TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Pinellas County Resource Recovery Facility
DEP File No. 1030117-010-AC (PSD-FL-420A)
Permit Extension, Facility Improvement Project

PERMITTEE

Pinellas County (the County)
Department of Environmental and Infrastructure
3095 114th Avenue North
St. Petersburg, Florida 33716

PERMITTING AUTHORITY

Florida Department of Environmental Protection (Department)
Division of Air Resource Management
Office of Permitting and Compliance (OPC)
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

PROJECT

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Pinellas County Resource Recovery Facility
Pinellas County

BACKGROUND

The existing Pinellas County Resource Recovery Facility is owned by Pinellas County (the County) and is operated by GCS Energy Recovery of Pinellas, Inc. (GCS). This existing facility is located in Pinellas County at 3001 110th Avenue North in St. Petersburg, Florida. The facility consists of a municipal solid waste (MSW) landfill, three nominal 1,050 tons per day (tons/day) municipal waste combustors (MWC) and ancillary equipment.

On November 19, 2012, the Department issued air construction permit 1030117-009-AC (PSD-FL-420) to the County pursuant to Rule 62-212.400, Florida Administrative Code (F.A.C.), Prevention of Significant Deterioration (PSD). The PSD permit addressed an earlier Facility Improvement Project (previously permitted in December 2006) consisting of: MWC furnace tube, stoker grate and air preheater replacements and improvements to the MWC air pollution control and monitoring systems. Additional work was authorized by the permit on the furnaces, auxiliary burners and MWC air pollution control equipment. Link to 2012 PSD Permit The expiration date of the permit is December 31, 2013.

Best Available Control Technology (BACT) determinations were conducted for sulfur dioxide (SO_2), MWC-acid gases including SO_2 and hydrogen chloride (HCl), carbon monoxide (CO), particulate matter with a mean diameter of 2.5 microns or less ($PM_{2.5}$) and visible emissions (opacity). The BACT determinations may be accessed at the following link: Link to 2012 Technical Documents

PRESENT REQUEST

On December 2, 2013, the Department received a request from the County to extend the expiration date of Air Construction Permit No. 1030117-009-AC (PSD-FL-420) from December 31, 2013 to December 31, 2016. County Extension Request

According to the application, *"The County wishes to extend the expiration date of the permit until December 31, 2016 because the County wants to ensure that it has sufficient time for:*

(1) "A second round of stack testing under the new, stricter permit limits and a determination as to whether any facility improvements are needed to consistently and reliably comply with the new BACT limits;

(2) "Implementation of any improvements to the facility's air pollution control system that are identified as a result of the current studies being performed by the County and the facility operator; and

(3) "The completion of certain projects that the County anticipates will be identified during the procurement process and included as part of the new contract".

The County summarized the key requirements of the PSD permit issued in 2012. *"Among other things, the permit:*

- *"Reduced the Facility's emissions limits for SO_2 to a BACT limit of 24 parts per million, by volume, dry, at 7 percent (%) oxygen or 80% reduction based on a 24-hour geometric mean as measured by a continuous emission monitoring system (ppmvd@7% O_2, CEMS), and 24 ppmvd @7% O_2, based on a 30 day average (CEMS);*
- *"Reduced the Facility's emissions limit for HCl to a BACT limit of 20 ppmvd @7% O_2 (annual test);*
- *"Imposed a new BACT emission limit for $PM_{2.5}$ of 30 mg/dscm, which includes filterable and condensable $PM_{2.5}$ (annual test); and*
- *"Authorized various construction projects to improve the facility's performance, including work on the Facility's spray dryer absorber (SDA), fabric filter (FF) baghouse, selective non-catalytic reduction (SNCR), and combustion system".*

The County further states: *"The County is the first one required to comply with the FDEP's stringent new emissions limits for SO_2, HCl, and $PM_{2.5}$ while using existing units".*

Basically, the County is concerned about the Facility's ability to comply with the more stringent limits on a long-term basis and is also concerned that some enhancements to the Facility's air pollution control systems may be necessary. This will require capital expenditures and additional time.

DEPARTMENT REVIEW

The Department performed the PSD review and BACT determinations based on information provided by the applicant in 2012 that indicated that ultimately emissions of SO_2 (and other pollutants) would increase beyond the significant emission rates (SER) following the implementation of the 2006-2010 Facility Improvement Project.

