305 South Main St.
Monroe, NC 28112
Ph. 704.283.9765
Fax: 704.283.9755

Carlson Environmental Consultants, PC

LETTER OF TRANSMITTAL

DATE 9/28/12	JOB NO. 101.07.07
ATTENTION: Sheree Grant	
PHONE # 407-553-4939	
RE: Vista Landfill	
Submittal(s): See details below	

ORIGINAL

TO: Sheree Grant
WM Inc. of Florida Market Area Engineer
242 West Keene Road
Apopka, FL 32703

WE ARE SENDING YOU ☒ Attached via Binders the following items:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of Letter ☐ Change order ☐ Response ☒ LFG Permit Modifications

COPIES	DATE	NO.	DESCRIPTION
4		Originals	Send to FDEP, Attn: Thomas Lubozynski, P.E.
1		Copy	Send to Orange County
1		Copy	Sent to City of Apopka, Attn: Jay Davoll
1		Copy	Keep as WM's Copy

DEP Central District
OCT 04 2012
RECEIVED

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution
☐ As requested ☐ Not Approved ☐ Return ____ corrected prints
☐ For review and comment ☒ For redistribution
☐ FOR BIDS DUE ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS:

None.

DEP Central District
OCT 04 2012
RECEIVED

COPY TO: None.

SIGNED:

DATE: 9/28/12

If enclosures are not as noted, kindly notify us at once.

WASTE MANAGEMENT INC. OF FLORIDA
Vista Landfill, LLC
242 W. Keene Road
Apopka, FL 32703

October 4, 2012

Mr. Thomas Lubozynski, P.E.
Waste Program Administrator
Florida Department of Environmental Protection
Central District
3319 Maguire Blvd., Suite 232
Orlando, FL 32803

Subject: Intermediate Class III Operation Permit Modification Application
Gas Management System
Vista Landfill, Class III
WACS Facility 87081
Permit No. SO48-0165969-018

Dear Mr. Lubozynski,

Vista Landfill, LLC is pleased to submit this intermediate operation permit modification to modify the Vista Landfill, Class III (Vista Landfill) Operation Permit (Permit No. SO 48-0165969-018) to include additional information related to the landfill gas management system. The Florida Department of Environmental Protection (FDEP) has requested that the Operation Permit be revised to include information related to the existing gas management system and the planned expansion of the gas management system.

Also included with this submittal is a check in the amount of $2,000 to cover the permit modification application fee.

If you have any questions or concerns, please feel free to contact us.

Respectfully Submitted,

Paul Bermillo
Environmental Protection Manager

cc: Craig Pelton – WMIF
Sheree Grant – WMIF
Seth A. Nunes, P.E. – CEC

INTERMEDIATE CLASS III OPERATION PERMIT MODIFICATION APPLICATION GAS MANAGEMENT SYSTEM

VISTA LANDFILL, CLASS III FACILITY
242 WEST KEENE ROAD
APOPKA, FLORIDA 32703

Prepared for:

WASTE MANAGEMENT INC. OF FLORIDA

Prepared by:

CEC

CARLSON ENVIRONMENTAL CONSULTANTS, PC
305 South Main Street
Monroe, North Carolina 28112
(704) 283-9765

September 2012

DEP FORM

Reset Form | Print Form

Florida Department of Environmental Protection

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

DEP Form #: 62-701.900(1), F.A.C.

Form Title: Application to Construct, Operate, Modify, or Close a Solid Waste Management Facility

Effective Date: January 6, 2010

Incorporated in Rule: 62-701.330(3), F.A.C.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

APPLICATION TO CONSTRUCT, OPERATE, MODIFY, OR CLOSE A SOLID WASTE MANAGEMENT FACILITY

APPLICATION INSTRUCTIONS AND FORMS

Northwest District
160 Governmental Center
Pensacola, FL 32502-5794
850-595-8360

Northeast District
7825 Baymeadows Way, Ste. B200
Jacksonville, FL 32256-7590
904-807-3300

Central District
3319 Maguire Blvd., Ste. 232
Orlando, FL 32803-3767
407-894-7555

Southwest District
13051 N. Telecom Pkwy
Temple Terrace, FL 33637
813-632-7600

South District
2295 Victoria Ave., Ste. 364
Fort Myers, FL 33901-3881
239-332-6975

Southeast District
400 North Congress Ave.
West Palm Beach, FL 33401
561-681-6600

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANAGEMENT FACILITY PERMIT

I. General

Solid Waste Management Facilities shall be permitted pursuant to Section 403.707, Florida Statutes,(FS) and in accordance with Florida Administrative Code (FAC) Chapter 62-701. A minimum of four copies of the application shall be submitted to the Department's District Office having jurisdiction over the facility. The appropriate fee in accordance with Rule 62-701.315, FAC, shall be submitted with the application by check made payable to the Department of Environmental Protection (DEP).

Complete appropriate sections for the type of facility for which application is made. Entries shall be typed or printed in ink. All blanks shall be filled in or marked "not applicable" or "no substantial change". Information provided in support of the application shall be marked "submitted" and the location of this information in the application package indicated. The application shall include all information, drawings, and reports necessary to evaluate the facility. Information required to complete the application is listed on the attached pages of this form.

II. Application Parts Required for Construction and Operation Permits

A. Landfills and Ash Monofills - Submit Parts A through S
B. Asbestos Monofills - Submit Parts A,B,C,D,E,F,I,K,M, O through S
C. Industrial Solid Waste Disposal Facilities - Submit Parts A through S

NOTE: Portions of some Parts may not be applicable.

NOTE: For facilities that have been satisfactorily constructed in accordance with their construction permit, the information required for A, B and C type facilities does not have to be resubmitted for an operation permit if the information has not substantially changed during the construction period. The appropriate portion of the form should be marked "no substantial change".

III. Application Parts Required for Closure Permits

A. Landfills and Ash Monofills - Submit Parts A,B,L, N through S
B. Asbestos Monofills - Submit Parts A,B,M, O through S
C. Industrial Solid Waste Disposal Facilities - Submit Parts A,B, L through S

NOTE: Portions of some Parts may not be applicable.

IV. Permit Renewals

The above information shall be submitted at time of permit renewal in support of the new permit. However, facility information that was submitted to the Department to support the expiring permit, and which is still valid, does not need to be re-submitted for permit renewal. Portions of the application not re-submitted shall be marked "no substantial change" on the application form.

V. Application Codes

S	-	Submitted
LOCATION	-	Physical location of information in application
N/A	-	Not Applicable
N/C	-	No Substantial Change

VI. LISTING OF APPLICATION PARTS

PART A: GENERAL INFORMATION

PART B: DISPOSAL FACILITY GENERAL INFORMATION

PART C: PROHIBITIONS

PART D: SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL

PART E: LANDFILL PERMIT REQUIREMENTS

PART F: GENERAL CRITERIA FOR LANDFILLS

PART G: LANDFILL CONSTRUCTION REQUIREMENTS

PART H: HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS

PART I: GEOTECHNICAL INVESTIGATION REQUIREMENTS

PART J: VERTICAL EXPANSION OF LANDFILLS

PART K: LANDFILL OPERATION REQUIREMENTS

PART L: WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS

PART M: SPECIAL WASTE HANDLING REQUIREMENTS

PART N: GAS MANAGEMENT SYSTEM REQUIREMENTS

PART O: LANDFILL CLOSURE REQUIREMENTS

PART P: OTHER CLOSURE PROCEDURES

PART Q: LONG-TERM CARE

PART R: FINANCIAL ASSURANCE

PART S: CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
APPLICATION FOR A PERMIT TO CONSTRUCT, OPERATE, MODIFY OR CLOSE A SOLID WASTE MANAGEMENT FACILITY

Please Type or Print

PART A. GENERAL INFORMATION

1. Type of disposal facility (check all that apply):

☐ Class I Landfill
☑ Class III Landfill
☐ Industrial Solid Waste
☐ Other Describe:
☐ Ash Monofill
☐ Asbestos Monofill

NOTE: Waste Processing Facilities should apply on Form 62-701.900(4), FAC;
Land Clearing Disposal Facilities should notify on Form 62-701.900(3), FAC;
Compost Facilities should apply on Form 62-701.900(10), FAC; and
C&D Disposal Facilities should apply on Form 62-701.900(6), FAC

2. Type of application:

☐ Construction
☑ Operation
☐ Construction/Operation
☐ Closure
☐ Long-term Care Only

3. Classification of application:

☐ New
☐ Renewal
☐ Substantial Modification
☑ Intermediate Modification
☐ Minor Modification

4. Facility name: Vista Landfill, Class III

5. DEP ID number: 87081 County: Orange

6. Facility location (main entrance):
242 West Keene Road
Apopka, Florida 32703

7. Location coordinates:

Section: 28 Township: 21 Range: 28E

Latitude: 28° 38' 24.5" Longitude: 81° 30' 41.7"

Datum: NAD 83/90 Coordinate Method: State Plan

Collected by: T. Jeffrey Young, PSM, CP Company/Affiliation: Pickett Surv. & Photogram

8. Applicant name (operating authority): Vista Landfill, LLC

Mailing address: 242 West Keene Road (Street or P.O. Box) Apoka (City) Florida (State) 32703 (Zip)

Contact person: Timothy Hawkins Telephone: (352) 368-1890

Title: Vice President, Waste Management Inc. of Florida

thawkins@wm.com
E-Mail address (if available)

9. Authorized agent/Consultant: Carlson Environmental Consultants, PC

Mailing address: 305 South Main Street Monroe, NC 28112
Street or P.O. Box City State Zip

Contact person: Seth A. Nunes, PE Telephone: (863) 634-7185

Title: Project Manager

snunes@cecenv.com
E-Mail address (if available)

10. Landowner (if different than applicant): _____

Mailing address: _____
Street or P.O. Box City State Zip

Contact person: _____ Telephone: (____) _____

_____
E-Mail address (if available)

11. Cities, towns and areas to be served:
Northwest Orange County and Metro Orlando, Florida

12. Population to be served:

Current: 100,000 Five-Year Projection: 110,500

13. Date site will be ready to be inspected for completion: N/A

14. Expected life of the facility: 40.6 years

15. Estimated costs:

Total Construction: $ _____ Closing Costs: $ _____

16. Anticipated construction starting and completion dates:

From: NA To: NA

17. Expected volume or weight of waste to be received:

_____ yds^3/day 2,500 tons/day _____ gallons/day

PART B. DISPOSAL FACILITY GENERAL INFORMATION

1. Provide brief description of disposal facility design and operations planned under this application:
This application is for an intermediate modification to the existing operations permit to address the existing and proposed landfill gas (LFG) controls. These proactive LFG control measures have been implemented to reduce migration and maintain compliance . No other changes to the operations permit are proposed at this time.

Vista Landfill, Class III facility is currently a 102-acre landfill with leachate collection and storage systems. Permitted operations include Class III solid waste, disposal, materials recovery facility, small waste tire processing, yard trash recycling, pre-consumer vegetative waste composting, and an active borrow pit contained within the permitted landfill footprint.

2. Facility site supervisor: Deborah Perez

Title: District Manager Telephone: (____) _____

dperez@wm.com
E-Mail address (if available)

3. Disposal area: Total 102 acres; Used 17.5 acres; Available 84.5 acres.

4. Weighing scales used: ☑ Yes ☐ No

5. Security to prevent unauthorized use: ☑ Yes ☐ No

6. Charge for waste received: _____ $/yds^3 _____ $/ton

C&D/Class III - $24.10/ton
$60 minimum per load
Yard Waste - $34/ton
$60 minimum per load
Asbestos - $200/ton
1 ton minimum per load
Shredded tires - $100/ton
$100 minimum per load

7. Surrounding land use, zoning:

☑ Residential ☐ Industrial
☑ Agricultural ☐ None
☐ Commercial ☑ Other Describe:
Other: Institutional, Parks and Recreational

8. Types of waste received:

☐ Household ☑ C & D debris
☑ Commercial Class III ☑ Shredded/cut tires
☐ Incinerator/WTE ash ☑ Yard trash
☐ Treated biomedical ☐ Septic tank
☐ Water treatment sludge ☐ Industrial

☐ Air treatment sludge ☐ Industrial sludge
☑ Agricultural ☐ Domestic sludge
☑ Asbestos ☑ Other Describe:
Other: Pre-consumer vegetative waste

9. Salvaging permitted: ☐ Yes ☑ No

10. Attendant: ☑ Yes ☐ No Trained operator: ☑ Yes ☐ No

11. Trained spotters: ☑ Yes ☐ No Number of spotters used: _____

12. Site located in: ☐ Floodplain ☐ Wetlands ☑ Other:
Other: Uplands

13. Days of operation: Monday - Saturday

14. Hours of operation: 7:00 am to 6:00 pm Monday-Friday; 7:00 am to 12:00 pm Saturday

15. Days Working Face covered: Weekly

16. Elevation of water table: 55 to 90 ft. Datum Used: NGVD 1929

17. Number of monitoring wells: 18

18. Number of surface monitoring points: N/A

19. Gas controls used: ☑ Yes ☐ No Type controls: ☑ Active ☑ Passive

Gas flaring: ☑ Yes ☐ No Gas recovery: ☐ Yes ☑ No

20. Landfill unit liner type:
☐ Natural soils ☐ Double geomembrane
☐ Single clay liner ☐ Geomembrane & composite
☑ Single geomembrane ☐ Double composite
☐ Single composite ☐ None
☐ Slurry wall ☐ Other Describe:

21. Leachate collection method:

☑ Collection pipes
☑ Geonets
☐ Well points
☐ Perimeter ditch
☐ Other Describe:
☐ Sand layer
☐ Gravel layer
☐ Interceptor trench
☐ None

22. Leachate storage method:

☑ Tanks
☐ Surface impoundments
☐ Other Describe:
Tanks: Auxiliary

23. Leachate treatment method:

☐ Oxidation
☐ Secondary
☐ Advanced
☐ Other
☐ Chemical treatment
☐ Settling
☑ None

24. Leachate disposal method:

☐ Recirculated
☐ Transported to WWTP
☐ Injection well
☐ Evaporation
☐ Other
☑ Pumped to WWTP
☐ Discharged to surface water/wetland
☐ Percolation ponds
☐ Spray Irrigation

