line maintenance of individual modules.

Fabric bags within each Baghouse module filter dust from the flue gas. Dust laden gas enters the Baghouse modules below the filter bags, slows, and passes through the filter bags from the outside to the inside of the bag. The mechanics of turning and slowing the gas results in some of the dust falling directly into the hopper; the remainder is deposited on the outside of the filter bags. Each filter bag is supported from within by a 2 piece wire cage. The wire cages prevent the collapse of the filter bags during the filtering operation.

To keep pressure losses at an acceptable level, the filter bags are periodically cleaned of the collected material. The Baghouse cleans the bags using a short pulse of compressed air (40-60 psig) directed into the clean interior of the bags from their top open ends. The compressed air pulse, opposite to the direction of gas flow, expands the bag and releases collected dust cake on the outside of the bag to fall into the hopper below.

III. COMPONENTS

The complete Baghouse consists of four modules. The modules, are connected by inlet and outlet gas manifolds. Each module is constructed of four basic assemblies: The casing assembly, tube sheet assembly, hopper assembly, and plenum assembly. Baghouse controls sequence the fabric filter through alternate modes of filtering and cleaning.

A manifold duct transports untreated gases to each Baghouse module. Located at the manifold connection to the inlet of each module is a damper which allows maintenance to be performed on individual modules. Each filter module connects to the outlet manifold through a damper. The module outlet damper is closed when its associated filter module is pulse cleaned

Collected dust settles in a hopper at the bottom of the Baghouse filter module after being cleaned from the filter bags. The steep slope of the hopper walls directs the collected dust toward the hopper throat for removal from the Baghouse. Dust buildup and corrosion are effectively diminished using hopper heat. Prefabricated rigid heater modules are attached to the walls of the hopper.

Process gas flows from the outside to the inside of the filter bags. Bag cages are installed inside each bag to prevent their collapse during operation.

Compressed air is discharged to each module blowpipe for pulse cleaning the fabric filter bags. Compressed air travels to the center of the top opening of each filter bag by the blow pipe.

The Baghouse control panel is housed in a weather-proof enclosure. Baghouse cleaning, module isolation and on-line and off -line cleaning are controlled from this system. Differential pressure is monitored between the inlet and outlet manifolds. One pulsating timer is furnished for each module.

IV. OPERATION

With the Baghouse in the normal filtering mode of operation all the modules are on-line, filtering flue gas. Fabric filter bag cleaning is accomplished by cleaning the modules one at a time in sequence until all modules have been cleaned. Each module is taken off-line, out of filtering in sequence for cleaning and returned to filtering before cleaning the next module. Only one module is off-line for cleaning at any time. All operations associated with fabric filter cleaning

are controlled automatically or manually through the Baghouse control panel.

Under most operating conditions modules are taken off-line, out of the filtering mode for cleaning to eliminate the force of the gas pressure drop across the bag and dust cake which holds the dust cake against the bag. Elimination of the gas pressure force makes dislodging of the dust much easier. The bags are cleaned much more thoroughly. Stopping the flue gas flow through the module eliminates partial re-entrainment and reattachment of the dust. The dust is dislodged from the bags and falls directly into the hopper. In contrast, if the flue gas continues to flow into the compartment during cleaning the bags may not be cleaned well enough. As the dust cake is dislodged and falls toward the hopper it becomes partially re-entrained in the flue gas. The dust then reattaches to the bags and a higher pressure drop may result.

In unusual applications where the dust is very "easy" to dislodge from the bags and bag pressure drop is low, it may be possible to clean the modules on-line while filtering of flue gas continues in the compartment being cleaned. The Baghouse control panel provides the option for on-line cleaning. Bag cleaning within a module is accomplished using short duration, low pressure (40 psig minimum) compressed air pulses blown down into the mouth of each bag from blowpipes mounted just above the tube sheet in the module outlet plenum. The air pulses travel down the bags in the direction opposite to the direction of the flue gas flow with the module on-line. The dust cake on the bags is dislodged by a combination of the dynamic pressure of the air pulses as they travel down the bags, and by the shock waves generated by the air exhausting from the blow pipe orifices at the speed of sound.

Pressure differential or timer (delta P/Timer) is the normal cleaning initiation mode since this mode requires minimal operator attention. In this mode the differential pressure at which cleaning is initiated can be adjusted from less than 1 to 10 inches, depending on desired total baghouse pressure differential. The normal adjustment is around 4 inches. If the pressure differential set point is not reached within a preset time period, the cleaning sequence will be initiated by the timer override. The pressure differential setting and the timer are adjusted at the programmable controller.

The cleaning mode can also be selected for ON-LINE or OFF-LINE cleaning.

Shutdown of the Baghouse should be accomplished in such a manner so as to prevent fabric filter damage due to lowering gas temperature, as there is potential for moisture or acid

condensation on the bags.

Pulse-jet cleaning should be manually initiated prior to shutdown to remove any excess dust from the filter bags. Initiating a cleaning cycle prior to shutdown reduces the likelihood of blinding the filter bags with hard caked dust resulting from moisture condensing on the bags as the unit cools. Isolate Baghouse modules by closing inlet dampers. In order to preclude any condensation on bags the hopper heaters should be left in service whenever possible.

APPENDIX J

LAKE COUNTY RESOURCE RECOVERY FACILITY

SPRAY DRY ABSORBER DESCRIPTION

I. INTRODUCTION

The Spray Dry Absorber neutralizes acidic chemical compounds such as hydrogen chloride, hydrogen fluoride, and sulfur dioxide from the exhaust gas of the refuse-fired boilers. The spray dryer absorber carries out the chemical neutralization. The lime system is used to prepare and supply lime slurry to the spray dryer absorber for use in the chemical neutralization process.

II. SYSTEM OVERVIEW

Pebble size lime (CaO) is delivered to the plant via self-contained pneumatic truck trailers. The lime is unloaded from the truck trailer to the lime silo, above the lime preparation area. The lime silo has one conical discharge. Lime is discharged through a bifurcated chute discharging to a slaking train. Variable speed screw feeders are used to meter lime to the slakers in the proportions required for slaking. The pebble sized lime flows by gravity from the screw feeders to detention type slakers where it is slaked to a slurry of hydrated lime and water. The slakers mix and slake the lime, using abrasion resistant rotating paddles, and provide a vessel for the slaking reaction to occur. Slaked lime slurry, with a solid content approximately twenty to twenty five percent (20-25%), flows by gravity from the detention slakers to the slurry grit screens. Water is sprayed onto the surface of the grit screens to remove grit and large particles of lime that will not pass the #20-mesh screens. Wet grit is discharged from each screen for disposal. Lime slurry passing the grit screen flows by gravity to the lime slurry tank. The water sprayed onto the grit screen is mixed with the lime slurry as it passes through the screen before entering the lime slurry storage tank. The rate that water is added to the lime slurry may be varied so that a desired 17-20% lime solids concentration can be achieved in the slurry tank. An agitator, in the slurry tank, incorporates and mixes the slaked lime slurry to maintain the suspension of lime solids.

Lime feed slurry is pumped from the lime slurry tank to the atomizer head tanks. The actual flow of slurry to the head tank is dependant upon the sulfur dioxide (SO_2) concentration of the gas exiting the air pollution control system.

Untreated flue gas and reagent lime slurry combine in the spray dryer absorber, resulting in the neutralization and removal of the acid

components contained in the gas stream. The two streams, lime slurry and boiler exhaust gas, combine, and result in a dry product and scrubbed gas exiting the absorber chamber. The absorber and its support equipment are designed to maintain the reaction between lime slurry and flue gas necessary for SO_2 and acid neutralization, and for moisture evaporation. The result of maintaining this balance between slurry and gas is the desired absorber exit flue gas conditions.

The slurry passes through a stationary swirl-type liquid distributor into the atomizer wheel where induced centrifugal force, from the rapidly spinning wheel, discharges the slurry through the wheel nozzles at high velocity. The design of the atomizer wheel, its rate of spin, and the discharge velocity of the slurry creates a cloud of finely divided droplets around the periphery of the atomizer wheel.

Flue gas enters from the top of the spray dryer absorber through a cyclonic roof gas disperser. The disperser directs the flue gas into the zone filled by the atomized slurry cloud where violent mixing occurs Most of the chemical absorption occurs in this zone.

A portion of the dried spent chemicals and ash settle to the bottom of the chamber. This material discharged at the base of the powder discharge cone and is discharged to the Ash Handling System. The remainder of the spent chemical and ash, entrained in the flue gas, is carried from the module through the gas outlet in the side of the discharge cone.

III. COMPONENTS

The lime slurry preparation systems includes a lime storage silo, a vent system on the silo roof, lime feeders, lime slakers, and lime slurry storage tank with appropriate controls and instruments. All lime slurry preparation plant equipment is housed in an enclosure below the lime silo.

The 3685 cubic feet capacity lime storage bin comprises the top 32' of the height of the lime system enclosure. A chute discharge is located at the bottom of a 60 degree conical hopper. Pebble lime is delivered to the plant via pneumatic self-unloading truck trailers. The lime is conveyed vertically from grade to the top of the lime storage bin through four inch diameter piping. Conveying air, vented from the lime storage bin during lime unloading, passes through the lime bin vent filter before exhausting to atmosphere. The lime bin vent filter utilizes a fabric media to remove entrained lime from the vented air. The bin vent filter is activated only when the silo is being refilled with product. When

activated, the filter has an automatic cleaning system which prevents the individual filter bags from becoming choked with an accumulation of dust. Cleaning is accomplished with an electrical driven shaker mechanism.

The screw feeder is a variable speed feeder used to regulate the flow of lime to the detention slaker.

Pebble sized lime must be reduced in size and hydrated for use in the absorption process. Sizing and hydration of the lime occurs in the lime slaker. Two detention type slakers are provided.

Slaked lime slurry flows by gravity from the slakers to a slurry grit screen located beneath each slaker. The grit screens are oscillating, replaceable, stainless steel wire 20-mesh screens. Slurry, deposited on the grit screens, is washed with water to cleanse the slurry of grit particles. Grit free slurry passes through each screen and flows by gravity into the live slurry tank associated with the screen. Collected grit is carried from each screen by a grit screw. Grit is deposited in collection containers for disposal.

Slaked lime is mixed, stored, and kept in suspension within the slurry tank, for use when required by the dryer absorber. A single impeller agitator for mixing and suspending the slurry solids is also supplied.

The Dry Scrubber consists of a slurry head tank, head tank agitator, slurry atomizer, and a spray dryer absorber.

The lime slurry flowing to the head tank located in the spray dryer absorber penthouse is fed through a constant head standpipe and then returned to the slurry storage tank. A fraction of the slurry flow is measured by a flowmeter and controlled by a valve before flowing into the head tank.

The head tank agitator is a portable direct drive mixer driven by a motor.

Three rotary atomizers, two operating and one spare, are used in the spray dryer absorbers. The atomizer is driven by a motor. The atomizer wheel is designed to optimize lime slurry feed atomization.

The spray dryer absorber modules are mixing chambers for the process exhaust gas and the atomized lime slurry. As the gas enters the spray dryer absorber chamber, it comes in contact with the atomized slurry sprayed from the atomizer wheel. A powder discharge cone is at the bottom of the spray dryer absorber. Flue gas ducting carries the treated flue gas from

the chamber's gas discharge point to the respective Baghouse of each air pollution control system.

IV. OPERATION

The lime slaking operates as batch process. The slaking equipment automatically starts up when the slurry tank lowers to a predetermined level and shuts down when the slurry tank is full.

The slurry feed pump runs continuously with approximately half of its discharged flow being directed to the two scrubber atomizer head tanks. The remainder of its discharge is recirculated back to the slurry storage tank.

The quantity of slurry that is admitted into a individual Scrubbers slurry head tank is automatically regulated based on stack SO_2. As SO_2 rises the slurry flow is increased.

The quantity of slurry/water that is admitted from the head tank to the atomizer is automatically regulated based on Scrubber outlet temperature. As temperature rises the slurry/water flow is increased.

APPENDIX K

FUEL ANALYSIS OR SPECIFICATION

The reference MSW analysis is as followed.

Heating Value, BTU/lbs.	5000
Carbon, C	27.5 %
Hydrogen, H	3.6 %
Oxygen, O	20 %
Nitrogen, N	0.5 %
Chlorine, Cl	0.5 %
Sulfur, S	0.1 %
Ash	23.4 %
Water	24.4 %

APPENDIX L

LAKE COUNTY RESOURCE RECOVERY FACILITY

Activated Carbon Injection (Mercury Control) System Description

The system injects activated carbon pneumatically into the scrubber inlet duct through a series of nozzles inside the duct. The system consists of a 60 tons capacity storage silo which is periodically filled from a truck unloading system. The storage silo has a truck fill pipe with a hose connection and limit switch for the trucker's hose. The limit switch automatically starts the silo roof mounted dust collector exhaust fan and pulsing system.

The silo has two (2) outlet hoppers, one dedicated to each boiler train. Each outlet hopper has a bin activator, 8-inch isolation valve, 8-inch rotary valve (feeder), a volumetric feeder with surge bin, an eductor, and a positive displacement (conveying) blower. The surge bin has about a 3 hour capacity and is periodically filled by the rotary valve based on high and low surge bin level switches.

The volumetric feeder has a variable speed drive which controls the speed of the feed screw and thus controls the feed of carbon. Since carbon density and screw clearances vary, the speed (RPM) of the screw feeder carbon feed is periodically checked by taking grab samples and weighing them to demonstrate that the required minimum lb/hr of carbon is being fed.

The eductor picks up the metered carbon and via the nozzle in the eductor, uses the pressure and flow from the conveying blower to induce an optimum velocity in the 2-inch conveying line which maintains the activated carbon in suspension and delivers the carbon through the 2-inch conveying line with long radius elbows into the economizer outlet duct nozzle assembly. The nozzle assembly distributes the carbon evenly in the duct cross-section for maximum contact with the flue gas.

The CEM in the control room continuously displays the lb/hr of carbon being fed. The lb/hr signal is generated by converting the feeder RPM signal to a lb/hr signal based on the grab samples.

APPENDIX M

SNCR system

Purpose

The purpose of the SNCR system is to control nitrogen oxides contained in the flue gas. The system uses aqueous ammonia as the controlling agent injected into the upper section of the furnace to keep nitrogen oxide emissions within air permit limits.

System Overview

The SNCR system is designed for the reduction of nitrogen oxides using an injected mixture of aqueous ammonia and carrier water into one of two injection levels in the furnace. Carrier water provides the carrier medium for adequate penetration and distribution inside the furnace. As the mixture enters the furnace the aqueous ammonia expands as a free gas in the boiler and reacts with NO forming gaseous nitrogen and water vapor.

The system consists of an ammonia storage tank, an ammonia feed system, a carrier water system, a purge air system, and injection lances with nozzles.

Storage and delivery

The storage system consists of a vertical tank designed to hold 10,000 gallons. This tank has two safety relief valves. In the event of over pressurization of the tank these relief valves will relieve excess pressure. **In the event of a pressure release any discharge of ammonia over 1000 pounds is a reportable event and must be reported to DEP.**
The delivery truck will deliver approximately 5500 gallons each time and must follow the procedures established by Covanta, Lake. The ammonia receiving report must be used for each delivery.

Components

Purge air rotary blowers	-	2 with 100% capacity
Ammonia pumps	-	2 with 100% capacity
Storage Tank	-	10000 gallon capacity

Carrier water system	-	Plant demineralized water
PLC based control system	-	2 CPU interfaces with each having full System operating capability
Instrumentation operating instrumentation.	-	Full protective interlock, leak detection, and

Operation

Operation of the aqueous ammonia system is to be accomplished in accordance with the SNCR operating manual.

Appendix N

MWC UNIT STARTUP AND SHUTDOWN PROCEDURES

4.1 MWC UNIT STARTUP PROCEDURES

This procedure covers the startup of one unit consisting of the boiler and its auxiliaries as well as all associated air pollution control equipment. The procedure assumes that other units are already in normal operation and all plant systems that are common to all units are also operating in a normal manner.

VERIFY THAT ALL SAFETY CLEARANCES HAVE BEEN PROPERLY RELEASED BEFORE PREPARING THE UNIT FOR SERVICE.

1. Verify Baghouse flyash hopper heaters have been energized and operating properly for approximately 24 hours.

2. Check that feed chute, feed rams and table, grate surface, clinker rollers, ash discharger and boiler fans are clear of personnel, tools and debris and are ready for service.

