



April 26, 2012

Mr. Jeff Koerner, P.E.  
Program Administrator  
Florida Department of Environmental Protection  
Division of Air Resource Management  
Office of Permitting & Compliance  
2600 Blair Stone Road, MS #5505  
Tallahassee, FL 32399-2400

Subject: Biosolids Pelletization Facility  
Pug Mill Water Sprays and Recycle Bin Dust Collectors  
Title V Air Operating Permit No. 0990234-022-AV

Dear Mr. Koerner:

The Solid Waste Authority of Palm Beach County ("Authority") owns a Biosolids Pelletization Facility ("BPF") that is collocated with the Authority's North County Resource Recovery Facility in West Palm Beach, Florida. The BPF has two (2) sludge dryer trains (EU010 - Train # 1 and EU011 - Train #2). It is operated by NEFCO under Title V Air Permit No. 0990234-022-AV.

On January 24, 2012, there was an explosion in Train #2. NEFCO and the Authority conducted a review of the incident, and they identified three minor design changes that will reduce the risk of future explosions, although these issues were not the root cause of the explosion. One change--widening the BPF's sludge chutes-- already has been reviewed and approved by the Department. The other two changes consist of the following:

- Replacing temporary water sprays with permanent water sprays at the pug mill for each dryer train; and
- Adding a dust collection line from the mixer feed conveyor to the recycle bin for each dryer train

Both of these changes will improve safety at the BPF because they will reduce the potential for fugitive dust to accumulate in the process trains and, therefore, they will reduce the potential for explosive conditions to occur. These two changes will not increase the actual or potential air emissions exhausted from any of the BPF's vents or stacks.

The Authority has concluded that these two changes to the BPF's design will not constitute a "modification," as defined in Rule 62-210.200(205), F.A.C., or a "major modification," as defined in

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Rule 62-210.200(191), F.A.C. The Authority also has concluded that the Authority does not need to obtain a new construction permit or a permit revision from the Department before the Authority commences the construction of these two projects. The Authority now respectfully requests the Department to confirm that construction can proceed without any new pre-construction permits or permit revisions.

These issues are discussed in more detail in the following sections of this letter.

#### Permanent Water Sprays at the Pug Mills

During the normal operation of the BPF, dry material from the recycle bin is mixed with wet sludge cake in a pug mill to achieve the optimum consistency for the sludge fed to the dryer. The BPF's operating plan states that water may be added to the material in the pug mill when necessary to maintain the proper consistency of the sludge, but in actual practice, water is not typically added to the material in the pug mill during normal operations. However, there are times when water must be added to the pug mill during startup, shutdown, and malfunction ("SSM") conditions. Specifically, water must be added when the wet cake feed is shut off and the dryer is still operating, because the introduction of dusty or dry material into the hot dryer could result in an explosion. Currently, the operator adds water to the pug mill during SSM conditions by using a hand-held garden hose.

This SSM procedure will be substantially improved with the installation of a permanent water spray system in the pug mill for each process train. With a permanent water spray system: (a) the time required to respond to an emergency situation will be reduced; (b) the potential for tripping over hoses will be eliminated; and (c) the amount of water used, and the distribution of water, will be better controlled. The permanent water spray system will be used in the same manner as the current ad hoc system: it will continue to be used when necessary to prevent the introduction of dry or dusty material into a hot dryer during SSM conditions. Therefore, the installation of the permanent water spray system will not increase the BPF's actual or design sludge feed rate or the corresponding air emission rates.

