CDM Camp Dresser & McKee Inc.

consulting engineering construction operations

Westshore Center
1715 North Westshore Boulevard, Suite 875
Tampa, Florida 33607
Tel: 813 281-2900 Fax: 813 288-8787

October 25, 2001

Mr. Scott Sheplak, P.E.
Title V Program Administrator
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: Application for Air Construction Permit – Title V Source
Hillsborough County Resource Recovery Facility
Project No.: 0570261-004

Dear Mr. Sheplak:

Enclosed, please find four copies of completed Form No. 62-210.900(1), entitled "Application for Air Permit – Title V Source" for the construction of a materials storage silo at the Hillsborough County Resource Recovery Facility. Hillsborough County desires to construct a silo for the storage of dolomitic lime at the facility. The lime will be used to condition the combined ash generated by the facility's three refuse boilers. Emissions are limited to the pneumatic filling cycle of the silo. Fugitive emissions are not anticipated, however, it is understood that they are currently regulated by the conditions contained in the facility's existing Title V permit; specifically, the conditions for Emissions Unit I.D. No. 100 (Ash Building and Handling System).

Courtesy copies of this application have been forwarded to the Department's Southwest District and the Hillsborough County Environmental Protection Commission. Please do not hesitate to contact either me, or Mr. Jason Gorrie of my staff, at (813) 281-2900 if additional information is necessary

Very truly yours,

CAMP DRESSER & McKEE INC.

Daniel E. Strobridge, QEP
Vice President

Enclosure

S:\HILLS_SW\DolomiteSilo\ApplicationCoverLetter.doc

cc: Tom Smith, Hillsborough County (w/enc)
Glenn Hoag, Covanta Hillsborough (w/enc)
Hamilton (Buck) Oven, FDEP (w/enc)
Bill Thomas, SW District (w/enc)
Alice Harmon, EPCHC (w/enc)
Jason Gorrie, CDM (w/enc)

Department of
Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - TITLE V SOURCE

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

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: Hillsborough County	
2. Site Name: Hillsborough County Resource Recovery Facility	
3. Facility Identification Number: 0570261	[ ] Unknown
4. Facility Location: Street Address or Other Locator: 350 Falkenburg Road City: Tampa County: Hillsborough	Zip Code: 33619
5. Relocatable Facility? [ ] Yes [✓] No	6. Existing Permitted Facility? [✓] Yes [ ] No

Application Contact

1. Name and Title of Application Contact: Jason Gorrie, Project Manager		
2. Application Contact Mailing Address: Organization/Firm: Camp Dresser & McKee Street Address: 1715 N. Westshore Blvd., Suite 875 City: Tampa	State: Florida	Zip Code: 33607
3. Application Contact Telephone Numbers: Telephone: (813) 281-2900	Fax: (813) 288-8787	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	11/02/01
2. Permit Number:	0570261-004-AC
3. PSD Number (if applicable):	N/A
4. Siting Number (if applicable):	N/A

Purpose of Application

Air Operation Permit Application

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

[ ] Initial Title V air operation permit for an existing facility which is classified as a Title V source.

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

Current construction permit number:_____

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

Current construction permit number:_____

Operation permit number to be revised:_____

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

Operation permit number to be revised/corrected:_____

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

Operation permit number to be revised:_____

Reason for revision:_____

Air Construction Permit Application

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

[✓] Air construction permit to construct or modify one or more emissions units.

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:
Daryl Smith, Director

2. Owner/Authorized Representative or Responsible Official Mailing Address:
Organization/Firm: Hillsborough County Solid Waste Management Dept.
Street Address: 601 East Kennedy Blvd.
City: Tampa State: Florida Zip Code: 33602

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
Telephone: (813) 276-2900 Fax: ( ) -

4. Owner/Authorized Representative or Responsible Official Statement:

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

Signature Date 10/26/01

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: Jason M. Gorrie, P.E.
Registration Number: 55341

2. Professional Engineer Mailing Address:
Organization/Firm: Camp Dresser & McKee
Street Address: 1715 North Westshore Blvd., Suite 875
City: Tampa State: Florida Zip Code: 33607