3. Verify that overfire air nozzles in front and rear walls of furnace are clear of slag and ready for service.

4. Verify feed chute cooling water system is full, vented and ready for service.

5. Check that all access plates in feeder area are closed and locked.

6. Check that all access doors in feeder riddling hoppers and ducts are closed. Verify that all furnace doors and penthouse doors are shut and sealed.

7. Verify that grate and auxiliaries' lubrication system is ready for service.

8. Verify residue and fly ash handling equipment are ready for service.

9. Verify power to the MARTIN control panel.

10. Verify power to unit instrumentation in control room.

11. Verify correct operation of orifice damper position indicators in the control room. Leave dampers in closed position.

12. Verify water level in ash discharger and check setting of float valve. Normal water level is 18 inches below the inspection doors.

13. Inspect stoker hydraulic system and verify availability for service.

14. Verify operability of Riddling Flaps.

15. Check seal air filter dampers are open.

16. Start one hydraulic pump, check the system and verify:

    - System pressure is 1440 psig
    - Feed chute damper opens and re-closed. Leave closed.
    - Feed rams' operation from the local pushbuttons
    - Grate operation from the local pushbuttons
    - Clinker roller from the local pushbuttons
    - Ash discharger from the local pushbuttons

17. Shut down the hydraulic pump and start the back-up pump. Check for proper operation of the pump and system pressure is 1440 psig.

18. Check grease level. Start the Stoker Grease Pump.

19. Start the following equipment:

    - Ash discharger
    - Clinker roller

20. Stoker Settings:

    - Feeders "ON" (interlocked) main switch "OFF"
    - Feeder speed 10% and stroke length 7.4 inches
    - Grates "ON" (interlocked) main switch "OFF"
    - Grate speed 15%
    - OFA Fan Damper Control on "MANUAL" and closed
    - UFA Fan Damper Control on "MANUAL" and closed
    - Each UFA Zone Damper in "MANUAL" and closed
    - Each OFA Damper in "MANUAL" and closed
    - Riddling Flaps "OFF"
    - Optimizing Controller "OFF
    - Combustion Controller set point 0% and on temperature control

21. Verify all settings on the pollution control system. Verify proper operating parameters

of CEM equipment.

22. Prepare the boiler for start-up.

23. Commence filling the boiler by manually opening the feedwater regulating valve to achieve a flow rate of approximately 10,000 lbs/hr. Stop filling when -4 inches is indicated in the drum.

24. Start seal air fan.

25. Set the Induced Draft Fan Damper to "MANUAL" and close it. Verify smooth operation of damper to full extent of travel. Start the Induced Draft Fan. Inspect and verify satisfactory operation.

26. Verify smooth operation of the forced draft fan damper to full extent of travel. Start the forced draft fan. Inspect and verify satisfactory operation of the fan.

27. Start the Overfire Fan. Inspect and verify satisfactory operation.

28. Shut down the Induced Draft Fan and verify that the Overfire and Forced Draft Fans trip.

29. Start Induced Draft Fan and Seal Air Fan. Place ID Fan Damper on "AUTO" and set furnace pressure for - 0.3" W.G.

30. Start the Forced Draft Fan. (Verify satisfactory operation.)

31. Start Overfire Air Fan. (Verify satisfactory operation.)

32. Place FD Fan Inlet Damper Control on "AUTO" and set fan discharge pressure for 16" W.G.

33. Place OFA fan inlet damper in "AUTO" and set fan discharge pressure for 19" W.G.

34. In accordance with burner management requirements, open all UFA zone dampers and OFA wall dampers until 75% total airflow is achieved as indicated by the purge counter starting to count. Maintain this airflow for five (5) minutes to purge. Light off the natural gas burner.

35. Shut down Overfire Air Fan and FD fan. Isolate all but one bag house module (usually module 1 will be left open).

36. In accordance with the boiler start-up curve, slowly increase the gas burner firing rate to

achieve gas temperature of at least 250 degrees F at the Baghouse inlet.

37. Start the Boiler, Scrubber and Baghouse Residue/Flyash Handling System.

38. Cut in the steam supply to the Combustion Air Preheater.

39. Start FD fan with all UFA zone dampers closed.

40. Upon reaching 250 degrees F at Baghouse inlet, bring all baghouse modules on line. Continue heating and verify Baghouse inlet temperature at 290 degrees F, and no more than 20 degrees delta T across the baghouse. Verify furnace temperature is approximately 1300 degrees F.

41. Bring on and verify proper operation of the lime slurry system, the carbon injection system, and the ammonia injection system.

42. Set ID and FD Fan Inlet Dampers to "MANUAL" and reduce the furnace pressure to 0 inches W.G.

43. Open the Refuse Feed Chute Damper and commence charging the hopper. The initial several charges of refuse should be selected for apparent dryness and burning qualities.

***** **Toggle the CEM to indicate feed chute open.**

44. After charging the hopper, stroke the Feeders as necessary to push a small amount of refuse on to the grates by using the pushbutton station.

45. Light off the refuse at the feed table. **Once a refuse fire is established toggle the CEMS to indicate "Boiler On".**

46. Set ID Fan Inlet Damper on "AUTO". Adjust furnace pressure for - 0.3" W.G.

47. Increase gas burner firing rate to hold approximately 1300 degrees F gas temperature at furnace roof. Continue to monitor roof temperatures and verify gas temperature is maintained in approximately 1300 degrees F.

48. Set UFA Dampers to minimum 25% opening, in "AUTO" using air step.

49. Start the Overfire Fan. Verify satisfactory operation. Set Overfire Fan Inlet Damper on "AUTO". Adjust discharge pressure for 19" W.G.

50. Open front and rear Overfire Air Dampers to 5" W.G.

51. Start Riddling Flaps.

52. Switch on the Grate main switch. Grate speed at 10%.

53. Switch on the Feeder main switch. Feeder speed at 10%. Feeder stroke length at 7.5".

54. Adjust the Fuel Controller set point approximately 2.5% above the actual gas temperature. Verify the grates and feeders start. Make sure that the green LED at both controllers are on.

55. Check burning conditions on the grate and, if satisfactory, slowly increase the set point to 2.5% (48^0 F) every 5 minutes. Do not increase faster. Keep the set point at both controllers always in the green LC range. Open UFA Dampers with the step pointer to maintain an averaged 0_2 signal of 8-9% at boiler outlet.

56. Slowly decrease the gas burner firing rate. Verify that the furnace gas temperature is continuously in approximately 1300 degrees F and that the fuel controller adjusts the grates and feeders to hold gas temperature set point. Make small step decreases to the gas burner firing rate and allow the refuse fire to stabilize at set point each time.

57. Observe the fire development on the grate. In the event of a poor fire, periodically stop the feeder sand grates. This will allow a smooth fire to develop on the grates before being covered by new, wet refuse.

    During this phase it is absolutely necessary to observe the CO levels, refuse feed, and fire development continuously. On the basis of these observations, manually adjust, as necessary, the feeder and grate speeds as well as the Underfire Air Damper openings.

58. Open OFA front and rear wall Dampers to 12" W.G.

59. Continue reducing the gas burner firing rate until minimum load is reached. If refuse fire is stable and approximately 1300 degrees F gas temperature is maintained at the furnace roof thermocouples, shut the gas burner down.

60. When the boiler has built up the designed pressure of 865 psig at Superheater outlet and is controlled on "AUTO" and the refuse fire is stable, switch the Fuel Controller to "STEAM FLOW" and correct the set point.

61. Adjust the set point slowly to 45klbs at the controller. This corresponds to a steam flow of 45000 lbs/hr. Open the UFA Dampers in steps to maintain 8-9% O_2.

62. Put front and rear wall Overfire Air Dampers on "AUTO".

63. When the boiler is on line to the steam turbine, increase the boiler output to the desired

steam flow increasing the Steam Flow Setpoint.

64. The following conditions should be monitored and maintained:

- Economizer outlet O_2: 8.0 to 9.5%
- Furnace temperature at roof approximately 1300 degrees F
- OFA Dampers on "AUTO"
- UFA discharge pressure must be 16" W.G.
- OFA discharge pressure must be 19" W.G.
- Maintain furnace draft negative.
- All monitored emissions to be maintained below permit levels.

The flames should never reach above the furnace refractory, not even for short periods of time!

65. Switch on the Optimizing Controller to Speed and Stroke Length.

4.1.2 COMBUSTION UNIT HOT RESTART

This procedure covers the hot restart of one unit consisting of the boiler and its auxiliaries as well as all associated air pollution control equipment. The procedure assumes that plant systems which are common to all units are already operating in a normal manner.

VERIFY THAT ALL SAFETY CLEARANCES HAVE BEEN PROPERLY RELEASED BEFORE PREPARING THE UNIT FOR SERVICE.

1. Verify power to the MARTIN control panel.

2. Verify power to unit instrumentation in control room.

3. Verify water level in ash discharger and check setting of float valve.

4. Record Stoker Operating Hours in the control room.

5. Check lime system and prepare slurry.

6. Ensure the baghouse inlet and outlet dampers are open.

7. Close the Superheater Attemperator stop valves.

8. Open the 4" start-up line to the bypass condensor (JUST PRIOR TO OR AT LIGHTOFF).

9. Verify stoker controls are as follows:
   - Feeders (all)- "ON"
     - Interlock "OFF"
     - Speed 10%
     - Stroke length 7.4 inches
   - Grates (all)- "ON"
     - Interlock "OFF"
     - Speed 15%
   - Optimizing Controller - "OFF"
   - Fuel Combustion Controller - Furnace Temperature Mode
     - Setpoint 0%
   - UFA Damper Controllers - "MANUAL"
   - UFA Dampers (all) - "AUTO"
   - OFA Dampers (all) - "AUTO"
   - Riddling Flaps - Cycle 1 (off)

10. Start one stoker hydraulic pump. Verify satisfactory operation.

11. Start the Induced Draft Fan. Verify satisfactory operation.

12. Place ID Fan damper control in "AUTO" and set furnace pressure for -0.3 inches WG.

13. Start the Seal Air Fan. Verify satisfactory operation.

14. Set the Forced Draft Fan damper control to "Manual" and close.

15. Start the Forced Draft Fan. Verify satisfactory operation.

16. Verify that the carbon injection system is in service.
17. Verify the Lime Slurry System is aligned properly. Verify satisfactory operation. Verify that the ammonia injection system is in service.
18. Verify furnace roof temperature is greater than 750°F. If not, purge and light off the natural gas burners in accordance with burner management requirements. Set the burner controls for 1300°F gas temperature and allow furnace roof temperature to reach setpoint.

19. Place FD Fan damper control in AUTO and set fan discharge pressure for 16 inches WG.

20. Start the Overfire Air Fan. Verify satisfactory operation.

21. Start the following equipment:

    - Stoker Grease Pump
    - Ash Discharger - 40% speed (interlocked)
    - Clinker Rollers - 50% speed (interlocked)
    - Riddling Flaps - Cycle 1

22. Set Underfire Air dampers to "AUTO".

23. Set the Grate to "ON" and interlocked.
24. Adjust the Fuel Combustion Controller set point approximately 2.5% above the actual gas temperature.
25. Set the Feeders to "ON" and interlocked. Verify satisfactory ignition of refuse.

26. Check burning conditions on the grate and if satisfactory, open the front and rear Overfire Air dampers to maintain 4 inches WG.

27. Slowly decrease the gas burner firing rate. Verify that the furnace gas temperature is approximately 1300°F and that the Fuel Combustion Controller adjusts the grates and feeder to hold gas temperature set point. Make small, step decreases to the gas burner firing rates and allow the refuse fire to stabilize at setpoint each time.

28. Observe the fire development on the grate. In the event of a poor fire, periodically stop the feeders and grates. This will allow a smooth fire to develop on the grates before being covered by new, wet refuse. During this phase, it is absolutely necessary to observe the refuse feed and fire development continuously. On the basis of these observations manually adjust, as necessary, the feed and grate speeds as well as the Underfire Air damper openings.

29. When the gas burner firing has been reduced to 50% and the refuse fire is stable, open the front and lower rear Overfire Air dampers to 10 inches WG.

30. Continue reducing the gas burner firing until minimum load is reached on each. If refuse fire is stable and approximately 1300°F gas temperature is maintained at the furnace roof thermocouple, shutdown the gas burners.

31. Close the drum and superheater vent when a steady flow of dry steam occurs at each or 25 psi. Leave 4" start-up line open to ensure flow through the superheater.

32. As necessary, adjust Fuel Combustion Controller set point to achieve approximately 800°F - 830°F superheat outlet temperature and 865 psig. Be sure to maintain approximately 1300°F furnace roof temperature. Once proper superheater outlet temperature and pressure are achieved align the boiler to the main steam header.

33. Slowly increase the Fuel Combustion Controller set point and verify increasing main steam flow and generator load. Monitor boiler pressure, main steam temperature and furnace gas temperatures.

34. When all conditions are stable switch the Fuel Combustion Controller to "STEAM FLOW" mode and adjust the set point to match boiler load.

35. Gradually increase the boiler output to the desired level by increasing the steam flow setpoint 2 klb every 5 minutes.

36. The following conditions should be monitored and maintained:

    - Economizer outlet 0_2 – 8.0% to 9.5%.
    - Furnace roof temperature at approximately 1300°F.
    - OFA Dampers on "AUTO"
    - UFA discharge pressure must be 16" W.G.
    - OFA discharge pressure must be 19" W.G.
    - Maintain furnace draft negative.
    - All monitored emissions to be maintained below permit levels.

37. Increase boiler load utilizing settings in accordance with the Stoker Settings Table.

38. Turn on the Optimizing Controller.

39. Select the appropriate underfire air flow for the actual steam flow.

40. Front and rear overfire air dampers must be set such that flames never reach above the furnace refractory.

4.2 MWC UNIT SHUTDOWN PROCEDURES

4.2.1 COMBUSTION UNIT SHUTDOWN

This procedure covers the shutdown of one unit consisting of the boiler and its auxiliaries as well as all associated air pollution control equipment. The procedure assumes the second unit will remain in normal operation and all plant systems that are common to both units will continue operating in a normal manner.

1. Ensure Natural Gas is lined up. Test fire gas burner. Stop feeding refuse.

2. When refuse level in feed chute is below the damper, close the feed chute damper.

3. When steam flow begins to drop off, switch Martin combustion controller to furnace temperature control. Match up furnace temperature set point on Martin Panel. Light auxiliary gas burner to ensure CO compliance during shutdown.

4. Set steps for Underfire Air Dampers (manually) to maintain proper combustion and CO levels.

5. Turn Optimizer off to keep stoker speed and stroke constant.

6. When steam flow drops to between 30-40 klbs/hr, increase feeder speed to 100%.

NOTE: Maintain furnace temperature set point just above actual temperature and check O_2 regularly.

7. Increase clinker roll speed to 100%.

8. Increase grate speed to 100%.

9. When O_2 begins increasing (lack of fuel), increase feeder stroke 5"-7". Let feeders make two (2) strokes and increase stroke another 5-7". Repeat this feeder operation until the feeder is at full stroke.

10. Initiate riddlings cleaning sequence 3-5 times to clear riddlings chutes.

11. After a full cleaning stroke of the feeders, verify that the feed table is empty and shut down the feeders.

12. Secure steam to the UFA preheater.

13. Shutdown UFA, OFA fans when fire is out on grates.

14. Take boiler off line by closing the 10" steam header stop while opening the 4" startup/shutdown valve to the bypass condenser.

15. Secure the auxiliary gas burner when the refuse fire is out. **Go to the CEM work station, and toggle the boiler "OFF-LINE".**

16. Secure Ammonia Injection system and pull lances.

17. Secure carbon injection system.

18. Secure, flush and pull the SDA atomizer (see separate procedure).

The Boiler Chemical Feed and Continuous Blowdown Systems may be secured at this time.

NOTE: Once the unit has stopped steaming to the bypass condenser, vent the Superheater to maintain a flow (cooling).

NOTE: Reset feeder speed to 10%, stroke to 7.4".

NOTE: Reset grate speed to 10%.

19. Take pulse-air system for baghouse out of delta P and manually pulse the baghouse several times.

NOTE: Check opacity for allowance.

20. Keep ID fan running as appropriate for furnace cooling.

21.Keep the unit's ash handling system running for at least eight (8) hours after securing the combustion air fans.

22. When grates are clear, shutdown the grates.

23.Shut down clinker roll.

24.Secure Martin hydraulic pump.

