

Hillsborough County Resource Recovery Facility
Proposed Fourth Unit
Air Quality Pre-Permitting Meeting

Florida Department of Environmental Protection
Division of Air Resource Management
2600 Blair Stone Road, Tallahassee
September 2, 2004 – 1:00 p.m.

AGENDA

I. Goal

To review the approach for and general content of the Prevention of Significant Deterioration (PSD) Air Construction Permit Application for the proposed fourth unit at the Hillsborough County Resource Recovery Facility (RRF).

II. Introduction

- A. Hillsborough County / FDEP / CDM / Covanta / Landers & Parsons – Roles and Responsibilities
- B. Project Description

III. Air Regulatory Issues

- A. PSD Definition of Modification – potential to emit for new unit, plus contemporaneous emissions increases
- B. PM RACT for proposed new minor PM sources – activated carbon and lime silos
- C. NSPS (40 CFR 60, Subpart Eb) Special Analyses – Materials Separation Plan and Siting Analysis
- D. PM_{2.5}

IV. BACT Analyses

- A. Likely PSD Significant and BACT Pollutants – “Top Down” analysis will be conducted (see attached table):
 - a. Nitrogen Oxides
 - b. Carbon Monoxide
 - c. Sulfur Dioxide
 - d. Sulfuric Acid Mist
 - e. Particulate Matter (PM₁₀)
 - f. Mercury
 - g. Fluorides
 - h. MWC Acid Gases
 - i. MWC Metals
 - j. MWC Organics (total dioxins and furans)

- B. Methodology for Identifying Top Case and Emission Rates
- C. Economic Infeasibility Thresholds
- D. Assumed Interest Rate and Equipment Life for Capital Recovery Factor
- E. Bid Requirements for Cost Analysis

V. Ambient Monitoring Data

- A. Monitoring Stations and Years (see attached table)
- B. Pre-Construction Monitoring Requirements – DeMinimis Monitoring Levels

VI. Modeling Analyses – PSD Increments and NAAQS

- A. Impact (SILs) Evaluation for Modification (New Unit) Alone and Facility as a Whole
- B. Dispersion Models – SCREEN3 for worst-case load and cavity regions; ISCST (not AERMOD) for near-range and CALPUFF for long-range (Lakes Environmental graphical user interface)
- C. Chassahowitzka National Wildlife Refuge – only “Class I” Area within 200 km
- D. Meteorological Data from Tampa Int’l Airport – 5 years’ data for ISCST and 3 years’ CALMET/MM5 data for CALPUFF being provided by FDEP; deposition parameters in the ISC met data?
- E. ISCST3 Receptor Grid – Polar radii at every 10 degrees; ring distances every 100 m from 100 m to 2 km, every 200 m from 2.2 km to 4 km; every 500 m from 4.5 km to 8 km, and at 9 and 10 km; fine grids to resolve impacts in “coarse” area
- F. On-Site Receptors – none, since site is fenced; property boundary receptors (no more than 50 m apart); cavity area concentrations if cavity extends offsite
- G. Terrain – flat plate for SCREEN3; USGS elevations for ISCST3; NPS-assigned elevations for Chassahowitzka receptor points
- H. Modeling of Minor PM Sources – new cooling tower cell, pelletized and dolomite lime silos, and activated carbon silo
- I. Auer Land Use Analysis (see attached) – Rural Pasquill-Gifford dispersion coefficients
- J. PM₁₀ Averaging Period – highest 5-year average of the fourth highest concentrations at each receptor over 5 years of meteorological data

VII. Modeling Analyses – Additional Impact Analyses

- A. Hazardous Air Pollutants – compare concentrations with 1995 Florida Ambient Reference Concentrations?
- B. Deposition Modeling – wet and dry in ISCST3. Particle size distribution from EPA Region VI 1998 guidance document (“Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities – Vol. I (Peer Review Draft), EPA530-D-98-001A)
- C. Deposition Modeling – mercury and PCDD/PCDF (dioxins/furans) only

