



1715 North Westshore Blvd. Suite 875  
Tampa, Florida  
tel: 813 281-2900  
fax: 813 288-8787

*Joe*

RECEIVED

JUL 31 2012

DIVISION OF AIR  
RESOURCE MANAGEMENT

July 25, 2012

Yousory Attalla  
Engineering Specialist II  
Mail Station #5505  
Department of Environmental Protection  
Division of Air Resource Management  
Office of Permitting and Compliance  
2600 Blair Stone Road  
Tallahassee, Florida 32399

*Module ACO12*

*Project NO: 0570261-016-AC  
PSD 121E AND 369D*

Subject: Hillsborough County Resource Recovery Facility (RRF), Facility ID No. 0570261  
Request to revise PSD-FL-121D and PSD-FL-369C  
Removal of "sewage sludge" as a Prohibited Fuel  
Minor Edit to PSD-FL-121D Condition B.2

Dear Mr. Attalla:

On Behalf of Hillsborough County Public Utilities Department, CDM Smith is submitting an air construction revision application to modify specific conditions of the following air construction permit.

- PSD-FL-121-D Condition B.6.1 (g)
- PSD-FL-369-C Section III, Condition 9.a.vii (Cited as PSD-FL-121, Specific Condition 5 in Title V Operation Permit)

Both permits have conditions stating that sewage sludge is a prohibited fuel. Hillsborough County wishes to remove the term "sewage sludge" in order to combust biosolids as defined in FAC 62-640 (200) (6). The Hillsborough County RRF maximum potential emission rates would not change, and the Facility would continue to comply with all other permit requirements, including all of the applicable emissions limits and standards in 40 CFR 60 Subparts Cb and Eb, Emissions Guidelines and Standards of Performance for Large Municipal Waste Combustors. Each of the four combustors has an air pollution control equipment train - spray dryer scrubber, activated carbon injection, baghouse and selective non-catalytic reduction system - that, combined with good combustion practices, can readily remove air pollutants associated with sewage sludge (biosolids) combustion (primarily metals and particulate matter). This application includes Florida based test burn results and emission rate calculations demonstrating that all permit emission limits will continue to be met.

In addition, Hillsborough County wishes to edit the language of PSD-FL-121D Condition B.2 so that compliance for throughput is based upon 102,000 pound of steam per hour.



Mr. Yousory Attalla  
July 25, 2012  
Page 2

**Application Attachments**

Section 1 – Applicable Regulations

Section 2 - Proposed Operation

Section 3 – Reasonable Assurance

Appendix A – Results of Sludge Sampling

Appendix B – Highlighted Copy of Applicable Permit Sections

Appendix C – Results of Lee County RRF Test Burn

A data disk is included with a pdf of this cover letter, application and attachments.

We greatly appreciate your review of this application. Please feel free to contact me if you have questions, at 813-281-2900 or 813-262-8840 (direct).

Sincerely,

A handwritten signature in black ink that reads "Paul L. Hauck".

Paul L. Hauck, P.E.  
Project Manager  
CDM Smith Inc.

cc: Nate Johnson (Hillsborough County)  
Patricia Berry (Hillsborough County)  
Thomas Rawls (Hillsborough County)  
Dan Strobridge (CDM Smith)  
Wei Liu (CDM Smith)



# Department of Environmental Protection

## Division of Air Resource Management

### APPLICATION FOR AIR PERMIT - LONG FORM

RECEIVED

JUL 31 2012

#### I. APPLICATION INFORMATION

DIVISION OF AIR RESOURCE MANAGEMENT

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

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

**Air Operation Permit** – Use this form to apply for:

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

To ensure accuracy, please see form instructions.

#### Identification of Facility

|  |  |
|--|--|
| 1. Facility Owner/Company Name: Hillsborough County Board of County Commissioners  |  |
| 2. Site Name: Hillsborough County Resource Recovery Facility   |  |
| 3. Facility Identification Number: 0570261   |  |
| 4. Facility Location...<br>Street Address or Other Locator: N. Falkenburg Road<br>City: Tampa County: Hillsborough Zip Code: 33619 |  |
| 5. Relocatable Facility?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                    | 6. Existing Title V Permitted Facility?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

#### Application Contact

|   |  |
|---|--|
| 1. Application Contact Name: Paul L. Hauck, P.E.  |  |
| 2. Application Contact Mailing Address...<br>Organization/Firm: CDM Smith<br>Street Address: 1715 N. Westshore Boulevard, Suite 875<br>City: Tampa State: Florida Zip Code: 33607 |  |
| 3. Application Contact Telephone Numbers...<br>Telephone: (813) 262 - 8840 ext. Fax: (813) 288 - 8787   |  |
| 4. Application Contact E-mail Address: hauckpl@cdmsmith.com   |  |

#### Application Processing Information (DEP Use)

|  |                                   |
|--|-----------------------------------|
| 1. Date of Receipt of Application: 7-31-12 | 3. PSD Number (if applicable):    |
| 2. Project Number(s): 0570261-016-AC       | 4. Siting Number (if applicable): |

PSD 121E and 369D

## APPLICATION INFORMATION

### Purpose of Application

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

#### **Air Construction Permit**

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

#### **Air Operation Permit**

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

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

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

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

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

### Application Comment

This application requests a minor revision to PSD-FL-121(D) and PSD-FL-369 (C). The revision requested is the removal of the prohibition against "sewage sludge" as a fuel. The applicant wishes to utilize dewatered "biosolids" as an acceptable fuel. There is no modification of emission limits. The applicant requests that biosolids be allowable as a fuel up to 10% of weight, as received. In addition, the applicant requests that biosolids be not counted as part of segregated waste.

A second part of this application is to edit PSD-FL-121D, Condition B.2 so that the permitted capacity reads "The maximum steam production rate shall not exceed 102,000 pounds of steam per hour (on a 4-hour block arithmetic average)."

**APPLICATION INFORMATION**

**Scope of Application**

| <b>Emissions Unit ID Number</b> | <b>Description of Emissions Unit</b> | <b>Air Permit Type</b> | <b>Air Permit Processing Fee</b> |
|---------------------------------|--------------------------------------|------------------------|----------------------------------|
| 001                             | Municipal Waste Combustor Unit 1     | ACM1                   | N/A                              |
| 002                             | Municipal Waste Combustor Unit 2     | ACM1                   | N/A                              |
| 003                             | Municipal Waste Combustor Unit 3     | ACM1                   | N/A                              |
| 107                             | Municipal Waste Combustor Unit 4     | ACM1                   | N/A                              |
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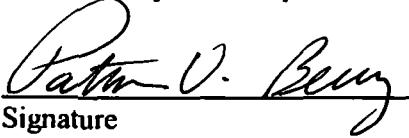
**Application Processing Fee**

Check one:  Attached - Amount: \$ \_\_\_\_\_  Not Applicable

**APPLICATION INFORMATION**

**Owner/Authorized Representative Statement**

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

|  |
|--|
| 1. Owner/Authorized Representative Name : Patricia V. Berry<br>Solid Waste Management Group Manager  |
| 2. Owner/Authorized Representative Mailing Address... Patricia V. Berry<br>Organization/Firm: Hillsborough County Public Utilities Department<br>Street Address: 925 Twiggs Street<br>City: Tampa State: Florida Zip Code: 33602   |
| 3. Owner/Authorized Representative Telephone Numbers...<br>Telephone: (813) 272 - 5977 ext. 43338 Fax: (813) 272 - 6224  |
| 4. Owner/Authorized Representative E-mail Address: berry@hillsboroughcounty.org  |
| 5. Owner/Authorized Representative Statement:<br><br><i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i><br><br><br>Signature<br><br><u>7/27/12</u><br>Date |

## APPLICATION INFORMATION

### Application Responsible Official Certification

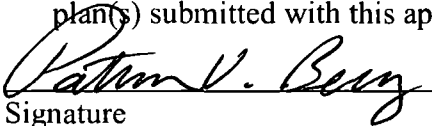
Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary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

|   |
|---|
| 1. Application Responsible Official Name: Patricia V. Berry,<br>Solid Waste Management Group Manager  |
| 2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):<br><input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.<br><input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively.<br><input checked="" type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.<br><input type="checkbox"/> The designated representative at an Acid Rain source or CAIR source. |
| 3. Application Responsible Official Mailing Address...<br>Organization/Firm: Hillsborough County Public Utilities Department<br>Street Address: 925 Twiggs Street<br>City: Tampa State: Florida Zip Code: 33602   |
| 4. Application Responsible Official Telephone Numbers...<br>Telephone: (813) 272 - 5977 ext. 43338 Fax: (813) 272 - 6224  |
| 5. Application Responsible Official E-mail Address: berryv@hillsboroughcounty.org   |

## APPLICATION INFORMATION

### 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

7/27/12  
Date



# APPLICATION INFORMATION

## Professional Engineer Certification

|  |
|--|
| 1. Professional Engineer Name: Paul L. Hauck, P.E.<br>Registration Number: 50892   |
| 2. Professional Engineer Mailing Address...<br>Organization/Firm: CDM Smith,<br>Street Address: 1715 N. Westshore Boulevard, Suite 875<br>City: Tampa State: Florida Zip Code: 33607   |
| 3. Professional Engineer Telephone Numbers...<br>Telephone: (813) 262 - 8840 ext. Fax: (813) 288 - 8787  |
| 4. Professional Engineer E-mail Address: hauckpl@cdmsmith.com  |
| 5. Professional Engineer Statement:<br><i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i><br><i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i><br><i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i><br><i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i><br><i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i><br><i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i><br><br>Signature: <u>Paul L. Hauck</u> Date: <u>7/27/12</u><br>(seal) No. 50892 |

\* Attach any exception to certification statement.

# APPLICATION INFORMATION

## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility Location and Type

|   |                               |  |                             |
|---|-------------------------------|--|-----------------------------|
| 1. Facility UTM Coordinates...<br>Zone East (km) 268.2<br>North (km) 3092.7 |                               | 2. Facility Latitude/Longitude...<br>Latitude (DD/MM/SS) 27/57/14<br>Longitude (DD/MM/SS) 82/20/22 |                             |
| 3. Governmental<br>Facility Code: 3   | 4. Facility Status<br>Code: C | 5. Facility Major<br>Group SIC Code:<br>49   | 6. Facility SIC(s):<br>4953 |
| 7. Facility Comment :   |                               |  |                             |

#### Facility Contact

|   |
|---|
| 1. Facility Contact Name: Glenn Hoag  |
| 2. Facility Contact Mailing Address...<br>Organization/Firm: Covanta Hillsborough Inc.<br>Street Address: 350 N. Falkenburg Road<br>City: Tampa State: Florida Zip Code: 33619-0903 |
| 3. Facility Contact Telephone Numbers:<br>Telephone: (813) 684 - 5688 ext. 3013 Fax: (813) 684 - 7964   |
| 4. Facility Contact E-mail Address: ghoag@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: Glenn Hoag  |
| 2. Facility Primary Responsible Official Mailing Address...<br>Organization/Firm: Covanta Hillsborough Inc.<br>Street Address: 350 N. Falkenburg Road<br>City: Tampa State: Florida Zip Code: 33619-0903 |
| 3. Facility Primary Responsible Official Telephone Numbers...<br>Telephone: (813) 684 - 5688 ext.3013 Fax: (813) 684 - 7964  |
| 4. Facility Primary Responsible Official E-mail Address: ghoag@covantaenergy.com   |

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# Section 1

## Applicable Regulations

Below are the applicable rules that address the combustion of biosolids in MSW units:

### 1.1 40 CFR 60, Subpart Cb, Emission Guidelines and Compliance Time for Large Municipal Waste Combustors (MWC) That are Constructed on or Before September 20, 1994

The combustion of biosolids in Hillsborough RRF will not affect the applicability of 40 CFR, Subpart Cb. Units 1, 2 & 3 will continue to be subjected to Subpart Cb. Subpart Cb applies to large MWC units that combust at least 11 tons per day of municipal solid waste (MSW), and for which at least 30 percent of the feedstock is MSW. Co-combustion of other non-hazardous secondary materials with MSW is allowed in an MWC unit, as long as all of the applicable emission requirements are met. (40 CFR 60.32b(b) and 40 CFR 60.32b(i)) Addition of sewage sludge at the proposed quantities of up to 40 wet tons per unit per day (as received), or up to 10 percent of the mass-based design feed rate, will be done within permitted maximum allowable steam production rate capacity of 102,000 pounds of steam per hour per unit.

### 1.2 40 CFR 60, Subpart Eb, Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for which Modification or Reconstruction is Commenced after June 19, 1996

The combustion of biosolids in Hillsborough RRF will not affect the applicability of 40 CFR, Subpart Eb. There will be no physical modification to the RRF. Unit 4 will continue to be subjected to part Eb. Subpart Eb applies to large MWC units that combust at least 11 tons per day of municipal solid waste (MSW), and for which at least 30 percent of the feedstock is MSW. Co-combustion of other non-hazardous secondary materials with MSW is allowed in an MWC unit, as long as all of the applicable emission requirements are met. (40 CFR 60.50b(b), 40 CFR 60.50b(j), and 40 CFR 60.51b) Addition of sewage sludge at the proposed quantities of up to 60 wet tons per day (as received), or up to 10 percent of the mass-based design feed rate, will be done within permitted maximum allowable steam production rate capacity of 200,000 pounds of steam per hour.

### 1.3 40 CFR 60, Subpart M, Emission Guidelines for Sewage Sludge Incineration Units

40 CFR 60 Subpart M is a standard that applies to units and processes that combust sewage sludge, and commenced construction on or before October 14, 2010. 40 CFR 60.5065, which governs applicability of this Rule, states that, "This subpart exempts combustion units that incinerate sewage sludge and are not located at a wastewater treatment facility designed to treat domestic sewage

sludge. These units may be subject to another subpart of this part (e.g., subpart CCCC of this part). The owner or operator of such a combustion unit must notify the Administrator of an exemption claim under this section. "Since the Hillsborough RRF is not located at a wastewater treatment facility, it is exempt from Subpart MMMM, and Subparts Cb and Eb apply. With this application, Hillsborough County is notifying FDEP of this exemption.

## 1.4 40 CFR 60, Subpart LLLL, NSPS for Sewage Sludge Incineration Units

40 CFR 60, Subpart LLLL applies to sewage sludge incinerator units that commenced construction after October 14, 2010 or for which modification commenced after September 21, 2011. Hillsborough RRF was constructed prior to October 14, 2010 and therefore, this regulation does not apply.

## 1.5 40 CFR 61, Subpart E, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Mercury

40 CFR 61, Subpart E is applicable to stationary sources, which incinerate or dry wastewater treatment plant sludge. This regulation is applicable to Hillsborough RRF once the RRF starts to combust biosolids.

Under Subpart E, the Facility's mercury emission limit is not to exceed 3.2 kg in any 24-hour period. The Facility's current Title V Permit contains mercury limits emissions that are equivalent to 0.427kg/day for Units 1, 2, 3 and 0.239kg/day for Unit 4. Therefore, the Facility's current limits are more stringent than the NESHAP rule.

§ 61.55 (a) does state that if the mercury source is to exceed 1.6 kg per 24-hour period at least once a year, the source shall report and retain the results.

Subpart E requires that one of the three below compliance methods for initial testing.

- Obtain a waiver of emission testing under §61.13
- Perform stack sampling using Method 101A in Appendix B to Part 61 or
- Perform sludge sampling according to §61.54

In addition §61.09 requires notification of the anticipated date of startup and actual date of startup.

The County requests a waiver of emission testing under 40 CFR 60.13(h)(1)(m). This provision allows FDEP to approve the waiver if the "source has demonstrated by other means to the Administrator's satisfaction that the source is in compliance with the standard." Section 3, below, shows that upper-bound mercury loadings for sewage sludge addition of up to 10 percent of the total waste feed rate by mass would not cause any of the MWC units to approach or exceed their permitted mercury emission limit. Hillsborough County requests, therefore, that compliance with 40 CFR Subpart E be based on the annual mercury compliance stack testing already required by the current Title V Permit. In addition, Unit 4 is testing a mercury CEM that gives real time emissions readings.

## Section 2

### Proposed Operation

Biosolids with solid contents of at least 12 percent would be trucked from Hillsborough County owned wastewater treatment plants:

- Falkenburg Advanced Wastewater Treatment Plant
- Valrico Advanced Wastewater Treatment Plant
- South County Advanced Wastewater Treatment Plant
- Northwest Water Reclamation Facility
- Dale Mabry Advanced Wastewater Treatment Plant
- River Oaks Advanced Wastewater Treatment Plant
- Van Dyke Wastewater Treatment Plant

The last three treatment plants, Northwest, Dale Mabry, River Oak and Van Dyke are plants that either truck or pump directly to the Biosolids Management Facility. These plants produce liquid biosolids and will not be combusted at Hillsborough RRF unless further dewatering occurs.