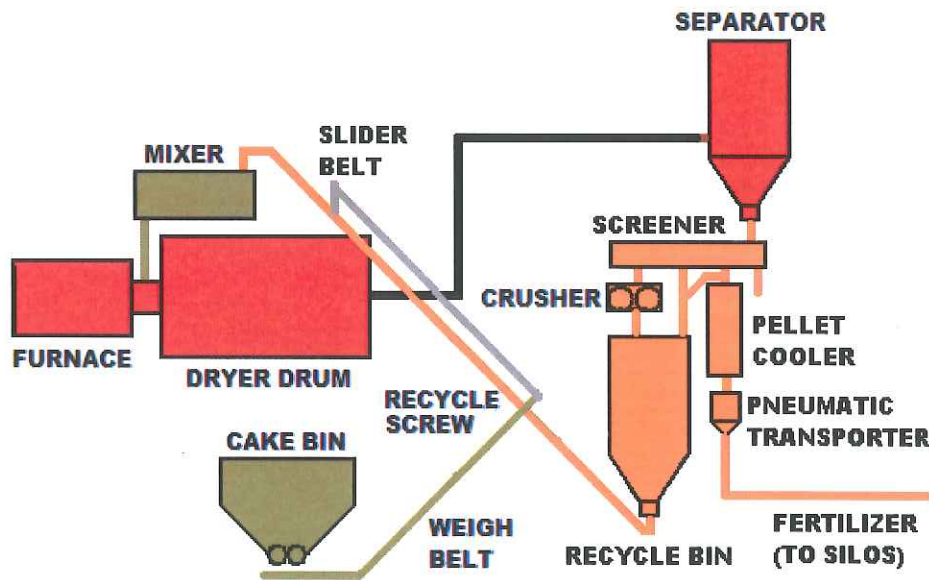
Attachment 1 to this letter is a Material Flow Diagram for the BPF. In this diagram, the pug mill is identified as the Dryer Feed Mixer and it is circled in red. The diagram shows how the wet sludge cake (i.e., Dewatered Cake from Filter Press) and the dry material from the Recycle Bin enter the pug mill (i.e., Dryer Feed Mixer) and then move through the Product Chute to the Dryer. A note on this diagram indicates that the permanent water sprays will be installed in the pug mill.

#### Dust Collection from the Mixer Feed Conveyor

The second proposed change will remove a source of fugitive dust inside the building that houses the recycle bin and associated equipment.

Mixer feed conveyors (“recycle screws”) are used to move dry material from the recycle bin to the pug mill (“mixer”), as seen in Figure 1 below. As the dry material is being transported on the conveyor to the pug mill, wet sludge cake drops from the weigh belt, through the sludge chutes (not pictured in the figure), onto the mixer feed conveyors/recycle screw. When the wet sludge cake drops onto the dry material from the recycle bin, a puff of fugitive dust goes back up the sludge chutes and into the room at the top of the chutes. The movement of dust up the open-top sludge chutes is facilitated by the warm air that rises off of the hot, dry material from the recycle bin.

FIGURE 1: DRYER SOLIDS SYSTEM MAJOR COMPONENTS  
(Source: NEFCO O&M Manual, Revision 3, dated October 2009)



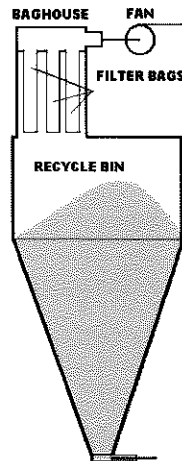
Eliminating this source of fugitive dust inside the BPF will provide several benefits. First, it will reduce the staff's exposure to fugitive dust. Second, it will reduce the potential for dust to accumulate inside the BPF and thus it will reduce the potential for explosions. Third, it will help ensure the successful operation of the scrubber that is used by the BPF to prevent odors in the ambient air outside the BPF. The air inside the BPF is collected and vented to the odor control scrubber before the air is exhausted outdoors. The odor control scrubber can remove dust, but that is not part of its primary design function. Excessive dust in the indoor air may clog the scrubber, which will necessitate additional maintenance, and may compromise the scrubber's ability to control odors.

The Authority intends to install a single dust pickup line that will collect dusty air from the mixer feed conveyor prior to the sludge chutes, and will convey the dusty air to the top of the recycle bin. This dust pickup line will be installed with dampers so that the plant operator may adequately balance the flow of dust and limit the uptake of dry pellets back into the recycle bins through the new dust pickup line. One dust pick up line will be installed in each process train. Attachment 2 to this letter is a Material Flow Diagram that identifies the general location where the proposed system will pick up dust from the mixer feed conveyor. This diagram also notes that the collected air will be returned to the recycle bin.

Each process train has a recycle bin, which has a baghouse (fabric filter) on its exhaust vent, as seen in Figure 2. The filtered air that leaves the baghouse is ducted from the main processing area, to the sludge storage bunker room and, ultimately, to the building odor control scrubbers before it is emitted to the atmosphere. A layout of the facility has been included as Attachment 3 to this letter showing the facility areas and the building odor scrubbers.