- D. Nitrogen and Sulfur Species Deposition Modeling for Class I Areas with CALPUFF (Nitrogen species deposition to Tampa Bay)
- E. Visibility Impacts in Class II Area Near Site – VISCREEN first-level analysis
- F. Visibility Impacts in Class I Area – CALPUFF w/ relative humidity, background concentrations, and scattering coefficients for Chassahowitzka National Wildlife Refuge from Federal Land Managers' Air Quality Related Values Workgroup (FLAG), Phase I Report, December, 2000

VIII. Schedule

- A. Proposed PSD Application Submittal to FDEP – January, 2005
- B. FDEP Review

IX. Interagency Coordination

- A. EPA Region IV
- B. National Park Service
- C. U.S. Fish and Wildlife Service
- D. U.S. Forest Service
- E. Hillsborough EPC

Table 1
Comparison of NSPS for Municipal Waste Combustors
and Permit Limits for the Lee County Energy Recovery Facility

Pollutant	NSPS	Lee County Permit Limit
Particulate matter (PM)	24 mg/dscm, corrected to 7 % O ₂	20.6 mg/dscm, corrected to 7% O ₂
Sulfur dioxide (SO ₂)	30 ppm by volume or 20 % of the potential sulfur dioxide emission concentration (80% reduction by weight or volume), corrected to 7 % O ₂ (dry basis), whichever is less stringent	26 ppm , or 80% reduction at 7% O ₂
Nitrogen oxides (NO _x)	180 ppm by volume, corrected to 7 % O ₂ (dry basis) (First year). 150 ppm by volume, corrected to 7 % O ₂ (dry basis) (Subsequent years).	140 ppm at 7% O ₂ – Initial 12 mo. avg. 110 ppm at 7% O ₂ – 12 mo. rolling avg. 150 ppm at 7% O ₂ – 24-hr avg.
Carbon monoxide (CO)	100 ppm by volume, corrected to 7 % O ₂ (dry basis) – 4-hour. avg.	80 ppm at 7% O ₂ – 12 mo. rolling avg. 100 ppm at 7% O ₂ – 4-hour avg.
Lead (Pb)	0.20 mg per dscm, corrected to 7 % O ₂	0.2 mg/dscm, corrected to 7% O ₂
Mercury (Hg)	0.080 mg/dscm or 15 % of the potential mercury emission concentration (85% reduction by weight), corrected to 7 % O ₂ , whichever is less stringent	0.028 mg/dscm, corrected to 7% O ₂ , or 85% reduction
Cadmium (Cd)	0.020 mg/dscm, corrected to 7 % O ₂	0.02 mg/dscm, corrected to 7% O ₂
Hydrogen chloride (HCl)	25 ppm by volume or 5 % of the potential hydrogen chloride emission concentration (95% reduction by weight or volume), corrected to 7 % O ₂ (dry basis), whichever is less stringent	25 ppm, or 95% reduction at 7% O ₂
Dioxin/Furan	13 ng per dscm (total mass), corrected to 7 % O ₂	13 ng/dscm, corrected to 7% O ₂
Volatile Organic Compounds (VOC)	No NSPS	N/A
Hydrogen fluoride (HF)	No NSPS	3.5 ppmvd at 7% O ₂
Sulfuric Acid Mist (H ₂ SO ₄)	No NSPS	15 ppmvd at 7% O ₂
Beryllium (Be)	No NSPS	N/A
Ammonia (NH ₃)	No NSPS	15 (design std)/30 ppmvd at 7% O ₂ 50 ppmvd at 7% O ₂ (initial 12-mo period)

Table 3-3
Locations of Ambient Pollutant Monitors
and Relative Distance to Stack Location at the
Hillsborough County Resource Recovery Facility