The biosolids will be directly dumped into the main refuse storage bunker along with municipal solid waste. The crane operators will mix the biosolids and MSW to achieve a more homogenous fuel. Mixing of the WWTP biosolids with the MSW will be performed by the refuse crane operators. The biosolids will be picked up by the refuse crane grapple and distributed with the back stacked MSW along the rear of the refuse pit. The goal is to spread the biosolids over a large area/volume of MSW due to its high moisture content. Once the mixing is complete, the crane operators will pick up the mixed fuel and feed it directly into the boiler hopper. Hillsborough County proposes to combust up to 180 wet tons as received per day of WWTP biosolids. This is 10 percent of the RRF's nominal design feed rate of 1,800 tons of MSW per day. The goal is to control the amount of blended biosolids introduced to a combustor over the course of its operation to ensure through combustion.

Odor control shall remain the same. The waste bunker is fully enclosed inside the Refuse Building. The Tipping Building is kept at a slight negative pressure by force draft fans that takes the suction of combustion air from inside the refuse/Tipping Building. The odor is later destroyed inside the furnace.

This permit application requests that Condition B.2 Process Operating Rates be modified to read "the maximum steam production rate shall not exceed 102,000 pounds of steam per hour per unit on a 4-hour block arithmetic average." This edit would clarify point of compliance for the permit holder and conform the specific condition language to Unit 4. No increase of emissions is requested.

## Section 3

# Reasonable Assurance

The Hillsborough County RRF maximum potential emission rates are not expected to change as a result of adding biosolids to the MSW fed to each combustor. The biosolids would be limited to no more than 10 percent of the total mass of waste combusted, and the biosolids would be well mixed over a large volume of MSW. Each of the four combustors has an air pollution control equipment train – spray dryer scrubber, activated carbon injection, baghouse and selective non-catalytic reduction system – that, combined with good combustion practices, can readily remove air pollutants associated with sewage sludge combustion (primarily metals and particulate matter). The biosolids analysis data, emission rate calculations, and Lee County RRF test burn results presented below show that the Hillsborough RRF would be able to continue to meet all air permit emission limits.

### 3.1 Biosolids Analysis

Appendix A contains metals analytical data for wastewater sludge samples taken from each of the WWTPs that would provide biosolids to the Hillsborough RRF. Table 3.1 presents a summary of these data, along with calculated upper-bound emission rates. It is assumed for conservatism that all of the mercury in the biosolids feed is vaporized and emitted to the inlet of the air pollution control equipment train. It is then assumed that the Activated Carbon / Baghouse system would achieve the design specification of 85 percent heavy metal removal.

**Table 3.1 Theoretical Increase of Mercury Emission Rate**

| WWTP Facility | Result<br>(mg/kg)<br>(2) | Mass of Mercury available to be emitted with 85% removal<br>rate, combusting 180 tons of biosolids per day (1) |             |
|---------------|--------------------------|--|-------------|
|               |                          | Lb/hr  | mg/dscm (3) |
| Falkenburg    | 0.22                     | 0.012  | 0.0006      |
| Valrico       | 0.55                     | 0.030  | 0.0016      |
| South County  | 0.521                    | 0.028  | 0.0015      |
| Northwest     | 0.381                    | 0.021  | 0.0011      |
| Average       | 0.418                    | 0.023  | 0.0012      |

- (1) Burning 180 tons of biosolids which is equivalent to 10% of total waste.
- (2) Results were obtained from Biosolids characteristics in Appendix A.
- (3) The total stack flow of air is calculated to be approximately 8,624,000 dscm per day for the facility. This value is obtained from the average isokinetic flows from the air compliance test from 2009 to 2011 for Units 1,2,3 and the average flows from the airflow monitor from Unit 4 for the Year 2011.

Tables 3.2 and 3.3, below, present upper-bound emission rate calculations for cadmium (Cd) and lead (Pb). The calculation assumed of complete vaporization and 85% capture rate by the Baghouse.

**Table 3.2 Theoretical Increase of Cadmium Emission Rate**

| WWTP Facility | Result<br>(mg/kg)<br>(2) | Mass of Cadmium available to be emitted, assuming 85%<br>Reduction, combusting 180 tons of biosolids per day (1) |            |
|---------------|--------------------------|--|------------|
|               |                          | Lb/hr  | mg/dscm(3) |
| Falkenburg    | 1.71                     | 0.092  | 0.0049     |
| Valrico       | 3.17                     | 0.171  | 0.0090     |
| South County  | 3.29                     | 0.178  | 0.0093     |
| Northwest     | 1.61                     | 0.087  | 0.0046     |
| Average       | 2.445                    | 0.132  | 0.0069     |

- (1) Burning 180 tons of biosolids which is equivalent to 10% of total waste.
- (2) Results were obtained from Biosolids characteristics in Appendix A.
- (3) The total stack flow of air is calculated to be approximately 8,624,000 dscm per day for the facility. This value is obtained from the average isokinetic flows from the air compliance test from 2009 to 2011 for Units 1,2,3 and the average flows from the airflow monitor from Unit 4 for the Year 2011.

**Table 3.3 Theoretical Increase of Lead Emission Rate**

| WWTP Facility | Result<br>(mg/kg)<br>(2) | Mass of Lead available to be emitted, assuming 85%<br>reduction, combusting 180 tons of biosolids per day (1) |            |
|---------------|--------------------------|---|------------|
|               |                          | Lb/hr   | mg/dscm(3) |
| Falkenburg    | 12.9                     | 0.697   | 0.0366     |
| Valrico       | 6.11                     | 0.330   | 0.0174     |
| South County  | 16.7                     | 0.902   | 0.0474     |
| Northwest     | 15.5                     | 0.837   | 0.0440     |
| Average       | 12.8025                  | 0.691   | 0.0364     |

- (1) Burning 180 tons of biosolids which is equivalent to 10% of total waste.
- (2) Results were obtained from Biosolids characteristics in Appendix A.
- (3) The total stack flow of air is calculated to be approximately 8,624,000 dscm per day for the facility. This value is obtained from the average isokinetic flows from the air compliance test from 2009 to 2011 for Units 1,2,3 and the average flows from the airflow monitor from Unit 4 for the Year 2011.

## 3.2 Emission Comparison

Table 3.4 compares expected combined mercury emission rates for MSW with currently permitted maximum allowable mercury emission rates for each of the units. This comparison shows that even with the worst-case assumptions of directly adding the biosolids emissions to the MSW emissions, and that all of the mercury in the biosolids would volatilize, the combined results would be well below the Title V Air Permit emissions limits.



**Table 3.4 Biosolids and MSW Combined Emissions Compared with Emissions Limits**

| Units 1, 2, 3 Emission Limits |   |   |  |                            |
|-------------------------------|---|---|--|----------------------------|
| Parameter                     | Permitted Emission Limit                                | 2011 Stack Test Highest Result over Units 1, 2, 3 | Theoretical Addition by Biosolids, assuming 85% removal rate | Theoretical Total Emission |
| Mercury                       | 0.050 mg/dscm @ 7% O <sub>2</sub>                       | 0.0103  | 0.0012   | 0.011                      |
| Cadmium                       | 0.035 mg/dscm @ 7% O <sub>2</sub>                       | 0.00034   | 0.0069   | 0.007                      |
| Lead                          | 0.400 mg/dscm @ 7% O <sub>2</sub>                       | 0.0068  | 0.0364   | 0.043                      |
| Units 4 Emission Limits       |   |   |  |                            |
| Parameter                     | Permitted Emission Limit (mg/dscm @ 7% O <sub>2</sub> ) | 2011 Stack Test Highest Result                    | Theoretical Addition by Biosolids, assuming 85% removal rate | Theoretical Total Emission |
| Mercury                       | 0.028 mg/dscm @ 7% O <sub>2</sub>                       | 0.00141   | 0.0012   | 0.0026                     |
| Cadmium                       | 0.010 mg/dscm @ 7% O <sub>2</sub>                       | 0.00039   | 0.0069   | 0.0073                     |
| Lead                          | 0.140 mg/dscm @ 7% O <sub>2</sub>                       | 0.00461   | 0.0364   | 0.0410                     |

### 3.3 Results of Lee County RRF Biosolids Test Burn

Table 3.5 summarizes the Data Comparison from Lee County RRF's test burn with biosolids. The complete test burn report is attached in Appendix C.

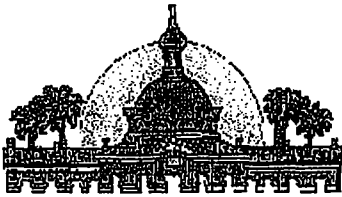
**Table 3.5 Analysis of Test Burn at Lee County RRF**

| Parameter       | Units                 | January 2012 Stack Concentration | March 2012 Stack Test Concentration w/ Biosolids @ 5% of total waste | Concentration Difference | Comparison |
|-----------------|-----------------------|----------------------------------|--|--------------------------|------------|
| Mercury         | mg/dscm               | 0.000722                         | 0.000258   | -0.000464                | Decrease   |
| Cadmium         | mg/dscm               | 0.000117                         | 0.00013  | 0.000013                 | Increase   |
| Lead            | mg/dscm               | 0.00133                          | 0.00133  | 0                        | No Change  |
| Opacity         | %                     | 0                                | 0  | 0                        | No Change  |
| CO              | ppm@ 7%O <sub>2</sub> | 12                               | 11   | -1                       | Decrease   |
| SO <sub>x</sub> | ppm@ 7%O <sub>2</sub> | 8                                | 11   | 3                        | Increase   |
| NO <sub>x</sub> | ppm@ 7%O <sub>2</sub> | 145                              | 151  | 6                        | Increase   |

The test burn indicates that the co-incineration with approximately 5 percent biosolids does not have a significant effect on stack concentrations of air pollutants. emission rates.

The Lee test burn did indicate a possible increase in NO<sub>x</sub> concentrate. However, this will not be a concern. Hillsborough's units are equipped with NO<sub>x</sub> CEM and ammonia injection. The CEM will indicate NO<sub>x</sub> spikes and reagent injection will be adjusted accordingly

Section A  
Results of Sludge Sampling



**Hillsborough County Water Department**  
**Environmental Laboratory (813) 264-3887**  
**13055 Delwood Rd. Tampa, FL 33624**

**TITLE 40 CFR PART 503 COMPOSITE SLUDGE ANALYSIS**

**Client Name:** Falkenburg AWT

**Sample Dates:** 1/5, 1/7, 1/12, 1/13/10

**Facility ID#:** FL0040614

**Report Date:** 2/15/2010

**Lab#:** 20091222082

**Ending Sample Date:** 1/13/2010

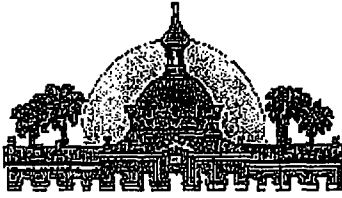
**Sample ID:** FKBTSL

**Collected By:** SampleP/GoL/D

**Sample Type:** Composite

**Source:** Compliance

| Test ID   | Test Name           | Flag | Result | Units | MDL    | Analysis Date | Analyzed By |
|---|---------------------|------|--------|-------|--------|---------------|-------------|
| AS  | Arsenic, As         |      | 25.7   | mg/kg |        | 2/4/2010      | thornburga  |
| Prep Method: SW 3050.B Prep Date: 1/25/2010 Prep By: Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| CD  | Cadmium, Cd         |      | 1.71   | mg/kg | 1.39   | 2/4/2010      | thornburga  |
| Prep Method: SW 3050.B Prep Date: 1/25/2010 Prep By: Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| CR  | Chromium, Cr        |      | 14.9   | mg/kg | 0.107  | 2/4/2010      | thornburga  |
| Prep Method: SW 3050.B Prep Date: 1/25/2010 Prep By: Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| CU  | Copper, Cu          |      | 360    | mg/kg | 1.17   | 2/3/2010      | thornburga  |
| Prep Method: SW 3050.B Prep Date: 1/25/2010 Prep By: Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| HG  | Mercury, Hg         |      | 0.220  | mg/kg | 0.0662 | 2/2/2010      | AT          |
| Prep Method: SW 7011 Prep Date: 2/1/2010 Prep By: Analytical Method: SW 470           |                     |      |        |       |        |               |             |
| K-Sludge  | Potassium, K Sludge |      | 1.05   | %     |        | 2/4/2010      | thornburga  |
| Prep Method: Calculation Prep Date: 1/25/2010 Prep By: Analytical Method: Calculation |                     |      |        |       |        |               |             |
| MO  | Molybdenum, Mo      |      | 13.8   | mg/kg | 0.213  | 2/4/2010      | thornburga  |
| Prep Method: SW 3050.B Prep Date: 1/25/2010 Prep By: Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| NI  | Nickel, Ni          |      | 12.2   | mg/kg | 0.853  | 2/4/2010      | thornburga  |
| Prep Method: SW 3050.B Prep Date: 1/25/2010 Prep By: Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| PB  | Lead, Pb            |      | 12.9   | mg/kg | 1.39   | 2/4/2010      | thornburga  |
| Prep Method: SW 3050.B Prep Date: 1/25/2010 Prep By: Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| SE  | Selenium, Se        |      | 125    | mg/kg |        | 2/4/2010      | thornburga  |
| Prep Method: SW 3050.B Prep Date: 1/25/2010 Prep By: Analytical Method: SW 6010       |                     |      |        |       |        |               |             |



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**TITLE 40 CFR PART 503 COMPOSITE SLUDGE ANALYSIS**

Client Name Falkenburg AWT

Sample Dates 1/5, 1/7, 1/12, 1/13/10

Facility ID#: FL0040614

Report Date: 2/15/2010

Lab#: 20091222082

Ending Sample Date: 1/13/2010

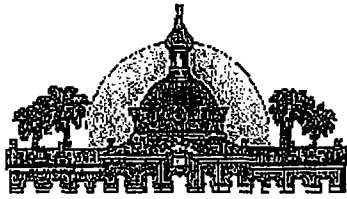
Sample ID: FKBTSL

Collected By: SampleP/GoL/D

Sample Type: Composite

Source: Compliance

| Test ID  | Test Name                         | Flag | Result | Units    | MDL   | Analysis Date | Analyzed By |
|--|-----------------------------------|------|--------|----------|-------|---------------|-------------|
| ZN   | Zinc, Zn                          |      | 631    | mg/kg    | 0.426 | 2/3/2010      | thornburga  |
| Prep Method: SW 3050(B) Prep Date: 1/25/2010 Prep By: Analytical Method: SW 6010 |                                   |      |        |          |       |               |             |
| NH3-Sludge   | Ammonia, Sludge                   | <    | 0.034  | %        | 0.034 | 1/22/2010     | CZ          |
| Prep Method: 9501 Prep Date: Prep By: Analytical Method: 9501                    |                                   |      |        |          |       |               |             |
| NO3+NO2-Sl   | Combined NO3+NO2, Sludge          | <    | 0.022  | %        | 0.022 | 1/22/2010     | CZ          |
| Prep Method: EPA 531(2) Prep Date: Prep By: Analytical Method: EPA 531(2)        |                                   |      |        |          |       |               |             |
| TKN-Sludge   | Total Kjeldahl Nitrogen, Sludge   |      | 7.95   | %        | 0.048 | 1/29/2010     | CZ          |
| Prep Method: 3512-365 Prep Date: Prep By: Analytical Method: 3512-365            |                                   |      |        |          |       |               |             |
| TN   | Total Nitrogen, TN - N            |      | 7.96   | %        | 0.05  | 2/4/2010      | CZ          |
| Prep Method: Calculation Prep Date: Prep By: Analytical Method: Calculation      |                                   |      |        |          |       |               |             |
| TP-Sludge  | Total Phosphorus, Sludge          |      | 3.14   | %        | 0.046 | 1/29/2010     | CZ          |
| Prep Method: 3512-365 Prep Date: Prep By: Analytical Method: 3512-365            |                                   |      |        |          |       |               |             |
| PH-LAB   | pH, Lab                           |      | 6.45   | pH units | 0.01  | 1/18/2010     | VB          |
| Prep Method: SM 2540(G) Prep Date: Prep By: Analytical Method: SM 2540(G)        |                                   |      |        |          |       |               |             |
| TSOLIDS %D   | Total Solids %Dry (Residue)       |      | 2.68   | %        | 0.01  | 1/18/2010     | VB          |
| Prep Method: SM 2540(G) Prep Date: Prep By: Analytical Method: SM 2540(G)        |                                   |      |        |          |       |               |             |
| TSOLIDS %V   | Total Solids % Volatile (Residue) |      | 80.5   | %        | 0     | 1/18/2010     | VB          |
| Prep Method: SM 2540(G) Prep Date: Prep By: Analytical Method: SM 2540(G)        |                                   |      |        |          |       |               |             |



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**13055 Delwood Rd. Tampa, FL 33624**

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**TITLE 40 CFR PART 503 COMPOSITE SLUDGE ANALYSIS**

**Client Name** Falkenburg AWT

**Sample Dates** 1/5, 1/7, 1/12, 1/13/10

**Facility ID#:** FL0040614

**Report Date:** 2/15/2010

**Lab#:** 20091222082

**Ending Sample Date:** 1/13/2010

**Sample ID:** FKBTSL

**Collected By:** SampleP/GoL/D

**Sample Type:** Composite

**Source:** Compliance

| Test ID | Test Name | Flag | Result | Units | MDL | Analysis Date | Analyzed By |
|---------|-----------|------|--------|-------|-----|---------------|-------------|
|---------|-----------|------|--------|-------|-----|---------------|-------------|