3. Professional Engineer Telephone Numbers:
Telephone: (813) 281-2900 Fax: (813) 288-8787

4. Professional Engineer Statement:

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

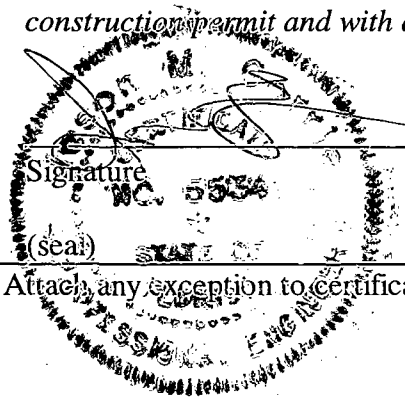
(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions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

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

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

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

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



Signature

10/25/01
Date

(seal)

* Attach any exception to certification statement.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
	Dolomitic Lime Storage Silo	AC1F	$0

Application Processing Fee

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

Construction/Modification Information

1. Description of Proposed Project or Alterations:
Installation of a 3000 ft^3 (approx.) silo for the storage of dolomitic lime. Emissions are limited to the pneumatic loading of the silo, which will be controlled by a bin vent filter (baghouse). The dolomitic lime will be used as an ash conditioning agent in the waste-to-energy facility.

2. Projected or Actual Date of Commencement of Construction: December 2001

3. Projected Date of Completion of Construction: February 2001

Application Comment

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone: 17 East (km): 368.2 North (km): 3092.7			
2. Facility Latitude/Longitude: Latitude (DD/MM/SS): 27/57/14 Longitude (DD/MM/SS): 82/40/22			
3. Governmental Facility Code: 3	4. Facility Status Code: A	5. Facility Major Group SIC Code: 49	6. Facility SIC(s): 4953
7. Facility Comment (limit to 500 characters):			

Facility Contact

1. Name and Title of Facility Contact: Glenn Hoag, Facility Manager
2. Facility Contact Mailing Address: Organization/Firm: Covanta Hillsborough Street Address: 350 N. Falkenburg Road City: Tampa State: Florida Zip Code: 33617
3. Facility Contact Telephone Numbers: Telephone: (813) 684-5688 Fax: (813) 684-7964

Facility Regulatory Classifications

Check all that apply:

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

List of Applicable Regulations

62-296.320, F.A.C.	

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap		4. Basis for Emissions Cap	5. Pollutant Comment
		lb/hour	tons/year		

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

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

Additional Supplemental Requirements for Title V Air Operation Permit Applications

8. List of Proposed Insignificant Activities:
   [ ] Attached, Document ID:_____ [✓] Not Applicable

9. List of Equipment/Activities Regulated under Title VI:
   [ ] Attached, Document ID:_____
   [ ] Equipment/Activities On site but Not Required to be Individually Listed
   [✓] Not Applicable

10. Alternative Methods of Operation:
    [ ] Attached, Document ID:_____ [✓] Not Applicable

11. Alternative Modes of Operation (Emissions Trading):
    [ ] Attached, Document ID:_____ [✓] Not Applicable

12. Identification of Additional Applicable Requirements:
    [ ] Attached, Document ID:_____ [✓] Not Applicable

13. Risk Management Plan Verification:
    [ ] Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID:_____) or previously submitted to DEP (Date and DEP Office:_____)
    [ ] Plan to be submitted to CEPPO (Date required:_____)
    [✓] Not Applicable

14. Compliance Report and Plan:
    [ ] Attached, Document ID:_____ [✓] Not Applicable

15. Compliance Certification (Hard-copy Required):
    [ ] Attached, Document ID:_____ [✓] Not Applicable

III. EMISSIONS UNIT INFORMATION

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

A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)

Emissions Unit Description and Status

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

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

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

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

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

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

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

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

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

5. Emissions Unit Status Code:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
C		49	[NO]

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

Emissions Unit Control Equipment

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

Emissions are generated only during filling operations. The silo will be equipped with a Smoot Model No. 72BV25 bin vent filter to control particulate emissions while the silo is being pneumatically filled.

