Brantley, Anna

From: Pelz, Susan
Sent: Monday, June 20, 2011 8:44 AM
To: Brantley, Anna; Frazier, Dinah; Gaskin, Nancy; Madden, Melissa; Morgan, Steve; Morris, John R.; Watson, Stephanie M.
Subject: FW: Yard Trash Processing Facility Registration
Attachments: f6c54798d4671cf8294e8d7c7a74954.pdf; 709SO_Registration_1_00.pdf; SO_Registration_Excerpts_1_00.pdf; YardTrashTermsAndConditions_1_00.pdf

fyi

From: no-reply@dep.state.fl.us [mailto:no-reply@dep.state.fl.us]
Sent: Friday, June 17, 2011 4:52 PM
To: jchamberlain@pascocountyfl.net
Cc: Morgan, Steve; Joyal, Francine; Pelz, Susan
Subject: Yard Trash Processing Facility Registration

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

Receipt for Submission

June 17, 2011

JOHN POWER
WEST PASCO COUNTY CLASS III
14230 HAYS ROAD

SPRING HILL, FL 34610 0

Dear JOHN POWER

Your application for Registration of a Yard Trash Processing Facility for WEST PASCO COUNTY CLASS III (located at 14230 HAYS ROAD , Spring Hill) in Pasco County is complete. Your facility identification number (WACS ID) is 45799. This registration is valid until August 1, 2012. The receipt number for the registration fee you paid is 748771.

You must comply with the requirements specified in Chapter 62-709, Florida Administrative Code (F.A.C.) in order to maintain qualification for the registration program. A summary of the operating requirements is attached. Excerpts from Chapters 62-701 and 62-709, F.A.C. pertaining to yard trash

processing facilities are also attached.

If you need further information, please contact me at the above address, Mail Station 4565, telephone 850-245-8747, or email Francine.Joyal@dep.state.fl.us.

Sincerely,

Francine Joyal
Environmental Specialist

cc: Susan Pelz; Southwest District

Florida Department of Environmental Protection

Solid Waste Section, Mail Station 4565
2600 Blair Stone Road, Tallahassee, Florida 32399-2400

DEP Form # 62-709.901(3)
Form Title Appl for Reg. and Ann Rep for a YT Trans Station or SW Organic Recycling Facility
Effective Date February 15, 2010
DEP Facility ID No. _____ (Filled in by DEP)
DEP WACS ID No: 45799 (Filled in by DEP)
This form is adopted by reference in subsection 62-709.901(3), F.A.C.

Application for Registration and Annual Report for a Yard Trash Transfer Station or a Solid Waste Organics Recycling Facility

PART A - GENERAL INFORMATION

1. Type of Application: New ___ Renewal (due July 1) ✓ Annual report only for facility operating under permit: ___

2. Type of Facility: Yard trash recycling ✓ Manure blending ___
   Yard trash transfer station ___ Vegetative, animal byproducts or manure composting ___

3. Type of Waste Processed: Yard trash ✓ Manure ___ Animal byproducts ___ Pre-consumer Vegetative ___
   Vegetative (could/did come into contact with animal products or byproducts or end user) ___

4. Facility Name: WEST PASCO COUNTY CLASS III

5. Registrant Name (or Permittee if annual report only): WEST PASCO COUNTY CLASS III

6. Federal Employer Identification Number: 596000793

7. Mailing Address: 14230 HAYS ROAD

   City SPRING HILL State FL Zip 34610 0

   Street Mailing Address (if different): _____

   City _____ State _____ Zip _____

8. Facility Location - Street Address or Property Number: 14230 HAYS ROAD

   City Spring Hill County Pasco

9. Contact Person: JOHN POWER Telephone: (727) 856-0119

PART B - ADDITIONAL INFORMATION REQUIRED FOR REGISTRATION APPLICATION

10. Records required by Rule 62-709.320, F.A.C., will be kept at the facility? Yes ✓ No ___

    If no, please indicate where these records will be kept and made available upon Department request to review the records:

    _____

11. Does the registrant own the facility site? Yes ✓ No ___

    If you answered no, please attach evidence that the facility owner or operator has permission from the landowner to operate a yard trash transfer station or a solid waste organics recycling facility at this site.

12. Has the organic recycling facility begun operations? Yes ✓ No ___

    If this facility was operating in the previous calendar year, the annual report in Part C must be completed.

13. Include a check or money order for the $35.00 registration fee made payable to the Florida Department of Environmental Protection. Payment of $35.00 for this registration was received via online transaction.

I affirm that I have read Rules 62-709.320, 62-709.330 and 62-709.350, F.A.C., and shall comply with the requirements specified in those rules. I also affirm that the information provided in the application is true, accurate, and correct to the best of my knowledge. I have attached all documents and/or authorizations that are required.

JOHN POWER	JOHN POWER	06/17/2011
Print Name and Title of Registrant or Authorized Agent	Signature	Date

Email address (if available): jchamberlain@pascocountyfl.net

PART C - ANNUAL REPORT

14. Calendar Year (January 1 through December 31) Covered by this Report: 2010

15. Values used in this report are in (SELECT ONE): Tons [✓] Cubic Yards [ ]

16. **For Existing Facilities that have not reported this information in the past**, Amount of

    a. Unprocessed Material On Site at Beginning of Report Year: 0

    b. Processed Material On Site at Beginning of Report Year (total): 0

17. Total Quantity of Material Received During Report Year: 1903

18. Total Quantity of Material Lost Due to Processing (e.g. grinding, drying, shrinkage, fires, etc.) During Report Year: 240

19. Total Quantity of Material Removed from Site for:

    a. Use (e.g., landfill cover, fuel, mulch, compost, etc.): 1363

    b. Disposal: 0

    c. Other (transfer stations) 0

20. Total Quantity On Site at End of Report Year of:

    a. Unprocessed Material: 250

    b. Processed Material: 50

Note that the total sum of items 16 a and b plus 17 must equal to sum of items 18, plus 19 a, b and c, plus 20 a and b.

Total of items 16 and 17 1903 Total of Items 18, 19 and 20 1903

I affirm that the information provided in the annual report is true, accurate, and correct to the best of my knowledge.

JOHN POWER	*JOHN POWER*	06/17/2011
Print Name and Title of Registrant/Permittee or Authorized Agent	Signature	Date

Email address (if available): jchamberlain@pascocountyfl.net

PART D - MAILING INSTRUCTIONS

Remember to include the $35.00 fee if this is also a registration application. Mail completed form to: This registration was completed and payment of $35.00 (if applicable) was received via online transaction.

Department of Environmental Protection
Solid Waste Section, MS 4565
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Requirements for source-separated organics facilities qualifying for registration - Chapter 62-709, F.A.C.

Rule/Referenced Rule	Provision
Specific to all	
62-709.300(7)(a)	No person shall cause or allow objectionable odor in violation of Chapter 62-296, F.A.C.
62-709.300(7)(b)	Rule 62-701.300, and subsection 62-701.320(13) apply to facilities regulated under 62-709.
62-701.300(1)(b)	Stored or processed in a way or location that does not violate air quality or water quality standards.
62-701.300(2)(a)	Geological formations or subsurface features must provide support for the facility
62-701.300(2)(c)	Not in a dewatered pit unless permanent leachate containment and special design techniques used.
62-701.300(2)(d)	Not in any natural or artificial water body(e.g., ground water and wetlands within DEP jurisdiction).
62-701.300(2)(f)	Not be placed on the right of way of any public highway, road, or alley.
62-701.300(3)	No open burning in the recycling area of the facility and controlled burning complies with DEP rules.
62-701.300(14)	No CCA treated wood in material applied as a ground cover, soil or soil amendment.
62-701.300(15)	No unconfined emissions of particulate matter in violation of paragraph 62-296.320(4)(c), F.A.C.
62-709.320(2)(a)	Have the necessary operational features and equipment - unless otherwise specified, including
62-709.320(2)(a)1.	effective barrier to prevent unauthorized entry and dumping
62-709.320(2)(a)2.	Dust and litter control methods
62-709.320(2)(a)3.	Fire protection and control provisions to deal with accidental burning of solid waste, including
62-709.320(2)(a)3.a.	20-foot all-weather access road all around the perimeter
62-709.320(2)(a)3.b.	No material shall be mechanically compacted
62-709.320(2)(a)3.c.	No material shall be more than 50 feet from access by motorized firefighting equipment
62-709.320(2)(b)	Operate in a manner to control vectors
62-709.320(2)(c)	Operate in a manner to control objectionable odors per with Rule 62-296.320(2), F.A.C.
62-709.320(2)(d)	Keep any installed drains and leachate or condensate conveyances cleaned
62-709.320(2)(e)	Process received solid waste timely as follows
62-709.320(2)(e)1.	Size-reduce or remove yard trash within 6 months or time needed to receive 3,000 tons or 12,000 cubic yards, whichever is greater. Separated logs with 6 inch diameter or greater can be stored for up to 12 months before being size-reduced or removed.
62-709.320(2)(e)2.	Putrescible waste (e.g., vegetative wastes, animal byproducts or manure) shall be processed and incorporated into the composting material, or removed from the facility, within 48 hours.
62-709.320(2)(f)	Containerized and removed immediately any treated or untreated biomedical waste; hazardous waste; or any materials having (PCB) concentration of 50 ppm or greater.
62-709.320(2)(g)	All residuals, solid waste and recyclable materials removed and recycled or disposed upon ceasing operations. Any remaining processed material shall be properly used or disposed.
62-709.320(4)(a)	Keep monthly records of incoming and outgoing material for at least three years..
62-709.320(4)(b)	If temperature used to show disinfection or vector attraction achieved, keep records for 3 years.

Specific to yard trash only facilities	
62-709.300(7)(b)	Rule 62-701.300, and subsection 62-701.320(13) apply to facilities regulated under 62-709.
62-701.300(12)(a)	At least 100 feet from off-site potable water well that existed before facility registered.
62-701.300(12)(b)	At least 50 feet from any body of water, including wetlands. Not including parts of permitted stormwater system, or water bodies totally within facility with no discharge to surface waters.
62-709.330(2)	Processed material gone from facility within 18 months, unless longer storage authorized by permit.
62-709.330(3)	Accept only yard trash, and bags used to collect yard trash. Containerized any other material

Specific to composting of vegetative wastes, animal byproducts or manure, or blending manure	
62-709.300(7)(b)	Rule 62-701.300, and subsection 62-701.320(13) apply to facilities regulated under 62-709.
62-701.300(2)(b)	Be more than 500 feet off-site potable water well that existed before facility registered
62-701.300(2)(e)	Within 200 feet from any body of water, including wetlands. Not including parts of permitted stormwater system, or water bodies totally within facility with no discharge to surface waters.
62-701.320(13)(b)	Not within 10,000 feet of any licensed and operating airport runway used by turbine powered aircraft, or within 5,000 feet of any licensed and operating airport runway used only by piston engine aircraft, unless applicant demonstrates that the facility is designed and will be operated so that it does not pose a bird hazard to aircraft.
62-709.350(2)	Carbon:nitrogen ratio of the blended feedstocks shall be greater than 20.
62-709.350(3)	Piles do not exceed 12 feet in height.
62-709.350(5)	All material removed within 18 months, unless longer storage authorized by permit.
62-709.350(6)	Show that disinfection achieved. not required if made from only pre-consumer vegetative waste
62-709.350(7)	Vector attraction reduction controls shall include either (a) or (b) below:
62-709.350(7)(a)	Composted for at least 14 days, with temperature no lower than 40 degrees Celsius and average temperature of the material being composted higher than 45 degrees Celsius; or
62-709.350(7)(b)	Specific oxygen uptake rate (SOUR) for material being composted or blended shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius

Correspondance W. PASCO

Madden, Melissa

From: Madden, Melissa
Sent: Tuesday, August 03, 2010 1:25 PM
To: 'Robert Sigmond'
Cc: John Power; Ronald J. Walker; Jennifer L. Seney; 'Shane Barrett'; Pelz, Susan; Gaskin, Nancy; Morgan, Steve
Subject: RE: Report
Attachments: FDEP SW District Office Letter 7_30_10.doc; RE: Pasco County Waste Composition Study - Notification; FDEP SW District Office Letter.doc; WTE and EPTS Sort Diagrams.pdf; Sort Diagrams - MRF.PDF

Robert,

The Department does not object to the proposed Waste Composition Study to be conducted at the West Pasco Resource Recovery Facility as described in County's letters, dated July 13, 2010 and July 30, 2010.

Please let me know if you have any questions or concerns.

Thank You,
Melissa

Melissa Madden, Environmental Specialist II, Solid Waste Section

Florida Department of Environmental Protection - Southwest District
13051 North Telecom Parkway
Temple Terrace, Fl 33637-0926
melissa.madden@dep.state.fl.us
813/632.7600 Ext. 374
813/632.7664 Fax

From: Robert Sigmond [mailto:rsigmond@pascocountyfl.net]
Sent: Friday, July 30, 2010 12:15 PM
To: Pelz, Susan
Cc: Madden, Melissa; John Power; Ronald J. Walker; Jennifer L. Seney; 'Shane Barrett'
Subject: FW: Report

Please find the response to Melissa Madden's questions and concerns. Since all activities are under roof now on the tipping floor of the Waste-to –Energy Facility – leachate is no longer an issue

I oculized this as permitting/ongoing - correspond.

not sure? it can be moved if necessary mam 8.3.10

Inserted Into OCULUS
Date: 8.3.10
Initials: MMM

July 30, 2010

Ms. Susan Pelz, P.E.
Solid Waste Manager
FDEP – Southwest District
13051 N. Telecom Pkwy
Temple Terrace, FL 33637-0926

Re: 2010-2011 Pasco County Waste Composition Study

Dear Ms. Pelz:

As previously discussed, Pasco County Utilities Solid Waste and Fiscal Services Departments will be conducting a two-season Waste Composition Study (WCS) this year.

In response to the leachate concerns raised by Ms. Melissa Madden during the FDEP's review of our planned sorting logistics, we have revised our sort plan so that all sorting activities will be conducted **on the tip floor** of the West Pasco Waste-to-Energy (WTE) facility which is completely enclosed. By successfully requesting select loads be routed to the West Pasco facility in lieu of the East Pasco Transfer Station, we have eliminated the need to sort at both locations.

At the West Pasco WTE facility, all sampling, sorting, and post-sorting disposal of wastes will be conducted on the WTE tip floor, which is located within the facility building. The elimination of the East Pasco Transfer Station from our sort plan should remove any leachate concerns for the FDEP. If you have any further questions, please don't hesitate to call.

Sincerely,
Department of Solid Waste and Resource Recovery

Robert Sigmond
Director

xc: Melissa Madden, FDEP SW District
Jennifer Seney, Pasco County
Ron Walker, Pasco County
John Power, Pasco County
Shane Barrett, Kessler Consulting

Madden, Melissa

From: Robert Sigmond [rsigmond@pascocountyfl.net]
Sent: Tuesday, July 27, 2010 10:54 AM
To: Madden, Melissa
Cc: Pelz, Susan; Morgan, Steve; John Power
Subject: RE: Pasco County Waste Composition Study -Notification

We will resubmit

From: Madden, Melissa [mailto:Melissa.Madden@dep.state.fl.us]
Sent: Tuesday, July 27, 2010 10:38 AM
To: Robert Sigmond
Cc: Pelz, Susan; Morgan, Steve; John Power
Subject: RE: Pasco County Waste Composition Study -Notification

Bob,

The Department has reviewed the County's proposal to conduct a Waste Composition Study at the West Pasco Resource Recovery Facility and East Pasco Transfer Station. It does not appear that the County included procedures for the management of leachate which may be generated by the sorting and/or storage process.