**\*\*Please refer to facility monthly dry tonnage report for % solids results. Do not use the value listed in this report.**

**Sample Dates** 1/5, 1/7, 1/12,  
1/13/10

**Laboratory Approval:** \_\_\_\_\_



**Hillsborough County Water Department**  
**Environmental Laboratory (813) 264-3887**  
**13055 Delwood Rd. Tampa, FL 33624**

**TITLE 40 CFR PART 503 COMPOSITE SLUDGE ANALYSIS**

Client Name Valrico AWT

Sample Dates 2/1, 2/4, 2/8, 2/10

Facility ID#: FL0040983

Report Date: 3/5/2010

Lab#: 20100114110

Ending Sample Date: 2/10/2010

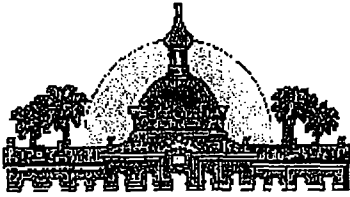
Sample ID: VALTSL

Collected By: ClarkeK

Sample Type: Composite

Source: Compliance

| Test ID  | Test Name                | Flag | Result | Units | MDL   | Analysis Date | Analyzed By |
|--|--------------------------|------|--------|-------|-------|---------------|-------------|
| CD   | Cadmium, Cd              | <    | 3.17   | mg/kg | 3.17  | 2/26/2010     | AT          |
| Prep Method: SW 3050/B    Prep Date: 2/26/2010    Prep By:    Analytical Method: SW 6010       |                          |      |        |       |       |               |             |
| CR   | Chromium, Cr             |      | 14.4   | mg/kg | 0.244 | 2/26/2010     | AT          |
| Prep Method: SW 3050/B    Prep Date: 2/26/2010    Prep By:    Analytical Method: SW 6010       |                          |      |        |       |       |               |             |
| CU   | Copper, Cu               |      | 246    | mg/kg | 2.69  | 2/26/2010     | AT          |
| Prep Method: SW 3050/B    Prep Date: 2/26/2010    Prep By:    Analytical Method: SW 6010       |                          |      |        |       |       |               |             |
| K-Sludge   | Potassium, K Sludge      |      | 0.819  | %     |       | 2/26/2010     | AT          |
| Prep Method: Calculation    Prep Date: 2/26/2010    Prep By:    Analytical Method: Calculation |                          |      |        |       |       |               |             |
| MO   | Molybdenum, Mo           |      | 11.5   | mg/kg | 0.488 | 2/26/2010     | AT          |
| Prep Method: SW 3050/B    Prep Date: 2/26/2010    Prep By:    Analytical Method: SW 6010       |                          |      |        |       |       |               |             |
| NI   | Nickel, Ni               |      | 6.84   | mg/kg | 1.95  | 2/26/2010     | AT          |
| Prep Method: SW 3050/B    Prep Date: 2/26/2010    Prep By:    Analytical Method: SW 6010       |                          |      |        |       |       |               |             |
| PB   | Lead, Pb                 |      | 6.11   | mg/kg | 3.17  | 2/26/2010     | AT          |
| Prep Method: SW 3050/B    Prep Date: 2/26/2010    Prep By:    Analytical Method: SW 6010       |                          |      |        |       |       |               |             |
| ZN   | Zinc, Zn                 |      | 444    | mg/kg | 0.977 | 2/26/2010     | AT          |
| Prep Method: SW 3050/B    Prep Date: 2/26/2010    Prep By:    Analytical Method: SW 6010       |                          |      |        |       |       |               |             |
| NH3-Sludge   | Ammonia, Sludge          | <    | 0.034  | %     | 0.034 | 2/18/2010     | CZ          |
| Prep Method: 8501/E    Prep Date:    Prep By:    Analytical Method: 8501/E                     |                          |      |        |       |       |               |             |
| NO3+NO2-Sl   | Combined NO3+NO2, Sludge | <    | 0.022  | %     | 0.022 | 2/18/2010     | CZ          |
| Prep Method: EPA 353.2    Prep Date:    Prep By:    Analytical Method: EPA 353.2               |                          |      |        |       |       |               |             |



Hillsborough County Water Department  
Environmental Laboratory (813) 264-3887  
13055 Delwood Rd. Tampa, FL 33624

TITLE 40 CFR PART 503 COMPOSITE SLUDGE ANALYSIS

Client Name Valrico AWT

Sample Dates 2/1, 2/4, 2/8, 2/10

Facility ID#: FL0040983

Report Date: 3/5/2010

Lab#: 20100114110

Ending Sample Date: 2/10/2010

Sample ID: VALTSL

Collected By: ClarkeK

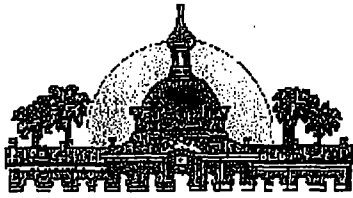
Sample Type: Composite

Source: Compliance

| Test ID   | Test Name                         | Flag | Result | Units    | MDL   | Analysis Date | Analyzed By |
|---|-----------------------------------|------|--------|----------|-------|---------------|-------------|
| TKN-Sludge  | Total Kjeldahl Nitrogen, Sludge   |      | 6.64   | %        | 0.048 | 2/18/2010     | CZ          |
| Prep Method: 3512-36571 Prep Date: Prep By: Analytical Method: 3512-36571         |                                   |      |        |          |       |               |             |
| TN  | Total Nitrogen, TN - N            |      | 6.64   | %        | 0.05  | 2/18/2010     | CZ          |
| Prep Method: Calculation Prep Date: Prep By: Analytical Method: Calculation       |                                   |      |        |          |       |               |             |
| TP-Sludge   | Total Phosphorus, Sludge          |      | 3.07   | %        | 0.046 | 2/18/2010     | CZ          |
| Prep Method: 3512-36571 Prep Date: Prep By: Analytical Method: 3512-36571         |                                   |      |        |          |       |               |             |
| PH-LAB  | pH, Lab                           |      | 6.47   | pH units | 0.01  | 2/11/2010     | VB          |
| Prep Method: SM 2540 G Prep Date: Prep By: Analytical Method: SM 2540 G           |                                   |      |        |          |       |               |             |
| TSOLIDS %D  | Total Solids %Dry (Residue)       |      | 1.17   | %        | 0.01  | 2/11/2010     | VB          |
| Prep Method: SM 2540 G Prep Date: Prep By: Analytical Method: SM 2540 G           |                                   |      |        |          |       |               |             |
| TSOLIDS %V  | Total Solids % Volatile (Residue) |      | 76.8   | %        | 0     | 2/11/2010     | VB          |
| Prep Method: SM 2540 G Prep Date: Prep By: Analytical Method: SM 2540 G           |                                   |      |        |          |       |               |             |
| AS  | Arsenic, As                       |      | 19     | mg/kg    | 19    | 2/18/2010     | TestAm      |
| Prep Method: SM 3050 B Prep Date: 2/15/2010 Prep By: Analytical Method: SM 3050 B |                                   |      |        |          |       |               |             |
| HG  | Mercury, Hg                       |      | 0.55   | mg/kg    | 0.060 |               | TestAm      |
| Prep Method: SM 7491 Prep Date: Prep By: Analytical Method: SM 7491               |                                   |      |        |          |       |               |             |
| SE  | Selenium, Se                      |      | 31     | mg/kg    | 31    | 2/18/2010     | TestAm      |
| Prep Method: SM 3050 B Prep Date: 2/15/2010 Prep By: Analytical Method: SM 3050 B |                                   |      |        |          |       |               |             |

20100114110-2

0.55 mg/kg =



**Hillsborough County Water Department**  
**Environmental Laboratory (813) 264-3887**  
**13055 Delwood Rd. Tampa, FL 33624**

---

**TITLE 40 CFR PART 503 COMPOSITE SLUDGE ANALYSIS**

**Client Name** Valrico AWT

**Sample Dates** 2/1, 2/4, 2/8, 2/10

**Facility ID#:** FL0040983

**Report Date:** 3/5/2010

**Lab#:** 20100114110

**Ending Sample Date:** 2/10/2010

**Sample ID:** VALTSL

**Collected By:** ClarkeK

**Sample Type:** Composite

**Source:** Compliance

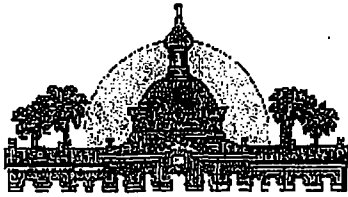
| Test ID | Test Name | Flag | Result | Units | MDL | Analysis Date | Analyzed By |
|---------|-----------|------|--------|-------|-----|---------------|-------------|
|---------|-----------|------|--------|-------|-----|---------------|-------------|

**\*\*Please refer to facility monthly dry tonnage report for % solids results. Do not use the value listed in this report.**

**Sample Dates** 2/1, 2/4, 2/8, 2/10

**Laboratory Approval:** \_\_\_\_\_



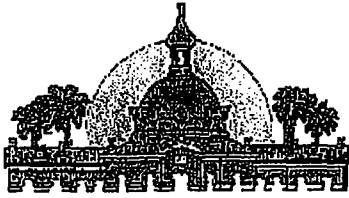


**Hillsborough County Water Department**  
**Environmental Laboratory (813) 264-3887**  
**13055 Delwood Rd. Tampa, FL 33624**

**TITLE 40 CFR PART 503 COMPOSITE SLUDGE ANALYSIS**

Client Name South County Regional AWT      Sample Dates 1/7, 1/9, 1/11, 1/13/10  
 Facility ID#: FL0028061      Report Date: 2/15/2010  
 Lab#: 20091222086      Ending Sample Date: 1/13/2010  
 Sample ID: SCRTSL      Collected By: DenksP  
 Sample Type: Composite      Source: Compliance

| Test ID  | Test Name           | Flag | Result | Units | MDL    | Analysis Date | Analyzed By |
|--|---------------------|------|--------|-------|--------|---------------|-------------|
| AS   | Arsenic, As         |      | 44.2   | mg/kg |        | 2/4/2010      | thornburga  |
| Prep Method: SW 3050/B      Prep Date: 1/25/2010      Prep By:      Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| CD   | Cadmium, Cd         | <    | 3.29   | mg/kg | 3.29   | 2/4/2010      | thornburga  |
| Prep Method: SW 3050/B      Prep Date: 1/25/2010      Prep By:      Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| CR   | Chromium, Cr        |      | 12.9   | mg/kg | 0.253  | 2/4/2010      | thornburga  |
| Prep Method: SW 3050/B      Prep Date: 1/25/2010      Prep By:      Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| CU   | Copper, Cu          |      | 216    | mg/kg | 2.78   | 2/3/2010      | thornburga  |
| Prep Method: SW 3050/B      Prep Date: 1/25/2010      Prep By:      Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| HG   | Mercury, Hg         |      | 0.521  | mg/kg | 0.0785 | 2/2/2010      | AT          |
| Prep Method: SW 7491      Prep Date: 2/1/2010      Prep By:      Analytical Method: SW 471           |                     |      |        |       |        |               |             |
| K-Sludge   | Potassium, K Sludge |      | 0.944  | %     |        | 2/4/2010      | thornburga  |
| Prep Method: Calculation      Prep Date: 1/25/2010      Prep By:      Analytical Method: Calculation |                     |      |        |       |        |               |             |
| MO   | Molybdenum, Mo      |      | 15.4   | mg/kg | 0.506  | 2/4/2010      | thornburga  |
| Prep Method: SW 3050/B      Prep Date: 1/25/2010      Prep By:      Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| NI   | Nickel, Ni          |      | 6.07   | mg/kg | 2.02   | 2/4/2010      | thornburga  |
| Prep Method: SW 3050/B      Prep Date: 1/25/2010      Prep By:      Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| PB   | Lead, Pb            |      | 16.7   | mg/kg | 3.29   | 2/4/2010      | thornburga  |
| Prep Method: SW 3050/B      Prep Date: 1/25/2010      Prep By:      Analytical Method: SW 6010       |                     |      |        |       |        |               |             |
| SE   | Selenium, Se        |      | 135    | mg/kg |        | 2/4/2010      | thornburga  |
| Prep Method: SW 3050/B      Prep Date: 1/25/2010      Prep By:      Analytical Method: SW 6010       |                     |      |        |       |        |               |             |



**Hillsborough County Water Department**  
**Environmental Laboratory (813) 264-3887**  
**13055 Delwood Rd. Tampa, FL 33624**

**TITLE 40 CFR PART 503 COMPOSITE SLUDGE ANALYSIS**

**Client Name** South County Regional AWT

**Sample Dates** 1/7, 1/9, 1/11, 1/13/10

**Facility ID#:** FL0028061

**Report Date:** 2/15/2010

**Lab#:** 20091222086

**Ending Sample Date:** 1/13/2010

**Sample ID:** SCRTSL

**Collected By:** DenksP

**Sample Type:** Composite

**Source:** Compliance

| Test ID   | Test Name                         | Flag | Result | Units    | MDL   | Analysis Date | Analyzed By |
|---|-----------------------------------|------|--------|----------|-------|---------------|-------------|
| ZN  | Zinc, Zn                          |      | 545    | mg/kg    | 1.01  | 2/3/2010      | thomburga   |
| Prep Method: SW-9050.B Prep Date: 1/25/2010 Prep By: Analytical Method: SW-9010 |                                   |      |        |          |       |               |             |
| NH3-Sludge  | Ammonia, Sludge                   | <    | 0.034  | %        | 0.034 | 1/22/2010     | CZ          |
| Prep Method: 350.1 Prep Date: Prep By: Analytical Method: 350.1                 |                                   |      |        |          |       |               |             |
| NO3+NO2-Sl  | Combined NO3+NO2, Sludge          | <    | 0.022  | %        | 0.022 | 1/22/2010     | CZ          |
| Prep Method: EPA 8530 Prep Date: Prep By: Analytical Method: EPA 8530           |                                   |      |        |          |       |               |             |
| TKN-Sludge  | Total Kjeldahl Nitrogen, Sludge   |      | 7.03   | %        | 0.048 | 1/29/2010     | CZ          |
| Prep Method: 351.2-365.4 Prep Date: Prep By: Analytical Method: 351.2-365.4     |                                   |      |        |          |       |               |             |
| TN  | Total Nitrogen, TN - N            |      | 7.03   | %        | 0.05  | 2/4/2010      | CZ          |
| Prep Method: Calculation Prep Date: Prep By: Analytical Method: Calculation     |                                   |      |        |          |       |               |             |
| TP-Sludge   | Total Phosphorus, Sludge          |      | 2.90   | %        | 0.046 | 1/29/2010     | CZ          |
| Prep Method: 351.2-365.4 Prep Date: Prep By: Analytical Method: 351.2-365.4     |                                   |      |        |          |       |               |             |
| PH-LAB  | pH, Lab                           |      | 6.33   | pH units | 0.01  | 1/18/2010     | VB          |
| Prep Method: SM 2540.G Prep Date: Prep By: Analytical Method: SM 2540.G         |                                   |      |        |          |       |               |             |
| TSOLIDS %D  | Total Solids %Dry (Residue)       |      | 1.13   | %        | 0.01  | 1/18/2010     | VB          |
| Prep Method: SM 2540.G Prep Date: Prep By: Analytical Method: SM 2540.G         |                                   |      |        |          |       |               |             |
| TSOLIDS %V  | Total Solids % Volatile (Residue) |      | 78.6   | %        | 0     | 1/18/2010     | VB          |
| Prep Method: SM 2540.G Prep Date: Prep By: Analytical Method: SM 2540.G         |                                   |      |        |          |       |               |             |



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**Client Name** South County Regional AWT

**Sample Dates** 1/7, 1/9, 1/11, 1/13/10

**Facility ID#:** FL0028061

**Report Date:** 2/15/2010

**Lab#:** 20091222086

**Ending Sample Date:** 1/13/2010

**Sample ID:** SCRTSL

**Collected By:** DenksP

**Sample Type:** Composite

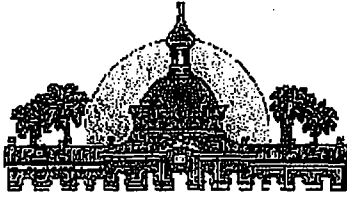
**Source:** Compliance

| Test ID | Test Name | Flag | Result | Units | MDL | Analysis Date | Analyzed By |
|---------|-----------|------|--------|-------|-----|---------------|-------------|
|---------|-----------|------|--------|-------|-----|---------------|-------------|

**\*\*Please refer to facility monthly dry tonnage report for % solids results. Do not use the value listed in this report.**

**Sample Dates** 1/7, 1/9, 1/11,  
1/13/10

**Laboratory Approval:** \_\_\_\_\_



Hillsborough County Water Resource Division  
Environmental Laboratory (813) 264-3887  
13055 Delwood Rd. Tampa, FL 33624