Stack Location	UTME (km)	UTMN (km)		
Ganon-5012 Causeway Blvd.	368.109	3092.890		
Monitor Locations - Hillsborough County				
Address	City/Town	UTME (km)	UTMN (km)	Distance from Stack (km)
6811 East 14th Avenue	Tampa	364.317	3094.012	3.955
1700 North 66th Street	Tampa	364.009	3093.400	4.132
2929 S. Kingsway Avenue	Brandon	374.239	3094.212	6.271
5012 Causeway Blvd Tampa Florida	Tampa	362.103	3089.236	7.030
Hwy 41 (Gibsonton)	Ruskin	362.095	3086.096	9.073
1167 North Dover Road	Plant City	378.978	3093.835	10.910
Gardinier Park U S 41 & Riverview Dr.	Tampa	363.697	3082.724	11.082
900 Harbour Island Blvd. (Athletic Club)	Tampa	357.443	3090.490	10.933
6700 Whiteway Drive Tampa	Tampa	364.558	3103.335	11.032
1105 E Kennedy Blvd	Tampa	356.641	3092.070	11.497
Coast Guard Station Davis Island	Tampa	356.862	3089.913	11.634
9851 Highway 41 South	Tampa	363.764	3081.892	11.825
4702 Central Ave. Seminole Adult Day Sch	Tampa	356.994	3096.498	11.686
Ballast Point Park Interbay Blvd.	Tampa	354.181	3085.328	15.848
3910 Morrison Ave.	Tampa	351.455	3090.409	16.838
Eisenhower Jr High School	Tampa	365.195	3074.797	18.326
5121 Gandy Blvd	Tampa	348.556	3086.043	20.717
One Raider Place Plant City,Fl	Plant City	389.292	3096.710	21.525
4013 Ragg Rd., Tampa	Tampa	352.261	3109.298	22.812
14063 County Road 39	S. Lithia	385.500	3073.259	26.226
E.G. Simmons County Park	Tampa	355.574	3069.060	26.926

Table 3-4
Pollutants Monitored at
Hillsborough County Ambient Monitors (2001-2003)

Monitor Address	City	NO ₂	SO ₂	CO	Pb	O ₃	PM ₁₀	PM _{2.5}
6811 East 14th Avenue	Tampa				X			
1700 North 66th Street	Tampa				X			
2929 S. Kingsway Avenue	Brandon						X	
5012 Causeway Blvd	Tampa		X				X	
Hwy 41 (Gibsonton)	Ruskin						X	
Gardinier Park U S 41 & Riverview Dr.	Tampa						X	
900 Harbour Island Blvd. (Athletic Club)	Tampa						X	
6700 Whiteway Drive	Tampa							X
1105 E Kennedy Blvd	Tampa						X	
Coast Guard Station Davis Island	Tampa		X			X	X	
9851 Highway 41 South	Tampa		X					
4702 Central Ave. Seminole Adult Day Sch	Tampa			X			X	
Ballast Point Park Interbay Blvd.	Tampa		X					
3910 Morrison Ave.	Tampa						X	X
Eisenhower Jr High School	Tampa						X	
5121 Gandy Blvd	Tampa	X	X			X		
One Raider Place	Plant City		X	X		X		
4013 Ragg Rd.	Tampa						X	
14063 County Road 39	S. Lithia					X		
E.G. Simmons County Park	Tampa	X	X			X		

Table 3-5
Ambient Monitored Concentrations
at the Nearest Stations to the
Hillsborough County Solid Waste Energy Recovery Facility

Pollutant	Avg. Time	2001		2002		2003	
		High	2nd High	High	2nd High	High	2nd High
NO ₂ (µg/m ³)	Annual	21	-	21	-	19	-
SO ₂ (µg/m ³)	3-Hr	317	309	288	253	200	189
	24-Hr	63	59	51	48	48	32
CO (ppm)	Annual	11	-	11	-	8	-
	1-Hr	5.8	5.1	5.3	5.3	7.3	5.7
	8-Hr	3.1	3.0	3.5	3.8	3.6	3.3
Pb (µg/m ³)	Qtr	0.42	-	0.41	-	0.25	-
O ₃ (ppm)	1-Hr	0.110	0.094	0.091	0.087	0.108	0.107
	8-Hr	0.089	0.082	0.070	0.067	0.080	0.076
PM ₁₀ (µg/m ³)	24-Hr	109	103	37	35	42	41
	Annual	29	-	20	-	22	-
PM _{2.5} (µg/m ³)	24-Hr	35	31	35	33	36	34
	Annual	13.7	-	10.8	-	11.2	-