25. Secure Martin grease pump.

Appendix O: Operation and Maintenance Plan

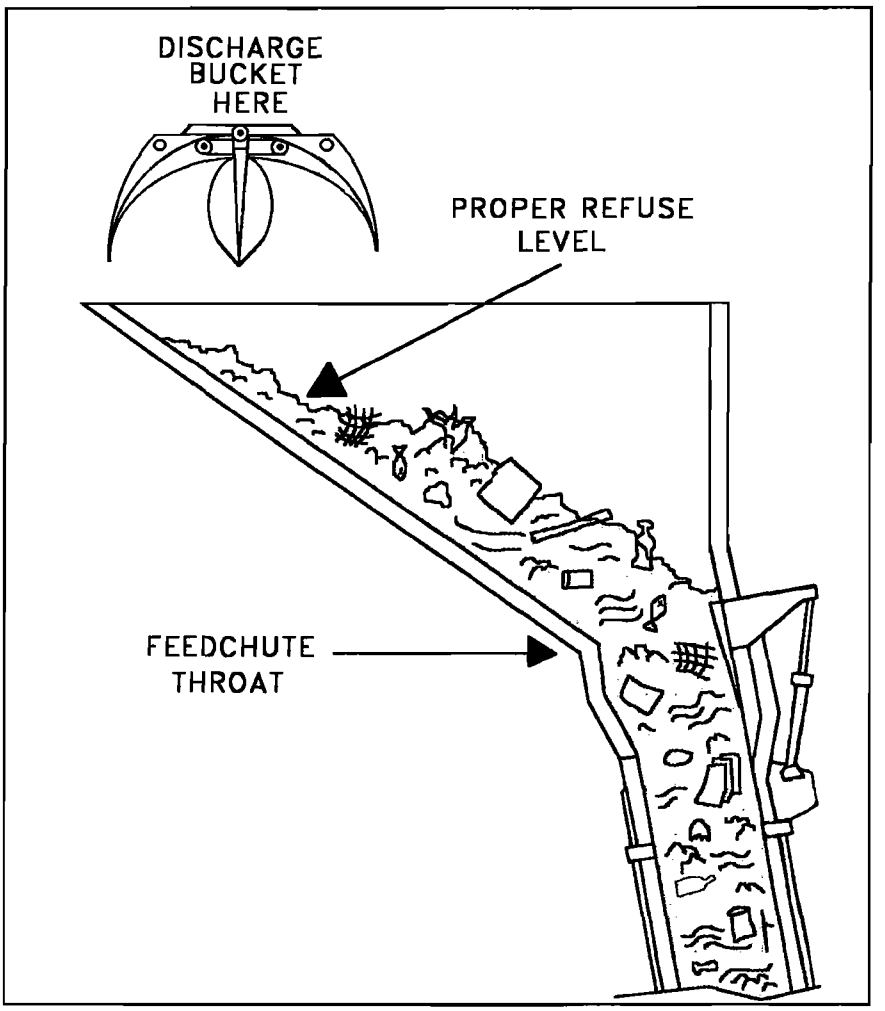
1 PROCEDURES FOR FEEDING MSW

INTRODUCTION

Use the refuse cranes to load fuel to the stoker feedchutes and clear feedchute plugs if necessary. Make complete and accurate crane log entries. Maintain charging floor cleanliness.

FEEDCHUTE LOADING

After properly preparing a grapple of fuel, load it to the feedchute as follows.



Proper Feedchute Loading

1. Refill the feedchute regularly, as soon as hopper capacity allows. A consistent feedchute level, in combination with point #2 below, supplies a steady head of

refuse to the feedrams below. This is necessary for proper computer controlled stoker operation.

2. Spread fuel across the width of the feedchute to keep it level from side to side. "Feather" the grapple open while slowly bridging from one side of the feedchute to the other. Otherwise feed alternate grapple loads to opposite sides of the feedchute.

3. During normal operation, never allow the fuel level to fall below the feedchute throat. This condition could lead to loss of stoker seal from atmosphere as well as affecting the computer controlled fuel stoking.

4. Discharge fuel over the top of the feedchute's inclined face. This allows the refuse to break apart as it tumbles down the inclined face to help avoid hopper plugs at the feedchute throat.

CLEARING FEEDCHUTE PLUGS

Most feedchute plugs are avoided by properly preparing fuel as described in Section 3.2.2. However, if a plug occurs the following actions should be taken:

1. Immediately notify the shift engineer of the plug's nature, location and extent. The shift engineer must ensure negative draft so flames and burning materials do not blow to atmosphere if the boiler seal is lost.

2. Attack the plug using the gaff poles. These are long poles with pointed probes and hooks on the end to ram into, or hook and pull at, the plug. Probe for weak spots in the plug. If you can destroy the weakest area, the remainder of the "bridge" will collapse.

3. If the plug cannot be cleared within the first few minutes, request additional help and directions from the Lead Engineer.

4. Continue attacking the plug.

DANGER! NEVER LEAN OVER THE FEEDCHUTE EDGE WHILE CLEARING A PLUG. IT IS ALSO ABSOLUTELY FORBIDDEN TO CLIMB ATOP THE FEEDCHUTE EDGE WHILE THE STOKER IS OPERATING!

REFUSE CRANE LOG ENTRIES

Keep complete and accurate crane log entries. Information logged should include:

a. Extent and findings of any crane inspections, by operations or maintenance personnel.

b. Any crane repairs, such as cable or brake shoe replacement, etc.

c. Any crane damages or wear which may affect crane operation.

d. Any unusual or unsafe refuse delivery truck operation.

e. Any attempted delivery of unacceptable loads as described in Section 3.2.2.

f. Any unusual operating conditions.

In addition to making log entries, immediately report any of the information discussed above to the Lead Engineer as necessary.

CLEANING

1. The Crane Operator is responsible for maintaining charging floor area cleanliness. Wear appropriate PPE while working in the charging floor's high dust environment.

2. The crane operator is usually the responsible person for cleaning and inspecting the cranes. At times it will be necessary to designate another operator to clean the cranes due to unusual conditions.

3. The crane operator is responsible for cleanliness of the crane operating area.

2 PLANT BLACKOUT

This procedure covers the action to be taken in the even of a total loss of ac power in the Facility.

1. Verify that all shift operators are safe and accounted for by assembling in the Control Room or reporting via radio.

2. Assign Auxiliary Engineers to inspect the plant to verify the safety of other personnel that may be in the Facility and inspect for damage, fire or other potential hazards.

3. Notify the (power system) Load Dispatcher and Facility Manager of the blackout condition and any known causes.

4. Verify the satisfactory trip/shutdown of the plant equipment including:

   a. Turbine/generator Emergency Lube Pump is in operation and T/G unit is in coastdown.
   b. Boiler drum level and pressure control.
   c. Boiler electric and turbine feed pump and turbine shutdown.
   d. Breakers open. All equipment in lock-out position.
   e. Main transformer circuit breakers open.
   f. Generator breaker open.
   g. Equipment circuit breaker open or starters dropped out as appropriate.
   h. ID fan inlet dampers open.

5. Inspect transformer, line and generator protective relays for trip-target indication. Log all findings, but do not reset any trip-targets until directed to do so by the Shift Supervisor or Facility Manager.

6. Upon completion of the above steps, when outside power is available and if the Main Transformer and associated switchgear is found to be in satisfactory condition for service, after notifying the (power system) Load Dispatcher, reset lockout relays, and energize the transformer.

7. Verify satisfactory operation of the Main Transformer and commence energizing the Auxiliary Power Transformers and associated load centers and MCCs. In each case, verify satisfactory conditions before proceeding to the next section.

8. Inspect and verify satisfactory operation of the battery charger.

9. After inspecting and determining the readiness of each for operation, place the following equipment and systems in service:

a. Turbine-generator ac lube oil pump and turning gear.
b. Cooling tower and circulating water pumps and associated equipment.
c. Service water system.
d. Air compressors and control air system.
e. Demineralized water make-up pumps.
f. Motor driven Boiler Feed Pump.
g. Ash transfer conveyor system.
h. Unit ash conveyors and flap gate valves.
i. Baghouse hopper heaters.

10. Evaluate the readiness of the units for restart and contact the Shift Supervisor for authorization to proceed with hot restart of the units. Refer to "Operating Procedure 4.1.2 - Combustion Unit Hot Restart".

3 MARTIN STOKER SYSTEM: BROKEN GRATE BARS

INTRODUCTION

A problem that occasionally occurs while operating the Martin Stoker System is that of broken grate bars. This is when one or more of the individual grate bar castings break due to heat, stress, or concussion.

The problems associated with broken grate bars include:

1. Oversize material falls through the gap left by the broken grate bar. This causes riddlings discharge system plugs.

2. The gap left by the broken grate bar allows other grate bars on the same step to slide out of position along their common T-bar. This increases space between the grate bars of that step which increases jamming and the chance of damage to additional grate bars.

3. It upsets combustion as locally excessive air flows through the broken grate bar's gap.

4. Burning material from the fuel bed falls through the gap. This may damage the components in this area such as the grate drive beam support and guide rollers.

5. In extreme cases, the air zone beneath the broken grate bar fills with material which has fallen through the gap. This can lift entire sections of the grate system, breaking numerous grate bars and causing extensive damage to the T-bars and air zone components.

CAUSES

Concussion, heat stress, and mechanical stress cause broken grate bars.

1. Heavy material falling from above causes *concussion* damage. This includes items such as engine blocks, etc. entering the grate system from the feeders. However the main source of concussion breaks results from the clinker formation on the firebox walls. These clinkers, weighing hundreds of pounds, can crash down onto the grates causing extensive damage to many grate bars at a time.

2. Improper fuel bed height or underfire air flow cause grate bar *heat stress*. If the bed is too thick or underfire air flow is insufficient, too much heat remains at the grate surface. Too thin a bed reduces the cushion that protects the grate bars from concussion damage discussed above.

3. Bolts, ball bearings, and other small, solid material can lodge between grate bars despite the grate's self-cleaning action. Over time, this can bind the grate bars and cause breakage due to *mechanical stress*.

PREVENTION

Proper operation of the stoker system reduces broken grate bars. Proper furnace temperature and combustion air flow reduces firebox wall clinker formation. This reduces the chance of heavy clinkers crashing down to cause concussion damage.

The crane operator can also reduce concussion damage by rejecting heavy, incombustible material from the fuel stream.

In addition, proper fuel bed height assures a cushion against this concussion damage. It also maintains grate surface temperatures within range to avoid heat stress.

Reduce mechanical stress due to grate bar jamming by proper maintenance during stoker outages. Proper grate casting tension reduces the chance of small solid material becoming lodged between individual grate bars.

RECOGNITION

Despite the efforts of the plant staff, grate bar damage will occasionally occur. A broken grate bar's domino effect on surrounding grate bars is reduced or eliminated by early recognition of, and reaction to, the problem. Broken grate bars are indicated by:

1. Riddlings discharge system plugs. If material larger than 1" wide, such as tin cans, etc., fall through the grate system, the stoker has a broken grate bar.

2. Inspection of the fuel bed and flame formation will show localized high or low areas, or a locally disrupted flame pattern in the area of the break.

3. Feel the round manhole access doors on the outside of each air zone if underfire air preheat in use. The door to the air zone beneath the affected area is cooler if that zone is filled with material that has fallen through a broken grate bar gap.

DANGER! NEVER OPEN THESE DOORS DURING STOKER OPERATION. EXTREMELY HOT AIR UNDER PRESSURE AND POSSIBLY BURNING MATERIAL WILL BLOW TO ATMOSPHERE CAUSING SEVERE BURNS.

4. In extreme cases, material from the fuel bed fills the air zone. It can bind the grate drive beams, preventing the grates from making a full stroke. If the problem has gone this far there is probably extensive grate bar and grate support damage.

CORRECTION

The only way to repair broken grate bars is to secure the unit following the plant's normal shut-down procedure. However assure that the affected air zone does not clog completely before the unit is secured.

Do this by rodding out the air zone hopper from underneath through the riddlings discharge

duct and flapgate. Do this procedure only with the immediate lead engineer's direct permission and/or supervision. Work with a U-shaped bar (bent re-bar works well) and only from above the discharge duct access door (Fig. 4.3.3-1). Observe the following guidelines to prevent serious injury while performing this procedure:

NOTE: The procedures for containment of fugitive ash must be followed when performing this procedure.

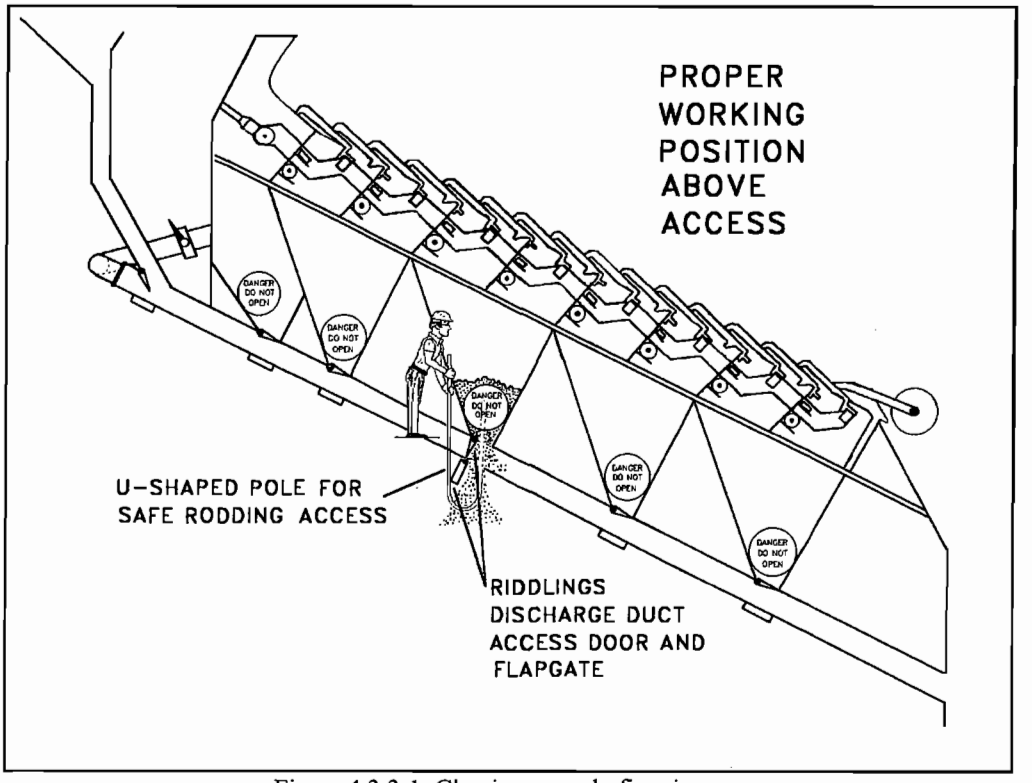


Figure 4.3.3-1: Clearing an underfire air zone

1. Rope off the area beneath the affected zone(s). This assures that falling debris will not injure anyone below. Post warning signs along this barrier. Inform everyone on the plant site to stand clear of the area.

2. Isolate compressed air to the riddlings discharge flapgates in the hydraulic distribution cabinet. This valve should be clearance tagged closed. Put the feedrams and grates in non-interlock operation during this procedure.

3. Manually initiate a riddlings discharge cycle. This bleeds any remaining air from the system so the affected riddlings flapgate(s) can be opened manually.

4. The system is now ready for safe clearing of the affected hopper. Tie the affected riddlings flapgate open. Open the access door on the bottom of the riddlings discharge duct directly underneath.

DANGER! THERE IS NOW A PATH FOR HOT COMBUSTION AIR, DEBRIS, AND POSSIBLY MOLTEN LIQUID TO BLOW TO ATMOSPHERE UNDER PRESSURE.

Minimum personnel protection includes leather gloves and full-coverage goggles or face shield. Never put the hands, feet, or any body parts beneath the riddlings discharge duct (Fig. 4.3.3-1).

5. Clear the plug with the U-shaped bar. If possible, recover any broken grate bars that may emerge to help determine the extent of damage. Once the plug is clear, return the system to normal operation. If a riddlings discharge duct plug is suspected, manually run several riddlings discharge cycles in a row. If necessary, temporarily increase underfire air pressure to a maximum of 20" during these cycles. Repeat the procedure as necessary until the unit is secured. Remember that the procedure above is only a temporary measure until the unit is secured to repair the broken grate bar(s).

4 MARTIN STOKER SYSTEM: RIDDLINGS DISCHARGE SYSTEM PLUGS

INTRODUCTION

A riddlings discharge system plug is any blockage of the system that can occur in various places. This includes the main discharge duct, individual air zone hoppers and flapgates, or the feedram drive area hopper and duct. (Fig. 4.3.4-1.)