**TITLE 40 CFR PART 503 PELLET SLUDGE ANALYSIS**

Client Name Northwest Regional RRF

Sample Dates

Facility ID#: FLA012119

Report Date: 11/12/2010

Lab#: 20101005075

Ending Sample Date: 10/13/2010

Sample ID: RRRSLAA

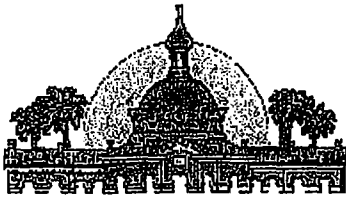
Collected By: TL/PA/SS/AL

Sample Type: Grab

Source: Compliance

| Test ID  | Test Name                | Flag | Result                | Units | MDL                 | Analysis Date | Analized By                    |
|----------|--------------------------|------|-----------------------|-------|---------------------|---------------|--------------------------------|
| FCOLI    | Fecal Coliform           |      | 0.19                  | MPN/g | 0.18                | 10/13/2010    | johnsong                       |
|          | Prep Method: SW 9221B    |      | Prep Date: 10/19/2010 |       | Prep By: [REDACTED] |               | Analytical Method: SW 9221B    |
| CD       | Cadmium, Cd              | <    | 1.61                  | mg/kg | 1.61                | 10/20/2010    | AT                             |
|          | Prep Method: SW 6050B    |      | Prep Date: 10/19/2010 |       | Prep By: [REDACTED] |               | Analytical Method: SW 6050B    |
| CR       | Chromium, Cr             |      | 21.9                  | mg/kg | 0.269               | 10/20/2010    | AT                             |
|          | Prep Method: SW 6050B    |      | Prep Date: 10/19/2010 |       | Prep By: [REDACTED] |               | Analytical Method: SW 6050B    |
| CU       | Copper, Cu               |      | 582                   | mg/kg | 1.61                | 10/20/2010    | AT                             |
|          | Prep Method: SW 6050B    |      | Prep Date: 10/19/2010 |       | Prep By: [REDACTED] |               | Analytical Method: SW 6050B    |
| HG       | Mercury, Hg              |      | 0.381                 | mg/kg | 0.0805              | 10/22/2010    |                                |
|          | Prep Method: SW 7471     |      | Prep Date: [REDACTED] |       | Prep By: [REDACTED] |               | Analytical Method: SW 7471     |
| K-Sludge | Potassium, K Sludge      |      | 0.349                 | %     |                     | 10/20/2010    | AT                             |
|          | Prep Method: Calculation |      | Prep Date: 10/19/2010 |       | Prep By: [REDACTED] |               | Analytical Method: Calculation |
| MO       | Molybdenum, Mo           |      | 11.1                  | mg/kg | 1.61                | 10/20/2010    | AT                             |
|          | Prep Method: SW 6050B    |      | Prep Date: 10/19/2010 |       | Prep By: [REDACTED] |               | Analytical Method: SW 6050B    |
| NI       | Nickel, Ni               |      | 13.2                  | mg/kg | 1.34                | 10/20/2010    | AT                             |
|          | Prep Method: SW 6050B    |      | Prep Date: 10/19/2010 |       | Prep By: [REDACTED] |               | Analytical Method: SW 6050B    |
| PB       | Lead, Pb                 |      | 15.5                  | mg/kg | 1.07                | 10/20/2010    | AT                             |
|          | Prep Method: SW 6050B    |      | Prep Date: 10/19/2010 |       | Prep By: [REDACTED] |               | Analytical Method: SW 6050B    |
| ZN       | Zinc, Zn                 |      | 648                   | mg/kg | 1.07                | 10/20/2010    | AT                             |
|          | Prep Method: SW 6050B    |      | Prep Date: 10/19/2010 |       | Prep By: [REDACTED] |               | Analytical Method: SW 6050B    |

20101005075-1



Hillsborough County Water Resource Division

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**TITLE 40 CFR PART 503 PELLET SLUDGE ANALYSIS**

Client Name Northwest Regional RRF

Sample Dates

Facility ID#: FLA012119

Report Date: 11/12/2010

Lab#: 20101005075

Ending Sample Date: 10/13/2010

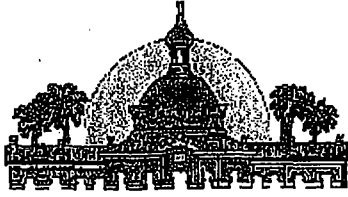
Sample ID: RRRTSLAA

Collected By: TL/PA/SS/AL

Sample Type: Grab

Source: Compliance

| Test ID   | Test Name                       | Flag | Result | Units    | MDL   | Analysis Date | Analyzed By |
|---|---------------------------------|------|--------|----------|-------|---------------|-------------|
| NH3-Sludge  | Ammonia, Sludge                 |      | 0.344  | %        | 0.018 | 11/5/2010     | CZ          |
| Prep Method: 350.1 Prep Date: Prep By: Analytical Method: 350.1                     |                                 |      |        |          |       |               |             |
| NO3+NO2-Sl  | Combined NO3+NO2, Sludge        | <    | 0.031  | %        | 0.031 | 11/5/2010     | CZ          |
| Prep Method: EPA 351.2 Prep Date: Prep By: Analytical Method: EPA 351.2             |                                 |      |        |          |       |               |             |
| TKN-Sludge  | Total Kjeldahl Nitrogen, Sludge |      | 6.06   | %        | 0.044 | 11/8/2010     | Pace        |
| Prep Method: 351.2-365 Prep Date: Prep By: Analytical Method: 351.2-365             |                                 |      |        |          |       |               |             |
| TN  | Total Nitrogen, TN - N          |      | 6.06   | %        | 0.04  | 11/8/2010     | Pace        |
| Prep Method: Calculation Prep Date: Prep By: Analytical Method: Calculation         |                                 |      |        |          |       |               |             |
| TP-Sludge   | Phosphorus, Total Sludge        |      | 4.16   | %        | 0.041 | 11/8/2010     | Pace        |
| Prep Method: 351.2-365 Prep Date: Prep By: Analytical Method: 351.2-365             |                                 |      |        |          |       |               |             |
| AS  | Arsenic, As                     |      | 4.7    | mg/kg    | 0.360 | 10/22/2010    | Pace        |
| Prep Method: SW 6010 Prep Date: 10/20/2010 Prep By: PACE Analytical Method: SW 6010 |                                 |      |        |          |       |               |             |
| SE  | Selenium, Se                    |      | 6.9    | mg/kg    | 0.540 | 10/22/2010    | Pace        |
| Prep Method: SW 6010 Prep Date: 10/20/2010 Prep By: PACE Analytical Method: SW 6010 |                                 |      |        |          |       |               |             |
| PH-LAB  | pH, Lab                         |      | 6.43   | pH units | 0.01  | 10/14/2010    | VB          |
| Prep Method: SM 2540 C Prep Date: Prep By: Analytical Method: SM 2540 C             |                                 |      |        |          |       |               |             |
| TSOLDS %D   | Total Solids %Dry (Residue)     |      | 93.06  | %        | 0.01  | 10/14/2010    | VB          |
| Prep Method: SW 2540 C Prep Date: Prep By: Analytical Method: SW 2540 C             |                                 |      |        |          |       |               |             |



Hillsborough County Water Resource Division

Environmental Laboratory (813) 264-3887

13055 Delwood Rd. Tampa, FL 33624

## TITLE 40 CFR PART 503 PELLET SLUDGE ANALYSIS

Client Name Northwest Regional RRF

Sample Dates

Facility ID#: FLA012119

Report Date: 11/12/2010

Lab#: 20101005075

Ending Sample Date: 10/13/2010

Sample ID: RRRTSLAA

Collected By: TL/PA/SS/AL

Sample Type: Grab

Source: Compliance

| Test ID                | Test Name                         | Flag     | Result                       | Units | MDL | Analysis Date | Analyzed By |
|------------------------|-----------------------------------|----------|------------------------------|-------|-----|---------------|-------------|
| TSOLIDS %V             | Total Solids % Volatile (Residue) |          | 69.0                         | %     | 0   | 10/14/2010    | VB          |
| Prep Method: SM 2540 C | Prep Date:                        | Prep ID: | Analytical Method: SM 2540 C |       |     |               |             |

### Comments

\*\*Please refer to facility monthly dry tonnage report for % solids results. Do not use the value listed in this report.

Sample Dates

Laboratory Approval: \_\_\_\_\_

## Section B

Highlighted Copy of Applicable Sections of Permit

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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**B.6 Fuels**

The primary fuel for the facility is municipal solid waste (MSW), including the items and materials that fit within the definition of MSW contained in either 40 CFR 60.51b or Section 403.706(5), Florida Statutes (1995).

B.6.1 Subject to the limitations contained in this permit, the authorized fuels for the facility also include the other solid wastes that are not MSW which are described below. However, the facility *shall not knowingly burn*:

- (a) those materials that are prohibited by state or federal law;
- (b) those materials that are prohibited by this permit;
- (c) lead acid batteries;
- (d) hazardous waste;
- (e) nuclear waste;
- (f) radioactive waste;
- (g) sewage sludge;
- (h) explosives.
- (i) beryllium containing waste as defined in 40 CFR 61.31(g).

B.6.2 The fuel may be received either as a mixture or as a single-item stream (segregated load) of discarded materials. If the facility intends to use an authorized fuel that is segregated non-MSW material, the fuel shall be either:

- (a) well mixed with MSW in the refuse pit; or
- (b) alternately charged with MSW in the hopper.

B.6.3 The facility owner/operator shall prepare and maintain records concerning the description and quantities of all segregated loads of non-MSW material which are received and used as fuel at the facility, and subject to a percentage weight limitation, below (B.6.6. and B.6.7). For the purposes of this permit, a segregated load is defined to mean a container or truck that is almost completely or exclusively filled with a single item or homogenous composition of waste material, as determined by visual inspection.

B.6.4 To ensure that the facility's fuel does not adversely affect the facility's combustion process or emissions, the facility operator shall:

- (a) comply with good combustion operating practices in accordance with 40 CFR 60.53b;
- (b) install, operate and maintain continuous emissions monitors (CEMS) for oxygen, carbon monoxide, sulfur dioxide, oxides of nitrogen and temperature in accordance with 40 CFR 60.58b; and
- (c) record and maintain the CEMS data in accordance with 40 CFR 60.59b.



### SECTION 3. EMISSION UNIT SPECIFIC CONDITIONS

#### B. Municipal Waste Combustor & Auxiliary Burners – Unit 4

3. Emission Standards for Stationary Sources: This unit has a charging rate of 40 tons per day or more and is subject to the requirements of Stationary Sources – Emission Standards for Waste-To-Energy Facilities of Rule 62-296.416, F.A.C.

#### AIR POLLUTION CONTROL TECHNOLOGY

4. Control Equipment: The owner or operator shall install, operate and maintain the following air pollution control equipment consistent with the manufacturers' specifications.

*NO<sub>x</sub> Controls*: A flue gas recirculation system (FGR) will be used to limit NO<sub>x</sub> formation. A urea-based selective non-catalytic reduction (SNCR) system will be employed for the destruction of NO<sub>x</sub>.

*MWC Acid Gas Control*: A spray dryer (SD) with lime injection will be installed to absorb MWC acid gases.

*MWC Organics and Mercury (Hg)*: An activated carbon injection (ACI) system will be installed to adsorb MWC organics and Hg.

*Particulate Matter (PM/PM<sub>10</sub>)*: A fabric filter (FF) baghouse, including absorption/adsorption reagent, will be installed to remove particulate matter.

[BACT Determination, and Rules 62-4.070(1), and (3), F.A.C.]

#### OPERATIONAL DESCRIPTIONS AND LIMITATIONS

5. Nameplate: The combustor (boiler) shall have a metal name plate affixed in a conspicuous place on the shell showing the manufacturer, model number, type of waste, and rated capacity. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]
6. Hours of Operation: This emissions unit may operate continuously, i.e., 8,760 hours/year. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]
7. Permitted Capacity: The maximum steam production rate shall not exceed 190,000 pounds steam per hour (on a 4-hour block arithmetic average).

*{Permitting Note: The nominal capacity of Unit 4 is 600 tons per day and has been determined to be greater than 250 tons per day, thus classifying the unit as a "large MWC unit" under NSPS - 40 CFR 60, Subpart Eb.}*

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., 40 CFR 60, Subpart Eb, and Design]

8. Maximum Demonstrated Municipal Waste Combustor Unit Load: Unit load means the steam load of the municipal waste combustor measured as specified in 40 CFR 60.58b(I)(6). Each unit shall not operate at a load level greater than 110 percent of the unit's "maximum demonstrated unit load." Maximum demonstrated municipal waste combustor unit load means the highest 4-hour arithmetic average municipal waste combustor unit load achieved during four consecutive hours during the most recent dioxin/furan performance test demonstrating compliance with the applicable limit for municipal waste combustor organics. Higher loads are allowed for testing purposes as specified in 40 CFR 60.53b(b). [40 CFR 60.34b(b), 60.51b, 60.53b(b), and 60.58b(I)(6)]

9. Prohibited Fuels:

a. The facility shall not burn:

- i. those materials that are prohibited by state or federal law;
- ii. those materials that are prohibited by this permit;
- iii. lead acid batteries;
- iv. hazardous waste;

### SECTION 3. EMISSION UNIT SPECIFIC CONDITIONS

#### B. Municipal Waste Combustor & Auxiliary Burners – Unit 4

- v. nuclear waste;
  - vi. radioactive waste;
  - vii. sewage sludge;
  - viii. explosives; and
  - ix. beryllium-containing waste, as defined in 40 CFR 61, Subpart C.
- b. Further, the facility shall not knowingly burn:
- i. nickel-cadmium batteries pursuant to Section 403.7192 (3);
  - ii. mercury containing devices and lamps pursuant to Sections 403.7186(2), and (3);
  - iii. untreated biomedical waste from biomedical waste generators regulated pursuant to Chapter 64E-16, F.A.C., and from similar generators (or sources);
  - iv. segregated loads of biological waste; and
  - v. Chromated Copper Arsenate (CCA) treated wood.
10. Authorized Fuels: The primary fuel for the facility is municipal solid waste (MSW), including the items and materials that fit within the definition of MSW contained in either 40 CFR 60.51b or Section 403.706(5), Florida Statutes (1995). Subject to the limitations contained in this permit, the authorized fuels for the facility also include the other solid wastes that are not MSW which are described below:
- a. Subject to the conditions and limitations contained in this permit, the following other solid waste may be used as fuel at the facility:
- i. Confidential, proprietary or special documents (including but not limited to business records, lottery tickets, event tickets, coupons and microfilm);
  - ii. Contraband which is being destroyed at the request of appropriately authorized local, state or federal governmental agencies, provided that such material is not an explosive, a propellant, a hazardous waste, or otherwise prohibited at the facility. For the purposes of this section, contraband includes but is not limited to drugs, narcotics, fruits, vegetables, plants, counterfeit money, and counterfeit consumer goods;
  - iii. Wood pallets, clean wood, and land clearing debris;
  - iv. Packaging materials and containers;
  - v. Clothing, natural and synthetic fibers, fabric remnants, and similar debris, including but not limited to aprons and gloves; or
  - vi. Rugs, carpets, and floor coverings, but not asbestos-containing materials or polyethylene or polyurethane vinyl floor coverings.
- b. Subject to the conditions and limitations contained in this permit, waste tires may be used as fuel at the facility. The total quantity of waste tires received as segregated loads and burned at the facility shall not exceed 3%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis in accordance with **Specific Condition 36**. of this subsection.
- c. Subject to the conditions and limitations contained in this permit, the following other solid waste materials may be used as fuel at the facility (i.e. the following are authorized fuels that are non-MSW material). The total quantity of the following non-MSW material received as segregated loads and burned at the facility shall not exceed 5%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis in accordance with **Specific Condition 36**. of this subsection.
- i. Construction and demolition debris.
  - ii. Oil spill debris from aquatic, coastal, estuarine or river environments. Such items or materials include but are not limited to rags, wipes, and absorbents.

Section C  
Results of Lee County RRF Test Burn



Covanta Lee, Inc.  
A Covanta Energy Corporation  
10500 Buckingham Road  
Fort Myers, FL 33905  
Tel: 239.337.2200  
Fax: 239.337.2510

May 31, 2012

Mr. Ajaya Satyal  
Air Program Administrator  
Florida Department of Environmental Protection  
South Florida District  
2295 Victoria Avenue, Suite 364  
Fort Myers, Florida 33901

RE: **Lee County Solid Waste Resource Recovery Facility  
2012 Stack Test Report with Biosolid Introduction**

Mr. Satyal,

Covanta Lee, Inc., on behalf of Lee County Solid Waste Division, is hereby submitting the Environmental Test report (including Testar, Inc.'s report) for the stack test with biosolids performed at the Lee County Solid Waste Resource Recovery Facility. Stack testing was conducted March 28, 2012, in accordance with PSD-FL-151F Specific Conditions 8, 9, & 10.

If you have any questions regarding the enclosed reports, please feel free to contact me. I can be reached during the day at (239) 337-2200, Extension 228.

