Miami-Dade County
Miami-Dade County Resource Recovery Facility
Title V Air Operation Permit Renewal
Final Permit No. 0250348-010-AV

APPLICANT

The applicant for this project is Covanta Dade Renewable Energy Limited. The applicant's responsible official and mailing address are: Mr. Thomas C. Eriksen, Facility Manager, Covanta Dade Renewable Energy Limited, 6990 Northwest 97th Avenue, Miami, Florida 33178.

FACILITY DESCRIPTION

The facility is owned by Miami-Dade County and is currently operated by the Covanta Dade Renewable Energy Limited. This existing facility is located in Miami-Dade County at 6990 Northwest 97th Avenue in Miami, Florida.

The Miami-Dade County Resources Recovery Facility consists of: four refuse derived fuel (RDF) municipal waste combustors (MWC); a municipal solid waste (MSW) separation and RDF preparation system; a bulky waste separation and biomass fuel preparation system; and ancillary equipment. The facility is owned by the County and operated by Covanta Dade Renewable Energy. Each unit has a maximum continuous rating of 180,000 pounds per hour (lb/hour) of steam. Each unit requires a range of approximately 584 to 782 tons/day at a heat content range of approximately 4,500 to 5,500 British thermal units per pound (Btu/lb) of RDF to achieve the maximum continuous rating. The four units combined produce sufficient steam to generate approximately 77 megawatts of electricity.

The facility began operation in 1982. Emissions from each unit are controlled by: a spray dryer absorber (SDA) for acid gases such as sulfur dioxide (SO_2) and hydrogen chloride (HCl); a fabric filter (baghouse) for particulate matter (PM); a selective non-catalytic reduction (SNCR) system for nitrogen oxides (NO_X); and an activated carbon injector system for mercury (Hg), other metal hazardous air pollutants (HAP) and dioxin/furans. The facility is equipped with continuous emission monitoring systems (CEMS) for carbon monoxide (CO), SO_2 and NO_X and a continuous opacity monitoring system (COMS) for visible emissions.

The MSW to RDF system also includes recovery of extractable, saleable materials such as metals and glass. The bulky materials to biomass system processes up to 400,000 tons/year of the organic bulky solid waste into biomass, which is either combusted on-site or transported off-site for use at biomass-fueled facility units.

The facility also has an ash building and handling system, lime storage silos and activated carbon storage silos. Units 1 and 2 share a common stack and each has its own flue within the stack. Units 3 and 4 share a common stack and each has its own flue within the stack. Odors are minimized by keeping the truck access doors closed during non-use; and a negative pressure is maintained on the garbage tipping floor, and the air is collected as combustion air for the MWC. The County operates a landfill at an adjacent location which is permitted separately.

This permit is largely based on Permit No. PSD-FL-006G that is being issued concurrently with this Title V operation permit renewal. Permit No. PSD-FL-006G is an updated air construction permit that replaces previous requirements pursuant to: Permit No. PSD-FL-006 and Site Certification No. PA77-08, issued in 1978; Permit No. PSD-FL-006A issued December 16, 1994; Permit No. PSD-FL-006D issued July 21, 2000; and subsequent permit modification Nos. PSD-FL-006E and PSD-FL-006F.

Miscellaneous unregulated/insignificant emissions units and/or activities are included.

PROJECT DESCRIPTION

The purpose of this permitting project is to renew the Title V air operation permit for the above referenced facility. The key differences compared with the previous Title V air operation permit are:

- Inclusion of new reciprocating internal combustion engines (RICE);
- Incorporation of concurrently issued air construction Permit No. 0250348-011-AC (PSD-FL-006G) that is an update of the previous construction permits for the four MWC to insure consistency with Department Rule 62-204.800(9)(b), Florida Administrative Code (F.A.C.) - Municipal Waste Combustors (the MWC rule); and
- Inclusion of all other applicable requirements of the MWC rule since it was updated in accordance with 40 Code of Federal Regulation (CFR) Part 60, Subpart Cb, "Emission Guidelines and Compliance Times for Large Municipal Waste Combustors that are Constructed on or before September 20, 1994" (as amended May 10, 2006).