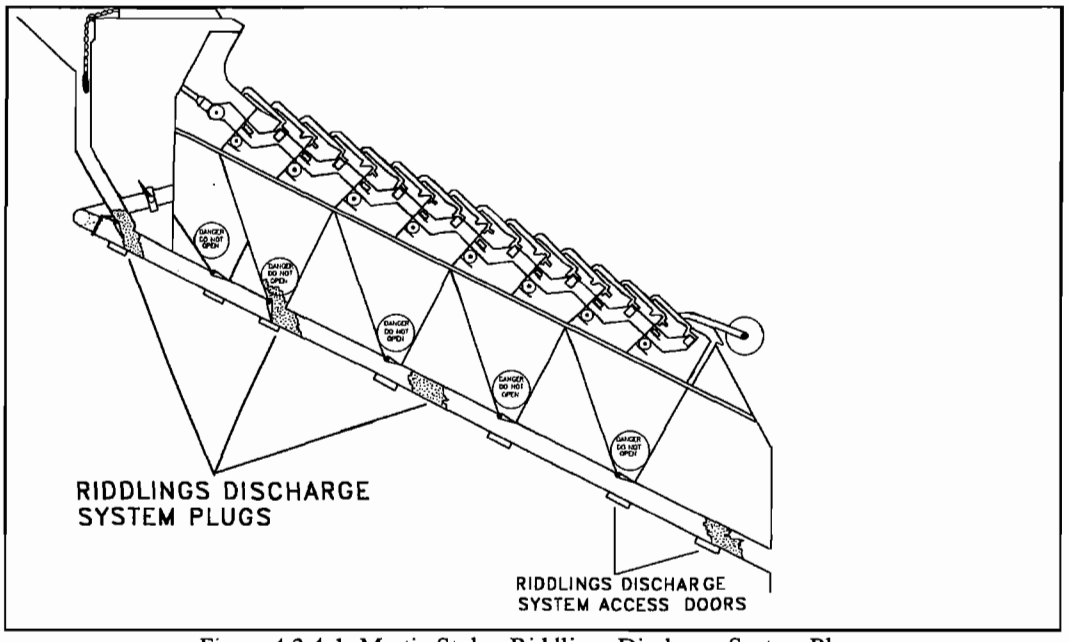


Figure 4.3.4-1: Martin Stoker Riddlings Discharge System Plugs

CAUSES

Plugging which occurs at the underfire air zone flapgates or in the discharge duct can be caused by grate bar wear. This increases the area between individual grate bars leading to excessive riddlings accumulation between cycles. Plugs in these areas also form when material that melts on the grates (aluminum, plastic, etc.), flows down through the air zones and hardens in the riddlings hoppers.

Broken grate bars can also leave gaps through which oversized material falls to plug these areas.

Feedram drive hoppers can also plug. Heavy feedram scraper wear allows excessive riddlings into this area. Plugs also form if the weighted chains riding with the feedrams have become entangled or disconnected.

Riddlings discharge plugs also occurs if water enters the system (such as spraying water into the feedchute).

PREVENTION

Reduce riddlings discharge system plugs by:

1. Never spray water into the feedchute unless an extreme emergency exists, such as live flame in the feedchute hopper which threatens to ignite the refuse pit. Even then use the water sparingly and only in a fine mist spray.

WARNING! WATER SPRAYED INTO THE FEEDCHUTE CAN CAUSE EXTENSIVE WARPING OF HOT METAL PARTS BELOW IN ADDITION TO CAUSING RIDDLINGS DISCHARGE SYSTEM PLUGS.

2. Proper maintenance during stoker outages. Replace grate bars as necessary and assure that grate step tension is correct. Replace feedram scrapers.

3. If there is excessive riddlings accumulation in any of these areas, it may be advisable to switch to the more frequent twenty minute riddlings discharge cycle.

RECOGNITION

The most obvious sign of riddlings discharge system plugs is if the flapgates do not fully close after a cycle. This situation actuates an alarm in the control room but the operator should also make visual checks once a shift and anytime in the area. Check that all flapgate cylinder rods are fully retracted between cycles. Also at least once a shift observe a riddlings discharge cycle. Any sign of flapgate binding may be evidence of a developing plug. In extreme cases, the grate drives or feedram may be unable to complete a full stroke due to riddlings accumulation.

CORRECTION

Clear these plugs using the same procedures discussed in section 4.3.3 for keeping air zones clear while securing a unit for broken grate bar repair. Follow the same preparations, cautions, and procedure after returning the system to service.

5 MARTIN STOKER SYSTEM: ASH DISCHARGER PLUGS

INTRODUCTION

Ash discharger plugs are a problem that occasionally occurs while operating the Martin Stoker System. These plugs form when a bulky item, or items, lodge in the ash discharger pit so the ram cannot make its full stroke (Fig. 4.3.5-1).

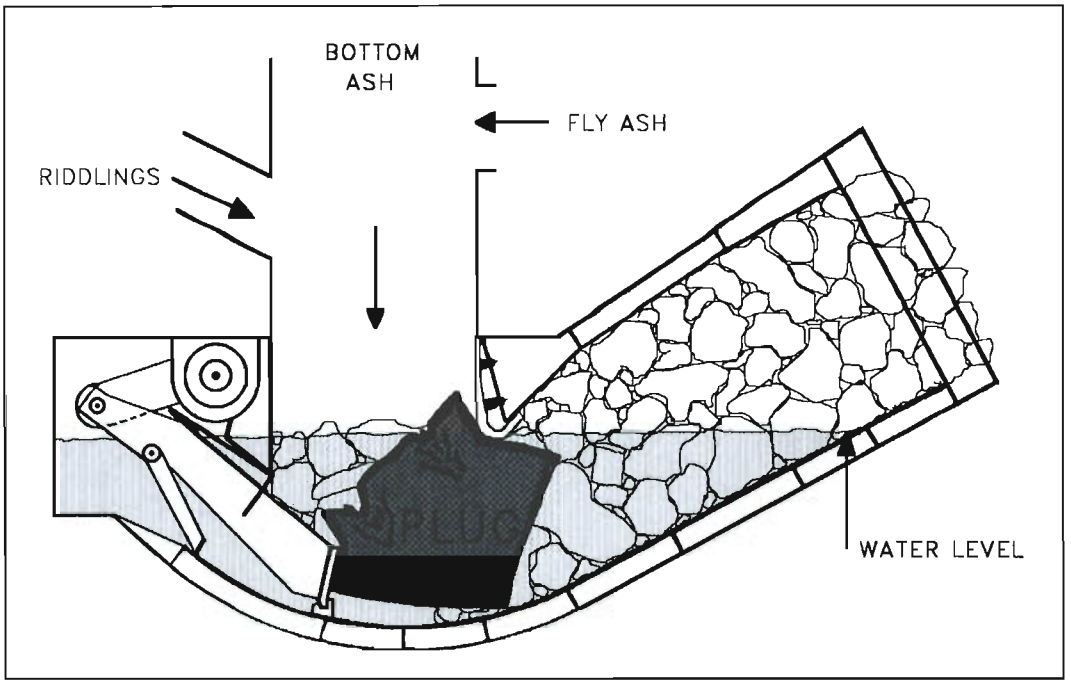


Figure 4.3.5-1: Martin Stoker System Ash Discharger Plug

CAUSES

In theory, anything that passes through the feedchute throat is small enough to clear the ash discharger. In practice, bulky items that clear through the feedchute sometimes become turned or distorted so they lodge in the ash discharger. Occasionally more than one bulky item combines to form a plug.

PREVENTION

The best way to avoid an ash discharger plug is for the crane operator to separate bulky items from the fuel stream.

RECOGNITION

The first indication of an ash discharger plug is almost always when the ash discharger kicks out of interlock due to incomplete stroke.

CORRECTION

The operator should try several things to clear the plug before shutting down the unit. They include:

1. Place the ash discharger ram in local control from the manual override box. Stroke the ram forward as far as it will travel until the plug stops it. Then back the ram off a few inches and drive it forward into the plug again. Continue this procedure as long as the plug moves forward. Once the ram achieves complete forward travel the bulky item should clear from the discharger. Return the ash discharger to automatic control and watch the discharge mouth until the item clears onto the plant's ash conveying equipment.

2. If the plug does not move as you perform these short manual strokes, or if it starts to move and then lodges again, alternate ten to twenty of these short strokes with one full retraction of the ram. This often allows smaller material lodged with the bulky item to collapse, providing enough clearance for the plug to pass.

3. If these actions do not clear the plug, attack it from above with rigid poles through the viewports in the ash discharger transition chute doors.

DANGER! THERE IS THE POSSIBILITY OF HOT ASH, RIDDLINGS, OR SCALDING WATER FROM THE ASH DISCHARGER BLOWING OR SPLASHING THROUGH THESE PORTS.

Any time the operator is trying to clear a plug through these ports he should always stand to one side. Minimum personnel protection includes leather gloves, face shield and full-coverage goggles. Try to break the plug apart or turn it with the pole. Repeat steps #1 and #2 above.

4. If these actions do not clear the plug, drain the ash discharger water to the ash settling sump. *For environmental reasons, never drain ash discharger mud and/or water directly to waste.* Draining the water often collapses the plug. Repeat steps #1 through #3 above as necessary to clear the plug.

WARNING! DRAINING THE ASH DISCHARGER WATER MAY CAUSE LOSS OF THE STOKER SEAL FROM ATMOSPHERE.

The debris and ash build-up behind the plug is normally sufficient to maintain temporarily the seal. But stay in close communication with the control room operator and be prepared to refill the discharger if indications show that the seal is failing. These indications include:

a.) Abnormal emissions increase.
b.) Dramatic increase of the excess oxygen content.

c.) Loss of boiler draft control and/or Induced Draft Fan overloading.

5. If none of these actions clear the plug, secure the unit following the plant's normal shut-down procedure.

6. Once secured, isolate the grates, clinker roll, FD Fan, OFA Fan, and fly ash screw conveyers with clearance tags.

7. Open the door in the rear wall of the stoker at the clinker roll level. Clear any material that remains atop the clinker roll that could fall onto men working below.

DANGER! THERE IS THE POSSIBILITY THAT ANY REMAINING FUEL ON THE GRATES IS HOT ENOUGH TO EXPLODE AEROSOL CANS, ETC.

Minimum personnel protection includes leather gloves and full-coverage goggles. Stand to one side of the door while performing this operation.

8. Open the ash discharger transition chute doors. Assure that no material remains atop the clinker roll that could fall onto men working below.

DANGER! ASH AND DEBRIS MAY HAVE ACCUMULATED TO A POINT ABOVE THESE DOORS. STAND ABOVE AND TO ONE SIDE OF THESE DOORS WHEN OPENING.

Attack the plug as necessary. It may be necessary to shovel debris from around the plug before it can be removed, cut, or turned so it will clear the system.

9. If the plug cannot be cleared from above, it is necessary to open the lower doors in the ash discharger itself.

DANGER! WATER MAY BE TRAPPED BEHIND THE RAM. ASSURE RAM IS FULLY EXTENDED TO ALLOW DRAINAGE BEFORE OPENING DOORS.

EXTREME DANGER!

EVEN IF THE WATER HAS BEEN DRAINED, SCALDING HOT POOLS WILL REMAIN TRAPPED IN THE DEBRIS OF THE DISCHARGER. LARGE QUANTITIES OF THIS WATER WILL SPILL FROM THE DISCHARGER WHEN THE LOWER DOORS ARE OPENED. ALWAYS STAND ABOVE AND TO ONE SIDE OF THE DOORS WHEN OPENING.

Clear the plug by whatever means necessary and return the system to service.

6 MARTIN STOKER SYSTEM: BOILER TUBE RUPTURE

INTRODUCTION

A boiler tube rupture, or other emergency loss of water level, is not technically a Martin Stoker System problem. However the operator must understand that proper stoker operation following one of these emergencies is critical to avoid serious boiler damage. Allowing hot flue gas to flow over dry boiler tubes causes extensive heat stress damage to the unit.

CAUSES

Corrosion, overheating, and erosion cause boiler tube ruptures.

CORROSION:

1. Incorrect boiler water chemical control causes water and steam side corrosion.
2. Improper fuel combustion causes fire side corrosion when unburned gases attack tube metal.
3. Live flame on bare metal also corrodes tubes.

OVERHEATING:

1. Improper boiler water chemical control causes overheating when deposits form on the water or steam side. The deposits blanket the tube from the water or steam's cooling effect. The flue gas then causes localized hot spots.
2. Sediment accumulation causes overheating when it impairs boiler water circulation. If water does not circulate in a tube section, it flashes to steam. This blankets that section of tube from the water's cooling effect.
3. Insufficient steamflow during start-up, shut-down, and low load operation causes superheater overheating. Steam must flow in the superheater to provide tube cooling.

EROSION:

1. Excessive particulate in the flue gas cause fire side tube erosion.
2. Improperly positioned soot blow lances also cause fire side tube erosion.

PREVENTION

Control boiler water chemicals properly to avoid tube ruptures caused by corrosion or overheating at deposits. Proper chemical and drum level control also prevents tube ruptures caused by deposits when water foams or carries over to the superheater. Perform bottom blowdowns regularly to avoid sediment accumulation.

Open vents and drains as necessary to assure superheater steamflow during start-up, shut-down, and low load operation.

Proper stoker operation prevents tube ruptures caused by fire side corrosion and erosion. Proper combustion air and fuel bed height control provides maximum gas burnout and prevents excessive particulate from leaving the fuel bed. Overfire air control also prevents

live flame on bare metal above the firebox.

Assure correct soot blow lance alignment at each boiler outage.

RECOGNITION

The following indicate water bearing boiler tube ruptures. Steam carrying tube ruptures give similar indications although probably not as severe. These indications include:

1. Nearly instantaneous loss of drum water level and boiler pressure.
2. Forced draft fan and overfire air fan trip due to loss of drum water level.
3. Feedwater flow increases to maximum as the controller tries to maintain drum level. This can lead to feedwater pump overloading or loss of deaerator tank level.
4. The Martin Stoker System kicks out of interlock due to loss of underfire air pressure and drum water level.
5. Steam and smoke blows from the boiler casing.
6. Flue gas temperatures downstream of the rupture rapidly decrease as steam and water enter the flue gas stream.

CORRECTION

Of course the operator must secure the unit to repair a tube rupture. Unfortunately, during an emergency such as this, the stoker system cannot immediately isolate fuel feed. A fuel bed is already established on the grates and the feedchute is loaded with refuse.

But as previously stated; allowing hot flue gas to pass over dry boiler tubes causes extensive damage to the unit. Since the water and steam's cooling effect no longer protects the tubes, the goal here is to assure as rapid a decrease in flue gas temperatures as possible.

The operator's initial actions following a tube rupture should be:

1. Assure that the F.D. and O.F.A. fans have tripped due to low drum water level. If they have not, secure them immediately. Reduce the underfire air dampers to step #0.
2. Maintain a minimum draft through the unit with the Induced Draft Fan. It will probably be necessary to control it manually.
3. Secure feedwater to the boiler after furnace temp drops below 600 degrees.
4. Assure that the stoker system feeders and grates are secured.
5. Inform the crane operator to stop loading fuel to the affected unit.
6. Secure the unit's air preheater.
7. As soon as the feedchute refuse level has dropped sufficiently, close the feedchute damper.
8. Establish a feedchute fire watch at the charging floor and assure water flow to the feedchute and transition chute jackets. The goal at this point is to maintain the present conditions until the firebox temperature falls below 500 degrees F. During this time the fire on the grates may begin to burn back up into the loaded feedchute.

Do not drive the feedrams to lower the feedchute's refuse level. This dumps fuel to the grates causing excessive firebox temperature. This fire burn back should not become a serious problem unless these conditions are maintained longer than one to two hours.

9. Bypass the low water level fan trips.
10. Once firebox temperature has sufficiently decreased, it is necessary to clear the remaining refuse from the stoker system. The goal here is to run the remaining refuse through with maximum air flow while maintaining minimum temperatures.

WARNING! AT NO TIME, EVEN TEMPORARILY, SHOULD ANY POINT IN THE FLUE GAS STREAM EXCEED 600 DEGREES F. EXCESSIVE FLUE GAS TEMPERATURES FLOWING OVER DRY TUBES WILL CAUSE EXTENSIVE BOILER DAMAGE.