Sincerely,

Michael Duff  
Facility Manager

cc: J. Kahn, FDEP-Tallahassee (w/1 CD)  
D. Castro (HDR) (w/1 CD)  
L. Sampson, LC-SWMD (w/ 1 CD)  
File (w/ 1 CD)

**ENVIRONMENTAL TEST REPORT**

**VOLUME I**

**SPECIAL REPORT – COV REPORT NO.3698**

MAY 31, 2012

PREPARED FOR: Covanta Lee, Inc.  
10500 Buckingham Road  
Suite 400  
Ft. Myers, FL 33905

REGULATORY AGENCY: Florida Department of Environmental Protection  
Title V Permit No. 0710119-007-AV  
Air Construction Permit No. 0710119-009-AC/PSD-FL-151F

TEST DATES: March 28, 2012

ASSOCIATED REPORT: COV Report No. 3698

PREPARED BY: Covanta Lee, Inc.

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## 1.0 INTRODUCTION

The Lee County Solid Waste Energy Recovery Facility (LCRRF) processes a nominal 1,800 tons of municipal solid waste each day, designed to generate approximately 60 megawatts of electricity. The facility is operated by Covanta Lee, Inc, and consists of three (3) substantially similar Martin GmbH waterwall furnaces. Waste is combusted at furnace temperatures exceeding 1,800 degrees Fahrenheit and reduced to an inert ash residue. Before leaving the facility, combustion air is directed through technologically advanced air pollution control equipment consisting of spray dryer absorbers (SDA), aqueous ammonia injection, carbon injection, and fabric filter baghouses.

Testar, Inc., on behalf of Covanta Lee, Inc., performed a special compliance test to determine the effects of combusting biosolids. The objective of the test program was to demonstrate compliance with the emission limit provisions of the Florida Department of Environmental Protection (FLDEP), Bureau of Air Quality Management Title V Air Operation Permit No. 0710119-007-AV and compare the results to the previous stack test performed in January 2012.

The procedures conducted during the test program are listed in Section 2.0, Schedule of Activities (Table 2.2).

This test report presents the data collected during the test program, which demonstrates compliance with permit emission limits. A summary of emission test results for Unit 1 is presented in Section 3.0, Table 3.1. A summary of visible emissions is presented in Section 3.0, Table 3.2. And a comparison of stack test results between the January 2012 stack test and the March 2012 stack test with biosolids is presented in Section 3.0, Table 3.3. All values from the March 2012 stack test with biosolids were less than or similar to those collected during the 2012 Annual Compliance Test conducted in January 2012. The effects of biosolids are therefore considered negligible on the emission indices tested.

The testing Contractor Report (Volume 2) includes all data gathered at the site and all laboratory analytical data. A review of both the Environmental Test Report and Contractor Report is recommended for a complete understanding of the test program.

### 1.1 BIOSOLIDS COMBUSTION PROCEDURE

All combusted biosolids were from the City of Cape Coral and were designated as "Class B" sludge. At 160 Klbs of steam load, Units 1 averages approximately 23 tons per hour of MSW throughput given the typical HHV in February 2012. To combust 5% of biosolids with the same approximate mass throughput required 1.1 tons of biosolids with 21.9 tons of MSW per hour ( $1.1 \div 21.9 = 5\%$ ).

MSW and biosolids material were established for two 13-hour periods for combustion unit 1. One period in the day and one during the evening. The mixing and feeding procedure for the day period started at about 5:30 AM and the test period began at 6:00 AM and continued until 6:00 PM. The mixing and feeding procedure for the evening test began at about 6:30 PM and the test period was continuous from 7:00 PM to 7:00 AM. The day test coincided with specific stack testing that was conducted for PM, Pb, Hg, and Cd. CEM and COM data were monitored and recorded for opacity, SO<sub>2</sub>, NO<sub>x</sub> and CO during both test periods. Carbon and ammonia feed rates were also monitored and recorded during the test periods.

#### Operator Procedure for the Two Test Periods

The following was taken directly from the operator's procedure for the introduction of biosolids.

"Place a uniform bed of yard waste at least 2-3 feet thick in the trench area of one designated bay. The yard waste will be the indicator for the lower level of the initial MSW/biosolids mixture. Place approximately 20 tons of MSW on top of the yard waste, then approximately 14.3 tons of biosolids on top of the MSW. Finally, place another 20 tons of MSW on top of the biosolids. This provides all of the biosolids required for 13 hours of combustion and a portion of the MSW

required. Mix the MSW and biosolids in the trench with the grapple. If yard waste is brought to the surface during mixing, then the grapple is digging too deep.

Establish the designated test furnace at a control set-point of 160 Klbs of steam. The objective is to combust approximately 299 tons of combined MSW and biosolids during a 13 hour continuous period beginning at 5:30 AM. The actual test period will begin at 6:00 AM and continue for 12 hours.

Each hour, approximately 4.2 tons of MSW/biosolids mixture from the trench (2 grapples at about 2 tons each) should be distributed over a designated area on the back-stack pile. The crane scale can be used for this purpose. This MSW/biosolids mix should then be mixed with MSW from the back-stack pile to feed approximately 23 tons per hour to the test furnace.

Continue this furnace charging procedure during the 13 hour period and all of the MSW/biosolids mixture from the trench should be removed down to the layer of yard waste.”



**TABLE 2.1  
TEST PROGRAM**

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---

| Parameter                              | Method        |
|--|---------------|
| Particulate Matter (PM) <sup>(1)</sup> | EPA Method 5  |
| Opacity                                | EPA Method 9  |
| Multi-metals (MMTL) <sup>(2)</sup>     | EPA Method 29 |
| Mercury (Hg)                           | EPA Method 29 |

---

Notes:

- 1.) One compliance test run was conducted under normal soot blowing conditions. A 1-hour visible emission run was conducted simultaneously with one particulate test run on the unit.
- 2.) Multi-Metals consist of mercury, lead and cadmium.

**TABLE 2.2**  
**SCHEDULE OF ACTIVITIES – Unit 1**

| Test Location    | Sampling Method | Flue Gas Parameter     | Run Date | Run Time  | Run Number  |
|------------------|-----------------|------------------------|----------|-----------|-------------|
| Unit 1 SDA Inlet | EPA M29         | Mercury                | 03/28/12 | 0835-1057 | 1-I-M29-1   |
|                  |                 |                        | 03/28/12 | 1115-1339 | 1-I-M29-2   |
|                  |                 |                        | 03/28/12 | 1355-1614 | 1-I-M29-3   |
| Unit 1 Stack     | EPA 5/29        | Particulate and Metals | 03/28/12 | 0835-1057 | 1-S-M5/29-1 |
|                  |                 |                        | 03/28/12 | 1115-1340 | 1-S-M5/29-2 |
|                  |                 |                        | 03/28/12 | 1355-1614 | 1-S-M5/29-3 |

TABLE 2.3

TEST PARTICIPANTS

---

Covanta Lee, Inc.

Tyler Huffman  
Mike Duff

TESTAR, Inc.

Herb Dixon, PE  
Project Director

Jeff Aims  
Test Engineer

Charles Nahrebecki  
CEM Test Engineer

Sean Daley  
Test Engineer

Blake Cone  
Test Engineer

Will Snipes  
Test Engineer

**Table 3.1  
SUMMARY OF SOURCE TEST RESULTS - UNIT 1**

| Parameter   | Rep. 1    | Rep. 2    | Rep. 3     | Average    | Permit Limit       |
|---|-----------|-----------|------------|------------|--------------------|
| <b>Unit 1 SDA Inlet Concentrations</b>  |           |           |            |            |                    |
| Mercury, mg/DSCM @ 7% O <sub>2</sub>  | 0.0228    | 0.0353    | 0.0646     | 0.0409     | NA                 |
| <b>Unit 1 SDA Inlet Emission Rates, lb/hr</b>                                   |           |           |            |            |                    |
| Mercury   | 0.00580   | 0.00860   | 0.0164     | 0.0103     | NA                 |
| <b>Unit 1 Stack Concentrations</b>  |           |           |            |            |                    |
| Mercury, mg/DSCM @ 7% O <sub>2</sub>  | 0.0000850 | 0.000376  | 0.000314   | 0.000258   | 0.050              |
| <b>Metals</b>   |           |           |            |            |                    |
| Cadmium, mg/DSCM @ 7% O <sub>2</sub>  | <0.000124 | <0.000120 | 0.000146   | <0.000130  | 0.035 <sup>a</sup> |
| Lead, mg/DSCM @ 7% O <sub>2</sub>   | 0.00106   | 0.000740  | 0.00217    | 0.00133    | 0.400 <sup>a</sup> |
| Particulate, Gr/DSCF @ 7% O <sub>2</sub>  | 0.0000271 | 0.0000524 | <0.0000531 | <0.0000442 | 0.010              |
| <b>Unit 1 Stack Emission Rates, lb/hr</b>                                       |           |           |            |            |                    |
| Mercury   | 0.0000199 | 0.0000908 | 0.0000757  | 0.0000621  | 0.0271             |
| Particulate   | 0.0145    | 0.0290    | <0.0293    | <0.0242    | 5.34               |
| <b>Unit 1 Stack Emission Rates, lb/MMBtu</b>                                    |           |           |            |            |                    |
| Mercury   | 7.64E-08  | 3.37E-07  | 2.82E-07   | 2.32E-07   | 0.000138           |
| <b>Metals</b>   |           |           |            |            |                    |
| Cadmium   | <1.12E-07 | <1.08E-07 | 1.31E-07   | <1.17E-07  | NA                 |
| Lead  | 9.57E-07  | 6.65E-07  | 1.95E-06   | 1.19E-06   | 0.0006             |
| <b>Unit 1 Stack Emission Rates, lb/hr ----- For Informational Purposes Only</b> |           |           |            |            |                    |
| <b>Metals</b>   |           |           |            |            |                    |
| Cadmium   | <2.90E-05 | <2.90E-05 | 3.51E-05   | <3.10E-05  | 9.4E-03            |
| Lead  | 2.49E-04  | 1.79E-04  | 5.23E-04   | 3.17E-04   | 0.165              |
| <b>Unit 1 Removal Efficiency %</b>  |           |           |            |            |                    |
| Mercury RE%, mg/DSCM @ 7% O <sub>2</sub>  | 99.6      | 98.9      | 99.5       | 99.4       | ≥85%               |
| Mercury RE%, lb/hr  | 99.7      | 98.9      | 99.5       | 99.4       | ≥85%               |

**Notes:**

- (1) Data presented as run number. Actual sample replicate number may differ.
- (2) Removal efficiencies are alternative compliance limits that can be satisfied to demonstrate compliance with a pollutant's emission standard.

TABLE 3.2

SUMMARY OF SOURCE TEST RESULTS – VISIBLE AND FUGITIVE EMISSIONS

| Permitted<br>Pollutant          | ----- RUN ----- |   |   | Average | Maximum<br>Emission Limit |
|---------------------------------|-----------------|---|---|---------|---------------------------|
|                                 | 1               | 2 | 3 |         |                           |
| <u>MWC Unit 1</u><br>Opacity, % | 0               | 0 | 0 | 0       | 10                        |

TABLE 3.3

## DATA COMPARISON – JANUARY STACK TEST VS MARCH STACK TEST W/ BIOSOLIDS

| Parameter                      | January 2012 Stack <sup>(1)</sup><br>Concentrations | March 2012 Stack Test w/<br>Biosolids |
|--------------------------------|---|---------------------------------------|
| Hg                             | 0.000722 mg/dscm                                    | 0.000258 mg/dscm                      |
| Cd                             | <0.000117 mg/dscm                                   | <0.000130 mg/dscm                     |
| Pb                             | 0.00133 mg/dscm                                     | 0.00133 mg/dscm                       |
| Opacity <sup>(2)</sup>         | 0%  | 0%                                    |
| CO <sup>(2)</sup>              | 12 ppm @ 7% O <sub>2</sub>                          | 11 ppm @ 7% O <sub>2</sub>            |
| SO <sub>2</sub> <sup>(2)</sup> | 8 ppm @ 7% O <sub>2</sub>                           | 11 ppm @ 7% O <sub>2</sub>            |
| NO <sub>x</sub> <sup>(2)</sup> | 145 ppm @ 7% O <sub>2</sub>                         | 151 ppm @ 7% O <sub>2</sub>           |

(1) Data from the facility's 2012 Annual Compliance Test.

(2) Data taken from the 24-hr averages by the CEMS during the Annual Compliance Stack Test for Unit #1.

#### Discussion

All values for the March 2012 stack test with biosolids were less than or similar to the January 2012 results. Therefore, the effect of biosolid combustion is considered to be negligible on emission indices.

#### 4.0 OPERATIONAL DATA DURING EMISSION TESTING

During the air pollutant emissions testing, plant process data was monitored and collected by COV personnel to ensure representative operation of the facility. The following operating parameters are included as an appendix to this Executive Summary report:

1. Steam Flow (k lb/hr)
2. Baghouse Inlet Temperature (degrees F)
3. Carbon Feed Rate (lbs/hr)
4. Crane Weigh Scale Print Outs (The crane weigh scale print outs will be kept on file for review, please note that copies of the scale print out are of poor quality.)
5. CO, SO<sub>2</sub>, NO<sub>x</sub>, and NH<sub>3</sub> injection CEMS data for the January 2012 compliance test.
6. CO, SO<sub>2</sub>, NO<sub>x</sub>, and NH<sub>3</sub> injection CEMS data for the March 2012 compliance test.
7. Biosolid Analysis from the City of Cape Coral.

TABLE 5.0 METHODOLOGY

REFERENCES

| Parameter               | Test Method   | Reference         |
|-------------------------|---------------|-------------------|
| Particulate Matter (PM) | EPA Method 5  | 40 CFR 60, App. A |
| Multi-metals (MMTL)     | EPA Method 29 | 40 CFR 60, App. A |
| Mercury (Hg)            | EPA Method 29 | 40 CFR 60, App. A |



APPENDIX A:

January 2012 CEM Process Data

# Data Summary Report



Lee County Solid Waste  
Resource Recovery Facility

Company: Covanta Lee, Inc.  
10500 Buchingham Road  
Fort Myers, FL 33905

Data Group: U1\_1 HOUR DATA

Report Name: No Title

Start of Report: 01/25/2012 00:00

End of Report: 01/25/2012 23:59

Validation: Valid Data Only

| Group#-Channel#     | G65-C35   | G65-C37   |
|---------------------|-----------|-----------|
| Long Descrip.       | U-1 Steam | U-1 Bagho |
| Short Descrip.      | Steamt'l  | BagHTemp  |
| Units               | K#/Hr     | deg F     |
| Range               | 0-250     | 100-600   |
| 01/25/2012 00:00    | 141.8     | 290       |
| 01/25/2012 01:00    | 142.4     | 290       |
| 01/25/2012 02:00    | 138.5     | 289       |
| 01/25/2012 03:00    | 140.5     | 290       |
| 01/25/2012 04:00    | 140.2     | 290       |
| 01/25/2012 05:00    | 152.4     | 290       |
| 01/25/2012 06:00    | 158.1     | 290       |
| 01/25/2012 07:00    | 156.6     | 289       |
| 01/25/2012 08:00    | 160.1     | 290       |
| 01/25/2012 09:00    | 159.8     | 290       |
| 01/25/2012 10:00    | 159.6     | 290       |
| 01/25/2012 11:00    | 159.9     | 290       |
| 01/25/2012 12:00    | 159.8     | 290       |
| 01/25/2012 13:00    | 161.1     | 289       |
| 01/25/2012 14:00    | 159.2     | 290       |
| 01/25/2012 15:00    | 159.8     | 290       |
| 01/25/2012 16:00    | 147.7     | 300       |
| 01/25/2012 17:00    | 141.7     | 290       |
| 01/25/2012 18:00    | 142.4     | 290       |
| 01/25/2012 19:00    | 141.3     | 290       |
| 01/25/2012 20:00    | 140.1     | 290       |
| 01/25/2012 21:00    | 141.9     | 290       |
| 01/25/2012 22:00    | 142.1     | 290       |
| 01/25/2012 23:00    | 141.4     | 290       |
| Period Average =    | 149.5     | 290       |
| Period Max Value =  | 161.1     | 300       |
| Period Min Value =  | 138.5     | 289       |
| Period Totals =     | 3.5884E+3 | 6.9670E+3 |
| Period % Recovery = | 100.0     | 100.0     |

# Data Summary Report



Lee County Solid Waste  
Resource Recovery Facility

Company: Covanta Lee, Inc.  
10500 Buckingham Road  
Fort Myers, FL 33905

Data Group: U1\_1 HOUR DATA  
Report Name: No Title  
Start of Report: 01/26/2012 00:00  
End of Report: 01/26/2012 23:59