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

Emissions Unit Details

1. Package Unit:
   Manufacturer: Smoot Company Model Number: 72BV25
2. Generator Nameplate Rating: N/A MW
3. Incinerator Information: N/A
   Dwell Temperature: °F
   Dwell Time: seconds
   Incinerator Afterburner Temperature: °F

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

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate:	N/A		mmBtu/hr
2. Maximum Incineration Rate:	N/A	lb/hr	tons/day
3. Maximum Process or Throughput Rate: ~20 tons per silo filling			
4. Maximum Production Rate: N/A			
5. Requested Maximum Operating Schedule:			
	24 hours/day		7 days/week
	52 weeks/year		8760 hours/year

6. Operating Capacity/Schedule Comment (limit to 200 characters):

Bulk deliveries of dolomitic lime are anticipated to occur every 3 days when the facility is consuming the maximum hourly rate of dolomitic lime. At average consumption, deliveries will occur every 5 days.

C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

List of Applicable Regulations

62-210, F.A.C.	
62-213, F.A.C.	
62-296, F.A.C.	
62-297, F.A.C.	

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

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram?	2. Emission Point Type Code: 1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): 8" OD vent discharging horizontally near top of baghouse		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: N/A		
5. Discharge Type Code: H	6. Stack Height: ~ 40 feet	7. Exit Diameter: 0.66 feet (8")
8. Exit Temperature: ambient °F	9. Actual Volumetric Flow Rate: ~ 5700 acfm	10. Water Vapor: ambient %
11. Maximum Dry Standard Flow Rate: ~ 5700 dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone: East (km): North (km):		
14. Emission Point Comment (limit to 200 characters):		

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

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type) (limit to 500 characters): Dolomitic Lime unloading operation		
2. Source Classification Code (SCC): 30510296	3. SCC Units: tons stored	
4. Maximum Hourly Rate: 20	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters): Assumes that one 20-ton truck will be off-loaded in 1 hr.		

Segment Description and Rate: Segment _____ of _____

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

F. EMISSIONS UNIT POLLUTANTS
(All Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	**018**	**N/A**	**EL**

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

Potential/Fugitive Emissions

1. Pollutant Emitted: PM	2. Total Percent Efficiency of Control: 99.9%
3. Potential Emissions: 4.89 lb/hour 0.3 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8. Calculation of Emissions (limit to 600 characters): See Appendix E	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): The lime discharge point for the conditioning system will occur at the bottom of the fully enclosed inclined ash conveyor (see Appendix C). While expected to be negligible, fugitive emissions will be regulated under the conditions of existing Emissions Unit I.D. No 100.	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: ESCRACT	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 5% opacity (see Item 5 below)	4. Equivalent Allowable Emissions: lb/hour 1 ton/year
5. Method of Compliance (limit to 60 characters): Annual EPA Method 9 in lieu of particulate compliance test pursuant to 62-297.620(4), F.A.C.	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): The applicant is requesting an allowable emission of 1 ton/yr in accordance with 62-296.700(2)(c), F.A.C. to avoid the RACT provisions associated with the PM air quality maintenance area which the source is located in.	

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

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype: VE05	2. Basis for Allowable Opacity: [✓] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: 5% Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: USEPA Method 9	
5. Visible Emissions Comment (limit to 200 characters): Pursuant to 62-297.620(4), F.A.C., the applicant is requesting a VE standard of 5% in lieu of particulate testing because the source is equipped with a baghouse.	

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

Continuous Monitoring System: Continuous Monitor _____ of _____

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

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

Supplemental Requirements

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

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation
[ ] Attached, Document ID:_____ [✓] Not Applicable

12. Alternative Modes of Operation (Emissions Trading)
[ ] Attached, Document ID:_____ [✓] Not Applicable

13. Identification of Additional Applicable Requirements
[ ] Attached, Document ID:_____ [✓] Not Applicable

14. Compliance Assurance Monitoring Plan
[ ] Attached, Document ID:_____ [✓] Not Applicable

15. Acid Rain Part Application (Hard-copy Required)

[ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))
Attached, Document ID:_____

[ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
Attached, Document ID:_____

[ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.)
Attached, Document ID:_____