11. Restart the fans. Assure maximum overfire air flow from both the front and rear overfire air nozzles. Increase forced draft fan pressure slowly to burn out the refuse bed *as long as the firebox temperature does not exceed 600 degrees F.*
12. Operate the stoker system in the furnace temperature mode. Increase feedram and grate speeds as much as possible as long as the 600 degree F upper limit is not exceeded. Open the underfire air dampers as much as possible; again do not exceed the maximum temperature limit. If a hard light-off occurs and the firebox temperature exceeds 600 degrees F, immediately secure the F.D. fan. Allow the temperature to drop sufficiently before proceeding. Continue this operation until all refuse clears through the system.

Operate the Martin Stoker System as described above after any loss of drum water level, or loss of feedwater, that cannot be reestablished. Remember the goal during these emergencies is to clear the stoker system of remaining fuel while maintaining low flue gas temperatures.

HIGH FLUE GAS TEMPERATURES OVER DRY BOILER TUBES CAUSES EXTENSIVE DAMAGE TO THE UNIT.

7 RESPONSE TO CARBON MONOXIDE (CO) EXCURSION

INTRODUCTION

This procedure covers the actions to be taken in response to a CO excursion. During normal operation, normal CO emissions are 1 ppm to 20 ppm. The current permit limit for CO emissions is 100 ppmc corrected to 7% O_2 for a 4-hr. Block average.

Anytime CO emissions are above the permit limit, immediate action must be taken to reduce them to normal levels. If CO levels cannot be reduced to permitted levels, the Operations Supervisor must be notified. Unit load must be reduced or the unit removed from service, as necessary to prevent exceeding the 4 Hour permit limit for CO emissions.

In the event that the C.E.M. monitor indicates an increasing trend or an alarm condition is reached:

1. Verify that refuse is not burning out due to a fuel UNDERFEED condition.

    a) Reduce combustion air as necessary.
    b) Adjust combustion controls as necessary.
    c) Light auxiliary burner if necessary.
    d) Determine and alleviate cause of underfeed condition.

2. Verify whether low BTU refuse has resulted in temporary OVERFEED condition.

    a) Take action to dry refuse.
    b) Set air distribution to position 3.
    c) Adjust combustion controls as necessary.
    d) Reduce load as necessary to compensate for excess moisture in the refuse.
    e) Place gas burner in service to reduce CO levels.

2. Verify whether wet refuse has resulted in a SEVERE OVERFEED condition.

    a) Place auxiliary burner in service.
    b) Stop Feeders.
    c) Increase underfire air flow and temperature.
    d) Reduce overfire slightly.
    e) Put Feeders in MANUAL and reduce stroke.
    f) Adjust Grate and Clinker Roll Speeds.
    g) Reduce load as necessary to compensate for excess moisture in the refuse.

3. Verify that FUGITIVE AIR is not entering furnace.

    a) Place Fuel Combustion Controller in FURNACE TEMPERATURE

control.

b) Identify and remove source of fugitive air.
c) Take action as necessary as stated in Items 1 and 2 above.

4. Verify that the C.E.M. Carbon Monoxide MONITOR is reading correctly.

   a) Ensure O_2 reading is reasonable (CO concentration is corrected to 7% O_2).
   b) Compare the CO indication with visual observation of the refuse fire.
   c) Review calibrations and trends at the Data Acquisition Terminal.
   d) Immediately notify Maintenance to repair the monitor.

5. Verify that all Martin stoker systems are functioning properly

6. If the CO indication on the Genesis monitor goes above 250 ppm instantaneous immediately light the gas burner to initiate a unit shut down. After verifying actual CO readings on the CEM work station, either return the unit to normal operation if CO is within limits or continue with unit shutdown to avoid exceeding permitted CO levels.

8 RESPONSE TO SULFUR DIOXIDE (SO_2) EXCURSION

INTRODUCTION

This procedure covers the actions to be taken in response to an SO_2 excursion. Operations should normally maintain a stack SO_2 level of between 1 and 25 ppmc with spikes of short duration as high as 25 to 50 ppmc. The setpoint for SO_2 control is kept at 10 to 20 ppmc. Under normal operating conditions this will keep SO_2 emissions below the permit limit.

The permit limit for SO_2 emissions is 29 ppmc based on a 24 hour geometric average.

Anytime SO_2 emissions are above the permit limit, immediate action must be taken to reduce them to normal levels. If SO_2 levels cannot be reduced to permitted levels in one hour, the Operations Supervisor must be notified. Unit load must be reduced or the unit removed from service, as necessary to prevent exceeding the 24 hour average permit limit for SO_2 emissions.

PROCEDURE

In the event that the CEMS SO_2 monitor indicates an increasing trend or an alarm condition is reached:

1. Verify whether lime slurry flowing to the scrubber atomizer has been greatly reduced or stopped as indicated by:

    a) The amount of slurry (GPM) flowing to the reactor.

    b) The scrubber outlet temperature not being controlled at or near the process setpoint or the "Scrubber Outlet Temperature High" alarm comes in.

    c) The "Slurry Feed Pump Trip" alarm coming in.

    If it is determined that there is no slurry flow to the scrubber atomizer nozzles, take action to:

    - Decrease load, decrease air flow or shut down the unit if necessary to keep the baghouse inlet temperature below permit limit.

    - If the slurry filter is plugged, place clean filter on stream and clean the plugged filter to reestablish required flow. Check the slaker grit screen for holes and replace screen if necessary.

    - If slurry flow cannot immediately be reestablished, place the spare Slurry Feed Pump in service and regain control of SO_2 emissions and reactor outlet temperature.

- Determine the cause of the decrease/loss of slurry and correct the problem or notify maintenance of the needed repair.

- Place the associated unit's slurry feed equipment back in service and return the spare slurry feed equipment to standby for later use.

2. Verify whether slurry flow (GPM) is adequate, or whether there is an inadequate amount of lime in the slurry as indicated by:

   a) SO_2 emissions increasing above process setpoint on at least one unit and/or increasing on <u>both</u> of the on-line units.

   b) Stack SO_2 emissions being above process setpoint while reactor outlet temperature remains under control.

   c) Slurry density being less than 17% solids.

   d) The mixer in the lime storage tank(s) stopping causing lime to settle/concentrate in the bottom.

If it is determined that there is an inadequate supply of high density lime to the atomizers:

- Verify whether high SO_2 emissions are occurring on <u>one</u> unit or are common to both. If all units are affected, check the lime feed pump operation.

- Should the on-line lime feed pump suction become plugged, start the standby lime feed pump and check for normal running. Clear the suction line pluggage as necessary.

- Verify that the Outlet SO_2 Controller is in AUTO and the lime feed flow valve is open. Lime must be flowing and unrestricted*. If not, take action to reestablish flow.

  * **If a grit problem exists caused by a torn grit screen it might eventually become a problem on all units. Under such a circumstance remove the lime feed flow valve(s) until all remaining grit is passed through the system.**

- Manually take a sample of the slurry in the reactor feedtank location and check to see that the slurry density is at least 17%.

- Manually take a sample of the slurry in the lime storage tank and check to see that the slurry density is at least 17%. If actual slurry density is below 17% begin

slaking operations, ensuring that the slaker the grit screen is not blinded or damaged.

3. Verify if improper atomization of the slurry is taking place as indicated by stack SO_2 emissions being above process setpoint.

   If it is determined that improper atomization of the slurry is taking place, take action to:

   a) Inspect and clean the atomizing nozzles as needed and/or replace nozzle tips as required.

   b) Locate and eliminate the cause of excessive air usage.

4. Verify that the ability of the reactor vessel to scrub SO_2 from the flue gas has not been compromised as indicated by:

   a) The pressure drop across the reactor being abnormally high.

   b) SO_2 emission levels remaining above permit limits despite all available high density lime slurry being sprayed into the reactor and the SO_2 system operating as designed.

5. If conditions are found which would reduce the capability for SO_2 removal in the reactor, take action to:

   a) Reduce load and clean the economizer as necessary to reduce the reactor inlet temperature below 450°F so that the flue gas in the reactor can be cooled sufficiently to effectively absorb SO_2.

   b) Increase load and/or place gas burners in service to increase the reactor inlet temperature to 375°F and increase the SO_2 removal efficiency.

   c) Reduce load and/or decrease excess air flow to reduce the differential pressure across the reactor to normal and improve SO_2 removal efficiency.

   d) Verify that the Tipping Floor Operator and the Crane Operator are locating and removing from the waste stream those items which are known to produce excessive amounts of SO_2 during combustion.

   e) Ensure that the Crane Operator feeds a homogeneous blend of refuse to the furnace.

6. Verify that the SO_2 reading on the CEM monitor is correct as indicated by:

a) Ensure O_2 reading is reasonable (SO_2 concentration is corrected to 7% O_2).

b) Comparing current SO_2 readings with visual observations of the refuse fire on the stoker.

c) Review the "Daily Calibration Report" printout. Verify that no 1 day or 5 day Fails are indicated for the unit SO_2 monitor.

d) Review "The Daily Report - Gas Hourly Summary Report" to determine if there are indications to support whether the monitor has been tracking SO_2 emissions in a steady or very erratic manner

e) If the continuous emission monitor is suspected or found to be faulty, immediately notify maintenance so that repairs can be made.

If necessary to control SO2 hydrated lime shall be added to slurry head tank and/or feedchute of the affected unit(s) until SO2 levels come back into range or unit can be shut down.

9 RESPONSE TO OPACITY (Particulate Emission) EXCURSION

INTRODUCTION

This procedure covers the actions to be taken in response to an opacity (particulate emission) excursion. During normal operations stack opacity level should be between 0.1 and 5.0 percent, with spikes of short duration as high as 10.0 percent. Opacity is used as an indicator to ensure continuous compliance with particulate emission limitations. The alarm limit for opacity is 5.0 percent for a one minute average. There is no alarm for particulate emissions as such.

The permit limits opacity from the stack to 10 percent. Although particulate matter can only be measured definitively by sampling flue gas over a period of time, as is done during annual stack testing; the permit also limits particulate matter emissions.

Anytime Opacity emissions are above the permit limit, immediate action must be taken to reduce them to normal levels. If Opacity emissions exceed 10.0% the Shift Supervisor must be notified. Unit load must be reduced or the unit removed from service, as necessary to prevent exceeding the 6 minute average permit limit for Opacity Emissions.

In the event that the opacity monitor indicates an increasing trend or an alarm condition is reached:

1. Immediately notify the shift supervisor and begin taking steps to identify and correct the cause of the opacity excursion.

Note: Most often a <u>gradual</u> increase in opacity will be observed if the cause is a small leak(s) of one or two filter bags or a gradual dirtying of the optics on the opacity monitor itself. Likewise, a small <u>momentary</u> spike in opacity between 8 and 29%, immediately after off-line (or on-line) cleaning of a compartment(s) is generally an indication of a leaking bag in that compartment. A <u>quick</u> increase in opacity could be an indication that the a bag/cage has come unseated.

A large <u>sustained</u> increase in opacity may be an indication of a malfunction occurring in the opacity monitor itself. A visual inspection of the gas plume exiting the stack together with additional instrument indications may signify that a multiple bag or catastrophic failure such as a fire is occurring.

All of these conditions require immediate action in order to prevent, or minimize, a reportable opacity excursion from occurring and to prevent, or minimize, damage to equipment and danger to personnel.

2. Verify which (if any) compartment(s) have leaking bag(s) by performing the following:

- If the baghouse is being cleaned using off-line cleaning, close the outlet damper on the compartment which had last finished cleaning prior to the increase in opacity, by issuing a SKIP command.

- Go to the C.E.M. station looking or the opacity chart recorder to see if a noticeable decrease in opacity occurs. Reopen the compartment outlet damper. If the leaking bag(s) is located in the compartment, opacity will again increase.

- If opacity does not increase, repeat the previous steps on the remaining compartments. If no obvious spikes are detected, recheck all the compartments while the Shift Supervisor watches for changes by a visual observation of the stack while each compartment is isolated and placed back in service. This may assist in locating the leak.

- If the baghouse is being cleaned using on-line cleaning, isolate one compartment at a time, as stated above, until a noticeable decrease in opacity is observed.

Note: It is possible that two or more compartments have leaking bag(s), causing the high opacity. If opacity does not return to its pre-alarm level when a compartment containing a leaking bag is located and isolated, a second check of all remaining compartments should be made.

- Once the leaking compartment(s) is located, it should be:

  - tagged and locked out.
  - checked with with leak detection powder if the leak can not be readily identified.
  - the compartment opened and the damaged/unseated bag(s) identified and replaced.
  - the tube sheet vacuumed and all bags inspected for fly ash buildup in them. Any fly ash in the bags must be vacuumed out to prevent damaging the fabric.

Note: If the leaks at this point are minor (i.e. <5%) and the compartment(s) can be isolated without the need to reduce load on the unit, it is advisable to postpone the inspection until after dark. The leak detection powder is most visible in ultraviolet light, with little or no sunlight interference.

- When the bag(s), and cage(s) if necessary, have been replaced, a bag replacement form must be completed. This form details the cause of the failure/unseating, together with the action which should be taken to make corrections and to prevent any further recurrence.

3. Verify that the following parameters are within normal operating range and are not/will not be indirectly causing high opacity:

   a) Furnace draft is stable at approximately -0.3"WG. Large pressure fluctuations in the furnace and baghouse may cause fly ash to "bleed" through the filter bag fabric or

cause the fabric to tear.

b) Baghouse inlet temperature is below 350°F. High inlet temperatures (above 400 °F) may damage or cause bags to fail. (500 °F is the limit for baghouse inlet temp.).

c) Furnace O_2 is between 8-9%. Large amounts of excess air may cause fly ash to "bleed" through the filter bag fabric or cause the fabric to tear.

d) Differential pressure across the baghouse is running between 5 and 10"WG. Excessive cleaning can clean off the buildup of filter cake on the filter bag allowing fly ash to "bleed" through the filter bag. Insufficient cleaning allows the filter cake to become excessively thick and creates a much greater restriction to gas flow which can cause the filter bag fabric to tear.

e) Differential pressure on each individual baghouse compartment running between 5 and 10" WG. Large differences in pressure between compartments indicate problems which, uncorrected, cause overloading of compartments with lower differential pressure.

f) All fly ash hoppers along the boiler and APC trains are empty or flowing. Plugged fly ash hoppers increase flue gas velocities and particulate carryover which increase the particulate loading in the baghouse.

g) No casing air leaks or other routes of fugitive air ingress (i.e. loose or missing screw conveyor covers, hopper inspection pipe caps) which can overload the baghouse.

4. If no leaks can be identified, verify that the Opacity reading on the C.E.M. monitor is corrected as indicated by:

   a) Having an EPA Method 9 certified smoke reader; if available and weather permits, determine what actual stack opacity emissions are for the unit in question.

   b) Review the minute by minute emissions report in order to trend Unit and Opacity analyzer in question.

   c) Reviewing the Daily Calibration Report printout.

   d) Review of the Daily Report of the previous 24-hour period may give an indication as to whether the monitor has been tracking Opacity emissions in a steady or very erratic manner.

If the continuous emission monitor is suspected or found to be faulty, immediately notify maintenance so that repairs can be made.

10 RESPONSE TO NITROGEN OXIDES (NO_X) EXCURSION

INTRODUCTION

This procedure covers the actions to be taken in response to a NO_x excursion and/or a potential permit limit exceedance. Normal operations should maintain a stack NO_x level of 180 ppmc, with spikes of short duration as high as 225-250 ppmc.

The permit limit for NO_x emissions is a cumulative average of 205 ppmc (Based on a 24-hour average).

PROCEDURE

In the event that the NO_x monitor indicates an increasing trend or an alarm condition is reached:

1. Verify that the SNCR system is functioning properly.

2. Verify whether an overabundant amount of excess air is present in the furnace, as indicated by:

   a) A substantial increase in the opening of underfire and/or overfire air dampers.

   b) Furnace temperature running below 1300°F roof temperature while O_2 remains between 9 and 11%.

   c) Increased pressure drops throughout the furnace flue gas path.

   d) The ID fan damper position continuously running at or near the end of its effective operating range.

   e) Furnace draft becoming unstable due to an imbalance of combustion air or loss of atmospheric seal(s) on the furnace.

If too much excess air is causing the increase in NO_x, take action to:

a) Reduce the underfire and/or overfire air to recommended settings on the Martin Stoker Component Setting table to ensure good combustion and reduce NO_x levels.

b) Verify that the O_2 signal is reliable.

c) Identify and reestablish furnace atmospheric seal(s) and/or determine and correct the deficiency causing the ID fan dampers to run at the end of their effective range.

d) Reduce load if necessary to ensure complete combustion.

