273219

PERMIT DOCUMENTS FOR TRAIL RIDGE LANDFILL

THIRD RENEWAL

PREPARED FOR:

WM®

WASTE MANAGEMENT

TRAIL RIDGE LANDFILL, Inc.
5110 U.S. HIGHWAY 301
BALDWIN, FLORIDA 32234
PHONE NUMBER (904) 289-9100

PREPARED BY:

England-Thims & Miller, Inc.
ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS
14775 OLD ST. AUGUSTINE ROAD JACKSONVILLE, FLORIDA 32258
CERTIFICATE OF AUTHORIZATION NUMBER: 2584
PHONE NUMBER (904) 642-8990 FAX NUMBER (904) 646-9485

PROJECT NUMBER: E 07-044
REVISED DATE: MAY 6, 2009

Bogin, Michael

From: Juanitta Clem [ClemJ@etminc.com]
Sent: Wednesday, August 05, 2009 2:53 PM
To: Bogin, Michael
Cc: Dolihite, Brian
Subject: RE: Trail Ridge Landfill

Michael -

The facility does have a MSGP (Facility ID FLR05B913, Expires 4-1-11).

Juanitta Clem
Principal/P.E.

From: Bogin, Michael [mailto:Michael.Bogin@dep.state.fl.us]
Sent: Wednesday, August 05, 2009 1:12 PM
To: Juanitta Clem
Subject: Trail Ridge Landfill

Juanitta,
Since landfills are classified as industrial activities, a NPDES Multi-Sector General Permit (MSGP) is required. Please clarify, does the Trail Ridge Landfill have a MSGP permit?
Thank you.

Michael Bogin
Engineering Specialist IV
FDEP Solid Waste Section
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7590
Phone: (904)807-3355
FAX: (904)448-4362
www.dep.state.fl.us/northeast/waste/default.htm>

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

Reference: Trail Ridge Landfill - Second Permit Renewal
ET&M No. E02-25-3

Regarding biological waste, there are only two types of waste accepted, bodies of domestic animals and treated biomedical waste. Before the bodies of domestic animals are brought to the facility, the landfill requests information about the waste to determine if the animals were diseased. If the animals were not diseased, the bodies are disposed within the working face and then covered immediately with either additional waste or initial cover. If the bodies of the domestic animal are from diseased animals, the bodies will be handled in accordance with Section 823.041(1), F.S. Treated biomedical waste is disposed within the working face and then covered with either additional waste or initial cover.

The landfill has always been permitted to receive any non-hazardous industrial wastes. There are no new types of waste including industrial wastes "at higher concentrations" proposed at this time.

12. *Please provide calculations concerning the proposed downcomer pipes and terraces to be installed and constructed with the close-as-you-go closure and final closure. If previously provided and you wish to incorporate it by reference, please identify the document by title and date and list the section within the document the pertinent information may be found. Please also confirm that any information you intend to incorporate by reference is still valid.*

The drainage areas for the terraces have been limited to a maximum of 1.25 acres and the terraces are designed with a depth of 2.5 feet and slope of 1%. Please see the calculations in **Attachment A**, which demonstrate that a 25-year/24-hour event will result in a maximum depth of approx. 1.15 feet (which provides more than 1.35 feet of freeboard).

The downcomers are installed within the 3:1 side slopes to bring the stormwater runoff from the terraces down to the drainage inlets. With a slope of 33% and a roughness coefficient (n) of 0.012, the 30" downcomer pipe can handle a flow of 256 CFS. The largest drainage area for a downcomer is 11.5 acres. Based upon a 25-year intensity of 7.7 in/hr and a coefficient of runoff of 0.8, the maximum flow for a 25-year/24-hour storm event would be 71.4 CFS. Therefore, the downcomer is more than adequate to handle the flow.

stormwater

13. *In section X B., you indicate that ash that meets the requirements of Rule 62-701.570(6) (Rule 62-702.570(6)) may be used as initial cover. In other sections of your application you indicate you intend to also utilize shredded tires and tarpaulin for initial cover. Prior to utilizing any of the said materials for cover, please demonstrate that each will satisfy the initial cover requirements of FAC Rule 62-701.500(7)(e) including acting as a fire barrier. Additionally, please demonstrate that their use, especially where the ash and shredded tires are of concern, will not cause an impact to surface water. Please also specify the tarpaulin you will use and characterize and provide a description of the ash. In your response, please also list the procedures that will be followed in applying each of the proposed initial covers, i.e., tarpaulin, shredded waste tires, and ash as initial cover and identify by job position the person who will apply the covers. How thick of a layer of shredded tires or ash will you apply? Will you leave the materials in place or remove them? If left in place, how will the materials affect the flow of leachate? Also where will you store the materials when not being used as cover? Please list the procedures that will be followed in managing ash from the time it is received until it is used. If you wish to utilize any other materials for initial cover, other than the ones listed above with the exception of clean uncontaminated dirt, please specify and demonstrate they will satisfy the above requested requirements.*

England-Thims & Miller, Inc.

14775 Old St. Augustine Road ▪ Jacksonville, Florida 32258
tel 904.642.8990 ▪ fax 904.646.9485 ▪ www.etminc.com

PRINCIPALS
Douglas C. Miller, P.E., CEO
N. Hugh Mathews, P.E., President
Joseph A. Tarver, Exec. V.P.
Juanitta Bader Clem, P.E., V.P.
Scott A. Wild, P.E., PSM, V.P.
Samuel R. Crissinger, CFO, V.P.
Robert A. Mizell, Jr., P.E., V.P.
Thomas N. Fallin, P.E., V.P.
Buckley K. Williams, C.C.C.A., V.P.
K.T. Peter Ma, P.E., V.P.

EMERITUS
James E. England, P.E.
Robert E. Thims

RECEIVED
MAY 7 2009
NORTHEAST DISTRICT
DEP-JACKSONVILLE

May 6, 2009

Mr. Emerson Raulerson, P.E.
Florida Department of Environmental Protection
Northeast District Office
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7590

RE: ***Trail Ridge Landfill***
Class I Landfill and Waste Tire Processing Facility
Operation Renewal Application
ETM No. 07-044-02

JB OCULUS SW
Initials SG
Date 5-7-09

Dear Mr. Raulerson:

We have received your Second Request for Additional Information dated February 19, 2009 regarding the referenced application. We offer the following response. Please note each Department comment (bold face type) is repeated below followed by our response in italics.

Memorandum by Michael Bogin dated February 19, 2009

1. **In responding to this request for additional information (RAI) if one response modifies a section of the Operations Plans or the Contingency Plan and Emergency Procedures Plan, the respective section(s) should be modified accordingly. A revised, complete version of the plans that includes all revisions made in responding to this RAI should be attached. (e.g., added) and all deletions should be struck through (e.g. ~~deleted~~). By this method, DEP hopes to have one final version of the respective plans that includes all revisions made during this permitting process.**

Please see the attached Permit Documents including the Operation Plan which have been revised pursuant to your request.

2-12. Responses are adequate.

13. a. **Please note, due to the potential variability between separated third party quotes, DEP deems that utilizing either the highest number from two quotes or the average from three quotes as a more reasonably conservative approach. Therefore, please revise the cost estimates accordingly.**

Pursuant to your request, we have obtained a written quote from an additional third-party contractor, Comanco Environmental Corporation which is attached. The Financial Assurance Cost Estimate Form has been revised based upon this and the two previous price quotes. The cost estimates are based upon an average of the three price quotes.

RE: Trail Ridge Landfill
Class I Landfill and Waste Tire Processing Facility
Operation Renewal Application
ETM No. 07-044-02

b. Please explain why the excavation and supply of soil material were not considered in Item 2 of the cost estimates.

Item 2 is the "bedding layer between waste and barrier layer". At Trail Ridge Landfill, the operator places a minimum 1.0-foot intermediate soil layer on top of the waste during the operational phase, prior to the closure operation. Therefore, during the closure operation, the Contractor does not need to place this layer but the Contractor must grade (spread) and compact the layer prior to placement of the barrier layer. Therefore, only the cost spreading and compaction are included in this item.

c. A quote from the J.B. Coxwell Contracting, Inc. does not have to contact information. Please provide.

The contact person for J. B. Coxwell Contracting, Inc. is Wayne Williford. Mr. Williford's phone number is (904) 786-1120 and his address is 6741 Lloyd Road West, Jacksonville, Florida 32254.

d. The administrative costs, listed in Items 6 and 14 in Annual Cost for Long-Term Care, are based on DEP's employee salaries; however, in reality, DEP should have enough money to hire third party professionals to do administrative job. Therefore, professional services costs in Item 11 on page 6 of 11, in Item 6 of page 9 of 11, and in Item 14 on page 10 of 11 should be similar. Please address.

Please see the revised Financial Assurance Cost Estimate Form which has been revised pursuant to your request.

14. Information was provided only from one source. Please note, due to potential variability between separate third party quotes, DEP deems that utilizing either the highest number from two quotes or the average from three quotes as a more reasonable conservative approach. Therefore, please revise the cost estimates accordingly. Please ensure that the quotes indicate that they are valid for any user (including DEP) and are not only valid for the individual requesting the quote.

Pursuant to your request, we have obtained a written quote from an additional third-party contractor, Comanco Environmental Corporation which is attached. The Financial Assurance Cost Estimate Form has been revised based upon this and the two previous price quotes. The cost estimates are based upon an average of the three price quotes.

15. Only one quote from existing hauler was provided. Please note, due to the potential variability between separate third party quotes, DEP deems that utilizing either the highest number from two quotes or the average from three quotes as a more reasonably conservative approach. Therefore, please revise the cost estimates accordingly. Please ensure that the quotes indicate that they are the type valid for any user (including DEP) and are not only valid for the individual requesting the quote.

The cost estimates have been revised based upon an average fee of $85.84/ton. The average disposal fee is based upon $70/ton per Wheelabrator Ridge Energy, Inc., Auburdale, Fl (863-665-2255), $55/ton per

RE: Trail Ridge Landfill
Class I Landfill and Waste Tire Processing Facility
Operation Renewal Application
ETM No. 07-044-02

Global Tire Recycling, Inc., 1201 Instrustrial Dr., Wildwood, Fl (352-330-2213), and $65/ton per RMD Americas USA, LLC, 270 Barnes Road, Rockledge, Fl (321-636-3532), plus transportation at $22.50/ton.

16. Response is adequate.

17. The inspection report and Appendix P were omitted in the Permit Documents. Please provide the missing information.

The leachate storage tanks were inspected by Maverick Supports and Services, Inc. on November 23, 2008. The inspection report is attached herewith.

18-27. Responses are adequate.

28. Please note, the Department will require the Permittee to obtain written approval for use of contaminated soils, as is required in the existing Permit.

We have revised Section IX. B of the Operations Plan to state that "Depending upon the contaminant of concern and the Department's written approval on a case-by-case basis, the contaminated soil may be used for initial cover on interior side slopes but not on exterior side slopes."

29. Specifying only that the contaminated soil stockpile must be stored a minimum of 20 feet from any side slope and surrounded by a silt fence is not adequate. It should specify that the contaminated soil stockpile will be stored a minimum of 20 feet from any and all side slopes, that it will be surrounded by a silt fence, and that the surrounding area will be contoured and/or bermed in such a way as to prevent any and all runoff from the stockpile to the surface water management system.

Please see Sections IX. B. and C. which have been revised as requested.

30-33. Responses are adequate.

34. The engineer of record shall review the video recording and shall provide a written evaluation of his/her review and a statement as to the sufficiency of the system. The evaluation and the statement as required by Specific Condition 38.j of the existing permit.

I have reviewed the video tapes. Please see the attached memorandum regarding my evaluation.

35-36. Responses are adequate.

RE: Trail Ridge Landfill
Class I Landfill and Waste Tire Processing Facility
Operation Renewal Application
ETM No. 07-044-02

We hope this response will adequately address your comments. Please contact me at 265-3181, if you have any questions or require additional information.

Sincerely,

ENGLAND-THIMS & MILLER, INC.

Juanitta Bader Clem 5/6/09

Juanitta Bader Clem, P.E.
Vice President

#43245

Attachments: Price Quote from Comanco Environmental Corporation
Financial Assurance Cost Estimate Form (Appendix N)
Inspection Report by Maverick Supports and Services, Inc. (Appendix P)
Memorandum of the Leachate Collection System Evaluation

cc: Greg Mathes, Trail Ridge Landfill, Inc.
Chris Pearson, City of Jacksonville
Brian Dolihite, Trail Ridge Landfill, Inc.
Mark Triplett, Trail Ridge Landfill, Inc.
Scott Lockwood, P.E., ETM

England-Thims & Miller, Inc.

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Robert A. Mizell, Jr., P.E., V.P.
Thomas N. Fallin, P.E., V.P.
Buckley K. Williams, C.C.C.A., V.P.
K.T. Peter Ma, P.E., V.P.

EMERITUS
James E. England, P.E.
Robert E. Thims

MEMORANDUM

To: Greg Mathes
Trail Ridge Landfill, Inc.

From: Juanitta Bader Clem, P.E.

Date: May 4, 2009

Reference: Trail Ridge Landfill – Leachate Collection System Evaluation
ET&M No. 07-044

Pursuant to Specific Condition 38. j. of the existing permit, I have reviewed the video recordings of the Leachate Collection System Maintenance as conducted by Florida Jetclean and have the following comments:

1. The video recordings of the leachate collection lines indicate that the lines are in fairly good condition (no noticeable deflection, cracks or crushing), with the exception of a few bellies (dips of several inches in depth).

2. Phases 1A and 3C had sand and debris in the collection lines which according to the report were subsequently cleaned to remove the sand and debris.

3. The primary collection lines for Phases 3A and 5B indicated that the lines from the sump to the west were under water for approximately 267 feet and 271 feet, respectively. Based upon conversation with the Jim Purvis, Operations Manager, it appears that the leachate pump control settings for these two phases were adjusted incorrectly and have subsequently, been re-adjusted to the proper settings. In addition, both Phases have been pumped out to correspond to the proper settings.

Please feel free to give us a call if you have any questions.

cc: Jim Purvis, Operations Manager, Trail Ridge Landfill, Inc.
Brian Dolihite, Trail Ridge Landfill, Inc.
Mark Triplett, Trail Ridge Landfill, Inc.

COMANCO®
ENVIRONMENTAL CORPORATION

March 5, 2009

Ms. Juanitta Clem
Principal/P.E.
England-Thims & Miller, Inc.
14775 Old St. Augustine Road
Jacksonville, FL 32258
Phone (904) 265-3181
Fax (904) 646-9485

sent via email
ClemJ@etminc.com

REFERENCE:

TRAIL RIDGE LANDFILL
CLOSURE CONSTRUCTION
JACKSONVILLE, FLORIDA

SUBJECT: BUDGET PROPOSAL

Dear Ms. Clem:

COMANCO Environmental Corporation is pleased to provide the following budget pricing for closure work at the Trail Ridge Landfill located in Jacksonville, Florida. All pricing is being provided on a budgetary basis and has been derived assuming standard construction practices and materials. All pricing assumes availability of soil materials locally. Prior to any agreement for work to be performed, a final design would need to be furnished and all work repriced based upon the final scope and quantities of work to be performed. Our budget pricing for the various work items is as follows:

Final Cover Materials:

12" Intermediate Cover (clean cover material for clay liner subgrade) - $ .50 /SY not including material costs and placement but including compaction – *Work includes grading and compaction only.*

12" Compacted Clay ($K \leq 6.67 \times 10^{-8}$ cm/sec) - $40/CY including material costs (including delivery to the site), placement in 6" lifts, and compaction. *Please note that clay material meeting this spec will likely be difficult to find locally. Please consider the use of a Geosynthetic Clay Liner (GCL) instead.*

40 mil textured HDPE Geomembrane Liner - $3.50/SY including material costs (including delivery to the site) and placement

12" Sand Layer ($K \geq 1.0 \times 10^{-3}$ cm/sec) - $20/CY including material costs (including delivery to the site) and placement on the textured HDPE liner

Vegetative Cover (top soil material that is free from brush, weeds, etc. - $25/CY including material costs (including delivery to the site) and placement

Sod - $2.00/SY including material costs (including delivery to the site) and placement

DEP004552

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Stormwater Controls:

General Earthwork/Fill - $15/CY including material costs (including delivery to the site), placement, and compaction

30" HDPE Downcomer Pipe - $40/LF including material costs (including delivery to the site), placement, and fittings. *Assumes N-12 or equivalent materials (Smooth walled corrugated plastic pipe).*

24" HDPE Pipe - $35/LF including material costs (including delivery to the site), placement, and fittings. *Assumes N-12 or equivalent materials (Smooth walled corrugated plastic pipe).*

18" HDPE Pipe - $30/LF including material costs (including delivery to the site), placement, and fittings. *Assumes N-12 or equivalent materials (Smooth walled corrugated plastic pipe).*

6" HDPE Pipe - $20/LF including material costs (including delivery to the site), placement, and fittings. *Assumes N-12 or equivalent materials (Smooth walled corrugated plastic pipe).*

6" HDPE Underdrain Pipe - $30/LF including material costs (including delivery to the site), placement, fittings and sand envelope. *Assumes N-12 or equivalent materials (Smooth walled corrugated plastic pipe).*

Again, these prices are being provided on a budgetary basis and are reasonable prices for standard landfill closure work in this geographical area. These numbers are valid for any user or regulatory authority for use in establishing probable construction cost for such projects. Please do keep in mind, however, that the size and scope of each project is unique and, therefore, pricing for each specific project will need to be developed based upon timing, size, and market conditions at the time that the project is to be constructed.

We at COMANCO appreciate the opportunity to submit this pricing and we hope to work with you on future construction projects.

Sincerely,
COMANCO Environmental Corporation

John Jacobs
Senior Estimator

4301 Sterling Commerce Drive • Plant City, Florida 33566-7372 • (813) 988-8829 • FAX (813) 496-7305
www.COMANCO.com

Application

DEP004554

Florida Department of Environmental Protection
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, FL 32399-2400

DEP Form # 62-701.900(1)
Form Title Solid Waste Management Facility Permit
Effective Date 05-27-01

DEP Application No. _____
(Filled by DEP)

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

APPLICATION INSTRUCTIONS AND FORMS

RECEIVED
MAY 7 2009
NORTHEAST DISTRICT
DEP-JACKSONVILLE

Northwest District
160 Governmental Center
Pensacola, FL 32501-5794
850-595-8360

Northeast District
7825 Baymeadows Way, Ste. B200
Jacksonville, FL 32256-7590
904-448-4300

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

Southwest District
3804 Coconut Palm Dr.
Tampa, FL 33619
813-744-6100

South District
2295 Victoria Ave., Ste. 364
Fort Myers, FL 33901-3881
941-332-6975

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,B, D through T
B. Asbestos Monofills - Submit parts A,B,D,E,F,G,J,L,N, P through S, and T
C. Industrial Solid Waste Facilities - Submit parts A,B, D through T
D. Non-Disposal Facilities - Submit parts A,C,D,E,J,N,S and T

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,C and D 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,M, O through T
B. Asbestos Monofills - Submit parts A,B,N, P through T
C. Industrial Solid Waste Facilities - Submit parts A,B, M through T
D. Non-Disposal Facilities - Submit parts A,C,N,S and T

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: NON-DISPOSAL FACILITY GENERAL INFORMATION

PART D: PROHIBITIONS

PART E: SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL

PART F: LANDFILL PERMIT REQUIREMENTS

PART G: GENERAL CRITERIA FOR LANDFILLS

PART H: LANDFILL CONSTRUCTION REQUIREMENTS

PART I: HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS

PART J: GEOTECHNICAL INVESTIGATION REQUIREMENTS

PART K: VERTICAL EXPANSION OF LANDFILLS

PART L: LANDFILL OPERATION REQUIREMENTS

PART M: WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS

PART N: SPECIAL WASTE HANDLING REQUIREMENTS

PART O: GAS MANAGEMENT SYSTEM REQUIREMENTS

PART P: LANDFILL CLOSURE REQUIREMENTS

PART Q: CLOSURE PROCEDURES

PART R: LONG TERM CARE REQUIREMENTS

PART S: FINANCIAL RESPONSIBILITY REQUIREMENTS

PART T: 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

A. GENERAL INFORMATION

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

[✓] Disposal
- [✓] Class I Landfill
- [ ] Class II Landfill
- [ ] Class III Landfill
- [✓] Other Describe: **Waste Tire Processing**
- [ ] Ash Monofill
- [ ] Asbestos Monofill
- [ ] Industrial Solid Waste

[ ] Non-Disposal
- [ ] Incinerator For Non-biomedical Waste
- [ ] Waste to Energy Without Power Plant Certification
- [ ] Other Describe: _____

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

3. Classification of application:
- [ ] New
- [✓] Renewal
- [ ] Substantial Modification
- [ ] Intermediate Modification
- [ ] Minor Modification

4. Facility name: **Trail Ridge Landfill**

5. DEP ID number: **NED/16/00033628** County: **Duval**

6. Facility location (main entrance): **5110 U.S. Hwy. 301**

Baldwin, Florida 32234

7. Location coordinates:

Section: 18, 19 / 20, 21 Township: **3S** Range: **23E**

Latitude: **30** ° **13** ' **27** " Longitude: **82** ° **02** ' **40** "

RECEIVED
MAY 7 2009
NORTHEAST DISTRICT
DEP-JACKSONVILLE

8. Applicant name (operating authority): **Trail Ridge Landfill, Inc.**

Mailing address: **5110 U.S. Highway 301** **Baldwin** **Florida** **32234**
Street or P.O. Box City State Zip

Contact person: **Greg Mathes** Telephone: (**904**) **289-9100**

Title: **General Manager**

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

9. Authorized ~~agent~~/Consultant: **England-Thims & Miller, Inc.**

Mailing address: **14775 Old St. Augustine Road** **Jacksonville** **FL** **32258**
Street or P.O. Box City State Zip

Contact person: **Juanitta Clem** Telephone: (**904**) **642-8990**

Title: **Vice President**

clemj@etminc.com
E-Mail address (if available)

10. Landowner(if different than applicant): **City of Jacksonville**

Mailing address: **1031 Superior Street, Jacksonville, FL 32202**
Street or P.O. Box City State Zip

Contact person: **Chris Pearson** Telephone: (**904**) **387-8986**

chrisp@coj.net
E-Mail address (if available)

11. Cities, towns and areas to be served: **City of Jacksonville (Duval County) and Northeast Florida**

12. Population to be served:

Current: **897,597 (2007 Duval)** Five-Year Projection: **949,157 (2012 Duval)**

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

14. Expected life of the facility: **8** years

15. Estimated costs:

Total Construction: $ **N/A** Closing Costs: $ **25.3 Million**

16. Anticipated construction starting and completion dates:

From: **N/A** To: **N/A**

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

_____ yds^3/day **5,000* (peak)** **4,000 Tons/day** **(monthly average)** tons/day _____ gallons/day

DEP FORM 62-701.900(1)
Effective 05-27-01

B. **DISPOSAL FACILITY GENERAL INFORMATION**

1. Provide brief description of disposal facility design and operations planned under this application:

Third permit renewal for continued operation of the Class I Landfill.

2. Facility site supervisor: **Greg Mathes**

Title: **General Manager** Telephone: (**904**) **289-9100**

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

3. Disposal area: Total **148** acres; Used **148** acres; Available **0** acres.

4. Weighing scales used: [✓] Yes [ ] No

5. Security to prevent unauthorized use: [✓] Yes [ ] No

6. Charge for waste received: **N/A** $/yds^3 **29.87** $/ton

7. Surrounding land use, zoning:

[ ] Residential
[ ] Agricultural
[ ] Commercial
[ ] Industrial
[ ] None
[✓] Other Describe: **Silviculture**

8. Types of waste received:

[✓] Residential
[✓] Commercial
[ ] Incinerator/WTE ash
[✓] Treated biomedical
[✓] Water treatment sludge
[ ] Air treatment sludge
[✓] Agricultural
[✓] Asbestos
[✓] Other Describe: **Non-Hazardous Special Waste**
[✓] C & D debris
[✓] Shredded/cut tires
[ ] Yard trash
[ ] Septic tank
[✓] Industrial
[✓] Industrial sludge
[✓] Domestic sludge

9. Salvaging permitted: [ ] Yes [✓] No

10. Attendant: [✓] Yes [ ] No Trained operator: [✓] Yes [ ] No

11. Spotters: Yes [✓] No [ ] Number of spotters used: **1 (min)**

12. Site located in: [ ] Floodplain [ ] Wetlands [✓] Other **Upland Pines Flatwoods**

13. Property recorded as a Disposal Site in County Land Records: [ ] Yes [✓] No

14. Days of operation: **Monday-Friday, Saturday**

15. Hours of operation: **5:00 A.M. - 10:00 P.M.* (M-F), 5:00 A.M. - 2:00 P.M. (Sat.)**

16. Days Working Face covered: **Daily with initial cover or tarpaulin**

17. Elevation of water table: **varies** Ft. (NGVD 1929)

18. Number of monitoring wells: **50 (37 wells monitored)**

19. Number of surface monitoring points: **2**

20. Gas controls used: [✓] Yes [ ] No Type controls: [✓] Active [ ] Passive

Gas flaring: [✓] Yes [ ] No Gas recovery: [✓] Yes (Pending) [ ] No

21. Landfill unit liner type:

[ ] Natural soils
[ ] Single clay liner
[ ] Single geomembrane
[ ] Single composite
[ ] Slurry wall
[ ] Other Describe: **With Bentonite Mat and 6" clay subgrade**
[✓] Double geomembrane
[ ] Geomembrane & composite
[ ] Double composite
[ ] None

22. Leachate collection method:

[✓] Collection pipes
[✓] Geonets
[ ] Well points
[ ] Perimeter ditch
[ ] Other Describe:
[ ] Sand layer
[ ] Gravel layer
[ ] Interceptor trench
[ ] None

23. Leachate storage method:

[✓] Tanks
[ ] Surface impoundments
[ ] Other Describe:

24. Leachate treatment method:

[ ] Oxidation
[ ] Secondary
[ ] Advanced
[ ] None
[✓] Other **Off-site Treatment at a JEA Wastewater Treatment Facility**
[ ] Chemical treatment
[ ] Settling

*May vary dependent upon waste receipt.

25. Leachate disposal method:

[ ] Recirculated
[✓] Transported to WWTP
[ ] Injection well
[ ] Evaporation
[ ] Other _____
[ ] Pumped to WWTP
[ ] Discharged to surface water
[ ] Percolation ponds

26. For leachate discharged to surface waters:

Name and Class of receiving water: **N/A**

27. Storm Water:

Collected: [✓] Yes [ ] No

Type of treatment: **wet detention**

Name and Class of receiving water: **Headwaters of Deep Creek-Class III**

28. Environmental Resources Permit (ERP) number or status: **Permitted as Solid Waste Permit (DEP File Nos. 18444, 184445 and 184447). Stormwater management Facility was permitted, constructed and certified.**

C. NON-DISPOSAL FACILITY GENERAL INFORMATION

N/A

1. Provide brief description of the non-disposal facility design and operations planned under this application:

_____

_____

_____

_____

2. Facility site supervisor: _____

Title: _____ Telephone: (___)_____

_____
E-Mail address (if available)

3. Site area: Facility _____ acres; Property _____ acres

4. Security to prevent unauthorized use: [ ] Yes [ ] No

5. Site located in: [ ] Floodplain [ ] Wetlands [ ] Other_____

6. Days of operation: _____

7. Hours of operation: _____

8. Number of operating staff: _____

9. Expected useful life: _____Years

10. Weighing scales used: [ ] Yes [ ] No

11. Normal processing rate: _____ yd^3/day _____ tons/day _____ gal/day

12. Maximum processing rate: _____ yd^3/day _____ tons/day _____ gal/day

13. Charge for waste received: _____

14. Storm Water Collected: [ ] Yes [ ] No

Type of treatment: _____

Name and Class of receiving water: _____

15. Environmental Resources Permit (ERP) number or status: _____

_____

16. Final residue produced:

_____% of normal processing rate _____% of maximum processing rate

_____Tons/day _____Tons/day

Disposed of at:

Facility name: _____ County: _____

17. Estimated operating costs: $ _____

Total cost/ton: $ _____ Net cost/ton: $ _____

18. Provide a site plan, at a scale not greater than 200 feet to the inch, which shows the facility location and identifies the proposed waste and final residue storage areas, total acreage of the site, and any other features which are relevant to the prohibitions or location restrictions in Rule 62-701.300, FAC, such as water bodies or wetlands on or within 200 feet of the site, and potable water wells on or within 500 feet of the site.

19. Provide a description of how the waste and final residue will be managed to not be expected to cause violations of the Department's ground water, surface water or air standards or criteria

20. Provide an estimate of the maximum amount of waste and final residue that will be store on-site.

21. Provide a detailed description of the technology use at the facility and the functions of all processing equipment that will be utilized. The descriptions shall explain the flow of waste and residue through all the proposed unit operations and shall include: (1) regular facility operations as they are expected to occur; (2) procedures for start up operations, and scheduled and unscheduled shut down operations; (3) potential safety hazards and control methods, including fire detection and control; (4) a description of any expected air emissions and wastewater discharges from the facility which may be potential pollution sources; (5) a description and usage rate of any chemical or biological additives that will be used in the process; and (6) process flow diagrams for the facility operations.

22. Provide a description of the loading, unloading and processing areas.

23. Provide a description of the leachate control system that will be used to prevent discharge of leachate to the environment and mixing of leachate with stormwater. Note: Ground water monitoring may be required for the facility depending on the method of leachate control used.

24. Provide an operation plan for the facility which includes: (1) a description of general facility operations, the number of personnel responsible for the operations including their respective job descriptions, and the types of equipment that will be used at the facility; (2) procedures to ensure any unauthorized wastes received at the site will be properly managed; (3) a contingency plan to cover operation interruptions and emergencies such as fires, explosions, or natural disasters; (4) procedures to ensure operational records needed for the facility will be adequately prepared and maintained; and (5) procedures to ensure that the wastes and final residue will be managed to not be expected to cause pollution.

25. Provide a closure plan that describes the procedures that will be implemented when the facility closes including: (1) estimated time to complete closure; (2) procedures for removing and properly managing or disposing of all wastes and final residues; (3) notification of the Department upon ceasing operations and completion of final closure.

D. **PROHIBITIONS** (62-701.300, FAC)

S	LOCATION	N/A	N/C		
			X	1.	Provide documentation that each of the siting criteria will be satisfied for the facility; (62-701.300(2), FAC)
		X		2.	If the facility qualifies for any of the exemptions contained in Rules 62-701.300(12) through (16), FAC, then document this qualification(s).
		X		3.	Provide documentation that the facility will be in compliance with the burning restrictions; (62-701.300(3), FAC)
	Section VII C.		X	4.	Provide documentation that the facility will be in compliance with the hazardous waste restrictions; (62-701.300(4), FAC)
	Section VII C.		X	5.	Provide documentation that the facility will be in compliance with the PCB disposal restrictions; (62-701.300(5), FAC)
	Section VII C.		X	6.	Provide documentation that the facility will be in compliance with the biomedical waste restrictions; (62-701.300(6), FAC)
		X		7.	Provide documentation that the facility will be in compliance with the Class I surface water restrictions; (62-701.300(7), FAC)
	Section IX		X	8.	Provide documentation that the facility will be in compliance with the special waste for landfills restrictions; (62-701.300(8), FAC)
		X		9.	Provide documentation that the facility will be in compliance with the special waste for waste-to-energy facilities restrictions; (62-701.300(9), FAC)
	Section VII C.		X	10.	Provide documentation that the facility will be in compliance with the liquid restrictions; (62-701.300(10), FAC)
	Section VII C.		X	11.	Provide documentation that the facility will be in compliance with the used oil restrictions; (62-701.300(11), FAC)

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

S	LOCATION	N/A	N/C		
X	Attached			1.	Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a),FAC)
X	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)
X	Attached			3.	A letter of transmittal to the Department; (62-701.320(7)(a),FAC)
X	Attached			4.	A completed application form dated and signed by the applicant; (62-701.320(7)(b),FAC)
X	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)
X	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)
X	Attached			7.	Operation Plan and Closure Plan; (62-701.320(7)(e)1,FAC)
X	Attached			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; (62-702.320(7)(f),FAC)
X	Permit Drawing No. 1				a. A regional map or plan with the project location;
X	Permit Drawing No. 2				b. A vicinity map or aerial photograph no more than 1 year old;
	Permit Drawing No. 4 of the original permit documents dated July 27, 1990.		X		c. A site plan showing all property boundaries certified by a registered Florida land surveyor;

S	LOCATION	N/A	N/C		PART E CONTINUED
			X		d. Other necessary details to support the engineering report.
See comment A below			X	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)
X	Section II.B.			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)
X	Section II.C.			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)
Please see attached				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)
See comment B below			X	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)
X	Section II.F.			15.	Explain how the operator training requirements will be satisfied for the facility; (62-701.320(15), FAC)

A. Trail Ridge Landfill, Inc. is authorized via the "Landfill Operation Agreement between the City of Jacksonville and Trail Ridge Landfill, Inc." which was signed on June 26, 1991.