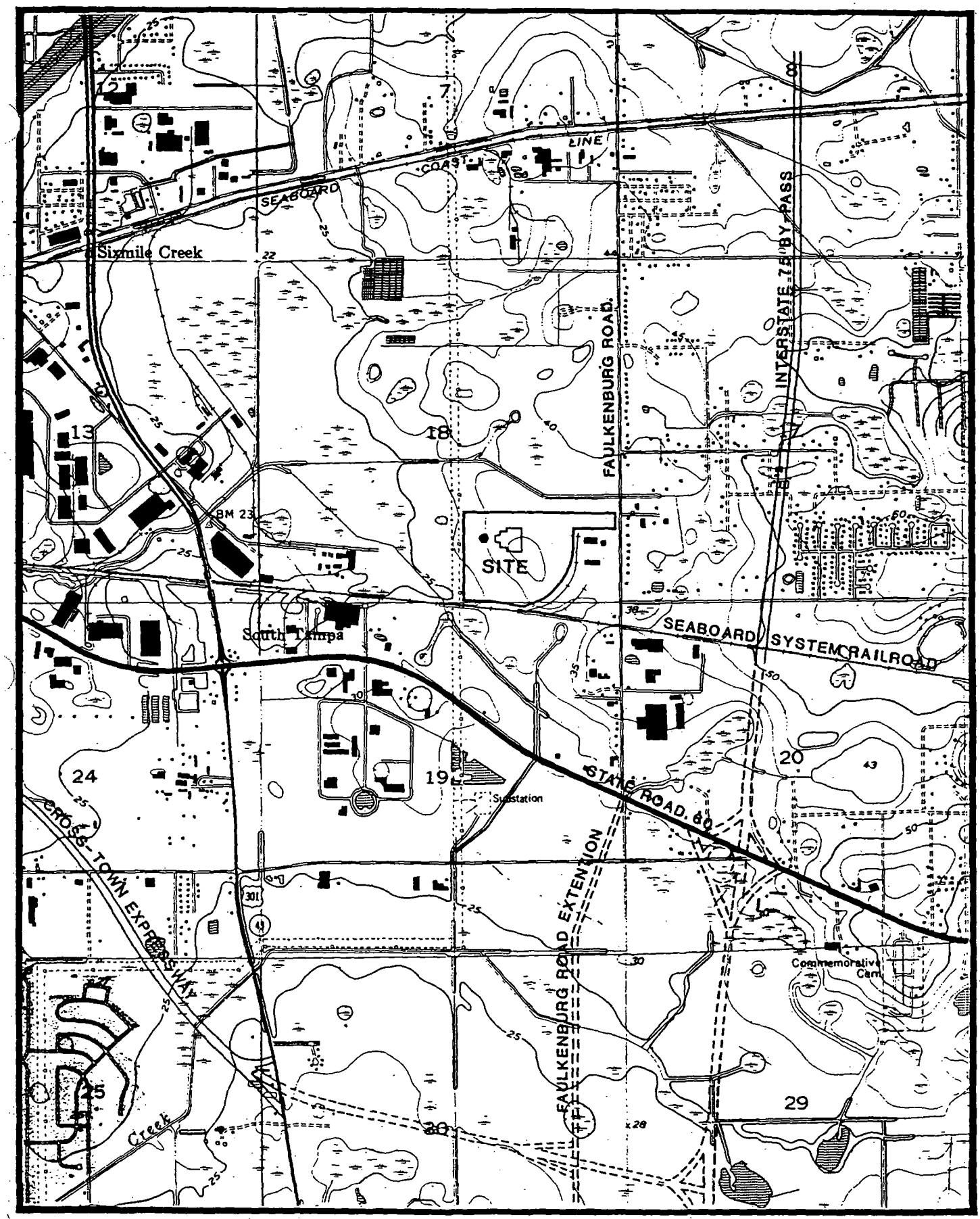
[ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
Attached, Document ID:_____

[ ] Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
Attached, Document ID:_____

[ ] Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
Attached, Document ID:_____