The County accepted the BACT determination and has complied with it. The County did not indicate that additional work was necessary to achieve the emission limits except for carbon monoxide (CO), which was not changed by the PSD permit. The Department nevertheless provided authority in the permit authority to conduct additional work including operational improvements and capital projects.

GCS is the third operator of the facility since 2006. The previous operators were Veolia and Wheelabrator. The County and GCS *"now mutually desire to voluntary terminate the existing service agreement to allow for procurement of an operator".* GCS will continue to operate the facility for the County until at least May 1, 2014 and possibly until December 31, 2014 under the existing contract. Thereafter the facility will be operated by the successful bidder under a selection process that will be conducted in 2014.

Details of the status of the recent GCS contract amendment are available at: Contract Amendment No. 6 Exhibit C, attached to the same document, is a 20-page punch list that details the status of numerous projects recommended by a consulting engineer. Many of the projects have not yet been completed. Others, especially capital projects, have not yet been identified.

The Department agrees that it will take much more time to complete the foreseen work and to assess and conduct the additional capital projects work. Given the time required to negotiate a new operator contract, scope out the additional work and then actually complete it, the requested permit expiration date of December 31, 2016 is not unreasonable.

According to Section 62-4.080(3), F.A.C.

"A permittee may request that a permit be extended as a modification of the permit. Such a request must be submitted to the Department in writing before the expiration of the permit. Upon timely submittal of a request for extension, unless the permit automatically expires by statute or rule, the permit will remain in effect until final agency action is taken on the request. For construction permits, ***an extension shall be granted if the applicant can demonstrate reasonable assurances that, upon completion, the extended permit will comply with the standards and conditions required by applicable regulation****". (Emphasis added).*

The County provided compliance tests conducted in April 2013 (soon after issuance of the PSD permit) for emissions measured by periodic stack tests. The results as provided in the compliance test report submitted by the County are reproduced in the following table. Link to 2013 Stack Test Report

Pollutant		Reporting Units	Title V Emission Limits	MACT Emission Limits	Average Emissions		
					Unit 1	Unit 2	Unit 3
PM		gr/dscf @7% O_2	0.012		0.004	0.004	0.003
		mg/dscm @7% O_2	25		8.9	9.3	8.0
$PM_{2.5}$		mg/dscm @7% O_2	30 (BACT Standard)		25	42*	27
Cadmium		mg/dscm @7% O_2	0.035		0.00257	0.00161	0.00092
Lead		mg/dscm @7% O_2	0.400		0.0168	0.0185	0.00965
Mercury	*Outlet concentration*	mg/dscm @7% O_2	0.050		0.0042	0.00245	0.00659
	Removal efficiency	(or) Reduction Efficiency %	(or) 85%		91%	96%	86%
HCl	*Outlet concentration*	ppmdv @7% O2	20		10	9	18
Visible Emissions		% Opacity (6-minute Average)	10		0.00	0.00	0.00
			5		All tested sources were 0.00%		
Fugitive Emissions		% of Observation Period	5		Fugitive emissions were observed for 0.00% of the observation period duration on the Ash Handling System.		
Avg. carbon mass feed		lb/hr			15 (1)	15 (1)	15 (1)

* The Unit 2 Run 1 inorganic condensable result is an outlier that is significantly greater than all other test runs. The analytical laboratory noted that the sample contained significantly more white, flaky residue than the other samples. If Run 1 is excluded, then average is 22 mg/dscm @ 7% O2, which is more than 20% below the emission limit.

1. Average value during three valid EPA Method 29 metals test runs.

Testing conducted on dioxin and furan also indicated compliance. Link to Dioxin and Furan Test Report According to the Department's Southwest District Office, the County has not reported exceedances of the NO_X or SO_2 emission standards based on the CEMS.

Prior to issuance of the PSD permit, the Facility was not in compliance with the long-standing applicable CO emission standard of 100 ppmvd @7% O_2 on a 4-hour basis as measured by CEMS. The PSD permit reaffirmed the CO emission standard already in previous permits. It did not make it more stringent than required by the applicable Department Rule 62-204.800(9), F.A.C., Title 40, Code of Federal Regulations, Part 60, Emission Guidelines and Compliance Times.