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Application for a Title V Air Operation Permit Renewal received October 14, 2011
Draft Permit posted on web site on February 29, 2012.
Public Notice published on March 26, 2012.
Proposed Permit posted on web site on April 27, 2012.

PRIMARY REGULATORY REQUIREMENTS

Hazardous Air Pollutants (HAP): The facility is a major source of HAP (e.g. hydrogen chloride emissions are greater than 10 tons/year).

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.

PSD: The facility is a Prevention of Significant Deterioration (PSD)-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

Department Municipal Waste Combustor Rule: Department Rule 62-204.800(9)(b), F.A.C., Municipal Waste Combustors (MWC rule), applies to this facility. The MWC rule is based on 40 CFR 60, Subpart Cb - Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are constructed on or before September 20, 1994.

The Department's MWC rule (effective May 31, 2007) is listed in 40 CFR 62, Approval and Promulgation of State Plans for Designated Facilities and Pollutants, Subpart K – Florida at Section 40 CFR 62.2355 (adopted by EPA December 30, 2010, amended February 9, 2012)

NESHAP: The facility operates units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

Compliance Assurance Monitoring (CAM) Applicability: The facility operates units subject to the General Applicability provisions of 40 CFR 64, Compliance Assurance Monitoring (CAM), because the four MWC are required to obtain a facility Title V operation permit and:

1. Are subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph 40 CFR 64.2(b)(1);
2. Use control devices to achieve compliance with any such emission limitation or standard; and
3. Have potential pre-control (i.e. uncontrolled) device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons/year, required for a source to be classified as a major source.

CAM ANALYSIS

The requirements of updated air construction Permit No. 0250348-011-AC (PSD-FL-006G) issued concurrently with this Title V air operation permit are listed below:

Pollutant	Emission Standard [1]	Compliance Method	Basis
PM	25 mg/dscm @7% O_2	Annual Stack Test	Updated BACT = MWC Rule [3]
SO_2	29 ppmvd @7% O_2 or 75% removal efficiency [2]	24 hour daily geometric mean CEMS	Updated BACT = MWC Rule [3]
Visible Emissions	10% opacity	6-minute average COMS	Updated BACT more stringent than MWC Rule [3,4]
NO_X	250 ppmvd @7% O_2	24-hr daily arithmetic block CEMS	MWC Rule [3]
HCl	25 ppmvd @7% O_2 or 95% removal efficiency[2]	Annual Stack Test	PSD-FL-006G more stringent than MWC Rule [3]
Dioxin/furan	30 ng/dscm @7% O_2 [4]	Annual Stack Test	MWC Rule [3]
Hg	50 µg/dscm @ 7% O_2 or 85% reduction [2]	Annual Stack Test	MWC Rule [3]
CO	250 ppmvd @7% O_2	24-hour block geometric mean, CEMS	MWC Rule [3]

1. Emission limits in terms of: parts per million by volume, dry at 7 percent oxygen – ppmvd @ 7% O_2; milligrams per dry standard cubic meter - mg/dscm; micrograms/dscm - µg/dscm; and nanograms/dscm – ng/dscm.
2. Emission limit or removal efficiency whichever is less stringent. Percent reduction by weight or volume.
3. Rule 62-204.800(9)(b), (Subpart Cb), F.A.C. updated previous MWC rules. Previous applicant enforceable limit requests are updated. Other applicable requirements of the MWC rule are included in the facility Title V air operation permit.
4. This parameter is more stringent than the MWC Rule because the compliance method is by COMS whereas the MWC Rule has a COM requirement but a compliance demonstration by an annual stack test.
5. This parameter is more stringent than the MWC Rule because the MWC Rule emission standard is has a COM requirement but a compliance demonstration by an annual stack test.
6. Dioxin/furan emission limit is based on total weight.

In accordance with 40 CFR 64.3(d), A CAM plan is not required for NO_X, CO or SO_2, if for no other reason than, the four MWC must demonstrate continuous compliance using CEMS.

The PM, dioxin/furan and Hg emission standards in Permit No. 0250348-011-AC (PSD-FL-006G) are identical to those required by the Department's MWC rule. According to 40 CFR 64.2(b)(1), the requirements of CAM do not apply to the limitations or standards proposed by EPA after November 15, 1990, pursuant to Section 111 or 112 of the Clean Air Act (CAA).