3. Verify whether a substantial increase in organic/vegetable matter such as brush, undergrowth, grass clippings, leaves and/or food waste is being fed to the furnace, as indicated by:

   a. Stoker run time increasing dramatically above the proportion run time setting (If refuse had been relatively high in BTU and low in moisture content).

   b. Feeders' speed and stroke length increasing significantly above their previously steady state operating range.

   c. Furnace flue gas temperature decreasing.

   d. Boiler steam flow rate steadily decreasing.

   e. Verbal communication with the refuse crane operator.

   f. Visual inspection of the refuse fire.

If an increase in organic/vegetable matter is found to be causing the increase in NO_x, take action to:

   a. Notify the refuse crane operator to mix a more homogeneous blend of wet and dry refuse.

   b. Maximize the combustion air temperature.

If the NO_x levels remain above the permit limit and boiler steam flow rate and the furnace flue gas temperature is falling rapidly due to the refuse fire's decline, the following additional steps may be necessary:

   a. Turn the feeders On/Off selector switch to OFF.

   b. Increase the grate speeds to approximately 60-70% to increase the agitation and drying of the refuse.

   c. Reduce overfire air to minimize cooling of the combustion zone, but ensure that flames remain below the refractory line at all times.

   d. Place gas burners in service as necessary to maintain furnace roof temperature above 1325°F.

e. Turn the optimizing controller feeder speed/stroke selector switch to OFF and reduce the feeder speed and stroke length.

Maintain these settings until refuse begins to light-off and then adjust setting to control combustion and ensure that flames remain below the refractory line at all times.

a) Restart the feeders and place the optimizing controller back in service.

b) Adjust settings to ensure complete combustion and minimize NO_x formation.

c) Take gas burners out of service as furnace roof temperatures are stabilized above 1325°F.

d) Reduce load as necessary to ensure complete combustion.

4. Verify that the stoker refuse bed condition is not contributing to the formation of NO_x by verifying the following:

a) The refuse bed being a uniform and correct thickness across the width of each undergrate air zone.

b) There being no thick patches of partially burning refuse where unconsumed oxygen can react with nitrogen to form nitrogen oxides (NO_x).

If the refuse bed condition is causing the increase in NO_x, take action to:

a) Notify the refuse Crane Operator to mix a more homogeneous blend of wet and dry refuse to increase and stabilize refuse BTU content.

b) Maximize the combustion air temperature.

c) Increase the proportion run time with the optimizing SPEED/STROKE setting.

d) Increase the grate speed in 2% increments until refuse agitation is adequate for complete combustion.

e) Reduce load as necessary to ensure complete combustion and minimize the formation of NO_x.

5. Verify if severe overfeeding has occurred as indicated, in addition to the items listed above; by the following:

a) Furnace temperature drops rapidly below normal operating temperature,

requiring that the gas burners be put in service.

b) O_2 level rising above 10% due to decaying refuse combustion.

If a severe overfeed situation exists, take action to:

a) Maintain underfire air temperature.
b) Turn the feeders and grates to the off position.
c) Increase the underfire air pressure to help penetrate the fuel bed.
d) Decrease the clinker roll speed to hold refuse on the grates.
e) Place gas burners in service if necessary to maintain a minimum temperature of 1325°F.

After refuse fire has started to come back, take action to:

a) Turn the feeders back on and start feeding refuse with a minimum stroke length so that very small amounts of refuse are fed for each stroke. Maintain these settings until you gain control of the combustion.
b) Restart optimizing control; adjust setting to ensure complete combustion.
c) Take gas burner out of service as roof temperature is stabilized above 1325°F.

5. Verify that loss of seal has not occurred in the ash discharger and that the feed chute is not partly blocked, allowing O_2 into the furnace upstream of the O_2 probe, as indicated by:

a) I.D. fan amps increasing and furnace draft becoming sporadic, draft going positive and negative.
b) Steam flow repeatedly spiking above set point, causing feeders and grates to stop and start as the stoker goes in and out of interlock. If this condition continues, the feeders will eventually overwhelm the grates with raw refuse, causing the combustion airflow to be blocked off.
c) The temperature at the top of the furnace first increases due to lack of underfire air, then decreases as the combustion stops.
d) Steam flow increases initially as more heat is released in the furnace and eventually decreases as the temperature in the furnace drops.

If loss of atmospheric seal occurs, take the following action:

a) Identify and begin restoring the atmospheric seal.
b) Place the fuel combustion controller switch in FURNACE TEMPERATURE mode and reduce load as necessary to stabilize boiler draft.
c) Determine the degree of overfeed which has caused the NOx to increase and follow the appropriate corrective action for an overfeed situation.

6. Verify that the NO_x reading on the CEM monitor is correct as indicated by:

   a) Ensure O_2 reading is reasonable (NO_x concentration is corrected to 7% O_2).
   b) Comparing current NO_x readings with visual observations of the refuse fire on the stoker.

   c) Reviewing the Daily Calibration Report printout. Verify that no 1 day or 5 day Fails are indicated for the unit NO_x monitor.

   d) The Daily Report - Gas Hourly Summary Report. A review of the previous 24 hour period may give an indication as to whether the monitor has been tracking NO_x emissions in a steady or very erratic manner.

If the continuous emission monitor is suspected or found to be faulty, immediately notify maintenance so that repairs can be made.

If the high NOx condition is determined to be severe enough to cause a possible permit exceedance a unit shut down shall be initiated to prevent a permit exceedance.

SCHEDULED MAINTENANCE

Each MWC is generally shutdown semiannually for outage during which major equipment is inspected. At this time, manufacturer's recommended maintenance is performed. The outage generally involves:

1. Inspection and repair of the boiler components.
2. Inspection and calibration of instruments.
3. Inspection and repair of the auxiliary burners.
4. Inspection and repair of the gas handling equipments.
5. Inspection and repair of the SNCR.
6. Inspection and repair of the carbon injection system.
7. Inspection and repair of the spray dry absorber.
8. Inspection and repair of the baghouse.
9. Inspection and repair of the CEMS/COMS.
10. Inspection and repair of the water treatment systems.
11. Inspection and repair of the ash handling system.

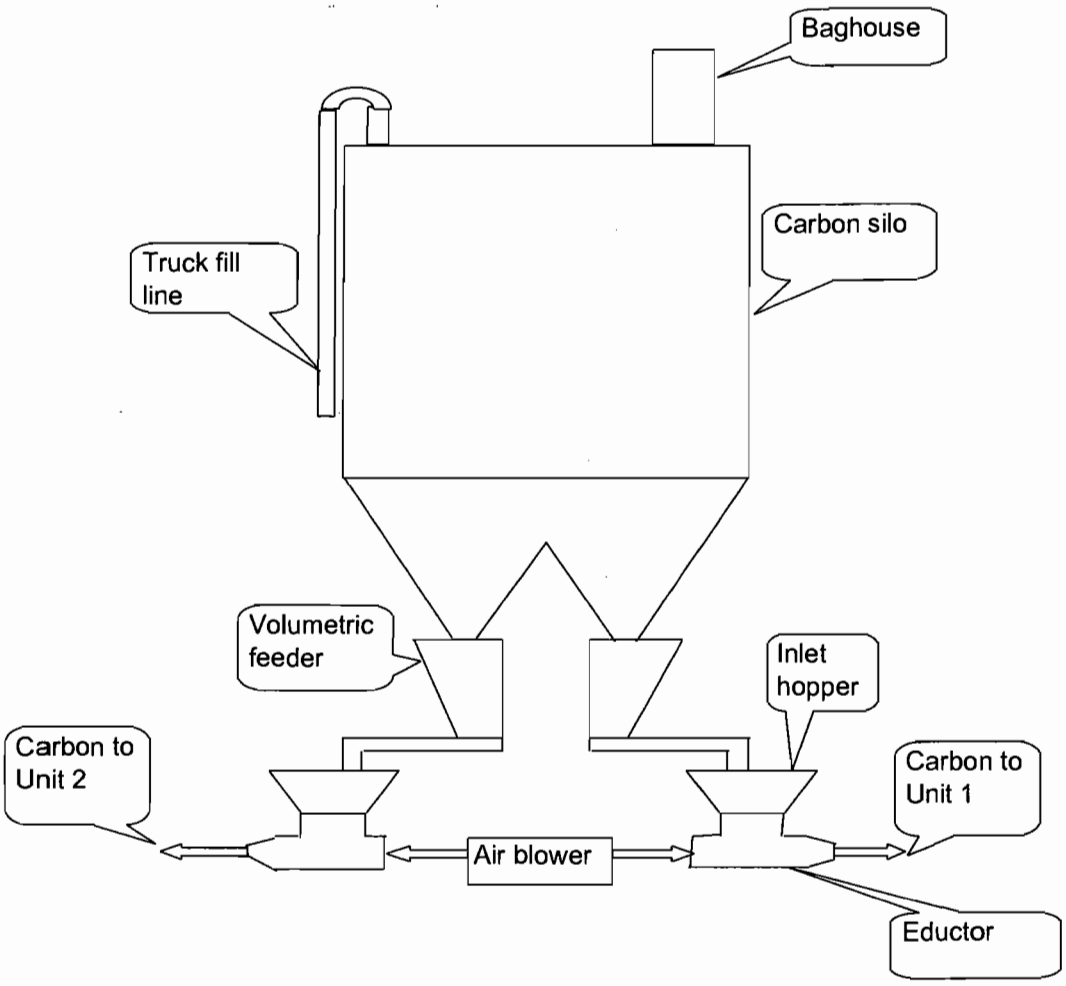
UNSCHEDULED MAINTENANCE

Occasionally, operation of the MWC is interrupted due to equipment breakdown. Depending the severity and the impact, repair may be conducted while the boiler is online or offline. In general, equipment breakdown that results in non-compliance with permitted emission limits will require that the MWC be shutdown, unless repairs can be made immediately.

PREVENTATIVE MAINTENANCE

In order to prevent equipment breakdown, preventative maintenance is performed in general frequency as per manufacturer's recommendation. Typically, this includes inspection, lubrication, replacement, and minor repairs.

Appendix P: Carbon Injection System Flow Diagram



Appendix Q Carbon Analysis

NORIT AMERICAS INC.
P.O. Box 790
Marshall, TX 75671
Fax 903-938-9701
Tel. 903-923-1000

CERTIFICATE OF ANALYSIS

Material: Activated Carbon
Product Name: DARCO® FGD
Lot Number: 824725

Property	Test Method	Lot Analysis	Specifications	
Moisture, as packed, %	SAM-2695	2	8	max.
Molasses RE, ai	SAM-7805	105	80	min.
Part. Size, -325 mesh, %	SAM-8004	98	95	min.

D. M. Steingas
Quality Assurance Manager

Summary of Analysis

Summary of Carbon Sample Analysis

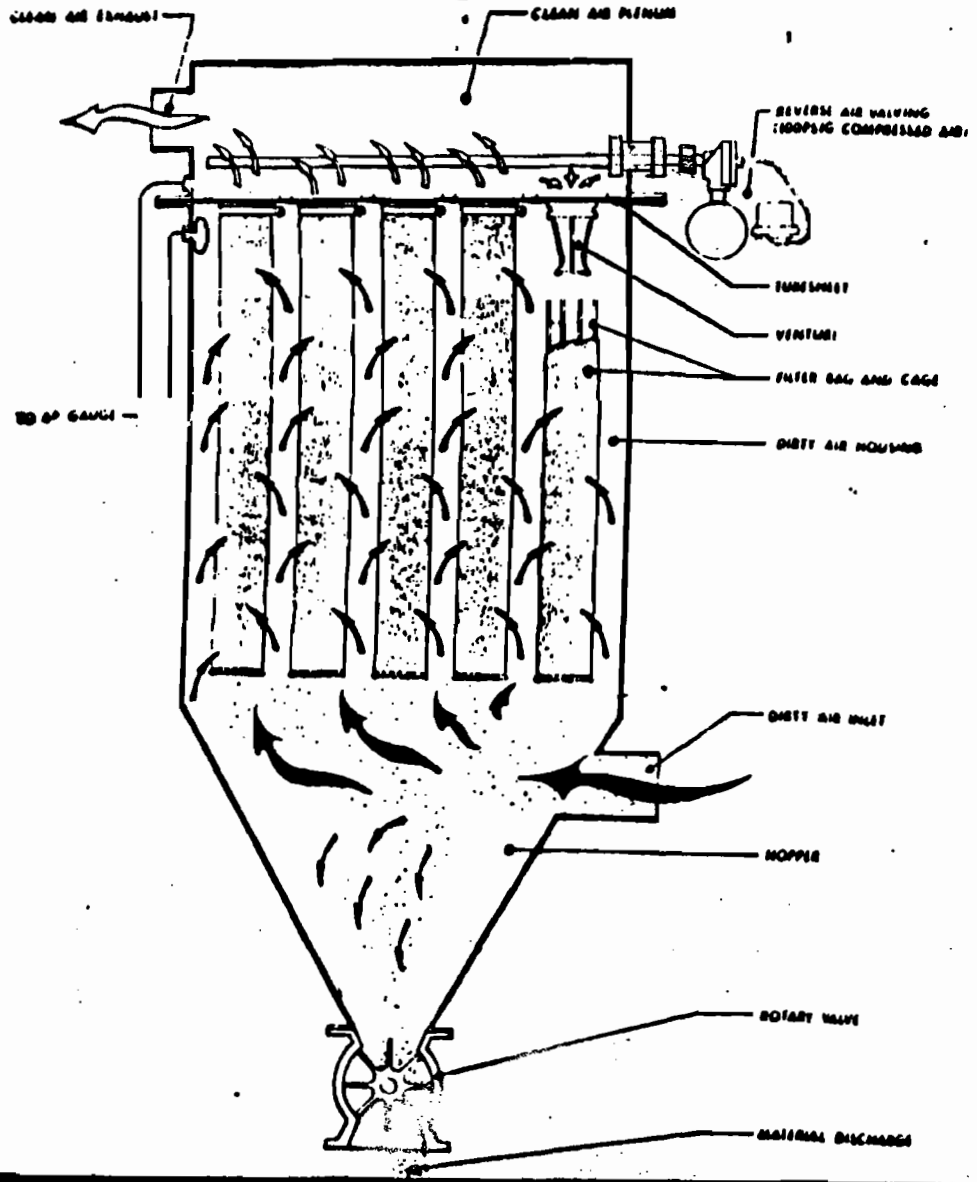
Element	U1-Carbon Sample e6238-24 mg/Kg	U2 Carbon Sample e6238-25 mg/Kg
Cadmium	1.08	1.06
Lead	2.46	2.41
Mercury	< 0.20	0.21

Lake County Resource Recovery Facility

Appendix R: Carbon Injection System Manual

OPERATING PRINCIPLE:

A. SOLIDS LADEN AIR OR GASES ENTER UNIT AT HOPPER OR HOUSING INLET WITH HEAVIER PARTICLES SETTLING TO THE BOTTOM OF COLLECTION HOPPER.
B. DUST LADEN AIR FLOWS TO THE FILTER MEDIA WITH CLEANED AIR PASSING THROUGH FILTER MEDIA.
C. SOLIDS ARE RETAINED ON FILTER SURFACE.
D. FILTERED AIR IS EXHAUSTED THROUGH CLEAN AIR PLENUM.
E. CLEANING CYCLE CONSISTS OF A MOMENTARY BLAST OF 80 TO 100 PSIG CLEAN & DRY COMPRESSED AIR:
   1. MOMENTARILY TAKING A ROW OF BAGS OFF STREAM THROUGH PRESSURE REVERSAL;
   2. FLEXIING FILTER BAGS;
   3. SOLIDS ARE RELEASED TO FALL TO HOPPER AND THROUGH ROTARY VALVE.
F. SOLID STATE TIMER IS ADJUSTED TO MAINTAIN APPROXIMATELY 3 TO 5 INCHES (W.G.) PRESSURE DROP ACROSS FILTER BAGS.



GENERAL DESCRIPTION

THE SOLID STATE TIMER IS A COMPLETELY SELF CONTAINED SWITCHING UNIT MANUFACTURED TO RUGGED INDUSTRIAL SPECIFICATIONS. ITS COMPACT PC BOARD DESIGN AND INTERGRATED CIRCUIT CHIP OPERATION INSURE RELIABILITY FAR SUPERIOR TO MECHANICAL SWITCHING DEVICES. THE SOLID STATE TIMER IS CAPABLE OF SWITCHING 10 OUTPUTS AT 1 AMP EACH WITH A NOMINAL 115V LINE INPUT. THE TIMING RANGE IS FULLY ADJUSTABLE FOR OPTIMUM DUST COLLECTOR PERFORMANCE; "ON" TIME RANGE IS ADJUSTABLE FROM 50 MILLISECONDS TO 500 MILLISECONDS; "OFF" TIME RANGE IS ADJUSTABLE FROM 1.5 SECONDS TO 30 SECONDS. AN INDICATOR LIGHT FOR POWER "ON" IS INCORPORATED IN THE CIRCUITRY, AS WELL AS LIGHTS WHICH INDICATE EACH POSITION FIRING IN THE CIRCUITRY, AS WELL AS LIGHTS WHICH INDICATE EACH POSITION FIRING AND FOR THE TIME DURATION FOR EACH. CONTROL CONTACTS ARE PROVIDED ON THE TIMER FOR OPERATION OF THE SYSTEM BY AN EXTERNAL DIFFERENTIAL PRESSURE SWITCH SUCH AS A DWYER PHOTOHELIC, FOR "ON DEMAND" CLEANING OF THE FILTER ASSEMBLIES.