B. A letter from the FAA was provided in Appendix B of the First Permit Renewal documents dated October 28, 1996.

F. LANDFILL PERMIT REQUIREMENTS (62-701.330, FAC)

S	LOCATION	N/A	N/C		
X	Permit Drawing No. 2			1.	Vicinity map or aerial photograph no more than 1 year old and of appropriate scale showing land use and local zoning within one mile of the landfill and of sufficient scale to show all homes or other structures, water bodies, and roads other significant features of the vicinity. All significant features shall be labeled; (62-701.330(3)(a),FAC)
		X		2.	Vicinity map or aerial photograph no more than 1 year old showing all airports that are located within five miles of the proposed landfill; (62-701.330(3)(b),FAC)
X	Permit Drawing No. 4			3.	Plot plan with a scale not greater than 200 feet to the inch showing; (62-701.330(3)(c),FAC)
X	Permit Drawings			a.	Dimensions;
X	Permit Drawing No. 3			b.	Locations of proposed and existing water quality monitoring wells;
See comment C below			X	c.	Locations of soil borings;
See Permit Drawing No. 6			X	d.	Proposed plan of trenching or disposal areas;
X	Permit Drawing No. 10			e.	Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;
X	Permit Drawing No. 5			f.	Any previously filled waste disposal areas;
X	Permit Drawing No. 4			g.	Fencing or other measures to restrict access.
X	Permit Drawing No. 5			4.	Topographic maps with a scale not greater than 200 feet to the inch with 5-foot contour intervals showing; (62-701.330(3)(d),FAC):
X	Permit Drawing No. 6			a.	Proposed fill areas;
		X		b.	Borrow areas;
X	Permit Drawing No. 6			c.	Access roads;
X	Permit Drawing No. 8			d.	Grades required for proper drainage;
X	Permit Drawing No. 10			e.	Cross sections of lifts;

C. See Volume II - Hydrogeological Report of the original permit documents dated July 1990.

S	LOCATION	N/A	N/C		PART F CONTINUED
X	Permit Drawing No. 8				f. Special drainage devices if necessary;
X	Permit Drawing No. 4				g. Fencing;
X	Permit Drawing No. 4				h. Equipment facilities.
				5.	A report on the landfill describing the following; (62-701.330(3)(e),FAC)
X	Section III.				a. The current and projected population and area to be served by the proposed site;
X	Section III.				b. The anticipated type, annual quantity, and source of solid waste, expressed in tons;
X	Section III.				c. The anticipated facility life;
X	Section III.				d. The source and type of cover material used for the landfill.
X	Section IV.D.			6.	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)(h),FAC)
X	Section IV.E.			7.	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)(i),FAC)

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

See Appendix A			X	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(4)(b),FAC)
See Permit Drawing No. 6			X	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(4)(c),FAC)
See Permit Drawing No. 2			X	3.	Describe what methods shall be taken to screen the landfill from public view where such screening can practically be provided; (62-701.340(4)(d),FAC)

Note: The site is well buffered.

H. LANDFILL CONSTRUCTION REQUIREMENTS (62-701.400,FAC)

S	LOCATION	N/A	N/C	
X	Permit Drawings 14 & 15			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; (62-701.400(2),FAC)
				2. Landfill liner requirements; (62-701.400(3),FAC)
				a. General construction requirements; (62-701.400(3)(a),FAC):
	Appendix VIII of the Original permit documents		X	(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;
	See Comment D below		X	(2) Document foundation is adequate to prevent liner failure;
	See Comment E below		X	(3) Constructed so bottom liner will not be adversely impacted by fluctuations of the ground water;
		X		(4) Designed to resist hydrostatic uplift if bottom liner located below seasonal high ground water table;
	See Comment F below		X	(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)
		X		(1) Upper geomembrane thickness and properties;
		X		(2) Design leachate head for primary LCRS including leachate recirculation if appropriate;
		X		(3) Design thickness in accordance with Table A and number of lifts planned for lower soil component.

D. See Section 5 of the original permit documents and Appendix C of the First Permit Renewal application.

E. See Volume II - Hydrogeological Report of the original permit documents.

F. See Section V.A. of the Second Permit Renewal documents and Permit Drawing Nos. 6, 16, and 18.

S	LOCATION	N/A	N/C
	See Section V. A. of the Second Permit Renewal documents.		X
	See Section X. E. of the First Permit Renewal documents.		X
	See Section V. A. of the Second Permit Renewal documents.		X
	See Attachment B to the third RAI response on the Second Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
		X	
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X

PART H CONTINUED

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)

(1) Field seam test methods to ensure all field seams are at least 90 percent of the yield strength for the lining material;

(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;

(6) PVC geomembranes, if used, meet the specifications in PGI 1197;

(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;

S	LOCATION	N/A	N/C
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X

PART H CONTINUED

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;

(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 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;

S	LOCATION	N/A	N/C
	See Appendix F of the First Permit Renewal documents.		X
		X	
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
		X	
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix VIII of the Original Permit documents.		X
	See Appendix G of the First Permit Renewal documents.		X
	See Permit Drawings 17 and 18		X
	See Section V.B.		X

PART H CONTINUED

(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;

(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.

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;

(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;

S	LOCATION	N/A	N/C	PART H CONTINUED
	See Section V.B.			b. Primary LCRS requirements; (62-701.400(4)(b),FAC)
___	_____	___	X	(1) Bottom 12 inches having hydraulic conductivity $\geq 1 \times 10^{-3}$ cm/sec;
	See Section V.B.			
___	_____	___	X	(2) Total thickness of 24 inches of material chemically resistant to the waste and leachate;
	See Section V.B.			
___	_____	___	X	(3) Bottom slope design to accomodate for predicted settlement;
	See Section V.B.			
___	_____	___	X	(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)
___	_____	X	___	a. Describe general procedures for recirculating leachate;
___	_____	X	___	b. Describe procedures for controlling leachate runoff and minimizing mixing of leachate runoff with storm water;
___	_____	X	___	c. Describe procedures for preventing perched water conditions and gas buildup;
___	_____	X	___	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;
___	_____	X	___	e. Describe methods of gas management in accordance with Rule 62-701.530, FAC;
___	_____	X	___	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.

S	LOCATION	N/A	N/C	PART H CONTINUED
				5. Leachate storage tanks and leachate surface impoundments; (62-701.400(6),FAC)
				a. Surface impoundment requirements; (62-701.400(6)(b),FAC)
___	_____	X	___	(1) Documentation that the design of the bottom liner will not be adversely impacted by fluctuations of the ground water;
___	_____	X	___	(2) Designed in segments to allow for inspection and repair as needed without interruption of service;
				(3) General design requirements;
___	_____	X	___	(a) Double liner system consisting of an upper and lower 60-mil minimum thickness geomembrane;
___	_____	X	___	(b) Leak detection and collection system with hydraulic conductivity $\geq$ 1 cm/sec;
___	_____	X	___	(c) Lower geomembrane placed on subbase $\geq$ 6 inches thick with k $\leq$ $1x10^{-5}$ cm/sec or on an approved geosynthetic clay liner with k $\leq$ $1x10^{-7}$ cm/sec;
___	_____	X	___	(d) Design calculation to predict potential leakage through the upper liner;
___	_____	X	___	(e) Daily inspection requirements and notification and corrective action requirements if leakage rates exceed that predicted by design calculations;
___	_____	X	___	(4) Description of procedures to prevent uplift, if applicable;
___	_____	X	___	(5) Design calculations to demonstrate minimum two feet of freeboard will be maintained;
___	_____	X	___	(6) Procedures for controlling disease vectors and off-site odors.

S	LOCATION	N/A	N/C
See Section V.C.			X
		X	
		X	
See Section V.C.			X
See Section V.C.			X
See Section V.C.			X
See Section V.C.			X
See Section V.C.			X
See Section V.C.			X
See Section V.C.			X
		X	
		X	

PART H 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)

(1) Describe materials of construction;

(2) A double-walled tank design system to be used with the following requirements;

S	LOCATION	N/A	N/C
		X	
		X	
		X	
		X	
		X	
		X	
		X	
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X

PART H CONTINUED

(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;

(5) State qualifications of CQA professional engineer and support personnel;

(6) Description of CQA reporting forms and documents;

S	LOCATION	N/A	N/C
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See Appendix F of the First Permit Renewal documents.		X
	See modification No. MS16-296691		X
	See Section V.D.		X
	See Permit Drawing No. 8		X
	See Section V.E.		X
			N/A

PART H CONTINUED

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)

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)

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

S	LOCATION	N/A	N/C	
	See Volume II-Hydrogeological Report of the Original permit documents.		X	1. Submit a hydrogeological investigation and site report including at least the following information:
	See Volume II-Hydrogeological Report of the Original permit documents.		X	a. Regional and site specific geology and hydrogeology;
	See Volume II-Hydrogeological Report of the Original permit documents.		X	b. Direction and rate of ground water and surface water flow including seasonal variations;
	See Volume II-Hydrogeological Report of the Original permit documents.		X	c. Background quality of ground water and surface water;
	See Volume II-Hydrogeological Report of the Original permit documents.		X	d. Any on-site hydraulic connections between aquifers;
	See Volume II-Hydrogeological Report of the Original permit documents.		X	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;
	See Volume II-Hydrogeological Report of the Original permit documents.		X	f. Description of topography, soil types and surface water drainage systems;
	See Volume II-Hydrogeological Report of the Original permit documents.		X	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;
	See Volume II-Hydrogeological Report of the Original permit documents.		X	h. Identify and locate any existing contaminated areas on the site;
	See Volume II-Hydrogeological Report of the Original permit documents.		X	i. Include a map showing the locations of all potable wells within 500 feet, and all community water suupply wells within 1000 feet, of the waste storage and disposal areas;
	See Volume II-Hydrogeological Report of the Original permit documents.		X	2. Report signed, sealed and dated by PE or PG.

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

S	LOCATION	N/A	N/C	
	See Volume II-Hydrogeological Report of the Original permit documents.		X	1. Submit a geotechnical site investigation report defining the engineering properties of the site including at least the following:
	See Volume II-Hydrogeological Report of the Original permit documents.		X	a. Description of subsurface conditions including soil stratigraphy and ground water table conditions;
	See Volume II-Hydrogeological Report of the Original permit documents.		X	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;
	See Appendix C of the First Permit Renewal documents.		X	d. Foundation analysis including:
	See Appendix C of the First Permit Renewal documents.		X	(1) Foundation bearing capacity analysis;
				(2) Total and differential subgrade settlement analysis;
	See Attachment D to the Second RAI response to the Second Permit Renewal		X	(3) Slope stability analysis;
	See both reports referenced above		X	e. Description of methods used in the investigation and includes soil boring logs, laboratory results, analytical calculations, cross sections, interpretations and conclusions;
	See Volume II-Hydrogeological Report of the Original permit documents.		X	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.
	See the various reports.		X	2. Report signed, sealed and dated by PE or PG.

K. **VERTICAL EXPANSION OF LANDFILLS** (62-701.430,FAC) N/A

S	LOCATION	N/A	N/C		
___	_____	___	___	1.	Describe how the vertical expansion shall not cause or contribute to leachate leakage from the existing landfill 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.

L. LANDFILL OPERATION REQUIREMENTS (62-701.500,FAC)

X	Section VIII.A.			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)
X	Section VII.A.			a.	Designating responsible operating and maintenance personnel;
X	Section VII.B.			b.	Contingency operations for emergencies;
X	Section VII.C.			c.	Controlling types of waste received at the landfill;
X	Section VII.D.			d.	Weighing incoming waste;
X	Section VII.H.			e.	Vehicle traffic control and unloading;
X	Section VII.J.			f.	Method and sequence of filling waste;
X	Section VII.K.			g.	Waste compaction and application of cover;
X	Section VII.L.			h.	Operations of gas, leachate, and stormwater controls;
X	Section VIII			i.	Water quality monitoring.
X	Section VII.M.			j.	Maintaining and cleaning the leachate collection system;
X	Section VII.E.			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)
X	Section VII.F.			4.	Describe the waste records that will be compiled monthly and provided to the Department quarterly; (62-701.500(4),FAC)
X	Section VII.G.			5.	Describe methods of access control; (62-701.500(5),FAC)
X	Section VII.I.			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)
X	Section VII.J.			a.	Waste layer thickness and compaction frequencies;

S	LOCATION	N/A	N/C	PART L CONTINUED
X	Section VII.J.			b. Special considerations for first layer of waste placed above liner and leachate collection system;
X	Section VII.J.			c. Slopes of cell working face and side grades above land surface, planned lift depths during operation;
X	Section VII.J.			d. Maximum width of working face;
				e. Description of type of initial cover to be used at the facility that controls:
X	Section VII.K.			(1) Disease vector breeding/animal attraction
X	Section VII.K.			(2) Fires
X	Section VII.K.			(3) Odors
X	Section VII.K.			(4) Blowing litter
X	Section VII.K.			(5) Moisture infiltration
X	Section VII.K.			f. Procedures for applying initial cover including minimum cover frequencies;
X	Section VII.K.			g. Procedures for applying intermediate cover;
X	Section VII.K.			h. Time frames for applying final cover;
X	Section VII.J.			i. Procedures for controlling scavenging and salvaging.
X	Section VII.J.			j. Description of litter policing methods;
X	Section VII.J.			k. Erosion control procedures.
				8. Describe operational procedures for leachate management including; (62-701.500(8),FAC)
X	Section VII.N.			a. Leachate level monitoring, sampling, analysis and data results submitted to the Department;
X	Section VII.N.			b. Operation and maintenance of leachate collection and removal system, and treatment as required;
X	Section VII.N.			c. Procedures for managing leachate if it becomes regulated as a hazardous waste;
X	Section VII.N.			d. Agreements for off-site discharge and treatment of leachate;
X	Section VII.N.			e. Contingency plan for managing leachate during emergencies or equipment problems;

S	LOCATION	N/A	N/C	PART L CONTINUED
X	Section VII.N.			f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;
X	Section VII.N.			q. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;
X	Section VII.N.			h. Procedures for water pressure cleaning or video inspecting leachate collection systems.
X	Section V.E.			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)
X	Section VII.Q.			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)
				11. Equipment and operation feature requirements; (62-701.500(11),FAC)
X	Section VII.R.			a. Sufficient equipment for excavating, spreading, compacting and covering waste;
X	Section VII.R.			b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;
X	Section VII.S.			c. Communications equipment;
X	Section VII.S.			d. Dust control methods;
X	Section VII.S.			e. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;
X	Section VII.S.			f. Litter control devices;
X	Section VII.S.			g. Signs indicating operating authority, traffic flow, hours of operation, disposal restrictions.
X	Section VII.T.			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)
X	Section VII.U.			13. Additional record keeping and reporting requirements; (62-701.500(13),FAC)

S	LOCATION	N/A	N/C	PART L CONTINUED	
X	Section VII.U.			a.	Records used for developing permit applications and supplemental information maintained for the design period of the landfill;
X	Section VII.U.			b.	Monitoring information, calibration and maintenance records, copies of reports required by permit maintained for at least 10 years;
X	Section VII.U.			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;
X	Section VII.U.			d.	Procedures for archiving and retrieving records which are more than five year old.

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

S	LOCATION	N/A	N/C	
	See Appendix I of the Second Permit Renewal documents.		X	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;
	See Appendix I of the Second Permit Renewal documents.		X	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)
	See Appendix I of the Second Permit Renewal documents.		X	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)
	See Appendix I of the Second Permit Renewal documents.		X	(1) Detection wells located downgradient from and within 50 feet of disposal units;
	See Appendix I of the Second Permit Renewal documents.		X	(2) Downgradient compliance wells as required;
	See Appendix I of the Second Permit Renewal documents.		X	(3) Background wells screened in all aquifers below the landfill that may be affected by the landfill;
	See Appendix I of the Second Permit Renewal documents.		X	(4) Location information for each monitoring well;
	See Appendix I of the Second Permit Renewal documents.		X	(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;
	See Appendix I of the Second Permit Renewal documents.		X	(6) Well screen locations properly selected;
	See Appendix I of the Second Permit Renewal documents.		X	(7) Procedures for properly abandoning monitoring wells;
	See Appendix I of the Second Permit Renewal documents.	X		(8) Detailed description of detection sensors if proposed.

S	LOCATION	N/A	N/C
	See Appendix I of the Second Permit Renewal documents.		X
	See Appendix I of the Second Permit Renewal documents.		X
	See Appendix I of the Second Permit Renewal documents.		X
	See Appendix I of the Second Permit Renewal documents.		X
	See Appendix I of the Second Permit Renewal documents.		X
	See Appendix I of the Second Permit Renewal documents.		X
	See Appendix I of the Second Permit Renewal documents.		X
	See Appendix I of the Second Permit Renewal documents.		X
	See Appendix I of the Second Permit Renewal documents.		X
	See Appendix I of the Second Permit Renewal documents.		X

PART M CONTINUED

d. Surface water monitoring requirements; (62-701.510(4),FAC)

(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;

(2) Bi-annual report requirements signed, dated and sealed by PG or PE.

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

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

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

				1.	Provide the design for a gas management systems that will (62-701.530(1), FAC):
See recent permit modification as prepared by others.			X	a.	Be designed to prevent concentrations of combustible gases from exceeding 25% the LEL in structures and 100% the LEL at the property boundary;
See recent permit modification as prepared by others.			X	b.	Be designed for site-specific conditions;
See recent permit modification as prepared by others.			X	c.	Be designed to reduce gas pressure in the interior of the landfill;
See recent permit modification as prepared by others.			X	d.	Be designed to not interfere with the liner, leachate control system or final cover.
See recent permit modification as prepared by others.			X	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):
See recent permit modification as prepared by others.			X	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):
See recent permit modification as prepared by others.			X	a.	Information required in Rules 62-701.320(7) and 62-701.330(3), FAC supplied;
See recent permit modification as prepared by others.			X	b.	Information required in Rule 62-701.600(4), FAC supplied where relevant and practical;
See recent permit modification as prepared by others.			X	c.	Estimate of current and expected gas generation rates and description of condensate disposal methods provided;

PART O CONTINUED

S	LOCATION	N/A	N/C		
See recent permit modification as prepared by others.			X	d.	Description of procedures for condensate sampling, analyzing and data reporting provided;

See recent permit modification as prepared by others.			X	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;
See recent permit modification as prepared by others.			X	f. Performance bond provided to cover closure costs if not already included in other landfill closure costs.

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

1. Closure schedule requirements; (62-701.600(2),FAC)

X	Section X.A.			a. Documentation that a written notice including a schedule for closure will be provided to the Department at least one year prior to final receipt of wastes;
X	Section X.A.			b. Notice to user requirements within 120 days of final receipt of wastes;
X	Section X.A.			c. Notice to public requirements within 10 days of final receipt of wastes.

2. Closure permit general requirements; (62-701.600(3),FAC)

		X		a. Application submitted to Department at least 90 days prior to final receipt of wastes;
				b. Closure plan shall include the following:
		X		(1) Closure report;
		X		(2) Closure design plan;
		X		(3) Closure operation plan;
		X		(4) Closure procedures;
		X		(5) Plan for long term care;
		X		(6) A demonstration that proof of financial responsibility for long term care will be provided.

3. Closure report requirements; (62-701.600(4),FAC)

				a. General information requirements;
		X		(1) Identification of landfill;

S	LOCATION	N/A	N/C	PART P CONTINUED
		X		(2) Location, description and vicinity map;
		X		(3) Total acres of disposal areas and landfill property;
		X		(4) Legal property description;
		X		(5) History of landfill;
		X		(6) Identification of types of waste disposed of at the landfill.
		X		b. Geotechnical investigation report and water quality monitoring plan required by Rule 62-701.330(3),FAC;
		X		c. Land use information report indicating: identification of adjacent landowners; zoning; present land uses; and roads, highways right-of-way, or easements.
		X		d. Report on actual or potential gas migration at landfills containing degradable wastes which would allow migration of gas off the landfill property;
		X		e. Report assessing the effectiveness of the landfill design and operation including results of geotechnical investigations, surface water and storm water management, gas migration and concentrations, condition of existing cover, and nature of waste disposed of at the landfill;
				4. Closure design requirements to be included in the closure design plan: (62-701.600(5),FAC)
X	Permit Drawing Nos. 14 & 15			a. Plan sheet showing phases of site closing;
X	Permit Drawing Nos. 5 & 9			b. Drawings showing existing topography and proposed final grades;
X	Section X.B.			c. Provisions to close units when they reach approved design dimensions;
X	Permit Drawing No. 9			d. Final elevations before settlement;
X	Permit Drawing No. 20 & 21			e. Side slope design including benches, terraces, down slope drainage ways, energy dissipators and discussion of expected precipitation effects;
				f. Final cover installation plans including:
X	Appendix M and N			(1) CQA plan for installing and testing final cover;

S	LOCATION	N/A	N/C	
X	Section X.B.			(2) Schedule for installing final cover after final receipt of waste;
X	Section X.B.			(3) Description of drought-resistant species to be used in the vegetative cover;
X	Permit Drawing No. 9			(4) Top gradient design to maximize runoff and minimize erosion;
		X		(5) Provisions for cover material to be used for final cover maintenance.
				g. Final cover design requirements:
X	Section X.B.			(1) Protective soil layer design;
X	Section X.B.			(2) Barrier soil layer design;
X	Section X.B.			(3) Erosion control vegetation;
X	Section X.B.			(4) Geomembrane barrier layer design;
		X		(5) Geosynthetic clay liner design if used;
	See Attachment C of the third RAI response for the Second Permit Renewal.		X	(6) Stability analysis of the cover system and the disposed waste.
	See Section X		X	h. Proposed method of stormwater control;
	No change from operations		X	i. Proposed method of access control;
X	Section X.C.			j. Description of proposed final use of the closed landfill, if any;
	No change from operations		X	k. Description of the proposed or existing gas management system which complies with Rule 62-701.530, FAC.
				5. Closure operation plan shall include: (62-701.600(6),FAC)
		X		a. Detailed description of actions which will be taken to close the landfill;
		X		b. Time schedule for completion of closing and long term care;
		X		c. Describe proposed method for demonstrating financial responsibility;
		X		d. Indicate any additional equipment and personnel needed to complete closure.

S	LOCATION	N/A	N/C	PART P CONTINUED
___	_____	X	___	e. Development and implementation of the water quality monitoring plan required in Rule 62-701.510, FAC.
___	_____	X	___	f. Development and implementation of gas management system required in Rule 62-701.530, FAC.
___	_____	X	___	6. Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (62-701.600(7),FAC)

Q. CLOSURE PROCEDURES (62-701.610,FAC)

S	LOCATION	N/A	N/C		
		X		1.	Survey monuments; (62-701.610(2),FAC)
		X		2.	Final survey report; (62-701.610(3),FAC)
		X		3.	Certification of closure construction completion; (62-701.610(4),FAC)
		X		4.	Declaration to the public; (62-701.610(5),FAC)
		X		5.	Official date of closing; (62-701.610(6),FAC)
		X		6.	Use of closed landfill areas; (62-701.610(7),FAC)
		X		7.	Relocation of wastes; (62-701.610(8), FAC)

R. LONG TERM CARE REQUIREMENTS (62-701.620,FAC)

	See Section X and Appendix O		X	1.	Maintaining the gas collection and monitoring system; (62-701.620(5), FAC)
	See Section X and Appendix O		X	2.	Right of property access requirements; (62-701.620(6),FAC)
	See Section X and Appendix O		X	3.	Successors of interest requirements; (62-701.620(7),FAC)
	See Section X and Appendix O		X	4.	Requirements for replacement of monitoring devices; (62-701.620(9),FAC)
		X		5.	Completion of long term care signed and sealed by professional engineer (62-701.620(10), FAC).

S. FINANCIAL RESPONSIBILITY REQUIREMENTS (62-701.630,FAC)

X	Appendix N			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).
X	Section X.F.			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).
X	Section X.F.			3.	Describe funding mechanisms for providing proof of financial assurance and include appropriate financial assurance forms; (62-701.630(5),(6),&(9), FAC).

T. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

1. Applicant:

The undersigned applicant or authorized representative of Trail Ridge Landfill, Inc. _____ is aware that statements made in this form and attached information are an application for a Operate Renewal 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

R. D. McConnell, Area Vice President
Name and Title (please type)

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

5110 U.S. Highway 301
Mailing Address

Baldwin, FL 32234
City, State, Zip Code

(904) 289-9100
Telephone Number

Date: _____

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.

Signature

Juanitta Bader Clem, P.E., Vice President
Name and Title (please type)

43245
Florida Registration Number
(please affix seal)

England-Thims & Miller, Inc.
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DEP FORM 62-701.900(1)
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Permit Documents

DEP004595

TRAIL RIDGE LANDFILL
PERMIT DOCUMENTS FOR
OPERATION
THIRD RENEWAL

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TRAIL RIDGE LANDFILL
PERMIT DOCUMENTS
FOR OPERATION
THIRD RENEWAL

I. INTRODUCTION

A. PURPOSE

The purpose of this Operation Report is to describe the method of continued operation of Trail Ridge Landfill located in Duval County, Florida. Addressed in this report are the types of waste accepted at the landfill, operation plan, leachate management, stormwater management, environmental media monitoring, and closure plan for the landfill. Trail Ridge Landfill is owned by the City of Jacksonville, Florida and is operated by Trail Ridge Landfill, Inc.

B. SUPPLEMENTAL DOCUMENTS

This Operation Report is supplementary to the Permit Drawings; prepared by England, Thims & Miller, Inc. in concert with Trail Ridge Landfill, Inc.

This Operation Report and its associated Permit Drawings have been developed in accordance with the requirements of the Florida Department of Environmental Protection (the Department) and the St. Johns River Water Management District (SJRWMD).

C. GENERAL OBJECTIVES

The intent of this Operation Report, along with its associated Permit Drawings, is to provide for the continued operation of Trail Ridge Landfill in accordance with applicable Federal, State, and local requirements. The primary design objectives are the control of leachate and surface water, and the phased operation and closure of the landfill. To achieve these requirements, a double geomembrane liner system, leachate collection and containment system, and surface water management system were installed. Further, phasing plans for operation and closure has been developed and implemented.

II. GENERAL

A. SITE DESCRIPTION

Trail Ridge Landfill is located in Sections 18, 19, 20 and 21, Township 3 South, Range 23 East, Duval County, Florida. Trail Ridge Landfill is owned by the City of Jacksonville, Florida and operated by Trail Ridge Landfill, Inc. (a Waste Management Company). The total land area is approximately 978 acres of which approximately 148 acres is used for this Class I landfill. A recent aerial photograph and topographic survey of the site are included in **Permit Drawing Nos. 2 and 5**.

The landfill was constructed in five phases, Phase I through Phase V as shown on **Permit Drawing No. 7**. Phases I and II were constructed in six sections. The first section (Phase IA) was constructed in 1992 and certified on May 15, 1992. Whereas, Phase IB was certified on June 22, 1992, Phases IIA and IIB were certified on March 4, 1993, and Phases IC and IIC were certified on June 1, 1993. The construction of Phases I and II included construction of the stormwater treatment facility for the entire landfill as well as the conveyance system for Phases I and II.

Phase IIIA was constructed in 1995 and certified on September 29, 1995. Phases IIIB, IVA and IVB were constructed in 1996 and certified on December 19, 1996. The construction of Phases IIIA, IIIB, IVA and IVB included the completion of the stormwater conveyance system for the entire landfill (with the exception of the downcomer system associated with closure).

The final phases, Phases IIIC, IVC and V were constructed in 2000/01 and certified on July 13, 2001. Solid waste has been placed in all the phases.

B. RECYCLING EFFORTS

Duval County has a separate Materials Recovery Facility (MRF). Recyclable materials are picked up curbside and processed at the MRF for recycling. The materials recycled include aluminum, glass, newspaper, HDPE, steel, cardboard, PET, magazines, corrugated cardboard and brown paper bags.

Duval County recycles approximately 23 percent of their waste stream according to *Solid Waste Management in Florida 2006*, which was prepared by the Department of Environmental Protection, Division of Waste Management.

C. HISTORY

Trail Ridge Landfill, Inc. has had only one enforcement action taken against it by the Department of Environmental Protection (the Department) for violations relating to any solid waste management facility. A Consent Order (No. 92-0725) was signed by Trail Ridge Landfill, Inc. in conjunction with The Haskell Company, and Barco-Duval Engineering on July 24, 1992 to resolve that action which related to turbid discharge and erosion, siltation and scouring within adjacent wetland areas. It should be noted that this violation occurred during the first increment of construction and in fact, during the construction of the stormwater management basin.

D. AIRPORT PROXIMITY

Trail Ridge Landfill is not located within 10,000 feet of a licensed and operating airport runway used by turbine powered aircraft, or within 5,000 feet of licensed and operating airport runway used only by piston engine aircraft. There are no proposed changes to the horizontal or vertical limits of the landfill and a clearance letter from the Federal Aviation Administration was provided in the first permit renewal.

E. LOCATION CONSIDERATIONS

1. Foundation

A foundation analysis was conducted in 1990 as part of the original construction permit and due to a vertical expansion of the landfill; the foundation analysis was updated in 1996 as part of the first permit renewal. There are no proposed changes to the horizontal or vertical limits of the landfill as part of this permit renewal and therefore, the foundation analysis was not updated.

2. Floodplain

The Landfill is above the 100-year floodplain as shown on the Floodplain Map in **Appendix A**.

3. Proximity to Property Boundary

At the closest point, the Landfill (measured from the toe of the proposed final cover slope) is more than 200 feet from the landfill property boundary as shown on **Permit Drawing No. 4**.

4. Screening from Public View

The Landfill has at least a 200 foot buffer around. Further, the surrounding property is currently zoned agriculture.

F. OPERATOR TRAINING

Currently, Trail Ridge Landfill, Inc. has seven trained operators, five of whom are also trained spotters. The operators/spotters were trained at the University of Florida TREEO Center which is a Department approved provider of training services. In accordance with Rule 62-701.320(15), F.A.C., the continued training (16 hours for operators and four hours for spotters) will be conducted, at a minimum, every three years. Please see the certification documents for existing trained personnel in **Appendix B**. If additional personnel or new personnel require training, training will be provided by a Department approved provider within sixty days of hiring. In the interim, new personnel will work under the supervision of a trained operator or trained spotter, whichever applies. In addition, the facility also has an in-house training program and all employees are briefed on various environmental, health and safety topics.

III. TYPES AND QUANTITY OF WASTE ACCEPTED

The types of waste accepted at Trail Ridge Landfill typically consist of residential/household, office, commercial, agricultural, and industrial wastes. The materials accepted for disposal include garbage, refuse, treated biomedical waste, construction and demolition debris, shredded waste tires, asbestos, water treatment sludge, industrial sludge, domestic sludge and non-hazardous special waste. The waste stream is monitored as each vehicle enters the site and passes by the ticket office/scale house operator and again at the working face. The waste stream is monitored for prohibited wastes such as hazardous waste, untreated biomedical waste, non-containerized liquid wastes, and special wastes prohibited by Rule 62-701.300(8), F.A.C. Incoming waste quantities are determined by the use of scales.

The site serves the City of Jacksonville, Duval County, and Northeast Florida. According to the Florida Office of Economic and Demographic Research, the 2007 population estimate for Duval County is 897,597. The annual tonnage for 2007 was approximately 844,000 tons, based on facility waste records. The total remaining airspace available for waste is approximately 9,063,000 cubic yards (as of February of 2008). This volume will accommodate approximately 7,250,000 tons of waste (based upon a density of 1,600

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lb/cubic yard). It is anticipated that the landfill has a remaining life of approximately 8 years.

Currently, the cover material for the landfill comes from offsite borrow sources. This material is transported to the site and stockpiled on the site adjacent to the working face.

IV. FACILITY DESIGN

Trail Ridge Landfill has been designed to meet or exceed all applicable regulatory standards. Details of the design are included in the Permit Drawings. These plans include all maps, plan sheets, drawings, cross-sections and aerial photographs. All Permit Drawings have been signed and sealed by a Florida Registered Professional Engineer.

A. AERIAL PHOTOGRAPH

An aerial photograph by Aerials Express, dated February 2008, can be found on **Permit Drawing No. 2.** The aerial photograph includes the existing land uses and zoning within one mile of the facility.

B. PLOT PLAN

1. Dimensions

A dimensioned site plan is contained on **Permit Drawing No. 4.**

2. Location of Monitoring Wells and Soil Borings

The location of all the existing monitoring wells is provided on **Permit Drawing No. 3**, which is a Specific Purpose Survey.

The location and depth of soil borings were provided in the original Hydrogeological Investigation and Groundwater Monitoring Plan prepared by Golder & Associates and submitted as part of the original permit documents. No new borings have been drilled as part of this permit renewal.

3. Plan of Disposal Area

The plan for disposal areas is contained on the Base Grading Plan and Bottom Liner Phasing Plan (**Permit Drawing Nos. 6 and 7**).

4. Cross-Sections

Cross-sections of the original and proposed final elevations are contained on **Permit Drawing No. 10.**

5. Operational (Fill) Areas

The location of the current operational area is shown on **Permit Drawing No. 7**. Further, Fill Phasing Plans are presented on **Permit Drawing Nos. 11 - 13.**

6. Fencing

The landfill site is fenced in its entirety. **Permit Drawing No. 4** shows the fence and gate locations.

C. TOPOGRAPHIC MAPS

1. Contour Intervals

A topographic map with 2-foot contour intervals on NGVD datum is contained on the Existing Topographic Plan (**Permit Drawing No. 5**).

2. Proposed Fill Areas

The proposed fill areas are delineated on the Base Grading Plan and the Bottom Liner Phasing Plan **(Permit Drawing Nos. 6 and 7).**

3. Borrow Areas

There are no borrow areas on the existing landfill site.

4. Access Road

The primary access road to the site consists of a two-laned paved industrial roadway runs from U. S. Highway 301 west to the ticket office/scale house. This paved roadway continues on site to the perimeter road which encircles the landfill. The perimeter road is an all-weather stabilized roadway that provides continuous access to all landfill locations.

5. Grades

The Master Drainage Plan is included as **Permit Drawing No. 8**. The site is designed to provide positive drainage of stormwater runoff from the landfill to the perimeter ditch and then directly into the stormwater management basin for treatment prior to discharge. Special design features have been incorporated to segregate clean stormwater from any contaminated stormwater which is handled as leachate.

6. Cross-Section of Waste Lift

A typical section is contained on **Permit Drawing No. 13**.