The submittal indicated that operations may be conducted outside at the East Pasco Transfer Station, if necessary, and that waste would be stored temporarily on tarps and covered during inclement weather. The tarps lain on a flat surface do not appear to be sufficient to contain leachate which may be generated by waste storage. Waste is also proposed to be stored in material category containers. Please clarify if these will be covered or brought inside in the event of inclement weather to prevent leachate accumulation. Please note that in accordance with Specific Condition C.8 of Permit No. 26445-004-SO/31, "leachate shall not be deposited, injected, dumped, spilled, leaked or discharged in any manner to soils, surface water, or groundwater outside the leachate management system at any time during the construction or operation of this facility."

Please revise the proposal to include procedures for the containment, management, and disposal of leachate which may be generated during the sorting and/or storage operations.

Please let me know if you have any questions or concerns.

Thank You,

Melissa Madden, Environmental Specialist II, Solid Waste Section

Florida Department of Environmental Protection - Southwest District
13051 North Telecom Parkway
Temple Terrace, Fl 33637-0926
melissa.madden@dep.state.fl.us
813/632.7600 Ext. 374
813/632.7664 Fax

minutes to comment on the quality of s. ice you received. Simply click on this link .. he DEP Customer Survey. Thank you in advance for completing the survey.
From: Pelz, Susan
Sent: Monday, July 26, 2010 11:57 AM
To: Madden, Melissa
Cc: Morgan, Steve
Subject: FW: Pasco County Waste Composition Study -Notification

Do you have any comments or objections to this?

From: Robert Sigmond [mailto:rsigmond@pascocountyfl.net]
Sent: Monday, July 26, 2010 11:09 AM
To: Pelz, Susan
Subject: FW: Pasco County Waste Composition Study -Notification

Susan – good morning – have you had the chance to review what we had submitted earlier – we are hoping to begin August 9th – thank you for your consideration – Bob Sigmond

---

From: Robert Sigmond
Sent: Saturday, July 17, 2010 6:13 PM
To: Pelz, Susan
Cc: John Power; Ronald J. Walker; Jennifer L. Seney; 'Shane Barrett'
Subject: Pasco County Waste Composition Study -Notification

Susan –Please find attached the formal notification with attachments as was discussed a couple of weeks ago. If you have any questions please do not hesitate to ask-Thank you in advance for your consideration.

July 13, 2010

Ms. Susan Pelz, P.E.
Solid Waste Manager
FDEP – Southwest District
13051 N. Telecom Pkwy
Temple Terrace, FL 33637-0926

Re: 2010-2011 Pasco County Waste Composition Study

Dear Ms. Pelz:

As we previously discussed, Pasco County Utilities Solid Waste and Fiscal Services Departments will be conducting a two-season Waste Composition Study (WCS) this year. The first of the two waste sorts will be conducted in early August 2010 with the second in February 2011. The WCS will determine the percentage by weight of specified material categories, including recyclable materials, delivered to Pasco County facilities.

Per your request, I am writing to explain the logistics of the sorting event. The County is working to conduct all waste sorting at the West Pasco Waste-to-Energy (WTE) facility; however, some sorting may be required at the East Pasco Transfer Station (EPTS) if we cannot coordinate the rerouting of select loads to the West Pasco facility.

At the West Pasco WTE facility, all sampling, sorting, and post-sorting disposal of wastes will be conducted on the WTE tip floor. The County is fortunate to have available space on the tip floor to dedicate two bays to the sorting event. One bay, where the actual sorting will take place, will be cordoned off with barricades and cones to ensure worker safety. The adjacent bay will be used to tip selected loads, from which samples will be taken for sorting. Using a small loader, samples of roughly 200-300 pounds will be taken and moved to tarps located near the sorting area, also on the tip floor. All samples will be labeled and stored until sorted into individual material categories. At the conclusion of each sample, bagged waste will be returned to the working side of the tip floor using the loader.

All sorters will be wearing full safety gear including, boots, Tyvek® suites, inner and outer gloves, safety glasses, vests and hardhats. With the exception of the sort and sample supervisors provided by Kessler Consulting, all sorters will remain near the sort tables in the area cordoned off by barricades and cones. The sort and sample supervisors will need to leave the sort area only to identify targeted vehicles and coordinate the collection of each sample.

All waste handled by the sort team at the West Pasco WTE facility will remain on the tip floor and under cover at all times.

If needed, additional sorting will take place at the East Pasco Transfer Station. Sorting at this location would take place under a tent at the far end of the parking lot, as sorting on the tip floor is not possible at this location. The area utilized for sorting is paved and would be cordoned off to ensure the safety of all sorters. All sorters will have the same safety gear as detailed above.

Selected vehicles will be asked to tip their waste on the tip floor, from which a small loader will pull the sample. Samples will then be transferred onto tarps located near the sorting tables. Using large 20' x 24' tarps, the samples will immediately be covered until sorting can take place. Upon completion of each sample, bagged waste will be returned to the tip floor using the same loader. All waste handled by the sort team at the East Pasco facility will remain on the paved surfaces of the tip floor or the parking lot, where samples will be wrapped in tarps, on the sort table, or in the material category containers at all times.

Prior to conducting any sorting activities at this location, the project team will check the weather forecast to avoid heavy rains. However, in the event of heavy rainfall, all sorting activities at this location will cease and all samples will be securely covered with additional tarps. Similarly, the sort crew would ensure that materials located on the sort table and in each material category container are located under the tent and out of the rain. No samples will be taken during such rainfall and sorting would continue as weather permits.

Please let me know if you have any questions or concerns with our proposed activities. If I do not hear otherwise, we will proceed with the WCS, most likely starting the first week of August.

Sincerely,
Pasco County Utilities

Robert Sigmond
Director

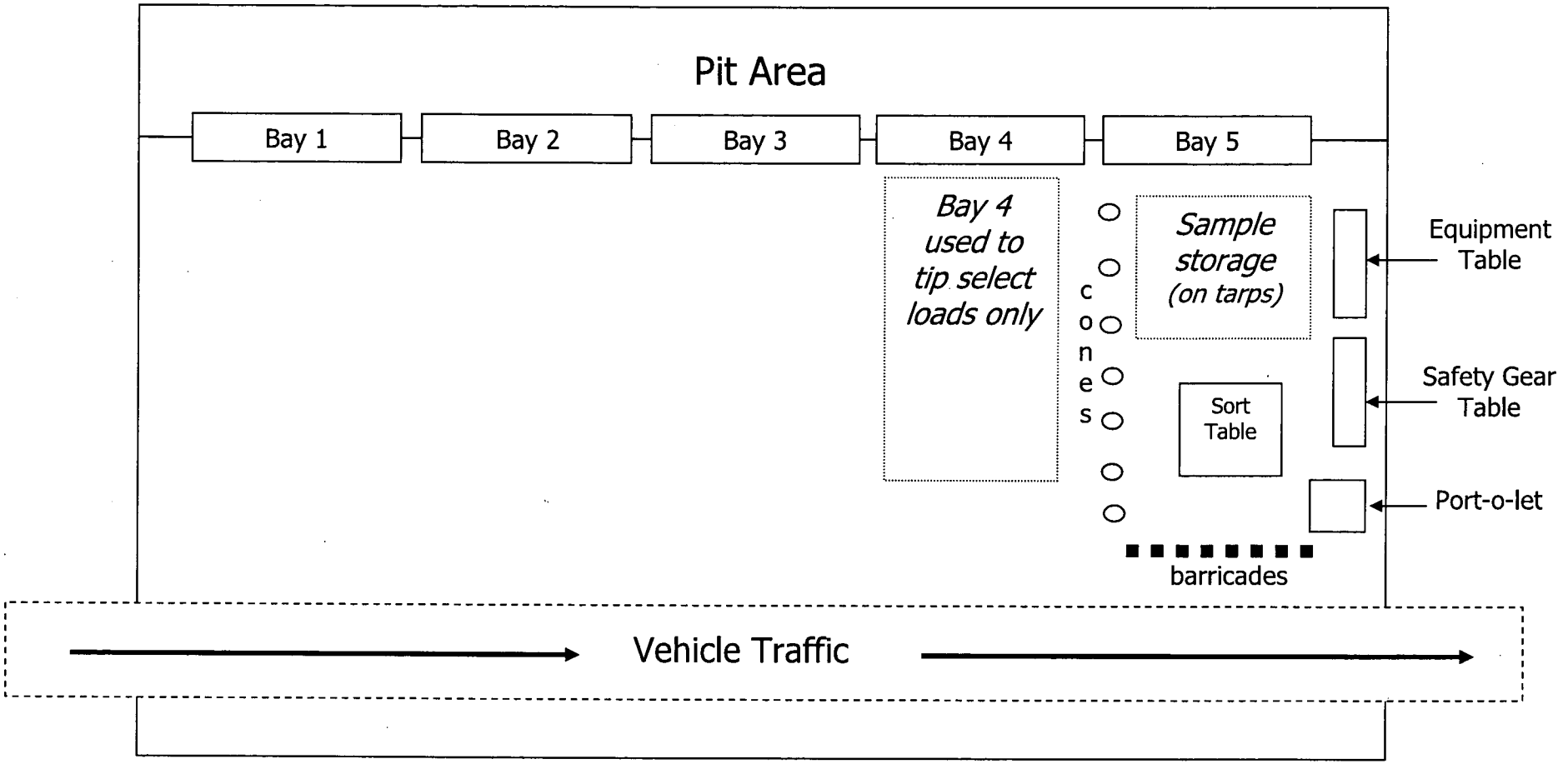
xc: Shane Barret, Kessler Consulting
John Power, Solid Waste Manager
Ron Walker, Solid Waste Supervisor
Jennifer Seney, Recycling Coordinator

Attachments

PASCO COUNTY

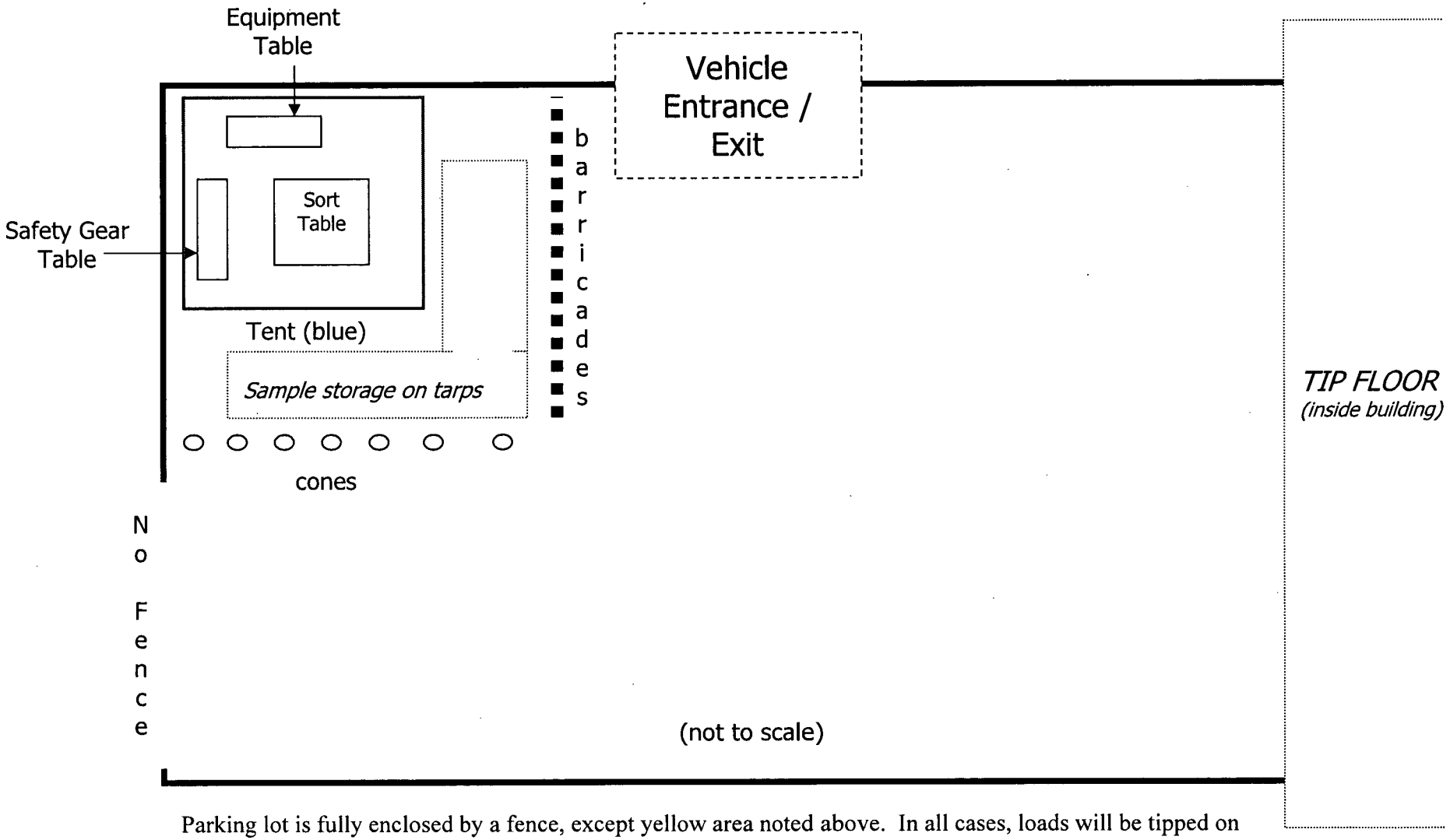
WASTE COMPOSITION STUDY – SORT DIAGRAMS

WEST PASCO WASTE-TO-ENERGY TIP FLOOR



(not to scale)

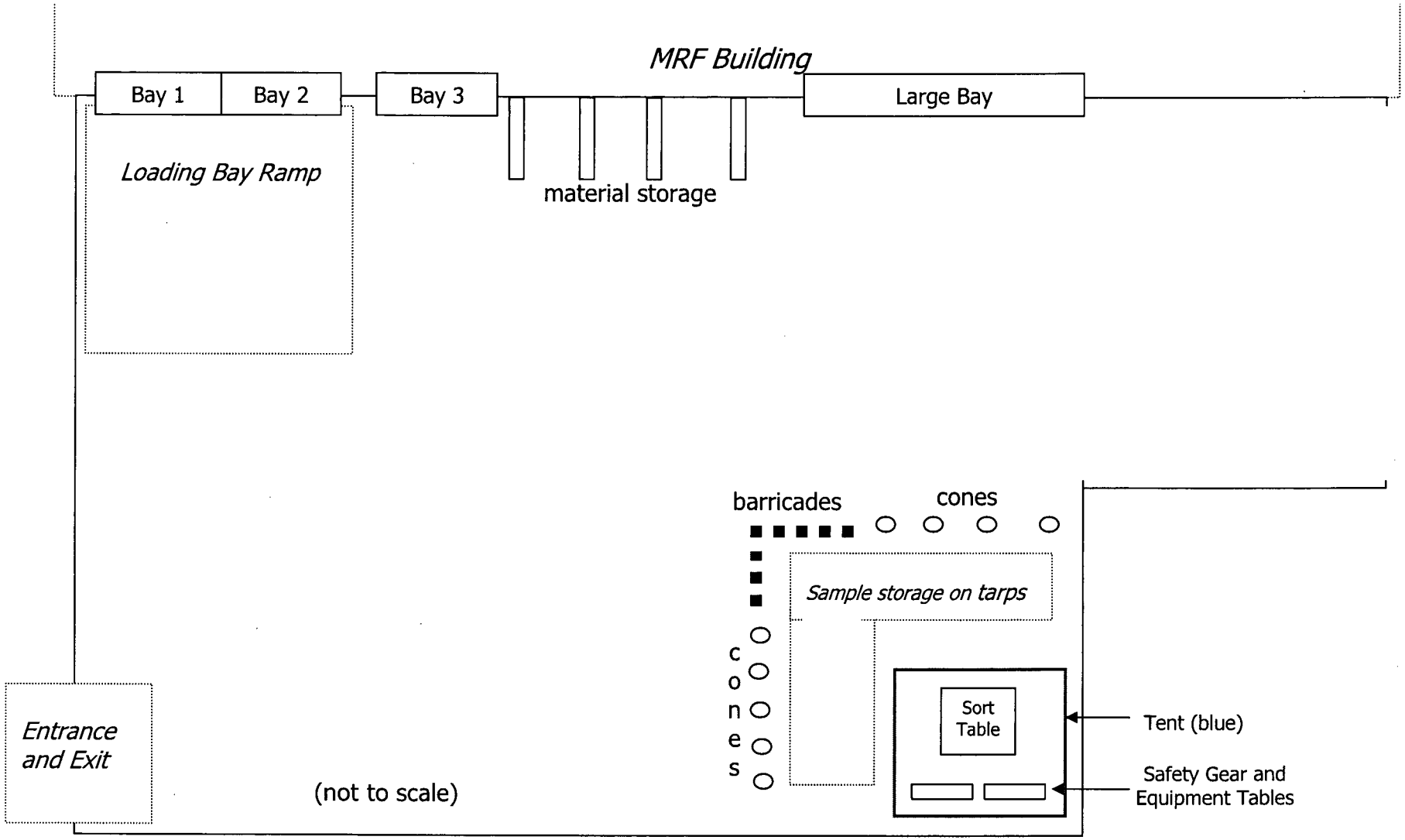
EAST PASCO TRANSFER STATION



Parking lot is fully enclosed by a fence, except yellow area noted above. In all cases, loads will be tipped on the tip floor and only samples will be moved to tarps located in sample storage area.