INSTALLATION

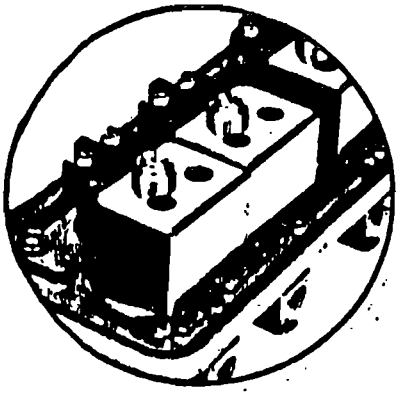
1. IF THE TIMER IS TO BE MOUNTED DIRECTLY ON THE COLLECTOR, VIBRATION MOUNTS SHOULD BE PROVIDED. IT IS MORE DESIRABLE TO REMOTE MOUNT THE TIMER; CARE SHOULD BE TAKEN TO MOUNT THE TIMER AND ENCLOSURE IN A VIBRATION-FREE LOCATION OR TO INSTALL VIBRATION MOUNTING HARDWARE.
2. INSTALL AN "ON-OFF" SWITCH FOR LINE INPUT TO THE TIMER.
3. CONNECT STANDARD 115V, 1PH, 60HZ INPUT TO THE "ON-OFF" SWITCH AND TO TIMER TERMINALS MARKED "L1" AND "L2" FOR USE WITHOUT PHOTOHELIC. WHEN USING A PHOTOHELIC INSTALL THE PHOTOHELIC IN SERIES AFTER THE POWER ON AND OFF SWITCH.
4. CONNECT WIRING BETWEEN TIMER AND SOLENOID VALVES, ONE SIDE OF EACH SOLENOID TO "COMMON" AND THE OTHER SIDE TO THE SWITCHED OUTPUT OF THE TIMER. (SEE WIRING DIAGRAM)
5. THE TIMER SHOULD BE CONNECTED FOR THE PROPER NUMBER OF VALVES IN USE (I.E., SQ100 - 10 VALVES, 10 TIMING POSITIONS; THIS WOULD REQUIRE A TIMER WITH 10 OUTPUT POSITIONS WHICH WOULD BE A DNC T2010-A10). MODIFICATION OF THE TIMING SEQUENCE IS EASILY ACCOMPLISHED BY THE PROGRAM WIRE (RED WIRE) ON THE TIMER. THE PROGRAM WIRE IS INSTALLED IN THE SOCKET ON THE TIMER BOARD THAT CORRISPONDS WITH THE LAST OUPUT USED. BY MEANS OF USING THE PROGRAM WIRE AS FORE MENTIONED THE OUTPUT SIGNAL IS DIRECTED BACK TO THE NO. (1) OUTPUT AND THUS THE CYCLE IS CONTINUOUSLEY REPEATED.

START-UP

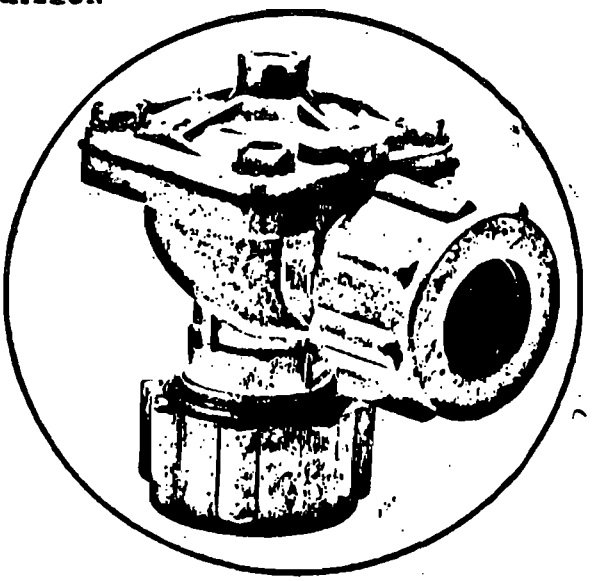
1. SHUT ALL SERVICE AIR VALVES.
2. ENERGIZE TIMER(S). TIMER "ON" LIGHT SHOULD BE VISIBLE.
3. TURN "OFF TIME" AND "ON TIME" POTENTIOMETERS FULLY COUNTERCLOCKWISE. THE INDIVIDUAL TIMING LIGHTS SHOULD BLINK AT 1.5 SECONDS INTERVALS AND SHOULD ACTIVATE THE SOLENOID VALVES. IF THERE IS NO SOLENOID VALVE OPERATION, CHECK TROUBLE SHOOTING CHART.

4. ADJUST VALVE "OFF TIME" (PULSE INTERVAL) FOR 10 SECOND OPERATION.
5. OPEN SERVICE AIR SUPPLY VALVES. ALL VALVES SHOULD BE FIRING AND SOLENOID VALVE EXHAUST WILL BE FELT AS EACH VALVE FIRES.

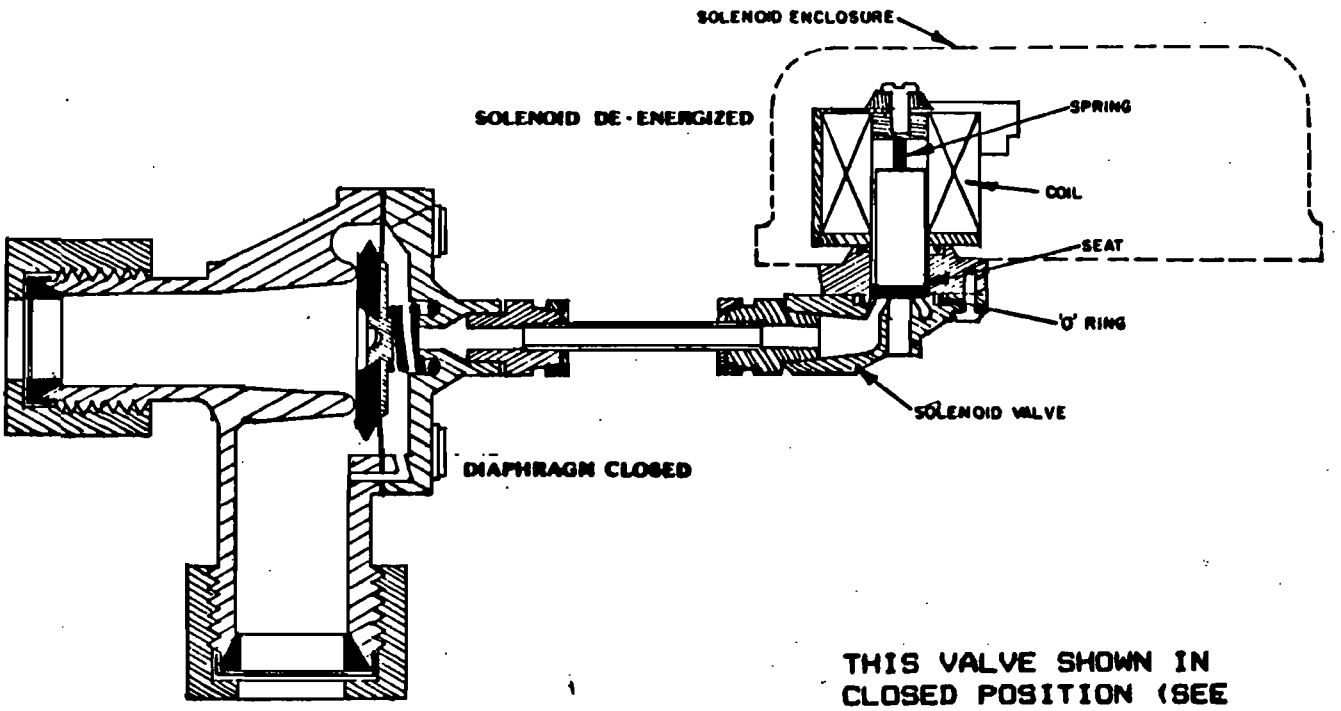
SOLENOID AND DIAPHRAGM VALVE OPERATION



Solenoid Valves



Diaphragm Valves



THIS VALVE SHOWN IN CLOSED POSITION (SEE NEXT PAGE FOR OPEN POSITION)

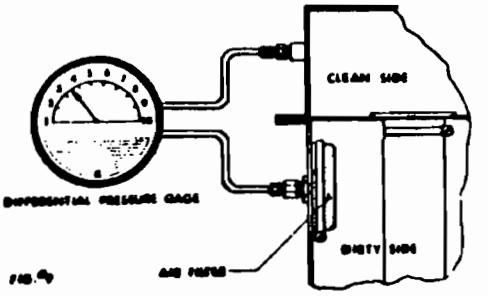
NOTE:

IT IS ESSENTIAL THAT EVERY BAG CLAMP IS TIGHT. A PNEUMATIC OR ELECTRIC WRENCH IS A GREAT AID IN ACHIEVING THIS IMPORTANT OPERATION. A RATCHET WRENCH CAN ALSO BE USED. DO NOT USE A SCREW DRIVER UNLESS IT HAS A SOCKET HEAD - ONE SLIP MAY PUNCTURE A FILTER BAG AND SERIOUSLY AFFECT THE OVERALL PERFORMANCE OF THE COLLECTOR.

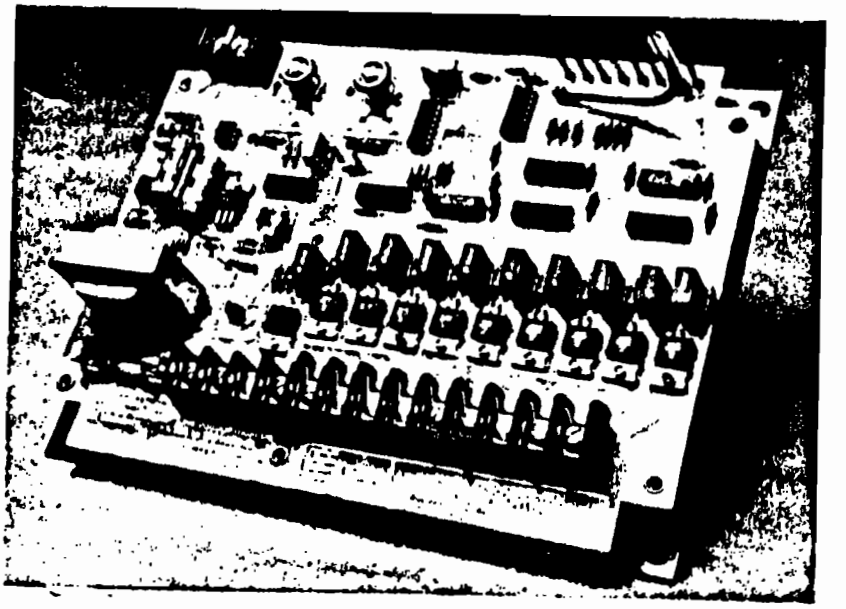
DIFFERENTIAL GAUGE OPERATION AND INSTALLATION:

THE DIFFERENTIAL PRESSURE GAUGE OR MANOMETER PROVIDES THE INFORMATION WHICH GOVERNS THE SETTING OF CLEANING MECHANISM "OFF" TIME. GENERALLY, THE TECH-AIRJET COLLECTOR WILL OPERATE AT 3 TO 5" W.G. DIFFERENTIAL PRESSURE AT A TIMER "OFF" TIME OF 10 TO 12 SECONDS.

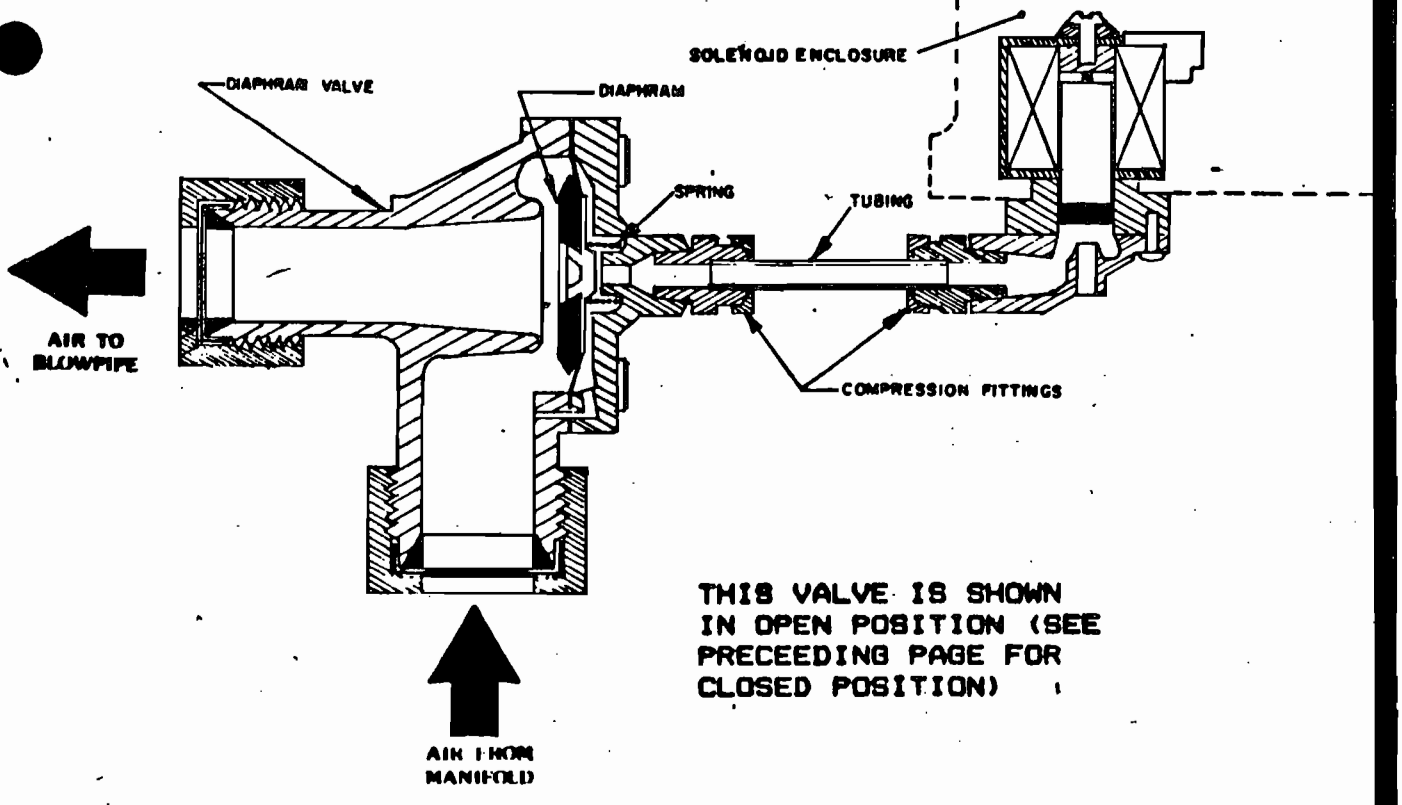
THE DIFFERENTIAL GAUGE IS SUPPLIED COMPLETE WITH FITTINGS AND TUBING FOR HOOK UP BETWEEN THE CLEAN AND DIRTY SIDE OF THE DUST COLLECTOR. A SPECIAL AIR FILTER IS SUPPLIED FOR INSTALLATION ON THE DIRTY SIDE OF THE COLLECTOR TO PREVENT FOULING OF THE LINE WHICH COULD CAUSE FALSE READINGS ON THE DIFFERENTIAL GAUGE. INSTALLATION IS ILLUSTRATED IN FIG. #9.