Validation: Valid Data Only

| Group#-Channel# | G65-C35   | G65-C37   |
|-----------------|-----------|-----------|
| Long Descrip.   | U-1 Steam | U-1 Bagho |
| Short Descrip.  | SteamFl   | BagHTemp  |
| Units           | K#/Hr     | deg F     |
| Range           | 0-250     | 100-600   |

|                  |       |     |
|------------------|-------|-----|
| 01/26/2012 00:00 | 140.7 | 290 |
| 01/26/2012 01:00 | 137.6 | 290 |
| 01/26/2012 02:00 | 136.1 | 289 |
| 01/26/2012 03:00 | 139.8 | 290 |
| 01/26/2012 04:00 | 132.7 | 290 |
| 01/26/2012 05:00 | 146.9 | 291 |
| 01/26/2012 06:00 | 150.1 | 290 |
| 01/26/2012 07:00 | 152.5 | 290 |
| 01/26/2012 08:00 | 160.4 | 290 |
| 01/26/2012 09:00 | 159.3 | 290 |
| 01/26/2012 10:00 | 160.1 | 290 |
| 01/26/2012 11:00 | 160.4 | 289 |
| 01/26/2012 12:00 | 159.1 | 290 |
| 01/26/2012 13:00 | 158.1 | 289 |
| 01/26/2012 14:00 | 161.1 | 291 |
| 01/26/2012 15:00 | 156.4 | 290 |
| 01/26/2012 16:00 | 148.4 | 294 |
| 01/26/2012 17:00 | 142.9 | 294 |
| 01/26/2012 18:00 | 143.1 | 295 |
| 01/26/2012 19:00 | 140.5 | 295 |
| 01/26/2012 20:00 | 145.4 | 295 |
| 01/26/2012 21:00 | 149.7 | 295 |
| 01/26/2012 22:00 | 151.9 | 294 |
| 01/26/2012 23:00 | 152.7 | 295 |

|                     |           |           |
|---------------------|-----------|-----------|
| Period Average =    | 149.4     | 292       |
| Period Max Value =  | 161.1     | 295       |
| Period Min Value =  | 132.7     | 289       |
| Period Totals =     | 3.5859E+3 | 6.9960E+3 |
| Period % Recovery = | 100.0     | 100.0     |

# Data Summary Report



Lee County Solid Waste  
Resource Recovery Facility

Company: Covanta Lee, Inc.  
10500 Buchingham Road  
Fort Myers, FL 33905

Data Group: U1\_1 HOUR DATA  
Report Name: No Title  
Start of Report: 01/25/2012 00:00  
End of Report: 01/25/2012 23:59

Validation: Valid Data Only

| Group#-Channel#     | G65-C40   |
|---------------------|-----------|
| Long Descrip.       | U-1 Carbo |
| Short Descrip.      | CarbInj   |
| Units               | #/hr      |
| Range               | 0-75      |
| 01/25/2012 00:00    | 20.8      |
| 01/25/2012 01:00    | 20.5      |
| 01/25/2012 02:00    | 20.6      |
| 01/25/2012 03:00    | 20.6      |
| 01/25/2012 04:00    | 20.6      |
| 01/25/2012 05:00    | 20.6      |
| 01/25/2012 06:00    | 20.3      |
| 01/25/2012 07:00    | 20.1      |
| 01/25/2012 08:00    | 20.1      |
| 01/25/2012 09:00    | 20.1      |
| 01/25/2012 10:00    | 20.0      |
| 01/25/2012 11:00    | 19.9      |
| 01/25/2012 12:00    | 19.7      |
| 01/25/2012 13:00    | 20.2      |
| 01/25/2012 14:00    | 20.0      |
| 01/25/2012 15:00    | 20.4      |
| 01/25/2012 16:00    | 27.0      |
| 01/25/2012 17:00    | 27.0      |
| 01/25/2012 18:00    | 26.8      |
| 01/25/2012 19:00    | 26.9      |
| 01/25/2012 20:00    | 26.8      |
| 01/25/2012 21:00    | 26.8      |
| 01/25/2012 22:00    | 26.9      |
| 01/25/2012 23:00    | 26.9      |
| Period Average =    | 22.5      |
| Period Max Value =  | 27.0      |
| Period Min Value =  | 19.7      |
| Period Totals =     | 5.3960E+2 |
| Period % Recovery = | 100.0     |

# Data Summary Report



Lee County Solid Waste  
Resource Recovery Facility

Company: Covanta Lee, Inc.  
10500 Buchingham Road  
Fort Myers, FL 33905

Data Group: U1\_1 HOUR DATA  
Report Name: No Title  
Start of Report: 01/26/2012 00:00  
End of Report: 01/26/2012 23:59

Validation: Valid Data Only

---

| Group#-Channel#     | G65-C40   |
|---------------------|-----------|
| Long Descrip.       | U-1 Carbo |
| Short Descrip.      | CarbInj   |
| Units               | #/hr      |
| Range               | 0-75      |
| 01/26/2012 00:00    | 27.0      |
| 01/26/2012 01:00    | 26.8      |
| 01/26/2012 02:00    | 26.9      |
| 01/26/2012 03:00    | 27.0      |
| 01/26/2012 04:00    | 26.9      |
| 01/26/2012 05:00    | 26.8      |
| 01/26/2012 06:00    | 26.8      |
| 01/26/2012 07:00    | 26.9      |
| 01/26/2012 08:00    | 26.9      |
| 01/26/2012 09:00    | 26.9      |
| 01/26/2012 10:00    | 26.9      |
| 01/26/2012 11:00    | 26.6      |
| 01/26/2012 12:00    | 26.7      |
| 01/26/2012 13:00    | 26.8      |
| 01/26/2012 14:00    | 27.0      |
| 01/26/2012 15:00    | 26.7      |
| 01/26/2012 16:00    | 26.2      |
| 01/26/2012 17:00    | 26.3      |
| 01/26/2012 18:00    | 26.3      |
| 01/26/2012 19:00    | 26.5      |
| 01/26/2012 20:00    | 26.9      |
| 01/26/2012 21:00    | 26.6      |
| 01/26/2012 22:00    | 26.7      |
| 01/26/2012 23:00    | 26.7      |
| Period Average =    | 26.7      |
| Period Max Value =  | 27.0      |
| Period Min Value =  | 26.2      |
| Period Totals =     | 6.4180E+2 |
| Period % Recovery = | 100.0     |

---

# Data Summary Report



Lee County Solid Waste  
Resource Recovery Facility

Company: Covanta Lee, Inc.  
10500 Buckingham Road  
Fort Myers, FL 33905

Data Group: All Data Groups  
Report Name: No Title  
Start of Report: 01/26/2012 00:00  
End of Report: 01/26/2012 23:59

Validation: Valid Data Only

| Group#-Channel#     | G66-C2    | G65-C18   | G65-C20   | G65-C42   |
|---------------------|-----------|-----------|-----------|-----------|
| Long Descrip.       | U-1 Stack | U-1 Stack | U-1 Stack | U-1 Ammon |
| Short Descrip.      | COsc      | SO2sc     | NOXsc     | NH3Inj    |
| Units               | ppmc      | ppmc      | ppmc      | scfm      |
| Range               | 0-10000   | 0-2000    | 0-2500    | 0-100     |
| 01/26/2012 00:00    | 14        | 0         | 141       | 3.3       |
| 01/26/2012 01:00    |           | 0         | 139       | 3.4       |
| 01/26/2012 02:00    |           | 0         | 140       | 3.0       |
| 01/26/2012 03:00    |           | 6         | 139       | 3.3       |
| 01/26/2012 04:00    | 13        | 57        | 142       | 2.9       |
| 01/26/2012 05:00    |           | 9         | 143       | 4.1       |
| 01/26/2012 06:00    |           | 1         | 132       | 4.6       |
| 01/26/2012 07:00    |           | 3         | 142       | 5.0       |
| 01/26/2012 08:00    | 10        | 12        | 148       | 7.1       |
| 01/26/2012 09:00    |           | 3         | 143       | 6.3       |
| 01/26/2012 10:00    |           | 1         | 143       | 6.2       |
| 01/26/2012 11:00    |           | 2         | 142       | 5.5       |
| 01/26/2012 12:00    | 11        | 0         | 143       | 5.7       |
| 01/26/2012 13:00    |           | 1         | 140       | 6.1       |
| 01/26/2012 14:00    |           | 12        | 144       | 6.9       |
| 01/26/2012 15:00    |           | 9         | 145       | 5.5       |
| 01/26/2012 16:00    | 10        | 1         | 150       | 4.1       |
| 01/26/2012 17:00    |           | 3         | 151       | 3.5       |
| 01/26/2012 18:00    |           | 4         | 151       | 3.8       |
| 01/26/2012 19:00    |           | 2         | 151       | 3.5       |
| 01/26/2012 20:00    | 11        | 4         | 152       | 3.5       |
| 01/26/2012 21:00    |           | 25        | 154       | 3.7       |
| 01/26/2012 22:00    |           | 23        | 153       | 4.5       |
| 01/26/2012 23:00    |           | 3         | 151       | 4.5       |
| Period Average =    | 12        | 8         | 145       | 4.6       |
| Period Max Value =  | 14        | 57        | 154       | 7.1       |
| Period Min Value =  | 10        | 0         | 132       | 2.9       |
| Period Totals =     | 6.9000E+1 | 1.8100E+2 | 3.4790E+3 | 1.1000E+2 |
| Period % Recovery = | 100.0     | 100.0     | 100.0     | 100.0     |

# Data Summary Report



Lee County Solid Waste  
Resource Recovery Facility

Company: Covanta Lee, Inc.  
10500 Buchingham Road  
Fort Myers, FL 33905

Data Group: U1\_6 MIN OPACITY  
Report Name: No Title  
Start of Report: 01/26/2012 00:00  
End of Report: 01/26/2012 23:59

Validation: Valid Data Only

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| Group#-Channel# | G43-C1    |
|-----------------|-----------|
| Long Descrip.   | U-1 Opaci |
| Short Descrip.  | Opacity   |
| Units           | %         |
| Range           | 0-100     |

---

|                  |   |
|------------------|---|
| 01/26/2012 00:00 | 0 |
| 01/26/2012 00:06 | 0 |
| 01/26/2012 00:12 | 0 |
| 01/26/2012 00:18 | 0 |
| 01/26/2012 00:24 | 0 |
| 01/26/2012 00:30 | 0 |
| 01/26/2012 00:36 | 0 |
| 01/26/2012 00:42 | 0 |
| 01/26/2012 00:48 | 0 |
| 01/26/2012 00:54 | 0 |
| 01/26/2012 01:00 | 0 |
| 01/26/2012 01:06 | 0 |
| 01/26/2012 01:12 | 0 |
| 01/26/2012 01:18 | 0 |
| 01/26/2012 01:24 | 0 |
| 01/26/2012 01:30 | 0 |
| 01/26/2012 01:36 | 0 |
| 01/26/2012 01:42 | 0 |
| 01/26/2012 01:48 | 0 |
| 01/26/2012 01:54 | 0 |
| 01/26/2012 02:00 | 0 |
| 01/26/2012 02:06 | 0 |
| 01/26/2012 02:12 | 0 |
| 01/26/2012 02:18 | 0 |
| 01/26/2012 02:24 | 0 |
| 01/26/2012 02:30 | 0 |
| 01/26/2012 02:36 | 0 |
| 01/26/2012 02:42 | 0 |
| 01/26/2012 02:48 | 0 |
| 01/26/2012 02:54 | 0 |
| 01/26/2012 03:00 | 0 |
| 01/26/2012 03:06 | 0 |
| 01/26/2012 03:12 | 0 |
| 01/26/2012 03:18 | 0 |
| 01/26/2012 03:24 | 0 |
| 01/26/2012 03:30 | 0 |
| 01/26/2012 03:36 | 0 |
| 01/26/2012 03:42 | 0 |
| 01/26/2012 03:48 | 0 |

| Group#-Channel#  | G43-C1    |
|------------------|-----------|
| Long Descrip.    | U-1 Opaci |
| Short Descrip.   | Opacity   |
| Units            | %         |
| Range            | 0-100     |
| 01/26/2012 03:54 | 0         |
| 01/26/2012 04:00 | 0         |
| 01/26/2012 04:06 | 0         |
| 01/26/2012 04:12 | 0         |
| 01/26/2012 04:18 | 0         |
| 01/26/2012 04:24 | 0         |
| 01/26/2012 04:30 | 0         |
| 01/26/2012 04:36 | 0         |
| 01/26/2012 04:42 | 0         |
| 01/26/2012 04:48 | 0         |
| 01/26/2012 04:54 | 0         |
| 01/26/2012 05:00 | 0         |
| 01/26/2012 05:06 | 0         |
| 01/26/2012 05:12 | 0         |
| 01/26/2012 05:18 | 0         |
| 01/26/2012 05:24 | 0         |
| 01/26/2012 05:30 | 0         |
| 01/26/2012 05:36 | 0         |
| 01/26/2012 05:42 | 0         |
| 01/26/2012 05:48 | 0         |
| 01/26/2012 05:54 | 0         |
| 01/26/2012 06:00 | 0         |
| 01/26/2012 06:06 | 0         |
| 01/26/2012 06:12 | 0         |
| 01/26/2012 06:18 | 0         |
| 01/26/2012 06:24 | 0         |
| 01/26/2012 06:30 | 0         |
| 01/26/2012 06:36 | 0         |
| 01/26/2012 06:42 | 0         |
| 01/26/2012 06:48 | 0         |
| 01/26/2012 06:54 | 0         |
| 01/26/2012 07:12 | 0         |
| 01/26/2012 07:18 | 0         |
| 01/26/2012 07:24 | 0         |
| 01/26/2012 07:30 | 0         |
| 01/26/2012 07:36 | 0         |
| 01/26/2012 07:42 | 0         |
| 01/26/2012 07:48 | 0         |
| 01/26/2012 07:54 | 0         |
| 01/26/2012 08:00 | 0         |
| 01/26/2012 08:06 | 0         |
| 01/26/2012 08:12 | 0         |
| 01/26/2012 08:18 | 0         |
| 01/26/2012 08:24 | 0         |
| 01/26/2012 08:30 | 0         |
| 01/26/2012 08:36 | 0         |
| 01/26/2012 08:42 | 0         |
| 01/26/2012 08:48 | 0         |
| 01/26/2012 08:54 | 0         |
| 01/26/2012 09:00 | 0         |



| Group#-Channel#  | G43-C1    |
|------------------|-----------|
| Long Descrip.    | U-1 Opaci |
| Short Descrip.   | Opacity   |
| Units            | %         |
| Range            | 0-100     |
| 01/26/2012 09:06 | 0         |
| 01/26/2012 09:12 | 0         |
| 01/26/2012 09:18 | 0         |
| 01/26/2012 09:24 | 0         |
| 01/26/2012 09:30 | 0         |
| 01/26/2012 09:36 | 0         |
| 01/26/2012 09:42 | 0         |
| 01/26/2012 09:48 | 0         |
| 01/26/2012 09:54 | 0         |
| 01/26/2012 10:00 | 0         |
| 01/26/2012 10:06 | 0         |
| 01/26/2012 10:12 | 0         |
| 01/26/2012 10:18 | 0         |
| 01/26/2012 10:24 | 0         |
| 01/26/2012 10:30 | 0         |
| 01/26/2012 10:36 | 0         |
| 01/26/2012 10:42 | 0         |
| 01/26/2012 10:48 | 0         |
| 01/26/2012 10:54 | 0         |
| 01/26/2012 11:00 | 0         |
| 01/26/2012 11:06 | 0         |
| 01/26/2012 11:12 | 0         |
| 01/26/2012 11:18 | 0         |
| 01/26/2012 11:24 | 0         |
| 01/26/2012 11:30 | 0         |
| 01/26/2012 11:36 | 0         |
| 01/26/2012 11:42 | 0         |
| 01/26/2012 11:48 | 0         |
| 01/26/2012 11:54 | 0         |
| 01/26/2012 12:00 | 0         |
| 01/26/2012 12:06 | 0         |
| 01/26/2012 12:12 | 0         |
| 01/26/2012 12:18 | 0         |
| 01/26/2012 12:24 | 0         |
| 01/26/2012 12:30 | 0         |
| 01/26/2012 12:36 | 0         |
| 01/26/2012 12:42 | 0         |
| 01/26/2012 12:48 | 0         |
| 01/26/2012 12:54 | 0         |
| 01/26/2012 13:00 | 0         |
| 01/26/2012 13:06 | 0         |
| 01/26/2012 13:12 | 0         |
| 01/26/2012 13:18 | 0         |
| 01/26/2012 13:24 | 0         |
| 01/26/2012 13:30 | 0         |
| 01/26/2012 13:36 | 0         |
| 01/26/2012 13:42 | 0         |
| 01/26/2012 13:48 | 0         |
| 01/26/2012 13:54 | 0         |
| 01/26/2012 14:00 | 0         |