7. Special Drainage Devices

As a part of closure (including close-as you-go), downcomer pipes are installed in the side slopes to carry the stormwater runoff from the drainage terraces on the side slopes to drainage structures at the toe of the slope. These drainage structures discharge to the perimeter ditch and ultimately, the stormwater management basin. These drainage structures which connect to downcomer piping have been designed with baffles to prevent stormwater from exiting the structures. The Master Drainage Plan is contained on **Permit Drawing No. 8** and details of the structures are contained in a detail on **Permit Drawing Nos. 20 and 21**.

8. Fencing

The site is fenced as shown on the Site Plan (**Permit Drawing No. 4**).

9. Equipment Facilities

Facilities for equipment maintenance and storage have been provided as shown on the Site Plan (**Permit Drawing No. 4**).

10. Additional Uses

a. Tire Shredder

A portable tire shredder is operated on the site on a periodic basis. Whole waste tires are temporarily stored and when sufficient tires have

accumulated, a portable shredder is brought to the site to shred the tires. The shredded tires are being landfilled or used as initial cover.

D. ENVIRONMENTAL MEDIA MONITORING

The groundwater, surface water and leachate are monitored on a semi-annual basis. The laboratory analysis of the environmental media monitoring (groundwater, surface water and leachate) is conducted by Columbia Analytical Services. Their Department of Health, Bureau of Laboratories Certification Number is E84282 and a copy of the certification is provided in **Appendix C**.

E. FINANCIAL RESPONSIBILITY

The City of Jacksonville (the landfill owner) provides financial responsibility for the closure and long-term care of the landfill by means of a Landfill Management Escrow Account.

V. LANDFILL PERFORMANCE AND DESIGN STANDARDS

The design of the landfill is based on three fundamental principals; containment, collection and monitoring. Containment is accomplished by a state-of-the-art liner system which includes both primary and secondary liner systems. Collection of leachate is accomplished through the primary leachate collection piping system as well as the secondary leak detection/leachate collection system. Monitoring of these systems occurs with the sampling and analyses of the leachate and groundwater.

A. DOUBLE LINER SYSTEM

The entire liner system for the landfill has been constructed. The double liner system, as constructed and certified, is composed of the following from top to bottom:

Primary

- 24" Protective Soil Cover ($k \leq 1 \times 10^{-3}$ cm/sec)
- Geotextile Fabric
- Drainage Layer (Geonet)
- 60-mil High Density Polyethylene (HDPE) Primary Liner
- Geosynthetic Clay Liner

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Secondary (Leak Detection System)

- Geotextile Fabric
- Drainage Layer (Geonet)
- 60-mil HDPE Secondary Liner
- 6" Compacted Subgrade ($k \leq 1 \times 10^{-5}$ cm/sec)

This double composite liner system insures the integrity of the landfill base from leachate contamination. The three impermeable layers and two drainage layers provide reliability for the Class I Landfill.

The liner system covers the entire base of refuse disposal area as well as the leachate containment facilities (storage tanks with concrete containment). Cross sections of the landfill which includes natural ground versus existing base grades are contained on **Permit Drawing No. 10**.

B. LEACHATE COLLECTION AND REMOVAL SYSTEM

The primary leachate collection system is composed of a drainage geonet laid on a minimum 2% cross slope to an 8" HDPE perforated collection pipe laid in a trench (leachate collection trench) sloped at a minimum of 0.85% (**Permit Drawing No. 10**). The secondary leak detection and collection system consists of a geonet which also drains to the leachate collection trench. A 24" layer of protective sand layer is provided above the primary drainage layer. This sand layer provides drainage to the geonet as well as a protective layer for the double synthetic liner system.

The leachate collection piping is accessible at both ends for cleaning via a clean-out. High pressure flushing as well as mechanical cleaning can be used to remove any solids. In accordance with Rule 62-701.500(8)(h), F.A.C., the leachate collection system has been water pressure cleaned and inspected by video recording and the subsequent report is presented in **Appendix D**.

The primary leachate collection pipes passes through the leachate collection sump and terminates at the leachate vault on the east side of the landfill. The leachate collection sump consists of an 18" or 24" diameter HDPE perforated pipe (riser pipe) surrounded by an aggregate sump. The riser pipe extends from the sump up to the leachate vault. The 8" HDPE leachate collection pipe discharges directly into the riser pipe as well as the sump. A small submersible pump is located inside each riser pipe. Level sensors in the riser pipe are used to control the pump which removes leachate as it accumulates. The pumps are mounted on wheels and can easily be removed for maintenance.

The leak detection system is constructed and operates similarly to the primary collection system with the exception that multiple layers of geonet are provided in lieu of the 8" HDPE perforated collection pipe. Each leachate vault box has a flow meter for the primary and secondary leachate collection system. The flow from each meter is read daily (Monday thru Friday) as well as the rainfall, which is recorded daily. The leachate flows and rainfall are compared to check for proper operations of the collection system. **Appendix E** contains the current records.

C. LEACHATE STORAGE TANKS

1. Design

Leachate is pumped from each sump into a force main and to the leachate storage area where six 20,000-gallon fiberglass storage tanks provide temporary storage. The leachate storage tanks are surrounded by a concrete secondary containment basin which can hold 140 percent of the total tanks volume plus one foot of free board. These leachate handling facilities including the concrete containment basin are underlain by the liner system.

The leachate storage tanks are emptied by tanker, on an as needed basis, and the leachate is hauled to JEA's Buckman Street Wastewater Treatment Facility for treatment and disposal. A letter from JEA accepting the leachate for treatment is included in **Appendix F**.

The secondary containment basin includes a sump and discharge pipe for draining stormwater from the basin. The basin is drained of stormwater within 24 hours or when 10 percent of the storage capacity is reached, whichever occurs first. The stormwater is discharged either to a leachate tanker or the stormwater management system, depending upon whether it has been contaminated with leachate.

2. Overfill Prevention System

The existing storage tanks are equipped with an overfill prevention system which includes level sensors and gauges, high level alarms and automatic shutoff controls. This overfill control equipment are inspected weekly by the facility operator to ensure the system is in working order.

3. Inspection and Corrective Action

The exterior of these fiberglass tanks is inspected weekly by the facility operator for leaks and maintenance deficiencies. An interior inspection of the tanks is performed when the tanks are drained or at a minimum of every three years. The most recent inspection report is contained in Appendix P.

If the inspection reveals a tank or equipment deficiency, leak, or any other deficiency which could result in failure of the tank to contain leachate, remedial measures will be taken immediately to eliminate the leak or correct the deficiency. Inspection reports will be maintained and made available to the Department upon request for the lifetime of the leachate storage system.

D. SURFACE WATER MANAGEMENT SYSTEM

The stormwater management system is an existing wet detention system which was permitted by the Department. This system was designed and constructed to detail a 25-year, 24-hour storm event and treat stormwater to meet the wet detention criteria of Rule 40C-42.026(5), F.A.C. Further, the facility was designed and constructed with perimeter swales and ditches to direct stormwater to the wet detention basin and away from the landfill, thereby preventing stormwater from coming into contact with waste.

To prevent stormwater contamination, refuse placement operations follow an orderly sequence of steps. In summary, these activities consist of the following:

1. Limit daily operations within an active sector for as long as practical.
2. Maintain only a minimum active working face to allow for daily refuse placement.
3. Apply initial cover to any exposed refuse as soon after disposal as practical.
4. Final cover and seeding of any area completed to designed grade as soon as practical.

E. GAS MANAGEMENT SYSTEM

The Gas Management System for Trail Ridge Landfill consists of the landfill gas collection system and the combustible gas monitoring program which are described below.

1. Landfill Gas Collection System

The landfill gas collection system consists of gas extraction wells, gas collection pipes, a gas extraction blower, flare station and gas condensate pump station. This system was designed, constructed and operated in accordance with the approved Title V Air Operation Permit (Permit No. 0310358-003-AV). This permit was issued by the City of Jacksonville, Regulatory & Environmental Services Department (RESD) and expires on August 31, 2008. This system is monitored on a regular basis in accordance with the Title V Air Operation permit and data is provided to RESD annually.

A minor modification permit application has been submitted to the Department. This application is to construct a landfill gas-to-energy facility to convert the landfill gas collected at the landfill into energy.

2. Combustible Gas Monitoring Program

A combustible gas monitoring program has been implemented and includes quarterly monitoring with results submitted to the Department. The location of the monitoring points for the gas collection system is shown on the Gas Collection Plan, which is provided in **Appendix G**.

If combustible gas levels exceed twenty-five percent of the lower explosive limit in a structure (excluding gas control or recovery components) or the lower explosive limits at or beyond the property boundary, Trail Ridge Landfill will:

a. Immediately take all necessary steps to ensure protection of human health and notify the Department.

b. Within seven days of detection, submit to the Department for approval a remediation plan for the gas releases. The plan will describe the nature and extent of the problem and the proposed remedy. The remedy will be completed within 60 days of detection unless otherwise approved by the Department.

VI. PHASING PLANS

The landfill has been constructed with five phases (Phases I through V) and one surface water management facility as shown on **Permit Drawing No. 7**. The completed landfill, including final contours, is presented on **Permit Drawing No. 9.**

A. FILL PHASING PLAN

The sequence of fill operations initially corresponded to the liner phasing. The overall sequence of the fill operations is shown on **Permit Drawing Nos. 11 - 13**. As shown on the plans, Liner Phases I, II, IIIA, IIIB, IVA and IVB were initially filled to EL. 210± (NGVD) and then Phases I and IIIA were filled to EL. 250± (NGVD). Next Phase IIIC and IVC were filled to EL. 210±. Phases VA and VC, followed by Phase VB and VD, were filled to above the anchor berm (so stormwater will drain from the waste filled areas). Currently, Phases VA, VC, VB and VD are being filled to EL. 210± (NGVD). Then on the eastern half, the landfill will be filled to EL. 270± (NGVD) which leaves access to the top from the southwest corner and northern slopes. The next fill phase is the filling of the eastern portion to EL. 330± (NGVD). The final fill phase will include filling the western slope (the operations access location) and the top area.

B. CLOSURE PHASING PLAN

The closure phasing will correspond to the above fill phasing. The Closure Phasing Plans are contained on **Permit Drawing Nos. 14 and 15**. When solid waste disposal units have been filled to their final design grade, they will be closed in a close-as-you-go fashion.

VII. OPERATION PLAN

A. OPERATION PERSONNEL AND HOURS OF OPERATION

The Director of Landfill Operations is responsible for the overall operation of the Trail Ridge Landfill. The Director of Landfill Operations responsibility is to assure that operations at the site are performed in accordance with the procedures outlined in this Operation Plan.

The Director of Landfill Operations, the Operations Manager and several operators are trained operators under Rule 62-701.320 (15), F.A.C. At least one trained operator will be on-site during all times when the landfill receives waste. Further, at least one trained spotter (who may also be an equipment operator) will be at the working face at all times waste is being accepted and/or spread out prior to disposal at that respective working face.

1. Hours of Operation

   a. Normal Monday - Friday: 6:00 A.M. to 7:00 P.M.
   b. Normal Saturday: ~~6~~5:00 A.M. to ~~3~~2:00 P.M.
   c. Maximum Hours: 5:00 A.M. to 10:00 P.M.

   During emergency situations, i.e., after a hurricane, the landfill may operate beyond the above hours. However, the Florida Department of Environmental Protection must be notified at the first available opportunity. The landfill will have lights with at least 3 candle-feet of illumination for operation during non-daylight hours.

2. Personnel

   Personnel expected to be at the landfill includes:

Personnel	Total
Director of Landfill Operations	1
Operations Manager	1
Equipment Operators	8
Mechanic	1
Labors/Spotters	6
Compliance Officer	1
Clerical	3

   On a normal basis, the personnel present during operating hours on the landfill will include a trained operator, a trained spotter, a material handler (laborer) and

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an equipment operator. The trained spotter may also function as an equipment operator. During peak operating hours, the facility will have additional personnel, in accordance with the Required Personnel Matrix in **Appendix H**.

A work schedule is developed on a weekly basis to ensure that adequate staff is present on the landfill to handle the expected volume of waste.

B. CONTINGENCY OPERATIONS

The on-site entrance road is an all-weather road. The entrance road and administration area are paved. The pavement extends beyond the ticket office/scale house to the perimeter road around the landfill. The perimeter road is a stabilized limerock road. Haul roads beyond this point are maintained for adverse weather condition usage.

Emergency conditions at the facility may be created by a natural disaster (i.e., hurricane or tornado), flooding and fire. Waste is not normally delivered to the site during emergency conditions. The following procedures will be implemented with the imminent threat of a major storm.

1. Initial cover will be applied and compacted over all exposed waste.
2. All landfill equipment will be fueled and parked near natural wind screens, earthen mounds or tree areas.
3. All lightweight signs and equipment will be secured.
4. Work will begin in dry areas only when operations are resumed and waste materials will not be disposed in standing water.

The surface water management system will allow disposal operations to continue during periods of inclement weather. This will include the utilization of temporary berms and ditches to drain stormwater away from the active face.

In the event of a natural disaster in the area, operational hours will be extended as appropriate to meet the needs of the community and the Department will be notified.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharge onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place with intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal

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to another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire-fighting equipment.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

C. WASTE CONTROL

The waste stream will be monitored by the scale house operator, as each vehicle passes by the ticket office/scale house and then again at the working face by the spotter(s). In addition, the scale house is equipped with cameras/video monitoring systems, which record a time-coded picture of the vehicles entering the site.

There will be at least one trained spotter at each working face to observe the wastes disposed at all times the landfill receives waste to detect unauthorized waste. The spotter will be assisted by additional personnel, including trained operators, equipment operators, laborers, and trained spotters, when necessary. If any unauthorized wastes are discovered at the landfill, the landfill owner/operator will promptly notify the person responsible for shipping the wastes to the landfill and the generator of the wastes, if known, for subsequent removal off site. If the waste is deemed hazardous, the area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at an appropriate waste management facility.

In the event unauthorized waste is identified after the hauler has left the facility, the unauthorized waste shall be removed from the working face and placed in close proximity to the working face. At the end of the day, at a minimum, unauthorized waste such as batteries, oil filters, used oil, etc. will be removed from the landfill and stored at the existing concrete storage area adjacent to the waste tire storage and processing area. Within the storage area, the materials shall be placed in a single layer on pallets. (The water level in the storage area will be checked on a weekly basis and accumulated water will be pumped out and treated as leachate). Tires will be placed within the tire storage areas. White goods will be stored in a roll-off box. White goods and batteries will be taken off site by various recyclers on a quarterly basis, at a minimum.

Only two types of biological waste are accepted for disposal, bodies of domestic animals and treated biomedical waste. Before the bodies of domestic animals are brought to the facility, the landfill will request information about the waste to determine if the animals were diseased. If the animals were not diseased, the bodies will be disposed within the working face and then covered immediately with either additional waste or initial cover. If the bodies of the domestic animal are from

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diseased animals, the bodies will be handled in accordance with Section 823.041(1), F.S. Treated biomedical waste will be disposed within the working face and then covered with either additional waste or initial cover.

D. WEIGHING WASTE

All incoming waste will be weighed and recorded on a daily basis at the on-site scales prior to disposal. The on-site scales include at least one scale for incoming vehicles and one scale for outgoing vehicles.

E. OPERATION RECORD

The operating record consists of all records, reports, analytical results, demonstrations, and notifications required by Chapter 62-701, F.A.C., any construction, operation, and closure plans and permits, including all modifications to those permits issued by the Department, Permit Document Plans, as well as training records required by Chapter 62-701.320(15), F.A.C. The record is considered part of the operation plan and will be kept with the plan at the landfill facility. The operating record will be available for inspection at reasonable times by Department personnel.

F. WASTE RECORDS

The operators will record, in tons per day, the amount of solid waste received and will estimate the amount of each waste listed below. Waste reports will be compiled monthly, and copies provided to the Department quarterly.

Types of waste received:

a. Residential/household waste
b. Commercial waste
c. Treated biomedical waste
d. Water treatment sludge
e. Construction and demolition debris
f. Agricultural waste
g. Industrial waste
h. Waste tires
i. Asbestos
j. Industrial sludge
k. Domestic sludge
l. Non-Hazardous special wastes

G. ACCESS CONTROL

Access to the landfill is provided by a paved entrance road from U.S. 301.

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The entire site is fenced. Access is restricted by a gate near the entrance off U.S. 301 as well as a second gate closer to the site. All gates will be locked at night and whenever the landfill is closed. Public access and receipt of wastes will occur only when an attendant is on duty.

Traffic control on site is accomplished by signage and site personnel. Spotters will assist with traffic control at the working face by directing in-coming trucks to their final unloading area.

Access to areas restricted from traffic will be controlled by temporary earthen berms and barricades.

H. VEHICLE TRAFFIC CONTROL

Signs are provided to direct traffic to the disposal area. Further, spotters will direct incoming vehicles to their final disposal area.

I. WASTE MONITORING

1. The operations will include a load checking program to detect and discourage attempts to dispose of unauthorized wastes at the landfill. The load checking program consists of the following minimum requirements:

   a. The landfill operator will examine at least three random loads of solid waste delivered to the landfill each week. The waste collection vehicle drivers selected by the inspector will be directed to discharge their loads at a designated location within the landfill (near the working face). A detailed inspection of the discharged material will be made for any unauthorized wastes.

   b. If unauthorized wastes are found, the facility will contact the generator, hauler, or other party responsible for shipping the waste to the landfill to determine the identity of the waste sources.

2. Handing hazardous wastes.

   a. If any regulated hazardous wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the Department by telephone, the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known. The area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will

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assure the cleanup, transportation, and disposal of the waste at a permitted hazardous waste management facility.

The operator will provide a report of the discovery of hazardous waste to the Department within seven days. The report will include the date of the incident, how the materials were discovered, transferred and transported, the disposal location, and if known, the source of the material. The material will be transferred and disposed off site in accordance with applicable local, state and federal regulations. The clean up will include determining the extent of contamination as well as the handling of materials that are contaminated by the hazardous waste.

b. Subsequent shipments from sources found or suspected to be previously responsible for shipping regulated hazardous waste will be subject to precautionary measure prior to the solid waste management facility accepting wastes.

3. Recording inspection results. Information and observations resulting from each random inspection will be recorded in writing and retained at the landfill for at least three years. The recorded information will include: the date and time of the inspection; the names of the hauling firm and the driver of the vehicle; the vehicle license plate number; the source of the waste, as stated by the driver; and observations made by the inspector during the detailed inspection. The written record will be signed by the inspector.

J. WASTE HANDLING

The landfill may have two (2) working faces and will be consistent with orderly traffic control, waste spreading, and compaction activities.

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system. The placement of this initial waste was supervised by a quality assurance monitor under the supervision of a Florida Registered professional Engineer.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to

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one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices.

Each working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material. The typical working face is 200 feet long by 300 feet wide. The size of the working face will vary based upon the location of the working face and waste volume.

A second working face may be necessary due to utilization of a tipper. The second working face will be located near the first working face and shall have a portable tipper used to unload solid waste trailers. The location of the portable tipper within the second working face will be determined by the landfill operator and will vary depending on the amount of solid waste received and weather conditions. The second working face shall have a trained spotter whenever solid waste is being accepted and/or spread out prior to disposal.

The facility will provide a working area within the lined landfill area for the placement of waste during wet weather. This area will be utilized when access to the regular working face is limited due to wet weather. The location of the wet weather area is based on accessibility during wet weather. The typical wet weather working face is 200 feet long by 300 feet wide but the size will vary based upon the location and waste volume.

K. WASTE COMPACTION AND APPLICATION OF COVER

Waste will be spread in layers of approximately two (2) feet in thickness and compacted to approximately one (1) foot in thickness or as thin a layer as practical before the next layer is applied. In general three to five passes with the compactor will be made on each layer of refuse. Compaction of the waste will be accomplished both from top down and from the bottom up.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day. A 6" thick initial cover (consisting of soil, shredded tires, contaminated soils, or ash contaminated soil) or an FDEP approved alternate daily cover may also be applied at the end of each operating day.

For those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial

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cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C. Shredded tires will not be used on exterior side slope or roadways. A six-inch thick layer of shredded tires will be placed for initial cover, which will remain in place and be covered with additional waste or intermediate cover. Shredded tires for initial cover will be stored on top of the landfill in the vicinity of the working face.

An intermediate cover, in addition ~~n~~ to the six (6) inch initial cover, will be applied and maintained within seven (7) days of cell completion if final cover or an additional lift is not to be applied within 180 days of cell completion. All or part of this intermediate cover may be removed before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less). Any mulch/soil mixture used on exterior side slopes will be removed and replaced with intermediate cover. Therefore, it will not affect the stability of the final cover system.

Final cover will be applied to a solid waste disposal unit once it has been filled to its design dimensions. The final cover including permanent vegetation will be placed over the entire surface of each completed solid waste disposal unit within 180 days after final waste placement. Solid waste disposal units, which are designated by phase, are shown on **Permit Drawings Nos. 14 and 15**.

Uncontrolled and unauthorized scavenging is not permitted at the landfill site. Salvaging is also not permitted.

A litter policing operation will be employed to keep litter from leaving the working area of the landfill. Litter outside the working area will be picked up within 24 hours. Some litter may be exposed through the initial cover, if it is in traffic areas and away from public view.

Erosion control measures will be employed to correct any erosion which exposes waste or causes malfunction of the stormwater management system. Erosion control measures will be implemented within three days of occurrences. If the erosion cannot be corrected within seven days of occurrence, the landfill operator will notify the Department and propose a corrective schedule.

L. OPERATION OF LEACHATE AND STORMWATER CONTROLS

1. Leachate Management

The primary leachate collection system consists of an 8" perforated HDPE collection pipe surrounded by an aggregate encasement, which is covered by a geotextile fabric. This collection system is located in a trench on top of the

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primary liner. Leachate is collected within each leachate sector (300' wide, typical) and directed to the collection system by a geonet drainage blanket located on top of the primary liner.

The primary leachate collection pipes passes through the leachate collection sump and terminates at the leachate vault on the east side of the landfill. The leachate collection sump consists of an 18" or 24" diameter HDPE pipe (riser pipe) surrounded by an aggregate sump. The riser pipe extends from the sump up to the leachate vault. The 8" HDPE leachate collection pipe discharges directly into the riser pipe as well as the sump. A small submersible pump is located inside each riser pipe. Level sensors in the riser pipe are used to control the pump, which removes leachate as it accumulates. The pumps are mounted on wheels and can easily be removed for maintenance.

The leachate pumps discharge into a leachate force main which transfer the leachate to the fiberglass storage tanks (20,000 gallons each). The leachate storage tanks are visually inspected daily, Monday through Friday, by on-site personnel. A daily log (Monday through Friday) is kept outlining leachate generation and storage volumes. The facility will use the maximum allowable leakage rate of 4,492 gallons per cell per day as an action rate to determine when the leakage through the primary liner is too great and needs to be investigated. The Department will be notified within 24 hours if the maximum leakage rate is exceeded on any one day and a report submitted to the Department within seven days of the discovery of the exceedance. Leachate will be transported off-site by tanker at regular intervals based on leachate production. The leachate is transported to the Buckman Street Wastewater Treatment Facility for treatment and disposal.

The secondary (detection) leachate collection system is constructed and operates similarly to the primary system. The exceptions for this system include:

a. Multiple layers of geonet were installed in lieu of the 8" HDPE perforated pipe.

b. The secondary leachate collection system is piped to a separate storage tank (20,000 gallons).

2. Stormwater Management

The Stormwater Management System was designed in accordance with Rules 62-25, 40C-4 and 40C-42, F.A.C. for both treatment and peak flow attenuation. The stormwater treatment is provided by wet detention.

All stormwater is collected and directed into the stormwater basin. The landfill prevents erosion by directing stormwater in a controlled manner by way of temporary and permanent stormwater controls. Stormwater from the top of the landfill is typically collected in swales and directed to downcomers (both temporary and permanent), which brings the water down to the existing drainage inlets and perimeter ditch. The collection system includes terraces on the final landfill slopes in conjunction with downcomer piping. This system will control runoff and minimize erosion on the landfill side slopes. When erosion occurs, it is repaired within three days and the reason for the erosion is evaluated to eliminate the source. Details of this system are shown on the Permit Drawings. The existing wetland discharge of treated stormwater occurs through a perforated spreader pipe around the perimeter of the stormwater management basin. This wetland irrigation system, adjacent to the stormwater management basin must be inspected on an annual basis (during the annual stormwater management basin inspection) to ensure that no pipes are clogged, broken or otherwise rendered non-functional. Any non-functioning pipes shall be repaired within 14 days of discovery.

M. MAINTENANCE OF LEACHATE COLLECTION SYSTEM

Each leachate vault box (located at the east end of each leachate collection pipe) has a flow meter for the primary and secondary leachate collection system. These flow meters will be read daily, Monday thru Friday. If the reading in a flow meter is noticeably diminishing or otherwise reduced compared to the other flow meters and daily rainfall records, the flow meter and pump will be checked for proper operation. In the event it is deemed necessary, the leachate collection system will be either videoed to determine if there is a clog or other reason for diminished flow or the leachate collection pipe will be flushed cleaned. The leachate collection system will be jet cleaned every five years prior to permit renewal.

N. LEACHATE MANAGEMENT

The landfill operator will monitor the leachate level in and record the flow from both the leachate collection (primary) and detention (secondary) sumps on a daily basis, Monday through Friday. The operator will maintain at least one backup pump on site or have access to a backup pump that can be installed within hours of discovery that a pump is not operating. The operator/owner will sample and analyze the leachate in accordance with the Environmental Media Monitoring Plan and will submit the results to the Department.

The operator will operate and maintain the leachate collection system to collect and remove leachate from the landfill. The leachate will be stored on site in the six 20,000-gallon leachate storage tanks and will be transported to JEA's Buckman Street Wastewater Treatment Facility for treatment and disposal.

The quantity of leachate collected by the leachate collection and removal system will be recorded (in gallons) on a daily basis, Monday through Friday. The amount of leachate transported off site will be recorded on a daily basis, Monday through Friday.

If the flow from any secondary leachate detection sump exceeds 4,492 gallons per day for one day, the Department will be notified within 24 hours and a follow-up report prepared within 7 days. The follow-up report will include a description and assessment of the situation, proposed remedial actions, the proposed remedial action and a schedule for commencing and completing the remediation.

A recording rain gauge is operated and maintained to record precipitation at the landfill. These precipitation records will be maintained and used to compare with leachate generation rates.

O. LEACHATE SPILLAGE CONTROL PLAN

The leachate storage and pumping facilities are inside a concrete containment area, which will hold 140% of the volume of the storage tanks plus one foot of freeboard. This facility is constructed on top of the liner system. Therefore, the Leachate Spillage Control Plan is directed at those spills that would occur outside the containment area.

The Leachate Spillage Control Plan consists of four major elements; Training, Containment, Remediation and Notification as described below:

1. Training

The tanker driver and/or site personnel (the Attendant for the purposes of this subsection) will be trained to prevent spills. The Attendant will perform the following prior to loading the tanker truck:

a. Inspect the tanker for signs of leakage.
b. Verify all tanker discharge valves are closed.
c. Verify the tanker is completely within the leachate loading area containment curbing.
d. Verify the liquid level in the containment sump is at or below the discharge pipe.
e. Verify the containment sump discharge gate valve is closed.
f. Verify leachate fill hose is securely fastened to inlet port of the tanker.
g. Verify the available tanker volume.

Upon completion of this inspection, the Attendant will begin the following fill sequence:

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1. Operate the leachate loading pump for approximately five minutes or until 500 gallons of leachate has been pumped and then discontinue pumping.
2. Inspect the tanker, fill hose and pumping system for leakage.
3. Upon verification that no spilling or leaking has occurred, restart pumping.
4. Continuously monitor the tanker fill operations.
5. Monitor the leachate flow meter until approximately 95% of the available tanker volume has been filled.
6. Discontinue filling operations and remove fill hose.
7. Perform a final inspection of tanker and tanker fill area.

2. Containment

If a spill occurs, the Attendant will notify the District Manager of the spill and request assistance. The Attendant will institute the following containment sequence:

a. Cease pumping.
b. Place sandbags around drainage structures down slope from the loading area to prevent any spillage from entering the drainage system. (NOTE: The first 500 gallons of spillage inside the containment curb will drain naturally into the 500-gallon containment sump.)
c. Create an earthen berm around the spill with on-site sands taken from the daily cover stockpile.

3. Remediation

After the spill has been securely contained, the following cleanup will begin:

a. Pump the leachate in the containment sump into on-site storage tanks.
b. Spread absorbent sands across all areas in contact with the spill.
c. Remove the contaminated sand to the landfill disposal area.

4. Notification

In the event of a leachate spill, the Department will be notified.

The outlined Spillage Control Plan focuses primarily on a spill at the tanker truck loading area. However, if a leachate spill is discovered at any location on site, the pertinent containment, remediation and notification procedures described above will be implemented.

P. COMBUSTIBLE GAS MONITORING PROGRAM

The combustible gas monitoring plan is provided in **Appendix G.** The Monitoring locations will be monitored quarterly with the results submitted to the Department.

If combustible gas levels exceed twenty-five percent of the lower explosive limit in structures (excluding gas control or recovery components) or the lower explosive limits at or beyond the property boundary, Trail Ridge Landfill will:

1. Immediately take all necessary steps to ensure protection of human health and notify the Department.

2. Within seven days of detection, submit to the Department for approval a remediation plan for the gas releases. The plan will describe the nature and extent of the problem and the proposed remedy. The remedy will be completed within 60 days of detection unless otherwise approved by the Department.

Q. STORMWATER MANAGEMENT

1. Stormwater Handling

The stormwater management system was installed as part of the initial construction and is operated and maintained in accordance with the requirements of the DEP Solid Waste permit. The stormwater management system includes the wet detention basin as well as the swales, drainage ditches and culverts, discharge structures, downcomer pipes and other appurtenances as required. Pertinent features of the stormwater handling system include:

a. Potentially contaminated stormwater will be segregated from clean stormwater and contaminated stormwater will not be discharged from the site;
b. A 24-hour, 25-year rainfall event is detained on site;
c. Stormwater is treated to meet the requirements of Rule 62-25, F.A.C.;
d. The maximum discharge rate following a 25-year, 24-hour storm event does not exceed the pre-development discharge from this design storm.

Stormwater is routed through the internal ditch and culvert network to the wet detention basin for treatment. The discharge structure releases the stormwater at the control rate to a dispersion pond, which ultimately discharges to the adjacent wetlands.

The discharge structure was designed to effectively prevent floating materials from being released from the site.

2. Stormwater Treatment

a. Clean Stormwater

Stormwater runoff is treated in the existing wet detention basin. This basin is designed to treat 2.5 inches of runoff from the impervious surfaces and detain a 25-year, 24-hour storm event.

In addition, there is an existing wetland discharge of treated stormwater through a perforated spreader pipe around the perimeter of the stormwater management basin. This wetland irrigation system must be inspected on an annual basis and any non-functioning pipes or erosion due to the irrigation system shall be repaired within 14 days of discovery.

b. Other Stormwater

Stormwater which comes into contact with refuse will be segregated from the clean stormwater and will not be discharged from the site. This potentially contaminated water includes stormwater which falls on uncovered refuse or has otherwise made contact with refuse.

Temporary berms will be constructed in advance of the active fill face to collect stormwater which falls in the active area. This potentially contaminated stormwater will be pumped onto the working face or back into previously filled portions of the landfill.

3. Stormwater Maintenance

The stormwater management system shall be maintained on a regular basis or as needed and shall include:

a. Removal of trash and debris,
b. Inspection of inlets and outlets,
c. Removal of sediments when the storage volume or conveyance capacity of the system is below design levels,
d. Stabilization and restoration of eroded areas, and
e. Mowing of grassed areas and removal of grass clipping from stormwater conveyance and treatment areas.

On an annual basis, the wet detention system, including the pumping system that is used to facilitate stormwater treatment and irrigation of the adjacent wetlands, shall be inspected by a registered Florida Professional Engineer. This inspection shall demonstrate that the pumping system is capable of maintaining a flow rate between 2.5 cubic feet per second (cfs)

(1122.0 gallons per minute (gpm)) and 2.11 cfs (947.0 gpm) to meet the permitted drawdown rate or a plan to provide the required drawdown rate. In addition, the wetland irrigation system will be inspected to ensure that no pipes are clogged, broken or otherwise rendered non-functional and there is no erosion due to the irrigation system. Any non-functioning pipes or erosion shall be repaired within 14 days of discovery.

4. Erosion Control

Stormwater terraces will be constructed on the side slopes of the completed landfill. These berms will route surface water flow to downcomer pipes buried in the final cover, and ultimately to the perimeter drainage ditch. This system of terraces and pipes will minimize erosion of the final cover. Vegetative cover will be established and maintained, as soon as practical, after finish contours are completed.

When erosion occurs, repair will begin within three days and the reason for the erosion will be evaluated to eliminate the source. Should the repair require more than 7 days, the Department will be notified as required by Rule 62-701.500(7)(j), F.A.C.

R. EQUIPMENT

Sufficient equipment (including three compactors, two dozers, an excavator, a loader, a grader, a water wagon, three trucks, a service truck and a tractor) is provided to ensure proper operation of the landfill and for spreading, compacting and covering waste. In addition, for tractor trailers disposing at the landfill, a tipper may be utilized. Substitutions and additions to the equipment listed above may occur. However, equipment capable of performing comparably to the listed equipment will be maintained on site. In addition, equipment is available within 24 hours from other company operations and distributors should any situation dictate the requirement for additional equipment.

The minimum equipment at the working face will include two compactors and one dozer. When the waste receipt exceeds 2600 tons per day, an additional compactor will be provided for spreading and/or compaction.

S. OPERATION FEATURES

The scale house and the administrative building both have telephones for routine emergency communications. Further, both facilities provide shelter, sanitary facilities and first aid equipment.