The Department and the County concluded a Consent Order (OGC File No. 12-1610) on February 6, 2013 regarding the CO emission standard. The County paid a penalty and was allowed to comply with a Facility CO emission limit of 100 ppmvd @7% O_2 on **a 24-hour basis** (by CEMS) until December 31, 2013. Thereafter, the County Facility must comply with the Rule and PSD permit based CO limit of 100 ppmvd @7% O_2 on a 4-hour basis (by CEMS). The County has not reported exceedances of the interim 24-hour CO emission standard.

Until recently, the Facility occasionally still exhibited exceedances of the CO limit on a 4-hour basis. The Facility conducted its Fall 2013 boiler outages for the three units (B101, 102 and 103) during November 9 through December 22. Following are key observations and repairs from those outages [1]:

- *Excessive spacing between grate bars and grate runs was identified in all three units. Having appropriately spaced bars within each run assures even distribution and appropriate velocity of underfire air for combustion control. A third party contractor worked with Facility operator staff under the supervision of two grate overhaul experts hired by the County for the grate overhauls.*
- *The grates were inspected and completely removed from B101 and B103. Once removed, the grate bars were inspected for damage and those bars that were found to be damaged were repaired or replaced. The grate bars were then placed on jigs to measure the width and length of the grate runs. Spacing of the grate runs was perfected by replacing "wear strips" that affix to the sides of the bars. The grates in B102 were inspected and a minor overhaul was performed on the unit. Spacing of the grate runs was adjusted to optimize distribution of underfire air for combustion control. A major grate overhaul for B102 is planned for spring 2014.*
- *The Steam Coil Air Heater (SCAH) provides air to the underside of the grates to aid in combustion. While inspecting the SCAHs, several leaks were found in the tubing. Excessive accumulation of solids was also found within the SCAHs, resulting in unacceptable pressure loss across the SCAH. All SCAHs have been repaired and cleaned, increasing velocity and limiting the moisture in the air being fed to the undergrate air system. Pressure transmitters will be used to monitor for increased differential pressure cross the SCAH in the future, which would indicate the need to clean accumulated solids from the SCAH.*
- *The underfire air control and supply systems were repaired and modifications were made to the pneumatic control valves and orifice plates to improve performance and reliability.*
- *The space between grate bars had been allowing excessive amounts of riddlings (i.e. shaken ash) to pass through the grates, overwhelming the ability of the system to properly remove riddlings from the hoppers. This also impacted performance of the underfire air system. The hoppers have all been cleared and are now able to maintain hopper levels as designed as the grate spacing has been corrected.*
- *The reliable operation of the natural gas auxiliary burners was improved during this outage. The supply air ducts for the burners were inspected and new expansion joints were installed. Significant repair and rebuild work was performed on the burner components and controllers. The north burner of B103 still requires replacement of the blower, which will be performed at the next available opportunity when B103 is offline.*
- *The shark fins on each unit now share the same design. They are in a single row with an additional fin placed between the originally installed fins. Instead of an approximately 15" spacing, they are 8" apart, providing a more consistent feed of waste and reducing the potential for wet waste to "self-feed".*

[1] Electronic Mail. Pinellas County Division of Solid Waste to Florida Department of Environmental Protection, Air Division. Extension of Permit No. 1030117-009-AC (PSD-FL-420), Pinellas WTE Facility. January 3, 2014.

The County has demonstrated that the Facility can comply with the standards and conditions that were made more stringent by the PSD permit (i.e. $PM_{2.5}$, HCl and SO_2.). The Department has reasonable assurance that the extended permit and work that is underway or that will be conducted in the next three years will foster continuing compliance by the Facility on a long-term basis for those pollutants.

At this time, Facility is required to comply with the long-standing CO emission limit on a 4-hour basis (rather than the interim 24-hour basis). The work performed during the recent outage and the work to be performed under the extended permit provides reasonable assurance as required by the Department rules to grant the requested extension. The extension does not provide additional time for compliance beyond that already provided in the mentioned consent order.

PRELIMINARY DETERMINATION

Based on the circumstances and information provided, the Department will extend the permit through December 31, 2016. The additional time granted by this action will help the County achieve its requirement to comply with the PSD permit limits now and on a long-term basis.

The emission standards in air construction permit 1030117-009-AC (PSD-FL-420) remain in force and compliance is required. However, at the request of the County, the Title V Operation Permit does not need to be revised until the next regularly scheduled Title V Operation Permit Renewal. The application is due on December 3, 2015 and shall include the requirements of Air Construction Permit 1030117-009-AC (PSD-FL-420) that remains in force.