| Group#-Channel#  | G43-C1    |
|------------------|-----------|
| Long Descrip.    | U-1 Opaci |
| Short Descrip.   | Opacity   |
| Units            | %         |
| Range            | 0-100     |
| 01/26/2012 14:06 | 0         |
| 01/26/2012 14:12 | 0         |
| 01/26/2012 14:18 | 0         |
| 01/26/2012 14:24 | 0         |
| 01/26/2012 14:30 | 0         |
| 01/26/2012 14:36 | 0         |
| 01/26/2012 14:42 | 0         |
| 01/26/2012 14:48 | 0         |
| 01/26/2012 14:54 | 0         |
| 01/26/2012 15:00 | 0         |
| 01/26/2012 15:06 | 0         |
| 01/26/2012 15:12 | 0         |
| 01/26/2012 15:18 | 0         |
| 01/26/2012 15:24 | 0         |
| 01/26/2012 15:30 | 0         |
| 01/26/2012 15:36 | 0         |
| 01/26/2012 15:42 | 1         |
| 01/26/2012 15:48 | 0         |
| 01/26/2012 15:54 | 0         |
| 01/26/2012 16:00 | 0         |
| 01/26/2012 16:06 | 0         |
| 01/26/2012 16:12 | 0         |
| 01/26/2012 16:18 | 0         |
| 01/26/2012 16:24 | 0         |
| 01/26/2012 16:30 | 0         |
| 01/26/2012 16:36 | 0         |
| 01/26/2012 16:42 | 0         |
| 01/26/2012 16:48 | 0         |
| 01/26/2012 16:54 | 0         |
| 01/26/2012 17:00 | 0         |
| 01/26/2012 17:06 | 0         |
| 01/26/2012 17:12 | 0         |
| 01/26/2012 17:18 | 0         |
| 01/26/2012 17:24 | 0         |
| 01/26/2012 17:30 | 0         |
| 01/26/2012 17:36 | 0         |
| 01/26/2012 17:42 | 0         |
| 01/26/2012 17:48 | 0         |
| 01/26/2012 17:54 | 0         |
| 01/26/2012 18:00 | 0         |
| 01/26/2012 18:06 | 0         |
| 01/26/2012 18:12 | 0         |
| 01/26/2012 18:18 | 0         |
| 01/26/2012 18:24 | 0         |
| 01/26/2012 18:30 | 0         |
| 01/26/2012 18:36 | 0         |
| 01/26/2012 18:42 | 0         |
| 01/26/2012 18:48 | 0         |
| 01/26/2012 18:54 | 0         |
| 01/26/2012 19:00 | 0         |

| Group#- Channel# | G43-C1    |
|------------------|-----------|
| Long Descrip.    | U-1 Opaci |
| Short Descrip.   | Opacity   |
| Units            | %         |
| Range            | 0-100     |
| 01/26/2012 19:06 | 0         |
| 01/26/2012 19:12 | 0         |
| 01/26/2012 19:18 | 0         |
| 01/26/2012 19:24 | 0         |
| 01/26/2012 19:30 | 0         |
| 01/26/2012 19:36 | 0         |
| 01/26/2012 19:42 | 0         |
| 01/26/2012 19:48 | 0         |
| 01/26/2012 19:54 | 0         |
| 01/26/2012 20:00 | 0         |
| 01/26/2012 20:06 | 0         |
| 01/26/2012 20:12 | 0         |
| 01/26/2012 20:18 | 0         |
| 01/26/2012 20:24 | 0         |
| 01/26/2012 20:30 | 0         |
| 01/26/2012 20:36 | 0         |
| 01/26/2012 20:42 | 0         |
| 01/26/2012 20:48 | 0         |
| 01/26/2012 20:54 | 0         |
| 01/26/2012 21:00 | 0         |
| 01/26/2012 21:06 | 0         |
| 01/26/2012 21:12 | 0         |
| 01/26/2012 21:18 | 0         |
| 01/26/2012 21:24 | 0         |
| 01/26/2012 21:30 | 0         |
| 01/26/2012 21:36 | 0         |
| 01/26/2012 21:42 | 0         |
| 01/26/2012 21:48 | 0         |
| 01/26/2012 21:54 | 0         |
| 01/26/2012 22:00 | 0         |
| 01/26/2012 22:06 | 0         |
| 01/26/2012 22:12 | 0         |
| 01/26/2012 22:18 | 0         |
| 01/26/2012 22:24 | 0         |
| 01/26/2012 22:30 | 0         |
| 01/26/2012 22:36 | 0         |
| 01/26/2012 22:42 | 0         |
| 01/26/2012 22:48 | 0         |
| 01/26/2012 22:54 | 0         |
| 01/26/2012 23:00 | 0         |
| 01/26/2012 23:06 | 0         |
| 01/26/2012 23:12 | 0         |
| 01/26/2012 23:18 | 0         |
| 01/26/2012 23:24 | 0         |
| 01/26/2012 23:30 | 0         |
| 01/26/2012 23:36 | 0         |
| 01/26/2012 23:42 | 0         |
| 01/26/2012 23:48 | 0         |
| 01/26/2012 23:54 | 0         |

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|                     |           |
|---------------------|-----------|
| Period Average =    | 0         |
| Period Max Value =  | 1         |
| Period Min Value =  | 0         |
| Period Totals =     | 1.0000E+0 |
| Period % Recovery = | 99.2      |

**APPENDIX B:**

**March 2012 CEM Process Data w/ Biosolids**

# Data Summary Report



Lee County Solid Waste  
Resource Recovery Facility

Company: Covanta Lee, Inc.  
10500 Buchingham Road  
Fort Myers, FL 33905

Data Group: U1\_1 HOUR DATA  
Report Name: No Title  
Start of Report: 03/28/2012 06:00  
End of Report: 03/29/2012 06:59

Validation: Valid Data Only

| Group#-Channel#     | G65-C35   | G65-C37   |
|---------------------|-----------|-----------|
| Long Descrip.       | U-1 Steam | U-1 Bagho |
| Short Descrip.      | SteamFl   | BagHTemp  |
| Units               | K#/Hr     | deg F     |
| Range               | 0-250     | 100-600   |
| 03/28/2012 06:00    | 159.8     | 299       |
| 03/28/2012 07:00    | 161.2     | 299       |
| 03/28/2012 08:00    | 160.9     | 298       |
| 03/28/2012 09:00    | 159.2     | 298       |
| 03/28/2012 10:00    | 160.1     | 299       |
| 03/28/2012 11:00    | 160.5     | 299       |
| 03/28/2012 12:00    | 159.2     | 299       |
| 03/28/2012 13:00    | 158.2     | 298       |
| 03/28/2012 14:00    | 161.2     | 299       |
| 03/28/2012 15:00    | 159.9     | 299       |
| 03/28/2012 16:00    | 159.4     | 299       |
| 03/28/2012 17:00    | 160.0     | 298       |
| 03/28/2012 18:00    | 161.3     | 298       |
| 03/28/2012 19:00    | 159.9     | 299       |
| 03/28/2012 20:00    | 159.0     | 298       |
| 03/28/2012 21:00    | 160.4     | 298       |
| 03/28/2012 22:00    | 160.3     | 298       |
| 03/28/2012 23:00    | 159.9     | 298       |
| 03/29/2012 00:00    | 160.9     | 298       |
| 03/29/2012 01:00    | 160.7     | 299       |
| 03/29/2012 02:00    | 160.2     | 299       |
| 03/29/2012 03:00    | 157.4     | 299       |
| 03/29/2012 04:00    | 160.5     | 300       |
| 03/29/2012 05:00    | 160.1     | 299       |
| 03/29/2012 06:00    | 160.0     | 300       |
| Period Average =    | 160.0     | 299       |
| Period Max Value =  | 161.3     | 300       |
| Period Min Value =  | 157.4     | 298       |
| Period Totals =     | 4.0002E+3 | 7.4670E+3 |
| Period % Recovery = | 100.0     | 100.0     |

# Data Summary Report



Lee County Solid Waste  
Resource Recovery Facility

Company: Covanta Lee, Inc.  
10500 Buchingham Road  
Fort Myers, FL 33905

Data Group: U1\_1 HOUR DATA  
Report Name: No Title  
Start of Report: 03/28/2012 06:00  
End of Report: 03/29/2012 06:59

Validation: Valid Data Only

| Group#-Channel#     | G65-C40   |
|---------------------|-----------|
| Long Descrip.       | U-1 Carbo |
| Short Descrip.      | CarbInj   |
| Units               | #/hr      |
| Range               | 0-75      |
| 03/28/2012 06:00    | 20.2      |
| 03/28/2012 07:00    | 20.3      |
| 03/28/2012 08:00    | 20.3      |
| 03/28/2012 09:00    | 20.2      |
| 03/28/2012 10:00    | 20.3      |
| 03/28/2012 11:00    | 20.3      |
| 03/28/2012 12:00    | 20.2      |
| 03/28/2012 13:00    | 20.2      |
| 03/28/2012 14:00    | 20.3      |
| 03/28/2012 15:00    | 20.2      |
| 03/28/2012 16:00    | 21.3      |
| 03/28/2012 17:00    | 22.1      |
| 03/28/2012 18:00    | 22.0      |
| 03/28/2012 19:00    | 22.1      |
| 03/28/2012 20:00    | 22.0      |
| 03/28/2012 21:00    | 22.0      |
| 03/28/2012 22:00    | 22.0      |
| 03/28/2012 23:00    | 22.1      |
| 03/29/2012 00:00    | 22.0      |
| 03/29/2012 01:00    | 22.0      |
| 03/29/2012 02:00    | 21.5      |
| 03/29/2012 03:00    | 21.7      |
| 03/29/2012 04:00    | 21.7      |
| 03/29/2012 05:00    | 21.6      |
| 03/29/2012 06:00    | 21.7      |
| Period Average =    | 21.2      |
| Period Max Value =  | 22.1      |
| Period Min Value =  | 20.2      |
| Period Totals =     | 5.3030E+2 |
| Period % Recovery = | 100.0     |

# Data Summary Report



Lee County Solid Waste  
Resource Recovery Facility

Company: Covanta Lee, Inc.  
10500 Buckingham Road  
Fort Myers, FL 33905

Data Group: All Data Groups  
Report Name: No Title  
Start of Report: 03/28/2012 06:00  
End of Report: 03/29/2012 06:59

Validation: Valid Data Only

| Group#-Channel#     | G66-C2    | G65-C18   | G65-C20   | G65-C42   |
|---------------------|-----------|-----------|-----------|-----------|
| Long Descrip.       | U-1 Stack | U-1 Stack | U-1 Stack | U-1 Ammon |
| Short Descrip.      | COsc      | SO2sc     | NOXsc     | NH3Inj    |
| Units               | ppmc      | ppmc      | ppmc      | scfm      |
| Range               | 0-10000   | 0-2000    | 0-2500    | 0-100     |
| 03/28/2012 06:00    |           | 2         | 168       | 4.5       |
| 03/28/2012 07:00    |           | 3         | 151       | 5.0       |
| 03/28/2012 08:00    | 11        | 3         | 149       | 4.5       |
| 03/28/2012 09:00    |           | 2         | 142       | 5.1       |
| 03/28/2012 10:00    |           | 9         | 142       | 5.2       |
| 03/28/2012 11:00    |           | 13        | 142       | 6.1       |
| 03/28/2012 12:00    | 12        | 4         | 145       | 5.0       |
| 03/28/2012 13:00    |           | 8         | 144       | 5.6       |
| 03/28/2012 14:00    |           | 38        | 143       | 6.1       |
| 03/28/2012 15:00    |           | 21        | 144       | 5.9       |
| 03/28/2012 16:00    | 11        | 11        | 151       | 5.0       |
| 03/28/2012 17:00    |           | 7         | 152       | 5.2       |
| 03/28/2012 18:00    |           | 7         | 153       | 5.7       |
| 03/28/2012 19:00    |           | 4         | 153       | 5.2       |
| 03/28/2012 20:00    | 12        | 12        | 152       | 4.7       |
| 03/28/2012 21:00    |           | 17        | 152       | 4.8       |
| 03/28/2012 22:00    |           | 8         | 153       | 5.3       |
| 03/28/2012 23:00    |           | 28        | 155       | 4.8       |
| 03/29/2012 00:00    | 11        | 7         | 152       | 5.4       |
| 03/29/2012 01:00    |           | 10        | 153       | 5.5       |
| 03/29/2012 02:00    |           | 3         | 153       | 4.6       |
| 03/29/2012 03:00    |           | 32        | 152       | 4.7       |
| 03/29/2012 04:00    | 11        | 15        | 152       | 4.9       |
| 03/29/2012 05:00    |           | 9         | 154       | 4.6       |
| 03/29/2012 06:00    |           | 9         | 163       | 3.9       |
| <hr/>               |           |           |           |           |
| Period Average =    | 11        | 11        | 151       | 5.1       |
| Period Max Value =  | 12        | 38        | 168       | 6.1       |
| Period Min Value =  | 11        | 2         | 142       | 3.9       |
| Period Totals =     | 6.8000E+1 | 2.8200E+2 | 3.7700E+3 | 1.2730E+2 |
| Period % Recovery = | 100.0     | 100.0     | 100.0     | 100.0     |



# Data Summary Report



Lee County Solid Waste  
Resource Recovery Facility

Company: Covanta Lee, Inc.  
10500 Buckingham Road  
Fort Myers, FL 33905

Data Group: UL\_6 MIN OPACITY  
Report Name: No Title  
Start of Report: 03/28/2012 06:00  
End of Report: 03/29/2012 06:59

Validation: Valid Data Only

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| Group#-Channel#  | G43-C1    |
|------------------|-----------|
| Long Descrip.    | U-1 Opaci |
| Short Descrip.   | Opacity   |
| Units            | %         |
| Range            | 0-100     |
| 03/28/2012 06:00 | 0         |
| 03/28/2012 06:06 | 0         |
| 03/28/2012 06:12 | 0         |
| 03/28/2012 06:18 | 0         |
| 03/28/2012 06:24 | 0         |
| 03/28/2012 06:30 | 0         |
| 03/28/2012 06:36 | 0         |
| 03/28/2012 06:42 | 0         |
| 03/28/2012 06:48 | 0         |
| 03/28/2012 06:54 | 0         |
| 03/28/2012 07:12 | 0         |
| 03/28/2012 07:18 | 0         |
| 03/28/2012 07:24 | 0         |
| 03/28/2012 07:30 | 0         |
| 03/28/2012 07:36 | 0         |
| 03/28/2012 07:42 | 0         |
| 03/28/2012 07:48 | 0         |
| 03/28/2012 07:54 | 0         |
| 03/28/2012 08:00 | 0         |
| 03/28/2012 08:06 | 0         |
| 03/28/2012 08:12 | 0         |
| 03/28/2012 08:18 | 0         |
| 03/28/2012 08:24 | 0         |
| 03/28/2012 08:30 | 0         |
| 03/28/2012 08:36 | 0         |
| 03/28/2012 08:42 | 0         |
| 03/28/2012 08:48 | 0         |
| 03/28/2012 08:54 | 0         |
| 03/28/2012 09:00 | 0         |
| 03/28/2012 09:06 | 0         |
| 03/28/2012 09:12 | 0         |
| 03/28/2012 09:18 | 0         |
| 03/28/2012 09:24 | 0         |
| 03/28/2012 09:30 | 0         |
| 03/28/2012 09:36 | 0         |
| 03/28/2012 09:42 | 0         |
| 03/28/2012 09:48 | 0         |
| 03/28/2012 09:54 | 0         |
| 03/28/2012 10:00 | 0         |

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| Group#-Channel# | G43-C1    |
|-----------------|-----------|
| Long Descrip.   | U-1 Opaci |
| Short Descrip.  | Opacity   |
| Units           | %         |
| Range           | 0-100     |

|                  |   |
|------------------|---|
| 03/28/2012 10:06 | 0 |
| 03/28/2012 10:12 | 0 |
| 03/28/2012 10:18 | 0 |
| 03/28/2012 10:24 | 0 |
| 03/28/2012 10:30 | 0 |
| 03/28/2012 10:36 | 0 |
| 03/28/2012 10:42 | 0 |
| 03/28/2012 10:48 | 0 |
| 03/28/2012 10:54 | 0 |
| 03/28/2012 11:00 | 0 |
| 03/28/2012 11:06 | 0 |
| 03/28/2012 11:12 | 0 |
| 03/28/2012 11:18 | 0 |
| 03/28/2012 11:24 | 0 |
| 03/28/2012 11:30 | 0 |
| 03/28/2012 11:36 | 0 |
| 03/28/2012 11:42 | 0 |
| 03/28/2012 11:48 | 0 |
| 03/28/2012 11:54 | 0 |
| 03/28/2012 12:00 | 0 |
| 03/28/2012 12:06 | 0 |
| 03/28/2012 12:12 | 0 |
| 03/28/2012 12:18 | 0 |
| 03/28/2012 12:24 | 0 |
| 03/28/2012 12:30 | 0 |
| 03/28/2012 12:36 | 0 |
| 03/28/2012 12:42 | 0 |
| 03/28/2012 12:48 | 0 |
| 03/28/2012 12:54 | 0 |
| 03/28/2012 13:00 | 0 |
| 03/28/2012 13:06 | 0 |
| 03/28/2012 13:12 | 0 |
| 03/28/2012 13:18 | 0 |
| 03/28/2012 13:24 | 0 |
| 03/28/2012 13:30 | 0 |
| 03/28/2012 13:36 | 0 |
| 03/28/2012 13:42 | 0 |
| 03/28/2012 13:48 | 0 |
| 03/28/2012 13:54 | 0 |
| 03/28/2012 14:00 | 0 |
| 03/28/2012 14:06 | 0 |
| 03/28/2012 14:12 | 0 |
| 03/28/2012 14:18 | 0 |
| 03/28/2012 14:24 | 0 |
| 03/28/2012 14:30 | 0 |
| 03/28/2012 14:36 | 0 |
| 03/28/2012 14:42 | 0 |
| 03/28/2012 14:48 | 0 |
| 03/28/2012 14:54 | 0 |
| 03/28/2012 15:00 | 0 |