The fabric filters for the recycle bins are listed in the BPF's Title V Permit as Emission Units 012 and 014. The fabric filters are guaranteed to emit no more than 0.010 grains of particulate matter ("PM") per dry standard cubic foot ("gr/dscf") exhausted, and the BPF's Title V Permit (Section III, Condition C.12) sets an emission limit for each fabric filter of 0.010 gr/dscf.

FIGURE 2: BAGHOUSE SYSTEM  
(Source: NEFCO O&M Manual, Revision 3, dated October 2009)



The fabric filter vendor (Sly, Inc.) has confirmed that the performance of the fabric filters will not be adversely affected by the Authority's plan to add a new dust collection location on the mixer feed conveyor, as detailed above. (A copy of the vendor's letter (dated April 12, 2012) to NEFCO is Attachment 4). The guaranteed outlet concentration of 0.010 gr/dscf is based on a design flow of 800 cubic feet per minute (cfm) and a pressure drop of up to six inches of static pressure. Currently, when the baghouse fan is operated, it pulls enough suction through the recycle bin and crusher to collapse the flexible connections on the screener (seen in Figure 1). To alleviate this problem, NEFCO opens access points on each of the screeners to draw in additional makeup air from the building.

When the dust pick-up line from the mixer feed conveyor is added, its air flow will be balanced to just counteract the natural draft in the sludge chutes, and the screener access openings will be closed off to reduce that make-up flow by an equal amount. NEFCO will monitor the original ventilation points to ensure adequate ventilation is maintained. Therefore, the overall flow rate of 800 cfm to each fabric filter will be unchanged. The guaranteed outlet loading rate of 0.010 gr/dscf will also be unchanged, so the potential PM emission rate from each fabric filter will not change. The PM emission rate calculation submitted with the air permit application for EU 12 and EU 14 is Attachment 5. The calculation shows that, with the design parameters of 800 cfm and 0.010 gr/dscf, the maximum potential PM emission rate from each filter is 0.30 tons per year. This calculation will remain the same after the proposed line from the mixer feed conveyor is added.

Even though the BPF's potential PM emission rate will not change as a result of adding the new dust collection points inside the BPF, the new dust collection line will result in better capture of dust-laden air within the BPF by the existing fabric filters, and thus reduce the potential for clogging the odor control scrubber. The actual PM emissions will not increase as a result of adding the new dust collection point and may decrease, to the extent that the capture of dust-laden air within the BPF results in less loading to and fewer emissions from the odor control scrubber.

#### Conclusions and Request for Department Concurrence

The Authority is proposing the water spray and dust collection projects to improve safety, protect worker health, and reduce the risk of future explosions at the BPF. These projects are consistent with Rule 62-296.320(4)(c), F.A.C., which requires permittees to take "reasonable precautions" to control unconfined emissions of particulate matter. Under this rule, reasonable precautions include the use of water as a dust suppressant. Under Rule 62-296.320(4)(c)3.f, F.A.C. reasonable precautions also include the "[u]se of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter."

The Authority will not be adding any new air pollution control equipment to the BPF for either project. The water spray project will replace an existing SSM procedure with an in-kind system, which will not increase the BPF's process throughput or emissions. The dust collection project for

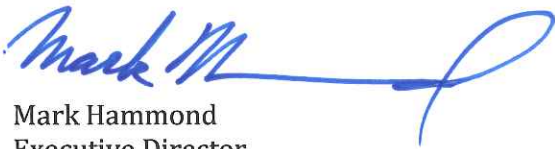
Mr. Jeff Koerner  
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the mixer feed conveyors will add a new dust collection point. As a practical matter, this project will simply change an air collection point from the screener access openings to the wet sludge chutes. This change in the location of the air inlet point will improve the capture of fugitive dust inside the BPF, but it will not change the air flow or the guaranteed outlet PM loadings for the fabric filters on the recycle bins.

Given these facts, the Authority has concluded that the two projects are not modifications, as defined in Rule 62-210.200(205), F.A.C., or major modifications, as defined in Rule 62-210.200(191), F.A.C. Based on the provisions of Appendix TV-6 and Rule 62-4.040(1)(b), F.A.C, the Authority has concluded that the proposed projects can be constructed without a permit revision or a new air construction permit from the Department. Because the two changes are insignificant, they could be addressed the next time the Authority's Title V Permit is modified or renewed, if the Department concludes that the projects need to be addressed in the Title V Permit in some fashion.

