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June 30, 2010

Mr. Jeffery F. Koerner, Administrator
Florida Department of Environmental Protection
New Source Review Section
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: Construction Completion/Air Compliance Report
Permit No. 1030117-007-AC
Pinellas County Resource Recovery Facility
Facility ID No. 1030117

Dear Mr. Koerner:

On behalf of Pinellas County, CDM is submitting the Construction Completion/Air Compliance Report for the Facility Improvement Projects (FIP) at the Pinellas County Resource Recovery Facility (Facility) pursuant to Conditions III.8 and III.9 in Permit No. 10300117-007-AC. The report provides a description of FIP improvements completed and presents the initial and post compliance monitoring results for Combustion Units 1, 2 and 3.

Description of Facility Improvement Projects

The FIP consisted of in-kind replacement of existing equipment and systems. The FIP replaced the boiler tubes in the furnace section of the boilers, various components of the stoker/grate system for each boiler, air preheaters for each boiler, and the ash riddling system; replaced the existing ash processing & storage building with the new Residue Storage and Processing Building (RSPB); and included improvements to the combustion units' air pollution control systems. Construction on the FIP improvements commenced in January 2007 and was substantially completed in March 2010. A detailed description of the work completed during the FIP is provided below, along with discussion of any changes from the originally submitted scope of work.

Furnace Tube Replacements

During the period 2001 through 2003, Pinellas County replaced boiler convection tubes located in the evaporator, superheater and economizer portions of the three combustion units at the Facility as part of the Capital Replacement Projects (CRP). Boiler replacement work for the CRP on Combustion Unit Nos. 1, 2 and 3 was completed in December 2002, December



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2001 and December 2003, respectively. This work was authorized by the Department pursuant to PSD Permit No. PSD-FL-011B and PSD-FL-098B.

The major boiler components that were not replaced during the CRP from 2001 - 2003 were the furnace waterwalls and headers. While many individual tubes and small groups of tubes had been replaced over the years because of excessive tube thinning or to repair leaks, the majority of the furnace tubes were original materials that had been in continuous service for more than 20 years.

The existing furnace waterwalls, roofs and headers were replaced on all three combustion units as part of the FIP. The County's objectives in replacing the existing furnace waterwalls, roofs and headers were to improve the reliability and availability of the three combustion units by installing new waterwall tubes protected by shop applied Inconel in the upper furnace area and a new coating of refractory and refractory tile applied to tubes in the lower furnace area.

As part of the FIP, the four furnace waterwalls and associated headers plus the furnace roof tubes, all access doors, observation ports, overfire air nozzles, wall openings, instrument and test connections, wall openings for scaffold components and exterior insulation and lagging was removed and replaced in kind on all three combustion units. The physical configuration and dimensions of each furnace have been maintained. Specifically, the configuration of the furnace waterwalls and the number and location of the overfire air ports, SNCR injection ports, auxiliary gas burners, etc. remain unchanged and matches the original design. In addition, the replacement of the boiler tubes has not changed the design steaming rate for the boilers.

Grate Replacements

Similar to the situation described above for the furnaces, the stoker grate and waste feed chute for each boiler consisted largely of original equipment. The stokers on combustion Unit Nos. 1 and 2 were commissioned in 1983, while the unit No. 3 stoker was commissioned in 1987. There have been many repairs and replacements made to these stokers over time, but the majority of the components are original equipment. The No. 3 stoker was substantially reconditioned in 2003 in conjunction with the CRP boiler outage work performed at that time. All drive beams, carrier beams, T-bars, grate bars, division blocks and compensation plates were replaced.





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Various components of the grate system for each combustion unit were replaced in kind as part of the FIP. The following stoker components were removed and replaced in kind on all three combustion units:

- The feed hopper and the water-cooled feed chutes (including the transition section at the bottom of the feed chute at the feed table, all associated piping, tubing and control devices);
- The transverse frame with the feed tables and feeder side plates;
- The feed rams and the feed ram drive assemblies (including all associated piping, tubing and control devices but excluding the hydraulic cylinders and the hydraulic power system);
- The grate drive assemblies (including all associated piping, tubing and control devices but excluding the hydraulic cylinders and the hydraulic power system);
- The under grate siftings hoppers (including riddling ash discharge flap valves, with pneumatic actuators and drives, all associated piping, tubing, control devices and insulation);
- The primary combustion air plenums for individual air distribution in primary combustion air zones one, two, three and four including all control components and pressure measuring devices, the orifice plates for controlling air flow to zones one, two, three and four, all associated piping, tubing and other control devices;
- All brickwork (below the chill walls, the feed table drop wall, the feed table side walls and the ash discharger chute/hopper side walls);
- The grate surface including all cast steel grate bars and clinker rollers;
- All exterior casing, insulation, lagging and painting;
- All local instrumentation and controls associated with the equipment being replaced;
- All painting, insulation, piping and tubing associated with the equipment being replaced; and
- The grate control system.