[✓] Not Applicable

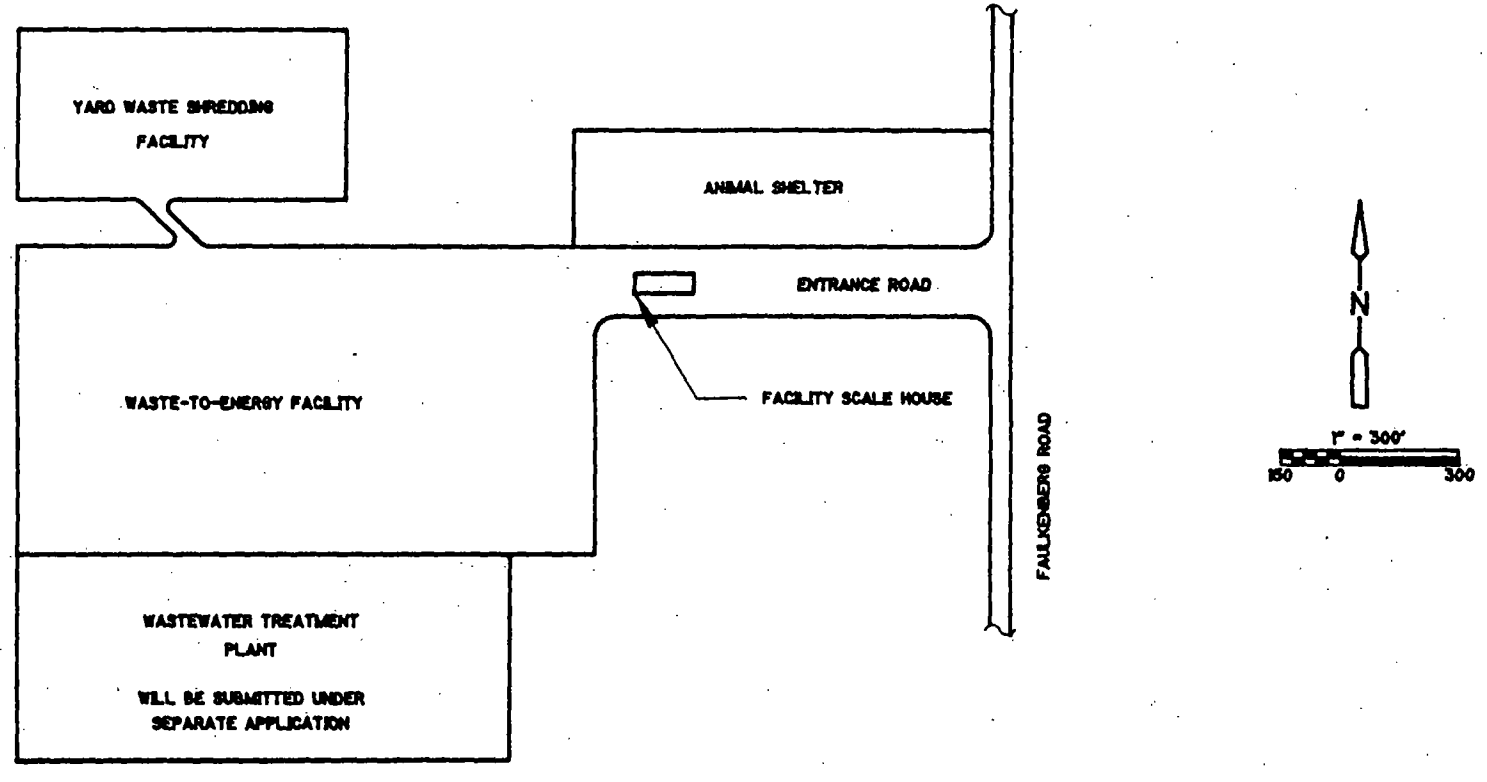
Appendix A



HILLSBOROUGH COUNTY
ENERGY RECOVERY PROJECT

SITE BOUNDARIES

1000 0 1000 2000 3000 FEET



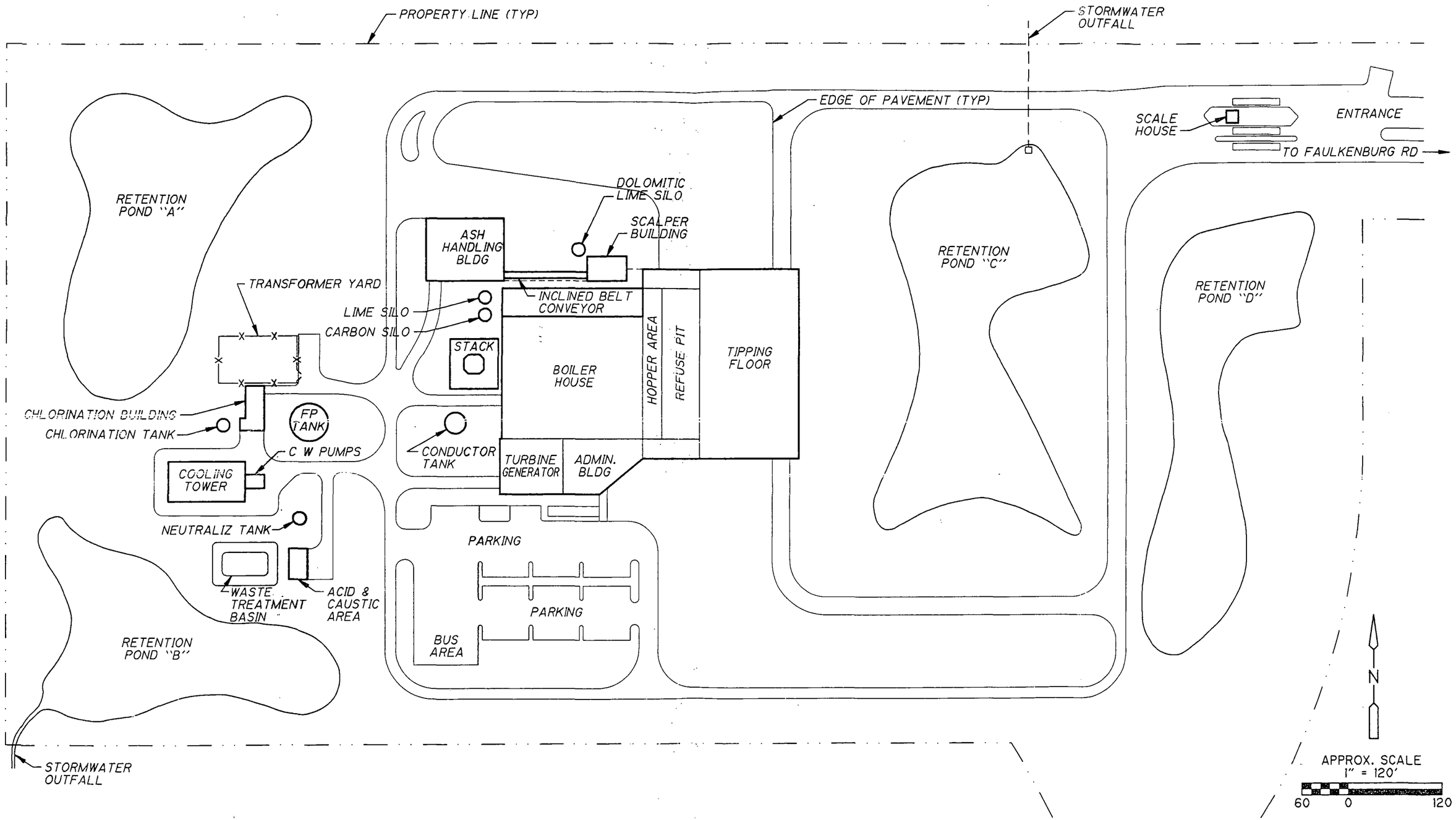
HILLSBOROUGH COUNTY

FAULKENBERG ROAD
FACILITY LOCATION MAP

Figure No. A-1

CDM
environmental engineers, scientists, planners, & management consultants

Appendix B



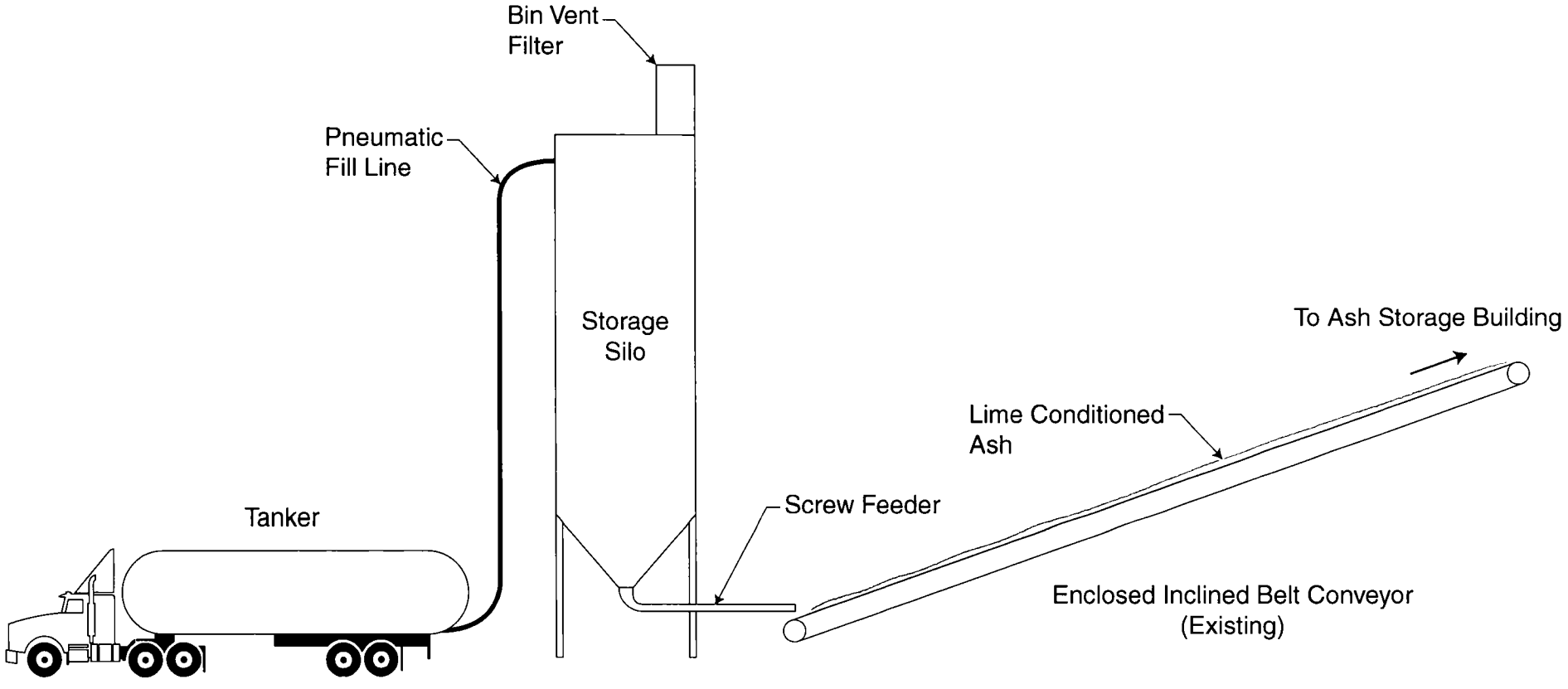
CDM
Camp Dresser & McKee
environmental services