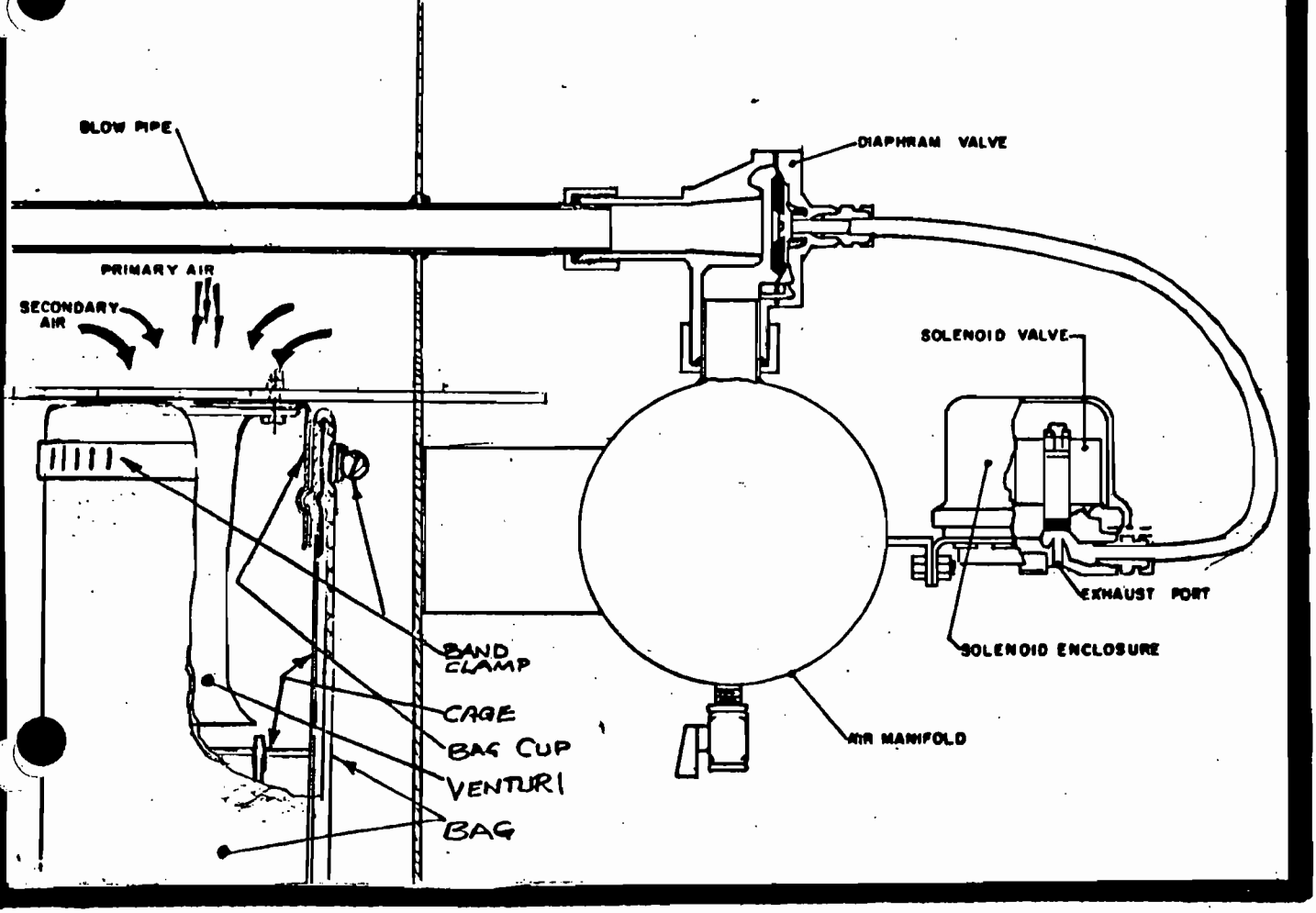
CLEANING MECHANISM CONTROL AND WIRING:



Solid State Timer



THIS VALVE IS SHOWN IN OPEN POSITION (SEE PRECEEDING PAGE FOR CLOSED POSITION)



TROUBLE SHOOTING CHART

TROUBLE INDICATION	PROBABLE CAUSE	SERVICE OPERATION
TIMER DOES NOT OPERATE. "POWER ON" INDICATOR NOT LIGHTED	FAULTY WIRING	CHECK WIRING TO TIMER (REFER TO WIRING DIAGRAM).
	NO INPUT VOLTAGE	CHECK OUTPUT TERMINALS FOR SHORT CIRCUIT.
	FUSE BLOWN	REPLACE FUSE.
TIMER OPERATES, SOLENOIDS DO NOT OPERATE.	VALVE COMMON OPEN	CHECK VALVE CONTINUITY. (REFER TO WIRING DIAGRAM)
TIMER OPERATES, ONE OR MORE SOLENOIDS FAIL TO FIRE.	FAULTY SOLENOID CIRCUIT. FAULTY OUTPUT TERMINAL. FAULTY SOLENOID OPERATION.	CHECK VALVE CONTINUITY. CHECK OUTPUT LIGHT AND VOLT. AT TERMINAL. DISASSEMBLE VALVE, CLEAN/ REPAIR/REPLACE PARTS AS REQUIRED.

'TIMER DOES NOT OPERATE.	FAULTY TIMER.	NOTIFY TAI FOR 24 HOUR REPLACEMENT SERIVCE. RETURN TIMER FOR REPAIR. DO NOT ATTEMPT TO REPAIR TIMER YOURSELF.

UPON COMPLETION OF THE PRECEDING AND OTHER SYSTEM HOOK UPS, ETC.. YOU ARE READY FOR START-UP.

START-UP CHECK LIST:

1. COMPRESSED AIR -
   DEPENDING ON UNIT SIZE, A ONE TO TWO INCH SUPPLY LINE CARRYING 85 PSIG MINIMUM PLANT AIR SHOULD BE CONNECTED. IT IS GOOD PRACTICE TO BLOW DOWN PIPING AND AIR HEADER TO REMOVE PIPE CUTTINGS, WELDING ROD TIPS AND OTHER DEBRI. A PETCOCK IS SUPPLIED ON EVERY HEADER FOR CLEANING PURPOSES.

2. FILTER BAGS -
   ARE THESE INSTALLED AS INSTRUCTED?

3. DIFFERENTIAL PRESSURE GAUGE OR MANOMETER -
   IS THIS PROPERLY INSTALLED AS SHOWN ABOVE, FIG. #9, PAGE #____

4. TIMER MECHANISM -
   CHECK TO SEE IF WIRED AS SHOWN IN WIRING DIAGRAM AND THAT THE FUSE IS GOOD.

5. AUXILIARY EQUIPMENT -
   CHECK TO SEE THAT THERE ARE NO FOREIGN OBJECTS IN ROTATING EQUIPMENT. CHECK ROTATION OF FAN, SCREW CONVEYOR AND AIRLOCK.

6. DUCT WORK -
   CHECK TO SEE THAT ALL CONNECTIONS ARE TIGHT AND ALL CLEANOUTS ARE CLOSED. PIPING MUST BE FREE OF ALL DEBRIS.

START-UP DUST CONTROL SYSTEMS:

1. IT IS GOOD PRACTICE TO INTRODUCE THE DUST STREAM ON A NEW BAG SET AT A REDUCED RATE. THIS IS PARTICULARLY TRUE WHERE EITHER VERY FINE SOLIDS (LESS THAN 2 MICRONS) OR HEAVY CONCENTRATIONS ARE PRESENT. SET THE FAN DAMPER AT ABOUT 50 TO 70% OF DESIGN FLOW. IF UNCERTAIN, AMPERAGE ON THE FAN MOTOR CAN BE CHECKED TO DETERMINE AIR FLOW.

2. START THE DISCHARGE SYSTEM (ROTARY VALVE, SCREW CONVEYOR, AIR SLIDE, DUMP VALVE, ETS...).

3. START TIMER AND BE CERTAIN THAT THE COMPRESSED AIR SUPPLY VALVE IS OPEN.

4. START MAIN FAN.

5. AFTER 20 MINUTES OPERATION, OPEN FAN DAMPER TO DESIRED SETTING. OBSERVE DIFFERENTIAL PRESSURE - IF LESS THAN 2" W.G., INCREASE VALVE "OFF" TIME 2 OR 3 SECONDS AT A TIME DURING THE FIRST 8 HOURS UNTIL THE DIFFERENTIAL PRESSURE IS 3.5" TO 4.0".

START-UP PROCESS SYSTEMS:

1. IF WATER VAPOR OR OTHER CONDENSIBLES ARE PRESENT, IT WILL BE NECESSARY TO PREHEAT THE SYSTEM SO THAT THE SKIN TEMPERATURE OF THE PIPING AND COLLECTOR ARE ABOVE SATURATION TEMPERATURE. DRYERS, COOLERS AND CERTAIN GRINDING SYSTEMS ARE COMMON EXAMPLES.

2. TEMPERATURE MUST BE CONTROLLED TO WITHIN THE THERMAL LIMIT OF THE FILTER MEDIA IN USE.

3. ON PNEUMATIC CONVEYING SYSTEMS, WATCH THE DIFFERENTIAL PRESSURE GAUGE CLOSELY FOR THE FIRST HOUR OR SO. IF UNSTABLE, THE COLLECTOR DISCHARGE SYSTEM MAY BE RUNNING TOO SLOW FOR THE VOLUME IT IS SEEING. IF SO, INCREASE ROTARY VALVE SPEED IN SMALL INCREMENTS.

ALL SYSTEMS:

YOU HAVE BOUGHT EQUIPMENT TO PROVIDE A CLEAN STACK. IF THERE ARE VISIBLE STACK LOSSES, REFER TO THE TROUBLE SHOOTING CHECK LIST.

SHUTDOWN:

1. DUST CONTROL SYSTEMS: REVERSE START-UP PROCEDURE, SHUT DOWN FAN, THEN AFTER 5 OR 10 MINUTES DELAY, SHUT DOWN THE TIMER AND DISCHARGE SYSTEM.

2. PROCESS SYSTEMS: DRYERS SHOULD HAVE PRODUCT RUN DOWN AND HEAT CONTINUED AT A REDUCED RATE TO DRY THE METAL SURFACES AND FILTER MEDIA.

3. PNEUMATIC SYSTEMS: AS IN ITEM 1.

TROUBLE SHOOTING CHECK LIST:

PROBLEM & PROBABLE CAUSE	SOLUTIONS
A. VISIBLE EXHAUST DUST LOSS	
(1) MISSING BAG - DUST LOSS WILL BE CONSTANT, NOT IN SYNCHRONATION WITH VALVE BLASTS.	*LOCATE AND REPLACE MISSING BAG.
(2) IMPROPERLY INSTALLED BAGS. LOOSE CLAMPS OR BAG TOPS NOT CLAMPED BETWEEN CAGE AND VENTURI COLLAR.	*INSPECT BAG CONNECTIONS. RETIGHTEN BAG CLAMPS.
(3) HOLES IN BAGS. CAN BE FROM EITHER MECHANICAL DAMAGE DURING INSTALLATION, ABRASION, THERMAL OR CORROSIVE ATTACK, OR WORN OUT BAGS. THIS LOSS IS GENERALLY CYCLIC AND IN SYNCHRONIZATION WITH VALVE BLASTS.	*INSPECT FOR WORN OR DAMAGED BAGS. REPLACE AS REQUIRED.
(4) FAILURE TO CLEAN PLENUM AFTER MASSIVE BAG FAILURE. THIS WILL GENERALLY CLEAR UP.	ALWAYS CHECK PLENUM, CLEAN IF NECESSARY BEFORE INSTALLING NEW BAG SET.

*PLUGGING THE VENTURI WITH A SURGICAL CORK FROM THE CLEAN AIR SIDE OF THE COLLECTOR IS A QUICK TEMPORARY MEASURE TO STOP LEAKAGE UNTIL SUCH TIME THAT THE BAG OR BAGS CAN BE REPLACED.

B. LOSS OF COMPRESSED AIR

(1) PIPING LEAKS.	RETIGHTEN FITTINGS.
(2) DEBRIS IN DIAPHRAGM VALVE.	REMOVE COVER AND CLEAN.
(3) DIRT IN SOLENOID PLUNGER.	REMOVE COVER AND CLEAN.
(4) ELECTRICAL SHORT.	CALL ELECTRICIA.

PROBLEM & PROBABLE CAUSES	SOLUTIONS
C. HIGH DIFFERENTIAL PRESSURE	
(1) OVER VOLUME.	CUT BACK ON FAN DAMPER OR AT INDIVIDUAL INLET PICK UPS.
(2) COMPRESSED AIR PRESSURE BELOW 75 PSIG.	CHECK FOR SYSTEM LEAKS, NEW USAGE OR AS ABOVE. CHECK COMPRESSED AIR VALVE ASSEMBLY.
(3) TIMER SKIPPING ONE OR MORE VALVES.	SEE TIMER CHECK LIST.
(4) REVERSE LEAKAGE THROUGH ROTARY VALVE.	CHECK FOR WEAR OR DAMAGE.
(5) OTHER AIR SHORT CIRCUITS - PIPING LEAKS, DOOR GASKETS, ETC.	REPAIR AS REQUIRED.
(6) DUST ON CLEAN SIDE OF BAGS FROM PLENUM AFTER PREVIOUS BAG FAILURE.	CLEAN PLENUM CHAMBER AND INSIDE OF BAGS.
(7) BLINDING DUE TO CONDENSIBLES.	CHANGE OPERATIONS UP STREAM SO THAT LIQUIDS REMAIN VAPORIZED THROUGH UNIT. USUALLY OPERATING CLEANING MECHANISM WITH FAN OFF, OR WITH FAN ON BUT NO SOLIDS FLOWING WILL PERMIT RECOVERY.
(8) DISCHARGE SYSTEM BRIDGED, PLUGGED OR UNDERSIZED, ALLOWING RE-ENTRAINMENT TO BAG SURFACE.	CLEAN DISCHARGE SYSTEM AND CHECK FOR CAPACITY. INSTALL VIBRATOR OR RAPPER AS REQUIRED TO OBTAIN FLOW THROUGH HOPPER DISCHARGE.

(9)	IMPROPER TIMER SEQUENCE.	CHECK VALVE "ON" AND "OFF" TIME. SEE TIMER.
(10)	DEFECTIVE TIMER.	REPLACE. RETURN TO TECH-AIR FOR REPAIR.

D. SYSTEM VOLUME TOO LOW

(1)	FAN RUNNING BACKWARDS.	CORRECT FAN ROTATION.
(2)	HIGH DIFFERENTIAL PRESSURE	REVIEW SECTION C ABOVE.
(3)	FAN BELT SLIPPAGE.	RETENTION OR REPLACE BELTS.
(4)	AIR SHORT CIRCUITING.	CHECK PIPING, ROTARY VALVE AND COLLECTOR FLANGES FOR LEAKS.
(5)	SYSTEM BLOCKAGE.	CHECK PIPING FOR BUILD UP OR FOREIGN BLOCKAGE. CHECK BAGS FOR BLINDING. BAGS SHOULD BE SOFT TO THE HAND.

ROUTINE MAINTENANCE

A. INSPECTION: FREQUENCY WILL VARY AS WIDELY AS THERE ARE OPERATING CONDITIONS. IN GENERAL PROCEED AS FOLLOWS:

(1) DAILY - CHECK UNIT DIFFERENTIAL PRESSURE.
(2) WEEKLY - CHECK TIMER AND SOLENOID VALVES FOR FUNCTION. THIS USUALLY IS ONLY LISTENING TO CHECK UNIFORM TIME INTERVAL BETWEEN BLASTS.
(3) MONTHLY - LUBE FAN, ROTARY VALVE AND SCREW CONVEYOR. CHECK SEALS ON LATTER TWO FOR DUST LOSS.
(4) QUARTERLY - INSPECT BAGS FOR "SOFT TO HAND" CONDITION AND UNIFORM TIGHTNESS OF CLAMPS.

B. REPAIRS

(1) FILTER BAGS - GENERALLY REPLACEMENT.
(2) SOLENOID VALVES - SEE TIMER AND VALVE INFO.
(3) DIAPHRAGM VALVES - SEE TIMER AND VALVE INFO.
(4) ROTARY VALVES - USUALLY A MATTER OF PERIODIC SEAL AND BLADE REPLACEMENT. MORE DETAILED INFORMATION SUPPLIED WITH THE UNIT.
(5) SCREW CONVEYORS - PERIODIC REPLACEMENT OF "V" BELTS AND SHAFT SEALS. INSPECT HANGER BEARINGS DURING FILTER BAG CHANGE. FAILURE WILL BE DEDUCTED BY THE SQUEAL.
(6) FANS - "V" BELT TENSION AND REPLACEMENT OF BEARINGS IF RUNNING ROUGH.