25. For leachate discharged to surface waters:

Name and Class of receiving water:
N/A

26. Storm Water:

Collected: ☑ Yes ☐ No

Type of treatment:
Retention

Name and Class of receiving water:
N/A

27. Environmental Resources Permit (ERP) number or status:

ERP 48-0817635-002 EM and 48-0187635-003 EM

PART C. PROHIBITIONS (62-701.300, FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Provide documentation that each of the siting criteria will be satisfied for the facility; (62-701.300(2), FAC)
☐	_____	☐	☑	2. If the facility qualifies for any of the exemptions contained in Rules 62-701.300(12) through (18), FAC, then document this qualification(s).
☐	_____	☐	☑	3. Provide documentation that the facility will be in compliance with the burning restrictions; (62-701.300(3), FAC)
☐	_____	☐	☑	4. Provide documentation that the facility will be in compliance with the hazardous waste restrictions; (62-701.300(4), FAC)
☐	_____	☐	☑	5. Provide documentation that the facility will be in compliance with the PCB disposal restrictions; (62-701.300(5), FAC)
☐	_____	☐	☑	6. Provide documentation that the facility will be in compliance with the biomedical waste restrictions; (62-701.300(6), FAC)
☐	_____	☐	☑	7. Provide documentation that the facility will be in compliance with the Class I surface water restrictions; (62-701.300(7), FAC)
☐	_____	☐	☑	8. Provide documentation that the facility will be in compliance with the special waste for landfills restrictions; (62-701.300(8), FAC)
☐	_____	☐	☑	9. Provide documentation that the facility will be in compliance with the liquid restrictions; (62-701.300(10), FAC)
☐	_____	☐	☑	10. Provide documentation that the facility will be in compliance with the used oil and oily waste restrictions; (62-701.300(11), FAC)

PART D. SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL (62-701.320, FAC)

S	LOCATION	N/A	N/C	
☑	Attached	☐	☐	1. Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a),FAC)

S	LOCATION	N/A	N/C	PART D CONTINUED
☑	Attached	☐	☐	2. Engineering and/or professional certification (signature, date and seal) provided on the applications and all engineering plans, reports and supporting information for the application; (62-701.320(6),FAC)
☑	Attached	☐	☐	3. A letter of transmittal to the Department; (62-701.320(7)(a),FAC)
☑	Attached	☐	☐	4. A completed application form dated and signed by the applicant; (62-701.320(7)(b),FAC)
☑	Attached	☐	☐	5. Permit fee specified in Rule 62-701.315, FAC in check or money order, payable to the Department; (62-701.320(7)(c),FAC)
☑	Attached	☐	☐	6. An engineering report addressing the requirements of this rule and with the following format: a cover sheet, text printed on 8 1/2 inch by 11 inch consecutively numbered pages, a table of contents or index, the body of the report and all appendices including an operation plan, contingency plan, illustrative charts and graphs, records or logs of tests and investigations, engineering calculations; (62-701.320(7)(d),FAC)
☐		☐	☑	7.Operation Plan and Closure Plan; (62-701.320(7)(e)1,FAC)
☐		☐	☑	8. Contingency Plan; (62-701.320(7)(e)2,FAC)
☐		☐	☑	9. Plans or drawings for the solid waste management facilities in appropriate format (including sheet size restrictions, cover sheet, legends, north arrow, horizontal and vertical scales, elevations referenced to NGVD 1929) showing; (62-701.320(7)(f),FAC)
☐		☐	☑	a. A regional map or plan with the project location in relation to major roadways and population centers;
☐		☐	☑	b. A vicinity map or aerial photograph no more than 1 year old showing the facility site and relevant surface features located within 1000 feet of the facility;
☐		☐	☑	c. A site plan showing all property boundaries certified by a Florida Licensed Professional Surveyor and Mapper; and
☐		☐	☑	d. Other necessary details to support the engineering report, including referencing elevations to a consistent, nationally recognized datum and identifying the method used for collecting latitude and longitude data.

S	LOCATION	N/A	N/C	PART D CONTINUED
☐	_____	☐	☑	10. Documentation that the applicant either owns the property or has legal authority from the property owner to use the site; (62-701.320(7)(g),FAC)
☐	_____	☑	☐	11. For facilities owned or operated by a county, provide a description of how, if any, the facilities covered in this application will contribute to the county's achievement of the waste reduction and recycling goals contained in Section 403.706,FS; (62-701.320(7)(h),FAC)
☐	_____	☐	☑	12. Provide a history and description of any enforcement actions taken by the Department against the applicant for violations of applicable statutes, rules, orders or permit conditions relating to the operation of any solid waste management facility in this state; (62-701.320(7)(i),FAC)
☐	_____	☑	☐	13. Proof of publication in a newspaper of general circulation of notice of application for a permit to construct or substantially modify a solid waste management facility; (62-702.320(8),FAC)
☐	_____	☐	☑	14. Provide a description of how the requirements for airport safety will be achieved including proof of required notices if applicable. If exempt, explain how the exemption applies; (62-701.320(13),FAC)
☐	_____	☐	☑	15. Explain how the operator and spotter training requirements and special criteria will be satisfied for the facility; (62-701.320(15), FAC)

PART E. LANDFILL PERMIT REQUIREMENTS (62-701.330, FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Regional map or aerial photograph no more than 5 years old showing all airports that are located within five miles of the proposed landfill; (62-701.330(3)(a),FAC)
☐	_____	☐	☑	2. Plot plan with a scale not greater than 200 feet to the inch showing; (62-701.330(3)(b),FAC)
☐	_____	☐	☑	a. Dimensions;
☐	_____	☐	☑	b. Locations of proposed and existing water quality monitoring wells;
☐	_____	☐	☑	c. Locations of soil borings;

S	LOCATION	N/A	N/C	PART E CONTINUED
☐	_____	☐	☑	d. Proposed plan of trenching or disposal areas;
☐	_____	☐	☑	e. Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;
☐	_____	☐	☑	f. Any previously filled waste disposal areas;
☐	_____	☐	☑	g. Fencing or other measures to restrict access.
☐	_____	☐	☑	3. Topographic maps with a scale not greater than 200 feet to the inch with 5-foot contour intervals showing; (62-701.330(3)(c),FAC):
☐	_____	☐	☑	a. Proposed fill areas;
☐	_____	☐	☑	b. Borrow areas;
☐	_____	☐	☑	c. Access roads;
☐	_____	☐	☑	d. Grades required for proper drainage;
☐	_____	☐	☑	e. Cross sections of lifts;
☐	_____	☐	☑	f. Special drainage devices if necessary;
☐	_____	☐	☑	g. Fencing;
☐	_____	☐	☑	h. Equipment facilities.
☐	_____	☐	☑	4. A report on the landfill describing the following; (62-701.330(3)(d),FAC)
☐	_____	☐	☑	a. The current and projected population and area to be served by the proposed site;
☐	_____	☐	☑	b. The anticipated type, annual quantity, and source of solid waste, expressed in tons;
☐	_____	☐	☑	c. Planned active life of the facility, the final design height of the facility and the maximum height of the facility during its operation;

S	LOCATION	N/A	N/C	PART E CONTINUED
☐	_____	☐	☑	d. The source and type of cover material used for the landfill.
☐	_____	☐	☑	5. Provide evidence that an approved laboratory shall conduct water quality monitoring for the facility in accordance with Chapter 62-160,FAC; (62-701.330(3)(g),FAC)
☐	_____	☐	☑	6. Provide a statement of how the applicant will demonstrate financial responsibility for the closing and long-term care of the landfill; (62-701.330(3)(h),FAC)

PART F. GENERAL CRITERIA FOR LANDFILLS (62-701.340,FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Describe (and show on a Federal Insurance Administration flood map, if available) how the landfill or solid waste disposal unit shall not be located in the 100-year floodplain where it will restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain unless compensating storage is provided, or result in a washout of solid waste; (62-701.340(3)(b),FAC)
☐	_____	☐	☑	2. Describe how the minimum horizontal separation between waste deposits in the landfill and the landfill property boundary shall be 100 feet, measured from the toe of the proposed final cover slope; (62-701.340(3)(c),FAC)

PART G. LANDFILL CONSTRUCTION REQUIREMENTS (62-701.400,FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Describe how the landfill shall be designed so that solid waste disposal units will be constructed and closed at planned intervals throughout the design period of the landfill and shall be designed to achieve a minimum factor of safety of 1.5 using peak strength values to prevent failures of side slopes and deep-seated failures; (62-701.400(2),FAC)
☐	_____	☐	☑	2. Landfill liner requirements; (62-701.400(3),FAC)
☐	_____	☐	☑	a. General construction requirements; (62-701.400(3)(a),FAC):
☐	_____	☐	☑	(1) Provide test information and documentation to ensure the liner will be constructed of materials that have appropriate physical, chemical, and mechanical properties to prevent failure;

S	LOCATION	N/A	N/C	PART G CONTINUED
☐	_____	☐	☑	(2) Document foundation is adequate to prevent liner failure;
☐	_____	☐	☑	(3) Constructed so bottom liner will not be adversely impacted by fluctuations of the ground water;
☐	_____	☑	☐	(4) Designed to resist hydrostatic uplift if bottom liner located below seasonal high ground water table;
☐	_____	☐	☑	(5) Installed to cover all surrounding earth which could come into contact with the waste or leachate.
☐	_____	☐	☑	b. Composite liners; (62-701.400(3)(b),FAC)
☐	_____	☐	☑	(1) Upper geomembrane thickness and properties;
☐	_____	☐	☑	(2) Design leachate head for primary LCRS including leachate recirculation if appropriate;
☐	_____	☑	☐	(3) Design thickness in accordance with Table A and number of lifts planned for lower soil component.
☐	_____	☑	☐	c. Double liners; (62-701.400(3)(c),FAC)
☐	_____	☑	☐	(1) Upper and lower geomembrane thicknesses and properties;
☐	_____	☑	☐	(2) Design leachate head for primary LCRS to limit the head to one foot above the liner;
☐	_____	☑	☐	(3) Lower geomembrane sub-base design;
☐	_____	☑	☐	(4) Leak detection and secondary leachate collection system minimum design criteria ($k \geq 10$ cm/sec, head on lower liner ≤ 1 inch, head not to exceed thickness of drainage layer);
☐	_____	☐	☑	d. Standards for geosynthetic components; (62-701.400(3)(d),FAC)

S	LOCATION	N/A	N/C	PART G CONTINUED
☐	_____	☐	☑	(1) Factory and field seam test methods to ensure all geomembrane seams achieve the minimum specifications;
☐	_____	☐	☑	(2) Geomembranes to be used shall pass a continuous spark test by the manufacturer;
☐	_____	☐	☑	(3) Design of 24-inch-thick protective layer above upper geomembrane liner;
☐	_____	☐	☑	(4) Describe operational plans to protect the liner and leachate collection system when placing the first layer of waste above 24-inch-thick protective layer.
☐	_____	☐	☑	(5) HDPE geomembranes, if used, meet the specifications in GRI GM13 and LLDPE geomembranes, if used, meet the specifications in GRI GM17;
☐	_____	☑	☐	(6) PVC geomembranes, if used, meet the specifications in PGI 1104;
☐	_____	☐	☑	(7) Interface shear strength testing results of the actual components which will be used in the liner system;
☐	_____	☐	☑	(8) Transmissivity testing results of geonets if they are used in the liner system;
☐	_____	☐	☑	(9) Hydraulic conductivity testing results of geosynthetic clay liners if they are used in the liner system;
☐	_____	☐	☑	e. Geosynthetic specification requirements; (62-701.400(3)(e),FAC)
☐	_____	☐	☑	(1) Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program;
☐	_____	☐	☑	(2) Material specifications for geomembranes, geocomposites, geotextiles, geogrids, and geonets;

S	LOCATION	N/A	N/C	PART G CONTINUED	
☐	_____	☐	☑	(3)	Manufacturing and fabrication specifications including geomembrane raw material and roll QA, fabrication personnel qualifications, seaming equipment and procedures, overlaps, trial seams, destructive and nondestructive seam testing, seam testing location, frequency, procedure, sample size and geomembrane repairs;
☐	_____	☐	☑	(4)	Geomembrane installation specifications including earthwork, conformance testing, geomembrane placement, installation personnel qualifications, field seaming and testing, overlapping and repairs, materials in contact with geomembrane and procedures for lining system acceptance;
☐	_____	☐	☑	(5)	Geotextile and geogrid specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials;
☐	_____	☐	☑	(6)	Geonet and geocomposite specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials and any overlying materials;
☐	_____	☐	☑	(7)	Geosynthetic clay liner specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil material and any overlying materials;
☐	_____	☐	☑	f. Standards for soil liner components (62-710.400(3)(f),FAC):	
☐	_____	☐	☑	(1)	Description of construction procedures including overexcavation and backfilling to preclude structural inconsistencies and procedures for placing and compacting soil component in layers;
☐	_____	☑	☐	(2)	Demonstration of compatibility of the soil component with actual or simulated leachate in accordance with EPA Test Method 9100 or an equivalent test method;
☐	_____	☑	☐	(3)	Procedures for testing in-situ soils to demonstrate they meet the specifications for soil liners;

S	LOCATION	N/A	N/C	PART G CONTINUED
☐	_____	☑	☐	(4) Specifications for soil component of liner including at a minimum:
☐	_____	☑	☐	(a) Allowable particle size distribution, Atterberg limits, shrinkage limit;
☐	_____	☑	☐	(b) Placement moisture and dry density criteria;
☐	_____	☑	☐	(c) Maximum laboratory-determined saturated hydraulic conductivity using simulated leachate;
☐	_____	☑	☐	(d) Minimum thickness of soil liner;
☐	_____	☑	☐	(e) Lift thickness;
☐	_____	☑	☐	(f) Surface preparation (scarification);
☐	_____	☑	☐	(g) Type and percentage of clay mineral within the soil component;
☐	_____	☑	☐	(5) Procedures for constructing and using a field test section to document the desired saturated hydraulic conductivity and thickness can be achieved in the field.
☐	_____	☑	☐	g. If a Class III landfill is to be constructed with a bottom liner system, provide a description of how the minimum requirements for the liner will be achieved.
☐	_____	☐	☑	3. Leachate collection and removal system (LCRS); (62-701.400(4),FAC)
☐	_____	☐	☑	a. The primary and secondary LCRS requirements; (62-701.400(4)(a),FAC)
☐	_____	☐	☑	(1) Constructed of materials chemically resistant to the waste and leachate;
☐	_____	☐	☑	(2) Have sufficient mechanical properties to prevent collapse under pressure;

