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AIR REGULATION

March 7, 2011

Scott M. Sheplak, P.E.
Florida Department of Environmental Protection
Title V Air Permitting Section
Mail Station #5505
2600 Blair Stone Road
Tallahassee, FL 32399

Subject: Request for Additional Information No. 2, File No. 0570261-012-AV
Hillsborough County Resource Recovery Facility
Facility ID 0570261

Dear Mr. Sheplak:

On behalf of the Hillsborough County, CDM has reviewed the Request for Information (RAI) correspondence No. 2, dated September 7, 2010 and has prepared responses in accordance with Rule 62-4.055(1) F.A.C. A summary of the responses are discussed below.

A. Initial Title V Air Operation Permit for New Municipal Waste Combustor (MWC) Unit 4, Emissions Unit Identification Number (E.U. ID No.) -107, and Associated Equipment from Permit No. PSD-FL-369, as amended

1. Steam Production Rates and Capacity: Please explain the apparent conflict with the reported "maximum steam flow" shown in Tables 2. & 4. of "174,500 lbs/hour" and the "183,941 lbs/hour" shown in Table 3 of the response. What were the averaging periods for the reported steam flow values?

CDM Response:

The Municipal Waste Combustor (MWC) Unit 4 is rated for a nominal steam flow of 167,219 lbs/hour. The reported 174,500 lb/hour is the average steam flow measure during the testing period. The 183,941 lb/hours represents the maximum steam flow for MWC Unit 4.

The main steam flow was averaged using 1 hourly average blocks during the stack testing period 0:00 hours - August 31, 2009 through 23:00 hours - September 3, 2009. The steam flow was very stable during the period averaging 174,500 ± 960 lbs/hour. Again, CDM's previous response to comment A.6, dated August 6, 2010, indicated the average steam flow of 174,500 lb/hours was in compliance with 90-100% of maximum pursuant to condition 3.B.24 of permit no. 0570261-010-AC.





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2. Mercury (Hg) Continuous Emissions Monitoring System (CEMS): Specific condition 3.B.35. of Permit No. PSD-FL-369 as amended currently requires the installation and certification of a Hg CEMS within 24 months of MWC Unit 4's commencing operation.
 - a. The commercial operation date for Unit 4 was provided as "September 5, 2009" in the response. The current deadline for the installation and certification of a Hg CEMS is therefore September 5, 2011. As you indicated, the U.S. EPA subsequent to the issuance of the original PSD permit, PSD-FL-369 (issued on October 2, 2006) for Unit 4, vacated the Clean Air Mercury Rule (CAMR) on February 8, 2008. Is there a new timeline under which the EPA will re-promulgate CAMR?

CDM Response:

On February 8, 2008, the D.C. Circuit vacated EPA's Clean Air Mercury Rule. On February 6, 2009, the Department of Justice, on behalf of EPA, asked the Supreme Court to dismiss EPA's request that the Court review the D.C. Circuit Court's vacature of CAMR. On December 24, 2009, EPA approved an Information Collection Request (ICR) requiring all U.S. power plants with coal-or oil-fired electric generating units to submit emissions information for use in developing new air emissions standards.

EPA is currently developing air emissions standards for power plants under the Clean Air Act (Section 112), consistent with the D.C. Circuit's opinion regarding CAMR. EPA intends to propose new air standards for coal- and oil-fired electric generating units by March 10, 2011 and finalize a rule by November 16, 2011.

- b. The sorbent-based sampling system described in the response does not appear to meet the requirements of specific condition 3.B.35., requiring a Hg CEMS.

CDM Response:

Hillsborough County (County), Covanta Energy (Covanta), and CDM met with the Department on October 22, 2010 in Tallahassee to further discuss selection of the mercury monitor on combustion unit No. 4 at the Hillsborough County Resource Recovery Facility. One objective coming from that meeting was to prepare and submit a report to the Department on the performance of the Tekran analyzer Covanta has in service as a research and development project at the Haverhill, MA Resource Recovery Facility.

In January 2011, Covanta submitted the Report to the Department detailing their experience with a PS-12A Hg CEMS installed at the Haverhill Resource Recovery Facility located in Haverhill, Massachusetts. In response to that Report, the Department requested an analysis to predict the economic burden to Hillsborough County associated with various





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options for continuously monitoring Hg emissions. The requested analysis is attached as Attachment A.