PASCO COUNTY

WASTE COMPOSITION STUDY – MATERIAL RECOVERY FACILITY SORT DIAGRAM



Recyclables will be tipped on Tip Floor and samples will be moved to tarps until sorted.

Morris, John R.

From: Rojas, David [RojasDR@CDM.com]
Sent: Thursday, July 29, 2010 4:18 PM
To: Morris, John R.
Cc: Beeson, William; Sonawane, Aamod; McHugh, John; Schmaus, Nathan; jpower@pascocountyfl.net; Candia Mulhern; Rick Mortensen
Subject: RE: Proposed MWs associated with MW-24, MW-25, & MW-26 Locations @ West Pasco Class I LF

John,
Mortensen Engineering is scheduled to begin installation of the proposed monitor wells associated with MW-24, MW-25, & MW-26 at the West Pasco Class I LF on Monday, August 2nd. Nathan Schmaus with CDM will be onsite to oversee Mortensen.

David R. Rojas, P.G.
Environmental Scientist/Geologist

CDM
1715 N. Westshore Blvd. Suite 875
Tampa, Florida 33607
Office - 813 281-2900
Direct - 813 262-8857
Fax - 813 288-8787
Cell - 813 951-6717

From: Morris, John R. [mailto:John.R.Morris@dep.state.fl.us]
Sent: Thursday, April 15, 2010 4:17 PM
To: Rojas, David
Cc: Beeson, William; Sonawane, Aamod; McHugh, John; Pelz, Susan; Morgan, Steve; jpower@pascocountyfl.net
Subject: RE: Proposed MWs associated with MW-24, MW-25, & MW-26 Locations @ West Pasco Class I LF

Dave:

The borings completed by Mortensen Engineering at the locations of the proposed detection well pairs for Cell A-4 show considerable variation in the thickness of the sandy sediments, nature/thickness of the confining unit, and elevation of the top of limestone sediments. The variations shown in these most recently completed borings are generally consistent with the variations shown on the generalized cross section for Cell A-4 as presented in Figure 4 of the CDM document entitled "Water Quality Monitoring Plan for the West Pasco County Class I Landfill," revised December 2008. Based on the description of the sediments encountered in the Mortensen borings, I have no objection to construction of the proposed surficial/Floridan aquifer detection well pairs as described in your message below to replace the construction details presented on Figures 2A through 2E of the referenced "Water Quality Monitoring Plan" document.

Your assistance in this matter is appreciated. Please contact me if you have questions about this message.

John

****

John R. Morris, P.G.
FDEP SW District Office, Solid Waste Section
13051 N. Telecom Pkwy.
Temple Terrace, FL 33637-0926.

Telephone: 813-632-7600, ext. 336
E-mail: john.r.morris@dep.state.fl.us

minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the surv

From: Rojas, David [mailto:RojasDR@CDM.com]
Sent: Wednesday, April 07, 2010 3:14 PM
To: Morris, John R.
Cc: Beeson, William; Sonawane, Aamod; McHugh, John; Pelz, Susan; Morgan, Steve; jpower@pascocountyfl.net
Subject: Proposed MWs associated with MW-24, MW-25, & MW-26 Locations @ West Pasco Class I LF

Mr. Morris,

As we discussed today, the following are proposed construction details regarding the monitor wells to be installed at the West Pasco County Class I Landfill north and west of the footprint of Cell A-4 which is currently under construction. The original proposed well construction details were presented in the December 2008 Water Quality Monitoring Plan, but we are proposing slight modifications based on test borings that were advanced near the MW-24, MW-25, & MW-26 locations. I have included the boring logs generated by Cary Richardson of Mortensen Engineering for the test borings. The elevation of the water table (WT) of the surficial aquifer and the piezometric surface (PS) of the Floridan Aquifer are expected to be similar at all three locations based on historical groundwater contour maps of the area. Based on these maps and water level fluctuations measured at the Class I facility since 2005, in the vicinity of the proposed well locations the WT/PS is expected to range from 35′ to 26′ NGVD.

We recommend the following screen intervals for the proposed wells:

MW-24 LOCATION

- 2MW-24S – Screen 11′ to 26′ bls (36′ to 21′ NGVD) Use 15′ of screen to insure WT is straddled during periods of high WT.

- 2MW-24D – Screen 34′ to 44′ bls (13′ to 3′ NGVD)

MW-25 LOCATION

- 2MW-25S – Screen 3′ to 13′ bls (42′ to 32′ NGVD)

- 2MW-25D – Screen 17′ to 32′ bls (28′ to 13′ NGVD) Only 1′ of sandpack to be used above the screen because "Confining Unit" is so thin. Use 15′ of screen to tap into top of LS below clay lenses.

MW-26 LOCATION

- 2MW-26S – Screen 10′ to 20′ bls (37′ to 27′ NGVD)

- 2MW-26D – Screen 42′ to 52′ bls (5′ to -5′ NGVD)

<<Boring Logs for MW 24 25 & 26 Test Borings.pdf>>

David R. Rojas, P.G.

Environmental Scientist/Geologist

CDM

1715 N. Westshore Blvd. Suite 875

Tampa, Florida 33607

Office - 813 281-2900

Direct - 813 262-8857

Fax - 813 288-8787

Cell - 813 951-6717

Morris, John R.

From: Morris, John R.
Sent: Thursday, April 15, 2010 4:17 PM
To: 'Rojas, David'
Cc: Beeson, William; Sonawane, Aamod; McHugh, John; Pelz, Susan; Morgan, Steve; jpower@pascocountyfl.net
Subject: RE: Proposed MWs associated with MW-24, MW-25, & MW-26 Locations @ West Pasco Class I LF

Dave:

The borings completed by Mortensen Engineering at the locations of the proposed detection well pairs for Cell A-4 show considerable variation in the thickness of the sandy sediments, nature/thickness of the confining unit, and elevation of the top of limestone sediments. The variations shown in these most recently completed borings are generally consistent with the variations shown on the generalized cross section for Cell A-4 as presented in Figure 4 of the CDM document entitled "Water Quality Monitoring Plan for the West Pasco County Class I Landfill," revised December 2008. Based on the description of the sediments encountered in the Mortensen borings, I have no objection to construction of the proposed surficial/Floridan aquifer detection well pairs as described in your message below to replace the construction details presented on Figures 2A through 2E of the referenced "Water Quality Monitoring Plan" document.

Your assistance in this matter is appreciated. Please contact me if you have questions about this message.

John

****

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E-mail: john.r.morris@dep.state.fl.us

From: Rojas, David [mailto:RojasDR@CDM.com]
Sent: Wednesday, April 07, 2010 3:14 PM
To: Morris, John R.
Cc: Beeson, William; Sonawane, Aamod; McHugh, John; Pelz, Susan; Morgan, Steve; jpower@pascocountyfl.net
Subject: Proposed MWs associated with MW-24, MW-25, & MW-26 Locations @ West Pasco Class I LF

Mr. Morris,

As we discussed today, the following are proposed construction details regarding the monitor wells to be installed at the West Pasco County Class I Landfill north and west of the footprint of Cell A-4 which is currently under construction. The original proposed well construction details were presented in the December 2008 Water Quality Monitoring Plan, but we are proposing slight modifications based on test borings that were advanced near the MW-24, MW-25, & MW-26 locations. I have included the boring logs generated by Cary Richardson of Mortensen Engineering for the test borings. The elevation of the water table (WT) of the surficial aquifer and the piezometric surface (PS) of the Floridan Aquifer are expected to be similar at all three locations based on historical groundwater contour maps of the area. Based on these maps and water level fluctuations measured at the Class I facility since 2005, in the vicinity of the proposed well locations the WT/PS is expected to range from 35' to 26' NGVD.

We recommend the following screen intervals for the proposed wells:

MW-24 LOCATION

- 2MW-24S – Screen 11′ to 26′ bls (36′ to 21′ NGVD) Use 15′ of screen to insure WT is straddled during periods of high WT.

- 2MW-24D – Screen 34′ to 44′ bls (13′ to 3′ NGVD)

MW-25 LOCATION

- 2MW-25S – Screen 3′ to 13′ bls (42′ to 32′ NGVD)

- 2MW-25D – Screen 17′ to 32′ bls (28′ to 13′ NGVD) Only 1′ of sandpack to be used above the screen because "Confining Unit" is so thin. Use 15′ of screen to tap into top of LS below clay lenses.

MW-26 LOCATION

- 2MW-26S – Screen 10′ to 20′ bls (37′ to 27′ NGVD)

- 2MW-26D – Screen 42′ to 52′ bls (5′ to -5′ NGVD)

<<Boring Logs for MW 24 25 & 26 Test Borings.pdf>>

David R. Rojas, P.G.

Environmental Scientist/Geologist

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Morris, John R.

From: Morris, John R.
Sent: Thursday, April 08, 2010 1:59 PM
To: 'Rojas, David'
Cc: Beeson, William; Sonawane, Aamod; McHugh, John; Pelz, Susan; Morgan, Steve; jpower@pascocountyfl.net
Subject: RE: Proposed MWs associated with MW-24, MW-25, & MW-26 Locations @ West Pasco Class I LF
Attachments: RE: Proposed MWs associated with MW-27 Location @ West Pasco Class I LF

Dave:

I'm tied up reviewing submittals for applications on the permitting time clock this week, so I won't likely be able to spend time looking at the information that was attached to your message dated April 7, 2010 until Monday.

Your message reminded me of the comments I provided regarding the proposed revisions to the construction details for the background well cluster for Cell A-4 [2MW-27S, 2MW-27D, 4MW-27 and 4MW-27D]. My comments were included in an e-mail message dated March 19, 2010 [**attached**]. The fifth bullet item in my message indicated that Figures 6C and 6D of the document entitled "Water Quality Monitoring Plan for the West Pasco County Class I Landfill," prepared by CDM, revised December 2008 appeared to provide identical construction details for proposed wells 4MW-27 and 4MW-27D, and requested a replacement Figure 6D to provide construction details consistent with the description provided in Section 2.1.4. Have you had the opportunity to review the information provided for well 4MW-27D? Will a replacement Figure 6D be provided?

Your assistance is appreciated. Please contact me if you have questions about this message.

John

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Telephone: 813-632-7600, ext. 336
E-mail: john.r.morris@dep.state.fl.us

From: Rojas, David [mailto:RojasDR@CDM.com]
Sent: Wednesday, April 07, 2010 3:14 PM
To: Morris, John R.
Cc: Beeson, William; Sonawane, Aamod; McHugh, John; Pelz, Susan; Morgan, Steve; jpower@pascocountyfl.net
Subject: Proposed MWs associated with MW-24, MW-25, & MW-26 Locations @ West Pasco Class I LF

Mr. Morris,

As we discussed today, the following are proposed construction details regarding the monitor wells to be installed at the West Pasco County Class I Landfill north and west of the footprint of Cell A-4 which is currently under construction. The original proposed well construction details were presented in the December 2008 Water Quality Monitoring Plan, but we are proposing slight modifications based on test borings that were advanced near the MW-24, MW-25, & MW-26 locations. I have included the boring logs generated by Cary Richardson of Mortensen Engineering for the test borings. The elevation of the water table (WT) of the surficial aquifer and the piezometric surface (PS) of the Floridan Aquifer are expected to be similar at all three locations based on historical groundwater contour maps of the area. Based on these maps and water level fluctuations measured at the Class I facility since 2005, in the vicinity of the proposed well locations the WT/PS is expected to range from 35′ to 26′ NGVD.

We recommend the following scr ı intervals for the proposed wells:

MW-24 LOCATION

- 2MW-24S – Screen 11′ to 26′ bls (36′ to 21′ NGVD) Use 15′ of screen to insure WT is straddled during periods of high WT.

- 2MW-24D – Screen 34′ to 44′ bls (13′ to 3′ NGVD)

MW-25 LOCATION

- 2MW-25S – Screen 3′ to 13′ bls (42′ to 32′ NGVD)

- 2MW-25D – Screen 17′ to 32′ bls (28′ to 13′ NGVD) Only 1′ of sandpack to be used above the screen because "Confining Unit" is so thin. Use 15′ of screen to tap into top of LS below clay lenses.

MW-26 LOCATION

- 2MW-26S – Screen 10′ to 20′ bls (37′ to 27′ NGVD)

- 2MW-26D – Screen 42′ to 52′ bls (5′ to -5′ NGVD)

<<Boring Logs for MW 24 25 & 26 Test Borings.pdf>>

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Morris, John R.

From: Morris, John R.
Sent: Friday, March 19, 2010 5:01 PM
To: 'Rojas, David'
Cc: 'Beeson, William'; 'Sonawane, Aamod'; 'McHugh, John'; Pelz, Susan; Morgan, Steve; 'John Power (jpower@pascocountyfl.net)'
Subject: RE: Proposed MWs associated with MW-27 Location @ West Pasco Class I LF

Dave:

My comments regarding your proposed changes to the background wells follow:

- 2MW-27S: no objection to installing the10-foot well screen at a depth of 8-18 ft bls [previously indicated to be 6-16 ft BLS as shown on Figure 6A of the "Water Quality Monitoring Plan for the West Pasco County Class I Landfill," prepared by CDM, dated December 2008] based on the Mortensen Engineering soil boring

- 2MW-27D: no objection to installing the 15-foot well screen at a depth of 27-42 ft bls [previously indicated to be 26-41 ft BLS as shown on Figure 6B of the "Water Quality Monitoring Plan for the West Pasco County Class I Landfill," prepared by CDM, dated December 2008] based on the Mortensen Engineering soil boring.