Dust originating from haul road surfaces will be controlled by periodic sweeping and/or watering of road surfaces, as required. Additionally, final cover will be vegetated as soon as practical after application of final cover, in order to minimize the blowing of dust on site.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharged onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place and intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

When a fire occurs at the landfill, the application of additional compacted cover will be utilized to cut off the flow of oxygen into the burning area. If this does not contain the fire, the affected area will be thoroughly wetted, excavated, and wetted again prior to reconstructing the cells. The chance of fire occurring at a properly run sanitary landfill is minimal.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

Instruction in fire fighting procedures is routinely provided to site personnel, and portable fire extinguishers are located on each machine and vehicle. Local Fire Departments will be employed to assist the site personnel and equipment, if necessary.

Fire hydrants are located on site and are connected to the pump system, which draws water from the stormwater basin.

Trail Ridge Landfill, Inc. has developed an extensive program regarding safety and accident prevention. As part of this program, employees are trained in proper operation and emergency procedures. Telephone communication and First Aid equipment are provided at the facility. Operating vehicles are in compliance with current OSHA safety requirements, including caging and shields to protect operators. All appropriate equipment has back-up alarms and those alarms are maintained in good repair.

The problem of blowing litter will be minimized by limiting the active working face and using initial cover or tarpaulins over the active fill areas. Other methods, such as the utilization of casual labor pickers and portable fencing will be employed as required to contain loose paper and other wind-blown refuse during fill operations. Any loose paper or similar refuse blown outside the working area will be picked up on a regular basis.

Signage indicating the name of facility, operating authority, hours of operation and charges for disposal is located adjacent to the gate, prior to the ticket/scale house. Additional signs are placed on site to direct traffic. Warning signs are located in operating areas dealing with leachate and gas collection.

T. ROADS

The entrance road and ticket office/scale house area are paved. Beyond the paved area, all-weather perimeter roads are maintained to the active fill area, monitoring devices, and stormwater controls. Service and haul road construction and maintenance are coordinated with the landfill phasing and development. Service and haul roads will be constructed of slag, broken concrete, rocks and bricks, which provide a stable base. The roadways will be graded to direct runoff to roadside swales to minimize erosion. Slag from Ameristeel will be utilized on access road within the liner limits only.

U. RECORDS KEEPING

The landfill operator will:

1. Keep records of all information used to develop or support the permit applications and any supplemental information pertaining to construction of the landfill throughout the design period. Records pertaining to the operation of the landfill will be kept for the design period of the landfill.

2. Retain records of all monitoring information, including calibration and maintenance records, all original chart recordings for continuous monitoring instrumentation, and copies of all reports required by permit, for at least ten years. Background water quality records will be kept for the design period of the landfill.

3. Maintain an annual estimate of the remaining life and capacity in cubic yards of the existing, constructed landfill and remaining capacity and site life of other permitted areas not yet constructed. The annual estimate will be based on a summary of the heights, lengths, and widths of the solid waste disposal units. The estimate will be made and reported annually to the Department.

Records which are more than five years old and which are required to be retained may be archived, provided that the landfill operator can retrieve them for inspection within seven days.

V. WASTE TIRE PROCESSING

The landfill includes a waste tire processing facility. The permit application and operations plan for the waste tire processing are contained in **Appendix I.**

W. INSPECTIONS

The operator will inspect all the active area on a weekly basis, the closed areas, at a minimum, on a monthly basis, and both areas after major storm events. Further, the operator will inspect the leachate collection system and gas collection system on a weekly basis. A Sample inspection checklist is contained in **Appendix J.** Eroded areas will be repaired within 3 days of discovery and other insufficiencies will be repaired within 7 days.

VIII. WATER QUALITY MONITORING

A. WATER QUALITY MONITORING

There is an existing Environmental Media Monitoring Plan (Groundwater, Surface Water, and Leachate) for this facility which is part of the current Solid Waste Permit and will continue a part of this renewal permit. This plan includes semi-annual monitoring of each media. The cover letter for the Biennial Water Quality Technical Report is contained in **Appendix O.**

B. SURFACE WATER MONITORING

A surface water monitoring plan was approved as part of the original permit as well as the permit renewal.

C. GROUNDWATER MONITORING

A groundwater monitoring plan was approved as part of the original permit as well as the permit renewal. The over letter for the semiannual groundwater monitoring report is contained in **Appendix O.**

IX. SPECIAL WASTE HANDLING

It is Trail Ridge Landfill, Inc.'s policy to control the disposal of acceptable non-hazardous Special Wastes in the landfill. A written description of each Special Waste must be submitted by the customer. Before certain Special Wastes are accepted, a laboratory analysis of a representative sample may be required. Approval to dispose of a Special Waste is given only after review by Trail Ridge Landfill, Inc. A log of Special Wastes disposal is maintained at the landfill.

A. ASBESTOS

Asbestos will be landfilled in accordance with all requirements of Federal (40 CFR, Part 61.154, Subpart M), local and state regulations. Bags must have the OSHA required label. Each shipment will be accompanied by shipping papers.

Trail Ridge Landfill, Inc. requires that the waste generator make arrangements before disposal of regulated asbestos-containing waste materials and inform the operator of the quantity of the waste and the scheduled date the shipment will arrive at the landfill.

Asbestos containing waste will be disposed in an area separate from the active working face, and covered immediately with a minimum of six inches of soil or appropriate refuse. A coordinate grid system will be used to record the locations of disposed asbestos and a record of the asbestos location will be maintained.

B. CONTAMINATED SOIL

In accordance with Rule 62-701-520(4), F.A.C., non-hazardous contaminated soil may be accepted at the landfill for disposal, upon approval by Trail Ridge Landfill, Inc. Prior to receipt of contaminated soils at the landfill, the facility will review pertinent analytical test results (including TCLP for metals, volatiles, semi-volatiles, pesticides, herbicides and total PCBs) from the source and these results must be from a Florida certified laboratory. The facility will also require that the generator/transporter certify that the material is non-hazardous.

A special waste approvals person will evaluate each waste stream based on: 1) the type of material to be disposed (off specification product(s), contaminated media, contaminated soil, etc.), 2) the type of contamination expected to be present (inorganic, organic or both), and 3) the process generating the waste. For waste streams of known contamination, the approvals person can tailor the analytical requirements in order to focus on known contaminants. For example, if a waste

stream is generated from the spill of used motor oil from a vehicle accident, then the analylites of concern could be isolated to the RCRA metals and benzene. However, the analytical requirements for waste streams where contamination was from an unknown source or from a broad spectrum of contaminants, will have to based on a case-by-case basis using generator knowledge, process generating the waste and similar items. In these cases, the approvals person may choose to ensure that all of the characteristic analyses per 40 CFR 261.21, 261.22, 261.23, 261.24, and Total PCBs are met.

If the results indicate that the material is not hazardous waste, the material may be approved for disposal at the site. Depending upon the contaminant of concern and the Department's written approval on a case-by-case basis, the contaminated soil may be used for initial cover on interior side slopes but not on exterior side slopes. If the constituents of concern do not exceed Rule 62-777, FAC, Soil Cleanup Target Levels for Direct Exposure Based Industrial/Commercial Levels, the soil may be used for initial cover. If the soil has any visible organics or other material that may attract birds or vermin, has an odor or is saturated, it can not be utilized as initial cover. A five point composite sample is required for every 500 tons of soil prior to delivery to the site. During disposal, random load visual inspections are conducted.

Contaminated soils that are stored on the site for future use as initial cover will be stockpiled on top of the landfill (within the lined landfill footprint). The stockpile will be located at a minimum of 20 feet from any and all side slopes. The storage area will be surrounded by a silt fence and that the surrounding area will be contoured and/or bermed in such a way as to prevent any and all runoff from the stockpile to the surface water management system. ~~and a~~ A sign will be placed at each entrance to the stockpile. The sign will state that the material is initial cover storage area and that the material shall only be used on interior slopes. Further, the facility will keep records on the amount of material received, the amount used for cover, and the location of the placement.

C. ASH CONTAMINATED SOIL

The City of Jacksonville has ash contaminated soil from the Brown's Dump Site and the Jacksonville Ash Site that typically does not exceed Rule 62-777, FAC, Soil Cleanup Target Levels for Direct Exposure Based Industrial/Commercial Levels. Due to the extensive data on this ash contaminated soil, a five point composite sample result is required for every 1,000 cubic yards of soil (in lieu of every 500 tons) prior to delivery to the site. The composite sample shall be tested for TCLP for the eight RCRA Metals. If the TCLP testing indicates the soil is nonhazardous, this ash contaminated soil may be accepted at the site and used for initial cover on interior side slopes but not on exterior side slopes. However, if the soil has any visible

organics or other material that may attract birds or vermin, has an odor or is saturated, it can not be utilized as initial cover.

Ash contaminated soil that is stored at the site for future use as initial cover will be stockpiled on top of the landfill (within the lined landfill footprint). The stockpile will be located at a minimum of 20 feet from any and all side slopes. The storage area will be surrounded by a silt fence and that the surrounding area will be contoured and/or bermed in such a way as to prevent any and all runoff from the stockpile to the surface water management system. ~~and a~~ A sign will be placed at each entrance to the stockpile. The sign will state that the area is the initial cover storage area and that the material shall only be used on interior slopes. Further, the facility will keep records on the amount of material received, the amount used for cover, and the location of the placement.

D. OTHER WASTES

Other waste material such as shredded waste and biological waste may be accepted for disposal, upon review by Trail Ridge Landfill, Inc. and in accordance with the requirements of Rule 62-701.520 (2) and (5), F.A.C., respectively.

Regarding shredded waste, before any shredded waste is brought to the landfill, the operator will request information from the shredding facility to demonstrate that the particle sizes are in accordance with Rule 62-701.520(2)(a), FAC. If the material is deemed acceptable for disposal, the material will be unloaded near the working face and then spread and compacted onto the working face. The shredded waste will be placed in the working face with the other waste materials and will receive initial daily cover or be tarped in conjunction with the other waste materials.

Regarding biological waste, there are only two types of waste accepted that the landfill will accept, bodies of domestic animals and treated biomedical waste. Before the bodies of domestic animals are brought to the facility, the operator will request information about the waste to determine if the animals were diseased. If the animals were not diseased, the bodies will be disposed within the working face and then covered immediately with either additional waste or initial cover. If the bodies of the domestic animal are from diseased animals, the bodies will be handled in accordance with Section 823.041(1), F.S. Treated biomedical waste will be disposed within the working face and then covered with either additional waste or initial cover.

Ash residue from the burning of solid waste will be handled in accordance with Chapter 62-702, F.A.C. Prior to receipt of ash residue from a facility, the landfill will request test results from the generator. If the material is deemed acceptable for disposal, the ash residue will be placed on the working face and covered with additional waste or initial cover. The material will not be stockpiled on site.

X. CLOSURE

The Trail Ridge Landfill will be closed in accordance with closure requirements of Rule 62-701.600 and 62-701.610, F.A.C.

A. SCHEDULE

1. At least one year prior to the projected date when wastes will no longer be accepted or all solid waste disposal units are expected to reach design dimensions, a written notice will be provided to the Department and the local pollution control agency with a schedule for cessation of waste acceptance and closure of the landfill. If unforeseen circumstances do not allow the one year notification, notice will be provided as soon as the need to close the facility becomes apparent.

2. At least 120 days prior to the date when wastes will no longer be accepted at the landfill, users will be advised of the intent to close the facility by posting signs at the entrance of the facility giving the date of closing, the location of alternative disposal facilities and the name of the person responsible for closing the landfill. These signs will be maintained throughout the closing period.

3. At least 90 days prior to the date when wastes will no longer be accepted, a closure permit application will be submitted to the Department.

B. DESIGN

Final cover will be applied to a solid waste disposal unit once it has been filled to its design dimensions. The final cover including permanent vegetation will be placed over the entire surface of each completed solid waste disposal unit within 180 days after final waste placement. Solid waste disposal units which are designated by phase are shown on **Permit Drawings Nos. 14 and 15**.

The closure design and details are provided in **Permit Drawing Nos. 9, 20 and 21**. The design includes the final cover as described below and the stormwater terraces and downcomer pipes.

1. Intermediate Cover

In areas where active filling will not occur for a period of 180 days or more, a minimum of one foot of intermediate cover will be applied. Intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of

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50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch must be ground into sufficiently small pieces (approx. 1" or less).

2. Final Cover

a. Side Slopes

The landfill side slopes will be completed with 3.0 feet of final cover. A twelve-inch intermediate soil layer will first be placed over the refuse and/or initial cover. This will provide a level surface for applying twelve inches of compacted clay (with a maximum permeability of 6.67×10^{-8} cm/sec). A 24-inch layer of loosely compacted soil capable of sustaining vegetation will be placed over the compacted clay to complete the final cover construction. Final cover will be applied in accordance with the Phasing Plan as shown on **Permit Drawing Nos. 14 and 15**.

An alternate closure design demonstration for the side slope closure was provided in the previous Permit Renewal. The Quality Assurance/Quality Control Plan for the final cover on the side slopes, which will be installed during operation (close-as-you-go), is provided in **Appendix K**.

b. Top Area

The top area of the landfill will be closed with a geomembrane liner and a 24-inch vegetative cover layer. A 12-inch intermediate soil layer will first be placed over the refuse and/or initial cover. This will provide a level surface for applying the 40-mil (average thickness) textured HDPE liner (with a maximum water vapor transmission rate of 2.4 g/(m^2 x day). A 12-inch sand layer will be placed over the geomembrane liner to provide drainage to the top swale underdrain system. A 12-inch layer of loosely compacted soil capable of sustaining vegetation will be placed over the sand layer. The Quality Assurance/Quality Control Plan including the Project-Specific Addenda for the final cover on top area is provided in **Appendix L**.

3. Vegetation

The final surface of the landfill will be vegetated (with bahia grass and/or bermuda grass) as soon as possible after the final cover has been placed. This will be done progressively with final cover completion. It may be necessary to

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provide mulch to prevent erosion prior to the seed taking hold. Vegetation, fertilizer, and seed rates will be consistent with the recommendations of the Regional Soil Conservation Service and/or past experience on this site.

C. FINAL USE

The City of Jacksonville does not have a proposed final use at this time. Nevertheless, the City will consult the Department prior to conducting activities at the landfill after closure.

D. CLOSURE OPERATIONS

Upon issuance of the closure permit, the landfill will be closed in accordance with the approved plans and any special permit provisions. The closure operations will include the procedures required by Chapter 62-701.610, F.A.C. including Department closure inspections, a final survey report, certification of closure construction completion, and declaration to the public.

E. LONG TERM CARE

Trail Ridge Landfill will be monitored and maintained for thirty (30) years from the date of closing, in accordance with Chapter 62-701.620, F.A.C. The Quality Assurance / Quality Control Plan for Long Term Care is provided in **Appendix M.**

F. FINANCIAL RESPONSIBILITY

Proof of financial responsibility is provided by the City of Jacksonville by means of a Landfill Management Escrow Account, in accordance with Chapter 62-701.630, F.A.C. The current financial assurance cost estimate form for both closure and post-closure is provided in **Appendix N**. These cost estimates will be updated annually in accordance with Rule 62-701.630(4), F.A.C.

Appendix A

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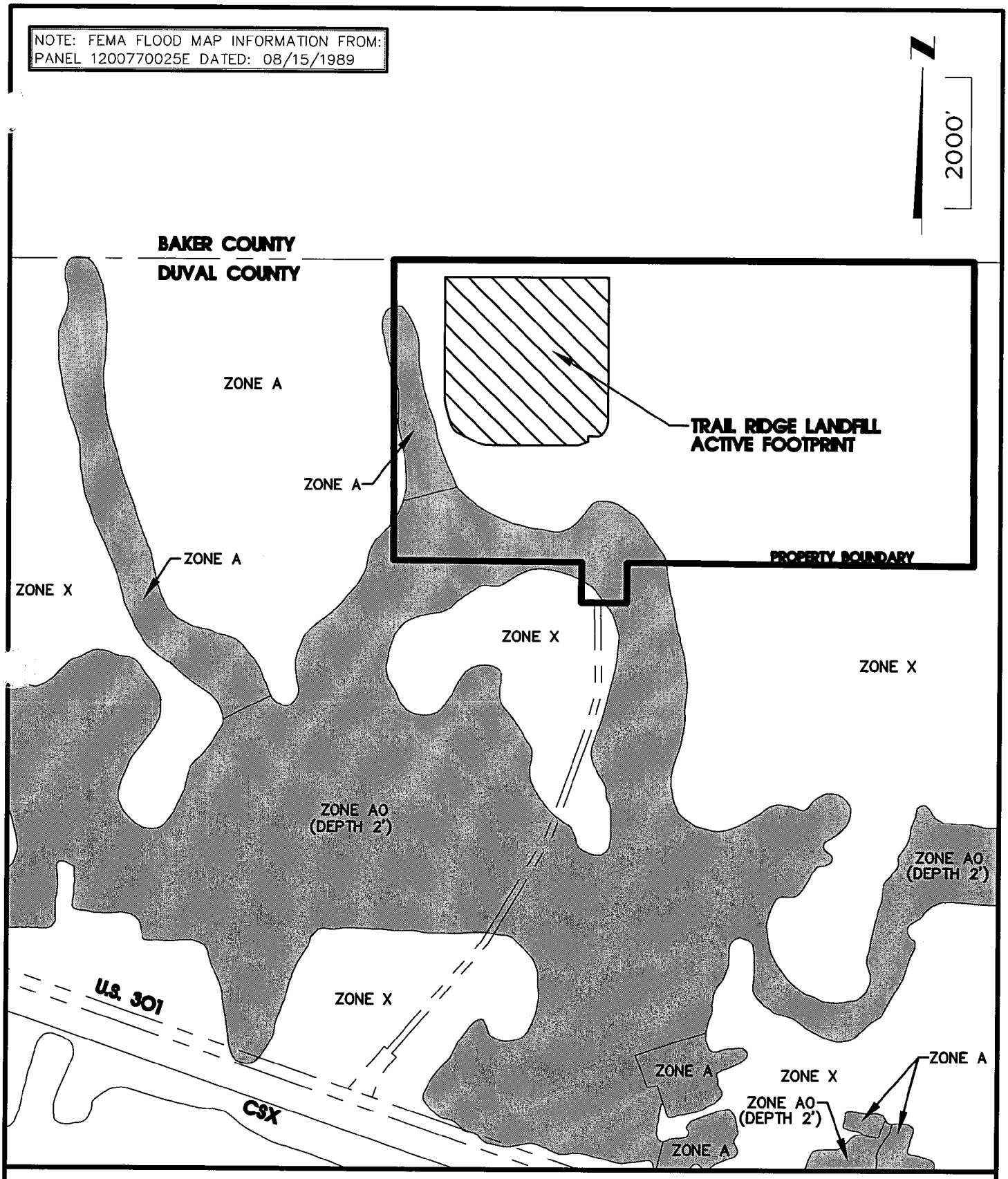
APPENDIX A

FLOODPLAIN MAP

NOTE: FEMA FLOOD MAP INFORMATION FROM:
PANEL 1200770025E DATED: 08/15/1989



England·Thims & Miller, Inc.
ENGINEERS - PLANNERS
SURVEYORS - LANDSCAPE ARCHITECTS
14775 Old St. Augustine Road
Jacksonville, Florida 32258
Certificate of Authorization No.:2584
Phone No. (904) 642-8990
Fax No. (904) 646-9485

FLOODPLAIN MAP

TRAIL RIDGE LANDFILL PERMIT RENEWAL
FOR
TRAIL RIDGE LANDFILL, INC.

ETM-NO.	07-044
DATE:	1-27-09
DRAWN BY:	S. Lockwood
DRAWING NO.:	1 of 1

Appendix B

DEP004639

APPENDIX B

TRAINING CERTIFICATION

TRIAL RIDGE LANDFILL TRAINING LIST

Name	Company	Training
Anderson, Dennis	Trail Ridge Landfill, Inc.	Class I, II, III Landfill Operator
		Construction and Demolition Debris Landfill Operator
Benvenutti, Jorge	Trail Ridge Landfill, Inc.	Class I, II, III Landfill Operator
		Construction and Demolition Debris Landfill Operator
		Spotter / Waste Screener
Compton, Abram	Trail Ridge Landfill, Inc.	Class I, II, III Landfill Operator
		Construction and Demolition Debris Landfill Operator
		Spotter / Waste Screener
Daniels, Chaddrick	Trail Ridge Landfill, Inc.	Spotter / Waste Screener
Dixon, Charles	Trail Ridge Landfill, Inc.	Class I, II, III Landfill Operator
		Spotter / Waste Screener
Lloyd, Clifford	Trail Ridge Landfill, Inc.	Spotter / Waste Screener
Mathes, Gregory	Trail Ridge Landfill, Inc.	Class I, II, III Landfill Operator
		Spotter / Waste Screener
Mosley, Terry	Trail Ridge Landfill, Inc.	Class I, II, III Landfill Operator
		Construction and Demolition Debris Landfill Operator
Powell, Adrian	Trail Ridge Landfill, Inc.	Spotter / Waste Screener
Purvis, James	Trail Ridge Landfill, Inc.	Class I, II, III Landfill Operator
		Spotter / Waste Screener

See attached transcripts for each individual.

Florida DEP Solid Waste Management Facility Operator Courses

Anderson, Dennis E
Heavy Equipment Operator
Trail Ridge Landfill
5110 US Hwy 301 S
Baldwin, FL 32234-3608

Phone: (904) 289-9100
Fax: (904) 289-9013

Track: **Class I, II, III Landfill Operator 05/11/2007 - 05/10/2010**
Status: **Current**

Period: **Prior Courses**

Course #	Course Name	Provider	Completion Date	Hours
195	24-Hour Initial Training Course for Landfill Operators (Class I, II, III and C&D Sites)	Kohl Consulting, Inc.	05/21/2003	16
			Total:	Prior

Period: **05/11/2007 - 05/10/2010 - (Initial Period)**

Course #	Course Name	Provider	Completion Date	Hours
442	Initial Training Course for Landfill Operators and C&D Sites - 24 Hour	University of Florida - TREEO	05/11/2007	Initial
			Total:	0

- Continuing Education (CE) Minimum 3 Year Requirement: I,II,III/C&D-16 hours TS/MRF-8 hours Spotter-4 hours.
- Expired: If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call 352.392.9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Benvenutti, Jorge C.
Operator
Trail Ridge Landfill, Inc
5110 US Highway 301 S
Baldwin, FL 32234-3608

Phone: (904) 289-9100
Fax: (904) 289-9013

Track: **Class I, II, III Landfill Operator 05/11/2007 - 05/10/2010**
Status: **Current**

Period: **Prior Courses**

Course #	Course Name	Provider	Completion Date	Hours
248	Spotter Training for Solid Waste Facilities	University of Florida - TREEO	12/08/2005	8
			Total:	Prior

Period: **05/11/2007 - 05/10/2010 - (Initial Period)**

Course #	Course Name	Provider	Completion Date	Hours
442	Initial Training Course for Landfill Operators and C&D Sites - 24 Hour	University of Florida - TREEO	05/11/2007	Initial
			Total:	0

- Continuing Education (CE) Minimum 3 Year Requirement: I,II,III/C&D-16 hours TS/MRF-8 hours Spotter-4 hours.
- Expired: If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call 352.392.9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Compton, Abram
Heavy Equipment Operator
Trail Ridge Landfill Inc.
5110 US Hwy 301 South
Baldwin, FL 32234-3608

Phone: (904) 289-9100
Fax: (904) 289-9013

Track: **Class I, II, III Landfill Operator 05/11/2007 - 05/10/2010**
Status: **Current**

Period: **Prior Courses**

Course #	Course Name	Provider	Completion Date	Hours
21	Solid Waste Landfill Operator's Short School	University of Florida - TREEO	11/18/1994	20
21	Solid Waste Landfill Operator's Short School		02/11/2000	20
248	Spotter Training for Solid Waste Facilities	University of Florida - TREEO	10/31/2002	8
103	Construction and Demolition Waste Recycling	University of Florida - TREEO	01/17/2003	7
			Total:	Prior

Period: **05/11/2007 - 05/10/2010 - (Initial Period)**

Course #	Course Name	Provider	Completion Date	Hours
442	Initial Training Course for Landfill Operators and C&D Sites - 24 Hour	University of Florida - TREEO	05/11/2007	Initial
			Total:	0

- Continuing Education (CE) Minimum 3 Year Requirement: I,II,III/C&D-16 hours TS/MRF-8 hours Spotter-4 hours.
- Expired: If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam.
- Initial hours are not counted toward continuing education.
- An initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call 352.392.9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Daniels, Chaddrick
Spotter/Laborer
Trail Ridge Landfill Inc
5110 US Highway 301 S
Baldwin, FL 32234-3608

Phone: (904) 289-9100

Track: **Spotter / Waste Screener 12/08/2005 - 12/07/2008**
Status: **Current**

Period: **Prior Courses**
No courses taken

Period: **12/08/2005 - 12/07/2008 - (Initial Period)**

Course #	Course Name	Provider	Completion Date	Hours
248	Spotter Training for Solid Waste Facilities	University of Florida - TREEO	12/08/2005	Initial
			Total:	0

- Continuing Education (CE) Minimum 3 Year Requirement: I,II,III/C&D-16 hours TS/MRF-8 hours Spotter-4 hours.
- Expired: If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam.
- Initial hours are not counted toward continuing education.
- An initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call 352.392.9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Dixon, Charles
Operator
Trail Ridge Landfill
5110 US Hwy 301 S
Baldwin, FL 32234

Phone: (904) 289-9100
Fax: (904) 289-9013

Track: **Class I, II, III Landfill Operator 11/17/1995 - 11/16/2010**
Status: **Current**

Period: **Prior Courses**

Course #	Course Name	Provider	Completion Date	Hours
21	Solid Waste Landfill Operator's Short School		11/20/1992	20
			Total:	Prior

Period: **11/17/1995 - 11/16/1998 - (Initial Period)**

Course #	Course Name	Provider	Completion Date	Hours
21	Solid Waste Landfill Operator's Short School		11/17/1995	Initial
91	Eight-Hour Spotter Training for Construction and Demolition Sites	Kohl Consulting, Inc.	09/09/1998	8
49	Landfill Gas and Leachate Systems	University of Florida - TREEO	10/28/1998	8
			Total:	16

Period: **11/17/1998 - 11/16/2001**

Course #	Course Name	Provider	Completion Date	Hours
125	Management of Leachate, Gas, Stormwater and Odor at Class I, II, and III Landfills		08/28/2001	8
203	8-Hour Initial Training Course for Spotters at Class I, II, III Facilities, Waste Processing Facilities and C&D Facilities	Kohl Consulting, Inc.	08/29/2001	8
			Total:	16

Period: **11/17/2001 - 11/16/2004**

Course #	Course Name	Provider	Completion Date	Hours
248	Spotter Training for Solid Waste Facilities	University of Florida - TREEO	07/07/2004	8
229	Landfill Compaction Training School-8 hours	Caterpilla & Ringhaver Equipment	11/03/2004	8
			Total:	16

Period: **11/17/2004 - 11/16/2007**

Course #	Course Name	Provider	Completion Date	Hours
248	Spotter Training for Solid Waste Facilities	University of Florida - TREEO	03/27/2007	8
452	Solid Waste Operator & Spotter Refresher Training - Summer 2007a	University of Florida - TREEO	08/01/2007	8
			Total:	16

Period: **11/17/2007 - 11/16/2010**
No courses taken

- Continuing Education (CE) Minimum 3 Year Requirement: I,II,III/C&D-16 hours TS/MRF-8 hours Spotter-4 hours.
- Expired: If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call 352.392.9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Lloyd, Clifford
Trail Ridge Landfill
5110 US Hwy 301 South
Baldwin, FL 32234

Phone: 9042899100
Fax: 9042899013

Track: **Spotter / Waste Screener 03/20/2003 - 03/19/2009**
Status: **Current**

Period: **Prior Courses**
No courses taken

Period: **03/20/2003 - 03/19/2006 - (Initial Period)**

Course #	Course Name	Provider	Completion Date	Hours
203	8-Hour Initial Training Course for Spotters at Class I, II, III Facilities, Waste Processing Facilities and C&D Facilities	University of Florida - TREEO	03/20/2003	Initial
170	Health & Safety Issues for Solid Waste Management Facilities	University of Florida - TREEO	03/21/2003	4
			Total:	4

Period: **03/20/2006 - 03/19/2009**
No courses taken

- Continuing Education (CE) Minimum 3 Year Requirement: I,II,III/C&D-16 hours TS/MRF-8 hours Spotter-4 hours.
- Expired: If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call 352.392.9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Mathes, Gregory W
Director of LF Operations
Trail Ridge Landfill
5110 U.S. Hwy 301 S
Baldwin, FL 32234-3608

Phone: (904) 289-9100
Fax: (904) 289-9013

Track: **Class I, II, III Landfill Operator 03/27/1995 - 03/26/2010**
Status: **Current**

Period: **Prior Courses**

Course #	Course Name	Provider	Completion Date	Hours
36	Waste Screening and Identification for Landfill Operators and Spotters	SCS Engineers	10/10/1994	8
			Total:	Prior

Period: **03/27/1995 - 03/26/1998 - (Initial Period)**

Course #	Course Name	Provider	Completion Date	Hours
31	Waste Management of North America (Landfill University)	Landfill University	03/27/1995	Initial
39	Stormwater Management for Landfills		05/16/1995	8
49	Landfill Gas and Leachate Systems	University of Florida - TREEO	10/21/1997	8
			Total:	16

Period: **03/27/1998 - 03/26/2001**

Course #	Course Name	Provider	Completion Date	Hours
118	Landfill Wildlife Training Course	Applied Technology & Management, Inc.	03/27/2000	4
149	Health and Safety Training for Landfill Operations		03/27/2000	5
182	Air Compliance and LGF System Operations [11/9-10/00]	SCS Engineers	11/10/2000	16
			Total:	25

Period: **03/27/2001 - 03/26/2004**

Course #	Course Name	Provider	Completion Date	Hours
240	WMI Odor School	WMI / St. Croix Sensory, Inc.	05/29/2002	7
308	Groundwater Issues for Landfill Operators - 8 Hours	University of Florida - TREEO	02/18/2004	8
			Total:	15

Period: **03/27/2004 - 03/26/2007**

Course #	Course Name	Provider	Completion Date	Hours
229	Landfill Compaction Training School-8 hours	Caterpilla & Ringhaver Equipment	11/03/2004	8
248	Spotter Training for Solid Waste Facilities	University of Florida - TREEO	02/28/2007	8
281	Health and Safety for Solid Waste Workers	University of Florida - TREEO	03/01/2007	8
			Total:	24

Period: **03/27/2007 - 03/26/2010**
No courses taken

- Continuing Education (CE) Minimum 3 Year Requirement: I,II,III/C&D-16 hours TS/MRF-8 hours Spotter-4 hours.
- Expired: If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call 352.392.9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Mosley, Terry E
Heavy Equipment Operator
Trail Ridge Landfill
5110 U.S. Highway 301 So.
Baldwin, FL 32234

Phone: (904) 289-9100
Fax: (904) 289-9013

Track: **Construction and Demolition Debris Landfill Operator 02/24/2006 - 02/23/2009**
Status: **Current**

Period: **Prior Courses**
No courses taken

Period: **02/24/2006 - 02/23/2009 - (Initial Period)**

Course #	Course Name	Provider	Completion Date	Hours
195	24-Hour Initial Training Course for Landfill Operators (Class I, II, III and C&D Sites)	University of Florida - TREEO	02/24/2006	Initial
49	Landfill Gas and Leachate Systems	University of Florida - TREEO	11/16/2006	8
			Total:	8

- Continuing Education (CE) Minimum 3 Year Requirement: I,II,III/C&D-16 hours TS/MRF-8 hours Spotter-4 hours.
- Expired: If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call 352.392.9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Powell, Adrian
Trail Ridge Landfill
5110 US Hwy 301 S
Baldwin, FL 32234

Phone: (904) 289-9100
Fax: (904) 289-9013

Track: **Spotter / Waste Screener 03/27/2007 - 03/26/2010**
Status: **Current**

Period: **Prior Courses**
No courses taken

Period: **03/27/2007 - 03/26/2010 - (Initial Period)**

Course #	Course Name	Provider	Completion Date	Hours
248	Spotter Training for Solid Waste Facilities	University of Florida - TREEO	03/27/2007	Initial
			Total:	0

- Continuing Education (CE) Minimum 3 Year Requirement: I,II,III/C&D-16 hours TS/MRF-8 hours Spotter-4 hours.
- Expired: If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkellhauer@treeo.ufl.edu or call 352.392.9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Purvis, James H.
Operations Manager
Trail Ridge Landfill
5110 US Hwy 301 S
Baldwin, FL 32234

Phone: (904) 289-9100
Fax: (904) 289-9013

Track: **Class I, II, III Landfill Operator 11/17/1995 - 11/16/2010**
Status: **Current**

Period: **Prior Courses**

Course #	Course Name	Provider	Completion Date	Hours
21	Solid Waste Landfill Operator's Short School		11/20/1992	20
			Total:	Prior

Period: **11/17/1995 - 11/16/1998 - (Initial Period)**

Course #	Course Name	Provider	Completion Date	Hours
21	Solid Waste Landfill Operator's Short School		11/17/1995	Initial
91	Eight-Hour Spotter Training for Construction and Demolition Sites	Kohl Consulting, Inc.	09/09/1998	8
152	Groundwater Issues for Landfill Operators		09/10/1998	6
75	Landfill Compliance Inspections		09/10/1998	2
49	Landfill Gas and Leachate Systems	University of Florida - TREEO	10/28/1998	8
			Total:	24

Period: **11/17/1998 - 11/16/2001**

Course #	Course Name	Provider	Completion Date	Hours
125	Management of Leachate, Gas, Stormwater and Odor at Class I, II, and III Landfills		08/28/2001	8
203	8-Hour Initial Training Course for Spotters at Class I, II, III Facilities, Waste Processing Facilities and C&D Facilities	Kohl Consulting, Inc.	08/29/2001	8
			Total:	16

Period: **11/17/2001 - 11/16/2004**

Course #	Course Name	Provider	Completion Date	Hours
248	Spotter Training for Solid Waste Facilities	University of Florida - TREEO	07/07/2004	8
229	Landfill Compaction Training School-8 hours	Caterpilla & Ringhaver Equipment	11/03/2004	8
			Total:	16

Period: **11/17/2004 - 11/16/2007**

Course #	Course Name	Provider	Completion Date	Hours
452	Solid Waste Operator & Spotter Refresher Training - Summer 2007	University of Florida - TREEO	08/02/2007	16
			Total:	16

Period: **11/17/2007 - 11/16/2010**
No courses taken

Appendix C

DEP004655

APPENDIX C

LABORATORY CERTIFICATION

NELAP RECOGNIZED ACCREDITED LABORATORY nelap AUTHORITY

FLORIDA DEPARTMENT OF HEALTH

State of Florida
Department of Health, Bureau of Laboratories
This is to certify that

E84282

TESTAMERICA - TAMPA
6712 BENJAMIN ROAD - SUITE 100
TAMPA, FL 33634

has complied with Florida Administrative Code 64E-1,
for the examination of Environmental samples in the following categories

DRINKING WATER - GROUP II UNREGULATED CONTAMINANTS, DRINKING WATER - OTHER REGULATED CONTAMINANTS, DRINKING WATER - MICROBIOLOGY, DRINKING WATER - PRIMARY INORGANIC CONTAMINANTS, DRINKING WATER - SECONDARY INORGANIC CONTAMINANTS, DRINKING WATER - SYNTHETIC ORGANIC CONTAMINANTS, NON-POTABLE WATER - EXTRACTABLE ORGANICS, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER - METALS, NON-POTABLE WATER - MICROBIOLOGY, NON-POTABLE WATER - PESTICIDES-HERBICIDES-PCB'S, NON-POTABLE WATER - VOLATILE ORGANICS, SOLID AND CHEMICAL MATERIALS - EXTRACTABLE ORGANICS, SOLID AND CHEMICAL MATERIALS - GENERAL CHEMISTRY, SOLID AND CHEMICAL MATERIALS - METALS, SOLID AND CHEMICAL MATERIALS - PESTICIDES-HERBICIDES-PCB'S, SOLID AND CHEMICAL MATERIALS - VOLATILE ORGANICS

Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

EFFECTIVE July 01, 2008 THROUGH June 30, 2009

GREAT SEAL OF THE STATE OF FLORIDA

Max Salfinger, M.D.
Chief, Bureau of Laboratories
Florida Department of Health
DH Form 1697, 7/04
NON-TRANSFERABLE E84282-17-7/1/2008
Supersedes all previously issued certificates

DEP004657

Appendix D

DEP004658

APPENDIX D

LEACHATE COLLECTION SYSTEM MAINTENANCE PROGRAM REPORT

FLORIDA JETCLEAN

HIGH PRESSURE WATER JETTING
VIDEO PIPELINE INSPECTION
NO DIG POINT REPAIRS
WWW.FLORIDAJETCLEAN.COM

19019 FERN MEADOW LOOP
LUTZ, FL 33558
TEL: 800-226-8013 FAX: 813-926-4616
FLORIDAJETCLEAN@TAMPABAY.RR.COM

Waste Management
Trail Ridge Landfill
Leachate Collection System Maint.