Subsequent to the issuance of the January Report, Covanta has experienced some success at extending the service life of the gold trap component. However, it remains difficult to predict how this recent improvement in performance will translate into long-term reliability necessary to achieve the 95% monitor availability requirement specified in PSD-FL-369. Accordingly, Hillsborough County is requesting a meeting with the Department in the next several weeks to discuss the following:

- The findings detailed in Covanta's January Report;
 - The economic impact to Hillsborough County detailed in the attached cost model (see Attachment A);
 - The recent dilution modifications to the Tekran[®] analyzer and their impact on monitor availability and performance, and;
 - Appropriate next steps for the continuous monitoring of Hg emissions from Unit #4.
- 1) The sorbent sampling system information provided for the American Supply Company Inc., Model HG-324K by you indicates the unit had been field tested in June/July 2006. Has there been more recent field testing?

CDM Response:

CDM is not aware of any new field testing of the sorbent trap sampling system (American Supply Company Inc., Model HG-324K) since the June/July 2006 testing.

- 2) The information provided for the American Supply Company Inc. Model HG-324K sorbent sampling system by you indicates the unit costs \$18,750 (2007 dollars). The cost for a sorbent sample is \$500. Are these prices valid for today (2010 dollars)?

CDM Response:

The attached economic model provides a more detailed estimate of the costs (both capital and O&M) associated with a PS-12B Hg CEMS (see Attachment A).

- c. Has a Hg CEMS been installed, certified and in operation on an MWC unit in the U.S.?

The JEA-Northside coal-fired power plant in Florida has installed and certified two Hg CEMS. These Hg CEMS began operating in March/June 2009. For more information on these Hg CEMS, see the following web link:

<http://www.dep.state.fl.us/air/emission/apds/listpermits.asp>; Facility ID No. 0310045, projects -028-AV and -022-AC.





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While the Hg CEMS issue is related to this permitting action, the inclusion of the new Unit 4 can be easily accomplished by simply incorporating the terms and conditions of PSD-FL-369B verbatim into the Title V permit. A review and approval of any proposed Hg emissions monitoring to satisfy specific condition 3.B.35. of Permit No. PSD-FL-369B may be appropriate. This can be pursued independent of this permitting action. The Department has Hg emissions monitoring expertise within the Emissions Monitoring Section here in Tallahassee. Mr. Syed Arif, P.E. is the Program Administrator of the Emissions Monitoring Section; he can be reached at 850/921-9580. It seems a meeting would be worthwhile to discuss this issue.

CDM Response:

To the best of our knowledge, there are no permitted Hg CEMS devices in operation on any MWC Units in the United States. The Hillsborough facility would be the first facility to install, certify and operate the Hg CEMS device (Haverhill, Massachusetts R&D experience not withstanding).

3. Pebble Lime Storage Silo, Activated Carbon Storage Silo and Expanded Ash Handling Building with: Wet Scrubbing System, E.U. ID Nos. -108, -110 and -112: As part of the PSD-FL-369 project, baghouses and a wet dust collector (scrubber) were installed. The response provided some test data results.
 - a. Design Specifications: Specific condition 3.C.3. of Permit No. PSD-FL-369 as amended, requires the wet scrubber to meet certain design specifications. The design specifications from the permit are:

*"... a. 7000 actual cubic feet per minute;
b. Approximately 40% control for sub micron particles;
c. 80% control for particles \geq 1.0 micron;
d. 95% control for particles \geq 2.0 micron;
e. 97% control for particles \geq 3.0 micron;
f. 98% control for particles \geq 5.0 micron; and
g. 99% control for particles \geq 10.0 micron. ... "*

Does the installed wet scrubber meet these design specifications?

CDM Response:

The installed wet scrubber is designed by the manufacturer to meet the above referenced design specifications.





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B. Title V Air Operation Permit Revision for Existing MWC Units 1-3, E.U. ID No. -001 - -003, Permit No. 0570261-006-AV

C. Title V Air Operation Permit Revision. This requested permitting action is for the inclusion of the new Unit 4, revising the current Title V air operation permit and for miscellaneous requested revisions to Units 1-3. New applicable requirements from NSPS 40 CFR 60, Subparts Eb & Cb were previously addressed.

1. **New Applicable Requirements** - Engines: Permit No. 0570261-006-AV, was effective on May 29, 2007. Several new federal regulations have been promulgated by U.S. EPA and adopted by the State of Florida. Some of these new federal regulations may be new applicable requirements applying to certain types of engines.

a. **New Applicable Requirements - New Source Performance Standards (NSPS) Requirements from 40 Code of Federal Regulations (CFR) 60:**

40 CFR 60 Subpart IIII also known as (a.k.a.) NSPS "4-I 's" or "CI-ICE"

U.S. EPA promulgated on July 11 ,2006, the NSPS for Stationary Compression Ignition (CI) Internal Combustion Engines (TCE) under 40 CFR 60 Subpart IIII . This new NSPS applies to new engines. Florida adopted this regulation by reference soon thereafter at Rule 62-204.800(8)(b), F.A.C.

Appendix I, List of Insignificant Emissions Units and/or Activities, attached to Permit No. 0570261-006-AV, lists two engines.