S	LOCATION	N/A	N/C	PART G CONTINUED
☐	_____	☐	☑	(3) Have granular material or synthetic geotextile to prevent clogging;
☐	_____	☐	☑	(4) Have method for testing and cleaning clogged pipes or contingent designs for rerouting leachate around failed areas;
☐	_____	☐	☑	b. Other LCRS requirements; (62-701.400(4)(b) and (c),FAC)
☐	_____	☑	☐	(1) Bottom 12 inches having hydraulic conductivity ≥ 1 x 10^{-3} cm/sec;
☐	_____	☐	☑	(2) Total thickness of 24 inches of material chemically resistant to the waste and leachate;
☐	_____	☐	☑	(3) Bottom slope design to accommodate for predicted settlement and still meet minimum slope requirements;
☐	_____	☐	☑	(4) Demonstration that synthetic drainage material, if used, is equivalent or better than granular material in chemical compatibility, flow under load and protection of geomembrane liner.
☐	_____	☑	☐	4. Leachate recirculation; (62-701.400(5),FAC)
☐	_____	☑	☐	a. Describe general procedures for recirculating leachate;
☐	_____	☑	☐	b. Describe procedures for controlling leachate runoff and minimizing mixing of leachate runoff with storm water;
☐	_____	☑	☐	c. Describe procedures for preventing perched water conditions and gas buildup;
☐	_____	☑	☐	d. Describe alternate methods for leachate management when it cannot be recirculated due to weather or runoff conditions, surface seeps, wind-blown spray, or elevated levels of leachate head on the liner;
☐	_____	☑	☐	e. Describe methods of gas management in accordance with Rule 62-701.530, FAC;

S	LOCATION	N/A	N/C	PART G CONTINUED
☐	_____	☑	☐	f. If leachate irrigation is proposed, describe treatment methods and standards for leachate treatment prior to irrigation over final cover and provide documentation that irrigation does not contribute significantly to leachate generation.
☐	_____	☑	☐	5.Leachate storage tanks and leachate surface impoundments; (62-701.400(6),FAC)
☐	_____	☑	☐	a. Surface impoundment requirements; (62-701.400(6)(b),FAC)
☐	_____	☑	☐	(1) Documentation that the design of the bottom liner will not be adversely impacted by fluctuations of the ground water;
☐	_____	☑	☐	(2) Designed in segments to allow for inspection and repair as needed without interruption of service;
☐	_____	☑	☐	(3) General design requirements;
☐	_____	☑	☐	(a) Double liner system consisting of an upper and lower 60-mil minimum thickness geomembrane;
☐	_____	☑	☐	(b) Leak detection and collection system with hydraulic conductivity ≥ 1 cm/sec;
☐	_____	☑	☐	(c) Lower geomembrane placed on subbase ≥ 6 inches thick with $k \leq 1 \times 10^{-5}$ cm/sec or on an approved geosynthetic clay liner with $k \leq 1 \times 10^{-7}$ cm/sec;
☐	_____	☑	☐	(d) Design calculation to predict potential leakage through the upper liner;
☐	_____	☑	☐	(e) Daily inspection requirements and notification and corrective action requirements if leakage rates exceed that predicted by design calculations;
☐	_____	☑	☐	(4) Description of procedures to prevent uplift, if applicable;
☐	_____	☑	☐	(5) Design calculations to demonstrate minimum two feet of freeboard will be maintained;
☐	_____	☑	☐	(6) Procedures for controlling vectors and off-site odors.

S	LOCATION	N/A	N/C	PART G CONTINUED
☐	_____	☑	☐	b. Above-ground leachate storage tanks; (62-701.400(6)(c),FAC)
☐	_____	☑	☐	(1) Describe tank materials of construction and ensure foundation is sufficient to support tank;
☐	_____	☑	☐	(2) Describe procedures for cathodic protection if needed for the tank;
☐	_____	☑	☐	(3) Describe exterior painting and interior lining of the tank to protect it from the weather and the leachate stored;
☐	_____	☑	☐	(4) Describe secondary containment design to ensure adequate capacity will be provided and compatibility of materials of construction;
☐	_____	☑	☐	(5) Describe design to remove and dispose of stormwater from the secondary containment system;
☐	_____	☑	☐	(6) Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling;
☐	_____	☑	☐	(7) Inspections, corrective action and reporting requirements;
☐	_____	☑	☐	(a) Overfill prevention system weekly;
☐	_____	☑	☐	(b) Exposed tank exteriors weekly;
☐	_____	☑	☐	(c) Tank interiors when tank is drained or at least every three years;
☐	_____	☑	☐	(d) Procedures for immediate corrective action if failures detected;
☐	_____	☑	☐	(e) Inspection reports available for department review.
☐	_____	☑	☐	c. Underground leachate storage tanks; (62-701.400(6)(d),FAC)

S	LOCATION	N/A	N/C	PART G CONTINUED
☐	_____	☑	☐	(1) Describe materials of construction;
☐	_____	☑	☐	(2) A double-walled tank design system to be used with the following requirements;
☐	_____	☑	☐	(a) Interstitial space monitoring at least weekly;
☐	_____	☑	☐	(b) Corrosion protection provided for primary tank interior and external surface of outer shell;
☐	_____	☑	☐	(c) Interior tank coatings compatible with stored leachate;
☐	_____	☑	☐	(d) Cathodic protection inspected weekly and repaired as needed;
☐	_____	☑	☐	(3) Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling and provide for weekly inspections;
☐	_____	☑	☐	(4) Inspection reports available for department review.
☐	_____	☑	☐	d.Schedule provided for routine maintenance of LCRS; (62-701.400(6)(e),FAC)
☐	_____	☐	☑	6.Liner systems construction quality assurance (CQA); (62-701.400(7),FAC)
☐	_____	☐	☑	a. Provide CQA Plan including:
☐	_____	☐	☑	(1) Specifications and construction requirements for liner system;
☐	_____	☐	☑	(2) Detailed description of quality control testing procedures and frequencies;
☐	_____	☐	☑	(3) Identification of supervising professional engineer;
☐	_____	☐	☑	(4) Identify responsibility and authority of all appropriate organizations and key personnel involved in the construction project;

S	LOCATION	N/A	N/C	PART G CONTINUED
☐	_____	☐	☑	(5) State qualifications of CQA professional engineer and support personnel;
☐	_____	☐	☑	(6) Description of CQA reporting forms and documents;
☐	_____	☐	☑	b. An independent laboratory experienced in the testing of geosynthetics to perform required testing;
☐	_____	☑	☐	7. Soil Liner CQA (62-701.400(8)FAC)
☐	_____	☑	☐	a. Documentation that an adequate borrow source has been located with test results or description of the field exploration and laboratory testing program to define a suitable borrow source;
☐	_____	☑	☐	b. Description of field test section construction and test methods to be implemented prior to liner installation;
☐	_____	☑	☐	c. Description of field test methods including rejection criteria and corrective measures to insure proper liner installation.
☐	_____	☐	☑	8. Surface water management systems; (62-701.400(9),FAC)
☐	_____	☐	☑	a. Provide a copy of a Department permit for stormwater control or documentation that no such permit is required;
☐	_____	☐	☑	b. Design of surface water management system to isolate surface water from waste filled areas and to control stormwater run-off;
☐	_____	☐	☑	c. Details of stormwater control design including retention ponds, detention ponds, and drainage ways;
☐	_____	☐	☑	9. Gas control systems; (62-701.400(10),FAC)
☑	Engineering Report	☐	☐	a. Provide documentation that if the landfill is receiving degradable wastes, it will have a gas control system complying with the requirements of Rule 62-701.530, FAC;
☐	_____	☑	☐	10. For landfills designed in ground water, provide documentation that the landfill will provide a degree of protection equivalent to landfills designed with bottom liners not in contact with ground water; (62-701.400(11),FAC)

PART H. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS (62-701.410(1), FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Submit a hydrogeological investigation and site report including at least the following information:
☐	_____	☐	☑	a. Regional and site specific geology and hydrogeology;
☐	_____	☐	☑	b. Direction and rate of ground water and surface water flow including seasonal variations;
☐	_____	☐	☑	c. Background quality of ground water and surface water;
☐	_____	☐	☑	d. Any on-site hydraulic connections between aquifers;
☐	_____	☐	☑	e. Site stratigraphy and aquifer characteristics for confining layers, semi-confining layers, and all aquifers below the landfill site that may be affected by the landfill;
☐	_____	☐	☑	f. Description of topography, soil types and surface water drainage systems;
☐	_____	☐	☑	g. Inventory of all public and private water wells within a one-mile radius of the landfill including, where available, well top of casing and bottom elevations, name of owner, age and usage of each well, stratigraphic unit screened, well construction technique and static water level;
☐	_____	☐	☑	h. Identify and locate any existing contaminated areas on the site;
☐	_____	☐	☑	i. Include a map showing the locations of all potable wells within 500 feet of the waste storage and disposal areas;
☐	_____	☐	☑	2. Report signed, sealed and dated by PE and/or PG.

PART I. GEOTECHNICAL INVESTIGATION REQUIREMENTS (62-701.410(2),FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Submit a geotechnical site investigation report defining the engineering properties of the site including at least the following:
☐	_____	☐	☑	a. Description of subsurface conditions including soil stratigraphy and ground water table conditions;
☐	_____	☐	☑	b. Investigate for the presence of muck, previously filled areas, soft ground, lineaments and sink holes;
☐	_____	☐	☑	c. Estimates of average and maximum high water table across the site;
☐	_____	☐	☑	d. Foundation analysis including:
☐	_____	☐	☑	(1) Foundation bearing capacity analysis;
☐	_____	☐	☑	(2) Total and differential subgrade settlement analysis;
☐	_____	☐	☑	(3) Slope stability analysis;
☐	_____	☐	☑	e. Description of methods used in the investigation and includes soil boring logs, laboratory results, analytical calculations, cross sections, interpretations and conclusions;
☐	_____	☐	☑	f. An evaluation of fault areas, seismic impact zones, and unstable areas as described in 40 CFR 258.13, 40 CFR 258.14 and 40 CFR 258.15.
☐	_____	☐	☑	2. Report signed, sealed and dated by PE and/or PG.

PART J. VERTICAL EXPANSION OF LANDFILLS (62-701.430,FAC)

S	LOCATION	N/A	N/C	
☐	_____	☑	☐	1. Describe how the vertical expansion shall not cause or contribute to leachate leakage from the existing landfill, shall not cause objectionable odors, or adversely affect the closure design of the existing landfill;
☐	_____	☑	☐	2. Describe how the vertical expansion over unlined landfills will meet the requirements of Rule 62-701.400, FAC with the exceptions of Rule 62-701.430(1)(c),FAC;
☐	_____	☑	☐	3. Provide foundation and settlement analysis for the vertical expansion;
☐	_____	☑	☐	4. Provide total settlement calculations demonstrating that the final elevations of the lining system, that gravity drainage, and that no other component of the design will be adversely affected;
☐	_____	☑	☐	5. Minimum stability safety factor of 1.5 for the lining system component interface stability and deep stability;
☐	_____	☑	☐	6. Provide documentation to show the surface water management system will not be adversely affected by the vertical expansion;
☐	_____	☑	☐	7. Provide gas control designs to prevent accumulation of gas under the new liner for the vertical expansion.

PART K. LANDFILL OPERATION REQUIREMENTS (62-701.500,FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Provide documentation that landfill will have at least one trained operator during operation and at least one trained spotter at each working face; (62-701.500(1),FAC)
☐	_____	☐	☑	2. Provide a landfill operation plan including procedures for: (62-701.500(2), FAC)
☐	_____	☐	☑	a. Designating responsible operating and maintenance personnel;
☐	_____	☐	☑	b. Emergency preparedness and response, as required in subsection 62-701.320(16), FAC;
☐	_____	☐	☑	c. Controlling types of waste received at the landfill;
☐	_____	☐	☑	d. Weighing incoming waste;
☐	_____	☐	☑	e. Vehicle traffic control and unloading;
☐	_____	☐	☑	f. Method and sequence of filling waste;
☐	_____	☐	☑	g. Waste compaction and application of cover;
☐	_____	☐	☑	h. Operations of gas, leachate, and stormwater controls;
☐	_____	☐	☑	i. Water quality monitoring.
☐	_____	☐	☑	j. Maintaining and cleaning the leachate collection system;
☐	_____	☐	☑	3. Provide a description of the landfill operation record to be used at the landfill; details as to location of where various operational records will be kept (i.e. FDEP permit, engineering drawings, water quality records, etc.) (62-701.500(3),FAC)
☐	_____	☐	☑	4. Describe the waste records that will be compiled monthly and provided to the Department annually; (62-701.500(4),FAC)
☐	_____	☐	☑	5. Describe methods of access control; (62-701.500(5),FAC)

S	LOCATION	N/A	N/C	PART K CONTINUED
☐	_____	☐	☑	6. Describe load checking program to be implemented at the landfill to discourage disposal of unauthorized wastes at the landfill; (62-701.500(6),FAC)
☐	_____	☐	☑	7. Describe procedures for spreading and compacting waste at the landfill that include: (62-701.500(7),FAC)
☐	_____	☐	☑	a. Waste layer thickness and compaction frequencies;
☐	_____	☐	☑	b. Special considerations for first layer of waste placed above liner and leachate collection system;
☐	_____	☐	☑	c. Slopes of cell working face and side grades above land surface, planned lift depths during operation;
☐	_____	☐	☑	d. Maximum width of working face;
☐	_____	☐	☑	e. Description of type of initial cover to be used at the facility that controls:
☐	_____	☐	☑	(1) Vector breeding/animal attraction
☐	_____	☐	☑	(2) Fires
☐	_____	☐	☑	(3) Odors
☐	_____	☐	☑	(4) Blowing litter
☐	_____	☐	☑	(5) Moisture infiltration
☐	_____	☐	☑	f. Procedures for applying initial cover including minimum cover frequencies;
☐	_____	☐	☑	g. Procedures for applying intermediate cover;
☐	_____	☐	☑	h. Time frames for applying final cover;
☐	_____	☐	☑	i. Procedures for controlling scavenging and salvaging.

S	LOCATION	N/A	N/C	PART K CONTINUED
☐	_____	☐	☑	j. Description of litter policing methods;
☐	_____	☐	☑	k. Erosion control procedures.
☐	_____	☐	☑	8. Describe operational procedures for leachate management including; (62-701.500(8),FAC)
☐	_____	☐	☑	a. Leachate level monitoring, sampling, analysis and data results submitted to the Department;
☐	_____	☐	☑	b. Operation and maintenance of leachate collection and removal system, and treatment as required;
☐	_____	☐	☑	c. Procedures for managing leachate if it becomes regulated as a hazardous waste;
☐	_____	☐	☑	d. Identification of treatment or disposal facilities that may be used for off-site discharge and treatment of leachate;
☐	_____	☐	☑	e. Contingency plan for managing leachate during emergencies or equipment problems;
☐	_____	☐	☑	f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;
☐	_____	☐	☑	g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;
☐	_____	☐	☑	h. Procedures for water pressure cleaning or video inspecting leachate collection systems.
☑	Engineering Report	☐	☐	9. Describe how the landfill receiving degradable wastes shall implement a gas management system meeting the requirements of Rule 62-701.530, FAC; (62-701.500(9),FAC)
☐	_____	☐	☑	10. Describe procedures for operating and maintaining the landfill stormwater management system to comply with the requirements of Rule 62-701.400(9); (62-701.500(10),FAC)

S	LOCATION	N/A	N/C	PART K CONTINUED
☐	_____	☐	☑	11. Equipment and operation feature requirements; (62-701.500(11),FAC)
☐	_____	☐	☑	a. Sufficient equipment for excavating, spreading, compacting and covering waste;
☐	_____	☐	☑	b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;
☐	_____	☐	☑	c. Communications equipment;
☐	_____	☐	☑	d. Dust control methods;
☐	_____	☐	☑	e. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;
☐	_____	☐	☑	f. Litter control devices;
☐	_____	☐	☑	g. Signs indicating operating authority, traffic flow, hours of operation, disposal restrictions.
☐	_____	☐	☑	12. Provide a description of all-weather access road, inside perimeter road and other roads necessary for access which shall be provided at the landfill; (62-701.500(12),FAC)
☐	_____	☐	☑	13. Additional record keeping and reporting requirements; (62-701.500(13),FAC)
☐	_____	☐	☑	a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;
☐	_____	☐	☑	b. Monitoring information, calibration and maintenance records, copies of reports required by permit maintained for at least 10 years;
☐	_____	☐	☑	c. Maintain annual estimates of the remaining life of constructed landfills and of other permitted areas not yet constructed and submit this estimate annually to the Department;
☐	_____	☐	☑	d. Procedures for archiving and retrieving records which are more than five year old.