Work Performed
October 2008

Work Conducted By:
Florida Jetclean
800-226-8013

FLORIDA JETCLEAN

HIGH PRESSURE WATER JETTING
VIDEO PIPELINE INSPECTION
NO DIG POINT REPAIRS
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19019 FERN MEADOW LOOP
LUTZ, FL 33558
TEL: 800-226-8013 FAX: 813-926-4616
FLORIDAJETCLEAN@TAMPABAY.RR.COM

DATE : 11/6/2008
TO : Edward Schmalfeld II – Waste Management
FROM : Ralph Calistri (floridajetclean@tampabay.rr.com)
SUBJECT : Trail Ridge Landfill Leachate Collection System Maintenance

Florida Jetclean completed the leachate collection system jetcleaning and explosion-proof video inspection work at the Trail Ridge landfill on 10/15/2008. Also included with this report are the jetting logs, pipe graphic reports, and the DVD inspection videos for your further reference.

HIGH PRESSURE WATER-JETTING:

As the below jetting log documents, all pipes were cleaned via high-pressure water-jetting nozzle as far as is possible through overlapping efforts from both ends to remove biomass buildups. Achieved jetting distances are documented in the jetting log below:

Cleanout 2A toward 1A	1,200'
Cleanout 2B toward 1B	1,200'
Cleanout 2C toward 1C	1,200'
Cleanout 4A toward 3A	1,200'
Cleanout 4B toward 3B	1,200'
Cleanout 4C toward 3C	1,200'
Cleanout 5C toward 5A	1,200'
Cleanout 5D toward 5B	1,200'
Cleanout 5B toward 5D	1,200'
Cleanout 5A toward 5C	1,200'
Cleanout 3B toward 4B	1,200'
Cleanout 1C toward 2C	1,200'
Cleanout 3A toward 4A	1,200'
Cleanout 1B toward 2B	1,200'
Cleanout 1A toward 2A	1,200'
Cleanout 3C toward 4C	1,200'
Sump 1A Secondary	53'
Sump 1A Primary	48'
Sump 1B Primary	61'
Sump 1B Secondary	53'
Sump 1C Primary	56'
Sump 1C Secondary	55'
Sump 3A Primary	51'
Sump 3A Secondary	52'
Sump 3B Primary	52'
Sump 3B Secondary	52'
Sump 3C Secondary	58'
Sump 5A Primary	59'
Sump 5A Secondary	58'

Sump 5B Primary	66'
Sump 5B Secondary	63'
Sump 3C Primary	62'

EXPLOSION-PROOF VIDEO-INSPECTION:

After high-pressure jetting activities were completed, all pipes were video inspected as far as possible from each end (see included pipe graphic reports and DVD videos). Other than some minor "bellies" (common in the type of installation), the only notable item was some remaining sand and debris upstream of Cleanouts 1A and 3C (and their sumps) which has since been removed from the system through additional high-pressure water-jetting efforts and vacuum extraction from the sump areas. The distance the camera can travel through the pipes is affected by many factors, especially the slickness of the pipe walls and fusion beads causing loss of traction. In any cases where the full length of the surveyed pipe is not inspected, the fact that high-pressure jetting was not restricted in any way would support the contention that the leachate collection system is in good working order.

Overall, there was good leachate flow present. Based on information collected during the above activities, the leachate collection system appears to flow and drain properly.

Please call us with questions or concerns.

Regards,

Ralph Calistri - Florida Jetclean

CCTV Surveys List for WASTE MANAGEMENT

Number of surveys in this list is 8 as of Wednesday, October 08, 2008

Unit of measure: ft

Setup	Date	Street	Start MH	Finish MH	Dir	Size inch	Pre Clean	Vid Cassette	Scheduled Length	Surveyed Length
1	10/7/2008	TRAIL RIDGE LANDFILL	CO.2A	CO.1A	D	8	Y	1	1,200.0	984.7
2	10/7/2008	TRAIL RIDGE LANDFILL	CO.2B	CO.1B	D	8	Y	1	1,200.0	482.8
3	10/7/2008	TRAIL RIDGE LANDFILL	CO.2C	CO.1C	D	8	Y	1	1,200.0	628.5
4	10/8/2008	TRAIL RIDGE LANDFILL	CO.4A	CO.3A	D	8	Y	2	1,200.0	849.4
5	10/8/2008	TRAIL RIDGE LANDFILL	CO.4B	CO.3B	D	8	Y	2	1,200.0	550.7
6	10/8/2008	TRAIL RIDGE LANDFILL	CO.4C	CO.3C	D	8	Y	2	1,200.0	1137.2
7	10/8/2008	TRAIL RIDGE LANDFILL	CO.5C	CO.5A	D	8	Y	3	1,200.0	634.2
8	10/8/2008	TRAIL RIDGE LANDFILL	CO.5D	CO.5B	D	8	Y	3	1,200.0	1053.5
								Total Scheduled Length	9,600.0	
								Total Length Surveyed		6,321.0

FLORIDA JETCLEAN Phone: 1800-226-8013 Fax: 813-926-4616

CCTV Surveys List for WASTE MANAGEMENT

Number of surveys in this list is 7 as of Tuesday, October 14, 2008

Unit of measure: ft

Setup	Date	Street	Start MH	Finish MH	Dir	Size inch	Pre Clean	Vid Cassette	Scheduled Length	Surveyed Length
9	10/9/2008	TRAIL RIDGE LANDFILL	CO.5B	CO5D	U	8	Y	4	1,200.0	1120.8
10	10/9/2008	TRAIL RIDGE LANDFILL	CO.5A	CO5C	U	8	Y	4	1,200.0	967.2
11	10/9/2008	TRAIL RIDGE LANDFILL	CO.3B	CO4B	U	8	Y	5	1,200.0	1119.6
12	10/10/2008	TRAIL RIDGE LANDFILL	CO.1C	CO2C	U	8	Y	5	1,200.0	579.1
13	10/13/2008	TRAIL RIDGE LANDFILL	CO.3A	CO4A	U	8	Y	6	1,242.3	1242.3
14	10/13/2008	TRAIL RIDGE LANDFILL	CO.1B	CO2B	U	8	Y	6	1,200.0	739.5
15	10/14/2008	TRAIL RIDGE LANDFILL	CO.1A	CO2A	U	8	Y	6	1,200.0	52.2
								Total Scheduled Length	8,442.3	
								Total Length Surveyed		5,820.7

CCTV Surveys List for WASTE MANAGEMENT

Number of surveys in this list is 16 as of Wednesday, October 15, 2008

Unit of measure: ft

Setup	Date	Street	Start MH	Finish MH	Dir	Size inch	Pre Clean	Vid Cassette	Scheduled Length	Surveyed Length
16	10/14/2008	TRAIL RIDGE LANDFILL	1A.SEC.SUMP	ENDCAP	D	24		7	52.9	52.9
17	10/14/2008	TRAIL RIDGE LANDFILL	1A.PRI.SUMP	ENDCAP	D	24		7	48.1	48.1
18	10/14/2008	TRAIL RIDGE LANDFILL	1B.PRI.SUMP	ENDCAP	U	24		7	60.9	60.9
19	10/14/2008	TRAIL RIDGE LANDFILL	1B.SEC.SUMP	ENDCAP	D	24		7	52.8	52.8
20	10/14/2008	TRAIL RIDGE LANDFILL	1C.PRI.SUMP	ENDCAP	D	24		7	56.0	56.0
21	10/14/2008	TRAIL RIDGE LANDFILL	1C.SEC.SUMP	ENDCAP	D	24		7	55.3	55.3
22	10/14/2008	TRAIL RIDGE LANDFILL	3A.PRI.SUMP	ENDCAP	D	24		7	51.0	51.0
23	10/14/2008	TRAIL RIDGE LANDFILL	3A.SEC.SUMP	ENDCAP	D	24		7	51.6	51.6
24	10/14/2008	TRAIL RIDGE LANDFILL	3B.PRI.SUMP	ENDCAP	D	24		7	52.2	52.2
25	10/14/2008	TRAIL RIDGE LANDFILL	3B.SEC.SUMP	ENDCAP	D	24		7	53.5	52.1
26	10/14/2008	TRAIL RIDGE LANDFILL	3C.SEC.SUMP	ENDCAP	D	24		7	58.2	58.2
27	10/14/2008	TRAIL RIDGE LANDFILL	5A.PRI.SUMP	ENDCAP	D	24		7	58.8	58.8
28	10/14/2008	TRAIL RIDGE LANDFILL	5A.SEC.SUMP	ENDCAP	D	24		7	58.2	58.2
29	10/14/2008	TRAIL RIDGE LANDFILL	5B.PRI.SUMP	ENDCAP	D	24		7	66.0	66.0
30	10/14/2008	TRAIL RIDGE LANDFILL	5B.SEC.SUMP	ENDCAP	D	24		7	63.1	63.1
32	10/15/2008	TRAIL RIDGE LANDFILL	3C.PRI.SUMP	ENDCAP	D	24	Y	7	61.8	61.8
								Total Scheduled Length	900.4	
								Total Length Surveyed		899.0

FLORIDA JETCLEAN Phone: 1800-226-8013 Fax: 813-926-4616

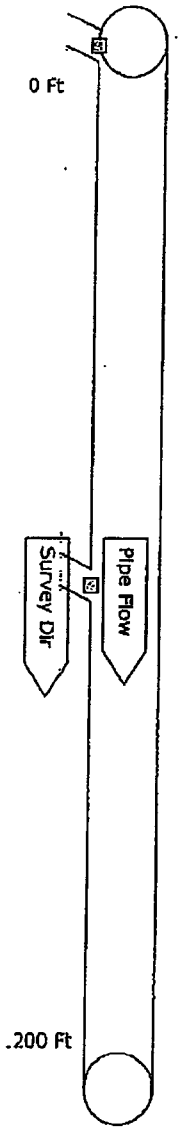
Pipe Graphic Report of PLR CO.2A X **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	1	***Setup***	1
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/07/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From***	CO.2A	***Depth***	Ft
Shape	Circular	***Size*** 8 ***by***	ins	***To***	CO.1A	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***	Y	***Last cleaned***	10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	WEST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



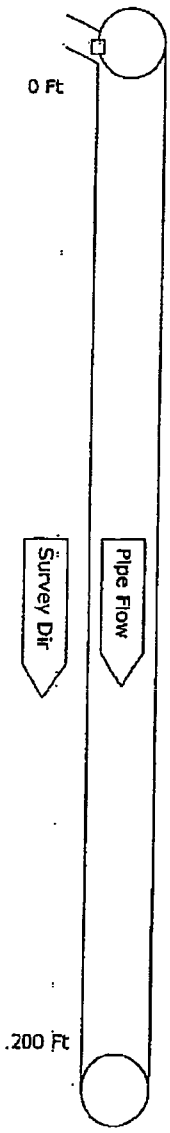
	Start of Survey
0.0 Ft	Manhole/Node [CO.2A]
	Water level 0
5.0 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
625.3 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
984.7 Ft	Survey abandoned [WHEELS SLIPPING]

Pipe Graphic Report of PLR CO.2B X **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video*** 1	***Setup*** 2
Facility		***Operator***	Supervisor	***Van Ref*** 3	***Surveyed On*** 10/07/2008
Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL		
Location type	Berm				
Surface					
Survey purpose	Random survey of pipes and things			***Weather*** Dry	

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From*** CO.2B	***Depth*** Ft
Shape	Circular	***Size*** 8 ***by***	ins	***To*** CO.1B	***Depth*** Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned*** 10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	WEST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



	Start of Survey
0.0 Ft	Manhole/Node [CO.2B]
	Water level 0
5.1 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
482.8 Ft	Survey abandoned [WHEELS SLIPPING ON JOINT]

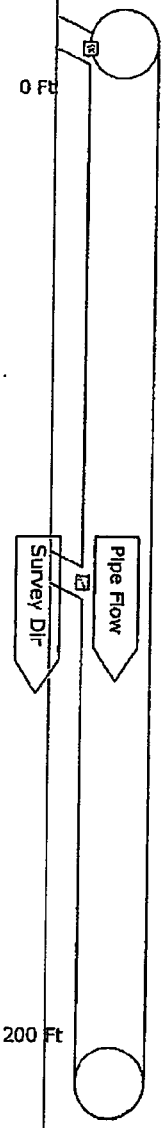
Pipe Graphic Report of PLR CO.2C X **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	1	***Setup***	3
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/07/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From***	CO.2C	***Depth***	Ft
Shape	Circular	***Size*** 8	***by*** ins	***To***	CO.1C	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***	Y	***Last cleaned***	10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	WEST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO.2C] Water level 0
5.8 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
607.4 Ft	Camera under water
617.8 Ft	General observation [OUT OF WATER]
625.3 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
628.5 Ft	Survey abandoned [WHEELS SLIPPING ON JOINT]

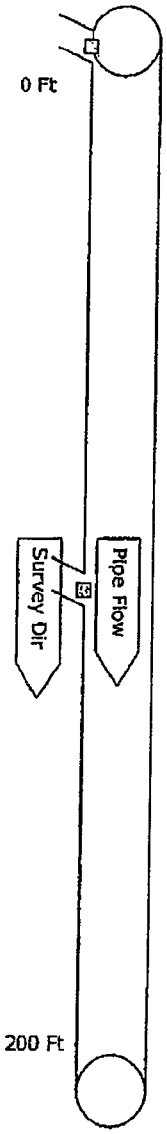
Pipe Graphic Report of PLR CO.4A X **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	2	***Setup***	4
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/08/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From***	CO.4A	***Depth***	Ft
Shape	Circular	***Size*** 8	***by*** ins	***To***	CO.3A	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***	Y	***Last cleaned***	10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	WEST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



	Start of Survey
0.0 Ft	Manhole/Node [CO.4A]
	Water level 0
6.6 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
629.5 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
631.2 Ft	General observation [VALVE AT 1200]
849.4 Ft	Survey abandoned [WHEELS SLIPPING]

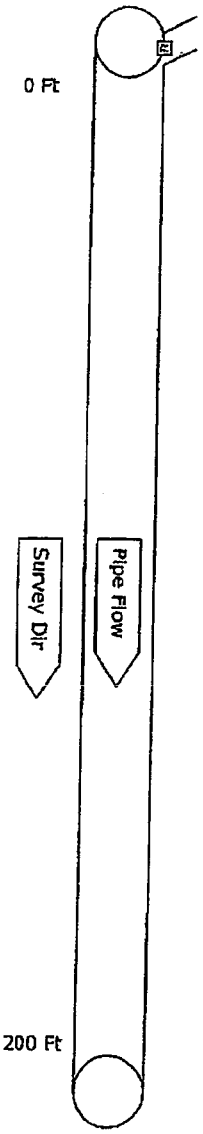
Pipe Graphic Report of PLR CO.4B X **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	2	***Setup***	5
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/08/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From***	CO.4B	***Depth***	Ft
Shape	Circular	***Size*** 8	***by*** ins	***To***	CO.3B	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***	Y	***Last cleaned***	10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	WEST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO.4B] Water level 0
6.6 Ft	Lateral or connection exists OK 03 o'clock [6 INCH]
550.7 Ft	Survey abandoned [WHEELS SLIPPING ON JOINT]

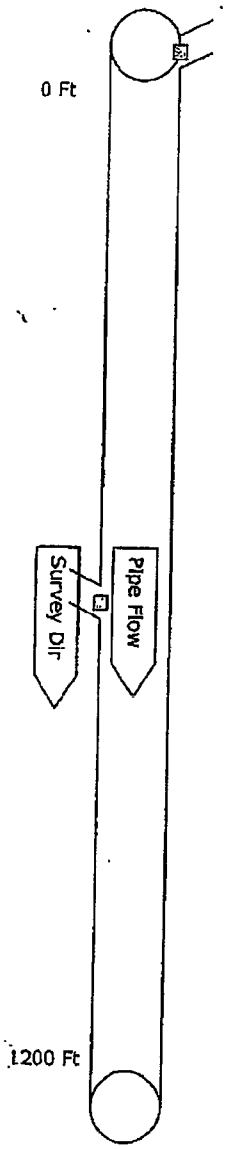
Pipe Graphic Report of PLR CO.4C X for WASTE MANAGEMENT

Work Order		***Contract***		***Video*** 2	***Setup*** 6
Facility		***Operator***	Supervisor	***Van Ref*** 3	***Surveyed On*** 10/08/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From*** CO.4C	***Depth*** Ft
Shape	Circular	***Size*** 8 ***by***	ins	***To*** CO.3C	***Depth*** Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned*** 10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	WEST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO.4C] Water level 0
6.9 Ft	Lateral or connection exists OK 03 o'clock [6 INCH]
633.4 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
636.6 Ft	General observation [VALVE AT 1200]
1,137.2 Ft	Survey abandoned [WHEELS SLIPPING]

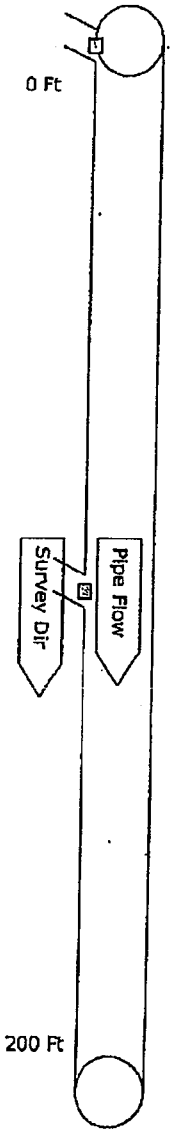
Pipe Graphic Report of PLR CO.5C X **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video*** 3	***Setup*** 7
Facility		***Operator***	Supervisor	***Van Ref*** 3	***Surveyed On*** 10/08/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From*** CO.5C	***Depth*** Ft
Shape	Circular	***Size*** 8 ***by***	ins	***To*** CO.5A	***Depth*** Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned*** 10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	WEST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



	Start of Survey
0.0 Ft	Manhole/Node [CO.5C]
	Water level 0
6.2 Ft	Lateral or connection exists OK 09 o'clock [6 INCH]
6.7 Ft	Lateral or connection exists OK 09 o'clock [4 INCH]
632.4 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
633.7 Ft	General observation [VALVE AT 1200]
634.2 Ft	Survey abandoned [WHEELS SLIPPING]

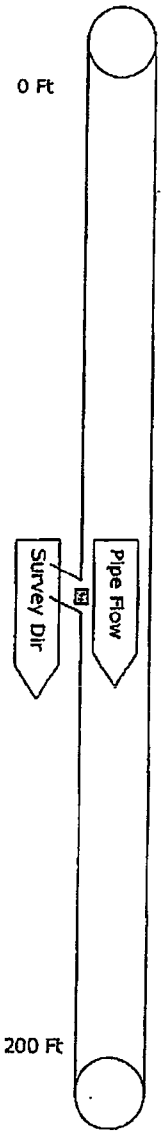
Pipe Graphic Report of PLR CO.5D X **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	3	***Setup***	8
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/08/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From***	CO.5D	***Depth***	Ft
Shape	Circular	***Size*** 8	***by*** ins	***To***	CO.5B	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***	Y	***Last cleaned***	10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	WEST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



	Start of Survey
0.0 Ft	Manhole/Node [CO.5D]
	Water level 0
636.0 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
642.5 Ft	General observation [VALVE AT 1200]
1,053.5 Ft	Survey abandoned [WHEELS SLIPPING]

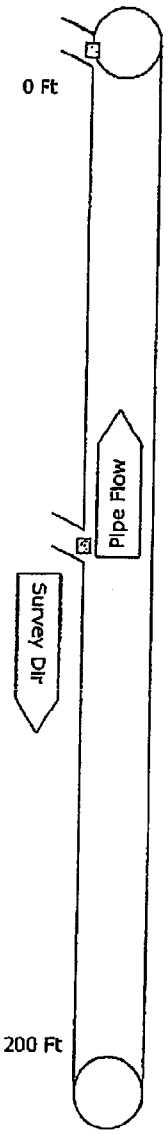
Pipe Graphic Report of PLR CO5D X **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	4	***Setup***	9
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/09/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From***	CO.5B	***Depth***	Ft
Shape	Circular	***Size*** 8	***by*** ins	***To***	CO5D	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Upstream		
Lining		***Year laid***		***Pre-clean***	Y	***Last cleaned***	10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	EAST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO.5B] Water level 0
8.2 Ft	Lateral or connection exists OK 10 o'clock [6 INCH]
9.3 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
28.7 Ft	Camera under water
299.7 Ft	General observation [OUT OF WATER]
574.2 Ft	General observation [VALVE AT 1200]
578.0 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
583.8 Ft	Camera under water
595.5 Ft	General observation [OUT OF WATER]
1,120.8 Ft	Survey abandoned [WHEELS SLIPPING]

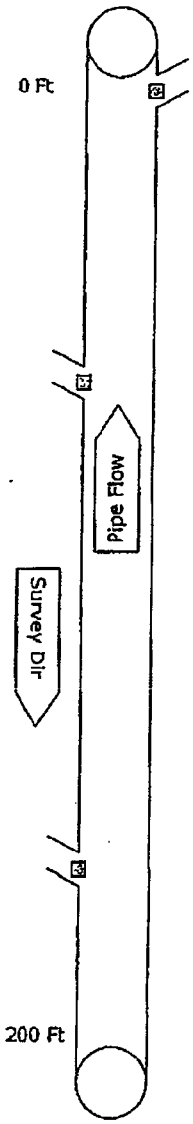
Pipe Graphic Report of PLR CO5C X **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	4	***Setup***	10
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/09/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From***	CO.5A	***Depth***	Ft
Shape	Circular	***Size*** 8	***by*** ins	***To***	CO5C	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Upstream		
Lining		***Year laid***		***Pre-clean***	Y	***Last cleaned***	10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	EAST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO.5A] Water level 0
56.7 Ft	Lateral or connection exists OK 03 o'clock [SUMP SERVICE]
391.9 Ft	General observation [VALVE AT 1200]
395.6 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
404.4 Ft	Camera under water
416.8 Ft	General observation [OUT OF WATER]
950.6 Ft	General observation [VALVE AT 1200]
956.8 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
959.8 Ft	Camera under water
967.2 Ft	Survey abandoned [WHEELS SLIPPING]

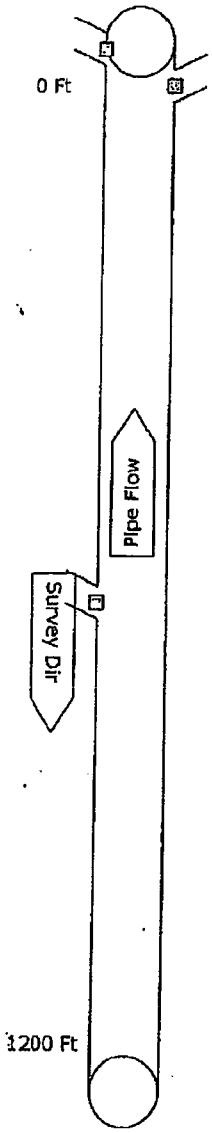
Pipe Graphic Report of PLR CO4B X **for** WASTE MANAGEMENT

Work Order	***Contract***	***Video*** 5	***Setup*** 11
Facility	***Operator*** Supervisor	***Van Ref*** 3	***Surveyed On*** 10/09/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From*** CO.3B	***Depth*** Ft
Shape	Circular	***Size*** 8 ***by***	Ins	***To*** CO4B	***Depth*** Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction*** Upstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned*** 10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	EAST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO.3B] Water level 0
9.0 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
50.7 Ft	Lateral or connection exists OK 03 o'clock [SUMP SERVICE]
641.1 Ft	General observation [VALVE AT 1200]
644.1 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
1,119.6 Ft	Survey abandoned [WHEELS SLIPPING]

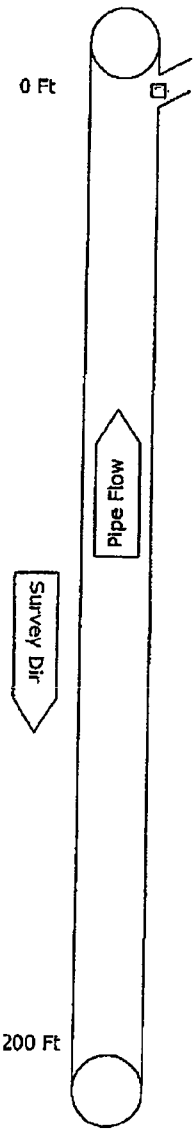
Pipe Graphic Report of PLR CO2C X for WASTE MANAGEMENT

Work Order		*Contract*		*Video*	5	*Setup*	12
Facility		*Operator*	Supervisor	*Van Ref*	3	*Surveyed On*	10/10/2008

Street Name	TRAIL RIDGE LANDFILL	*City*	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	*Weather*	Dry

Pipe Use	Other (state in comments)	*Schedule length*	1200.0 Ft	*From*	CO.1C	*Depth*	Ft
Shape	Circular	*Size* 8 *by*	ins	*To*	CO2C	*Depth*	Ft
Material	Polyethylene - High density	*Joint spacing*	Ft	*Direction*	Upstream		
Lining		*Year laid*		*Pre-clean*	Y	*Last cleaned*	10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	EAST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO.1C] Water level 0
36.0 Ft	Camera under water
53.6 Ft	General observation [OUT OF WATER]
54.6 Ft	Lateral or connection exists OK 03 o'clock [SUMP SERVICE]
579.1 Ft	Survey abandoned [WHEELS SLIPPING]

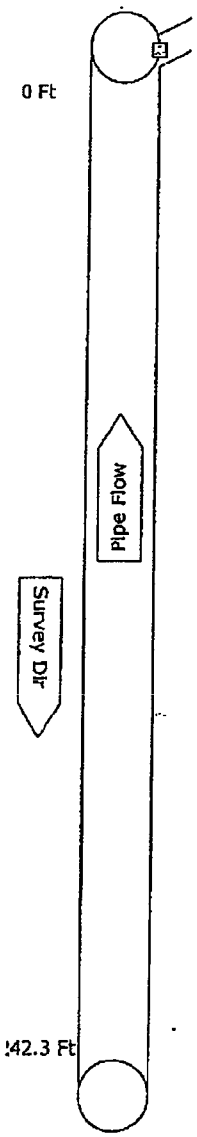
Pipe Graphic Report of PLR CO4A X **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video*** 6	***Setup*** 13
Facility		***Operator*** Supervisor		***Van Ref*** 3	***Surveyed On*** 10/13/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1242.3 Ft	***From*** CO.3A	***Depth*** Ft
Shape	Circular	***Size*** 8 ***by***	ins	***To*** CO4A	***Depth*** Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction*** Upstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned*** 10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	EAST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO.3A] Water level 0
3.4 Ft	Lateral or connection exists OK 03 o'clock [6 INCH]
19.7 Ft	Camera under water
287.0 Ft	General observation [OUT OF WATER]
1,241.6 Ft	General observation [VALVE AT 1200]
1,242.3 Ft	Manhole/Node [CO4A] Finish of Surveys

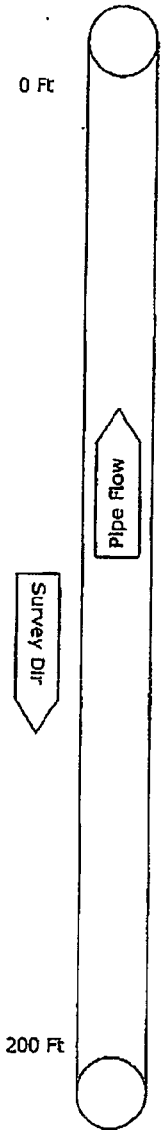
Pipe Graphic Report of PLR CO2B W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	6	***Setup***	14
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/13/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From***	CO.1B	***Depth***	Ft
Shape	Circular	***Size*** 8	***by*** ins	***To***	CO2B	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Upstream		
Lining		***Year laid***		***Pre-clean***	Y	***Last cleaned***	10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	EAST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO.1B] Water level 0
46.8 Ft	Camera under water
67.8 Ft	General observation [OUT OF WATER]
739.5 Ft	Survey abandoned [WHEELS SLIPPING]

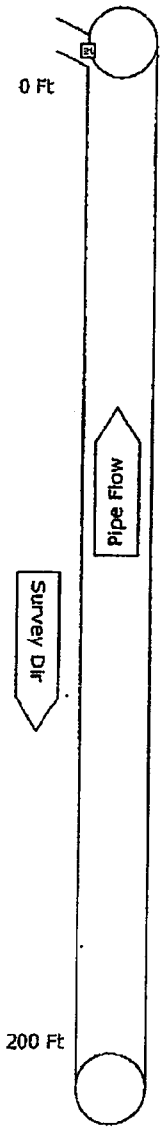
Pipe Graphic Report of PLR CO2A W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	6	***Setup***	15
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	1200.0 Ft	***From***	CO.1A	***Depth***	Ft
Shape	Circular	***Size*** 8 ***by***	ins	***To***	CO2A	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Upstream		
Lining		***Year laid***		***Pre-clean***	Y	***Last cleaned***	10/6/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note	EAST SIDE CLEANOUTS.	Miscellaneous	Hydraulic	



	Start of Survey
0.0 Ft	Manhole/Node [CO.1A]
	Water level 0
9.7 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
52.2 Ft	Survey abandoned [CAMERA FLIPS]

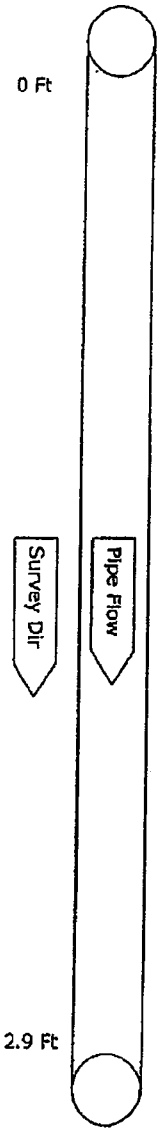
Pipe Graphic Report of PLR 1A.SEC.SUMP W for WASTE MANAGEMENT

Work Order		*Contract*		*Video*	7	*Setup*	16
Facility		*Operator*	Supervisor	*Van Ref*	3	*Surveyed On*	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	*City*	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	*Weather*	Dry