HILLSBOROUGH COUNTY, FLORIDA

SOLID WASTE ENERGY RECOVERY FACILITY SITE PLAN

Figure No. 1

Appendix C



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CDM Camp Dresser & McKee Inc.

Appendix C
Process Flow Diagram

Appendix D

Precautions to Prevent Emissions of Unconfined Particulate Matter

HILLS6T1.1

PRECAUTIONS TO PREVENT EMISSIONS OF UNCONFINED PARTICULATE MATTER

Precautions include the following:

a. Roads and parking areas are paved.

b. A street sweeper equipped with a vacuum system is used to remove particulate matter from roads and other paved areas.

c. The unpaved areas of the facility are maintained and either are sodded or landscaped.

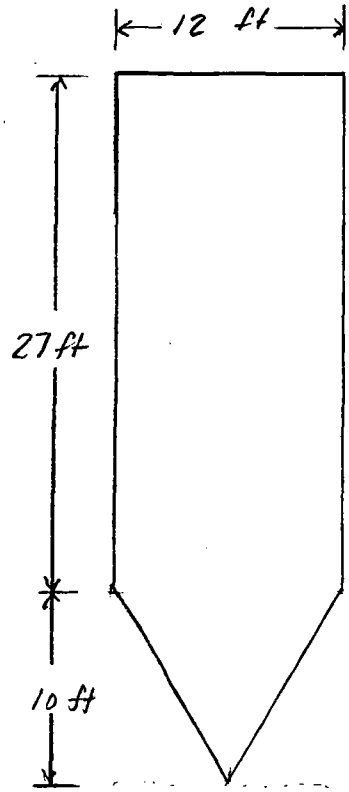
d. Hoods, fans, filters, or similar equipment is used to contain, capture, and/or vent particulate matter.

e. The conveyor systems of the facility are enclosed or covered.

f. The ash is wetted before being stored in the ash handling building.