PART L. WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS (62-701.510, FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Water quality and leachate monitoring plan shall be submitted describing the proposed ground water, surface water and leachate monitoring systems and shall meet at least the following requirements;
☐	_____	☐	☑	a. Based on the information obtained in the hydrogeological investigation and signed, dated and sealed by the PG or PE who prepared it; (62-701.510(2)(a),FAC)
☐	_____	☐	☑	b. All sampling and analysis preformed in accordance with Chapter 62-160, FAC; (62-701.510(2)(b),FAC)
☐	_____	☐	☑	c. Ground water monitoring requirements; (62-701.510(3),FAC)
☐	_____	☐	☑	(1) Detection wells located downgradient from and within 50 feet of disposal units;
☐	_____	☐	☑	(2) Downgradient compliance wells as required;
☐	_____	☐	☑	(3) Background wells screened in all aquifers below the landfill that may be affected by the landfill;
☐	_____	☐	☑	(4) Location information for each monitoring well;
☐	_____	☐	☑	(5) Well spacing no greater than 500 feet apart for downgradient wells and no greater than 1500 feet apart for upgradient wells unless site specific conditions justify alternate well spacings;
☐	_____	☐	☑	(6) Well screen locations properly selected;
☐	_____	☐	☑	(7) Monitoring wells constructed to provide representative ground water samples;
☐	_____	☐	☑	(8) Procedures for properly abandoning monitoring wells;
☐	_____	☑	☐	(9) Detailed description of detection sensors if proposed.
☐	_____	☑	☐	d. Surface water monitoring requirements; (62-701.510(4),FAC)

S	LOCATION	N/A	N/C	PART L CONTINUED
☐	_____	☑	☐	(1) Location of and justification for all proposed surface water monitoring points;
☐	_____	☐	☑	(2) Each monitoring location to be marked and its position determined by a registered Florida land surveyor;
☐	_____	☐	☑	e. Leachate sampling locations proposed; (62-701.510(5),FAC)
☐	_____	☐	☑	f. Initial and routine sampling frequency and requirements; (62-701.510(6),FAC)
☐	_____	☐	☑	(1) Initial background ground water and surface water sampling and analysis requirements;
☐	_____	☐	☑	(2) Routine leachate sampling and analysis requirements;
☐	_____	☐	☑	(3) Routine monitoring well sampling and analysis requirements;
☐	_____	☑	☐	(4) Routine surface water sampling and analysis requirements.
☐	_____	☐	☑	g. Describe procedures for implementing evaluation monitoring, prevention measures and corrective action as required; (62-701.510(7),FAC)
☐	_____	☐	☑	h. Water quality monitoring report requirements;(62-701.510(9),FAC)
☐	_____	☐	☑	(1) Semi-annual report requirements (see paragraphs 62 701.510(6)(c),(d)and (e) for sampling frequencies);
☐	_____	☐	☑	(2) Documentation that the water quality data shall be provided to the Department in an electronic format consistent with requirements for importing into Department databases, unless an alternate form of submittal is specified in the permit.
☐	_____	☐	☑	(3) Two and one-half year report requirements, or every five years if in long-term care, signed, dated and sealed by PG or PE.

PART M. SPECIAL WASTE HANDLING REQUIREMENTS (62-701.520, FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Describe procedures for managing motor vehicles; (62-701.520(1),FAC)
☐	_____	☑	☐	2. Describe procedures for landfilling shredded waste; (62-701.520(2),FAC)
☐	_____	☐	☑	3. Describe procedures for asbestos waste disposal; (62-701.520(3),FAC)
☐	_____	☑	☐	4. Describe procedures for disposal or management of contaminated soil; (62-701.520(4), FAC)
☐	_____	☑	☐	5. Describe procedures for disposal of biological wastes; (62-701.520(5), FAC)

PART N. GAS MANAGEMENT SYSTEM REQUIREMENTS (62-701.530,FAC)

S	LOCATION	N/A	N/C	
☑	Engineering Report	☐	☐	1. Provide the design for a gas management system that will (62-701.530(1), FAC):
☑	Engineering Report	☐	☐	a. Be designed to prevent concentrations of combustible gases from exceeding 25% the LEL in structures and 100% the LEL at the property boundary;
☑	Engineering Report	☐	☐	b. Be designed for site-specific conditions;
☑	Engineering Report	☐	☐	c. Be designed to reduce gas pressure in the interior of the landfill;
☑	Engineering Report	☐	☐	d. Be designed to not interfere with the liner, leachate control system or final cover.
☑	Engineering Report	☐	☐	2. Provide documentation that will describe locations, construction details and procedures for monitoring gas at ambient monitoring points and with soil monitoring probes; (62-701.530(2), FAC):
☑	Engineering Report	☐	☐	3. Provide documentation describing how the gas remediation plan and odor remediation plan will be implemented; (62-701.530(3), FAC):
☐	_____	☑	☐	4. Landfill gas recovery facilities; (62-701.530(5), FAC):

S	LOCATION	N/A	N/C	PART N CONTINUED
☐	_____	☑	☐	a. Information required in Rules 62-701.320(7) and 62-701.330(3), FAC supplied;
☐	_____	☑	☐	b. Information required in Rule 62-701.600(4), FAC supplied where relevant and practical;
☐	_____	☑	☐	c. Estimate of current and expected gas generation rates and description of condensate disposal methods provided;
☑	Engineering Report	☐	☐	d. Description of procedures for condensate sampling, analyzing and data reporting provided;
☑	Engineering Report	☐	☐	e. Closure plan provided describing methods to control gas after recovery facility ceases operation and any other requirements contained in Rule 62-701.400(10), FAC;
☐	_____	☑	☐	f. Performance bond provided to cover closure costs if not already included in other landfill closure costs.

PART O. LANDFILL FINAL CLOSURE REQUIREMENTS (62-701.600,FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Closure permit requirements; (62-701.600(2),FAC)
☐	_____	☐	☑	a. Application submitted to Department at least 90 days prior to final receipt of wastes;
☐	_____	☐	☑	b. Closure plan shall include the following:
☐	_____	☐	☑	(1) Closure design plan;
☐	_____	☐	☑	(2) Closure operation plan;
☐	_____	☐	☑	(3) Plan for long-term care;
☐	_____	☐	☑	(4) A demonstration that proof of financial responsibility for long-term care will be provided.

S	LOCATION	N/A	N/C	PART O CONTINUED
☐	_____	☐	☑	2. Closure design plan including the following requirements: (62-701.600(3),FAC)
☐	_____	☐	☑	a. Plan sheet showing phases of site closing;
☐	_____	☐	☑	b. Drawings showing existing topography and proposed final grades;
☐	_____	☐	☑	c. Provisions to close units when they reach approved design dimensions;
☐	_____	☐	☑	d. Final elevations before settlement;
☐	_____	☐	☑	e. Side slope design including benches, terraces, down slope drainage ways, energy dissipaters and discussion of expected precipitation effects;
☐	_____	☐	☑	f. Final cover installation plans including:
☐	_____	☐	☑	(1) CQA plan for installing and testing final cover;
☐	_____	☐	☑	(2) Schedule for installing final cover after final receipt of waste;
☐	_____	☐	☑	(3) Description of drought-resistant species to be used in the vegetative cover;
☐	_____	☐	☑	(4) Top gradient design to maximize runoff and minimize erosion;
☐	_____	☐	☑	(5) Provisions for cover material to be used for final cover maintenance.
☐	_____	☐	☑	g. Final cover design requirements:
☐	_____	☐	☑	(1) Protective soil layer design;
☐	_____	☐	☑	(2) Barrier soil layer design;

S	LOCATION	N/A	N/C	PART O CONTINUED
☐	_____	☐	☑	(3) Erosion control vegetation;
☐	_____	☐	☑	(4) Geomembrane barrier layer design;
☐	_____	☐	☑	(5) Geosynthetic clay liner design if used;
☐	_____	☐	☑	(6) Stability analysis of the cover system and the disposed waste.
☐	_____	☐	☑	h. Proposed method of stormwater control;
☐	_____	☐	☑	i. Proposed method of access control;
☑	Engineering Report	☐	☐	j. Description of the proposed or existing gas management system which complies with Rule 62-701.530, FAC.
☐	_____	☐	☑	3. Closure operation plan shall include:(62-701.600(4),FAC)
☐	_____	☐	☑	a. Detailed description of actions which will be taken to close the landfill;
☐	_____	☐	☑	b. Time schedule for completion of closing and long-term care;
☐	_____	☐	☑	c. Describe proposed method for demonstrating financial assurance for long-term care;
☐	_____	☐	☑	d. Operation of the water quality monitoring plan required in Rule 62-701.510, FAC.
☐	_____	☐	☑	e. Development and implementation of gas management system required in Rule 62-701.530, FAC.
☐	_____	☐	☑	4. Certification of closure construction completion including: (62-701.600(6),FAC)
☐	_____	☐	☑	a. Survey monuments; (62-701.600(6)(a),FAC)
☐	_____	☐	☑	b. Final survey report; (62-701.600(6)(b),FAC)

S	LOCATION	N/A	N/C	PART O CONTINUED
☐	_____	☐	☑	5. Declaration to the public; (62-701.600(7),FAC)
☐	_____	☐	☑	6. Official date of closing; (62-701.600(8),FAC)
☐	_____	☐	☑	7. Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (62-701.600(9),FAC)

PART P. OTHER CLOSURE PROCEDURES (62-701.610,FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Describe how the requirements for use of closed solid waste disposal areas will be achieved;(62-701.610(1),FAC)
☐	_____	☐	☑	2. Describe how the requirements for relocation of wastes will be achieved; (62-701.610(2), FAC)

PART Q. LONG-TERM CARE (62-701.620,FAC)

S	LOCATION	N/A	N/C	
☑	Engineering Report	☐	☐	1. Maintaining the gas collection and monitoring system; (62-701.620(5), FAC)
☐	_____	☐	☑	2. Stabilization report requirements; (62-701.620(6),FAC)
☐	_____	☐	☑	3. Right of access;(62-701.620(7),FAC)
☐	_____	☐	☑	4. Requirements for replacement of monitoring devices; (62-701.620(8),FAC)
☐	_____	☐	☑	5. Completion of long-term care signed and sealed by professional engineer (62-701.620(9), FAC).

PART R. FINANCIAL ASSURANCE (62-701.630,FAC)

S	LOCATION	N/A	N/C	
☐	_____	☐	☑	1. Provide cost estimates for closing, long-term care, and corrective action costs estimated by a PE for a third party performing the work, on a per unit basis, with the source of estimates indicated; (62-701.630(3)&(7), FAC).
☐	_____	☐	☑	2. Describe procedures for providing annual cost adjustments to the Department based on inflation and changes in the closing, long-term care, and corrective action plans; (62-701.630(4)&(8), FAC).
☐	_____	☐	☑	3. Describe funding mechanisms for providing proof of financial assurance and include appropriate financial assurance forms; (62-701.630(5),(6),&(9), FAC).
☐	_____	☐	☑	4. Provide documentation and the appropriate forms for delaying submitting proof of financial assurance for solid waste disposal units that qualify; (62-701.630(2)(c), FAC).

PART S. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

1. Applicant:

The undersigned applicant or authorized representative of Vista Landfill, LLC

_____ is aware that statements made in this form and attached

information are an application for a Class III Landfill Operation Permit from the Florida Department of Environmental Protection and certifies that the information in this application is true, correct and complete to the best of his/her knowledge and belief. Further, the undersigned agrees to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department. It is understood that the Permit is not transferable, and the Department will be notified prior to the sale or legal transfer of the permitted facility.

Signature of Applicant or Agent

Timothy Hawkins, Vice President
Name and Title (please type)

thawkins@wm.com
E-Mail address (if available)

242 West Keene Road
Mailing Address

Apopka, FL 32703
City, State, Zip Code

(407) 553-4939
Telephone Number

Date: 8-7-12

Attach letter of authorization if agent is not a governmental official, owner, or corporate officer.

2. Professional Engineer registered in Florida (or Public Officer if authorized under Sections 403.707 and 403.7075, Florida Statutes):

This is to certify that the engineering features of this solid waste management facility have been designed/examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, this facility, when properly maintained and operated, will comply with all applicable statutes of the State of Florida and rules of the Department. It is agreed that the undersigned will provide the applicant with a set of instructions of proper maintenance and operation of the facility.