The 1995 and 2006 versions of 40 CFR 60, Subpart Cb (post November 15, 1990), upon which the Department's MWC rule is based, were clearly proposed as limitations or standards pursuant to Section 111(d) of the CAA in accordance with Section 129 of CAA. The Department's MWC rule (latest version effective May 31, 2007) includes the same limitations (equal to the federal emissions guidelines) and compliance methods proposed in 40 CFR 60, Subpart Cb. The Department's MWC rule was approved by EPA and is listed at 40 CFR 62.2355 (as amended February 9, 2012). The Department concludes that CAM plans are not required for Hg, dioxin/furan or PM on the basis of 40 CFR 64.2(b)(1).

The HCl emission limiting standard was established by Permit No. PSD-FL-006A, included in Permit No. PSD-FL-006D and reestablished in the updated Permit No. PSD-FL-006G. It is more stringent than the post-1990 NSPS MWC rules requirement standard. The applicant submitted a CAM plan for HCl and it has been incorporated as a requirement in the renewed Title V operation permit.

Arguably, because the Department's rule is a State Implementation Plant (SIP) limit and is incorporated into the air construction permit (a SIP), CAM plans might yet be required for other pollutants even though the limits are exactly as stringent as those contained in the federal guidelines at 40 CFR 60, Subpart Cb.

Based on an inquiry made to EPA by the Integrated Waste Services Association in 1999 " *whether you can expect the same (NSPS subpart Cb or Eb) monitoring to be adequate to show compliance with similar existing emissions limitations and can avoid having to provide additional monitoring to satisfy periodic monitoring or CAM requirements"*. EPA responded:

"We expect that in most cases monitoring that complies with the requirements in subpart Eb will also provide the assurance of compliance required by Part 70 or Part 64 for other emissions limitations or standards for the same or similar pollutants. On the other hand, it is impossible for us to state definitively that monitoring that complies with Subpart Eb requirements will provide adequate assurance of compliance for all other emissions limitations or standards." [1]

The Department's MWC rule is exactly as stringent as the facility SIP emissions limitations and the 2006 version of 40 CFR 60, Subpart Cb. The Department concludes that CAM requirements for the SIP permit-based emission limitations and standards (with the exception of HCl) is satisfied by adherence to the Department's MWC rule that adopt or reference the CEMS, compliance and performance testing requirements contained in NSPS, Subpart Cb and NSPS, Subpart Eb (as referenced by NSPS, Subpart Cb)[1].

PROJECT REVIEW

The following permitting documents were changed as a result of this Title V air operation permit renewal and are included in this package: Permit; Appendix NSPS, Subpart A - General Provisions; Appendix NSPS, Subpart Cb (version dated 03/24/2010); Appendix NSPS, Subpart Eb (version dated 04/21/2008); Referenced Attachments: H-1, Permit History/ID Number Changes; and Table 1-1, Summary of Air Pollutant Standards and Terms.

Fluoride, beryllium (Be), Arsenic, volatile organic compound (VOC) emission limits and testing requirements for the four MWC are no longer included in the Title V operation permit because they were removed as applicable air construction permit limits. Refer to the rationale given in the Technical Evaluation and Preliminary Determination accompanying the draft air construction permit issued concurrently with this draft Title V air operation permit.

Similarly, waste throughput and 24-hour steam flow (maximum capacity rating) limits were removed and replaced by a single (peak) steam flow limitation of 198,000 pounds per hour for each unit on a 4-hour basis as discussed in the technical evaluation. This limit shall not be exceeded, notwithstanding the maximum demonstrated loads achieved during the required dioxin/furan tests.

The facility operates two identical new emergency generators (Kohler Diesel set with John Deere motor) one for Scale House 1 and 2, and the other for Scale House 3 and 4 (EU 011 and 012), each rated at 97 horsepower. These units are regulated under NSPS, Subpart IIII - Stationary Compression Ignition Internal Combustion Engines.