Concentrations reflect the closest monitors to the Facility for each pollutant. Locations are shown below. See Table 5-3 for actual distances to the HCSWERF stack.

NO_x - Tampa 5121 Gandy Blvd. (348.556 km UTM Easting, 3086.043 km UTM Northing)

SO₂ - Tampa 5012 Causeway Blvd. (362.103 km UTM Easting, 3089.236 km UTM Northing)

CO - Tampa 4702 Central Ave (356.994 km UTM Easting, 3096.498 km UTM Northing)

Pb - Tampa 6811 East 14th Avenue (364.317 km UTM Easting, 3094.012 km UTM Northing)

O₃ - Tampa Coast Guard Station Davis Island (356.862 km UTM Easting, 3089.913 km UTM Northing)

PM₁₀ - Brandon 2929 S. Kingsway (374.239 km UTM Easting, 3094.212 km UTM Northing)

PM_{2.5} - Tampa 6700 Whiteway Drive (364.558 km UTM Easting, 3103.335 km UTM Northing)

Table 4-2
Auer Land Use Classification Scheme

Type	Description	
	Use and Structures	Vegetation
I1	<p>Heavy Industrial Major chemical, steel, and fabrication industries; generally 3-5 story buildings, flat roofs</p>	Grass and tree growth extremely rare; < 5% vegetation
I2	<p>Light-Moderate Industrial Rail yards, truck depots, warehouses, industrial parks, minor fabrications; generally 1-3 story buildings, flat roofs</p>	Very limited grass, trees almost total absent; <5% vegetation
C1	<p>Commercial Office and apartment buildings, hotels; >10 story heights, flat roofs</p>	Limited grass and trees; <15% vegetation
R1	<p>Common Residential Single family dwelling with normal easements; generally one story, pitched roof structures; frequent driveways</p>	Abundant grass lawns and light-moderately wooded; >70% vegetation
R2	<p>Compact Residential Single, some multiple, family dwelling with close spacing; generally < 2 story, pitched roof structures; garages via alley, no driveways</p>	Limited lawn sizes and shade trees; <30% vegetation
R3	<p>Compact Residential Old multi-family dwellings with close (<2 m) lateral separation; generally 2 story, flat roof structures; garages (via alley) and ashpits, no driveways</p>	Limited lawn sizes, old established shade trees; <35% vegetation
R4	<p>Estate Residential Expansive family dwelling on multi-acre tracts</p>	Abundant grass lawns and lightly wooded; > 80% vegetation
A1	<p>Metropolitan Natural Major municipal, state, or federal parks, golf courses, cemeteries, campuses; occasional single story structures</p>	Nearly total grass and lightly wooded; >95% vegetation

A2	Agricultural Rural	Local crops (e.g. corn, soybean); >95% vegetation
A3	Undeveloped Uncultivated; wasteland	Mostly wild grasses and weeds, lightly wooded; >90% vegetation
A4	Undeveloped Rural	Heavily wooded; >95% vegetation
A5	Water Surfaces Rivers, lakes	