SETH A. NUNES LICENSE No. 69457 STATE OF FLORIDA PROFESSIONAL ENGINEER

Signature

Seth A. Nunes, PE, Project Manager
Name and title (please type)

69457
Florida Registration Number
(please affix seal)

305 South Main Street
Mailing Address

Monroe, North Carolina 28112
City, State, Zip Code

snunes@cecenv.com
E-Mail address (if available)

(863) 634-7185
Telephone Number

Date: 8-7-12

INTERMEDIATE CLASS III OPERATION PERMIT MODIFICATION APPLICATION GAS MANAGEMENT SYSTEM

VISTA LANDFILL, CLASS III FACILITY
242 WEST KEENE ROAD
APOPKA, FLORIDA 32703

Prepared for:

WASTE MANAGEMENT INC. OF FLORIDA

Prepared by:

CARLSON ENVIRONMENTAL CONSULTANTS, PC
305 South Main Street
Monroe, North Carolina 28112
(704) 283-9765

September 2012

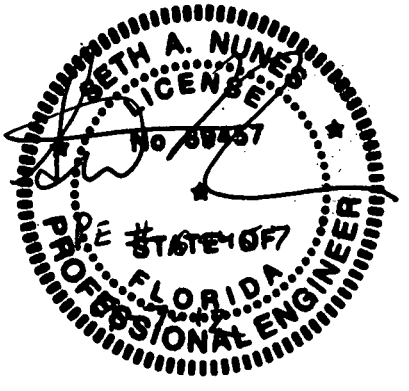


TABLE OF CONTENTS

1 ENGINEERING REPORT 1-1

1.1 INTRODUCTION 1-1
1.2 EXISTING CONDITIONS 1-1
1.2.1 Landfill Gas Monitoring Probes 1-1
1.2.2 Landfill Gas Collection Points 1-1
1.3 DESIGN CONDITIONS 1-2
1.3.1 Construction Notification and Certification 1-2
1.3.2 Excavated Waste Handling 1-2
1.3.3 Interim Design Conditions 1-3
1.3.4 Compatibility with Refuse Filling Operations 1-4
1.3.5 Landfill Cover Properties 1-4
1.3.6 Landfill Gas Extraction 1-4
1.3.6.1 Vertical Extraction Wells 1-5
1.3.6.2 Horizontal Collectors 1-5
1.3.6.3 LCRS Tie-ins for LFG Collection 1-6
1.3.6.4 Wellheads 1-6
1.4 LANDFILL GAS COLLECTION POINT DECOMMISSIONING 1-6
1.5 CLOSURE 1-6
1.6 LONG-TERM CARE AND FINANCIAL ASSURANCE 1-6
1.7 RECORDKEEPING 1-7

Appendix A Vent Drill Logs
Appendix B Gas Management System Drawings
Appendix C Updated Financial Assurance Estimate

1 ENGINEERING REPORT

1.1 Introduction

The purpose of this intermediate permit modification for Vista Landfill, Class III Facility (Vista) is to provide information regarding Waste Management Inc. of Florida's (WMIF) proactive approach to gas management. This document supplements the information provided in the Operations Permit Application dated February 17, 2011.

Vista currently operates under an active Title V operating permit (No. 0951334-002-AV). This air operating permit addresses the landfill gas (LFG) that is collected at the contiguous landfills of Keene Road Recycling and Disposal Facility (Keene) and the Vista Landfill. The collected LFG from Vista is piped to the open flare located at the Keene Road Recycling and Disposal Facility.

1.2 Existing Conditions

Vista is located in Apopka, Orange County, Florida and is operated by WMIF. This intermediate permit modification outlines the proactive methodology employed to design and implement control measures to reduce migration. Existing control measures include active landfill gas extraction and flaring.

1.2.1 Landfill Gas Monitoring Probes

At final buildout, 25 permanent landfill gas monitoring probes will be installed at Vista along the site property line and in the vicinity of the on-site structures. The gas probes and structures are monitored on a quarterly basis in accordance with 62-701.530(2), FAC.

1.2.2 Landfill Gas Collection Points

The facility has installed additional control measures to reduce the migration and maintain compliance with Rule 62-701.530, FAC. The additional control measures included the installation of an active gas collection system at the facility in 2010. This active gas collection system includes a blower-assisted flare that is capable of collecting 2,800 standard cubic feet per minute (scfm) of gas from both Keene and Vista Landfills.

The current active gas collection system at Vista connects four (4) vertical extraction wells and five (5) horizontal collectors with below grade high density polyethylene (HDPE) header and lateral piping. Refer to Appendix A for copies of the wells logs. The existing site plan located in Appendix B shows the location of the installed gas management system features.

Condensate that is generated in the LFG extraction process is pumped back into Vista's leachate control system where it is comingled with the site's leachate. Leachate is collected at the site's

160,000 gallon capacity storage tank and conveyed to a municipal sanitary sewer line located on West Keene Road for off-site treatment and disposal at the City of Apopka Waste Water Treatment Plant (WWTP). At this time, condensate sampling and analysis is not performed. Leachate is analyzed annually in accordance with the site's Solid Waste Operating Permit (No. SO48-0165969-018).

1.3 Design Conditions

Vista's proposed methods for future gas migration mitigation include installation of additional LFG collection devices as filling continues. Included in Appendix B are figures depicting the proposed Gas Management System Layout at buildout conditions and typical Gas Management System Details (wells, wellheads, piping, etc.). These features are installed proactively by Waste Management Inc. of Florida and are not required by Rule 62-701.530, FAC as the landfill accepts Class III waste and is not required to have a passive or active gas management system. However, a combination of passive and active gas management system components may be used as control measures to reduce migration and maintain compliance in accordance with the regulations. All LFG features will be installed based on the determination of site personnel.

Final well placement may vary from this anticipated buildout design due to the placement of wells and/or collectors during interim conditions. During interim conditions the locations may be changed due to filling activities or other considerations of an active landfill. Furthermore, wells/collectors may have to be replaced, re-drilled, or relocated over the life of the facility due to the conditions of the waste the wells are contained in, ongoing operations, etc. If this happens, the location of the well/collector may vary from the original designed location.

1.3.1 Construction Notification and Certification

Prior to commencement of scheduled (non-emergency) gas management system construction, WMIF will notify the Administrator in a timely manner. The written notification will include a description of the proposed construction, the anticipated start date, and the approximate duration of construction activity. Upon completion of construction, WMIF will submit a certification of completion to the Administrator summarizing the construction.

WMIF understands that a minor modification shall be submitted to the Administrator should the gas management system layout deviate substantially from that included in this intermediate permit modification.

1.3.2 Excavated Waste Handling

Class III refuse from trenching and drilling spoils will be loaded and moved to the active working face as soon as possible after excavation for disposal.

In the event that the Class III refuse is excavated and cannot be immediately taken to the working face the refuse may be stored adjacent to the excavation/borehole until it can be taken

to the working face before the end of the same working day. Refuse will remain within close proximity to the location from which it was removed.

Care will be taken to limit stormwater contact with the exposed Class III refuse. If the refuse can not be taken immediately to the working face, the Class III refuse shall be tarped or otherwise covered, and bermed (if located on a sideslope), to prevent stormwater contamination.

1.3.3 Interim Design Conditions

In general, interim operating conditions occur when the landfill is actively accepting waste, and before it is closed or reaches final grades. During these interim conditions, the active gas collection system may be installed on an as needed basis.

One of the key factors in constructing and operating the gas management system during interim conditions, is how to design gas management features so it is compatible with the waste filling operations of an active landfill. Active filling operations may change due to economic conditions, natural disaster or other factors, which can impact when and how gas management features are installed. In general, gas management features will be installed to meet the requirements of the day-to-day activities of an active landfill. Due to the complexity of predicting fill operation, the exact timing of installation of these features may vary.

A flexible design was developed that incorporates the operational difficulties that can occur when installing an active gas collection system while the facility is actively accepting refuse. Collection device locations will be determined during operation of the landfill to maintain needed flexibility to account for daily operations which include shifting of refuse fill patterns, weather, waste type, waste volumes, natural disasters, and significant area events.

Interim conditions can hinder the effectiveness of the active gas collection system because it may be inadvertently damaged by heavy equipment collisions during filling operations, not necessarily coincide with filling operations, or water-in because of bellies resulting from heavy traffic or differential settlement.

Since the operations of the landfill, which include the filling patterns and amounts of waste accepted at Vista may change over time, there is no single design that can be presented at this time to address the location of each gas collection device and the corresponding piping network. Instead, during the interim period, the migration of LFG and conformance with Rule 62-701.530, FAC will be maintained and be used as the tool to determine when the system will be expanded and when upgrades to the system will be added.

Collection device locations and density will be determined at the time of installation to support normal operations of the landfill in regard to roadways, equipment, and fill sequencing. Actual collection device placement may vary from the locations shown on the drawings in Appendix B to accommodate actual site conditions at the time of installation.

The header and lateral pipeline systems have been sized to accommodate the peak flows depending on the planned life of the pipeline. If the landfill plans to operate the header and lateral pipelines only during interim conditions, and will be dismantled/replaced prior to final build out of the system, then it will be sized for the anticipated gas flows equating to the period of time it is planned to be operational. The portions of the pipe network that the landfill plans to use as part of the final design will be appropriately sized to handle the anticipated gas flows in the portion of the landfill at final buildout.

1.3.4 Compatibility with Refuse Filling Operations

During the process of Class III refuse filling operations, periodically, a vertical extraction well may be "raised" so the new Class III refuse is not placed over the top of an existing well in a manner that covers the well with Class III refuse, thereby preventing access. The vertical extraction wells are raised in anticipation of a new lift of Class III refuse, or in advance of the Class III refuse being added to the area in order to maintain worker safety in the active area during these well raising construction activities. However, in performing the well raising in a safe area may require the well to be raised more than 30 days before the Class III refuse can be placed around the well.

1.3.5 Landfill Cover Properties

The purpose of the interim cover system is to provide a barrier to landfill gas emissions, as well as, water and air infiltration. During the normal course of operations, daily, intermediate and final cover will be installed over the waste. The interim cover system will vary depending on when the landfill plans to place additional waste in the area. If the waste landfill sequencing plan defers filling to final grade in certain area(s) it may decide to seed or install some kind of a temporary cap over this portion of the landfill.

Final gas management system design conditions for the closed landfill will apply in areas of the active landfill, where waste has reached final grade and a certified closed cap is in place. Final design conditions also apply to the closed landfill or closed portions of an active landfill that have achieved final waste grades.

Typical details of LFG features that may be installed are depicted in Appendix B. The proposed final buildout conditions of the gas management system are also shown in Appendix B.

1.3.6 Landfill Gas Extraction

Interim landfill gas extraction may be provided by a combination of vertical extraction wells, horizontal collectors, and tie-ins to the leachate collection system. While WMIF intends to install vertical extraction wells to the maximum extent practical, particularly on sideslopes or in areas at or near final grade, horizontal collectors may be employed at interim conditions when installation of vertical wells is not appropriate due to site geometry or sequence of filling. In areas where horizontal collectors are installed, additional vertical wells may be required at final buildout depending on the performance of the collectors.

1.3.6.1 Vertical Extraction Wells

The design of vertical extraction wells at the site will vary depending on the landfill area in which the wells will be installed. In landfill areas with geomembrane liners, vertical wells will typically terminate at least 10 feet above the bottom of refuse. Vertical wells typically have an effective radius of influence that ranges from approximately 2.0 to 2.25 times the well depth. Consequently, the well spacing at Vista varies generally from 100 to 200 feet, depending on the estimated radii of influence of the wells.

Vertical wells will be constructed of either HDPE or PVC pipe installed in 30-inch or 36-inch diameter boreholes, unless an engineering judgment is made that an alternate sized borehole is more appropriate. Typically, approximately the lower two-thirds of the well pipe will be perforated or slotted. However, perforations/slots will not be closer than 15 feet from the landfill surface unless the wells are being installed in an active area and additional refuse will be filled around the wells within a reasonable period of time. Perforations typically will be either 5/8-inch diameter holes staggered 180 degrees apart, or 3/8-inch wide by 8-inch long slots spaced 12-inches apart on center. However, alternative slot or perforation designs which provide comparable performance may be considered.

1.3.6.2 Horizontal Collectors

Horizontal collectors typically have a horizontal zone of influence of approximately 75 feet, which results in a lateral spacing of approximately 150 feet between collectors. Horizontal collector lengths will vary depending on site conditions at the time of system expansion, but generally will be less than 1,000 feet long.

Horizontal collectors will be constructed to include the following features:

- Collector pipe will normally be 6- or 8-inch diameter solid HDPE pipe with a smooth interior wall with sufficient strength to resist crushing force due to the overburden of the landfill.

- The perforated/slotted collector pipe will be installed in a trench filled with appropriate aggregate material. The permeable backfill material will be sized so as to not pose significant risk of clogging the pipe perforations. Tire chips may also be used as backfill material.

- Perforated pipe will cease and the remaining length of collector will be solid-wall pipe. This will reduce the potential for air infiltration into the collectors.

- Perforations in the pipe will be sufficiently large to not cause excessive head loss detrimental to LFG collection.

1.3.6.3 LCRS Tie-ins for LFG Collection

To provide supplemental LFG collection during interim conditions, WMIF may install tie-ins to existing and future leachate collection riser pipes. These collectors are intended to provide supplemental collection for landfill gas migration purposes.

1.3.6.4 Wellheads

Each extraction well and horizontal collector will include a wellhead constructed of appropriate materials. Wellheads will include a valve for flow control and monitoring ports for measuring gas quality, temperature, and flow rate.

1.4 Landfill Gas Collection Point Decommissioning

Based on the performance of each individual collection point, it may be necessary to decommission them at some point. To decommission a collection point, the wellhead will be removed and the vertical well casing and/or horizontal collector casing will be capped with a fused or slip-on cap.

Over the life of the site, individual collection points may be replaced, the new collections points will be renamed or given another alternative name.

1.5 Closure

At the time of closure, the permitted final cover system will be either a geosynthetic clay liner (GCL) or 40-mil low density polyethylene (LLDPE) synthetic cap. The barrier layer will be installed over a minimum 6-inch soil layer, overlain by 18-inches of protective cover soil overlain, and 6-inches of compost or topsoil capable of sustaining vegetation. Any modifications made to the gas management system (active or passive) during interim conditions will be incorporated in the site's closure plans.

1.6 Long-Term Care and Financial Assurance

As currently approved by FDEP Permit No. SO 48-0165969-018, Condition G, Vista is operating under a phased financial assurance. Since Cells 1, 2, and 3 of Phase 1 are currently constructed, the attached closure costs have been updated to reflect the closure area of these Phase 1 cells, which is approximately 26.2 acres. Refer to Appendix C for the revised Financial Assurance, which includes FDEP Form No. 62-701.900(28), the back-up calculations and third party quotes.

1.7 Recordkeeping

Prior to commencement of scheduled (non-emergency) gas management system construction, WMIF will notify the Administrator in a timely manner. The written notification will include a description of the proposed construction, the anticipated start date, and the approximate duration of construction activity. Upon completion of construction, WMIF will submit a certification of completion to the Administrator summarizing the construction. Once construction has been completed, record drawings of the completed gas management system construction will be updated and a copy of the updated site plan will be kept on-site.