The requirements of the most recent version of the Department's MWC rule (based on 40 CFR 60, subpart Cb) are included in Appendix-NSPS Subpart Cb of the Title V air operation permit. Restrictions to the use of propane or natural gas for the purposes of start-ups and stabilization will be minimized. Compliance testing methods will be updated to insure consistency with the MWC rule.

ADDITIONAL REQUEST REGARDING TESTING FREQUENCY

The applicant requested that the annual performance testing requirements for HCl and fugitive ash be amended from an annual basis (no more than 12 calendar months following the previous performance test). The applicant requests requirement that tests shall be conducted no less than 9 calendar months and no more than 15 calendar months following the previous performance test and completion of five performance tests in each 5-year calendar period.

[1] Letter. Hitte, S. of EPA to Zannes, M. of the Integrated Waste Services Association. Applicability of Maximum Achievable Control Technology Standard Monitoring to Satisfy Title V Periodic or Compliance Assurance Monitoring. July 7, 1999. www.epa.gov/region7/air/title5/t5memos/zannes.pdf

The Department's updated air construction permit includes an emission standard for HCl that is more stringent than emission standard set by the Department's MWC rule (based on 40 CFR 60, Subpart Cb). The construction permit provides for testing HCl on a schedule no less than 9 calendar months and no more than 15 calendar months following the previous performance test and completion of five performance tests in each 5-year calendar period. Arguably both the permit and the Department's MWC rule are SIP limits and the Department can does interpret its annual test requirements consistent with the 9 to 15 month window to conduct a test.

The Department's updated air construction permit includes a fugitive ash emission standard that is identical to the emission standard set by the Department's MWC rule (based on 40 CFR 60, Subpart Cb). In this case, the Department believes that it can interpret the annual testing requirement to provide for testing within a 9 to 15 months test for fugitive ash emissions.

On January 22, 2009, the Department received an e-mail from U.S. EPA confirming an error in the Code of Federal Regulations regarding the testing schedule for fugitive ash and HCl emissions (see attached email). In the federal register U.S. EPA clearly intended to make the testing schedule change apply to all air pollutants. In the e-mail U.S. EPA confirmed the error in the CFR and they plan to correct the error as soon as possible. The Department will require testing within the 9 to 15 month window for all pollutants requiring an annual stack test (including HCl and fugitive ash emissions). An opportunity for EPA to comment on this matter is provided during their 45 day review.

CONCLUSION

This project No. 0250348-010-AV constitutes a renewed Title V air operation permit. This Title V air operation permit renewal is issued under the provisions of Chapter 403, F.S., and Chapters 62-4, 62-210, 62-213 and 214, F.A.C. In accordance with the terms and conditions of this permit, the above named permittee is hereby authorized to operate the facility as shown on the application and approved drawings, plans, and other documents, on file with the permitting authority.

Testing Frequency for Hydrogen Chloride (HCl)

From: Stevenson.Walt@epamail.epa.gov [mailto:Stevenson.Walt@epamail.epa.gov]
Sent: Thursday, January 22, 2009 11:45 AM
To: Sheplak, Scott
Subject: Re: May 10, 2006 federal amendments for MWCs

Scott

Yes -- there was a Federal Register error in the HCl testing schedule and fugitive ash testing schedule. It will be corrected in the future. If more detail is needed on this issue, please call. take care

Walt Stevenson, PE, BCEE
919-541-5264

"Sheplak, Scott" Scott.Sheplak@dep.state.fl.us
To Walt Stevenson/RTP/USEPA/US@EPA
01/22/2009 09:56 AM
Subject May 10, 2006 federal amendments for MWCs

Mr. Walt Stevenson
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711.

Dear Mr. Stevenson:

I understand that there was a scrivener's error in the code of federal regulations (CFR) regarding the performance testing change from the May 10, 2006 federal amendments. A few consultants have brought this to my attention (please see the attached letters regarding the testing change). It seems the intent in the federal register (page 27326) was for the testing change to apply to HCL and fugitive ash emissions as well. I am rolling the May 10, 2006 federal amendment changes into Title V permits here in Florida. Was this in fact an error?

Thank you in advance for your reply.

Sincerely,
Scott M. Sheplak
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