- Please note that in the event the "limestone seams" described for the 24-40.5 ft bls interval are not productive, or if well 2MW-27D does not produce sufficient water to allow sample collection during dry season conditions, or if well 2MW-27D does not produce a representative ground water sample [e.g., elevated turbidity that does not meet the purging criterion in DEP SOP FS 2200], a deeper, replacement well shall be required. Based on the rationale presented in ¶4 of Section 2.1.4 of the "Water Quality Monitoring Plan for the West Pasco County Class I Landfill," prepared by CDM, dated December 2008: "if the top of the competent limestone of the Upper Floridan Aquifer is encountered at a depth below 27 ft bls or 21 ft NGVD, the well will be constructed with a 10-foot screened interval that extends from approximately 3 feet to 13 feet below the top of the competent limestone unit." If a deeper well is required at the location of 2MW-27D, the depth of the screened interval and the length of screen will need to be evaluated prior to its installation.

- 4MW-27: the 10-foot open hole interval at a depth of 67-77 ft bls appears to be consistent with ¶5 of Section 2.1.4 and Figure 6C of the Water Quality Monitoring Plan for the West Pasco County Class I Landfill," prepared by CDM, dated December 2008.

- 4MW-27D: the 10-foot open hole interval at a depth of 146-156 ft bls appears to be consistent with ¶5 of Section 2.1.4 of the Water Quality Monitoring Plan for the West Pasco County Class I Landfill," prepared by CDM, dated December 2008, however Figure 6D of the same document appears to provide well construction details identical to Figure 6C. Please submit a replacement Figure 6D that shows an open hole interval consistent with the description provided for well 4MW-27D in Section 2.1.4.

Please contact me if you have questions regarding these comments.

John

****

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Telephone: 813-632-7600, ext. 336
E-mail: john.r.morris@dep.state.fl.us

From: Rojas, David [mailto:RojasDR@CDM.com]
Sent: Friday, March 19, 2010 12:38 PM
To: Morris, John R.
Cc: Beeson, William; Sonawane, Aamod; McHugh, John
Subject: Proposed MWs associated with MW-27 Location @ West Pasco Class I LF

Mr. Morris,

As we discussed yesterday, the following are proposed construction details regarding the four background monitor wells to be installed at the West Pasco County Class I Landfill south of the footprint of Cell A-4 which is currently under construction. The original proposed well construction details were presented in the December 2008 Water Quality Monitoring Plan, but we are proposing slight modifications based on a test boring that was advanced near the 4MW-27D location. I have included the boring log generated by Cary Richardson of Mortensen Engineering for the test boring.

MWs ASSOCIATED WITH MW-27 LOCATION

- Based on the lithologies identified in the test boring advanced by Mortensen ~3' south of proposed location 4MW-27D on February 11, 2010 using mud rotary:

o CDM proposes that 2MW-27S be constructed with a 10' screen from 8'-18' bls. This will screen the base of the shallow sands and into the confining unit between the shallow sands and the weathered limestone and will more than likely be dry.

o CDM proposes to FDEP that 2MW-27D be constructed with a 15' screen from 27'-42' bls and a bentonite seal from 21'-23' bls. Based on historical water levels in surrounding monitor wells, it is expected that the water level (piezometric surface) in this well will be ~18' bls. Although the top of the consistent limestone as identified in Mortensen's log appears to be at 40.5' bls, there are interbedded limestone units within the interval from 24' – 40.5' bls. My interpretation when describing the split-spoon samples was that there was significantly more limestone (approximately a total of 6') in the interval from 24' – 40.5' bls and that the "limestone seams" increased in frequency and thickness within this interval. Because we expect the piezometric surface to be approximately 18' bls and because there are significant limestone and sand units within the interval from 25' – 40' bls that are expected to be water producing, the proposed screen interval for this well will include both the interbedded limestone units and the top of the consistent limestone. The screen of 2MW-27D will not penetrate the confining unit between the surficial materials and the carbonate units as the confining unit between them consists of clay material from 14.5' to 24.5' bls which includes a stiff clay from 17.5' to 20' bls.

- The construction of the 4MW-27 & 4MW-27D monitor wells is based primarily on elevation (so they monitor the same depths as wells being abandoned in Cell A-4) as stipulated in the December 2008 Water Quality Monitoring Plan. These wells will be installed with 10' openhole intervals from 67-77' bls and 146' – 156' bls, respectively.

Please indicate your concurrence with this well construction approach by replying via e-mail to both William "Trey" Beeson, Aamod Sonawane, and me.

<<MW-27 Test Boring Log - Mortensen.pdf>>

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Morris, John R.

From:	Rojas, David [RojasDR@CDM.com]
Sent:	Wednesday, April 07, 2010 3:14 PM
To:	Morris, John R.
Cc:	Beeson, William; Sonawane, Aamod; McHugh, John; Pelz, Susan; Morgan, Steve; jpower@pascocountyfl.net
Subject:	Proposed MWs associated with MW-24, MW-25, & MW-26 Locations @ West Pasco Class I LF
Attachments:	Boring Logs for MW 24 25 & 26 Test Borings.pdf

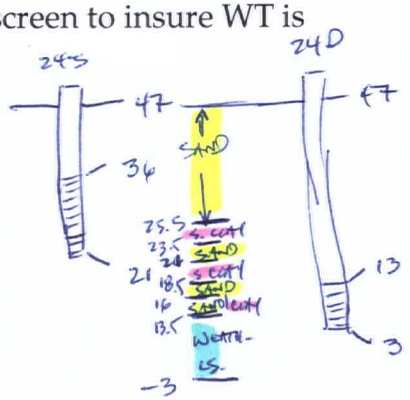
Mr. Morris,

As we discussed today, the following are proposed construction details regarding the monitor wells to be installed at the West Pasco County Class I Landfill north and west of the footprint of Cell A-4 which is currently under construction. The original proposed well construction details were presented in the December 2008 Water Quality Monitoring Plan, but we are proposing slight modifications based on test borings that were advanced near the MW-24, MW-25, & MW-26 locations. I have included the boring logs generated by Cary Richardson of Mortensen Engineering for the test borings. The elevation of the water table (WT) of the surficial aquifer and the piezometric surface (PS) of the Floridan Aquifer are expected to be similar at all three locations based on historical groundwater contour maps of the area. Based on these maps and water level fluctuations measured at the Class I facility since 2005, in the vicinity of the proposed well locations the WT/PS is expected to range from 35' to 26' NGVD.

We recommend the following screen intervals for the proposed wells:

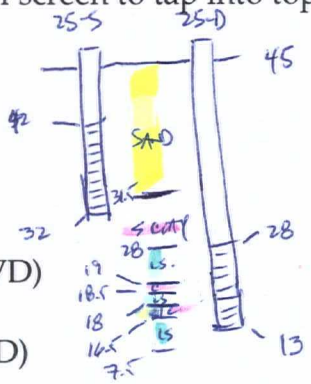
MW-24 LOCATION

- 2MW-24S – Screen 11' to 26' bls (36' to 21' NGVD) Use 15' of screen to insure WT is straddled during periods of high WT.
- 2MW-24D – Screen 34' to 44' bls (13' to 3' NGVD)



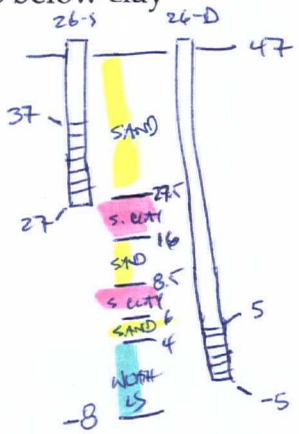
MW-25 LOCATION

- 2MW-25S – Screen 3' to 13' bls (42' to 32' NGVD)
- 2MW-25D – Screen 17' to 32' bls (28' to 13' NGVD) Only 1' of sandpack to be used above the screen because "Confining Unit" is so thin. Use 15' of screen to tap into top of LS below clay lenses.



MW-26 LOCATION

- 2MW-26S – Screen 10' to 20' bls (37' to 27' NGVD)
- 2MW-26D – Screen 42' to 52' bls (5' to -5' NGVD)



<<Boring Logs for MW 24 25 & 26 Test Borings.pdf>>

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ZMW-24D

0 - 21.5 FINE SAND

21.5 - 23.5 SANDY CLAY

23.5 - 26 FINE SAND

26 - 28.5 SANDY CLAY

28.5 - 31 FINE SAND

31 - 33.5 INTERBEDDED SAND/SANDY CLAY

33.5 - 50 WEATHERED LS

MEI PROJECT NO.: _____

PROJECT NAME: PASCO COUNTY LANDFILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY: ES/CR START DATE: 3-23-10

LOGGED BY: TRE END DATE: _____

BORING NUMBER: 2MW24D

GROUND ELEVATION AT STAKE: 47.00

OFFSET DISTANCE AND DIRECTION FROM STAKE: DRILLED AT STAKE

CHANGE IN GROUND ELEVATION: _____

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED ____ HRS.

MEI MORTENSEN ENGINEERING, INC.
SPT LOG

DEPTH	N PER 6"	N ASTM	N CONT'S	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
0.0					GY. to BN-GY. F. SAND (0.0 - 0.5)	
					LT. BN. F SAND (0.5 ———	
3.5	6 / 7 / 8	15		1	LT. BN. F SAND	
5.0						
6.0	3 / 5 / 7	12		2	LT. BN. F SAND	
7.5						
8.5	6 / 8 / 11	19		3	INTERBEDDED, F. LAM. LT. BN. F SAND AND BN. SLI. SI. F SAND	
10.0						
11.0	10 / 12 / 14	26		4	Same as # 3	
12.5						
13.5	9 / 13 / 16	29		5	Same as # 3 (TOP 0.5) LT. BN/MOTTLED SI. F SAND (BOTTOM)	
15.0						
16.0	9 / 13 / 15	28		6	LT. BN/MOTTLED SILTY F. SAND	
17.5						
18.5	10 / 19 / 18	37		7	BN. SLI. SI. F. SAND	
20.0						
21.0	10 / 12 / 11	23		8	MOTTLED SILTY F. SAND (TOP 0.5) MOTTLED SANDY CLAY (BOTTOM)	
22.5						
23.5	16 / 21 / 23	44		9	BN. SLI. SI. TO SI. F SAND	
25.0						
26.0	10 / 7 / 6	13		10	MOTTLED SA. CLAY	
27.5						
28.5	6 / 6 / 5	11		11	LT. BN/MOTTLED SI. F. SAND W/ SMALL SEAMS of MOTTLED SA. CLAY	
30.0						

BAGS CEMENT/BENTONITE: _____

T.O.B. DEPTH: _____ L.O.C.: _____ GROUTED BOREHOLE: _____

K:\DRAW\SPT-LOG SHEET REV 10-11-07.dwg, Model

MEI PROJECT NO.: _____

PROJECT NAME: PASCO COUNTY LANDFILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY: ES / CR START DATE: 3-23-10

LOGGED BY: TRF END DATE: _____

BORING NUMBER: 2MW24D

GROUND ELEVATION AT STAKE: _____

OFFSET DISTANCE AND DIRECTION FROM STAKE: _____

CHANGE IN GROUND ELEVATION: _____

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED ____ HRS.

MEI MORTENSEN ENGINEERING, INC. SPT LOG

DEPTH	N PER 6"	N ASTM	N CONT'S	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
31.0	5/3			12	F. LAM, INTERBEDDED SI. F. SAND AND MOTTLED SA. CLAY	
32.5	2/	5				← ABRUPT 100% L.O.C. @ 32.5'
33.5	12/	19				- SET 35' OF 3" CASING TO 33.5'
35.0	10/9			13	HIGHLY WEATHERED LS	Deep - 100% L.O.C. again at bottom of casing
36.0	5/3	7		14	HIGHLY WEATHERED LS w/some pockets of CLAY	
37.5	4/					← Set 5' more casing to 38.5' — Still Losing 50-60% Below CASING bottom
38.5	9/					
40.0	5/2	7		15	HIGHLY WEATHERED LS	
41.0	9/9	18		16	HIGHLY WEATHERED LS	
42.5	9/					← Regained some circ during 41.0 - 43.5' run Losing only 30% ±
43.5	7/	12		17	HIGHLY WEATHERED LS	
45.0	7/5					
46.0	19/10			18	HIGHLY WEATHERED LS	← LOST 100% again @ 46.0'
47.5	11/	21				← Regained 50% again @ 47.5'
48.5	5/6	17		19	HIGHLY WEATHERED LS	← 100% L.O.C. after the spoon
50.0	11					
					T.O.B. 50.0' GROUTED HOLE	

T.O.B. DEPTH: _____ L.O.C.: _____

BAGS CEMENT/BENTONITE: _____

GROUTED BOREHOLE: _____

2MW-25D

0 – 13.5 FINE SAND
13.5 – 17 SANDY CLAY
17 – 26 WEATHERED LS
26 – 26.5 CLAY
26.5 – 27 WEATHERED LS
27 – 28.5 SAND/CLAY
28.5 – 37.5 WEATHERED LS

MEI PROJECT NO.: _____

PROJECT NAME: PASCO COUNTY LANDFILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY: ES/CR START DATE: 3-25-10

LOGGED BY: TRF END DATE: _____

BORING NUMBER: 2MW25D

GROUND ELEVATION AT STAKE: 45.00

OFFSET DISTANCE AND DIRECTION FROM STAKE: DRILLED AT STAKE

CHANGE IN GROUND ELEVATION: 6"-8" LOWER AFTER SLOPE WAS CUT

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED ____ HRS.

MEI MORTENSEN ENGINEERING, INC. SPT LOG

DEPTH	N PER 6"	N ASTM	N CONT'S	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
0.0					F. LAM. / MOTTLED FILL SAND (0.0	
3.5	16 / 16 / 19	35		1	F. LAMINATED LT. BN, BN AND DK. BN. F. SAND FILL	
5.0						
6.0	7 / 9 / 10	19		2	LT. BN. F. SAND	
7.5						
8.5	9 / 14 / 19	33		3	LT. BN. TO WHITE F. SAND	
10.0						
11.0	14 / 22 / 23	45		4	LT. BN. TO WHITE F. SAND	
12.5						
13.5	6 / 6 / 8	14		5	MOTTLED SANDY CLAY	H_2O dropped in hole when sample # 6 was pulled out
15.0						
16.0	5 / 6 / 50	56		6	5-6-50 FOR 6" GN-GY/MOTTLED CLAY (TOP 1.0) --- 6A WEATHERED LIMESTONE (BOTTOM) --- 6B	
17.5						
18.5	8 / 9 / 13	22		7	HIGHLY WEATHERED LIMESTONE	← SET 20' OF CASING TO 18.5' BGS
20.0						← ABRUPT 100% L.O.C. AT 20.0'
21.0	10 / 20 / 14	34		8	HIGHLY WEATHERED LIMESTONE	
22.5						
23.5	5 / 17 / 29	46		9	HIGHLY WEATHERED LIMESTONE	
25.0						
26.0	5 / 4 / 3	7		10	MOTTLED CLAY (TOP 0.4) HIGHLY WEATHERED LIMESTONE (Middle 0.5) --- 10A WHITE F. SAND (Bottom) --- 10B	
27.5						← DRILLED LIKE SAND OR CLAY 27.5-28.5
28.5	6 / 9 / 19	28		11	TRACE OF SAND (TOP) MOTTLED CLAY (Middle 0.1) HIGHLY WEATHERED LIMESTONE (BOTTOM)	
30.0						

BAGS CEMENT/BENTONITE: _____

T.O.B. DEPTH: _____ L.O.C.: _____ GROUTED BOREHOLE: _____

K:\DRAW\SPT-LOG SHEET REV 10-13-07.dwg, Model

MEI PROJECT NO.: _____

PROJECT NAME: PASCO COUNTY LAND FILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY: ES/CR START DATE: 3-25-10

LOGGED BY: TRE END DATE: _____

BORING NUMBER: 2MW25D

GROUND ELEVATION AT STAKE: _____

OFFSET DISTANCE AND DIRECTION FROM STAKE: _____

CHANGE IN GROUND ELEVATION: _____

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED ____ HRS.