APPENDIX A

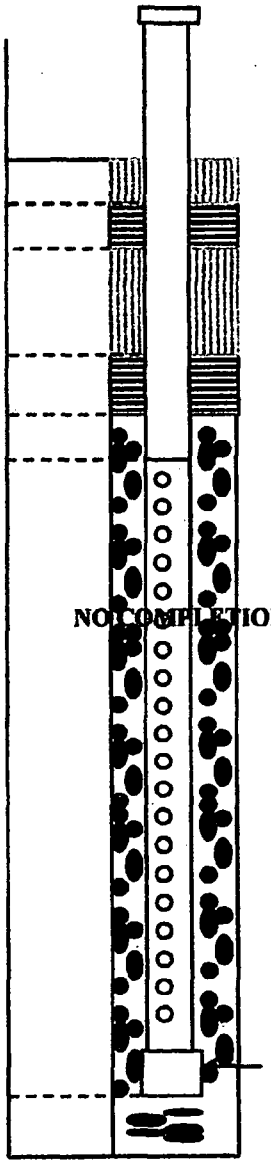
APPENDIX A

VENT DRILL LOGS

QUALITY DRILLING SERVICE

DRILLING & COMPLETION LOG

Project Name: Vista LF
Well Number: EW-1A
Date: 10-4-10



DRILL	54'	WEATHER	Fair
COMP.		START	7:50 am
ABAN.		STOP	9:35 am
SOLID		PIPE DIA. & TYPE	
PERF.			

DEPTH	COMPOSITION & TEMPERATURE °	DEGREE OF DECOMPOSITION	AMOUNT OF MOISTURE
0-2	Covers	Damp/None	Dry/Mostly
2-20	C&D	Mostly	
21-30		Dry	
31-40			
41-50			
51-60			
61-70			
71-80			
81-90			
91-100			
101-110			
111-120			
121-130			
131-140			

TD 54'

COMMENTS

C&D D/M

Set up on Well # EW-1A + drilled 0-54' + set pipe.

Moved to Well # EW-2A.

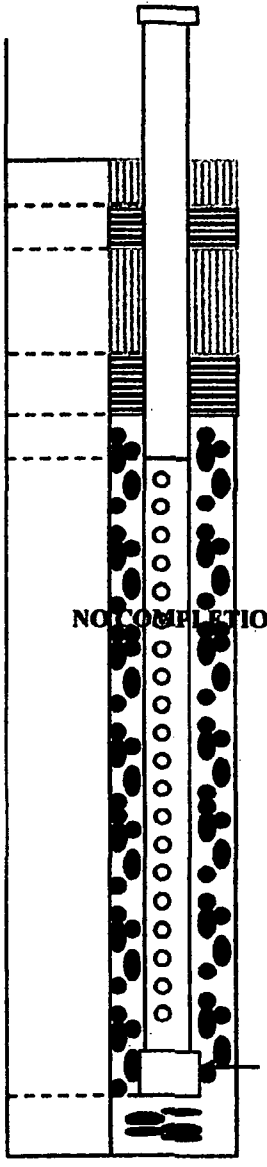
CLIENT REPRESENTATIVE DATE
NAME & TITLE

Amy Hamby 10/4/2010
QUALITY DRILLING SERVICE DATE

QUALITY DRILLING SERVICE

DRILLING & COMPLETION LOG

Project Name: Vista LF
Well Number: EW 2-A
Date: 10-4-10



DRILL	54'	WEATHER	Fair
COMP.		START	10:30am
ABAN.		STOP	12:25pm
SOLID		PIPE DIA. & TYPE	
PERF.			

DEPTH	COMPOSITION & TEMPERATURE °	DEGREE OF DECOMPOSITION	AMOUNT OF MOISTURE
0-2	Cover	None	Dry, Mostly
2-20	C&D	Mostly	
21-30			
31-40			
41-50			
51-60			
61-70			
71-80			
81-90			
91-100			
101-110			
111-120			
121-130			
131-140			

TD 54'

COMMENTS

Set up on Well # EW-2A & drilled 0-54'.
Moved to Well # EW-3A.

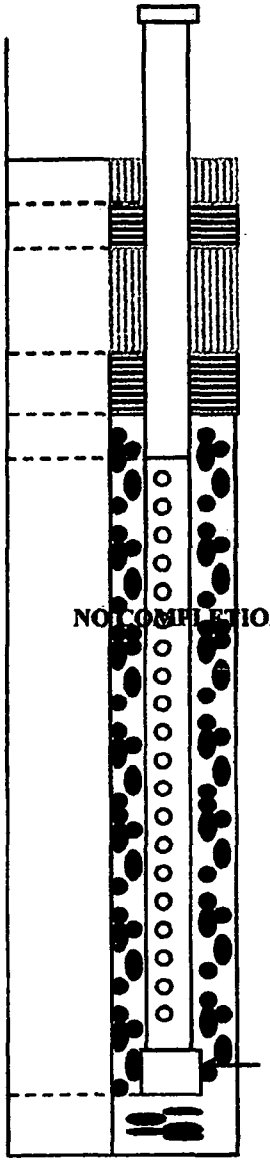
CLIENT REPRESENTATIVE — DATE
NAME & TITLE

Greg Hamby 10/4/2010
QUALITY DRILLING SERVICE — DATE
Greg Hamby — SITE SUPERVISOR

QUALITY DRILLING SERVICE

DRILLING & COMPLETION LOG

Project Name: Vista LF
Well Number: EW-3A
Date: 10-4-10



DRILL	55'	WEATHER	Fair
COMP.		START	12:30 pm
ABAN.		STOP	2:30 pm
SOLID		PIPE DIA. & TYPE	
PERF.			

DEPTH	COMPOSITION & TEMPERATURE °	DEGREE OF DECOMPOSITION	AMOUNT OF MOISTURE
0-2	Cover	None	Dry / Mostly
2-20	C & D	Mostly	
21-30	↓	↓	↓
31-40			
41-50			
51-60			
61-70			
71-80			
81-90			
91-100			
101-110			
111-120			
121-130			
131-140			

TD 55'

COMMENTS

Set up on Well # EW-3A & drilled 0-55' & set pipe.

Moved to Well # EW-4A.

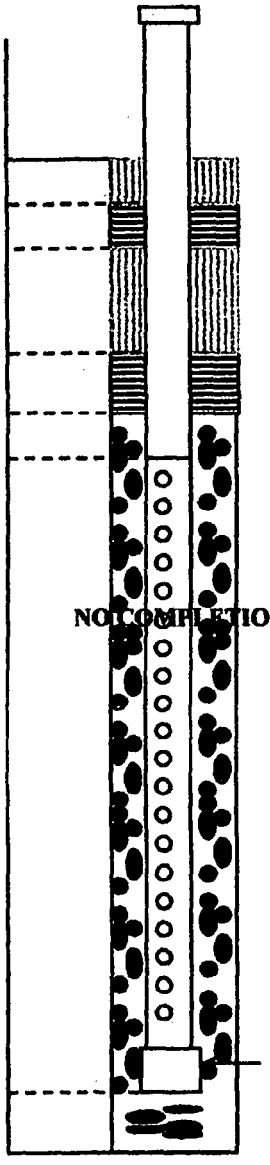
CLIENT REPRESENTATIVE DATE
NAME & TITLE

Greg Hendy 10-4-2010
QUALITY DRILLING SERVICE DATE
Greg Hendy - SITE SUPERVISOR

QUALITY DRILLING SERVICE

DRILLING & COMPLETION LOG

Project Name: Vista LF
Well Number: EW-4A
Date: 10-4-10



DRILL	49'	WEATHER	Fair
COMP.		START	3:25 PM
ABAN.		STOP	4:35 PM
SOLID		PIPE DIA. & TYPE	
PERF.			

DEPTH	COMPOSITION & TEMPERATURE °	DEGREE OF DECOMPOSITION	AMOUNT OF MOISTURE
0-2	Cover	None	Dry
2-20	C&D	Mostly	
21-30			
31-40			
41-50			
51-60			
61-70			
71-80			
81-90			
91-100			
101-110			
111-120			
121-130			
131-140			

TD 49'

COMMENTS

Set up on Well # EW-4A & drilled @ 49' & set pipe

Moved back to Trail Ridge LF.

End of Project.

Total Footage: 212 feet (all C&D).

CLIENT REPRESENTATIVE DATE
NAME & TITLE

Greg Hamby 10/4/2010
QUALITY DRILLING SERVICE DATE
Greg Hamby, STTF SUPERVISOR

APPENDIX B

APPENDIX B

GAS MANAGEMENT SYSTEM DRAWINGS

Sealed Large Format

Drawings

Inserted Separately

APPENDIX C

UPDATED FINANCIAL ASSURANCE ESTIMATE

Print Form | Reset Form

Florida Department of Environmental Protection

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

DEP Form # 62-701.900(28), F.A.C.
Form Title: Closure Cost Estimating Form For Solid Waste Facilities
Effective Date: January 6, 2010
Incorporated in Rule 62-701.630(3), F.A.C.

CLOSURE COST ESTIMATING FORM FOR SOLID WASTE FACILITIES

Date of DEP Approval: _____

I. GENERAL INFORMATION:

Facility Name: Vista Landfill, LLC WACS ID: 87081
Permit Application or Consent Order No.: SO48-0165969-018 Expiration Date: 11/9/16
Facility Address: 242 West Keene Road, Apopka, Florida 32703
Permittee or Owner/Operator: Vista Landfill, LLC
Mailing Address: 242 West Keene Road, Apopka, Florida 32703

Latitude: 28 ° 38 ' 24.5 " Longitude: 81 ° 30 ' 41.7 "
Coordinate Method: State Plane Datum: NAD 83/90
Collected by: T. Jeffery Young, PSM, CP Company/Affiliation Pickett Surv. & Photogram

Solid Waste Disposal Units Included in Estimate:

Phase / Cell	Acres	Date Unit Began Accepting Waste	Active Life of Unit From Date of Initial Receipt of Waste	If active: Remaining life of unit	If closed: Date last waste received	If closed: Official date of closing
Phase 1/1	7.4	11/14/2008	5 years	5 years		
Phase 1/2	9.5	1/25/2010	5 years	5 years		
Phase 1/3	9.2	Proposed	5 years	5 years		

Total disposal unit acreage included in this estimate: Closure: 26.2 Long-Term Care: 26.2

Facility type: ☐ Class I ☒ Class III ☐ C&D Debris Disposal
(Check all that apply) ☒ Other: Class III MRF

II. TYPE OF FINANCIAL ASSURANCE DOCUMENT (Check type)

☐ Letter of Credit* ☒ Insurance Certificate ☐ Escrow Account
☐ Performance Bond* ☐ Financial Test ☐ Form 29 (FA Deferral)
☐ Guarantee Bond* ☐ Trust Fund Agreement

* - Indicates mechanisms that require the use of a Standby Trust Fund Agreement

III. ESTIMATE ADJUSTMENT

40 CFR Part 264 Subpart H as adopted by reference in Rule 62-701.630, Florida Administrative Code, (F.A.C.) sets forth the method of annual cost estimate adjustment. Cost estimates may be adjusted by using an inflation factor or by recalculating the maximum costs of closure in current dollars. Select one of the methods of cost estimate ajustment below.

☐ **(a) Inflation Factor Adjustment** ☒ **(b) Recalculated or New Cost Estimates**

Inflation adjustment using an inflation factor may only be made when a Department approved closure cost estimate exists and no changes have occurred in the facility operation which would necessitate modification to the closure plan. The inflation factor is derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflatory by the Deflator for the previous year. The inflation factor may also be obtained from the Solid Waste website www.dep.state.fl.us/waste/categories/swfr or call the Financial Coordinator at (850) 245-8706.

This adjustment is based on the Department approved closing cost estimate dated: _____

Latest Department Approved **Closing Cost** Estimate:		Current Year Inflation Factor, ***e.g. 1.02***		Inflation Adjusted Closing Cost Estimate:
_____	×	_____	=	_____

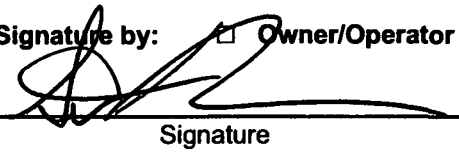
This adjustment is based on the Department approved long-term care cost estimate dated: _____

Latest Department Approved Annual **Long-Term Care** Cost Estimate:		Current Year Inflation Factor, ***e.g. 1.02***		Inflation Adjusted Annual Long-Term Care Cost Estimate:
_____	×	_____	=	_____

Number of Years of Long Term Care Remaining: × _____

Inflation Adjusted Long-Term Care Cost Estimate: = _____

Signature by: ☐ **Owner/Operator** ☒ **Engineer** (check what applies)



Signature

305 South Main Street
Address

Seth Nunes, Project Manager
Name & Title

Monroe, North Carolina 28112
City, State, Zip Code

8-7-12
Date

snunes@cecenv.com
E-Mail Address

(863)634-7185
Telephone Number

IV. ESTIMATED CLOSING COST (check what applies)

☒ **Recalculated Cost Estimate** ☐ **New Facility Cost Estimate**

Notes: 1. Cost estimates for the time period when the extent and manner of landfill operation makes closing most ex
2. Cost estimate must be certified by a professional engineer.
3. Cost estimates based on third party suppliers of material, equipment and labor at fair market value.
4. In some cases, a price quote in support of individual item estimates may be required.