On behalf of the Authority, I respectfully request the Department to review the information provided in this letter and then confirm that the Authority does not need to obtain a new pre-construction permit or revise its existing permits before the Authority commences construction of the two projects. The Authority would greatly appreciate your prompt consideration of this matter because the Authority intends to proceed with this work in the very near future. If you have any questions or need additional information, please contact Mary Beth Morrison at [mmorrison@swa.org](mailto:mmorrison@swa.org) or at (561) 640-4000 ext. 4613.

Sincerely,

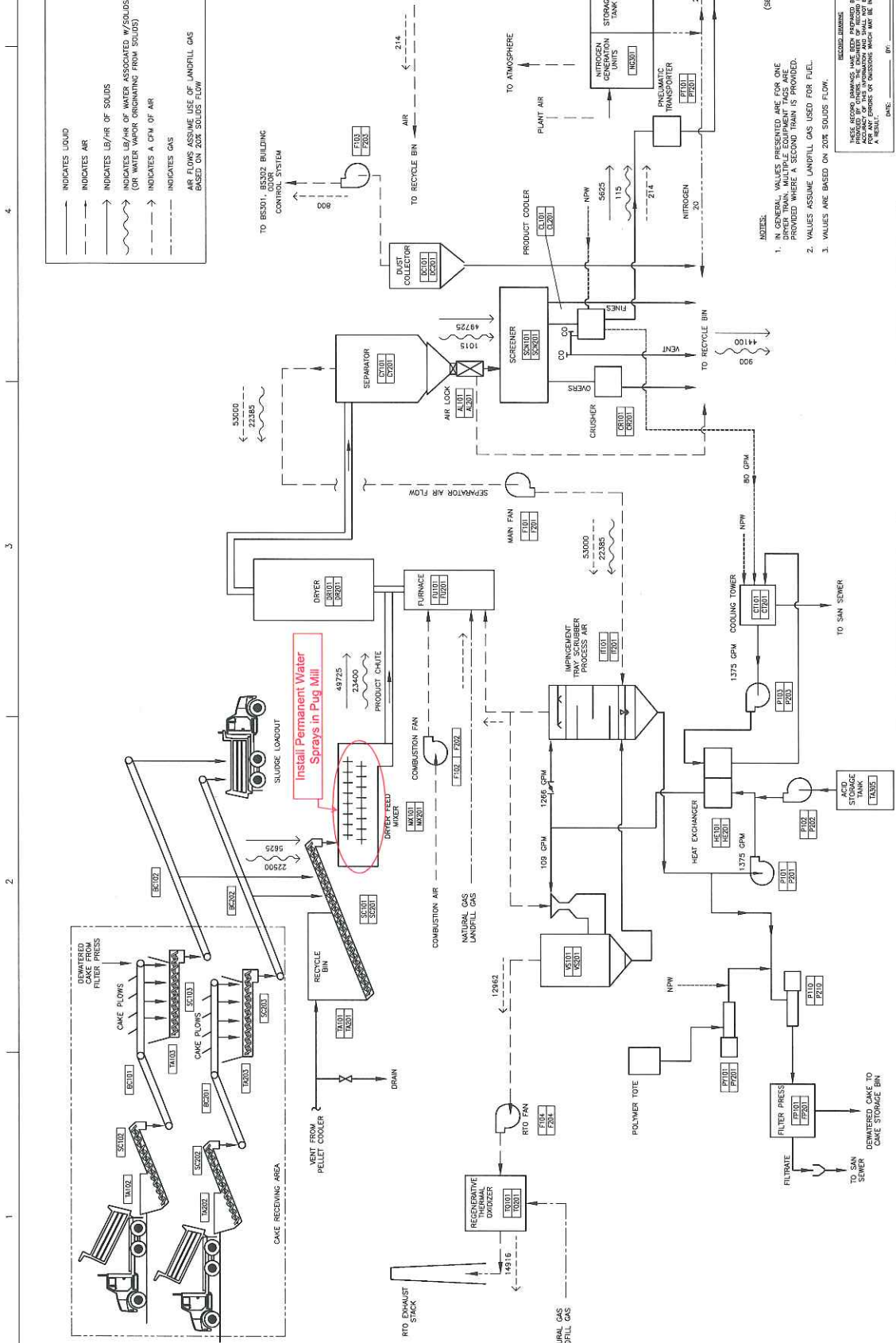
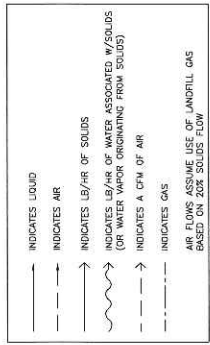