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The following additional stoker components were removed and replaced in kind as part of the FIP for combustion unit Nos. 1 and 2:

- The grate drive beams for the moveable grate steps with roller supports and bearings;
- All T-bar assemblies (including the compartment walls and clinker bar frames);
- The longitudinal and intermediate longitudinal frames with partially moveable cast steel chrome plates including all division blocks and compensation plates;

The physical configuration and dimensions of each stoker have been maintained. Specifically, the replacement components match the original design on each unit. The work on the grate system has not changed the design grate heat release rate or the design waste feed rate for the boilers.

Ash Riddling System Replacements

The ash riddling system on all three units was replaced as part of the FIP. The County's objectives in replacing the ash riddling system were to improve the availability of the combustion units and reduce maintenance needs; to improve housekeeping in the area under the stokers; and to provide a safe, clean working environment for employees.

The existing ash riddling system was replaced with one similar in design to that typically used on Martin stokers and as was originally installed at the Facility. Chutes connect to flanged connections on the riddling hoppers installed as part of the stoker reconditioning work described above. Chutes from the zones under each of the six grate runs interconnect into one common transfer chute. These common transfer chutes then penetrate the wall of the existing ash expellers, allowing the pneumatically transported ash to gravity fall into the quench water in the ash expellers. Common transfer chutes from grate runs 1, 2 and 3 transport riddlings ash to the south ash expeller of each respective unit. Common transfer chutes from grate runs 4, 5 and 6 transport riddling ash to the north ash expeller of each respective unit.

Air Preheater Replacements

As part of the FIP, the combustion air preheaters along with all steam and condensate piping, valves, instruments, all ductwork from the forced draft fan outlets up to the new combustion air plenums supplied as part of the stoker reconditioning described above and all insulation and lagging were replaced on all three combustion units.





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Ash Processing and Storage Building (ASPB) Replacement

The existing Ash Processing and Storage Building consisted of a pre-engineered metal building that encompassed approximately 70,000 square feet. The ASPB included a material recovery system (MRS) designed to recover and prepare end market ready ferrous metal and non-ferrous metal and produce a remaining residue stream of minus 5-inch material for use as landfill cover and other permitted uses. The existing ASPB had deteriorated due to heavy corrosion resulting from prolonged contact with moist ash and scrubber residue, combined with normal wear and tear.

The ASPB was replaced in its entirety with a new Residue Storage and Processing Building (RSPB) as part of the FIP. The new RSPB is located in the same general area as the old ASPB but is significantly smaller in size. A relatively simple processing system to separate out the plus 5-inch material and recover ferrous metal and non-ferrous metal from the residue stream compared to the previous MRS has also been included. The County did not originally propose installing a baghouse for this facility. However, based upon the design of the ventilation system, the County decided to install a new baghouse to meet the mechanical building code and further reduce the fugitive emissions in the RSPB. The baghouse was designed to meet a 0.015 gr/acf emission limit at 14,000 acfm. This design change was transmitted to the Department on August 8, 2008, with the understanding that it would be addressed during Construction Certification upon completion of the FIP and the concurrent Permit Renewal.

Air Pollution Control (APC) System Modifications

As part of the FIP, the County converted the Facility's existing volumetric carbon feeders to loss-in-weight feeders. This change enables the County to obtain a more accurate measurement of the Facility's feed rate for powder activated carbon which is used to control mercury emissions. The County also installed a redundant lime slurry distribution header, which enables the Facility to clean lime buildup in the slurry piping system during normal operations. The redundant system will help ensure that the Facility's acid gas control system receives an uninterrupted supply of lime slurry at all times.

The FIP included replacement of certain continuous monitoring system (CEMS) components. During design and implementation of this portion of the FIP, it was determined that some of the CEMS inlet sampling system components had reached the end of their useful life; these were replaced with functionally equivalent equipment. The existing inlet and outlet sample probes for the continuous emissions monitoring system (CEMS) were also replaced with functionally equivalent equipment as the original sample probes were no longer supported by





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the manufacturer. The inlet CEMS shed was relocated to reduce the distance from the sampling ports to the CEMS monitoring equipment, and the inlet sample lines were replaced. The inlet and outlet CEMS equipment was certified prior to being put into use for facility compliance monitoring. This data were reported to the Department on September 10, 2008 and February 18, 2009 for the inlet and outlet CEMS, respectively.

Compliance Monitoring

RSPB Baghouse Monitoring

The visual emissions from the RSPB baghouse were tested on September 30, 2008 by AeroMet Engineering, Inc. in accordance with Conditions B.31 and C.11 & 13 in Title V Permit No. 1030117-006-AV. The test results showed the baghouse passed the visual emissions standards. The data were reported to the Department on October 21, 2008.