MEI MORTENSEN ENGINEERING, INC. SPT LOG

DEPTH	N PER 6"	N ASTM	N CONT'S	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
31.0	31/33	46		12	HIGHLY WEATHERED LIMESTONE	
32.5	13					
33.5	7/9	17		13	HIGHLY WEATHERED LIMESTONE	
35.0	8					
36.0	11/9	22		14	HIGHLY WEATHERED LIMESTONE	
37.5	13				T.O.B. 37.5'	
					GROUTED HOLE	

T.O.B. DEPTH: _____ L.O.C.: _____

BAGS CEMENT/BENTONITE: _____

GROUTED BOREHOLE: _____

2MW-26

0 - 19.5	FINE SAND
19.5 - 31	SANDY CLAY
31 - 38.5	FINE SAND
38.5 - 41	SANDY CLAY
41 - 43	FINE SAND
43 - 55	WEATHERED LS

MEI PROJECT NO.: _____

PROJECT NAME: PASCO COUNTY LANDFILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY: ES/CR START DATE: 3-24-10

LOGGED BY: TRF END DATE: _____

BORING NUMBER: 2MW26D

GROUND ELEVATION AT STAKE: 47.00'

OFFSET DISTANCE AND DIRECTION FROM STAKE: DRILLED AT STAKE

CHANGE IN GROUND ELEVATION: _____

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED ____ HRS.

MEI MORTENSEN ENGINEERING, INC. SPT LOG

DEPTH	N PER 6"	N ASTM	N CONTS	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
					- GY. TO BN-GY. F SAND (0.0-0.5)	
					- LT. BN. F SAND (0.5 —	
3.5	3/4/4	8		1	LT. BN. F SAND	
5.0						
6.0	3/4/5	9		2	LT. BN. F. SAND	
7.5						
8.5	4/5/8	13		3	LT. BN. F. SAND	
10.0						
11.0	5/8/8	16		4	WHITE F. SAND	
12.5						
13.5	8/9/11	20		5	WHITE F. SAND	
15.0						
16.0	7/8/8	16		6	BN/MOTTLED SI. TO SLI. CL. F SAND	
17.5						
18.5	9/7/5	12		7	- BN/MOTTLED SLI. SI. TO SI. F SAND (TOP 0.5) - BN-GY. CL. F SAND (Middle 0.3) - GN-GY/MOTTLED SA. CLAY (BOTTOM)	
20.0						
21.0	5/5/7	12		8	MOTTLED SANDY CLAY	
22.5						← SET 25' of 3" FJ CASING TO 23.5' BGS
23.5	4/3/5	8		9	GN-GY/MOTTLED SA. CLAY	
25.0						
26.0	2/3/4	7		10	GN-GY/MOTTLED SA. CLAY	
27.5						
28.5	3/3/8	11		11	GN-GY/MOTTLED SA. CLAY w/ some seams of SI. F. SAND IN bottom 0.5' of sample	
30.0						

T.O.B. DEPTH: _____ L.O.C.: _____

BAGS CEMENT/BENTONITE: _____

GROUTED BOREHOLE: _____

MEI PROJECT NO.: _____

PROJECT NAME: PASCO COUNTY LANDFILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY: ES/CR START DATE: 3-24-10

LOGGED BY: TRF END DATE: _____

BORING NUMBER: 2MW26D

GROUND ELEVATION AT STAKE: _____

OFFSET DISTANCE AND DIRECTION FROM STAKE: _____

CHANGE IN GROUND ELEVATION: _____

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED ____ HRS.

MEI MORTENSEN ENGINEERING, INC. SPT LOG

DEPTH	N PER 6"	N ASTM	N CONT'S	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
31.0	7/11			12	INTERBEDDED/F.LAM. CLAY - CLAYEY SAND - SILTY SAND - AND F. SAND	
32.5	11	22				
33.5	7					
	8/13	21		13	same as # 12 - thicker sand seams	
35.0						
36.0	12/13			14	LT. BN. TO BN. F. SAND - SLI. SI. F SAND w/ some small seams of MOTTLED CLAY	
37.5	27	40				
38.5	5					
	8/17	25		15	MOTTLED SA-CLAY w/ some thin sand seams	
40.0						
41.0	6/5	11		16	SI. F. SAND w/ some CLAY seams and tr. of WEA. LIMESTONE IN TIP of spoon	← STIFFENED w/ CHATTER AT 43.0'
42.5	6					
43.5	15					
	9/10	19		17	HIGHLY WEATHERED LS	Began to Lose some circulation (50% ±) AT 45.5'
45.0						
46.0	6/6			18	HIGHLY WEATHERED LS	
47.5	7	13				← 100% L.O.C. AT 48.5'
48.5	0				W.O.R. 48.5 - 49.2'	
	10/20	30		19	HIGHLY WEATHERED LS	
50.5	21					
51.0	24/50			20	24-50 FOR 6" HIGHLY WEATHERED LS	
52.0		-				
53.5	10					
	10/12	22		21	HIGHLY WEATHERED LS	
55.0						
					T.O.B. 55.0' GROUTED HOLE	

T.O.B. DEPTH: _____ L.O.C.: _____

BAGS CEMENT/BENTONITE: _____

GROUTED BOREHOLE: _____

K:\DRAW\SPT-LOG SHEET REV 10-11-07.dwg, Model

Morris, John R.

From: Morris, John R.
Sent: Monday, March 22, 2010 1:25 PM
To: Candia Mulhern (cmulhern@pascocountyfl.net)
Cc: Pelz, Susan
Subject: FW: Proposed MWs associated with MW-27 Location @ West Pasco Class I LF

Candia:

Last Friday I sent a response to the folks at CDM regarding proposed revisions to the new background wells to be installed as part of the construction of new Cell A-4 at the West Pasco Class I landfill. I should have copied you on the response to keep you in the loop as they indicated their schedule for well installation was planned to start on Tuesday this week.

Please contact me if you have questions about this message.

John

****

John R. Morris, P.G.
FDEP SW District Office, Solid Waste Section
13051 N. Telecom Pkwy.
Temple Terrace, FL 33637-0926.

Telephone: 813-632-7600, ext. 336
E-mail: john.r.morris@dep.state.fl.us

From: Morris, John R.
Sent: Friday, March 19, 2010 5:01 PM
To: 'Rojas, David'
Cc: Beeson, William; Sonawane, Aamod; McHugh, John; Pelz, Susan; Morgan, Steve; John Power (jpower@pascocountyfl.net)
Subject: RE: Proposed MWs associated with MW-27 Location @ West Pasco Class I LF

Dave:

My comments regarding your proposed changes to the background wells follow:

- 2MW-27S: no objection to installing the10-foot well screen at a depth of 8-18 ft bls [previously indicated to be 6-16 ft BLS as shown on Figure 6A of the "Water Quality Monitoring Plan for the West Pasco County Class I Landfill," prepared by CDM, dated December 2008] based on the Mortensen Engineering soil boring

- 2MW-27D: no objection to installing the 15-foot well screen at a depth of 27-42 ft bls [previously indicated to be 26-41 ft BLS as shown on Figure 6B of the "Water Quality Monitoring Plan for the West Pasco County Class I Landfill," prepared by CDM, dated December 2008] based on the Mortensen Engineering soil boring.

- Please note that in the event the "limestone seams" described for the 24-40.5 ft bls interval are not productive, or if well 2MW-27D does not produce sufficient water to allow sample collection during dry season conditions, or if well 2MW-27D does not produce a representative ground water sample [e.g., elevated turbidity that does not meet the purging criterion in DEP SOP FS 2200], a deeper, replacement well shall be required. Based on the rationale presented in ¶4 of Section 2.1.4 of the "Water Quality Monitoring Plan for the West Pasco County Class I Landfill," prepared by CDM, dated December 2008: "if the top of the competent limestone of the Upper Floridan Aquifer is encountered at a depth below 27 ft bls or 21 ft NGVD, the well will be constructed with a 10-foot screened interval that extends from approximately 3 feet to 13 feet below the top of the competent limestone unit." If a deeper well is required at the location of 2MW-27D, the depth of the screened interval and the length of screen will need to be evaluated prior to its installation.

- 4MW-27: the 10-foot open hole interval at a depth of 67-77 ft bls appears to be consistent with ¶5 of Section 2.1.4 and Figure 6C of the Water Quality Monitoring Plan for the West Pasco County Class I Landfill," prepared by CDM, dated December 2008.

- 4MW-27D: the 10-foot open hole interval at a depth of 146-156 ft bls appears to be consistent with ¶5 of Section 2.1.4 of the Water Quality Monitoring Plan for the West Pasco County Class I Landfill," prepared by CDM, dated December 2008, however Figure 6D of the same document appears to provide well construction details identical to Figure 6C. Please submit

a replacement Figure 6D that shows an open hole interval consistent with the description provided for well 4MW-27D in Section 2.1.4.

Please contact me if you have questions regarding these comments.

John

****
John R. Morris, P.G.
FDEP SW District Office, Solid Waste Section
13051 N. Telecom Pkwy.
Temple Terrace, FL 33637-0926.

Telephone: 813-632-7600, ext. 336
E-mail: john.r.morris@dep.state.fl.us

From: Rojas, David [mailto:RojasDR@CDM.com]
Sent: Friday, March 19, 2010 12:38 PM
To: Morris, John R.
Cc: Beeson, William; Sonawane, Aamod; McHugh, John
Subject: Proposed MWs associated with MW-27 Location @ West Pasco Class I LF

Mr. Morris,

As we discussed yesterday, the following are proposed construction details regarding the four background monitor wells to be installed at the West Pasco County Class I Landfill south of the footprint of Cell A-4 which is currently under construction. The original proposed well construction details were presented in the December 2008 Water Quality Monitoring Plan, but we are proposing slight modifications based on a test boring that was advanced near the 4MW-27D location. I have included the boring log generated by Cary Richardson of Mortensen Engineering for the test boring.

MWs ASSOCIATED WITH MW-27 LOCATION

- Based on the lithologies identified in the test boring advanced by Mortensen ~3' south of proposed location 4MW-27D on February 11, 2010 using mud rotary:

o CDM proposes that 2MW-27S be constructed with a 10' screen from 8'-18' bls. This will screen the base of the shallow sands and into the confining unit between the shallow sands and the weathered limestone and will more than likely be dry.

o CDM proposes to FDEP that 2MW-27D be constructed with a 15' screen from 27'-42' bls and a bentonite seal from 21'-23' bls. Based on historical water levels in surrounding monitor wells, it is expected that the water level (piezometric surface) in this well will be ~18' bls. Although the top of the consistent limestone as identified in Mortensen's log appears to be at 40.5' bls, there are interbedded limestone units within the interval from 24' – 40.5' bls. My interpretation when describing the split-spoon samples was that there was significantly more limestone (approximately a total of 6') in the interval from 24' – 40.5' bls and that the "limestone seams" increased in frequency and thickness within this interval. Because we expect the piezometric surface to be approximately 18' bls and because there are significant limestone and sand units within the interval from 25' – 40' bls that are expected to be water producing, the proposed screen interval for this well will include both the interbedded limestone units and the top of the consistent limestone. The screen of 2MW-27D will not penetrate the confining unit between the surficial materials and the carbonate units as the

confining unit between them consists of clay material from 14.5′ to 24.5′ bls which includes a stiff clay from 17.5′ to 20′ bls.

- The construction of the 4MW-27 & 4MW-27D monitor wells is based primarily on elevation (so they monitor the same depths as wells being abandoned in Cell A-4) as stipulated in the December 2008 Water Quality Monitoring Plan. These wells will be installed with 10′ openhole intervals from 67-77′ bls and 146′ – 156′ bls, respectively.

Please indicate your concurrence with this well construction approach by replying via e-mail to both William "Trey" Beeson, Aamod Sonawane, and me.

<<MW-27 Test Boring Log - Mortensen.pdf>>

David R. Rojas, P.G.

Environmental Scientist/Geologist

CDM

1715 N. Westshore Blvd. Suite 875

Tampa, Florida 33607

Office - 813 281-2900

Direct - 813 262-8857

Fax - 813 288-8787

Cell - 813 951-6717

General 45799

CDM

Dept. of Environmental Protection

Pasco County Utilities

FEB 12 2010

Southwest District

West Pasco Class I Landfill
Solid Waste Cells SW-1 and SW-2
Revised NMOC Emission Rate Report
Power Plant Certification No. PA87-23

14230 Hays Road
Spring Hill, Pasco County, Florida

January 2010

Prepared for:
Pasco County Utilities
7530 Little Road
New Port Richey, FL 34654

Prepared by:
Camp Dresser & McKee Inc.
1715 North Westshore Blvd., Suite 875
Tampa, Florida 33607

RAJENDRA D VAIDYA LICENSE No 70770 STATE OF FLORIDA PROFESSIONAL ENGINEER

Rajendra D. Vaidya, Ph.D., P.E.
Florida-Registered
Professional Engineer No. 70770

CDM

INSERTED INTO OCULUS
417052
APR 05 2010
INITIAL

CDM
1715 North Westshore Boulevard, Suite 875
Tampa, Florida 33607
tel: 813 281-2900
fax: 813 288-8787

January 28, 2010

Mr. John Power
Solid Waste Department Operations Manager
Pasco County
14230 Hayes Road
Spring Hill, FL

Subject: West Pasco Class I Landfill-Revised NMOC Emission Rate Report
Power Plant Certification No. PA87-23

Dear Mr. Power:

Camp Dresser & McKee Inc. (CDM) is pleased to provide you with the results of Tier 2 testing conducted at the West Pasco Class I Landfill (Landfill) located at Pasco County Resource Recovery Facility in Spring Hill, Florida during December 2009. The testing obtained landfill gas samples from the two solid waste cells SW-1 and SW-2 (approximately 20 acres or 8 hectares). The results of this testing were used to calculate a site-specific non-methane organic compound (NMOC) concentration, and a revised NMOC emission rate for the Landfill. The results indicate that NMOC emissions from these cells have not yet exceeded the 50 Megagram per year (Mg/yr) limit established by 40 CFR 60 Subpart WWW; which would have required the installation of a gas collection and control system. Using the results from the Tier 2 sampling, the calculated NMOC emissions at end of 2009 are about 0.48 Mg/yr. The United States Environmental Protection Agency (USEPA) requires an NMOC concentration of 4000 parts per million by volume (ppmv) as a default value for modeling, but the Tier 2 sampling showed that the actual NMOC emissions from these cells is 35.6 ppmv.

CDM conducted the Tier 2 sampling from December 1 through December 2, 2009 collecting landfill gas samples from a total of 21 locations across SW-1 and SW-2. To obtain a good representation of the landfill gas, and to ensure that all of the accessible areas in these cells were sampled, the locations of sampling gas probes were spread across the cell areas. Generally, the probes are driven into the landfill surface using a geoprobe machine that inserts a ¾ inch solid steel probe into the landfill at least one meter (approximately 3 feet) into the trash. The probe is then removed and another hollow probe is inserted and tubing threaded through the hollow rod. The top of the hole is sealed with hydrated bentonite, and the tubing is attached to the Landtec GEM 500 landfill gas analyzer to determine landfill gas quality levels. If the levels are deemed acceptable, a sampling train that includes a rotameter to measure flow is attached to the tubing, and the sampling train is purged with the landfill gas sample and sealed with a quick connect. The evacuated Summa canister is then attached

and sampling commenced. **Figure 1** illustrates how the sampling apparatus is set up. At a few sampling locations, the probes were not deep enough to obtain good gas readings. In these

instances the probes were driven deeper than three feet into the waste in an attempt to get better quality gas readings. There were three instances where the initial location chosen for sampling did not produce good gas quality despite deeper probe depth. In these few instances, the sampling location was moved approximately 20 to 30 feet away from the initial location in an effort to obtain better gas quality. Overall, the sampling was relatively easygoing in that no weather or landfill surface issues inhibited the sampling in any way.