Mark Hammond  
Executive Director

Enclosures

cc: Lennon Anderson, (FDEP, SED)  
Lee Heofert (FDEP, SED)  
Marc Bruner, SWA  
Ray Schauer, SWA  
Jim Greer, SWA  
Mary Beth Morrison, SWA

Amber Barritt, P.E., CDM Smith  
Cynthia Hibbard, CDM Smith  
Tom Yonge, Golder Associates, Inc.  
David S. Dee, Esq.  
Bill Hansen, NEFCO



- NOTES:
- IN GENERAL, VALUES PRESENTED ARE FOR ONE TRAIN UNLESS OTHERWISE INDICATED. A SECOND TRAIN IS PROVIDED WHERE A SECOND TRAIN IS PROVIDED.
  - VALUES ASSUME LANDFILL GAS USED FOR FUEL.
  - VALUES ARE BASED ON 20% SOLIDS FLOW.

RECORD NUMBER: 10000000024920  
 DATE: \_\_\_\_\_  
 PROJECT NUMBER: 10000000024920

**MATERIAL FLOW DIAGRAM RECORD DRAWING**

**ATTACHMENT 1**

FILENAME: 000-01.DWG  
 SCALE: NONE  
 SHEET: D-01

**BIO SOLIDS PROCESSING FACILITY**  
*Sofid Waste Authority*  
**SWA** of Palm Beach County

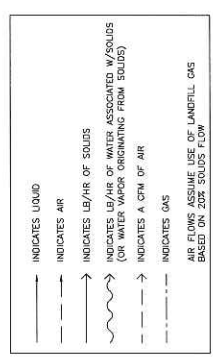
PROJECT MANAGER: E. DeLoForest  
 ARCHITECTURAL: R. ANDREW  
 STRUCTURAL: J. GRUBER  
 CIVIL: R. TRAVIS  
 PROCESS: E. DeLoForest  
 MECHANICAL: B. SPOTT  
 ELECTRICAL: R. LARSON  
 INSTRUMENTATION: M. HENKEL

PE NAME: Edward J. DeLoForest  
 PE # 92359  
 CA # 4213

ISSUE	DATE	RECORD DRAWING	DESCRIPTION
0	5/17/09	RECORD DRAWING	

PROJECT MANAGER	CHK BY:
E. DeLoForest	E. DeLoForest
R. Andrew	R. Andrew
J. Gruber	J. Gruber
R. Travis	R. Travis
E. DeLoForest	E. DeLoForest
B. Spott	B. Spott
R. Larson	R. Larson
M. Henkel	M. Henkel