Stack Monitoring

The compliance testing for combustion unit 3 was conducted from April 22-24, 2008 and was reported to the Department on June 6, 2008. The compliance testing for combustion units 1 and 2 was conducted from April 20-23, 2010 by the Air Compliance Group, LLC (ACG) and was reported to the Department on June 4, 2010. The tests were conducted while combustion units 1, 2, and 3 were operated at or near the maximum permitted operating rate in accordance with Title V Permit No.1030117-006-AV and Construction Permit No 1030117-007-AC. A summary of the completion and compliance testing dates are included in **Table 1**.

Table 1. Facility Project Completion Schedule

Activity	Unit 1	Unit 2	Unit 3
Project Completion	November 29, 2009	March 25, 2010	April 14, 2008
Compliance Testing Completion	April 23, 2010	April 23, 2010	April 24, 2008

The air samples were collected at the Spray Dryer Absorber (SDA) inlet and the Fabric Filter (FF) outlet of each unit. Additionally, visible and fugitive emissions (i.e. silos, vents and ash handling system) were visually examined at the applicable test locations. Three (3) valid measurements were made at the combustion units 1, 2, and 3 fabric filter (FF) outlets for: PM, VE, HCl, metals (Be, Cd, Pb, and Hg), and total F. Three (3) valid measurements were also





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collected at the Unit 2 FF outlet for dioxin and furans. Three valid fugitive emission measurements were conducted at the Ash Handling System.

Stack Monitoring Results

Table 2 shows a summary of the stack testing monitoring. The results show particulate, visual emissions, HCl, metals (Be, Cd, Pb, and Hg and Total F), dioxins and furans were all below the permit requirements. Based upon CDM's observations during testing and our review of the test documentation, the facility demonstrated compliance during the testing at or near the maximum permitted steam flow of 244,000 lbs steam per hour as set forth in permit No. 1030117-007-AC.





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Table 2. Summary Stack Compliance Monitoring.

Parameter	Unit	Title V Limit	MACT Limit	Unit 1 April 2010	Unit 2 April 2010	Unit 3 April 2008	Pass/Fail
Particulate Matter	gr/dscf@7%O ₂	0.012	N/A	0.0051	0.00271	9.98x10 ⁻⁴	Pass
	mg/dscm@7%O ₂	27	25	12	6	2	Pass
Dioxins/Furans	ng/dscm@7%O ₂	30	30	N/A	2	2	Pass
Beryllium	mg/dscm@7%O ₂	9x10 ⁻⁵	N/A	<1x10 ⁻⁵	<1x10 ⁻⁵	<1x10 ⁻⁵	Pass
Cadmium	mg/dscm@7%O ₂	0.040	0.035	5.33x10 ⁻⁴	<4.85x10 ⁻⁴	8.82x10 ⁻⁴	Pass
Lead	mg/dscm@7%O ₂	0.44	0.400	<7.43x10 ⁻³	<3.26x10 ⁻³	1.61x10 ⁻²	Pass
Mercury	mg/dscm@7%O ₂	0.070	0.050	<5.01x10 ⁻³	<5.62x10 ⁻³	6.10x10 ⁻³	Pass
	OR						
	Red. Efficiency %	85%	85%	91%	94%	91%	Pass
Hydrogen Chloride	ppmdv@7%O ₂	29	29	13	4.8	14.5	Pass
	OR						
	Red. Efficiency %	95%	95%	98%	99%	97%	Pass
Fluoride	lb/hr	8.31	8.31	<0.0722	<0.0649	N/A	Pass
Visible Emissions	% Opacity	5%	5%	0.0%	0.0%	0.4%	Pass
Fugitive Emissions	% period	5%	5%	0.0%	0.0%	0.0%	Pass
Maximum Steam Flow	lb/hr	≈241,000					
Maximum Particulate Temperature	°F	≈310°F					
Average Carbon Feed	lb/hr	N/A	N/A	15	15	15	Pass

This report documents completion of the work approved in permit 1030117-007-AC and compliance with the conditions of that permit. The County requests that the construction monitoring requirements and any other resultant changes from permit 1030117-007-AC be incorporated in the Title V Operating Permit as part of the current permit renewal process, and have reflected this request in our permit renewal application.





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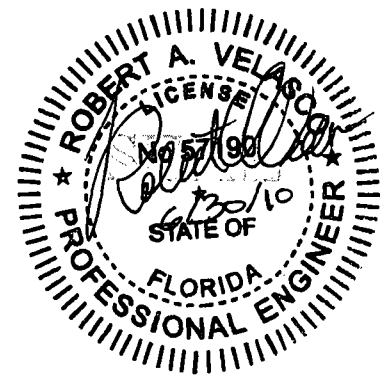
CDM recommends the Department accept the compliance monitoring results and incorporate into the Title V renewal permit.

Please contact Bill Crellin or Robert Velasco at (813) 281-2900, if you have any questions.

Very truly yours,

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

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The seal certifies the engineering information included herein provides reasonable assurance of meeting the applicable requirements of the Air Construction Permit/Title V permit renewal application. The seal does not certify or attest to the accuracy of work prepared by others who are qualified to performance the work.