Pipe Use	Other (state in comments)	*Schedule length*	52.9 Ft	*From*	1A.SEC.SUMP *Depth* Ft
Shape	Circular	*Size* 24 *by*	ins	*To*	ENDCAP *Depth* Ft
Material	Polyethylene - High density	*Joint spacing*	Ft	*Direction*	Downstream
Lining		*Year laid*		*Pre-clean*	*Last cleaned*

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



	Start of Survey
0.0 Ft	Manhole/Node [1A.SEC.SUMP]
	Water level 0
39.0 Ft	Camera under water
52.9 Ft	Manhole/Node [ENDCAP]
	Finish of Surveys

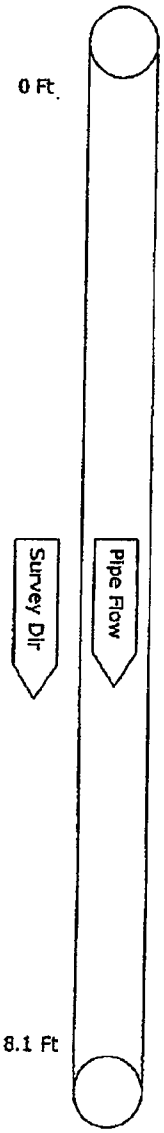
Pipe Graphic Report of PLR 1A.PRI.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	17
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	48.1 Ft	***From***	1A.PRI.SUMP ***Depth*** Ft
Shape	Circular	***Size***	24 ***by*** ins	***To***	ENDCAP ***Depth*** Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream
Lining		***Year laid***		***Pre-clean***	***Last cleaned***

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [1A.PRI.SUMP] Water level 0
36.3 Ft	Camera under water
48.1 Ft	Manhole/Node [ENDCAP] Finish of Surveys

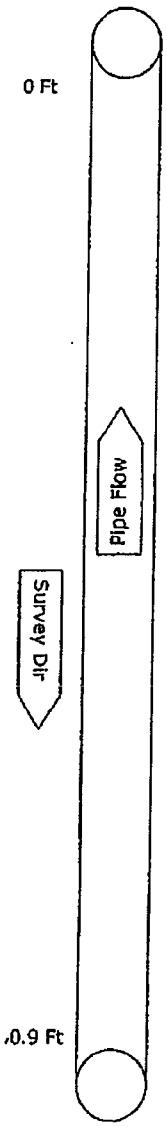
Pipe Graphic Report of PLR ENDCAP · W **for** WASTE MANAGEMENT

Work Order		***Contract***	***Video*** 7	***Setup***	18
Facility		***Operator*** Supervisor	***Van Ref*** 3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	60.9 Ft	***From*** 1B.PRI.SUMP	***Depth*** Ft
Shape	Circular	***Size*** 24 ***by***	ins	***To*** ENDCAP	***Depth*** Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction*** Upstream	
Lining		***Year laid***		***Pre-clean***	***Last cleaned***

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [1B.PRI.SUMP] Water level 0
43.8 Ft	Camera under water
60.9 Ft	Manhole/Node [ENDCAP] Finish of Surveys

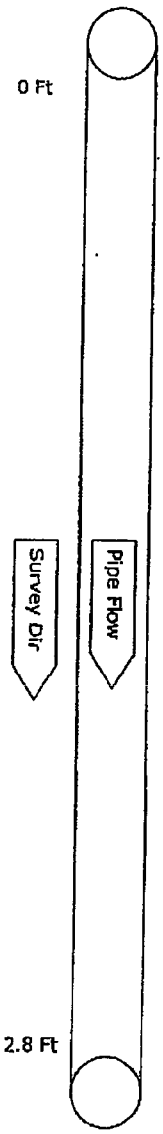
Pipe Graphic Report of PLR 1B.SEC.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	19
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	52.8 Ft	***From***	1B.SEC.SUMP	***Depth***	Ft
Shape	Circular	***Size***	24 ***by*** ins	***To***	ENDCAP	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [1B.SEC.SUMP] Water level 0
47.2 Ft	Camera under water
52.8 Ft	Manhole/Node [ENDCAP] Finish of Surveys

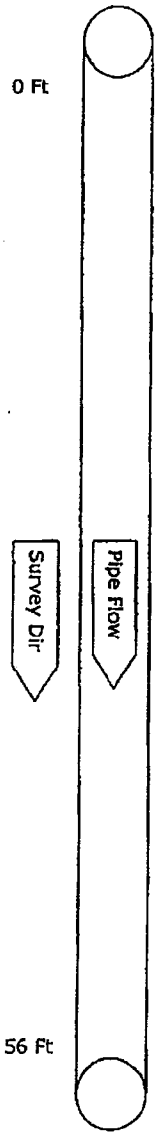
Pipe Graphic Report of PLR 1C.PRI.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	20
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	56.0 Ft	***From***	1C.PRI.SUMP	***Depth***	Ft
Shape	Circular	***Size***	24 ***by*** ins	***To***	ENDCAP	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [1C.PRI.SUMP] Water level 0
41.1 Ft	Camera under water
56.0 Ft	Manhole/Node [ENDCAP] Finish of Surveys

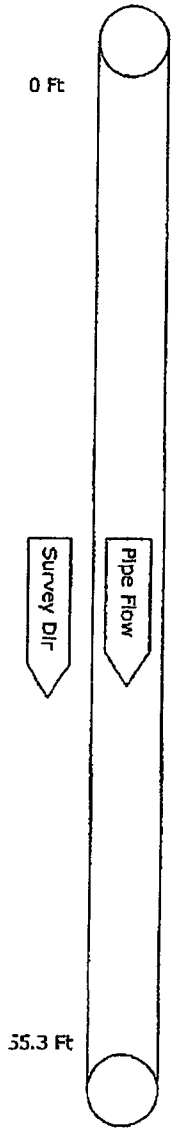
Pipe Graphic Report of PLR 1C.SEC.SUMP W for WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	21
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	55.3 Ft	***From***	1C.SEC.SUMP	***Depth***	Ft
Shape	Circular	***Size***	24 ***by*** ins	***To***	ENDCAP	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [1C.SEC.SUMP] Water level 0
35.9 Ft	Camera under water
55.3 Ft	Manhole/Node [ENDCAP] Finish of Surveys

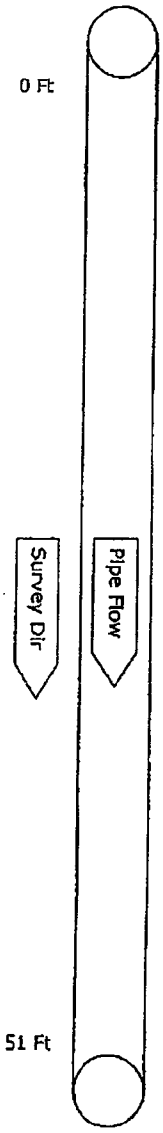
Pipe Graphic Report of PLR 3A.PRI.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	22
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	51.0 Ft	***From***	3A.PRI.SUMP	***Depth***	Ft
Shape	Circular	***Size***	24 ***by*** ins	***To***	ENDCAP	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [3A.PRI.SUMP] Water level 0
21.0 Ft	Camera under water
51.0 Ft	Manhole/Node [ENDCAP] Finish of Surveys

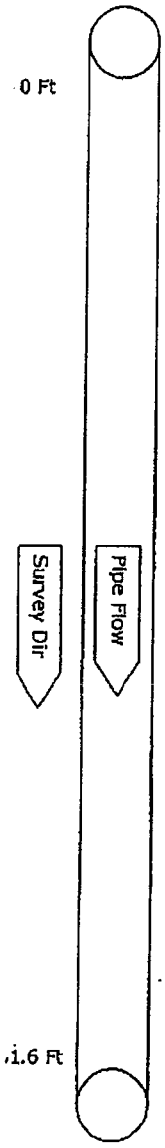
Pipe Graphic Report of PLR 3A.SEC.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	23
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	51.6 Ft	***From***	3A.SEC.SUMP	***Depth***	Ft
Shape	Circular	***Size***	24 ***by*** ins	***To***	ENDCAP	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



0.0 Ft Start of Survey
Manhole/Node [3A.SEC.SUMP]
Water level 0

51.6 Ft Manhole/Node [ENDCAP]
Finish of Surveys

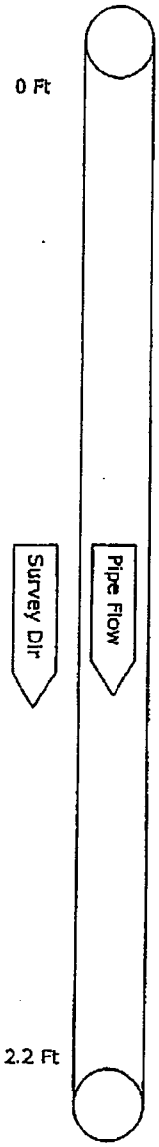
Pipe Graphic Report of PLR 3B.PRI.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video*** 7	***Setup*** 24
Facility		***Operator***	Supervisor	***Van Ref*** 3	***Surveyed On*** 10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	52.2 Ft	***From*** 3B.PRI.SUMP	***Depth*** Ft
Shape	Circular	***Size*** 24 ***by***	ins	***To*** ENDCAP	***Depth*** Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean***	***Last cleaned***

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [3B.PRI.SUMP] Water level 0
13.5 Ft	Camera under water
52.2 Ft	Manhole/Node [ENDCAP] Finish of Surveys

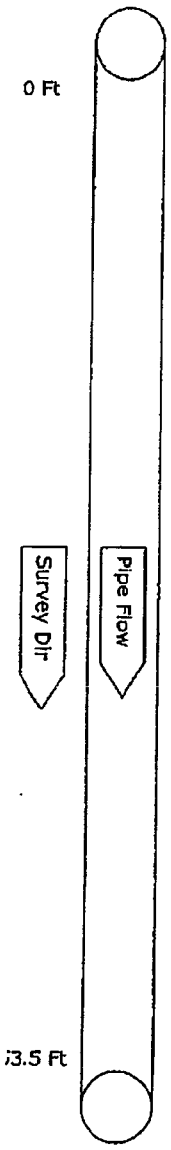
Pipe Graphic Report of PLR 3B.SEC.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	25
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	53.5 Ft	***From***	3B.SEC.SUMP ***Depth*** Ft
Shape	Circular	***Size***	24 ***by*** ins	***To***	ENDCAP ***Depth*** Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream
Lining		***Year laid***		***Pre-clean***	***Last cleaned***

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



	Start of Survey
0.0 Ft	Manhole/Node [3B.SEC.SUMP]
	Water level 0
42.7 Ft	Camera under water
52.1 Ft	Manhole/Node [ENDCAP]
	Finish of Surveys

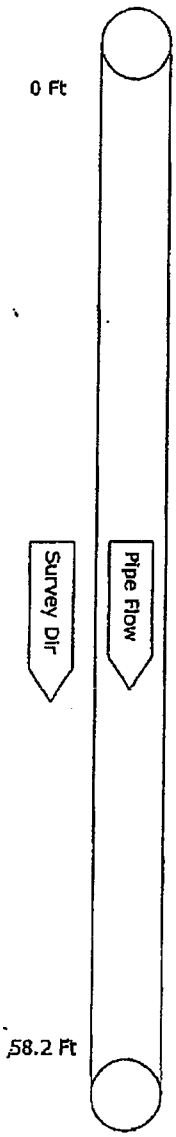
Pipe Graphic Report of PLR 3C.SEC.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	26
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	58.2 Ft	***From***	3C.SEC.SUMP	***Depth***	Ft
Shape	Circular	***Size***	24 ***by*** ins	***To***	ENDCAP	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [3C.SEC.SUMP] Water level 0
42.3 Ft	Camera under water
58.2 Ft	Manhole/Node [ENDCAP] Finish of Surveys

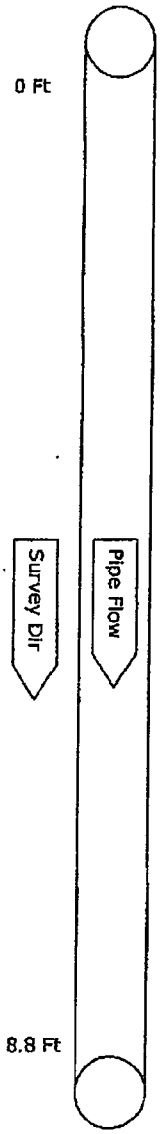
Pipe Graphic Report of PLR 5A.PRI.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	27
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	58.8 Ft	***From***	5A.PRI.SUMP	***Depth***	Ft
Shape	Circular	***Size***	24 ***by*** ins	***To***	ENDCAP	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [5A.PRI.SUMP] Water level 0
11.8 Ft	Camera under water
58.8 Ft	Manhole/Node [ENDCAP] Finish of Surveys

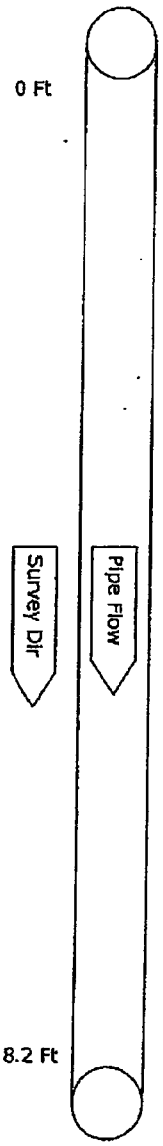
Pipe Graphic Report of PLR 5A.SEC.SUMP W for WASTE MANAGEMENT

Work Order		*Contract*		*Video*	7	*Setup*	28
Facility		*Operator*	Supervisor	*Van Ref*	3	*Surveyed On*	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	*City*	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	*Weather*	Dry

Pipe Use	Other (state in comments)	*Schedule length*	58.2 Ft	*From*	5A.SEC.SUMP	*Depth*	Ft
Shape	Circular	*Size* 24 *by*	ins	*To*	ENDCAP	*Depth*	Ft
Material	Polyethylene - High density	*Joint spacing*	Ft	*Direction*	Downstream		
Lining		*Year laid*		*Pre-clean*		*Last cleaned*	

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



	Start of Survey
0.0 Ft	Manhole/Node [5A.SEC.SUMP]
	Water level 0
35.8 Ft	Camera under water
58.2 Ft	Manhole/Node [ENDCAP]
	Finish of Surveys

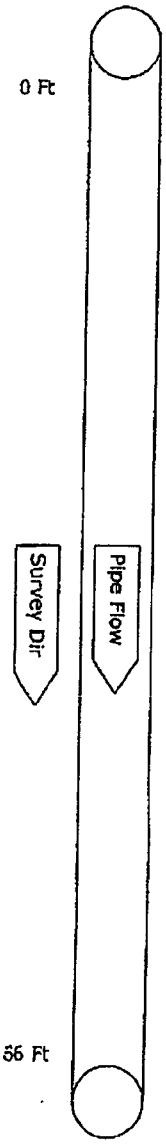
Pipe Graphic Report of PLR 5B.PRI.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	29
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	66.0 Ft	***From***	5B.PRI.SUMP	***Depth***	Ft
Shape	Circular	***Size***	24 ***by*** Ins	***To***	ENDCAP	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



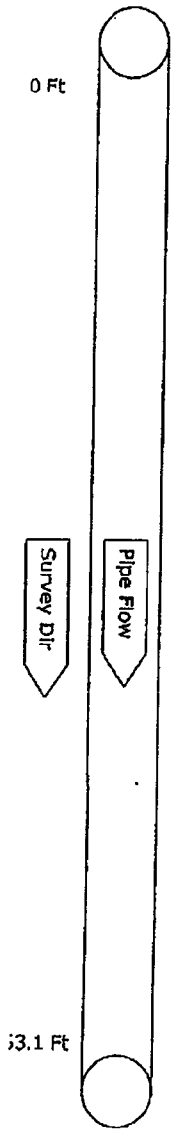
	Start of Survey
0.0 Ft	Manhole/Node [5B.PRI.SUMP]
	Water level 0
26.7 Ft	Camera under water
66.0 Ft	Manhole/Node [ENDCAP]
	Finish of Surveys

Pipe Graphic Report of PLR 5B.SEC.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	30
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/14/2008
Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL				
Location type	Berm						
Surface							
Survey purpose	Random survey of pipes and things			***Weather***	Dry		

Pipe Use	Other (state in comments)	***Schedule length***	63.1 Ft	***From***	5B.SEC.SUMP	***Depth***	Ft
Shape	Circular	***Size*** 24	***by*** ins	***To***	ENDCAP	***Depth***	Ft
Material	Polyethylene - High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	PRIMARY AND SEC SUMPS.	Miscellaneous	Hydraulic	



	Start of Survey
0.0 Ft	Manhole/Node [5B.SEC.SUMP]
	Water level 0
54.1 Ft	Camera under water
63.1 Ft	Manhole/Node [ENDCAP]
	Finish of Surveys

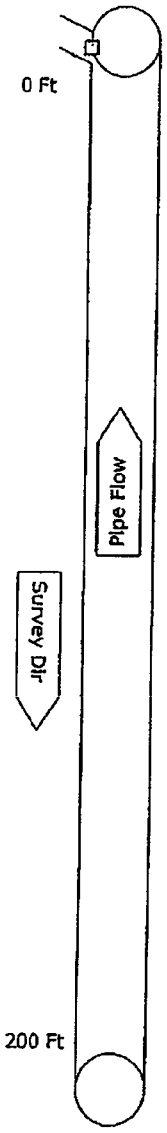
Pipe Graphic Report of PLR CO4C W for WASTE MANAGEMENT

Work Order		**Contract**		**Video**	8	**Setup**	31
Facility		**Operator**	Supervisor	**Van Ref**	3	**Surveyed On**	10/16/2008

Street Name	TRAIL RIDGE LANDFILL	**City**	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	**Weather**	Dry

Pipe Use	Other (state in comments)	**Schedule length**	1200.0 Ft	**From.** CO.3C	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CO4C	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned** 10/15/2008

General note	PRIMARY LEACHATE COLLECTION SYSTEM	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO.3C] Water level 0
7.3 Ft	Lateral or connection exists OK 12 o'clock [6 INCH]
33.2 Ft	Camera under water
115.8 Ft	Survey abandoned [WHEELS SLIPPING]

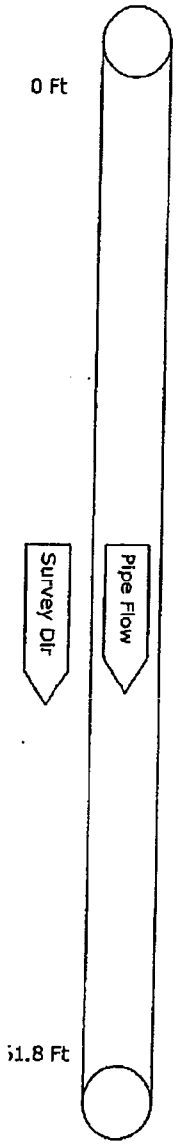
Pipe Graphic Report of PLR 3C.PRI.SUMP W **for** WASTE MANAGEMENT

Work Order		***Contract***		***Video***	7	***Setup***	32
Facility		***Operator***	Supervisor	***Van Ref***	3	***Surveyed On***	10/15/2008

Street Name	TRAIL RIDGE LANDFILL	***City***	TRAIL RIDGE LANDFILL
Location type	Berm		
Surface			
Survey purpose	Random survey of pipes and things	***Weather***	Dry

Pipe Use	Other (state in comments)	***Schedule length***	61.8 Ft	***From***	3C.PRI.SUMP	***Depth***	Ft
Shape	Circular	***Size***	24 ***by*** ins	***To***	ENDCAP	***Depth***	Ft
Material	Polyethylene -.High density	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***	Y	***Last cleaned***	10/15/2008

General note	PRIMARY LEACHATE COLLECTION SUMPS	Structural	Service	Constructional
Location note	SUMP.3C PRIMARY	Miscellaneous	Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [3C.PRI.SUMP] Water level 0
44.3 Ft	General observation [SAND IN LINE]
52.0 Ft	Camera under water
61.8 Ft	Manhole/Node [ENDCAP] Finish of Surveys

Appendix E

DEP004698

APPENDIX E

LEACHATE / RAINFALL SUMMARY AND COMPARISON TABLES

Trail Ridge Landfill
Leachate/Rainfall Comparison

Year	Months	Leachate Primary (gallons)	Leachate Secondary (gallons)	Total Leachate Generated (gallons)	Opera-tional Area (acres)	Generation Rate (gallons / Ac / day)	Rainfall (Inches)
2004	January	341,000	0	341,000	144.0	76.4	1.0
	February	450,200	0	450,200	144.0	107.8	6.1
	March	531,000	0	531,000	144.0	119.0	1.0
	April	465,100	0	465,100	144.0	107.7	1.9
	May	371,200	200	371,400	144.0	83.2	2.1
	June	393,800	1,600	395,400	144.0	91.5	9.8
	July	476,500	1,600	478,100	144.0	107.1	6.2
	August	459,600	2,600	462,200	144.0	103.5	7.9
	September	422,100	5,500	427,600	144.0	99.0	18.9
	October	502,600	800	503,400	144.0	112.8	2.0
	November	294,900	0	294,900	144.0	68.3	3.3
	December	552,800	800	553,600	144.0	124.0	3.1
2005	January	512,300	1,300	513,600	144.0	115.1	0.6
	February	408,900	1,300	410,200	144.0	101.7	3.0
	March	434,900	1,800	436,700	144.0	97.8	4.4
	April	463,000	3,000	466,000	144.0	107.9	5.0
	May	409,500	2,800	412,300	144.0	92.4	3.1
	June	408,800	2,800	411,600	144.0	95.3	12.4
	July	404,400	3,900	408,300	144.0	91.5	10.7
	August	249,600	1,500	251,100	144.0	56.3	8.1
	September	387,400	1,500	388,900	144.0	90.0	5.0
	October	525,600	2,800	528,400	144.0	118.4	5.8
	November	483,600	8,000	491,600	144.0	113.8	1.4
	December	498,100	9,200	507,300	144.0	113.6	7.8
2006	January	471,400	3,100	474,500	144.0	106.3	3.0
	February	388,100	6,200	394,300	144.0	97.8	3.6
	March	312,100	4,900	317,000	144.0	71.0	0.3
	April	354,200	5,500	359,700	144.0	83.3	1.7
	May	360,400	4,000	364,400	144.0	81.6	0.5
	June	221,400	6,300	227,700	144.0	52.7	4.1

Trail Ridge Landfill
Leachate/Rainfall Comparison

Year	Months	Leachate Primary (gallons)	Leachate Secondary (gallons)	Total Leachate Generated (gallons)	Opera-tional Area (acres)	Generation Rate (gallons / Ac / day)	Rainfall (Inches)
2006	July	253,900	8,100	262,000	144.0	58.7	5.5
	August	308,900	8,400	317,300	144.0	71.1	4.8
	September	339,600	8,600	348,200	144.0	80.6	2.4
	October	315,100	2,900	318,000	144.0	71.2	2.5
	November	300,600	5,500	306,100	144.0	70.9	0.5
	December	293,200	1,800	295,000	144.0	66.1	5.2
2007	January	325,500	18,100	343,600	144.0	77.0	3.5
	February	212,000	13,000	225,000	144.0	55.8	2.4
	March	464,700	14,700	479,400	144.0	107.4	1.2
	April	284,000	13,500	297,500	144.0	68.9	1.4
	May	308,400	18,800	327,200	144.0	73.3	0.7
	June	220,700	12,900	233,600	144.0	54.1	6.9
	July	359,300	21,300	380,600	144.0	85.3	7.2
	August	597,100	30,100	627,200	144.0	140.5	5.7
	September	635,300	5,600	640,900	144.0	148.4	6.9
	October	658,200	7,600	665,800	144.0	149.1	5.6
	November	530,000	400	530,400	144.0	122.8	0.3
	December	491,700	500	492,200	144.0	110.3	4.0
2008	January	516,300	3,400	519,700	144.0	116.4	3.1
	February	437,100	2,600	439,700	144.0	105.3	3.2
	March	528,000	21,800	549,800	144.0	123.2	4.4
	April	595,800	10,500	606,300	144.0	140.3	6.0
	May	439,900	16,100	456,000	144.0	102.2	1.5
	June	515,500	14,700	530,200	144.0	122.7	9.1
				Average		**96.5**	

Appendix F

DEP004702

APPENDIX F

LETTER FORM JEA REGARDING LEACHATE DISCHARGE TO BUCKMAN WRF

21 West Church Street
Jacksonville, Florida 32202-3139

Standard Delivery

September 9, 2008

JEA

ELECTR

WATER

SEWER

Zora Coleman
Solid Waste Specialist
City of Jacksonville
1031 Superior Street
Jacksonville, FL 32254

RE: Waste Hauler Discharge Permit #902

Dear Ms. Coleman:

This letter is written to confirm conditions set forth in the City of Jacksonville's Waste Hauler Discharge Permit (WHDP) #902.

WHDP #902 permits leachate from the Trail Ridge Landfill located at 5110 U.S. Highway 301 to be discharged at the JEA Buckman Water Reclamation Facility. This permit expires on March 15, 2011.

As currently written, there are no flow restrictions in the permit.

If you have any further questions regarding this permit, please contact me at (904)665-4796.

Sincerely,

Dan Parnell
Manager, Industrial Pretreatment

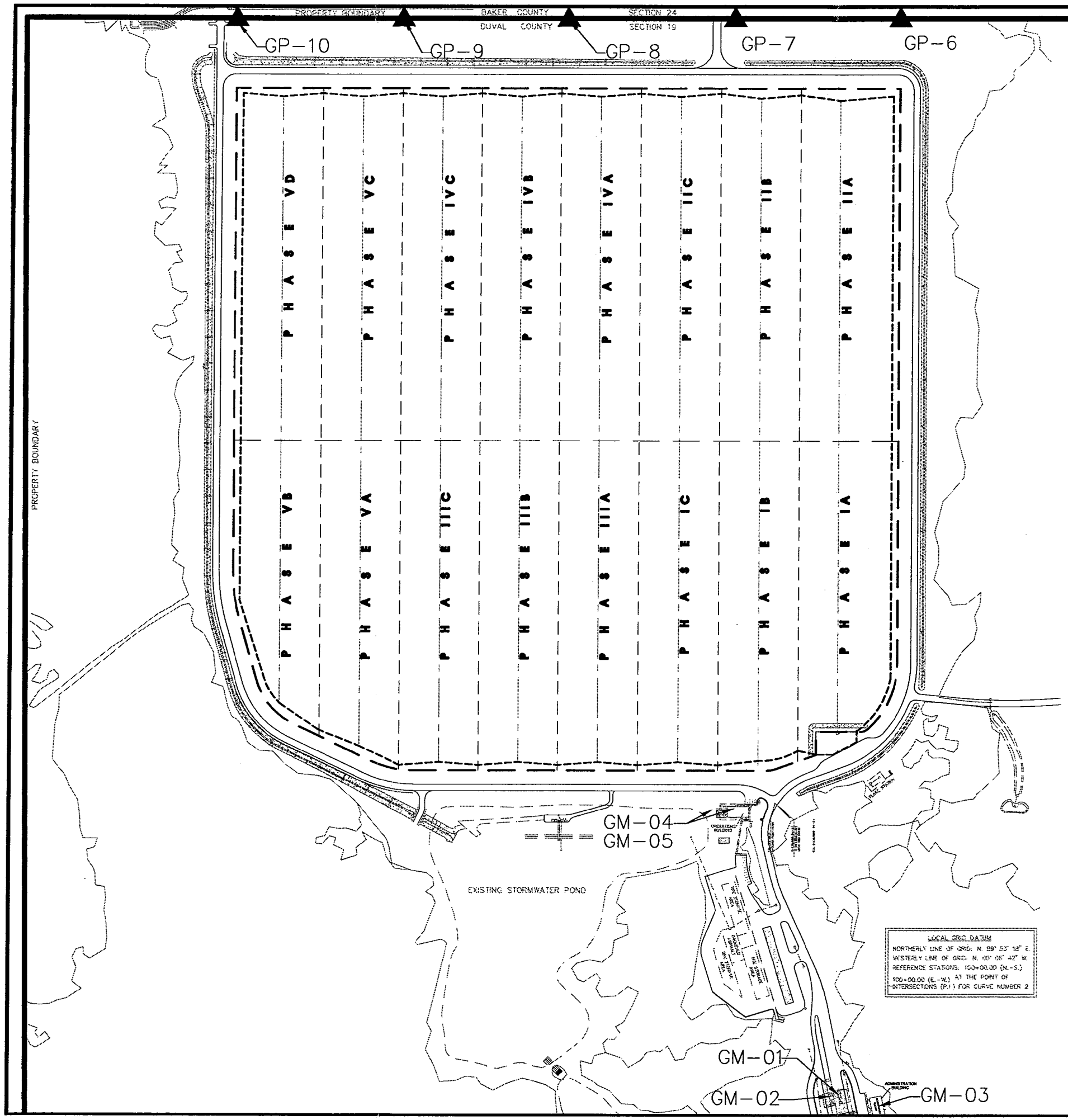
Cc: Juanitta Clem, PE
England, Thims and Miller Inc.

Appendix G

DEP004705

APPENDIX G

GAS PROBE MONITORING PLAN



GRAPHIC SCALE

200 0 100 200 400

(IN FEET)
1" = 200' FEET

LEGEND	
▲	GAS PROBE
GP-10	GAS PROBE NUMBER
GM-04	GAS MONITORING LOCATION

PERMIT DOCUMENT

GAS PROBE MONITORING PLAN

TRAIL RIDGE LANDFILL THIRD PERMIT RENEWAL
FOR
TRAIL RIDGE LANDFILL, INC.

PLANS PREPARED UNDER THE DIRECTION OF:

JUANITTA BADER. CLEM, P.E.
P.E. NO. 43245

REVISIONS:
9-15-08 GENERAL REVISIONS.

ETM NO. E 07-044-01
DRAWN BY: S. Lockwood
DESIGNED BY: J. Clem
CHECKED BY: J. Clem
DATE: September 25, 2002

Plotted: Apr 22, 2009 - 11:58am, By: Lockwoods

DEP004707

England-Thims & Miller, Inc.
ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS
14775 OLD ST. AUGUSTINE ROAD JACKSONVILLE, FLORIDA 32258
CERTIFICATE OF AUTHORIZATION NUMBER: 2584
PHONE NUMBER (904) 642-8990 FAX NUMBER (904) 646-9485

DRAWING NO.

1 OF 1

G:\LANDFILL\TRAIL\RENEWAL\07-044\Design\Plots\Maps\Gas-Probes.dwg

Appendix H

DEP004708

APPENDIX H

REQUIRED PERSONNEL MATRIX

TRAIL RIDGE LANDFILL
REQUIRED PERSONNEL MATRIX

Time	3000 Tons / Day			3500 Tons / Day			4000 Tons / Day		
	Spotters Required	Laborers Required	Equip. Op. Required	Spotters Required	Laborers Required	Equip. Op. Required	Spotters Required	Laborers Required	Equip. Op. Required
6:00 - 7:00 AM	2.0	2.0	3.0	2.0	2.0	3.0	2.0	3.0	3.0
7:00 - 10:00 AM	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
10:00 AM - 3:00 PM	1.0	2.0	2.0	2.0	2.0	3.0	2.0	3.0	3.0
3:00 - 5:00 PM	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0	2.0
5:00 - 7:00 PM	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Time	4500 Tons / Day			5000 Tons / Day		
	Spotters Required	Laborers Required	Equip. Op. Required	Spotters Required	Laborers Required	Equip. Op. Required
6:00 - 7:00 AM	2.0	3.0	4.0	2.0	3.0	4.0
7:00 - 10:00 AM	1.0	2.0	2.0	2.0	2.0	3.0
10:00 AM - 3:00 PM	2.0	3.0	3.0	2.0	3.0	4.0
3:00 - 5:00 PM	1.0	2.0	2.0	1.0	2.0	2.0
5:00 - 7:00 PM	1.0	1.0	1.0	1.0	1.0	1.0

Appendix I

DEP004711

APPENDIX I

WASTE TIRE PROCESSING

Department of Environmental Protection

DEP Form #	62-701.900(23)
Form Title	Waste Tire Processing Facility Permit Application
Effective Date	3/22/00
DEP Application No.	(Filled in by DEP)

Waste Tire Processing Facility Permit Application

Permit No. 0013493-002-SC

Renewal ☐ Modification ☐ Existing unpermitted facility ☐ Proposed new facility ☐

Part I-General Information:

A. Applicant Information:

1. Applicant Name: Trail Ridge Landfill, Inc.
2. Applicant Street Address: 5110 U.S. Highway 301
3. City: Baldwin County: Duval Zip: 32234
4. Applicant Mailing Address: 5110 U.S. Highway 301
5. City: Baldwin County: Duval Zip: 32234
6. Contact person: Greg Mathes Phone: (904) 289-9100 FEID No: _____
7. Have any enforcement actions been taken by the Department against the applicant relating to the operation of any solid waste management facility in this state? This includes any Complaint, Notice of Violation, or revocation of a permit or registration, as well as any Consent Order in which a violation of Department rules is admitted. It does not include a Warning Letter, Warning Notice, Notice of Noncompliance, or other similar document which does not constitute agency action.
   Yes _____ No ✓ If yes, attach a history and description of the enforcement actions.