| Group#-Channel#  | G43-C1    |
|------------------|-----------|
| Long Descrip.    | U-1 Opaci |
| Short Descrip.   | Opacity   |
| Units            | %         |
| Range            | 0-100     |
| 03/28/2012 15:06 | 0         |
| 03/28/2012 15:12 | 0         |
| 03/28/2012 15:18 | 0         |
| 03/28/2012 15:24 | 0         |
| 03/28/2012 15:30 | 0         |
| 03/28/2012 15:36 | 0         |
| 03/28/2012 15:42 | 0         |
| 03/28/2012 15:48 | 0         |
| 03/28/2012 15:54 | 0         |
| 03/28/2012 16:00 | 0         |
| 03/28/2012 16:06 | 0         |
| 03/28/2012 16:12 | 0         |
| 03/28/2012 16:18 | 0         |
| 03/28/2012 16:24 | 0         |
| 03/28/2012 16:30 | 0         |
| 03/28/2012 16:36 | 0         |
| 03/28/2012 16:42 | 0         |
| 03/28/2012 16:48 | 0         |
| 03/28/2012 16:54 | 0         |
| 03/28/2012 17:00 | 0         |
| 03/28/2012 17:06 | 0         |
| 03/28/2012 17:12 | 0         |
| 03/28/2012 17:18 | 0         |
| 03/28/2012 17:24 | 0         |
| 03/28/2012 17:30 | 0         |
| 03/28/2012 17:36 | 0         |
| 03/28/2012 17:42 | 0         |
| 03/28/2012 17:48 | 0         |
| 03/28/2012 17:54 | 0         |
| 03/28/2012 18:00 | 0         |
| 03/28/2012 18:06 | 0         |
| 03/28/2012 18:12 | 0         |
| 03/28/2012 18:18 | 0         |
| 03/28/2012 18:24 | 0         |
| 03/28/2012 18:30 | 0         |
| 03/28/2012 18:36 | 0         |
| 03/28/2012 18:42 | 0         |
| 03/28/2012 18:48 | 0         |
| 03/28/2012 18:54 | 0         |
| 03/28/2012 19:00 | 0         |
| 03/28/2012 19:06 | 0         |
| 03/28/2012 19:12 | 0         |
| 03/28/2012 19:18 | 0         |
| 03/28/2012 19:24 | 0         |
| 03/28/2012 19:30 | 0         |
| 03/28/2012 19:36 | 0         |
| 03/28/2012 19:42 | 0         |
| 03/28/2012 19:48 | 0         |
| 03/28/2012 19:54 | 0         |
| 03/28/2012 20:00 | 0         |

| Group#-Channel#  | G43-C1    |
|------------------|-----------|
| Long Descrip.    | U-1 Opaci |
| Short Descrip.   | Opacity   |
| Units            | %         |
| Range            | 0-100     |
| 03/28/2012 20:06 | 0         |
| 03/28/2012 20:12 | 0         |
| 03/28/2012 20:18 | 0         |
| 03/28/2012 20:24 | 0         |
| 03/28/2012 20:30 | 0         |
| 03/28/2012 20:36 | 0         |
| 03/28/2012 20:42 | 0         |
| 03/28/2012 20:48 | 0         |
| 03/28/2012 20:54 | 0         |
| 03/28/2012 21:00 | 0         |
| 03/28/2012 21:06 | 0         |
| 03/28/2012 21:12 | 0         |
| 03/28/2012 21:18 | 0         |
| 03/28/2012 21:24 | 0         |
| 03/28/2012 21:30 | 0         |
| 03/28/2012 21:36 | 0         |
| 03/28/2012 21:42 | 0         |
| 03/28/2012 21:48 | 0         |
| 03/28/2012 21:54 | 0         |
| 03/28/2012 22:00 | 0         |
| 03/28/2012 22:06 | 0         |
| 03/28/2012 22:12 | 0         |
| 03/28/2012 22:18 | 0         |
| 03/28/2012 22:24 | 0         |
| 03/28/2012 22:30 | 0         |
| 03/28/2012 22:36 | 0         |
| 03/28/2012 22:42 | 0         |
| 03/28/2012 22:48 | 0         |
| 03/28/2012 22:54 | 0         |
| 03/28/2012 23:00 | 0         |
| 03/28/2012 23:06 | 0         |
| 03/28/2012 23:12 | 0         |
| 03/28/2012 23:18 | 0         |
| 03/28/2012 23:24 | 0         |
| 03/28/2012 23:30 | 0         |
| 03/28/2012 23:36 | 0         |
| 03/28/2012 23:42 | 0         |
| 03/28/2012 23:48 | 0         |
| 03/28/2012 23:54 | 0         |
| 03/29/2012 00:00 | 0         |
| 03/29/2012 00:06 | 0         |
| 03/29/2012 00:12 | 0         |
| 03/29/2012 00:18 | 0         |
| 03/29/2012 00:24 | 0         |
| 03/29/2012 00:30 | 0         |
| 03/29/2012 00:36 | 0         |
| 03/29/2012 00:42 | 0         |
| 03/29/2012 00:48 | 0         |
| 03/29/2012 00:54 | 0         |
| 03/29/2012 01:00 | 0         |

| Group#-Channel# | G43-C1    |
|-----------------|-----------|
| Long Descrip.   | U-1 Opaci |
| Short Descrip.  | Opacity   |
| Units           | %         |
| Range           | 0-100     |

|                  |   |
|------------------|---|
| 03/29/2012 01:06 | 0 |
| 03/29/2012 01:12 | 0 |
| 03/29/2012 01:18 | 0 |
| 03/29/2012 01:24 | 0 |
| 03/29/2012 01:30 | 0 |
| 03/29/2012 01:36 | 0 |
| 03/29/2012 01:42 | 0 |
| 03/29/2012 01:48 | 0 |
| 03/29/2012 01:54 | 0 |
| 03/29/2012 02:00 | 0 |
| 03/29/2012 02:06 | 0 |
| 03/29/2012 02:12 | 0 |
| 03/29/2012 02:18 | 0 |
| 03/29/2012 02:24 | 0 |
| 03/29/2012 02:30 | 0 |
| 03/29/2012 02:36 | 0 |
| 03/29/2012 02:42 | 0 |
| 03/29/2012 02:48 | 0 |
| 03/29/2012 02:54 | 0 |
| 03/29/2012 03:00 | 0 |
| 03/29/2012 03:06 | 0 |
| 03/29/2012 03:12 | 0 |
| 03/29/2012 03:18 | 0 |
| 03/29/2012 03:24 | 0 |
| 03/29/2012 03:30 | 0 |
| 03/29/2012 03:36 | 0 |
| 03/29/2012 03:42 | 0 |
| 03/29/2012 03:48 | 0 |
| 03/29/2012 03:54 | 0 |
| 03/29/2012 04:00 | 0 |
| 03/29/2012 04:06 | 0 |
| 03/29/2012 04:12 | 0 |
| 03/29/2012 04:18 | 0 |
| 03/29/2012 04:24 | 0 |
| 03/29/2012 04:30 | 0 |
| 03/29/2012 04:36 | 0 |
| 03/29/2012 04:42 | 0 |
| 03/29/2012 04:48 | 0 |
| 03/29/2012 04:54 | 0 |
| 03/29/2012 05:00 | 0 |
| 03/29/2012 05:06 | 0 |
| 03/29/2012 05:12 | 0 |
| 03/29/2012 05:18 | 0 |
| 03/29/2012 05:24 | 0 |
| 03/29/2012 05:30 | 0 |
| 03/29/2012 05:36 | 0 |
| 03/29/2012 05:42 | 0 |
| 03/29/2012 05:48 | 0 |
| 03/29/2012 05:54 | 0 |
| 03/29/2012 06:00 | 0 |

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|                 |           |
|-----------------|-----------|
| Group#-Channel# | G43-C1    |
| Long Descrip.   | U-1 Opaci |
| Short Descrip.  | Opacity   |
| Units           | %         |
| Range           | 0-100     |

---

|                  |   |
|------------------|---|
| 03/29/2012 06:06 | 0 |
| 03/29/2012 06:12 | 0 |
| 03/29/2012 06:18 | 0 |
| 03/29/2012 06:24 | 0 |
| 03/29/2012 06:30 | 0 |
| 03/29/2012 06:36 | 0 |
| 03/29/2012 06:42 | 0 |
| 03/29/2012 06:48 | 0 |
| 03/29/2012 06:54 | 0 |

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|                     |           |
|---------------------|-----------|
| Period Average =    | 0         |
| Period Max Value =  | 0         |
| Period Min Value =  | 0         |
| Period Totals =     | 0.0000E+0 |
| Period % Recovery = | 99.2      |

**APPENDIX C:**

**Sludge Analysis- Laboratory Test Report**



# Laboratory Test Report

Lab Project #: F1203126

Page 1 of 3

All subsequent pages are identified by: F1203126. These pages may include, but are not limited to: Analytical Data, Chains of Custody, Subcontracted Data and Case Narratives.

Questions regarding this report should be directed to your Laboratory Contact:

Tami Bright

Client: City of Cape Coral

PO Box 150027

Cape Coral, FL 33915

Phone: 239-574-0784

Fax: 239-574-0861

E-mail:

Project Name: 503 Sludge Analysis *Class "B"*

### QUALIFIER DEFINITIONS

- B: Results based upon colony counts outside the acceptable range.
  - I: The reported value is greater than or equal to the laboratory MDL but less than the laboratory PQL.
  - J: Estimated Value.
  - J7: Excessive amounts of Sodium Sulfite used to dechlorinate the sample due to high levels of chlorine present.
  - K: Off scale low, actual value is known to be less than the value given.
  - L: Off scale high, actual value is known to be greater than the value given.
  - Q: Sample held beyond acceptable holding time.
  - U: The compound was analyzed for, but not detected.
  - V: Indicates that the analyte was detected at or above the MDL in both the sample and the associated method blank and the value of 10 times the blank value was equal to or greater than the associated sample value.
  - Y: The laboratory analysis was from an improperly preserved sample.
  - Z: Too many colonies were present for accurate counting.
- HACH results may not meet NELAC standards.

A statement of estimated uncertainty of results is available upon request.

Analytical results provided relate only to the samples received for this project.

Test results meet all the requirements of the NELAC standards, unless otherwise noted.

Laboratory report shall not be reproduced except in full, without the written approval of Sanders Laboratories.

Sanders Laboratories follows DEP standard operating procedures for field sampling, unless otherwise noted.

Laboratory PQL's are available upon request.

Reports are archived for a minimum of 5 years. Copies of reports which are less than 1 year old are available for a fee of \$25.00 per report. Reports older than 1 year are available for a fee of \$50.00 per report. Copies will be provided within 1 week of the time of the request.

Approved by:

#### Comments:

The MPN sample was originally ran on 3/8/2012 however the results were erroneously high it was then reran twice with higher dilutions and Q is needed for rerun.

Radica Koutselas/QA Officer  
Jeff Walsh/Project Manager



**SANDERS LABORATORIES, INC.**

**Laboratory Test Report**

Client: City of Cape Coral  
 Client Project: 503 Sludge Analysis

Page: Page 1 of 1  
 Lab Project: F1203126  
 Report Date: 03/22/12

| Lab ID      | Sample Description | Matrix | Sample Type | Received Date/Time | Sample Date/Time |
|-------------|--------------------|--------|-------------|--------------------|------------------|
| F1203126-01 | 503 SLUDGE         | Sludge | COMPOSITE   | 3/8/12 8:45        | 3/1/12 9:00      |

| Parameter      | Result | Qual | MDL  | PQL  | Units     | Method  | Batch #     | Analysis Date/Time | Analyst | Lab ID |
|----------------|--------|------|------|------|-----------|---------|-------------|--------------------|---------|--------|
| pH (solid)     | 6.23   | Q    | 0.01 | 0.01 | std units | EPA9040 | NB120309065 | 3/9/12 11:00       | WC      | E84380 |
| Total Solids % | 13.4   |      | 0.01 | 0.01 | %         | SM2540G | NB120313020 | 3/9/12 9:10        | DM      | E84380 |

| Lab ID      | Sample Description | Matrix | Sample Type | Received Date/Time | Sample Date/Time |
|-------------|--------------------|--------|-------------|--------------------|------------------|
| F1203126-02 | 503 SLUDGE         | Sludge | COMPOSITE   | 3/8/12 8:45        | 3/5/12 9:05      |

| Parameter           | Result | Qual | MDL  | PQL  | Units    | Method         | Batch #     | Analysis Date/Time | Analyst | Lab ID |
|---------------------|--------|------|------|------|----------|----------------|-------------|--------------------|---------|--------|
| Nitrogen, Total %   | 7.50   |      | 0.01 | 0.01 | % dry wt | EPA351.2/353.2 | NB120320029 | 3/16/12 13:13      | JPW     | E84380 |
| Phosphorus, Total % | 2.73   |      | 0.01 | 0.01 | % dry wt | EPA365.4       | NB120320025 | 3/16/12 13:13      | JPW     | E84380 |

| Lab ID      | Sample Description | Matrix | Sample Type | Received Date/Time | Sample Date/Time |
|-------------|--------------------|--------|-------------|--------------------|------------------|
| F1203126-03 | 503 SLUDGE         | Sludge | COMPOSITE   | 3/8/12 8:45        | 3/7/12 8:40      |

| Parameter              | Result | Qual | MDL  | PQL  | Units     | Method  | Batch #     | Analysis Date/Time | Analyst | Lab ID |
|------------------------|--------|------|------|------|-----------|---------|-------------|--------------------|---------|--------|
| Arsenic                | 4.78   | U    | 4.78 | 19.1 | mg/Kg dry | 6010B   | NB120320059 | 3/14/12 17:22      | HBEL    | E96080 |
| Cadmium                | 0.90   | I    | 0.90 | 3.58 | mg/Kg dry | 6010B   | NB120320059 | 3/14/12 17:22      | HBEL    | E96080 |
| Copper                 | 149    |      | 1.87 | 7.46 | mg/Kg dry | 6010B   | NB120320059 | 3/16/12 18:03      | HBEL    | E96080 |
| Lead                   | 9.70   | I    | 4.03 | 16.1 | mg/Kg dry | 6010B   | NB120320059 | 3/14/12 17:22      | HBEL    | E96080 |
| Mercury, Total (solid) | 0.82   |      | 0.13 | 0.51 | mg/Kg dry | EPA7470 | NB120320060 | 3/19/12 15:37      | HBEL    | E96080 |
| Molybdenum             | 7.31   | I    | 2.91 | 11.6 | mg/Kg dry | 6010B   | NB120320059 | 3/14/12 17:22      | HBEL    | E96080 |
| Nickel                 | 9.70   | I    | 2.69 | 10.8 | mg/Kg dry | 6010B   | NB120320059 | 3/14/12 17:22      | HBEL    | E96080 |
| Potassium, Total %     | 0.68   |      | 0.01 | 0.01 | % dry wt  | 6010B   | NB120320059 | 3/14/12 17:22      | HBEL    | E96080 |
| Selenium               | 5.30   | U    | 5.30 | 21.2 | mg/Kg dry | 6010B   | NB120320059 | 3/14/12 17:22      | HBEL    | E96080 |
| Zinc                   | 1490   |      | 26.9 | 107  | mg/Kg dry | 6010B   | NB120320059 | 3/14/12 17:22      | HBEL    | E96080 |

| Lab ID      | Sample Description | Matrix | Sample Type | Received Date/Time | Sample Date/Time |
|-------------|--------------------|--------|-------------|--------------------|------------------|
| F1203126-04 | 503 SLUDGE         | Sludge | COMPOSITE   | 3/8/12 8:45        | 3/8/12 7:50      |

| Parameter           | Result | Qual | MDL | PQL | Units | Method  | Batch #     | Analysis Date/Time | Analyst | Lab ID |
|---------------------|--------|------|-----|-----|-------|---------|-------------|--------------------|---------|--------|
| Fecal Collform, MPN | 1490   | Q    | 200 | 200 | MPN/g | SM9221E | FB120322006 | 3/20/12 15:20      | LV      | E85457 |

*less 1781*



CHAIN-OF-CUSTODY RECORD

PROJECT # F1203126

Page \_\_\_\_ of \_\_\_\_

Client CITY OF CAPE CORAL
Address 3310 SW 207th AVE
Phone 574-0850 Fax 574-0853

Report To: JEFF WALTER
Bill To:
P.O. #
Preservative: HCl = H, HNO3 = N, Na2S2O8 = ST, H2SO4 = S, NaOH = SH, NH4Cl = NH

Project Name: SLUDGE
Project Location:
Customer Type:
Kit # FOR LAB USE ONLY
REQUESTED DUE DATE: 3/16/12

Table with columns for Matrix, SAMPLE DESCRIPTION, DATE, TIME, TYPE, PRESERVATIVES (PH, ICE), ANALYSES REQUEST (303 ANALYSIS, 303 METALS, PH, PYS, % IN % TP, FE CAL MPV), Sample ID #, RELINQUISHED BY / AFFILIATION, DATE, TIME, ACCEPTED BY / AFFILIATION, DATE, TIME, COMMENTS, OKAY TO RUN AS IS, CLIENT INITIAL, SAMPLES ON ICE (Yes/No).