Any known non-methane producing areas as well as steep slopes or the active working area of the cell SW-2 were not sampled. CDM collected samples from 21 different locations as shown on **Figure 2**. The testing protocol specified generating composite samples from the 21 locations, with no more than 3 sample locations represented in each composite. The criteria for compositing was in accordance with 40 CFR 60.754(a)(3) and Method 25C Section 8.4.1. The Tier 2 sampling protocol met the required two sample probes per hectare (i.e. 17 samples for 20 acre area) of landfill surface requirement. Of the 21 samples, 20 were grouped into 7 composites (6 composites of 3 samples each and 1 composite of 2 samples) and one separate location was used to obtain a duplicate sample. These 7 landfill gas composite canisters, one duplicate sample, and one canister used as a field blank for quality control, were shipped for analysis to Atmospheric Analysis & Consulting Inc. in Ventura, California. Of the total ten canisters shipped to the laboratory, two were intended for quality control purposes (duplicate: GP-10A and Field Blank: FB-1) and do not contribute to the calculated NMOC results. **Table 1** summarizes how the 21 sampling locations were composited into the sampling canisters.

Table 1 – Sample Locations Composited into Canisters

Sample Identification	Sample Locations Included in Composite
Composite #1	GP-1 GP-2 GP-3
Composite #2	GP-4 GP-5 GP-6
Composite #3	GP-7 GP-8 GP-9
GP-10	GP-10
GP-10A	GP-10
Composite #4	GP-11 GP-12 GP-13
Composite #5	GP-14 GP-15 GP-16
Composite #6	GP-17 GP-18 GP-19
Composite #7	GP-20 GP-21

Each canister sample was analyzed according to Method 3C for oxygen, nitrogen, methane, and carbon dioxide and according to Method 25C for NMOC (reported by the laboratory as non-methane hydrocarbons (NMHC) as methane). The laboratory results here are reported as per 40 CFR 60.754(a)(3), which states in part "divide the NMOC concentration from Method 25C of appendix A of this part by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane." CDM divided the methane-calibrated laboratory results for the samples (7 composites and two individual samples) by six to express the NMOC concentration as hexane (see **Table 2**).

CDM

Table 2 - Tier 2 Testing Results for Methods 25 C and 3C

Sample ID	NMHC as Methane (ppmv)	NMHC as Hexane (ppmv)	Oxygen (%)	Nitrogen (%)	Methane (%)	Carbon Dioxide (%)
Composite 1	81	13.5	5.6	20.2	45.6	28.6
Composite 2	78	13.0	0.2	1.5	64.4	33.8
Composite 3	113	18.8	0.4	1.9	58.7	39.0
Composite 4	212	35.3	0.1	0.7	56.5	42.6
Composite 5	200	33.3	0.2	1.4	55.0	43.3
Composite 6	616	102.6	1.8	7.0	52.9	38.3
Composite 7	202	33.7	0.3	1.6	57.7	40.4
GP - 10	77	12.8	0.1	0.8	62.8	36.2
GP-10 A	77	12.8	0.1	0.5	63.2	36.2

** NMHC is non-methane hydrocarbons as methane

CDM used this method to obtain the average site-specific NMOC concentration as 32.9 parts per million by volume (ppmv) from all samples. However, per Method 25C, Section 8.4.2, for the samples to be acceptable, they have to be less than 20% nitrogen or less than 5% oxygen. Sample ID Composite 1 containing gas probe locations 1, 2, and 3 had 20.2% nitrogen and 5.6% oxygen; hence these numbers are slightly above what the method requires. Averaging the results from the sampling without Composite 1, the NMOC concentration is slightly higher and is 35.6ppmv. Thus, the average NMOC concentration is not substantially different without Composite 1 for which the concentrations of nitrogen and oxygen are slightly above their requirements per Method 25C, so the 35.6 ppmv may be considered as a conservative estimate of an average NMOC value for the Landfill.

CDM

The United USEPA uses the Landfill Gas Generation Emissions Model (LandGEM) as a tool to calculate landfill gas generation. CDM performed these calculations in 2007 for Pasco County using default (Tier 1 per 40 CFR 60.754(a)(2)) values for methane generation rate decay constant (k), methane generation potential (Lo), and NMOC concentration. Using these default values, the results indicated that the NMOC emissions in 2006 were at approximately 38 Mg/Yr for waste placed through December 2005. Based on this Tier 1 modeling using LandGEM, CDM estimated that the landfill would likely exceed the 50 Mg/Yr threshold in 2007. These results for Tier 1 modeling for waste placed through December 23rd 2009 are presented in Appendix B. These results indicate that the landfill would likely have exceeded the 50 Mg/yr threshold in 2007, and is in agreement with the previous Tier 1 estimate.

Using the Tier 2 sampling results and excluding the sample that did not meet the criteria for oxygen and nitrogen, the NMOC concentration of 36 ppmv was used to revise the NMOC emission rate for the Landfill using the LandGEM model. The current site specific data shows the NMOC emission rate to be significantly below that estimated from the default modeling done in the Tier 1 analysis. The data presented in Appendix C for waste placed through December 23rd 2009, indicate that the predicted NMOC emission rate at the end of 2009 is about 0.48 Mg. Based on these results, no further action is required at this time by the Pasco County under 40 CFR 60 Subpart WWW with regard to installing a landfill gas collection and control system. In accordance with 40 CFR 60.754(a)(3)(iii), it will be necessary for the County to retest the site-specific NMOC concentration every five years in order to determine if the exempt status can be maintained, particularly if more waste is placed within the landfill during this time. In accordance with 40 CFR 60.757(b)(1), Pasco County is required to submit an annual NMOC emission estimate to FDEP until such time as the NMOC emission rate exceeds 50 Mg/Yr. The annual NMOC emission report must be based on the actual waste disposal information for the subject year and the site specific NMOC concentration of 36 ppmv as hexane. CDM suggests submitting this annual report by March 1 of each year, so that the end of calendar year tonnages can be incorporated into the report.

CDM

CDM is submitting four copies of original reports to the County. Please forward one signed and sealed original to each of the two FDEP sections listed below. If you have any questions or comments regarding this letter or the data presented herein, please call me at (813) 281-2900.

Sincerely,

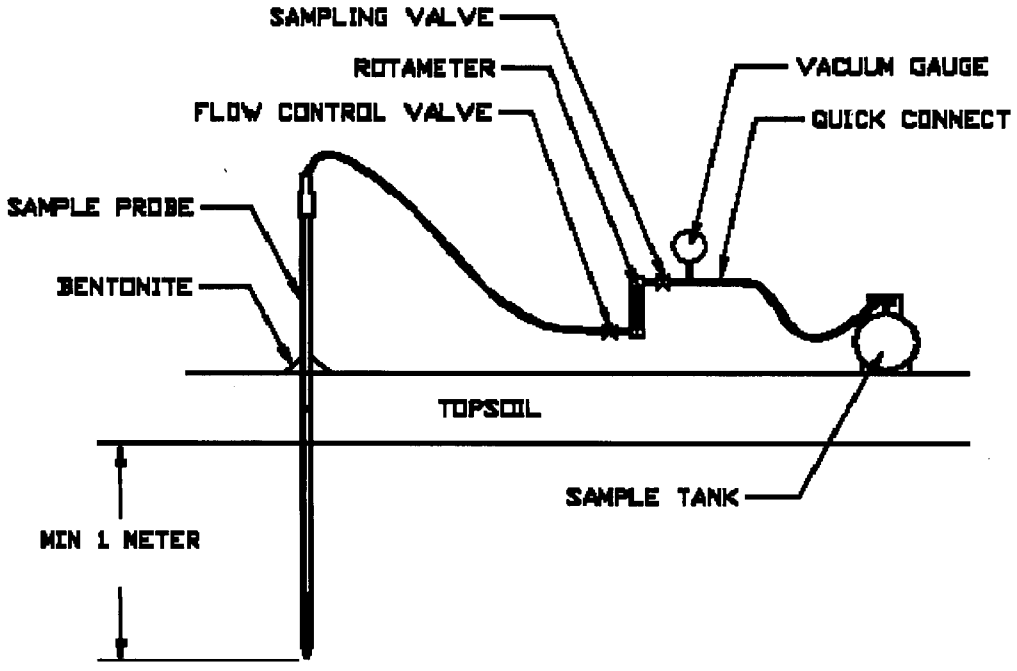
Rajendra Vaidya, Ph.D., P.E.
Environmental Engineer
Camp Dresser & McKee

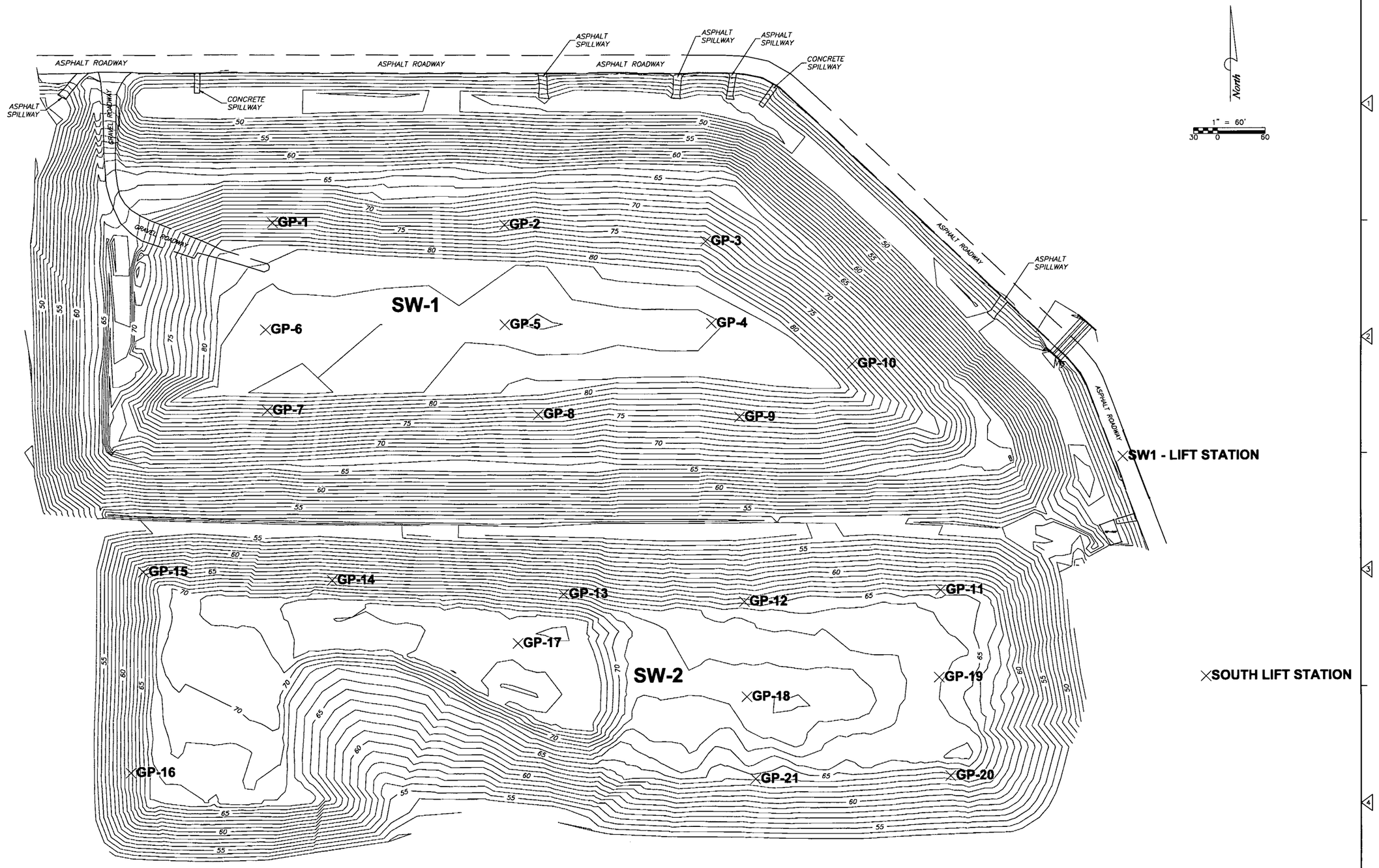
Enclosures

1) Division of Air Resource Management
   Florida Department of Environmental Protection
   Southwest District Office
   13051 N. Telecom Parkway
   Temple Terrace, Florida 33637
2) Ms. Susan Pelz, P.E.
   Solid Waste Section
   Florida Department of Environmental Protection
   Southwest District Office
   13051 N. Telecom Parkway
   Temple Terrace, Florida 33637

cc: Aamod Sonawane, CDM
Therese Schaffer, CDM (email copy only)

Figure 1 Schematic of Sampling Probe and Canister





REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: D. HIGHTOWER
DRAWN BY: B. GROTHPIETZ
SHEET CHK'D BY: D. HIGHTOWER
CROSS CHK'D BY:
APPROVED BY:
DATE: JANUARY 2010

CDM
Camp Dresser & McKee
1601 Belvedere Road, Suite 400 East
West Palm Beach, FL 33406
Tel: (561) 689-3336
consulting • engineering • construction • operations

WEST PASCO COUNTY

WEST PASCO COUNTY LANDFILL

TIER 2 TESTING SAMPLING LOCATIONS
SOLID WASTE CELLS SW-1 AND SW-2

PROJECT NO. 6104-74351
FILE NAME: Pasco Tier 2 gpa probes.dwg
SHEET NO.
FIGURE 2

Appendix A
Atmospheric Analysis and Consulting Inc. Report

Atmospheric Analysis & Consulting, Inc.

CLIENT : CDM
PROJECT NAME : PASCO TIER 2 STUDY
AAC PROJECT NO. : 090963
REPORT DATE : 12/04/2009

On December 3, 2009, Atmospheric Analysis & Consulting, Inc. received ten (10) Summa Canisters for non-methane organic compounds (NMOC) analysis by EPA 25C and Fixed Gases analysis by EPA 3C. Upon receipt the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab ID Number	Initial Pressure (mmHg)
COMPOSITE #1	090963-42253	372.3
COMPOSITE #2	090963-42254	391.8
COMPOSITE #3	090963-72255	399.5
GP-10	090963-72256	403.1
GP-10A	090963-72257	409.3
COMPOSITE #4	090963-72258	407.8
COMPOSITE #5	090963-72259	410.2
COMPOSITE #6	090963-72260	404.4
COMPOSITE #7	090963-72261	401.9
FB-1	090963-72262	0.6

EPA 3C - An aliquot of the gaseous sample is injected into the GC/TCD for analysis following EPA 3C as specified in the SOW. All samples were analyzed in duplicate.

EPA 25C Analysis - Up to a 1 mL aliquot of samples is injected into the GC/FID/TCA for analysis following EPA 25C as specified in the SOW. All samples were analyzed in triplicate.

No problems were encountered during receiving, preparation, and/ or analysis of this sample. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-EPA 25C and EPA 3C.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. Release of the data contained in this hardcopy data package and its electronic data deliverable submitted on diskette has been authorized by the Laboratory Director or his designee, as verified by the following signature.