Appendix E

SILO DIMENSIONS



total length = 37 ft
silo diameter = 12 ft
assume bottom 10 ft do not count toward useable volume.

DETERMINE VOLUME THAT WILL BE DISPLACED WHEN RECEIVING ONE 20-TON BULK DELIVERY OF DOLOMITIC LIME.

GIVEN: ρ_{LIME} = 55 lb/ft^3 (SOURCE: DRAVO LIME)
LIME USEAGE (MAXIMUM) = 10 lb/ton refuse processed (SOURCE: COVANTA HILLSBOROUGH)

DELIVERY TANKER GAGE PRESSURE = 10 psig (277 in-H_2O)

STANDARD OFFLOADING TIME = 1 hr

$V_{TOT} = V_{PROD} + V_{AIR}$ where V_{PROD} = VOLUME DISPLACED BY LIME

V_{AIR} = VOLUME OF CARRIER AIR

$$V_{PROD} = \frac{20 \text{ TON}}{\text{FILL}} \times \frac{2000 \text{ lb}}{\text{TON}} \times \frac{\text{ft}^3}{55 \text{ lb}} = \boxed{727 \text{ ft}^3 = V_{PROD}}$$

GAUGE PRESSURE = VELOCITY PRESSURE

$$VP = \left[\frac{(v/60)^2}{2g}\right] \times \left(\frac{\rho_a}{\rho_w}\right)^{1/2}$$

where: v = air velocity (ft/min)
ρ_a = air density = 0.075 lb/ft^3
ρ_w = water density = 62.3 lb/ft^3
g = gravity = 32.2 ft/sec^2
VP = velocity pressure (in-H_2O)

$$VP = \rho_a \times \left[\frac{v}{1,096.7}\right]^2$$

- or -

$$v = 1096.7 \times \left[\frac{VP}{\rho_a}\right]^2 \quad \text{- or - } \quad v = 4005 \times \sqrt{VP} \quad \text{(ft/min)}$$

assume 4 in O.D piping on bulk tanker @ 10 p.s.i.g.:

$V = 4005 \times (277)^{1/2} = 66656$ ft/min

$Q = A \cdot v$ where A = cross sectional area of piping (ft^2)

$= \left[\pi \frac{(0.33)^2}{4}\right] \times 66656 = 5700$ ft^3/min

time to offload = 1 hr

$\therefore V_{air} = \frac{5700\ ft^3}{min} \times \frac{60\ min}{hr} \times \frac{1\ hr}{fill} = \boxed{342{,}000\ ft^3 = V_{AIR}}$

$V_{TOT} = V_{PROD} + V_{AIR} = 727\ ft^3 + 342{,}000\ ft^3 = \boxed{\frac{342{,}727\ ft^3}{fill} = V_{TOT}}$

DETERMINE NUMBER OF SILO FILLINGS PER YEAR:

GIVEN: LIME USAGE (MAXIMUM) = 10 lb lime per ton refuse (Source: Covanta Hillsb., Inc.)

$\frac{1200\ TON\ REFUSE}{DAY} \cdot \frac{10\ lb\ lime}{TON\ REFUSE} = 12000\ \frac{lb\ lime}{day}$ (maximum)

$\frac{20\ TON}{FILL} \cdot \frac{2000\ lb}{TON} \times \frac{day}{12000\ lb} = \frac{3.3\ day}{fill}$ (say 3)

∴ FACILITY WILL TAKE DELIVERY OF DOLOMITIC LIME EVERY 3 DAYS (MAXIMUM)
-or- 122 FILLS PER YEAR

EMISSIONS

SMOOT EMISSION GUARANTEE = 0.10 gr/dscf

$E = C \cdot V$ where C = concentration (gr/dscf)
V = total volume (ft^3)

$E = \frac{0.10\ gr}{dscf} \times \frac{342{,}727\ ft^3}{fill\ (1\text{-}hr)} \times \frac{lb}{7000\ gr} = 4.89\ lb/fill$ -or- $\boxed{4.89\ lb/hr}$

$TPY = \frac{4.89\ \#}{fill} \times \frac{122\ fill}{yr} \times \frac{ton}{2000\ \#} = \boxed{0.3\ ton/yr}$