Are any of these engines regulated under this new NSPS?

If not, please provide key non-applicability descriptors to show that the engine is clearly not subject to these new NSPS, like 'existing,' model year/construction (manufacturer) date, manufacturer name, size of engine, e.g., equivalent brake horsepower (HP), type of engine, etc.

CDM Response:

Appendix I-1 was updated to reflect existing equipment on-site that are considered insignificant emission sources. The emergency generators were installed in 2002 and 2007. The emergency generators installed in 2007 were designed to meet the Tier 3 emission requirements by the manufacturer. The emergency diesel fire pump was installed in 1987.





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Description	Location	Size	Disp.	Model/SN	Year	Rule applicability
Existing Diesel Emergency Generators	Falkenburg AWWTP	2160 HP	69 L	Caterpillar 3516 B/1HZ02141	2002	No Requirements
Existing Diesel Emergency Generators	Falkenburg AWWTP	2900 HP	60 L	Cummins QSKTA60-GE/33171563	2007	63.6645(f)
Existing Diesel Emergency Generators	Falkenburg AWWTP	2900 HP	60 L	Cummins QSKTA60-GE/33171588	2007	63.6645(f)
Existing Diesel Emergency Generators	Falkenburg AWWTP	2900 HP	60 L	Cummins QSKTA60-GE/33171564	2007	63.6645(f)
Existing Diesel Emergency Fire Pump Engine	Fire Pump House	235 HP	10 L	Caterpillar 3208	1987	63.6635, 66.6640, 63/6650, 63/6625e,h,f & Table 2c

- b. New Applicable Requirements - National Emissions Standards for Hazardous Air Pollutants (NESHAP) Requirements also known as (a.k.a) Maximum Available Control Technologies (MACT) from 40 CFR 63 Subpart ZZZZ:

40 CFR 63 Subpart ZZZZ a.k.a. MACT "4-Z's" or "RICE MACT"

U.S. EPA promulgated on February 24, 2004, the Reciprocating Internal Combustion Engines (RICE) MACT under 40 CFR 63 Subpart ZZZZ. This new MACT applies to new and existing engines at a Title V source that is a major source of hazardous air pollutants (HAP). Florida adopted this regulation by reference soon thereafter at Rule 62-204.800(11)(b), F.A.C.

This facility is a major source of HAP. This new MACT may therefore apply. Are any of the previously mentioned engines above regulated under the RICE MACT?

If not, please provide key non-applicability descriptors to show that the engine is clearly not subject to the RICE MACT, like 'existing,' model year/construction (manufacturer) date,





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manufacturer name, size of engine, e.g., equivalent brake horsepower (HP), type of engine, e.g., compression ignition (CI), etc.

CDM Response:

The generators listed in RAI response no. 1.A are existing, stationary, emergency generators. These generators are not subject to the requirements of the RICE MACT rule.

It is requested that the department approve the Title V permit application based on the revised information provided herein. Please contact me (813) 281-2900, if you have any questions.

Sincerely,

William R. Crellin Jr., P.E.
Project Manager
Camp, Dresser & McKee

cc: Barry Boldissar - Hillsborough County
Nate Johnson - Hillsborough County
Kristen Chardo - Covanta Hillsborough
Jason Gorrie - Covanta Hillsborough
Glenn Hoag - Covanta Hillsborough
Dan Strobridge, QEP - CDM
File

SWD
cc: Syed Arif



William R. Crellin, Jr., P.E.
March 7, 2011

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Cert. of Auth. #EB 0000020

The seal certifies the engineering information included herein provides reasonable assurance of meeting the applicable requirements of the Title V permit renewal application. The seal does not certify or attest to the accuracy of work prepared by others who are qualified to perform the work. The information provided is believed to be accurate to the best of the Engineer's knowledge.



Attachment A

Capital

PS-12A Instrument Estimated Cost		PS-12B Instrument Estimated Cost	
low	high	low	high
\$ 250,000	\$ 300,000	\$ 75,000	\$ 150,000

Instrument (including shelter and sample lines)

Annual O&M

Tekran service contract ¹	\$ 40,000	\$ 75,000	\$ -	\$ -
replacement of gold traps \$1,500 every other week)	\$ 3,000	\$ 39,000	\$ -	\$ -
I&E technician ² Quarterly QA/QC	\$ 100,000	\$ 125,000	\$ 50,000	\$ 62,500
paired sorbent trap (\$200) ³	\$ -	\$ -	\$ 5,200	\$ 10,400
sorbent trap analysis (\$100) ³	\$ -	\$ -	\$ 2,600	\$ 5,200

¹ \$40,000 for guaranteed 90% availability, \$75,000 for guaranteed 95% availability