**HDR**  
 HANSEN DESIGN GROUP, INC.  
 1000 N. MILPITAS BLVD.  
 SUITE 100  
 SAN JOSE, CA 95128  
 TEL: 415.435.4000



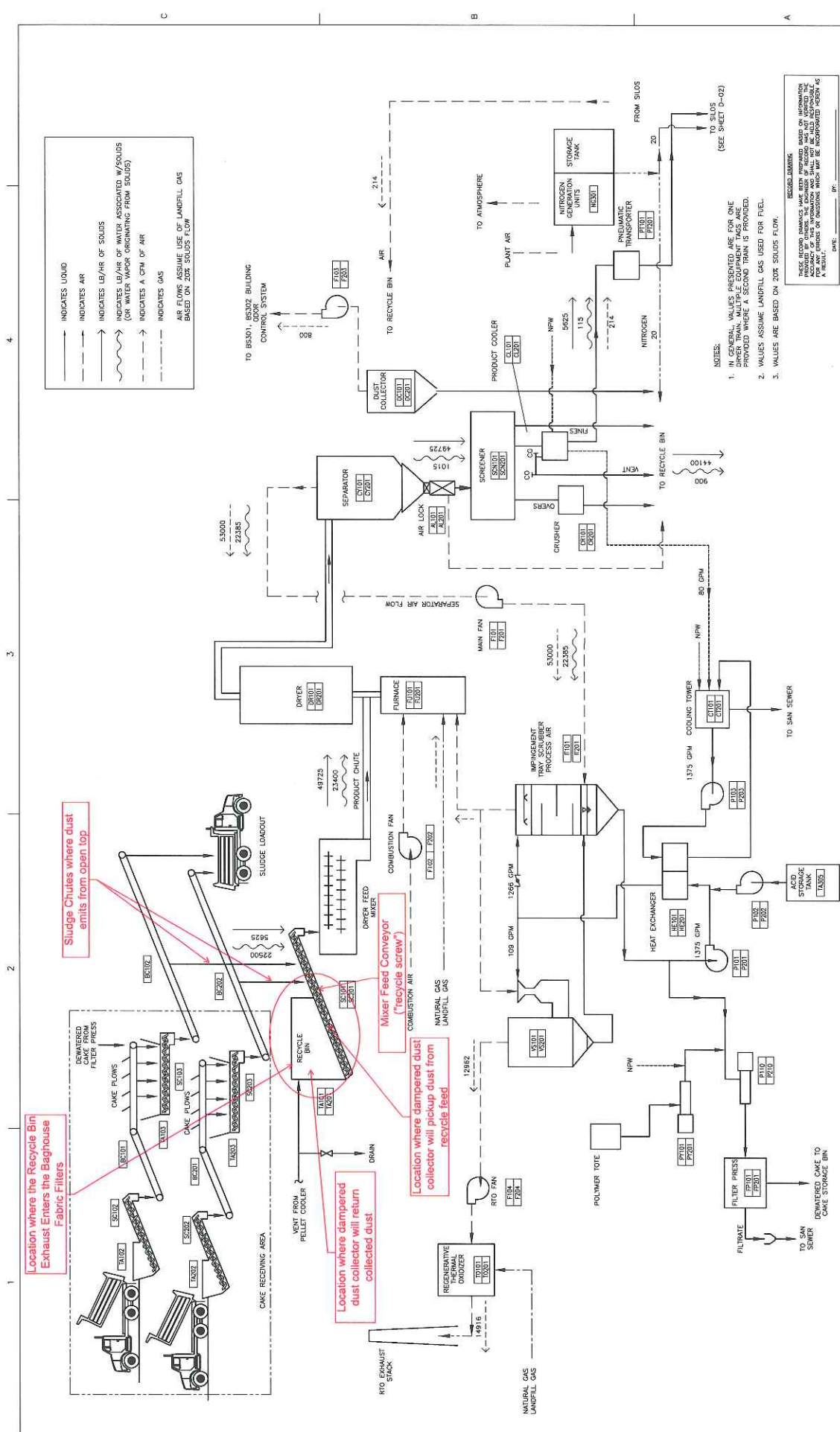
Location where the Recycle Bin Exhaust Enters the Baghouse Fabric Filters

Sludge Chutes where dust emits from open top

Location where dampened dust collector will return collected dust

Location where dampened dust collector will pickup dust from recycle feed

Mixer Feed Conveyor ("recycle screw")



- NOTES:
- IN GENERAL, VALUES PRESENTED ARE FOR ONE TRAIN. A SECOND TRAIN IS PROVIDED WHERE A SECOND TRAIN IS PROVIDED.
  - VALUES ASSUME LANDFILL GAS USED FOR FUEL.
  - VALUES ARE BASED ON 20% SOLIDS FLOW.

RECORD NUMBER: \_\_\_\_\_ DATE: \_\_\_\_\_ BY: \_\_\_\_\_

THIS DRAWING HAS BEEN APPROVED AND ISSUED FOR CONSTRUCTION BY THE PROJECT MANAGER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE COMMENCING WORK. ANY CHANGES TO THE ORIGINAL DESIGN SHALL BE INDICATED BY A REVISION.