B. Facility Information:

1. Facility Name: Trail Ridge Landfill, Inc.
2. Facility Street Address (Main Entrance): 5110 U.S. Highway 301
3. City: Baldwin County: Duval Zip: 32234
4. Facility Mailing Address: 5110 U.S. Highway 301
5. City: Baldwin State: Florida Zip: 32234
6. Contact Person: Greg Mathes Phone: (904) 289-9100
7. Facility Location Coordinates:
   Section: 18, 19, 20, 21 Township: 3 South Range: 23 East
   Latitude: 30° 14' 00" Longitude: 82° 02' 30"
8. Anticipated date for starting construction existing and for completion of construction existing
9. Anticipated date for receipt of tires on-going and for start of processing on-going

Mail completed form to
appropriate district office listed below

Northwest District	Northeast District	Central District	Southwest District	South District	Southeast District
160 Governmental Center	7825 Baymeadows Way, Ste. 200 B	3319 Maguire Blvd., Ste. 232	3804 Coconut Palm Dr.	2295 Victoria Ave., Ste. 364	400 North Congress Ave.
Pensacola, FL 32501-5794	Jacksonville, FL 32256-7590	Orlando, FL 32803-3767	Tampa, FL 33619	Fort Myers, FL 33902-2549	West Palm Beach, FL 33401
850-595-8360	904-448-4300	407-894-7555	813-744-6100	941-332-6975	561-681-6600

DEP Form #	62-701.900(23)
Form Title	Waste Tire Processing Facility Permit Application
Effective Date	3/22/00
DEP Application No.	(Filled in by DEP)

C. **Land Owner Information** (if different from applicant):

1. Owner's name: City of Jacksonville
2. Land owner's mailing address: 1031 Superior Street
3. City: Jacksonville State: Florida Zip: 32202
4. Authorized Agent: Chris Pearson Agent's phone (904) 387-8981
5. Current lease expires: N/A

D. **Facility Operator Information** (if different from applicant):

1. Operator's name: Same as applicant
2. Operator's mailing address: _____
3. City: _____ State: _____ Zip: _____
4. Contact person: _____ Phone: ( )

E. **Preparer of Application:**

1. Name of person preparing application: Juanitta Clem, P.E.
2. Mailing address: 14775 Old St. Augustine Road
3. City: Jacksonville State: Florida Zip: 32258
4. Phone: (904) 265-3181
5. Affiliation with facility: Consultant

Part II-Operations:

A. **Facility type (check appropriate box):**

☐ Waste tire processing facility.

☐ Waste tire processing facility with on-site disposal of processed tires or processing residuals. See Attachment _____

☐ Waste tire processing facility with on-site consumption of waste tires or processing residuals. See Attachment F

☑ Permitted solid waste management facility ~~modification to allow~~ including waste tire site and processing.

B. **Type of processing facility (check as many as apply):**

☑Shredder ☐Cutter ☐Chopper ☐Incinerator only ☐Incinerator with energy recovery
☐Pyrolysis ☐Supplemental fuel user ☐Other, explain _____

C. **Storage:** Indicate the maximum quantities of whole waste tires, processed waste tires, and processing residuals, expressed in tons, to be stored at the facility, in accordance with Rule 62-711.530(2), F.A.C.

	Outdoor Storage(tons)	Outdoor Storage (sq.ft)	Indoor Storage (tons)	Indoor Storage (sq.ft)	Total Storage (tons)
Whole waste tires:	3,900				3,900
Processed tires:					
Processing residuals:					
TOTALS:	3,900				3,900

D. For reporting quantity of tires in tons, tires will be: weighed on site☐ weighed off site☑ weights will be calculated☐

E. Facilities that will not be disposing of processed tires or processing residual on the facility site must indicate the permitted solid waste management facility where processed tires or residuals will be disposed.

1. Name of facility N/A Disposal is provided on site
2. Street address: _____
3. City: _____ County: _____ Zip: _____

F. Facilities that will be delivering processed tires to consuming facilities must describe the existing or proposed markets for those processed tires.
If recycling becomes available, the tires will be recycled.

Part III-Attachments:

A. Facility design The facility is existing and there are no proposed changes.

NOTE: All maps, plan sheets, drawings, isometrics, cross sections, or aerial photographs shall be legible; be signed and sealed by a registered professional engineer responsible for their preparation; be of appropriate scale to show clearly all required details; be numbered, referenced to narrative, titled, have a legend of symbols used, contain horizontal and vertical scales (where applicable), and specify drafting or origination dates; and use uniform scales as much as possible, contain a north arrow and use NGVD for all elevations.

1. A topographic or section map of the facility, including the surrounding area for one mile, no more than one year old, showing land use and zoning within one mile of the facility
2. A plot plan of the facility on a scale of not less than one inch equals 200 feet. At a minimum, the plot plan shall include
   a. The facility design, including the location and size of all storage and processing areas for used tires, unprocessed waste tires,processed waste tires, and waste tire processing residuals;
   b. All wetlands and water bodies within the facility or within 200 feet of any storage area;
   c. Stormwater control measures, including ditches, dikes, and other structures;
   d. Boundaries of the facility, legal boundaries of the land containing the facility, and any easements or rights of way that are within the facility or within 200 feet of any storage area;
   e. Location, size, and depth of all wells within the facility or within 200 feet of any storage area;
   f. All structures and buildings that are, or will be, constructed at the facility; include those used in storage and processing operations;
   g. All areas used for loading and unloading;
   h. All access roads and internal roads, including fire lanes;
   i. Location of all fences, gates, and other access control measures; and
   j. Location of all disposal areas within the facility.

B. Facility operation. The facility is existing and there are no proposed changes. See Operation Plan.

1. A description of the facility's operation, process and products including how waste tires will be received and stored.
2. A description of the equipment used for processing tires. This description shall include the make, model, and hourly capacity of each piece of equipment.
3. Description of the waste from the process, the amount of waste expected and how and where this waste will be disposed of.
4. Statement of the maximum daily throughput and the planned daily and annual throughput.
5. A description of how the operator will maintain compliance with each of the storage requirements of Rule 62-711.540, F.A.C.
6. A copy of the emergency preparedness manual for the facility with a statement of the on site and off site locations where that manual will be maintained.
7. A copy of the fire safety survey
8. A description of how 75% of the annual accumulation of waste tires will be removed for disposal or recycling.

C. Completed closing plan for the facility as required by Rule 62-711.700(2) and (3), F.A.C.

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Effective Date	3/22/00
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D. Attach proof of financial responsibility as requirement by Rule 62-711.500(3) OR a calculation showing that financial assurance documents, currently on file with the Department, are sufficient to assure closing of the waste tire site as well as any other solid waste management facility at that location.

E. A letter from the land owner (if different from applicant) authorizing use of the land as a waste tire processing facility.

F. If waste tires will be consumed at the facility, attach a description of the other environmental permits that the applicant has for this use, including, permit number, date of issue, and name of issuing agency

G. The permit fee as required in Rule 62-4, F.A.C.

Part IV-Certification:

A. Applicant:

The undersigned applicant or authorized representative of Trail Ridge Landfill, Inc. is aware that statements made in this form and attached information are an application for a Waste Tire Processing Facil 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 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 Department will be notified prior to the sale or legal tranefer of the facility.

Signature of Applicant or Authorized Agent	Greg Mathes, Dir. of Landfill Ops.	10/02/08
	Name and Title	Date

B. Professional Engineer registered in Florida.

This is to certify that the engineering features of this waste tire processing facility have been Designed/examined by me and found to conform to engineering principals applicable to such facilities. In my professional judgment, this facility, when properly maintained and operated will comply with all applicable statues 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 for proper maintenance and operation of the facility.

Signature	14775 Old St. Augustine Road
	Mailing Address
Juanitta Clem, P.E., Principal	Jacksonville, Florida 32258
Name and Title	City, State, Zip
43245	904.265.3181
Florida Registration Number	Telephone number

(please affix seal)

10/15/08
Date

TRAIL RIDGE LANDFILL
WASTE TIRE PROCESSING FACILITY

1. Introduction

Trail Ridge Landfill, Inc. intends to continue operation of a waste tire processing facility in accordance with the requirements of Rule 62-711.530, F.A.C. within the property boundaries of Trail Ridge Landfill, a solid waste management facility.

2. Design

The waste tire processing facility is located south of the non-contract drop off area and east of the operations building. A site plan for this area is provided in Exhibit A. In compliance with Rule 17-711.540(3)~~(2)~~ (a), F.A.C., the facility is designed with a stormwater management system (since it is located within 200 feet of wetlands). The stormwater control methods meet the stormwater requirements of Rule 62-25, F.A.C. and help maintain water quality standards specified in Chapters 62-302 and 62-520, F.A.C. The stormwater management system for the waste tire processing facility is incorporated into the stormwater management facility for the ancillary facility.

The facility is paved with asphalt and graded away from the wetlands toward a ditch, which drains to the ancillary facility stormwater pond. A twelve-inch concrete header curb was constructed at the southeast corner to prevent discharge to the adjacent wetlands. This curb also prevents liquid runoff from a potential fire from entering the wetlands.

3. Operations and Maintenance

The waste tires brought into the landfill site will be either homogenous loads or incidental to the solid waste loads. Those loads containing strictly waste tires will be directed to the waste tire processing facility and unloaded. Those tires discovered during unloading at the landfill active face will be picked out and taken to the waste tire storage area.

The tires will be stored in accordance with Rule 62-711.540, F.A.C. The storage of the aggregate of whole waste tires, processed waste tires and residuals will be limited to 60 times the daily through-put of the processing equipment. In addition, whole waste tires will be limited to 30 times the daily through-put of the processing equipment. The daily through-put of the processing equipment is estimated to be 3.33 tons per day and therefore, the maximum storage of whole waste tire is 100 tons. At least 75 percent of both the whole waste tires and processed tires that are delivered to or are contained on the site at the beginning of each calendar year will be processed and disposed of on site or transported off-site to a permitted facility for recycling/disposal.

The waste tire storage facility will be operated and maintained in accordance with Rule 62-711.540, F.A.C. The site was constructed and will be operated and maintained to divert stormwater or floodwaters around and away from the storage piles. Curbs both concrete and asphalt shall be maintained and the area will be swept and maintained so debris does not accumulate at the curbs.

Each storage pile will be no wider than 50 feet with an area no greater than 10,000 square feet and a height no greater than ~~10~~ 15 feet. A 50-foot wide fire lane will be maintained around the perimeters of each waste tire pile. Access to the fire lane for emergency vehicles will be unobstructed at all times. Mosquitoes and rodents will be controlled in a manner to protect the public health and welfare.

There are pavement markers (painted lines) on the pavement to outline the limits of the storage areas. On a weekly basis, the facility will visually check the limits and height of the waste piles to ensure compliance.

Waste tires are either transported off site for processing and disposal/beneficial reuse, or shredded on site and then disposed on site or transported off site for disposal/beneficial reuse. When the tires are shredded, the shredding will be conducted by an independent Contractor, who will bring the necessary equipment to the site to process the tires on the site. Once the tires are shredded, the shredded tire wastes will be taken up to the landfill for disposal (or for use as alternate initial cover, if the tire is shredded to meet the requirements of Rule 62-711.400(3)(a), F.A.C.) or transported off site for disposal or beneficial reuse. Typically, the facility does not store shredded tire waste on site but if necessary, it will be stored in Tire Pile Area.

An attendant will be present at the waste tire site to observe the unloading of waste tires to ensure mixed loads are not deposited. The processed tires will be disposed or recycled at the Class I permitted landfill. The processed tires will meet the size requirements specified under Rule 62-711.400(3) (b), F.A.C. (the tire will be cut into at least eight substantially equal pieces for purposes of disposal).

A mobile tire shredder will be utilized to process the tires at Trail Ridge Landfill on a quarterly basis or the tires will be transported off-site to a permitted facility for disposal or if economically feasible, transported off-site for beneficial reuse ~~to a recycling facility~~.

4. Access, Signs and Security

The waste tire processing facility is accessed off the main access road to the landfill. The access is beyond the scale house through the citizens' drop-off area. The access road will be kept passable for any type of motor vehicle at all times.

Signs are posted at the entrance to the solid waste management facility stating operating hours, costs of disposal, and site rules.

The property boundaries of the solid waste management facility which encompasses the waste tire processing facility are fully fenced with a locking gate at the entrance and exit to prevent unauthorized access to the site.

5. Record Keeping

Records will be maintained for three years of the quantity of waste tires and processed tires

received at the site, stored at the site, and shipped from the site. Records will include the following: ~~also be maintained of~~

a. For all waste tires shipped from the facility, the name and waste tire collector registration number of all waste tire collectors who accepted the waste tires for transport, and the quantity of waste tires shipped with each collector; and if the waste tires were shipped with a person who is not a waste tire collector, the number of tires shipped, the person's name, address and telephone number; and the place where the waste tires were deposited.

b. For all waste tires received at the facility, the name and waste tire collector registration number of the collector who delivered waste tires to the facility, and the quantity of waste tires received from that collector; and if more than five waste tires are delivered by a person who is not a waste tire collector, the number of tires delivered and the person's name, address and telephone number.

c. For all waste tires removed for recapping, the quantity and type removed, and the name and location of the recapping facility receiving the tires.

Quarterly reports will be submitted to the Department by the 20th of the month following the close of each calendar quarter on Form 62-701.900(21) ~~17-711.900(4)~~. The information required by Rule 62-711.530(4) and (5) ~~17-711.530(4) (b) and (5)~~, F.A.C. will be included in the report.

6. Fire Protection

The tire site will be kept free of grass, underbrush, and other potentially flammable vegetation. Fire protection for the site will be assured through notification to local fire protection authorities. A fire safety survey will be conducted at least annually and the survey report will be made a part of the next quarterly report. Recommendations in the annual surveys will be implemented when possible.

Communication equipment will be maintained at the site to assure the site personnel can contact local fire protection authorities in case of fire. Fire extinguishers will be conveniently assessable to the tire pile. No operation utilizing an open flame will be conducted within 25 feet of the waste tire site.

If necessary, due to a fire, the equipment and cover soil on site will be used to fortify the curb to contain any liquid runoff.

7. Emergency Preparedness Manual

An Emergency Preparedness Manual is attached as Exhibit B. A copy of the manual will be maintained at a designated off-site location. This manual will be updated at least once a year and upon changes in operation of the facility.

8. Closure

Closure of the waste tire processing facility will be in accordance with Rule 62-711.700, F.A.C.

When the Waste Tire Processing Facility ceases to accept waste tires, the operator will:

1. Post a notice indicating that the site is closed and provide the phone number of the City of Jacksonville, Department of Public Works, Solid Waste Division;
2. Notify the Department and City of the closing;
3. Remove all waste tires and residual to a waste tire processing facility, solid waste management facility authorized to accept water tires, or a legitimate user of waste tires;
4. Remove any solid waste to a permitted solid waste management facility; and
5. Notify the Department when closing is complete.

At this time, the facility does not propose to close until the landfill is closed.

9. Financial Assurance

Financial responsibility for closure of the solid waste management facility includes closure costs associated with the waste tire site. Therefore, no new documentation is submitted.

~~10. Permit Fee~~

~~No permit fee is required, as specified in Rule 17-711.300(5), F.A.C.~~

EXHIBIT B
EMERGENCY PREPAREDNESS MANUAL

TRAIL RIDGE LANDFILL
WASTE TIRE PROCESSING FACILITY

1. In the event of a fire or other emergency, the following persons/agencies will be contacted:

   Trail Ridge Landfill Personnel
   Mr. Greg Mathes (904) 269-3986 (Home); (904) 591-6113 (Cell)
   Mr. Jimmy Purvis (904) 879-1282 (Home); (904) 591-6112 (Cell)
   Mr. Edward Schmalfeld II (904) 591-5378 (Cell)

   Fire Department, if necessary
   Phone: 911

   Department of Environmental Protection
   7825 Baymeadows Way, Suite 200B
   Jacksonville, Florida 32256
   (904) 807-3355

2. The tire storage processing facility is located at a Class I sanitary landfill, Trail Ridge Landfill, which is fully equipped with bulldozers, front end loaders, scrapers, and other such equipment available at all times for any emergency. There is an ample stockpile of soil on site for use in smothering a fire, if one occurs.

3. In the event of a fire, the following procedures will be immediately implemented:

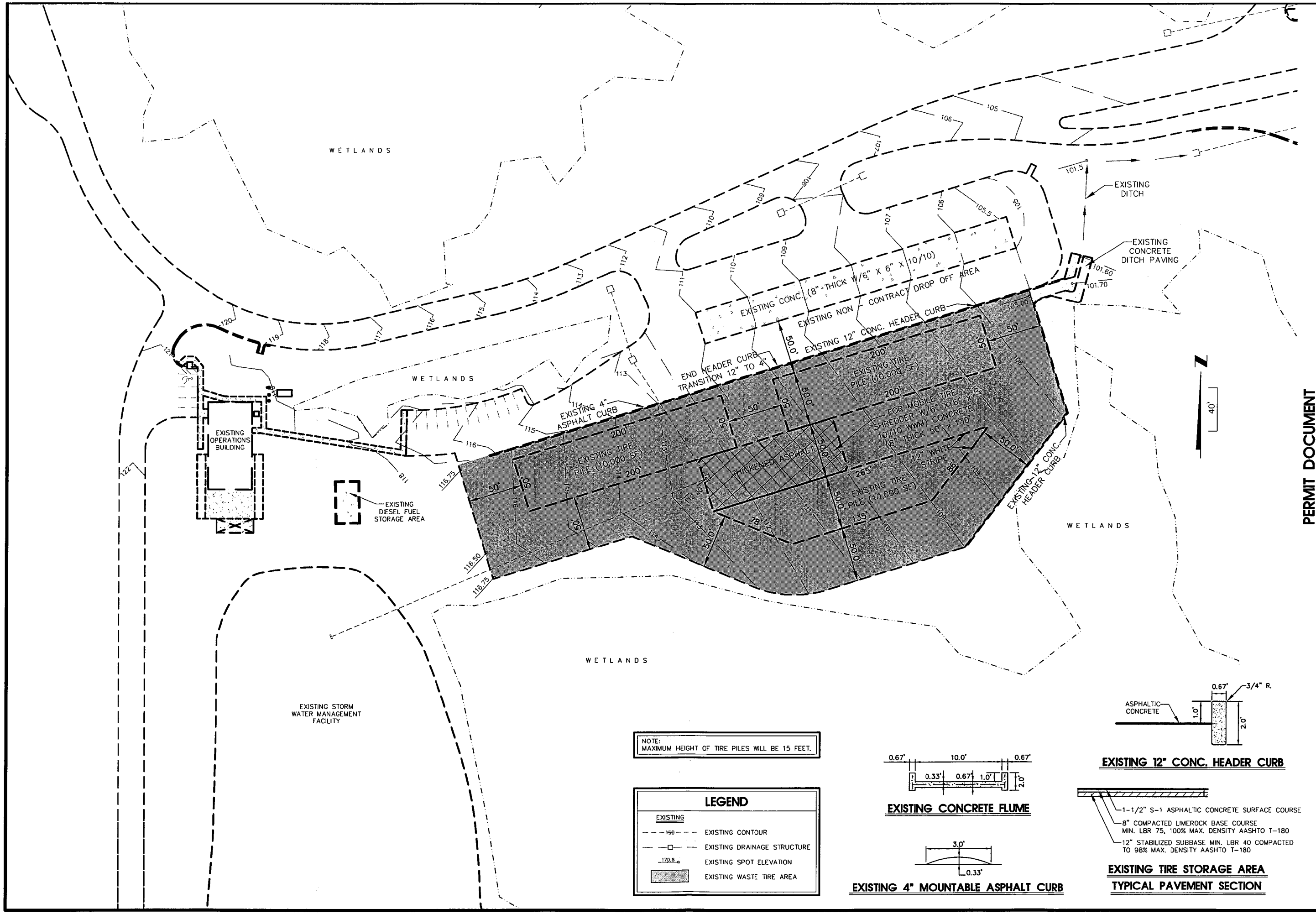
   A. Notify the persons/agencies listed in Part 1.

   B. Reinforce the area with soil to contain any runoff and use to extinguish fire, if necessary.

   C. Extinguish the fire with on-site equipment and stockpile dirt. Only personnel trained in fire safety procedures will be utilized to fight fires.

   D. A special and/or hazardous waste contractor will be contacted for cleanup and disposal of any residue generated by the fire.

4. Within two weeks of the emergency, a written report describing the event will be sent to the Department of Environmental Protection. The report will include the origins of the emergency, the actions taken to remedy the situation, the results of the action that was taken, and an analysis of the success or failure of the actions.



PERMIT DOCUMENT

WASTE TIRE STORAGE AND PROCESSING AREA

TRAIL RIDGE LANDFILL THIRD PERMIT RENEWAL FOR TRAIL RIDGE LANDFILL, INC.

PLANS PREPARED UNDER THE DIRECTION OF:

JUANITTA BADER, CLEM, P.E.
P.E. NO. 43245

REVISIONS:

ETM NO. E 07-044-01
DRAWN BY: S. Lockwood
DESIGNED BY: J. Clem
CHECKED BY: J. Clem
DATE: September 25, 2002

Plotted: Apr 30, 2009 - 2:59pm, By: Lockwoods

England-Thims & Miller, Inc.
ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS
14775 OLD ST. AUGUSTINE ROAD JACKSONVILLE, FLORIDA 32258
CERTIFICATE OF AUTHORIZATION NUMBER: 2684
PHONE NUMBER (904) 642-8990 FAX NUMBER (904) 646-9485

DRAWING NO.

1 of 1

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DEP004722

Appendix J

DEP004723

APPENDIX J

SAMPLE INSPECTION CHECKLIST

Trail Ridge Landfill
Landfill Inspection Checklist

Name of Inspector: _____ Date of Inspection: _____

If answered yes, attach additional comment pages or site plan as needed.

SAMPLE

Section A: Fencing and Security	Yes	No	Not Applicable
1. Damage to fences, gates, or locks	____	____	____
2. Gates unlocked/locks missing	____	____	____
3. Signs of forced entry detected	____	____	____

Section B: Access Roads	Yes	No	Not Applicable
1. Access and site roads in poor condition	____	____	____

Section C: Final Cover System	Yes	No	Not Applicable
1. Settlement of cover	____	____	____
2. Evidence of erosion, cracks, gullies	____	____	____
3. Holes or damage to cover	____	____	____
4. Patches of dead grass on cover	____	____	____
5. Evidence of leachate seeps	____	____	____
6. Impacts due to settlement	____	____	____
7. Ponding of water in terraces	____	____	____

Section D: Gas Management System	Yes	No	Not Applicable
1. Visible damage to system components	____	____	____
2. Excessive release of odors	____	____	____
3. Gas flare operating	____	____	____

Trail Ridge Landfill
Landfill Inspection Checklist

Section E: Stormwater Management System	Yes	No	Not Applicable
1. Ponding of water	____	____	____
2. Excessive silting due to lack of vegetation	____	____	____
3. Inlets repair required	____	____	____
4. Perimeter ditch or swale	____	____	____
5. Retention pond damage	____	____	____
6. Downcomer pipe repair required	____	____	____
7. Leachate breakouts affecting water quality	____	____	____
8. Ditches/Inlets/Culverts need cleaning	____	____	____

SAMPLE

Section F: Monitoring Devices	Yes	No	Not Applicable
1. Damage to groundwater monitoring wells	____	____	____
2. Damage to gas wells	____	____	____
3. Locks missing	____	____	____
4. Damage to gas monitor probes	____	____	____

Section G: Leachate Collection and Storage	Yes	No	Not Applicable
1. Leachate pumps operating	____	____	____
2. Leachate flow meters operating	____	____	____
3. Leachate control panels operating	____	____	____
4. Control panel alarms operating	____	____	____
5. Leachate storage tanks leaking	____	____	____
6. Leachate containment area leaking	____	____	____

Section H: Active Area	Yes	No	Not Applicable
1. Graded to provide drainage	____	____	____
2. Leachate/stormwater ponding	____	____	____
3. Any hot spots?	____	____	____
4. Erosion of intermediate and/or initial cover	____	____	____

Signature of Inspector:_____ Date:_____

Appendix K

DEP004727

APPENDIX K

QUALITY ASSURANCE/QUALITY CONTROL PLAN FOR SIDE SLOPE CLOSURE

TRAIL RIDGE LANDFILL
INCREMENTAL SIDE SLOPE CLOSURE
QUALITY ASSURANCE/QUALITY CONTROL PLAN

This plan addresses the quality assurance and quality control (QA/QC) for the incremental closure (close-as-you-go) of Trail Ridge Landfill. This program delineates the quality procedures and standards for the construction. This plan includes the closure of the side slopes only (including the reconstruction of final cover on side slopes). The top area closure has a separate QA/QC Plan.

In the context of this plan, quality assurance and quality control are defined as follows:

Quality Assurance - A planned and systematic pattern of all means and actions designed to provide adequate confidence that items or services meet contractual and regulatory requirements and will perform satisfactorily in service.

Quality Control - Those actions which provide a means to measure and regulate the characteristics of an item or service to contract and regulatory requirements.

The City of Jacksonville, Florida is the owner of Trail Ridge Landfill. Trail Ridge Landfill, Inc. is the permittee and operates the landfill. England, Thims & Miller, Inc. is the design engineer. The name of the Contractor for each incremental closure shall be provided to the Department of Environmental Protection (DEP), prior to construction.

All QA/QC activities (including monitoring, sampling and testing) shall be directed and conducted by third parties, whom are independent of the Contractor.

The QA/QC Plan for this project includes General QA/QC and Soils QA/QC. The General QA/QC includes full-time services to periodically observe the contractor's work to verify substantial compliance with permits, plans, specifications and design concepts. These services will include the following:

General Quality Control Monitor - shall monitor the construction for compliance with the permits, plans, specifications and design including construction to proper lines and grades, maintain daily logs and weekly progress reports of the construction (including observation data sheets, problem identification and correction logs), make note of any construction deviations, coordinate qualifying and testing of materials, monitor any waste excavation, and monitor filling. This individual shall be experienced in civil site construction and solid waste regulations.

General Quality Assurance Engineer - shall supervise the construction monitoring and waste removal to verify compliance with permits, plans, specification and design concepts. This individual shall be experienced in civil site construction and solid waste regulations and shall be a registered Professional Engineer.

The General QA/QC Program includes monitoring the following activities:

1. General Earthwork
2. Storm Drainage Installation
3. General Construction Quality Control

The Soils QA/QC for this project includes soil material qualifying, sampling and testing to verify substantial compliance with the material standards. This work will include the following:

Soils Quality Control Monitor - shall pre-qualify soil materials, monitor the installation of soil materials, determine where in-place soil materials shall be tested, and test the in-place soil materials. This individual shall be responsible for assuring that all soil materials have been pre-qualified and have a chain-of-custody from the pre-qualified source to the project site, prior to installation. This individual shall be experienced in quality assurance of soil materials and the preparation of quality assurance documentation including quality assurance forms, reports, certification and manuals. This individual shall be experienced in civil site construction and soil testing standards and procedures and shall be certified by the Quality Assurance Engineer in the duties of the project.

Soils Quality Assurance Engineer - shall supervise the soil material pre-qualifying and testing of in-place soil materials to assure compliance with the test standards and testing frequency requirements, and verify compliance with the plans, specification and design. This individual shall be experienced in quality assurance of soil materials and the preparation of quality assurance documentation including quality assurance forms, reports, certification and manuals. This individual shall hold a B.S., M.S., or PhD degree in civil engineering or related fields, be experienced in civil site construction and soil testing procedures, be a registered Professional Engineer, and have worked on at least two other closure projects.

The QA/QC Plan including monitoring construction of the following:

A. Final Cover (Intermediate Cover, Compacted Clay Layer and Vegetative Cover (Top Soil))

Incremental side slope closure of Trail Ridge Landfill includes a final cover consisting of 12" of intermediate cover, 12" of clay, and 24" of vegetative cover. The clay layer of the final cover must be placed in two 6" (minimum) lifts. The Soils Quality Control Monitor shall observe the clay layer construction on a full-time (on-site) basis. The QA/QC for the final cover is as follows:

1. Intermediate Cover

a. Location - The fill material shall come from an off-site source. The Soils Quality Control Monitor shall visually inspect the fill material.

b. Standard - Soil shall be free of brush, weeds, and other litter; and free of roots, stumps, stones and any other extraneous or toxic matter.

The intermediate cover material shall be tested for shear strength in the laboratory (ASTM D-4767). The material shall only be

considered suitable if the material, as documented on laboratory test specimens, can be shown to provide a minimum safety factor of 1.5 against sliding.

The intermediate cover shall be a minimum of 12" thick.

Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557), unless the soil material contains 30.0% or greater passing the No. 200 sieve, then compacted to 90% of Standard Proctor maximum dry density (ASTM D-698).

c. Frequency - The shear strength shall be tested one time only based upon a representative sample of the material at the required density.

Depth measurements and density tests shall be conducted at the frequency of four per acre.

2. Clay Layer (referred to as Barrier Layer in Chapter 62-701, F.A.C.)

a. Borrow Source - Prior to clay layer installation, an appropriate borrow source shall be located. Suitability of the clay layer construction materials from that source shall be determined in accordance with the following:

(1) If demonstrated field experience is available from at least three prior successful projects of five or more acres each to document that a given borrow source can meet the requirements of the project specifications, then extensive laboratory testing of the borrow source will not be required. However, the source of material shall be geologically similar to and the methods of excavating and stockpiling the material shall be consistent with those used on the prior projects. Furthermore, a minimum of three representative samples from the appropriate thickness of the in-situ stratum or from stockpiles of the borrow material proposed for clay layer construction shall be submitted to the Owner's independent soil testing laboratory to document through index testing and shear strength testing that the proposed material is consistent with the material used on prior successful projects. At a minimum, index testing shall consist of percent fines, Atterberg limits and moisture content determinations and the shear testing shall consist of triaxial testing of the clay soil and direct shear testing of the interface between the intermediate cover and the clay as well as the interface between the clay and the proposed vegetative cover material.

(2) If demonstrated field experience as defined above is not available or cannot be documented, then the following requirements shall be met.

(a) A field exploration and laboratory testing program shall be conducted by the Owner's independent soil testing laboratory to document the horizontal and vertical extent and the homogeneity of the soil strata

proposed for use as clay layer material. A sufficient number of index tests from each potential borrow stratum shall be performed to quantify the variability of the borrow materials and to document that the proposed borrow material complies with specifications. At a minimum, the index tests shall consist of percent fines, Atterberg limits and moisture content determinations.

(b) Sufficient laboratory hydraulic conductivity tests shall be conducted on samples representative of the range invariability of the proposed borrow source (ASTM D-5084). For each such sample, test specimens shall be prepared and tested to cover the range of molding conditions (moisture content and dry density) required by project specifications. The hydraulic conductivity tests shall be conducted in triaxial type permeameters. The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens. The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment. The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured (ASTM D-5084). The borrow source will only be considered suitable if the hydraulic conductivity of the material, as documented on laboratory test specimens, can be shown to meet the requirements of the project specifications at the 98 percent confidence level.

(c) Sufficient shear strength testing of the clay material (ASTM D-4767) and direct shear testing of the interface between the intermediate cover and the clay as well as the interface between the clay and the proposed vegetative cover material (ASTM D-3080) shall be conducted on samples representative of the range in variability of the proposed borrow source. For each such sample, test specimens shall be prepared and tested to cover the range of molding conditions (moisture content and dry density) required by project specifications. The borrow source will only be considered suitable if the material, as documented on laboratory test specimens, can be shown to provide a minimum safety factor of 1.5 against sliding for both interfaces as well as the material itself.

(3) The Soils Quality Assurance Engineer shall review the pre-qualification data and shall approve or reject the clay layer material for use.

b. Test Strip - Prior to full-scale clay layer installation, a field test section or test strip shall be constructed at the site above a prepared subbase. The test strip shall be considered acceptable if the measured hydraulic conductivities of undisturbed samples from the test strip meet the requirements of the project specifications at the 98 percent confidence level. If the test section fails to achieve the desired

results, additional test sections shall be constructed in accordance with the following requirements:

(1) The test section shall be of sufficient size (40' wide x 60' long, at a minimum) such that full-scale clay layer installation procedures can be duplicated within the test section;

(2) The test section shall be constructed using the same equipment for spreading, kneading and compaction and the same construction procedures (e.g., number of passes, moisture addition and homogenization, if needed) that are anticipated for use during full-scale clay layer installation;

(3) At a minimum, the clay layer test section shall be subject to the following field and laboratory testing requirements by Soils Quality Control Monitor:

(a) A minimum of five random samples of the clay layer construction material delivered to the site during test section installation shall be tested for moisture content (ASTM D-2216), percent fines (ASTM D-1140) and Atterberg limits (ASTM D-4318);

(b) At least five field density and moisture determinations shall be performed on each lift of the compacted clay layer test section;

(c) Upon completion of the test section lift, the thickness of the lift shall be measured at a minimum of five random locations to check for thickness adequacy; and

(d) A minimum of five Shelby tube or drive cylinder (ASTM D-2937) samples shall be obtained from each lift of the test section for laboratory hydraulic conductivity testing. Laboratory hydraulic conductivity testing shall be conducted in triaxial type permeameters (ASTM D-5084). The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens. The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment. The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured (ASTM D-5084).

(e) The test strip shall meet or exceed the standards established below except the field density which shall be established by the QA Engineer, based upon the test strip results. If the test strip fails to meet these standards, the construction methods and/or material will be rejected and the test strip shall be performed again.

c. Final Cover Installation - Full scale final cover installation may begin only after completion of a successful test section. During clay layer construction, quality control testing shall be provided to document that the installed clay layer conforms to project specifications. The testing frequency for quality control testing is specified below; however, during construction of the first five acres, the frequencies shall be doubled. The clay layer shall be installed in two 6" lifts for a total minimum thickness of 12".

(1) Location - The clay layer shall be tested in place. The locations of testing shall be random locations as determined by the Soils Quality Control Monitor. If there are indications of a change in product quality or construction procedures during final cover construction, additional tests shall be performed to determine compliance.

(2) Standard

(a) Clay Layer Subgrade - Compacted to 90% of Modified Proctor maximum dry density (ASTM D-1557)D 1557), unless the soil material contains 30.0% or greater passing the No. 200 sieve, then compacted to 90% of Standard Proctor maximum dry density (ASTM D-698). (See Intermediate Cover above).