If you have any questions or require further explanation of data results, please contact the undersigned.

Sucha S. Parmar, PhD
Technical Director

ACCREDITED IN ACCORDANCE WITH Certificate #E87837

This report consists of 8 pages.

1534 Eastman Ave., Ste. A • Ventura, • CA 93003 (805) 650-1642 • FAX (805) 650-1644 • www.aaclab.com

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

Client : CDM
Project No. : 090963
Matrix : Air
Units : %

Sampling Date : 12/01-02/2009
Receiving Date : 12/03/2009
Analysis Date : 12/03-04/2009
Report Date : 12/04/2009

EPA Method 3C

Detection Limit: 0.1 %		Analyte					
Client ID	AAC ID	Hydrogen	Oxygen	Nitrogen	CO	Methane	CO2
COMPOSITE #1	090963-42253	<PQL	5.6	20.2	<PQL	45.6	28.6
COMPOSITE #2	090963-42254	<PQL	0.2	1.5	<PQL	64.4	33.8
COMPOSITE #3	090963-42255	<PQL	0.4	1.9	<PQL	58.7	39.0
GP-10	090963-42256	<PQL	0.1	0.8	<PQL	62.8	36.2
GP-10A	090963-42257	<PQL	0.1	0.5	<PQL	63.2	36.2
COMPOSITE #4	090963-42258	<PQL	0.1	0.7	<PQL	56.5	42.6
COMPOSITE #5	090963-42259	<PQL	0.2	1.4	<PQL	55.0	43.3
COMPOSITE #6	090963-42260	<PQL	1.8	7.0	<PQL	52.9	38.3
COMPOSITE #7	090963-42261	<PQL	0.3	1.6	<PQL	57.7	40.4
FB-1	090963-42262	<PQL	<PQL	0.3	<PQL	<PQL	<PQL

Sucha Parmar, Ph.D.
Technical Director

1534 Eastman Avenue • Suite A • Ventura, California 93003 (805) 650-1642 • FAX (805) 650-1644

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

Client : CDM
Project No. : 090963
Matrix : Air
Units : ppmv

Sampling Date : 12/01-02/2009
Receiving Date : 12/03/2009
Analysis Date : 12/03-04/2009
Report Date : 12/04/2009

EPA Method 25C

Detection Limit:		0.3 ppmv
Client Sample ID	**AAC ID**	**NMHC****
COMPOSITE #1	090963-42253	81
COMPOSITE #2	090963-42254	78
COMPOSITE #3	090963-42255	113
GP-10	090963-42256	77
GP-10A	090963-42257	77
COMPOSITE #4	090963-42258	212
COMPOSITE #5	090963-42259	200
COMPOSITE #6	090963-42260	616
COMPOSITE #7	090963-42261	202
FB-1	090963-42262	<PQL

****Non-Methane Hydrocarbons as methane**

Dr. Sucha Parmar
Technical Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed : 12/03/2009
Analyst : DN
Units : %

Instrument ID : TCD#5
Calb Date : 05/07/09
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - EPA Method 3C

AAC ID	Analyte	H_2	O_2	N_2	CO	CH_4	CO_2
CCV	Spike Conc	20.0	5.25	20.0	20.0	20.0	20.0
	Result	20.3	4.80	18.65	19.15	18.97	19.10
	% Rec *	101.4	91.5	93.2	95.8	94.9	95.5

II - Method Blank-EPA Method 3C

AAC ID	Analyte	Hydrogen	Oxygen	Nitrogen	CO	Methane	CO_2
MB	Concentration	ND	ND	ND	ND	ND	ND

III-Laboratory Control Spike & Duplicate - EPA Method 3C

AAC ID	Analyte	H_2	N_2	CO	CH_4	CO_2
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0
	Spike Conc	20.0	20.0	20.0	20.0	20.0
	LCS Result	19.3	20.1	18.0	17.8	18.0
	LCSD Result	19.0	19.9	17.8	17.6	17.7
	LCS % Rec *	96.7	100.4	90.1	88.8	89.9
	LCSD % Rec *	94.8	99.5	88.9	88.0	88.5
	% RPD ***	1.9	0.9	1.3	1.0	1.5

IV-Sample & Sample Duplicate - EPA Method 3C

AAC ID	Analyte	H_2	O_2	N_2	CO	CH_4	CO_2
090963-42253	Sample	0.00	2.20	7.92	0.00	17.35	10.86
	Sample Dup	0.00	2.08	7.39	0.00	17.30	10.83
	Mean	0.00	2.14	7.7	0.00	17.33	10.84
	% RPD ***	0.00	5.46	6.92	0.00	0.29	0.32

V-Matrix Spike & Duplicate- EPA Method 3C

AAC ID	Analyte	H_2	N_2	CO	CH_4	CO_2
090963-42253	Sample Conc	0.0	3.8	0.0	8.7	5.4
	Spike Conc	10.0	10.0	10.0	10.0	10.0
	MS Result	10.1	14.1	9.2	17.6	14.5
	MSD Result	10.1	13.8	9.4	17.2	14.2
	MS % Rec **	101.3	103.1	92.4	89.5	91.0
	MSD % Rec **	100.8	99.7	93.9	85.3	87.8
	% RPD ***	0.5	3.4	1.6	4.8	3.6

VI - Closing Continuing Calibration Verification - EPA Method 3C

AAC ID	Analyte	H_2	O_2	N_2	CO	CH_4	CO_2
CCV	Spike Conc	20.0	5.25	20.0	20.0	20.0	20.0
	Result	18.8	5.46	19.72	17.46	17.75	17.85
	% Rec *	93.8	104.0	98.6	87.3	88.7	89.2

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*
ND = Not Detected
<RL = less than Reporting Limit

Sucha S. Parmar, Ph.D
Technical Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed : 12/04/2009
Analyst : DN
Units : %

Instrument ID : TCD#5
Calb Date : 05/07/09
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - EPA Method 3C

AAC ID	Analyte	H_2	O_2	N_2	CO	CH_4	CO_2
CCV	Spike Conc	20.0	5.25	20.0	20.0	20.0	20.0
	Result	19.4	4.93	19.11	18.14	17.93	18.08
	% Rec *	97.0	93.8	95.6	90.7	89.6	90.4

II - Method Blank-EPA Method 3C

AAC ID	Analyte	Hydrogen	Oxygen	Nitrogen	CO	Methane	CO_2
MB	Concentration	ND	ND	ND	ND	ND	ND

III-Laboratory Control Spike & Duplicate - EPA Method 3C

AAC ID	Analyte	H_2	N_2	CO	CH_4	CO_2
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0
	Spike Conc	20.0	20.0	20.0	20.0	20.0
	LCS Result	19.6	20.4	18.3	18.7	18.8
	LCSD Result	19.7	20.1	18.3	18.4	18.6
	LCS % Rec *	97.9	101.9	91.4	93.4	93.8
	LCSD % Rec *	98.6	100.3	91.7	91.9	92.8
	% RPD ***	0.7	1.6	0.3	1.6	1.1

IV-Sample & Sample Duplicate - EPA Method 3C

AAC ID	Analyte	H_2	O_2	N_2	CO	CH_4	CO_2
090963-42260	Sample	0.00	0.77	2.96	0.00	21.27	15.41
	Sample Dup	0.00	0.72	2.67	0.00	21.55	15.61
	Mean	0.00	0.74	2.8	0.00	21.41	15.51
	% RPD ***	0.00	6.62	10.22	0.00	1.30	1.27

V-Matrix Spike & Duplicate- EPA Method 3C

AAC ID	Analyte	H_2	N_2	CO	CH_4	CO_2
090963-42260	Sample Conc	0.0	1.4	0.0	10.7	7.8
	Spike Conc	10.0	10.0	10.0	10.0	10.0
	MS Result	9.9	11.5	9.2	19.0	16.2
	MSD Result	10.2	10.9	9.3	20.4	17.2
	MS % Rec **	98.6	100.7	92.0	82.6	84.9
	MSD % Rec **	101.7	94.9	93.2	97.1	94.0
	% RPD ***	3.1	5.9	1.2	16.2	10.1

VI - Closing Continuing Calibration Verification - EPA Method 3C

AAC ID	Analyte	H_2	O_2	N_2	CO	CH_4	CO_2
CCV	Spike Conc	20.0	5.25	20.0	20.0	20.0	20.0
	Result	19.2	5.13	20.02	17.99	17.51	17.65
	% Rec *	95.9	97.8	100.1	89.9	87.6	88.2

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*
ND = Not Detected
<RL = less than Reporting Limit

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Analysis Date: 12/3/2009
Analyst: DN
Units: ppmv

Instrument ID: FID#9
Calibration Date: 1/18/2008

I - Opening Calibration Verification Standard - Method 25C

Analyte	xCF	dCF	%RPD*
CO	11713	10653	9.5
CH4	11996	11456	4.6
CO2	11842	10686	10.3
Propane	33025	29836	10.1

II - Method Blank - Method 25C

AAC ID	Analyte	Sample Result
MB	TNMOC	ND

III - Laboratory Control Spike & Duplicate - Method 25C

AAC ID	Analyte	Spike Added	LCS Result	LCSD Result	LCS % Rec **	LCSD % Rec **	% RPD***
LCS/LCSD	TNMOC	50.0	46.3	46.4	92.7	92.8	0.1

IV - Closing Calibration Verification Standard - Method 25C

Analyte	xCF	dCF	%RPD*
CO	11713	11401	2.7
CH4	11996	12508	4.2
CO2	11842	11860	0.2
Propane	33025	32840	0.6

xCF - Average Calibration Factor from Initial Calibration Curve
dCF - Daily Calibration Factor
* Must be <15%
** Must be 90-110 %
*** Must be <20%

Marcus Hueppe
Laboratory Manager

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Analysis Date: 12/4/2009
Analyst: DN
Units: ppmv

Instrument ID: FID#9
Calibration Date: 1/18/2008

I - Opening Calibration Verification Standard - Method 25C

Analyte	xCF	dCF	%RPD*
CO	11713	10550	10.5
CH4	11996	11214	6.7
CO2	11842	10761	9.6
Propane	33025	30711	7.3

II - Method Blank - Method 25C

AAC ID	Analyte	Sample Result
MB	TNMOC	ND

III - Laboratory Control Spike & Duplicate - Method 25C

AAC ID	Analyte	Spike Added	LCS Result	LCSD Result	LCS % Rec **	LCSD % Rec **	% RPD***
LCS/LCSD	TNMOC	50.0	51.5	46.0	103.1	91.9	11.4

IV - Closing Calibration Verification Standard - Method 25C

Analyte	xCF	dCF	%RPD*
CO	11713	10892	7.3
CH4	11996	11724	2.3
CO2	11842	10872	8.5
Propane	33025	30617	7.6

xCF - Average Calibration Factor from Initial Calibration Curve
dCF - Daily Calibration Factor
* Must be <15%
** Must be 90-110 %
*** Must be <20%

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AAC Project No. 090963 Page 1 of 1

CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name: PASCO COUNTY
Project Name: PASCO TIER 2 STUDY
Project Mgr (Print Name): TERRI SCHAFFER
Project Number: 6104 - 62249 - TIER 2
Sampler's Name (Print Name): MIKE DOLAN / DAVE HIGHTOWER
Sampler's Signature:

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers	Analysis Requested: METHOD 25C	METHOD 3C			
COMPOSITE #1	12-1-09	11:30	SUMMA	GP-1, GP-2, GP-3	LANDFILL GAS / 1	X	X		422	53
COMPOSITE #2	"	13:15	"	GP-4, GP-5, GP-6	LFG / 1	"	"		422	54
COMPOSITE #3	"	14:30	"	GP-7, GP-8, GP-9	LFG / 1	"	"		422	55
GP-10	"	15:09	"	GP-10	LFG / 1	"	"		422	56
GP-10A	"	-	"	GP-10A	LFG / 1	"	"		422	57
COMPOSITE #4	↓	16:29	↓	GP-11, GP-12, GP-13	LFG / 1	"	"		422	58
COMPOSITE #5	12-2-09	8:54	SUMMA	GP-14, GP-15, GP-16	LFG / 1	"	"		422	59
COMPOSITE #6	"	9:45	"	GP-17, GP-18, GP-19	LFG / 1	"	"		422	60
COMPOSITE #7	"	10:17	"	GP-20, GP-21	LFG / 1	"	"		422	61
FB-1	↓	~~0930~~	↓	FB-1	- / 1	↓	↓		422	62

Send report:
Attn: TERRI SCHAFFER
50 HAMPSHIRE ST.
CAMBRIDGE, MA. 02139
Phone#: 617-452-6372
Fax# ↓ SAME

Send invoice to:
Attn: SAME AS ABOVE
P.O. #

Turnaround Time
24-Hr ____ 48-Hr ____
5 Day ____ Normal ✓
Other (Specify) ____

Special Instructions/remarks:
* PLEASE CALL T. SCHAFFER WITH ANY QUESTIONS.

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
	MICHAEL DOLAN	12-2-09 12:10		
Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
		12/3/2009 0955		Benjamin Wiffen

Appendix B

LandGEM Tier 1 Analysis (2007)

Summary Report

Landfill Name or Identifier: Pasco County - Spring Hill, Florida

Date: Monday, January 11, 2010

Description/Comments:

About LandGEM:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} kL_o \left(\frac{M_i}{10} \right) e^{-kt_{ij}}$$

Q_{CH4} = annual methane generation in the year of the calculation (m^3/year)
i = 1-year time increment
n = (year of the calculation) - (initial year of waste acceptance)
j = 0.1-year time increment
k = methane generation rate ($year^{-1}$)
L_o = potential methane generation capacity (m^3/Mg)
M_i = mass of waste accepted in the i^{th} year (Mg)
t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (decimal years, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**1991**	
Landfill Closure Year (with 80-year limit)	**2010**	
Actual Closure Year (without limit)	***2010***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**839,360**	*short tons*

MODEL PARAMETERS

Methane Generation Rate, k	**0.050**	$year^{-1}$
Potential Methane Generation Capacity, L_o	**170**	m^3/Mg
NMOC Concentration	**4,000**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	**Total landfill gas**
Gas / Pollutant #2:	**NMOC**
Gas / Pollutant #3:	
Gas / Pollutant #4:	

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1991	3,547	3,902	0	0
1992	4,028	4,431	3,547	3,902
1993	1,595	1,755	7,575	8,333
1994	1,299	1,429	9,171	10,088
1995	6,443	7,087	10,470	11,517
1996	7,055	7,760	16,913	18,604
1997	7,035	7,738	23,967	26,364
1998	2,098	2,308	31,002	34,102
1999	18,851	20,736	33,100	36,410
2000	36,481	40,129	51,951	57,147
2001	16,297	17,926	88,432	97,275
2002	17,591	19,350	104,729	115,202
2003	1,700	1,870	122,320	134,552
2004	22,992	25,291	124,020	136,422
2005	43,754	48,129	147,012	161,713
2006	67,979	74,777	190,766	209,842
2007	27,569	30,325	258,745	284,619
2008	1,354	1,489	286,313	314,945
2009	5,809	6,390	287,667	316,434
2010	0	0	293,477	322,824
2011	0	0	293,477	322,824
2012	0	0	293,477	322,824
2013	0	0	293,477	322,824
2014	0	0	293,477	322,824
2015	0	0	293,477	322,824
2016	0	0	293,477	322,824
2017	0	0	293,477	322,824
2018	0	0	293,477	322,824
2019	0	0	293,477	322,824
2020	0	0	293,477	322,824
2021	0	0	293,477	322,824
2022	0	0	293,477	322,824
2023	0	0	293,477	322,824
2024	0	0	293,477	322,824
2025	0	0	293,477	322,824
2026	0	0	293,477	322,824
2027	0	0	293,477	322,824
2028	0	0	293,477	322,824
2029	0	0	293,477	322,824
2030	0	0	293,477	322,824