**BIOSOLIDS PROCESSING FACILITY**  
Solid<sup>W</sup> Waste Authority  
SWA of Palm Beach County

**MATERIAL FLOW DIAGRAM RECORD DRAWING ATTACHMENT 2**

PROJECT NUMBER: 0000000024020

ISSUE: D DATE: 12/11/09 RECORD DRAWING DESCRIPTION:

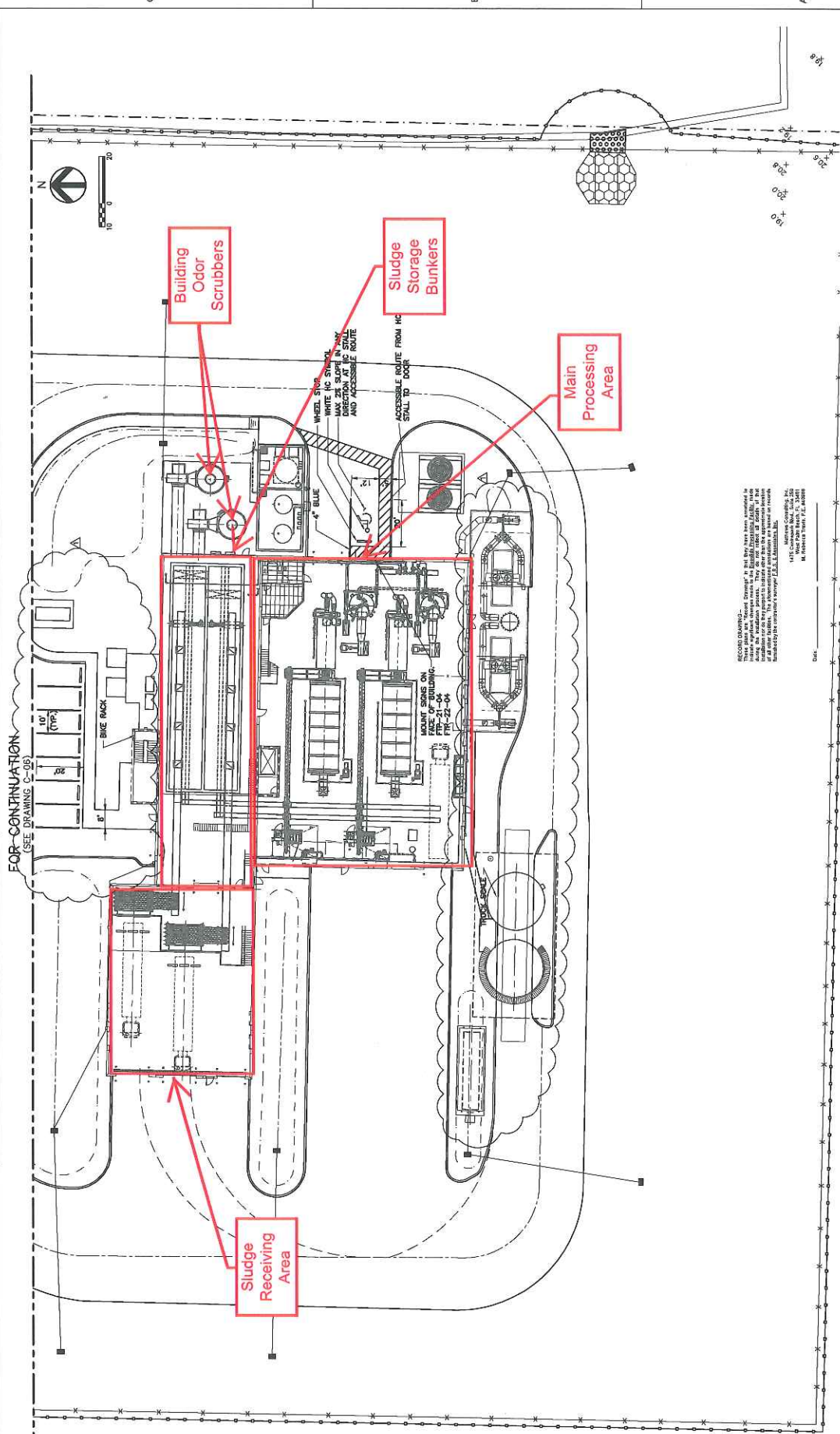
PROJECT MANAGER	CHK. BY:
E. DeLuForest	R. ANDREW
ARCHITECTURAL	J. GRUBER
STRUCTURAL	R. TRAVIS
CIVIL	E. DeLuForest
PROCESS	B. SPOTT
MECHANICAL	R. LARSON
ELECTRICAL	M. HEMKEL

PE NAME: Edward J. DeLuForest  
PE # 62368  
CA # 4913

**HDR**  
Hatch, Design & Construction, Inc.  
1000 North West 10th Avenue  
Coral Gables, FL 33134  
TEL: 305-441-4488

SCALE: NONE  
SHEET: D-01





RECORD DRAWING  
These plans are "Record Drawings" of the existing facility. They are not intended to be used as construction documents. They are not subject to change and are not subject to permit review. They are provided for informational purposes only and are not to be used for any other purpose. All dimensions and notes are subject to change without notice. All dimensions and notes are subject to change without notice. All dimensions and notes are subject to change without notice.