Description	Unit	Number of Units	Cost / Unit	Total Cost
1. Proposed Monitoring Wells	**(Do not include wells already in existence.)**			
	EA			
			Subtotal Proposed Monitoring Wells:	
2. Slope and Fill (bedding layer between waste and barrier layer):				
Excavation	CY	21,102	$3.00	$63,306.00
Placement and Spreading	CY	21,102	$2.10	$44,314.20
Compaction	CY			
Off-Site Material	CY			
Delivery	CY			
			Subtotal Slope and Fill:	$107,620.20
3. Cover Material (Barrier Layer):				
Off-Site Clay	CY			
Synthetics - 40 mil	SY	126,614	$4.68	$592,553.52
Synthetics - GCL	SY			
Synthetics - Geonet	SY	74,135	$5.22	$386,984.70
Synthetics - Other (explain)	CY	63,307	$8.50	$538,109.50
			Subtotal Cover Material:	$1,517,647.72
4. Top Soil Cover:				
Off-Site Material	CY			
Delivery	CY			
Spread	CY	25,323	$5.50	$139,276.50
			Subtotal Top Soil Cover:	$139,276.50
5. Vegetative Layer				
Sodding	SY			
Hydroseeding	AC	26.2	$1,936.00	$50,723.20
Fertilizer	AC			
Mulch	AC			
Other (explain)				
			Subtotal Vegetative Layer:	$50,723.20
6. Stormwater Control System:				
Earthwork	CY			
Grading	SY			
Piping	LF	300	$20.00	$6,000.00
Ditches	LF	6,000	$15.00	$90,000.00
Berms	LF			
Control Structures	EA	2	$2,000.00	$4,000.00
Other (explain)				
			Subtotal Stormwater Control System:	$100,000.00

Description	Unit	Number of Units	Cost / Unit	Total Cost
7. Passive Gas Control:				
Wells	EA			
Pipe and Fittings	LF			
Monitoring Probes	EA	12	$2,000.00	$24,000.00
NSPS/Title V requirements	LS	1		
			Subtotal Passive Gas Control:	$24,000.00
8. Active Gas Extraction Control:				
Traps	EA			
Sumps	EA			
Flare Assembly	EA			
Flame Arrestor	EA			
Mist Eliminator	EA			
Flow Meter	EA			
Blowers	EA			
Collection System	LF			
Other (explain) Boots	EA	10	$500.00	$5,000.00
			Subtotal Active Gas Extraction Control:	$5,000.00
9. Security System:				
Fencing	LF			
Gate(s)	EA	1	$5,000.00	$5,000.00
Sign(s)	EA			
			Subtotal Security System:	$5,000.00
10. Engineering:				
Closure Plan Report	LS	1	$9,480.00	$9,480.00
Certified Engineering Drawings	LS	1	$25,200.00	$25,200.00
NSPS/Title V Air Permit	LS	1	$5,760.00	$5,760.00
Final Survey	LS	1	$8,760.00	$8,760.00
Certification of Closure	LS	1	$17,400.00	$17,400.00
Other (explain)				
			Subtotal Engineering:	$66,600.00

Description	Hours	Cost / Hour	Hours	Cost / Hour	Total Cost
11. Professional Services					
	Contract Management		Quality Assurance		
P.E. Supervisor	24	$120.0(	16	$120.0(	$4,800.00
On-Site Engineer	40	$120.0(	80	$120.0(	$14,400.00
Office Engineer	60	$120.0(	40	$120.0(	$12,000.00
On-Site Technician	0	$75.00	400	$75.00	$30,000.00
Other (explain)					

Description	Unit	Number of Units	Cost / Unit	Total Cost
Quality Assurance Testing	LS	1	$100,000.00	$100,000.00
			Subtotal Professional Services:	$161,200.00

	Subtotal of 1-11 Above:	$2,177,067.62
12. Contingency 10 % of Subtotal of 1-11 Above		$217,706.76
	Subtotal Contingency:	$217,706.76
	Estimated Closing Cost Subtotal:	$2,394,774.38

Description	**Total Cost**
13. Site Specific Costs	
Mobilization	$61,478.03
Waste Tire Facility	$3,828.13
Materials Recovery Facility	
Special Wastes	
Leachate Management System Modification	
Other (explain) _____	
_____ Subtotal Site Specific Costs:	$65,306.16

TOTAL ESTIMATED CLOSING COSTS ($): $2,460,080.54

V. ANNUAL COST FOR LONG-TERM CARE

See 62-701.600(1)a.1., 62-701.620(1), 62-701.630(3)a. and 62-701.730(11)b. F.A.C. for required term length. For landfills certified closed and Department accepted, enter the remaining long-term care length as "Other" and provide years remaining.

(Check Term Length) ☐ 5 Years ☐ 20 Years ☒ 30 Years ☐ Other, ___ Years

Notes: 1. Cost estimates must be certified by a professional engineer.

2. Cost estimates based on third party suppliers of material, equipment and labor at fair market value.

3. In some cases, a price quote in support of individual item estimates may be required.

All items must be addressed. Attach a detailed explanation for all entries left blank.

Description	Sampling Frequency (Events / Year)	Number of Wells	(Cost / Well) / Event	Annual Cost
1. Groundwater Monitoring [62-701.510(6), and (8)(a)]				
Monthly	12			
Quarterly	4			
Semi-Annually	2	18	$805.00	$28,980.00
Annually	1			
			Subtotal Groundwater Monitoring:	$28,980.00
2. Surface Water Monitoring [62-701.510(4), and (8)(b)]				
Monthly	12			
Quarterly	4			
Semi-Annually	2			
Annually	1			
			Subtotal Surface Water Monitoring:	
3. Gas Monitoring [62-701.400(10)]				
Monthly	12			
Quarterly	4	12	$50.00	$2,400.00
Semi-Annually	2			
Annually	1			
			Subtotal Gas Monitoring:	$2,400.00
4. Leachate Monitoring [62-701.510(5), (6)(b) and 62-701.510(8)c]				
Monthly	12			
Quarterly	4			
Semi-Annually	2			
Annually	1			
Other (explain) _____	_____			
_____			Subtotal Leachate Monitoring:	

Description	Unit	Number of Units / Year	Cost / Unit	Annual Cost
5. Leachate Collection/Treatment Systems Maintenance				
Maintenance				
Collection Pipes	LF			
Sumps, Traps	EA			
Lift Stations	EA	4	$100.00	$400.00
Cleaning	LS	1	$3,000.00	$3,000.00
Tanks	EA			

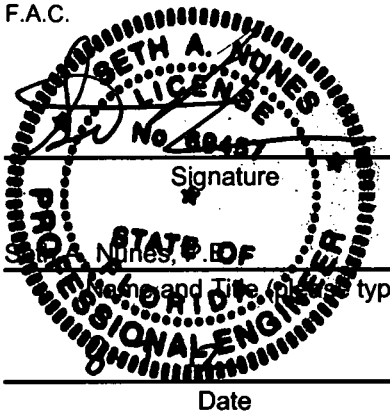
Description	Unit	Number of Units / Year	Cost / Unit	Annual Cost
5. (continued)				
Impoundments				
Liner Repair	SY			
Sludge Removal	CY			
Aeration Systems				
Floating Aerators	EA			
Spray Aerators	EA			
Disposal				
Off-site (Includes transportation and disposal)	1000 gallon	1	$100.00	$100.00
			Subtotal Leachate Collection / Treatment Systems Maintenance:	$3,500.00
6. Groundwater Monitoring Well Maintenance				
Monitoring Wells	LF			
Replacement	EA	3	$2,000.00	$6,000.00
Abandonment	EA	3	$500.00	$1,500.00
			Subtotal Groundwater Monitoring Well Maintenance:	$7,500.00
7. Gas System Maintenance				
Piping, Vents	LF			
Blowers	EA			
Flaring Units	EA			
Meters, Valves	EA			
Compressors	EA			
Flame Arrestors	EA			
Operation	LS	1	$1,000.00	$1,000.00
			Subtotal Gas System Maintenance:	$1,000.00
8. Landscape Maintenance				
Mowing	AC	26.2	$65.00	$1,703.00
Fertilizer	AC			
			Subtotal Landscape Maintenance:	$1,703.00
9. Erosion Control and Cover Maintenance				
Sodding	SY	500	$1.35	$675.00
Regrading	AC			
Liner Repair	SY			
Clay	CY			
			Subtotal Erosion Control and Cover Maintenance:	$675.00
10. Storm Water Management System Maintenance				
Conveyance Maintenance	LS	1	$900.00	$900.00
			Subtotal Storm Water Management System Maintenance:	$900.00
11. Security System Maintenance				
Fences	LS	1	$900.00	$900.00
Gate(s)	EA			
Sign(s)	EA	1	$300.00	$300.00
			Subtotal Security System Maintenance:	$1,200.00

Description	Unit	Number of Units / Year	Cost / Unit	Annual Cost
12. Utilities	LS	1	$12,240.00	$12,240.00
			Subtotal Utilities:	$12,240.00
13. Leachate Collection/Treatment Systems Operation				
Operation				
P.E. Supervisor	HR			
On-Site Engineer	HR			
Office Engineer	HR			
OnSite Technician	HR	156	$75.00	$11,700.00
Materials	LS	1		
	Subtotal Leachate Collection/Treatment Systems Operation:			$11,700.00
14. Administrative				
P.E. Supervisor	HR	40	$120.00	$4,800.00
On-Site Engineer	HR	0	$120.00	
Office Engineer	HR	40	$120.00	$4,800.00
OnSite Technician	HR	60	$75.00	$4,500.00
Other Lump				
			Subtotal Administrative:	$14,100.00
			Subtotal of 1-14 Above:	$85,898.00
15. Contingency	10	% of Subtotal of 1-14 Above		$8,589.80
			Subtotal Contingency:	$8,589.80

Description	Unit	Number of Units / Year	Cost / Unit	Annual Cost
16. Site Specific Costs				
			Subtotal Site Specific Costs:	
			ANNUAL LONG-TERM CARE COST ($ / YEAR):	$94,487.80
			Number of Years of Long-Term Care:	30
			TOTAL LONG-TERM CARE COST ($):	$2,834,634.00

VI. CERTIFICATION BY ENGINEER

This is to certify that the Cost Estimates pertaining to the engineering features of this solid waste management facility have been examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, the Cost Estimates are a true, correct and complete representation of the financial liabilities for closing and/or long-term care of the facility and comply with the requirements of Rule 62-701.630 F.A.C. and all other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Cost Estimates shall be submitted to the Department annually, revised or adjusted as required by Rule 62-701.630(4), F.A.C.



Signature

Seth A. Nunes, P.E.
Name and Title (please type)

Date

69457
Florida Registration Number
(please affix seal)

305 South Main Street
Mailing Address

Monroe, North Carolina 28112
City, State, Zip Code

snunes@cecenv.com
E-Mail address (if available)

(863) 634-7185
Telephone Number

VII. SIGNATURE BY OWNER/OPERATOR

Signature of Applicant

Timothy Hawkins, Vice President
Name and Title (please type)

thawkins@wm.com
E-Mail address (if available)

242 West Keene Road
Mailing Address

Apopka, FL 32703
City, State, Zip Code

407-553-4939
Telephone Number

CARLSON ENVIRONMENTAL CONSULTANTS, PC			
CLIENT WM of Inc. of Florida	PROJECT Vista Landfill	JOB NO. 101.07.07	
SUBJECT FINANCIAL ASSURANCE		BY Lindsey Kennelly	DATE 9/7/12
		CHECKED SAN	DATE 9/7/12

OBJECTIVE: The 2/17/11 renewal accounted for financial assurance closure and long-term care costs for 35.3 acres, which is comprised of the following Phase I areas:

PHASE 1		
Cell 1	7.39	acres
Cell 2	9.54	acres
Cell 3	9.23	acres
Cell 4	9.14	acres
Total Phase I	35.3	acres

Cell 1, 2, and 3 have been constructed at the time of this permit modification. Therefore, the financial assurance is being updated to reflect the closure and long-term care costs of Cells 1, 2, and 3.

PHASE 1						
Cell 1	7.39	acres				
Cell 2	9.54	acres				
Cell 3	9.23	acres				
Total Closure Acreage	26.2	acres =	1,139,530	SF =	126,614	SY

CLOSURE COSTS

1. *Monitoring Wells:*

The groundwater monitoring well system for has already been installed. No additional cost is included.

2. *Slope and Fill:*

On-site soils to be used for 6-inches of intermediate cover

Quantity

Intermediate Cover Volume = 569,765 CF = 21,102 CY

Unit Cost

Placement, spreading, and compaction cost =	$2.10 /CY	Appendix C-1
Excavation, hauling on-site material cost =	$3.00 /CY	Appendix C-1

3. *Cover Material (Barrier Layer)*

Off-site soils to be used for 18-inches of protective cover

Quantity

40 mil HDPE Textured Geomembrane =	126,614	SY		
Geocomposite drainage layer) =	74,135	SY	(only on 3:1 sideslopes obtained in AutoCAD)	
18-inches Protective Cover Soil Volume =	1,709,294	CF =	63,307 CY	= Total Acreage * 1.5 feet

Unit Cost

40 mil HDPE Textured Geomembrane: Material/installation =	$0.52 /SF =	$4.68 /SY	Appendix C-1
Geocomposite drainage layer: Material/installation =	$0.58 /SF =	$5.22 /SY	Appendix C-1
Protective Cover Soil Volume: Material Cost =	$5.00 /CY	Appendix C-1	
Excavation, hauling off-site cost =	$3.50 /CY	Appendix C-1	
Total Protective Cover Soil =	$8.50 /CY		

4. *Top Soil Cover*

On-site soils to be used for 6-inches of vegetative cover

Quantity

6-inches Vegetative Cover Volume = 683,718 CF = 25,323 CY

Unit Cost

Excavation, placement, and spreading cost =	$3.50 /CY	Appendix C-1
Material cost =	$2.00 /CY	Appendix C-1
Total Top Soil =	$5.50 /CY	

CARLSON ENVIRONMENTAL CONSULTANTS, PC			
CLIENT: WM of Inc. of Florida	PROJECT: Vista Landfill		JOB NO.: 101.07.07
SUBJECT: FINANCIAL ASSURANCE		BY: Lindsey Kennelly	DATE: 9/7/12
		CHECKED: SAN	DATE: 9/7/12

5. Vegetative Layer

Final cover will be hydroseeded.

Quantity

Hydroseeded Area = 26.2 acres

Unit Cost

Hydroseed: Material/installation = $0.40 /SY = $1,936.00 /acre Appendix C-1

6. Stormwater Control System

Installation of piping, ditches/berms, and control structures

Quantity

Earthwork = 10,000 CY

Assuming Berms/Ditches are 3 feet deep by 15 feet wide

Earthwork Length = 6000 LF

Stormwater Piping = 300 LF

No. of control structures = 2 EA

Unit Cost

Earthwork: Material/installation = $15.00 /LF Appendix C-1

Stormwater Piping: Material/installation = $20.00 /LF Appendix C-1

Control structures: Material/installation = $2,000.00 EA Appendix C-1

7. Gas Controls - Passive

12 probes are proposed for closure

Quantity

No. of Probes = 12 EA

Length of Probes = 15 ft/probe

Unit Cost

Probe: Material/installation = $2,000 EA Appendix C-1

8. Gas Controls - Active Extraction

Installation of boots around vents/wells at time of closure (Cells 1 through 3).