Pollutant Parameters

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

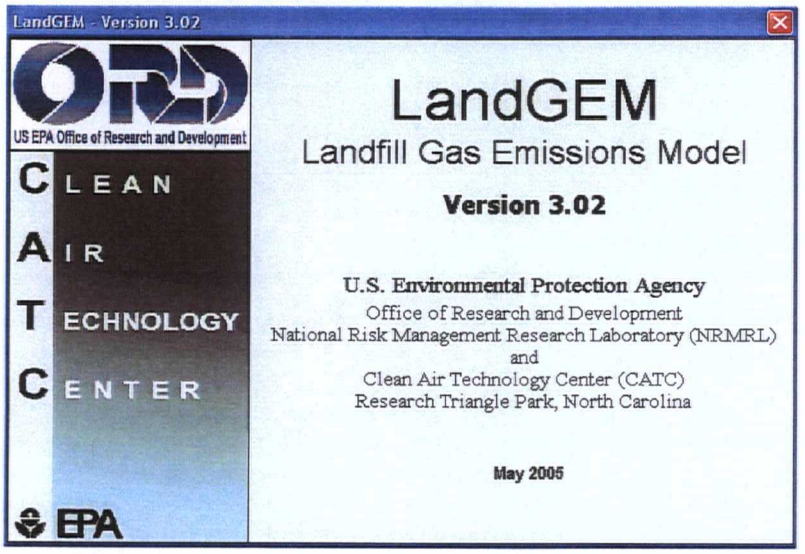
Pollutant Parameters (Continued)

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Results

Year	Total landfill gas			NMOC		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
1991	0	0	0	0	0	0
1992	7.364E+01	5.897E+04	3.962E+00	8.455E-01	2.359E+02	1.585E-02
1993	1.537E+02	1.231E+05	8.268E+00	1.764E+00	4.922E+02	3.307E-02
1994	1.793E+02	1.436E+05	9.647E+00	2.059E+00	5.743E+02	3.859E-02
1995	1.975E+02	1.582E+05	1.063E+01	2.268E+00	6.327E+02	4.251E-02
1996	3.216E+02	2.576E+05	1.731E+01	3.693E+00	1.030E+03	6.922E-02
1997	4.524E+02	3.623E+05	2.434E+01	5.194E+00	1.449E+03	9.736E-02
1998	5.764E+02	4.615E+05	3.101E+01	6.617E+00	1.846E+03	1.240E-01
1999	5.918E+02	4.739E+05	3.184E+01	6.795E+00	1.896E+03	1.274E-01
2000	9.543E+02	7.642E+05	5.134E+01	1.096E+01	3.057E+03	2.054E-01
2001	1.665E+03	1.333E+06	8.959E+01	1.912E+01	5.333E+03	3.583E-01
2002	1.922E+03	1.539E+06	1.034E+02	2.207E+01	6.157E+03	4.137E-01
2003	2.194E+03	1.757E+06	1.180E+02	2.519E+01	7.026E+03	4.721E-01
2004	2.122E+03	1.699E+06	1.142E+02	2.436E+01	6.797E+03	4.567E-01
2005	2.496E+03	1.999E+06	1.343E+02	2.865E+01	7.994E+03	5.371E-01
2006	3.282E+03	2.628E+06	1.766E+02	3.769E+01	1.051E+04	7.064E-01
2007	4.534E+03	3.630E+06	2.439E+02	5.205E+01	1.452E+04	9.757E-01
2008	4.885E+03	3.911E+06	2.628E+02	5.608E+01	1.565E+04	1.051E+00
2009	4.675E+03	3.743E+06	2.515E+02	5.367E+01	1.497E+04	1.006E+00
2010	4.567E+03	3.657E+06	2.457E+02	5.244E+01	1.463E+04	9.829E-01
2011	4.344E+03	3.479E+06	2.337E+02	4.988E+01	1.392E+04	9.350E-01
2012	4.133E+03	3.309E+06	2.223E+02	4.745E+01	1.324E+04	8.894E-01
2013	3.931E+03	3.148E+06	2.115E+02	4.513E+01	1.259E+04	8.460E-01
2014	3.739E+03	2.994E+06	2.012E+02	4.293E+01	1.198E+04	8.047E-01
2015	3.557E+03	2.848E+06	1.914E+02	4.084E+01	1.139E+04	7.655E-01
2016	3.383E+03	2.709E+06	1.820E+02	3.885E+01	1.084E+04	7.282E-01
2017	3.218E+03	2.577E+06	1.732E+02	3.695E+01	1.031E+04	6.926E-01
2018	3.062E+03	2.452E+06	1.647E+02	3.515E+01	9.806E+03	6.589E-01
2019	2.912E+03	2.332E+06	1.567E+02	3.344E+01	9.328E+03	6.267E-01
2020	2.770E+03	2.218E+06	1.490E+02	3.180E+01	8.873E+03	5.962E-01
2021	2.635E+03	2.110E+06	1.418E+02	3.025E+01	8.440E+03	5.671E-01
2022	2.507E+03	2.007E+06	1.349E+02	2.878E+01	8.029E+03	5.394E-01
2023	2.384E+03	1.909E+06	1.283E+02	2.737E+01	7.637E+03	5.131E-01
2024	2.268E+03	1.816E+06	1.220E+02	2.604E+01	7.265E+03	4.881E-01
2025	2.157E+03	1.728E+06	1.161E+02	2.477E+01	6.910E+03	4.643E-01
2026	2.052E+03	1.643E+06	1.104E+02	2.356E+01	6.573E+03	4.417E-01
2027	1.952E+03	1.563E+06	1.050E+02	2.241E+01	6.253E+03	4.201E-01
2028	1.857E+03	1.487E+06	9.991E+01	2.132E+01	5.948E+03	3.996E-01
2029	1.766E+03	1.414E+06	9.503E+01	2.028E+01	5.658E+03	3.801E-01
2030	1.680E+03	1.345E+06	9.040E+01	1.929E+01	5.382E+03	3.616E-01
2031	1.598E+03	1.280E+06	8.599E+01	1.835E+01	5.119E+03	3.440E-01
2032	1.520E+03	1.217E+06	8.180E+01	1.745E+01	4.870E+03	3.272E-01
2033	1.446E+03	1.158E+06	7.781E+01	1.660E+01	4.632E+03	3.112E-01
2034	1.376E+03	1.102E+06	7.401E+01	1.579E+01	4.406E+03	2.960E-01
2035	1.309E+03	1.048E+06	7.040E+01	1.502E+01	4.191E+03	2.816E-01
2036	1.245E+03	9.967E+05	6.697E+01	1.429E+01	3.987E+03	2.679E-01
2037	1.184E+03	9.481E+05	6.370E+01	1.359E+01	3.792E+03	2.548E-01
2038	1.126E+03	9.019E+05	6.060E+01	1.293E+01	3.607E+03	2.424E-01
2039	1.071E+03	8.579E+05	5.764E+01	1.230E+01	3.432E+03	2.306E-01
2040	1.019E+03	8.160E+05	5.483E+01	1.170E+01	3.264E+03	2.193E-01

Appendix C
LandGEM Tier 2 Analysis (2010)



Summary Report

Landfill Name or Identifier: Pasco County - Spring Hill, Florida

Date: Monday, January 11, 2010

Description/Comments:

About LandGEM:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} kL_o \left(\frac{M_i}{10}\right) e^{-kt_{ij}}$$

Q_{CH4} = annual methane generation in the year of the calculation (m^3/year)
i = 1-year time increment
n = (year of the calculation) - (initial year of waste acceptance)
j = 0.1-year time increment
k = methane generation rate ($year^{-1}$)
L_o = potential methane generation capacity (m^3/Mg)
M_i = mass of waste accepted in the i^{th} year (Mg)
t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (decimal years, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**1991**	
Landfill Closure Year (with 80-year limit)	**2010**	
Actual Closure Year (without limit)	***2010***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**839,360**	*short tons*

MODEL PARAMETERS

Methane Generation Rate, k	**0.050**	*year^{-1}*
Potential Methane Generation Capacity, L_o	**170**	*m^3/Mg*
NMOC Concentration	**36**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	**Total landfill gas**
Gas / Pollutant #2:	**NMOC**
Gas / Pollutant #3:	
Gas / Pollutant #4:	

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1991	3,547	3,902	0	0
1992	4,028	4,431	3,547	3,902
1993	1,595	1,755	7,575	8,333
1994	1,299	1,429	9,171	10,088
1995	6,443	7,087	10,470	11,517
1996	7,055	7,760	16,913	18,604
1997	7,035	7,738	23,967	26,364
1998	2,098	2,308	31,002	34,102
1999	18,851	20,736	33,100	36,410
2000	36,481	40,129	51,951	57,147
2001	16,297	17,926	88,432	97,275
2002	17,591	19,350	104,729	115,202
2003	1,700	1,870	122,320	134,552
2004	22,992	25,291	124,020	136,422
2005	43,754	48,129	147,012	161,713
2006	67,979	74,777	190,766	209,842
2007	27,569	30,325	258,745	284,619
2008	1,354	1,489	286,313	314,945
2009	5,809	6,390	287,667	316,434
2010	0	0	293,477	322,824
2011	0	0	293,477	322,824
2012	0	0	293,477	322,824
2013	0	0	293,477	322,824
2014	0	0	293,477	322,824
2015	0	0	293,477	322,824
2016	0	0	293,477	322,824
2017	0	0	293,477	322,824
2018	0	0	293,477	322,824
2019	0	0	293,477	322,824
2020	0	0	293,477	322,824
2021	0	0	293,477	322,824
2022	0	0	293,477	322,824
2023	0	0	293,477	322,824
2024	0	0	293,477	322,824
2025	0	0	293,477	322,824
2026	0	0	293,477	322,824
2027	0	0	293,477	322,824
2028	0	0	293,477	322,824
2029	0	0	293,477	322,824
2030	0	0	293,477	322,824

Pollutant Parameters

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

Pollutant Parameters (Continued)

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Results

Year	Total landfill gas			NMOC		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
1991	0	0	0	0	0	0
1992	7.364E+01	5.897E+04	3.962E+00	7.525E-03	2.099E+00	1.410E-04
1993	1.537E+02	1.231E+05	8.268E+00	1.570E-02	4.381E+00	2.943E-04
1994	1.793E+02	1.436E+05	9.647E+00	1.832E-02	5.111E+00	3.434E-04
1995	1.975E+02	1.582E+05	1.063E+01	2.018E-02	5.631E+00	3.783E-04
1996	3.216E+02	2.576E+05	1.731E+01	3.287E-02	9.169E+00	6.161E-04
1997	4.524E+02	3.623E+05	2.434E+01	4.623E-02	1.290E+01	8.665E-04
1998	5.764E+02	4.615E+05	3.101E+01	5.890E-02	1.643E+01	1.104E-03
1999	5.918E+02	4.739E+05	3.184E+01	6.047E-02	1.687E+01	1.134E-03
2000	9.543E+02	7.642E+05	5.134E+01	9.751E-02	2.720E+01	1.828E-03
2001	1.665E+03	1.333E+06	8.959E+01	1.701E-01	4.747E+01	3.189E-03
2002	1.922E+03	1.539E+06	1.034E+02	1.964E-01	5.480E+01	3.682E-03
2003	2.194E+03	1.757E+06	1.180E+02	2.242E-01	6.253E+01	4.202E-03
2004	2.122E+03	1.699E+06	1.142E+02	2.168E-01	6.049E+01	4.064E-03
2005	2.496E+03	1.999E+06	1.343E+02	2.550E-01	7.115E+01	4.780E-03
2006	3.282E+03	2.628E+06	1.766E+02	3.354E-01	9.357E+01	6.287E-03
2007	4.534E+03	3.630E+06	2.439E+02	4.632E-01	1.292E+02	8.683E-03
2008	4.885E+03	3.911E+06	2.628E+02	4.991E-01	1.392E+02	9.356E-03
2009	4.675E+03	3.743E+06	2.515E+02	4.777E-01	1.333E+02	8.954E-03
2010	4.567E+03	3.657E+06	2.457E+02	4.667E-01	1.302E+02	8.748E-03
2011	4.344E+03	3.479E+06	2.337E+02	4.439E-01	1.238E+02	8.321E-03
2012	4.133E+03	3.309E+06	2.223E+02	4.223E-01	1.178E+02	7.915E-03
2013	3.931E+03	3.148E+06	2.115E+02	4.017E-01	1.121E+02	7.529E-03
2014	3.739E+03	2.994E+06	2.012E+02	3.821E-01	1.066E+02	7.162E-03
2015	3.557E+03	2.848E+06	1.914E+02	3.635E-01	1.014E+02	6.813E-03
2016	3.383E+03	2.709E+06	1.820E+02	3.457E-01	9.645E+01	6.481E-03
2017	3.218E+03	2.577E+06	1.732E+02	3.289E-01	9.175E+01	6.165E-03
2018	3.062E+03	2.452E+06	1.647E+02	3.128E-01	8.727E+01	5.864E-03
2019	2.912E+03	2.332E+06	1.567E+02	2.976E-01	8.302E+01	5.578E-03
2020	2.770E+03	2.218E+06	1.490E+02	2.831E-01	7.897E+01	5.306E-03
2021	2.635E+03	2.110E+06	1.418E+02	2.693E-01	7.512E+01	5.047E-03
2022	2.507E+03	2.007E+06	1.349E+02	2.561E-01	7.145E+01	4.801E-03
2023	2.384E+03	1.909E+06	1.283E+02	2.436E-01	6.797E+01	4.567E-03
2024	2.268E+03	1.816E+06	1.220E+02	2.318E-01	6.465E+01	4.344E-03
2025	2.157E+03	1.728E+06	1.161E+02	2.204E-01	6.150E+01	4.132E-03
2026	2.052E+03	1.643E+06	1.104E+02	2.097E-01	5.850E+01	3.931E-03
2027	1.952E+03	1.563E+06	1.050E+02	1.995E-01	5.565E+01	3.739E-03
2028	1.857E+03	1.487E+06	9.991E+01	1.897E-01	5.293E+01	3.557E-03
2029	1.766E+03	1.414E+06	9.503E+01	1.805E-01	5.035E+01	3.383E-03
2030	1.680E+03	1.345E+06	9.040E+01	1.717E-01	4.790E+01	3.218E-03
2031	1.598E+03	1.280E+06	8.599E+01	1.633E-01	4.556E+01	3.061E-03
2032	1.520E+03	1.217E+06	8.180E+01	1.553E-01	4.334E+01	2.912E-03
2033	1.446E+03	1.158E+06	7.781E+01	1.478E-01	4.123E+01	2.770E-03
2034	1.376E+03	1.102E+06	7.401E+01	1.406E-01	3.921E+01	2.635E-03
2035	1.309E+03	1.048E+06	7.040E+01	1.337E-01	3.730E+01	2.506E-03
2036	1.245E+03	9.967E+05	6.697E+01	1.272E-01	3.548E+01	2.384E-03
2037	1.184E+03	9.481E+05	6.370E+01	1.210E-01	3.375E+01	2.268E-03
2038	1.126E+03	9.019E+05	6.060E+01	1.151E-01	3.211E+01	2.157E-03
2039	1.071E+03	8.579E+05	5.764E+01	1.095E-01	3.054E+01	2.052E-03
2040	1.019E+03	8.160E+05	5.483E+01	1.041E-01	2.905E+01	1.952E-03