MATTHEWS CONSULTING, INC.  
1115 PALM BEACH BLVD., SUITE 300  
PALM BEACH, FL 33480

**HDR**  
1000 N. UNIVERSITY AVENUE, SUITE 100  
BOCA RATON, FL 33433  
TEL: (561) 992-1600

**MATTHEWS CONSULTING INC.**  
4055 COURTESY BLVD. SUITE 100  
WEST PALM BEACH, FL 33411  
TEL: (561) 992-1600  
WWW.MATTHEWSCONCONSULTING.COM

ISSUE	DATE	DESCRIPTION
Δ	2/19/10	BUILDING SUBMITTAL #1.9 RECORD DRAWING
	8/17/09	RECORD DRAWING

PROJECT MANAGER	E. DELGORE	CHK BY:
ARCHITECTURAL	S. BRICH	
STRUCTURAL	W. KAHON	
CIVIL	R. TRAVIS	
PROCESS	E. DELGORE	
MECHANICAL	B. SPOTT	
ELECTRICAL	L. SMITH	

M. REBECCA TRAVIS, P.E.  
No. 40935

**BIO-SOLIDS PROCESSING FACILITY  
SITEWORK & UTILITIES**  
*Solid Waste Authority*  
**SWA of Palm Beach County**  
331 W. PALM BLVD.  
PALM BEACH, FL 33401

**ATTACHMENT 3  
SIGNING AND MARKING PLAN  
RECORD DRAWING**

SCALE: 1" = 10'-0"

FILENAME: 1280027  
SHEET: C-07

1  
2  
3  
4  
5

A  
B  
C

FOR CONTINUATION (SEE DRAWING C-06)

10'-0"

ATTACHMENT 4



April 12, 2012

Mr. Michael W. Thayer  
NEFCO  
6600 45<sup>th</sup> Street  
West Palm Beach, FL 33412

REF: Sly Order No. 00053  
(2) STJ-36-4.5 Bin Vents  
Located at SWAPBC-Biosolids Processing Facility

Dear Mr. Thayer:

We sincerely thank you for contacting us regarding the potential change in the operation of the dust collectors in your facility. We understand that the units are currently operating in a manner that requires additional air to be added from the access openings of the screens to insure proper operation of the equipment. The units were designed to handle 800 ACFM at ambient temperature and up to 6" total static pressure.

Based on the above, the addition of dust pick up points from other dust sources in the plant, with the subsequent closing off of the screener access openings, would not adversely affect the dust collector air flow or particle collection efficiency of the spun bonded pleated elements. After installation of the new pick up points to the system, we recommend that you monitor the original ventilation points to insure adequate ventilation is maintained.

We trust the above is satisfactory. If you have any further questions, please do not hesitate to contact us.

Sincerely,  
SLY, INC.



T. B. Kurz  
CEO

# ATTACHMENT 5

## HDR Computation

Job No.: 10162 (Dept. 250)

Project	Palm Beach County	Computed	EJL
Subject	<b>POTENTIAL</b> Emissions Calculations	Checked	SPZ (12/21/04)
Task	Pneumatic transfer filter (2) exhaust to building air scrubbers	Sheet	1 of 1

### Assumptions:

Pellet pneumatic transfer air is controlled by fabric filter, and then routed to the building air odor scrubber system, with no additional PM control assumed for building air odor scrubbers.

Outlet Dust Loading	<b>0.01</b>	vendor spec. (grains/cubic foot)
Filter Exhaust Rate	<b>800</b>	acfm (each of 2 filters)
Operation Hours:	<b>8,760</b>	hrs/yr

### Emission Calculation:

	PM Emissions	
	(lb/hr)	(tpy)
per filter	0.07	0.30
two filters		0.60