Quantity

No. of Boots = 10 EA

Unit Cost

Synthetic boot: Material/installation = $500 EA Appendix C-1

9. Security System

Perimeter fencing, gates, and signs to be repaired before closure

Assume lump sum fee of $5,000

10. Engineering

Include a lump sum fee for each of the following items:

- Closure Plan Report =

	Quantity	Unit Cost	
PE Supervisor =	24 hrs	$120	
On-Site Engineer =	0 hrs	$120	
Office Engineer =	40 hrs	$120	
On-Site Technician =	24 hrs	$75	(Drafting technician)

CARLSON ENVIRONMENTAL CONSULTANTS, PC			
CLIENT: WM of Inc. of Florida	PROJECT: Vista Landfill	JOB NO.: 101.07.07	
SUBJECT: FINANCIAL ASSURANCE		BY: Lindsey Kennelly	DATE: 9/7/12
		CHECKED: SAN	DATE: 9/7/12

TOTAL CLOSURE PLAN REPORT = $9,480

- Certified Engineering Drawings for Closure =

	Quantity	Unit Cost	
PE Supervisor =	40 hrs	$120	
On-Site Engineer =	0 hrs	$120	
Office Engineer =	120 hrs	$120	
On-Site Technician =	80 hrs	$75	(Drafting technician)

TOTAL CERTIFIED ENGINEERING DRAWINGS = $25,200

- Title V Closure Permit

	Quantity	Unit Cost
PE Supervisor =	8 hrs	$120
On-Site Engineer =	0 hrs	$120
Office Engineer =	40 hrs	$120
On-Site Technician =	0 hrs	$75

TOTAL TITLE V CLOSURE PERMIT = $5,760

- Final Survey =

	Quantity	Unit Cost	
PE Supervisor =	8 hrs	$120	
On-Site Engineer =	0 hrs	$120	
Office Engineer =	40 hrs	$120	
On-Site Technician =	40 hrs	$75	(Survey technician)

TOTAL FINAL SURVEY = $8,760

- Certification of Closure =

	Quantity	Unit Cost	
PE Supervisor =	40 hrs	$120	
On-Site Engineer =	0 hrs	$120	
Office Engineer =	80 hrs	$120	
On-Site Technician =	40 hrs	$75	(Drafting technician)

TOTAL CERTIFICATION OF CLOSURE = $17,400

11. Professional Services

Include hourly estimates for Professional Services involved with Closure:

- Contract Management

	Quantity	Unit Cost
PE Supervisor =	24 hrs	$120
On-Site Engineer =	40 hrs	$120
Office Engineer =	60 hrs	$120
On-Site Technician =	0 hrs	$75

- Quality Assurance

	Quantity	Unit Cost
PE Supervisor =	16 hrs	$120
On-Site Engineer =	80 hrs	$120
Office Engineer =	40 hrs	$120
On-Site Technician =	400 hrs	$75

Quality Assurance Testing = $100,000

12. Contingency

Assume 10% of Closure Costs

13. Site Specific Costs

Mobilization

CARLSON ENVIRONMENTAL CONSULTANTS, PC			
CLIENT: WM of Inc. of Florida	PROJECT: Vista Landfill	JOB NO.: 101.07.07	
SUBJECT: FINANCIAL ASSURANCE		BY: Lindsey Kennelly	DATE: 9/7/12
		CHECKED: SAN	DATE: 9/7/12

Mobilization to include 3% of the construction costs (i.e. not No. 10 - Engineering or No. 11 - Professional Services)

Closure Subtotal of Items 1-11 =	$2,177,068
Total Item 10 =	$66,600
Total Item 11 =	$61,200
Closure Subtotal of Items 1-9 =	$2,049,268
Mobilization Cost =	$61,478.03

Waste Tire Facility

The site is currently permitted to store a maximum 1,500 tires on site. Assume at closure 1,500 tires are present. Tires are taken to Wheelabrator Ridge Energy, Polk County FL for processing/disposal.

Quantity

No. of Tires =	1,500	EA
No. of Tires w/ Rims =	750	EA
No. of Tires w/out Rims =	750	EA
Weight of Tire w/ Rims =	35	lb/EA
Weight of Tire w/out Rims =	30	lb/EA
Total Weight of Tires w/ Rims =	13.13	tons
Total Weight of Tires w/o Rims =	11.25	tons
TOTAL WEIGHT =	24.38	tons

Unit Cost

Tires w/ Rims =	$125 /ton	Appendix C-3
Tires w/o Rims =	$70 /ton	Appendix C-3
Hauling Cost =	$700 /trip	Appendix C-3
Hauling Limit =	22 tons	

Cost of Tires w/ Rims =	$1,640.63
Cost of Tires w/o Rims =	$787.50
Hauling Cost =	$1,400.00
TOTAL WASTE TIRE FACILITY COST =	$3,828.13

LONG-TERM CARE COSTS

1. Groundwater Monitoring

18 monitoring wells installed and sampled on a semi-annual basis

Quantity

No. of Groundwater Wells =	18	wells

Unit Cost

Semi-annual Sampling Costs =	$4,800	/per event	See Appendix C-2
Semi-annual Analysis Costs =	$5,183	/per event	See Appendix C-2
Semi-annual Reporting Costs =	$4,500	/per event	See Appendix C-2
TOTAL SEMI-ANNUAL COST =	$14,483	/per event	
TOTAL ANNUAL COST =	$28,966	/year	

Unit Cost Per Well =	$1,609	annually
Unit Cost Per Well =	$805	semi-annually

2. Surface Water

The site does not have a discharge from the 100-year storm event. No surface water monitoring is included.

CARLSON ENVIRONMENTAL CONSULTANTS, PC			
CLIENT: WM of Inc. of Florida	PROJECT: Vista Landfill		JOB NO.: 101.07.07
SUBJECT: FINANCIAL ASSURANCE		BY: Lindsey Kennelly	DATE: 9/7/12
		CHECKED: SAN	DATE: 9/7/12

3. Gas Monitoring

12 monitoring probes installed and sampled quarterly

Quantity

No. of Gas Probes = 12 probes

Unit Cost

LABOR COSTS

	Quantity	Unit Cost	
PE Supervisor =	8 hrs	$120	(2 hours of report review per quarterly event)
On-Site Engineer =	0 hrs	$120	
Office Engineer =	0 hrs	$120	
On-Site Technician =	16 hrs	$75	(4 hours of sampling per quarterly event)
	Total Labor Costs =	$2,160	

EQUIPMENT/ANALYSIS COSTS =

Combustible Gas Meter Rental = $100 /event = $400

Cost per probe basis = [(Total Labor Costs) + (Total Equipment/Analysis Costs)]/(No. of Probes)/4 quarters = $50

4. Leachate

Per conversations with FDEP, Vista is no longer required to sample leachate annual.

5. Leachate Collection System Maintenance

- Leachate Collection Pipes

One cleaning event during the long-term care period

Quantity

No. of Collection Pipe Cleaning Events = 1 Event

Unit Cost

Clean LCRS Pipe Cost = $ 3,000 EA

- Leachate Pumps

Replace 4 pumps during the long-term care period

Quantity

No. of Pumps Replaced = 4 EA

Unit Cost

Pump Replacement = $ 3,000 EA

Extrapolate Cost over 30 Yr Period = $ 100 EA

- Leachate Disposal

Quantity

Leachate Volume = 200 gal/yr Per 2007 Leachate Collection System Analysis by Geosyntec Consultants

Unit Cost

Leachate treatment costs = $0.12 /gal for treatment at City WWTP

Disposal Cost = (Leachate Volume)*(Treatment Cost) = $24.00 ~ Assume $100/year

6. Maintenance of Groundwater Monitoring Wells

Abandon and replace 3 groundwater monitoring wells during the long-term care period

CARLSON ENVIRONMENTAL CONSULTANTS, PC			
CLIENT: WM of Inc. of Florida	PROJECT: Vista Landfill	JOB NO.: 101.07.07	
SUBJECT: FINANCIAL ASSURANCE	BY: Lindsey Kennelly	DATE: 9/7/12	
	CHECKED: SAN	DATE: 9/7/12	

Quantity

No. of Groundwater Monitoring Wells = 3 EA

Unit Cost

Abandonment Cost (grouting): Material/Performance =	$500 EA	Appendix C-1
2-inch Groundwater Monitoring Well: Material/installation =	$2,000 EA	Appendix C-1

7. Gas System Maintenance

LABOR COSTS

	Quantity	Unit Cost	
PE Supervisor =	0 hrs	$120	
On-Site Engineer =	0 hrs	$120	
Office Engineer =	0 hrs	$120	
On-Site Technician =	8 hrs	$75	Annual costs to make misc. repairs (e.g. vent/well repair, lateral repair, etc).
	Total Labor Costs =	$600	

MATERIAL COSTS

Pipe/Material Costs = $400 annual costs for materials to make misc. repairs

Labor/Material Costs (Included as Operations on form) = $1,000 Annually

8. Landscape

Quantity

No. of Mowing Events = 1 Events/yr
No. of Acres per Event = 26.2 acres/event
No. of Acres per Year = 26.16 acres/yr

Unit Cost

Mowing Cost = $65.00 /acre Appendix C-1

9. Erosion Control and Cover Maintenance

- Sodding

Repair 500 SY of sod on an annual basis

Quantity

Area of Sod to be repaired (S) = 500 SY

Unit Cost

Sod: Material/Installation = $1.35 /SY Appendix C-1

10. Stormwater Management System Maintenance

Maintain the stormwater conveyance system annually. Assume it takes an on-site technician 12 hours

	Quantity	Unit Cost
PE Supervisor =	0 hrs	$120
On-Site Engineer =	0 hrs	$120
Office Engineer =	0 hrs	$120
On-Site Technician =	12 hrs	$75
	Total Stormwater Costs =	$900

11. Security System Maintenance

Maintain the security system annually. Assume it takes an on-site technician to do so.

- Fence

Quantity Unit Cost

CARLSON ENVIRONMENTAL CONSULTANTS, PC			
CLIENT: WM of Inc. of Florida	PROJECT: Vista Landfill		JOB NO.: 101.07.07
SUBJECT: FINANCIAL ASSURANCE		BY: Lindsey Kennelly	DATE: 9/7/12
		CHECKED: SAN	DATE: 9/7/12

PE Supervisor =	0 hrs	$120
On-Site Engineer =	0 hrs	$120
Office Engineer =	0 hrs	$120
On-Site Technician =	12 hrs	$75
	Total Fence Costs =	$900

- Signs

	Quantity	Unit Cost
PE Supervisor =	0 hrs	$120
On-Site Engineer =	0 hrs	$120
Office Engineer =	0 hrs	$120
On-Site Technician =	4 hrs	$75
	Total Sign Costs =	$300

12. Utilities

Use current utility costs to conservatively estimate the future utility costs.

Quantity

No. of Utility Events = 12 EA

Unit Cost

Monthly Utility Cost = $1,020

Annual Utility Costs = $12,240

13. Leachate Collection/Treatment System Operations

Periodic, weekly inspections

Quantity

Hours per week = 3

Hours per year = 156

Unit Cost

On-site technician hourly rate = $75 /hour

14. Administrative

Annual administrative/overhead costs

	Quantity	Unit Cost
PE Supervisor =	40 hrs	$120
On-Site Engineer =	0 hrs	$120
Office Engineer =	40 hrs	$120
On-Site Technician =	60 hrs	$75
	Total Administrative Costs =	$14,100

15. Contingency

Assume 10% of Annual Long-Term Care Costs

APPENDIX C-1

THIRD PARTY ESTIMATES – ERC

ERC

ERC GENERAL CONTRACTING SERVICES, INC.

Carter CommerCenter • 890 Carter Road, Suite 170
Winter Garden, Florida 34787
(407) 656-3900 • Fax (407) 656-2128

September 12, 2012

RE: Closure Costs

Dear Lindsey Kennelly, PE

The following are current closure costs for work which include offsite and onsite materials.

CLOSURE COSTS			
1. Monitoring Wells:			
Unit Cost			
2-inch Groundwater Monitoring Well: Material/installation =		$2000	ea
2. Slope and Fill:			
Unit Cost			
Placement, Spreading, and Compaction Cost =		$2.10	/cy
Excavation, Hauling On-Site Material cost =		$3.00	/cy
Excavation, Hauling Off-Site Material cost =		$5.00	/cy
3. Cover Material (Barrier Layer)			
Unit Cost			
10^{-5} cm/sec clay Material/Installation=		$12.00	/cy
40-mil HDPE textured geomembrane: Material/Installation:		$0.52	/sf
40-mil LLDPE liner: Material/Installation =		$0.46	/sf
Geonet drainage layer: Material/Installation =		$0.25	/sf
Geocomposite drainage layer: Material/Installation =		$0.58	/sf
18-inches soil excavation, placement, and spreading cost =		$3.50	/cy
18-inches soil Material cost =		$5.00	/cy
4. Top Soil cover			
Unit Cost			
6-Inches Excavation, placement, and spreading cost =	$3.50	/cy	
6-Inches Material cost =	$2.00	/cy	
24-Inches Excavation, placement, and spreading cost =	$3.00	/cy	
24-Inches Material cost =	$8.00	/cy	
5. Vegetative Layer			
Unit Cost			

ERC

Sod: Material and installation cost -	$1.35	/sy		
Hydroseed: Material and installation cost =	$0.40	/sy		
Fertilizer: Material and installation cost =	$0.05	/sy		
6. *Stormwater Control System*				
Unit Cost				
Earthwork: Material/installation =		$15	/lf	
18-inch Stormwater Piping: Material/installation =		$20	/lf	
Control structures: Material/installation =		$2000	ea	
7. *Gas Controls - Passive*				
Unit Cost				
2-inch LFG Probe: Material/installation =			$2000	ea
8. *Gas Controls - Active*				
Unit Cost				
Synthetic boots around 6-inch casing: Material/installation =			$500	ea
9. *Security System*				
Unit Cost				
Signs: Material/installation =	$180	ea		
LONG-TERM CARE COSTS				
5. Leachate Collection System Maintenance				
Unit Cost				
Clean leachate collection system piping cost =		$3000	ea	
Replace 4 leachate pumps: Material/Installation =		$3000	ea	
6. Maintenance of Groundwater Monitoring Wells				
Unit Cost				
Abandonment Cost (grouting): Material/Performance =			$500	ea
2-inch Groundwater Monitoring Well: Material/installation =			$2000	ea
8. Landscape				
Mowing performed quarterly				
Unit Cost				
Mowing Cost =	$65	/acre		
9. Erosion Control and Cover Maintenance				
Unit Cost				
Sod: Material and installation cost -	$1.35	/sy		
40-mil LLDPE liner: Material/Installation =	$0.46	/sf		
Geonet drainage layer: Material/Installation =	$0.25	/sf		

Sincerely,

Jerry L. Pinder
President, ERC

APPENDIX C-2

THIRD PARTY ESTIMATE – GROUNDWATER MONITORING COSTS

Vista Groundwater Cost Estimates

1st Semi-Annual Event

(Based on invoices and scopes provided by third-party consultants)

1) SAMPLING: ProTech = $4,800
2) ANALYSIS: Test America = $5,183
3) REPORTING: SCS = $4,500

2nd Semi-annual event

(Based on invoices and scopes provided by third-party consultants)

1) SAMPLING: ProTech = $4,800
2) ANALYSIS: Test America = $6,190
3) REPORTING: SCS = $4,500

APPENDIX C-3

THIRD PARTY ESTIMATE – WASTE TIRE FACILITY

Lindsey Kennelly

Subject: WMIF - 2012 Class III SW Application Financial Assurance

---

From: Perez, Deborah [mailto:dperez@wm.com]
Sent: Tuesday, September 18, 2012 9:44 AM
To: Bermillo, Paul; Lindsey Kennelly
Cc: 'Seth Nunes'; 'Amy Nunes'; Pelton, Craig; Grant, Sheree
Subject: RE: WMIF - 2012 Class III SW Application Financial Assurance

Vista send their tires to Wheelabrator.
Cost for disposal:
Tires w/rims = $125.00/ton
Tires w/o rims = $70.00/ton.
Cost to haul to Wheelabrator from Vista = $700.00
Get about 22 tons on a truck.