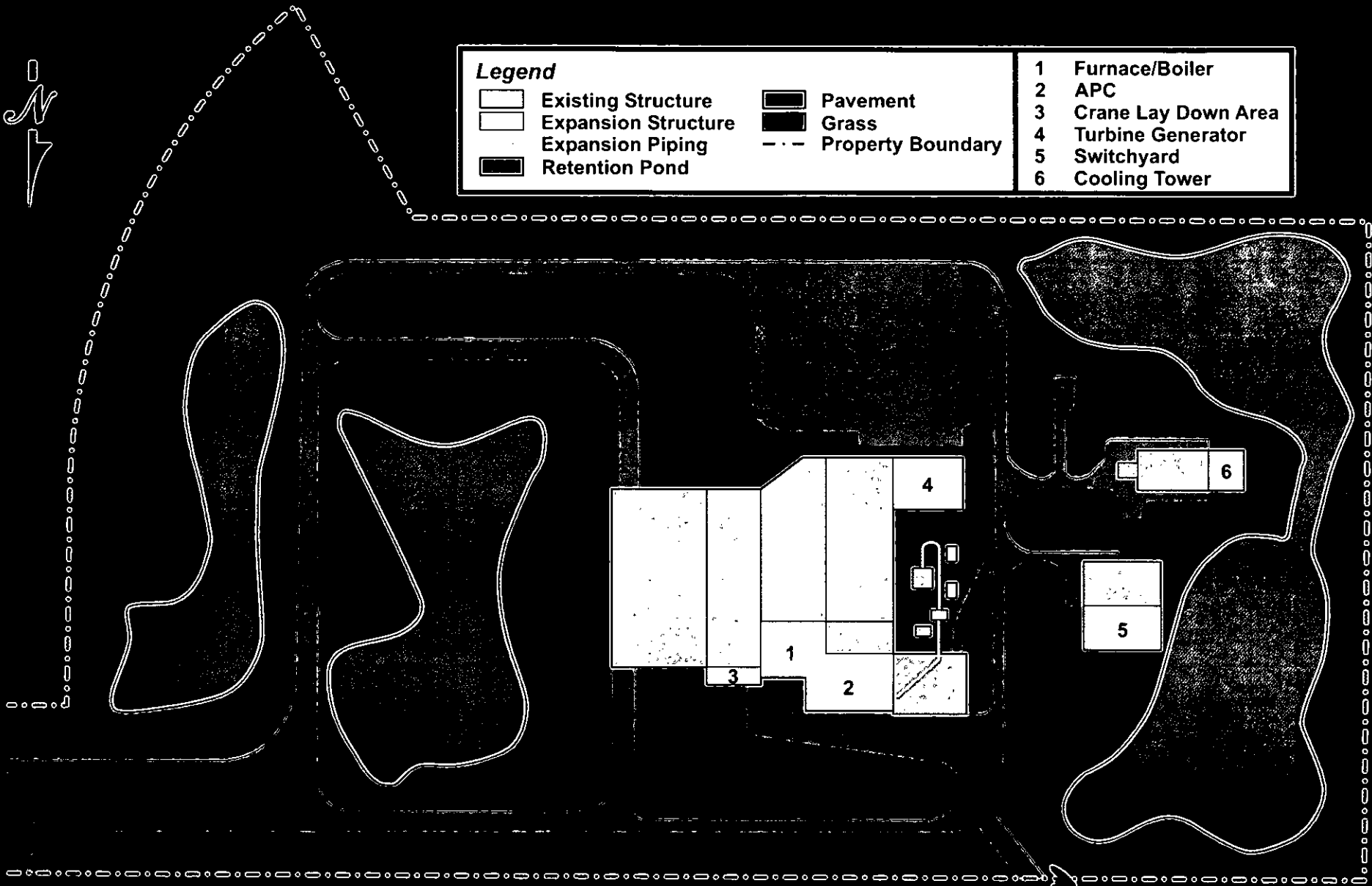
Palkenburg Road





Legend			
	Existing Structure		Pavement
	Expansion Structure		Grass
	Expansion Piping		Property Boundary
	Retention Pond		

- 1 Furnace/Boiler
- 2 APC
- 3 Crane Lay Down Area
- 4 Turbine Generator
- 5 Switchyard
- 6 Cooling Tower



Falkenburg WTE Facility

Photo View