² full-time technician for 12-A, part-time technician for 12-B

³ low estimate assumes bi-weekly analysis, high estimate assumes weekly analysis

Cumulative Cost Analysis

PS-12A CEMS

	equipment ¹	gold trap replacement ^{2,3}			service contract	CGAs ⁴	RATA	Total		
		2 weeks	6 weeks	6 months				2 week scenario	6 week scenario	6 month scenario
Year 1	\$ 250,000.00	\$ 39,000	\$ 12,000	\$ 3,000	\$ 40,000	\$ 15,000	\$ 15,000	\$ 359,000	\$ 332,000	\$ 323,000
Year 2		\$ 78,000	\$ 24,000	\$ 6,000	\$ 80,000	\$ 27,000	\$ 30,000	\$ 574,000	\$ 493,000	\$ 466,000
Year 3		\$ 117,000	\$ 36,000	\$ 9,000	\$ 120,000	\$ 39,000	\$ 45,000	\$ 895,000	\$ 733,000	\$ 679,000
Year 4		\$ 156,000	\$ 48,000	\$ 12,000	\$ 160,000	\$ 51,000	\$ 60,000	\$ 1,322,000	\$ 1,052,000	\$ 962,000
Year 5		\$ 195,000	\$ 60,000	\$ 15,000	\$ 200,000	\$ 63,000	\$ 75,000	\$ 1,855,000	\$ 1,450,000	\$ 1,315,000
Year 6		\$ 234,000	\$ 72,000	\$ 18,000	\$ 240,000	\$ 75,000	\$ 90,000	\$ 2,494,000	\$ 1,927,000	\$ 1,738,000
Year 7		\$ 273,000	\$ 84,000	\$ 21,000	\$ 280,000	\$ 87,000	\$ 105,000	\$ 3,239,000	\$ 2,483,000	\$ 2,231,000
Year 8		\$ 312,000	\$ 96,000	\$ 24,000	\$ 320,000	\$ 99,000	\$ 120,000	\$ 4,090,000	\$ 3,118,000	\$ 2,794,000
Year 9		\$ 351,000	\$ 108,000	\$ 27,000	\$ 360,000	\$ 111,000	\$ 135,000	\$ 5,047,000	\$ 3,832,000	\$ 3,427,000
Year 10		\$ 390,000	\$ 120,000	\$ 30,000	\$ 400,000	\$ 123,000	\$ 150,000	\$ 6,110,000	\$ 4,625,000	\$ 4,130,000
Year 11		\$ 429,000	\$ 132,000	\$ 33,000	\$ 440,000	\$ 135,000	\$ 165,000	\$ 7,279,000	\$ 5,497,000	\$ 4,903,000

Assumptions:

- ¹ includes probe, umbilical, analyzer, installation
- ² long term gold trap replacement frequency remains uncertain
- ³ gold traps cost \$1,500 to replace
- ⁴ CGA requires use of a HOVACAL instrument, assumed cost is \$4,000 per quarter
- ⁵ annual RATA utilizing Method 30B

- "2 week scenario" envisions replacing gold traps every 2 weeks
- "6 week scenario" envisions replacing gold traps every 6 weeks
- "6 month scenario" envisions replacing gold traps every 6 months

PS-12B CEMS

	equipment ¹	traps ²	trap analysis ^{3,4}	CGAs	RATA ⁵	Total
Year 1	\$ 150,000	\$ 5,200	\$ 2,600		\$ 15,000	\$ 172,800
Year 2		\$ 10,400	\$ 5,200		\$ 30,000	\$ 218,400
Year 3		\$ 15,600	\$ 7,800		\$ 45,000	\$ 286,800
Year 4		\$ 20,800	\$ 10,400		\$ 60,000	\$ 378,000
Year 5		\$ 26,000	\$ 13,000		\$ 75,000	\$ 492,000
Year 6		\$ 31,200	\$ 15,600		\$ 90,000	\$ 628,800
Year 7		\$ 36,400	\$ 18,200		\$ 105,000	\$ 788,400
Year 8		\$ 41,600	\$ 20,800		\$ 120,000	\$ 970,800
Year 9		\$ 46,800	\$ 23,400		\$ 135,000	\$ 1,176,000
Year 10		\$ 52,000	\$ 26,000		\$ 150,000	\$ 1,404,000
Year 11		\$ 57,200	\$ 28,600		\$ 165,000	\$ 1,654,800

Assumptions:

- ¹ includes probe, umbilical, sampling equipment, installation
- ² paired traps are replaced every two weeks at a cost of \$200 per pair
- ³ paired traps are analyzed every 2 weeks @ \$100 per analysis
- ⁴ can be offset through purchase of an Ohio-Lumex analyzer for on-site analysis
- ⁵ annual RATA utilizing Method 30B

Cumulative Impact to Hillsborough County