(b) Field Density - The field density shall be established by the QA Engineer based upon the test strip results and shall be determined by Standard Proctor Density (ASTM D-698). In no case shall the field density be less than 80% of Standard Proctor Density (ASTM D-698).

(c) Thickness - Each lift (two total) shall be a minimum of 6" thick.

(d) Hydraulic Conductivity - The compacted clay layer shall have an in-place hydraulic conductivity no greater than 6.67×10^{-8} cm/sec (ASTM D-5084).

(3) Field Testing Frequency

(a) Prior to the laying of the clay layer materials, the clay layer subgrade shall be compacted to the specified density. Density tests shall be conducted at a minimum rate of two tests per acre;

(b) A minimum of two moisture content and field density determinations shall be conducted per acre per lift of the compacted clay layer. The degree of compaction shall be checked using the one-point field Proctor test or other appropriate test procedures; and

(c) A minimum of four thickness measures shall be conducted per acre per lift of the compacted clay layer.

(4) Laboratory Testing Frequency

(a) Percent fines (ASTM D-1140) of the clay layer material shall be determined at a minimum frequency of two tests per acre per lift of installed clay layer;

(b) Atterberg limits determinations shall be performed on one sample per acre per lift of installed clay layer; and

(c) Hydraulic conductivity testing of Shelby tube or drive cylinder (ASTM D-2937) samples of the compacted clay layer shall be performed at a minimum frequency of one test per acre per lift. Laboratory hydraulic conductivity tests shall be conducted in triaxial type permeameters (ASTM D-5084). The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens. The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment. The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured.

(5) Deficiency - If the test data from a clay layer section does not meet the requirements of the project specifications, additional random samples shall be tested from that clay layer section. If such additional testing demonstrates that the thickness and hydraulic conductivity meet the requirements of the project specifications at the 95 percent confidence level, that clay layer section will be considered acceptable. If not, that clay layer section shall be reworked or reconstructed so that it does meet these requirements.

3. Clay Layer Tie-In (To Existing Clay Layer, Where Applicable)

a. Location - The edge of any existing final cover adjacent to the proposed final cover area.

b. Standard - The compacted clay layer of any existing final cover and the proposed final cover must be tied together to form one continuous seamless layer. At the interface, the existing and new clay layers shall be compacted to form a seamless connection.

c. Frequency - The Soils Quality Control Monitor shall monitor the tie-in by visual inspection on a continuous basis.

4. Vegetative Cover (Top Soil)

a. Location - The vegetative cover shall be tested in place for thickness. The location of testing shall be determined by the Soils Quality Control Monitor.

b. Standard - Top soil which is reasonably free of brush, weeds, and other litter; and relatively free of roots, stumps, stones and any other extraneous or toxic matter harmful to plant growth. Roots with a diameter greater than ⅜" shall be hand picked and removed.

The vegetative cover shall be at least 24" thick.

Prior to placement, the vegetative cover material shall be tested for shear strength in the laboratory (ASTM D-4767). The material shall only be considered suitable if the material, as documented on laboratory test specimens, can be shown to provide a minimum safety factor of 1.5 against sliding.

c. Frequency - The shear strength shall be tested one time only based upon a representative sample of the material.

Depth measurements shall be taken at the frequency of four per acre. The soil shall be monitored on a continuous basis for extraneous matter.

5. Final Cover Repairs (When Applicable)

If, during construction of the final cover system, damage is sustained on the final cover system (including the intermediate cover, clay layer and vegetative cover), the areas of damage shall be reconstructed and retested in accordance with corresponding section described above. All repair areas shall be tested at the frequencies prescribed above, unless more frequent testing is required at the discretion of the Soils Quality Assurance Engineer.

B. Downcomer Pipes

Downcomer pipes shall be installed in the final cover at the low point of the terraces, to intercept the stormwater between terraces. The downcomer pipes shall include the terrace side drains and terrace underdrain piping.

The downcomer pipes shall be constructed as shown on the Construction Drawings. The clay around the pipes shall be compacted into a uniform homogeneous material. Prior to placement of vegetative cover over the downcomer pipes, the pipe shall be inspected by the General Quality Control Monitor.

1. Location - The compacted clay layer shall be tested in place. The locations of testing shall be determined by the Soils Quality Control Monitor. If there are indications of a change in product quality or construction procedures during construction, additional tests shall be performed to determine compliance.

2. Standard –

   a. Clay Layer Subgrade - Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557)D 1557), unless the soil material contains 30.0% or greater passing the No. 200 sieve, then compacted to 90% of Standard Proctor maximum dry density (ASTM D-698) (12" thick minimum).

   b. Field Density - The field density of the clay layer shall be as established in Section A.2.c.(2)(b) above and shall be determined by Standard Proctor Density (ASTM D 698).

   c. Thickness - Twelve inches minimum below pipe.

   d. Hydraulic Conductivity - The compacted clay layer shall have an in-place hydraulic conductivity no greater than 6.67×10^{-8} cm/sec (ASTM D 5084).

3. Field Testing Frequency -

   a. Prior to the laying of the compacted clay materials, the subbase shall be compacted to the specified density. Density tests and thickness shall be conducted at a minimum rate of one per 75 linear feet of pipe. (Minimum of one test between terraces).

   b. A minimum of one moisture content and field density determination of the compacted clay layer shall be conducted per 75 linear feet of pipe.

   c. A minimum of two thickness measures of the compacted clay layer shall be conducted per 75 linear feet of pipe.

4. Laboratory Testing Frequency -

   a. Hydraulic conductivity testing of Shelby tube or drive cylinder (ASTM D 2937) samples of the compacted clay layer shall be performed at a minimum frequency of one test per 75 linear feet of pipe (at least once between terraces). Laboratory hydraulic conductivity tests shall be conducted in triaxial type permeameters (ASTM D 5084). The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens. The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow

increment. The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured.

5. Deficiency - If the test data from a compacted clay layer section does not meet the requirements of the project specifications, that section shall be reworked or reconstructed so that it does meet these requirements.

C. Underdrain Filter Sand

The underdrains in the terraces shall be surrounded by filter sand as shown on the Contract Drawings. The QA/QC for the filter sand is as follows:

1. Filter Sand

a. Location - The material shall be pre-qualified prior to installation.

If the testing is done at the borrow source, a chain of custody shall be provided.

b. Standard - Clean, uniformly graded sand with a uniformity coefficient of 1.5 or greater and an effective grain size of 0.2 mm to 0.5 mm. Grain size distribution shall be conducted as part of pre-qualification.

The sand shall have a hydraulic conductivity no less than 1.0×10^{-3} cm/sec at a density of 100 percent Modified Proctor. The hydraulic conductivity testing shall be by Constant Head method (ASTM D2434).

c. Frequency - The hydraulic conductivity of the sand shall be tested once per 500 cubic yards of sand material.

D. Gas Management System (Gas Wells and Headers)

Gas wells (temporary and permanent) shall be installed in accordance with the Construction Drawings. The QA/QC for gas well materials shall be as follows:

1. Gravel for Gas Wells

a. Location - The gravel shall be pre-qualified by certification by the supplier.

b. Standard - The gravel shall be clean gravel with no fines. The gravel shall be FDOT No. 3 Course Aggregate (ASTM D 448).

The gravel shall be non-calcareous (ASTM D 4373).

c. Frequency - The gravel shall be certified by the supplier. The gravel shall be tested once per 100 C.Y.

2. Bentonite for Gas Wells

a. Location - The material shall be pre-qualified with documentation from the supplier.

b. Standard - The material shall have a hydraulic conductivity no greater than 1.0×10^{-8} cm/sec (ASTM D 5084).

c. Frequency - The material shall be certified by the supplier, one time only.

3. Permanent Header Pipe

The permanent header pipe shall be placed in the areas of final cover and shall be placed on the barrier soil layer, as shown on the Construction Drawings. The header pipe shall not be placed until the barrier soil has been tested and approved. The placement of the header pipe over the barrier soil layer and covering of the header pipe shall be conducted in the presence of either the Soils Quality Control Monitor or the General Quality Control Monitor.

4. Temporary Header Pipe

The temporary header pipe shall be placed in areas that have not received final cover, shall be placed on a prepared subgrade and shall be backfilled with clean fill. The header pipe shall be installed in accordance with the Construction Drawings. The pipe subgrade as well as the backfill around the pipes shall be compacted. Prior to placement of cover over the pipe, the pipe shall be inspected by the General Quality Control Monitor. The QA/QC for the installation of the temporary header pipe is as follows:

a. Location - The compacted subgrade and backfill shall be tested in place. The locations of testing shall be determined by the Soils Quality Control Monitor.

b. Standard - The subgrade and backfill shall be compacted to 85% of Standard Proctor maximum dry density (ASTM D-698) and shall be placed in 12-inch maximum lifts.

The minimum cover (clean fill) over the header pipe shall be 12 inches.

c. Frequency – The density of the subgrade and backfill shall be tested once per 500 linear feet per lift. The thickness of the cover over the pipe shall be checked once per 500 linear feet.

Appendix L

DEP004740

APPENDIX L

QUALITY ASSURANCE/QUALITY CONTROL PLAN FOR TOP AREA

TRAIL RIDGE LANDFILL
PROJECT-SPECIFIC ADDENDA
TO QUALITY ASSURANCE MANUAL

This plan specifically addresses the quality assurance and quality control (QA/QC) for Trail Ridge Landfill, Top Area Closure. This program delineates the quality procedures and standards for the construction.

In the context of this plan, quality assurance, quality control and the plan participants are defined as follows:

Quality Assurance - A planned and systematic pattern of all means and actions designed to provide adequate confidence that items or services meet contractual and regulatory requirements and will perform satisfactorily in service.

Quality Control - Those actions which provide a means to measure and regulate the characteristics of an item or service to contract and regulatory requirements.

Permittee - Trail Ridge Landfill, Inc.

Owner - The City of Jacksonville

Design Engineer - England, Thims & Miller, Inc.

The QA/QC Program for this project includes General QA/QC, Soils QA/QC, and Synthetic Liner System QA/QC. These QA/QC activities (including monitoring, sampling and testing) shall be directed and conducted by the third parties who are independent of the Contractor.

The General QA/QC includes full-time services to periodically observe the contractor's work to verify substantial compliance with permits, plans, specifications and design concepts.

General Quality Control Monitor - shall monitor the construction for compliance with the permits, plans, specifications and design including construction to proper lines and grades, maintain daily logs and weekly progress reports of the construction (including observation data sheets, problem identification and correction logs), make note of construction deviations, coordinate qualifying and testing of materials, and monitor filling. This individual shall be experienced in civil site construction and solid waste regulations.

General Quality Assurance Engineer - shall supervise the construction monitoring to verify compliance with permits, plans, specification and design concepts. This individual shall be experienced in civil site construction and solid waste regulations and shall be a registered Professional Engineer.

The General QA/QC Program includes monitoring the following activities:

1. General Earthwork
2. Drainage Installation
3. Overall Liner System Installation
4. General Construction Quality Control

The Soils QA/QC for this project includes soil material qualifying, sampling and testing to verify substantial compliance with the material standards.

Soils Quality Control Monitor - shall pre-qualify soil materials, monitor the installation of soil materials, determine where in-place soil materials shall be tested, and test the in-place soil materials. This individual shall be responsible for assuring that all soil materials have been pre-qualified and have a chain-of-custody from the pre-qualified source to the project site, prior to installation. This individual shall be experienced in quality assurance of soil materials and the preparation of quality assurance documentation including quality assurance forms, reports, certification and manuals. This individual shall be experienced in civil site construction and soil testing standards and procedures.

Soils Quality Assurance Engineer - shall supervise the soil material pre-qualifying and testing of in-place soil materials to assure compliance with the test standards and testing frequency requirements, and verify compliance with the plans, specification and design. This individual shall be experienced in quality assurance of soil materials and the preparation of quality assurance documentation including quality assurance forms, reports, certification and manuals. This individual shall hold a B.S., M.S., or PhD degree in civil engineering or related fields, be experienced in civil site construction and soil testing procedures and shall be a registered Professional Engineer.

The Top Area closure of Trail Ridge Landfill includes a final cover consisting of 12" of intermediate cover, a 40-mil geomembrane liner, 12" of sand, and 12" of top soil (from bottom to top). The QA/QC for the final cover is as follows:

A. INTERMEDIATE COVER

1. Location - The fill material shall come from an off-site source. The Soils Quality Control Monitor shall visually inspect the fill material.

2. Standard - Soil shall be free of brush, weeds, and other litter; and free of roots, stumps, stones and any other extraneous or toxic matter.

   The intermediate cover shall be a minimum of 12" thick.

   Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557), unless the soil material contains 30.0% or greater passing the No. 200 sieve, then compacted to 90% of Standard Proctor maximum dry density (ASTM D-698).

3. Frequency - Depth measurements and density tests shall be conducted at the frequency of four per acre.

B. GEOMEMBRANE LINER

The final cover shall include a textured 40-mil (average) geomembrane liner. The geomembrane liner shall be monitored and tested in accordance with the requirements of the *Quality Assurance Guidance Document for the Installation of Lining Systems* (WMI, August 1997) and the following revisions shall be made to Section 9.0B of the *Quality Assurance Guidance Document for the Installation of Lining Systems* with regard to the geomembrane liner.

9.2B-3.f. Add Puncture Resistance (ASTM D4833)

9.2B-3. Replace "30,000 lb except Multi-Axial Tensile Elongation which will be tested every 75,000 lbs." with "100,000 ft^2 of geomembrane sheet except Multi-Axial Tensile Elongation which will be tested every 250,000 ft^2. Further, thickness (ASTM D5199/ASTM D5944) will be performed for every roll."

9.2B-3 Add the following: "Written certification from the manufacturer that the geomembrane product to be delivered has been extruded from an approved resin will be required. The certification shall include the origin (resin supplier's name and resin production plant), identification (brand name and number), resin production date, and quality control certificates issued by the resin supplier."

9.2B-4 Add the following: "6. Batch number" and "7. Date of manufacture" to the manufacturer's roll identification information.

9.2B Add the following: "Conformance testing of geomembrane will be conducted by an independent laboratory selected by the CQA Engineer. The laboratory will be accredited by the Geosynthetics Accreditation Institute (GAI) for the specific tests to be performed. The results of the conformance testing shall be reviewed by the Geosynthetic QAE and compared to the Project Specifications. Any nonconformance will be the basis of rejection of the material by the Geosynthetic QAE."

9.6.2B-2.e. Replace "the maximum permissible pressure differential as outlined in the project specifications" with "3 psi."

C. SAND LAYER

After the geomembrane liner has been installed, it shall be covered with a sand layer. The sand layer shall be a minimum of 12" in thickness.

1. Location - Material shall be pre-qualified by hydraulic conductivity and particle size testing at the borrow location.

Truck tickets shall be utilized for chain of custody to site.

2. Standard - Sand shall be reasonably free of brush, weeds, and other litter; and relatively free of roots, stumps, stones and any other extraneous or toxic matter. The Soils Quality Control Monitor shall visually inspect the sand during placement.

Hydraulic Conductivity shall be greater than or equal to 1×10^{-3} cm/sec at a density of 96 percent Modified Proctor maximum dry density (ASTM D1557). Hydraulic Conductivity testing by Constant Head Method (ASTM D2434).

Thickness shall be no less than 12 inches at each location.

3. Frequency - Hydraulic Conductivity testing shall be on-going as necessary to support fill borrow operations with minimum of one test per 500 cubic yards.

Prior to placement, the sand shall be tested for particle size. The test shall be taken at least once per 5,000 cubic yards and for each change in material source.

Depth measurements and density tests shall be conducted at the frequency of four per acre.

D. TOP SOIL LAYER

After the sand layer has been installed, it shall be covered with top soil. The top soil layer shall be a minimum of 12" in thickness.

1. Location - The top soil layer shall be tested in place. The location of testing shall be determined by the Soils Quality Control Monitor.

2. Standard - Top soil shall be reasonably free of brush, weeds, and other litter; and relatively free of roots, stumps, stones and any other extraneous or toxic matter harmful to plant growth. Roots with a diameter greater than _" shall be hand picked and removed.

The top soil layer shall be at least 24" thick.

3. Frequency - Depth measurements shall be taken at the frequency of four per acre. The soil shall be monitored on a continuous basis for extraneous matter.

E. UNDERDRAIN FILTER SAND

The underdrains shall be surrounded by filter sand.

1 Location - The material shall be pre-qualified prior to installation.

If the testing is done at the borrow source, a chain of custody shall be provided.

2. Standard - Clean, uniformly graded sand with a uniformity coefficient of 1.5 or greater and an effective grain size of 0.2 mm to 0.5 mm. Grain size distribution shall be conducted as part of pre-qualification.

The sand shall have a hydraulic conductivity no less than 1.0 x 10^{-3} cm/sec at a density of 100 percent Modified Proctor. The hydraulic conductivity testing shall be by Constant Head method (ASTM D2434).

3. Frequency - The hydraulic conductivity of the sand shall be tested once per 500 cubic yard of sand material.

F. Gas Management System (Gas Wells and Headers)

Gas wells (temporary and permanent) shall be installed in accordance with the Construction Drawings. The QA/QC for gas well materials shall be as follows:

1. Gravel for Gas Wells

a. Location - The gravel shall be pre-qualified by certification by the supplier.

b. Standard - The gravel shall be clean gravel with no fines. The gravel shall be FDOT No. 3 Course Aggregate (ASTM D 448).

The gravel shall be non-calcareous (ASTM D 4373).

c. Frequency - The gravel shall be certified by the supplier. The gravel shall be tested once per 100 C.Y.

2. Bentonite for Gas Wells

a. Location - The material shall be pre-qualified with documentation from the supplier.

b. Standard - The material shall have a hydraulic conductivity no greater than 1.0 x 10^{-8} cm/sec (ASTM D 5084).

c. Frequency - The material shall be certified by the supplier, one time only.

3. Permanent Header Pipe

The permanent header pipe shall be placed in the areas of final cover and shall be placed on the geomembrane layer, as shown on the Construction Drawings. The header pipe shall not be placed until the geomembrane has been tested and approved. The placement of the header pipe over the geomembrane layer and covering of the header pipe shall be conducted in the presence of either the Soils Quality Control Monitor or the General Quality Control Monitor.

Appendix M

DEP004748

APPENDIX M

QUALITY ASSURANCE/QUALITY CONTROL PLAN FOR LONG TERM CARE

TRAIL RIDGE LANDFILL
LONG TERM CARE
QUALITY ASSURANCE/QUALITY CONTROL PLAN

This plan addresses the quality assurance and quality control (QA/QC) for the monitoring and repair of the final cover on the landfill after closure. This plan delineates the procedures and standards for the monitoring and repairs.

The City of Jacksonville is the owner of Trial Ridge Landfill and Trail Ridge Landfill, Inc. is the operator/permittee of the landfill. If erosion affects the integrity of the compacted clay layer (barrier soil layer), an independent third party soils consultant shall be obtained for the QA/QC for the compacted soil layer repair. If erosion does not appear to have affected the compacted soil layer, the operator's personnel shall provide the QA/QC for the repair.

A. Final Cover Monitoring

After every major storm event or at least on a quarterly basis, Trial Ridge Landfill, Inc. shall inspect the incremental closure areas and prepare an inspection report. The report shall include the status of the following: the final cover, terraces, downcomer pipes, perimeter ditches, and the grass cover.

Any noticeable erosion of 6" or greater shall be documented. The documentation shall include; the location of the erosion on a drawing, the approximate size (length and width), the depth (in inches), and the thickness of the compacted clay layer (if the erosion is greater than 18").

If the depth of erosion is determined to be 18" or greater, the thickness of the compacted clay layer shall be checked. The compacted clay layer was designed with a 12" thickness (minimum) and therefore, the thickness must be 12" or greater.

B. Final Cover Repairing

After an inspection, any erosion of 6" or greater shall be repaired promptly. If the compacted clay layer thickness was determined to be less than 12", the compacted clay layer will also be repaired. The repair of erosion that is 6"or greater in depth shall include replacement of soil and sod. The operator's personnel shall monitor the repair. The soil used for repairs shall be topsoil, which is reasonably free of brush, weeds, roots, stumps, stone and any other extraneous or toxic matter.

The repair of erosion that is determined to penetrate the compacted clay layer (i.e. the compacted clay layer thickness is less than 12 inches), shall be monitored/tested by a qualified soils technician (the "Monitor") under the direction of a Professional Engineer. The monitor shall be experienced in civil site construction and soil testing standards and procedures. Following the repairs, a QA report including test results and daily logs shall be prepared by the Professional Engineer.

The compacted clay layer replacement shall be tested by the Monitor, in-place at a frequency of once per erosion area or once per 20,000 square feet which ever is more often. The testing shall include:

1. Hydraulic Conductivity by falling head permeameter (ASTM D-5084);

2. Field density by Standard Proctor (ASTM D-698); and

3. Thickness.

The standards for the in-place compacted soil material are as follows:

1. Hydraulic Conductivity - The compacted clay layer shall have a maximum hydraulic conductivity of 6.67×10^{-8} cm/sec.

2. Density - The compacted soil layer shall be compacted to 80 percent of Standard Proctor density.

3. Thickness - The compacted soil layer shall have a minimum thickness of 12 inches. The vegetative cover over the compacted soil layer shall have a minimum thickness of 24 inches.

The Monitor shall be on-site to observe the repairing operation, take samples/tests, and prepare a daily log. After all repairs are completed, a report shall be prepared which documents the repair(s) and the area shall be sodded.

C. Gas Management System

The landfill has an active gas management system, which includes gas wells, and gas header pipes. If the system requires replacement or maintenance, the work shall be conducted in accordance with the following.

1. Gas Wells – If a gas well must be replace or abandoned for any reason, the existing well shall be pressure grouted and capped. Any new well shall include clean gravel with no fines that meet the FDOT No. 3 Course Aggregate (ASTM D 448), which shall be certified by the supplier, prior to placement. Finally, the annular space around any new well adjacent to the in-place final cover shall be filled with bentonite powder to a minimum thickness of 12 inches with a hydraulic conductivity no greater than 1.0×10^{-9} cm/sec (ASTM D 5084), which shall be certified by the supplier, prior to placement.

2. Gas Header Pipe – If a gas header pipe requires maintenance or repair and the barrier soil layer has been compromised, the barrier soil shall be repaired as described in Section B above. If the maintenance or repair does not compromise

the barrier soil layer, the operator shall ensure that cover with a minimum thickness of 18 inches is placed over the pipe and the vegetation is restored.

D. Recordkeeping

The operator shall compile monthly monitoring reports and any QA reports into an annual summary and shall submit the annual summary to the Department.

Appendix N

DEP004753

Florida Department of Environmental Protection

Twin Towers Office Bldg., 2600 Blair Stone Road, Tallahassee, FL 32399-2400

DEP Form # 62-701.900(28)
Form Title: Financial Assurance Cost Estimate Form
Effective Date:
DEP Application No.
(Filled by DEP)

FINANCIAL ASSURANCE COST ESTIMATE FORM

Date: March 16, 2009 Date of DEP Approval: _____

I. GENERAL INFORMATION:

Facility Name: Trail Ridge Class I Landfill
WACS or GMSID #: NED / 16 / 00033628
Permit Application No.: 0013493-017 (Renewal of SC16-184444)
Expiration Date: TBD
Facility Address: 5110 U.S. Highway 301, Baldwin, Florida 32234
Permittee: Trail Ridge Landfill, Inc.
Mailing Address: Same as facility address

Latitude: 30°13'27"N Longitude: 82°02'40"W or UTM: _____

Solid Waste Disposal Units Included in Estimate:

Phase/Cell	Acres	Date Unit Began Accepting Waste	Design Life of Unit From Date of Initial Receipt of Waste
I - V	144	18-May-92	20 +/- Years

Total Landfill Acreage included in this estimate: 119 Closure 144 Long Term Care

The entire landfill less closed areas (25 Ac +/-), after Fill Phase 10 (the estimated worse case).
(71.3 acres of top area and 47.7 acres of side slope)

Type of Landfill X Class I _____ Class III _____ C&D Debris

II. TYPE OF FINANCIAL ASSURANCE DOCUMENT (Check Type)

_____	Letter of Credit*	_____	Insurance Certificate
_____	Performance Bond*	X	Escrow Account
_____	Guaranty Bond*	_____	Trust Fund Agreement

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

40 CFR Part 264 H as adopted by reference in Rule 62-701.603, Florida Administrative Code sets forth the method of annual Cost estimates may be adjusted using an inflation factor or be recalculating the maximum cost of closure in current dollars. Select one of the methods of cost estimate adjustment below.

☐ **(a) Inflation Factor Adjustment**

Inflation adjustments 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 Deflator by the Deflator for the previous year. The inflation factor may also be obtained from the Solid Waste Financial Coordinator at (850) 488-0300.

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

Latest Department Approved		Current Year		Inflation Adjusted
_____	X	_____	=	_____

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		Inflation Adjusted Annual Long-Term Care Cost Estimate
_____	X	_____	=	_____

Number of Years of Long-Term Care Remaining: **X** _____

Inflation Adjusted Long-Term Care Cost Estimate: = _____

☒ **(b) Recalculate Estimates (see section V)**

IV. CERTIFICATION BY ENGINEER

This is to certify that the Financial Assurance 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 long-term care of the facility and comply with the requirements of Florida Administrative Code (F.A.C.), Rule 62-701.630 and all other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Financial Assurance Cost Estimates shall be submitted to the Department **annually**, revised or adjusted as required by Rule 62-701.630(4), F.A.C.

Signature of Engineer	Signature of ~~Owner~~/Operator
Juanitta Bader Clem, P.E.	R. D. McConnell, Area Vice President
Name & Title (please type)	Name & Title (please type)
43245	(904) 289-9100
Florida Registration Number (affix seal)	Telephone Number
14775 Old St. Augustine Road, Jax. FL 32258	dmcconnell@wm.com
Mailing Address	~~Owner~~/Operator E-Mail Address
(904) 265-3181	clemj@etminc.com
Telephone Number	Engineer's E-Mail Address

V. RECALCULATE ESTIMATED CLOSING COSTS

For the time period in the landfill operation when the extent and manner of its operation makes closing most expensive.

**** Third Party Estimate/Quote must be provided for each item**
**** Costs must be for a third party providing all materials and labor**

DESCRIPTION	UNIT		QUANTITY	UNIT COST		TOTAL
1. Proposed Monitoring Wells			(Do not include wells already in existence)			
The monitoring wells have been installed as part of operation.	EA					$0.00
2. Slope and Fill (bedding layer between waste and barrier layer):						
Excavation	CY	NA	0	$0.00		$0.00
Placement and Spreading	SY		575,960	$1.65	(a)	$950,334.00
Compaction Included with Placement and Spreading	CY		0	$0.00		$0.00
Off-Site Material Included as part of operation	CY		0	$0.00		$0.00
Delivery Included as part of Placement and Spreading	CY		0	$0.00		$0.00
			Subtotal Monitoring Wells:			$950,334.00
3. Cover Material (Barrier Layer):						
Off-Site Clay	CY		76,956	$32.59	(b)	$2,507,996.04
Synthetics - 40 mil	SY		345,092	$5.737	(b)	$1,979,792.80
Synthetics - GCL	SY	NA	0	$0.00		$0.00
Synthetics - Geonet	SY	NA	0	$0.00		$0.00
Synthetics - Other	SY	NA	0	$0.00		$0.00
			Subtotal Barrier Layer Cover:			$4,487,788.84
4. Top Soil:						
Off-Site Material (sand)	CY		115,031	$18.21	(b)	$2,094,714.51
Off-Site Material (top soil)	CY		268,943	$22.85	(b)	$6,145,347.55
Delivery Included with material	CY		0	$0.00		$0.00
Spread Included with material	CY		0	$0.00		$0.00
			Subtotal Top Soil Cover:			$8,240,062.06

(a) This estimate is based upon the average of the Budget Unit pricing as provided by J.B. Coxwell Contracting, Inc., R.B. Baker Construction, Inc., and Comanco Environmental Corporation. The price has been reduced by half for J.B. Coxwell Contracting, Inc. and R.B. Baker Construction, Inc., since the contractor would not supply the soil material.

(b) This estimate is based upon the average of the Budget Unit pricing as provided by J.B. Coxwell Contracting, Inc., R.B. Baker Construction, Inc., and Comanco Environmental Corporation.

DESCRIPTION	UNIT		QUANTITY	UNIT COST		TOTAL
5. Vegetative Layer:						
Sodding	SY		575,960	$2.72	(a)	$1,566,611.20
Hydroseeding Included with sodding	AC		0	$0.00		$0.00
Fertilizer Included with sodding	AC		0	$0.00		$0.00
Mulch	AC	N/A	0	$0.00		$0.00
Other	SY	N/A	0	$0.00		$0.00
			Subtotal Vegetative Layer:			$1,566,611.20
6. Stormwater Control System:						
Earthwork	CY		8,415	$15.800	(a)	$132,957.00
Grading Included with Earthwork	SY		0	$0.00		$0.00
Piping	LF		4,240	$234.485	(a)	$994,216.40
Ditches	LF	N/A	0	$0.00		$0.00
Berms	LF	N/A	0	$0.00		$0.00
Control Structures	EA	N/A	0	$0.00		$0.00
Other Terrace Drains	EA		56	$5,020.60	(a) (b)	$281,153.60
Underdrain	LF		41,861	$29.26	(a)	$1,224,852.86
			Subtotal Stormwater Controls:			$2,633,179.86
7. Gas Controls: Passive						
Wells	EA	N/A	0	$0.00		$0.00
Pipe and Fittings	LF	N/A	0	$0.00		$0.00
Monitoring Probes The gas monitoring probes have been installed.	EA		0	$0.00		$0.00
NSPS/Title V requirements	LS		0	$0.00		$0.00
			Subtotal Passive Gas Controls:			$0.00

(a) This estimate is based upon the average of the Budget Unit pricing as provided by J.B. Coxwell Contracting, Inc., R.B. Baker Construction, Inc., and Comanco Environmental Corporation.

(b) Based upon 66 feet of 18" HDPE pipe at $64.123 per LF and 32 feet of 6" HDPE pipe at $24.64 per LF or $5,020.60 per terrace drain.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
8. Gas Control: Active Extraction				
Traps	EA	5	$13,466.67	$67,333.35
Sump Installed during operation	EA	0	$0.00	$0.00
Flare Assembly	EA	1	$200,000.00	$200,000.00
Flame Arrestor Installed during operation	EA	0	$0.00	$0.00
Mist Eliminator Installed during operation	EA	0	$0.00	$0.00
Flow Meter Installed during operation	EA	0	$0.00	$0.00
Blowers Included with the Flare Assembly	EA	0	$0.00	$0.00
Collection System				
6" Pipes and Fittings	LF	7,000	$32.58	$228,060.00
8" Pipes and Fittings	LF	1,300	$36.17	$47,021.00
10" Pipes and Fittings	LF	4,700	$42.00	$197,400.00
Other (describe)				
12" Control Valves	EA	5	$3,095.00	$15,475.00
Wells (44 wells @ 140 FT.)	FT	6,160	$94.83	$584,152.80
Well Head Assembly	EA	44	$433.33	$19,066.52
		Subtotal Active Gas Extraction:		$1,358,508.67
9. Security System:	The security system was installed as part of the operation.			
Fencing	LF	0	$0.00	$0.00
Gate(s)	EA	0	$0.00	$0.00
Sign(s)	EA	0	$0.00	$0.00
Ditches	LF	0	$0.00	$0.00
		Subtotal Security System:		$0.00
10. Engineering:				
Closure Plan Report Including Closure Permit	LS	1	$84,000.00	$84,000.00
Certified Engineer Included in Certification of Closure	LS	0	$0.00	$0.00
NSPS/Title V Air Permit A Title V Air Permit has been issued	LS	0	$0.00	$0.00
Final Survey	LS	1	$72,000.00	$72,000.00
Certification of Closure	LS	1	$24,000.00	$24,000.00
Other (Detail)				
	LS	0	$0	$0.00
Construction Drawings	LS	1	$300,000	$300,000.00
		Subtotal Engineering:		$480,000.00

11. Professional Services

	Contract Management			Quality Assurance			
	Rate/Hr	Hours	LS	Rate/Hr	Hours	LS	Total
P.E. Supervisor	$150	104	$15,600	$126.00	100	$12,600	$28,200
On-Site Engineer	$0	0	$0	$78.00	1200	$93,600	$93,600
Office Engineer	$120	208	$24,960	$108.00	400	$43,200	$68,160
On-Site Technician	$90	1300	$117,000	$48.00	4800	$230,400	$347,400
Other (Explain)							
Clerical			$7,000				$7,000
Expenses			$12,000				$12,000

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
Quality Assurance Testing	LS	1	$78,000.00	$78,000.00
		Subtotal Professional Services		$634,360.00
		Subtotal of 1-11 Above:		$20,350,844.63
12. Contingency	15 % of Total			$3,052,626.70
		Closing Cost Subtotal:		$23,403,471.33

13. Site Specific Costs (explain)

Mobilization/Demobilization (5.0% of Construction Cost)		$961,824.23
Waste Tire Facility (100 tons at $85.84 per ton)	(a)	$8,584.00
Materials Recovery Facility	N/A	$0.00
Special Wastes		$60,000.00
Leachate Management System Modification	N/A	$0.00
Other - Bonds (1.0% of Construction Costs)		$192,364.85
Erosion Control (during construction)		$300,000.00
	Subtotal Site Specific Costs:	$1,522,773.08
	TOTAL CLOSING COSTS:	$24,926,244.41

a. Based upon an average disposal fee of $63.34/ton (based upon $70/ton per Wheelabrator Ridge Energy, Inc., Auburdale, Fl (863-665-2255), $55/ton per Global Tire Recycling, Inc., 1201 Instrustrial Dr., Wildwood, Fl (352-330-2213), and $65/ton per RMD Americas USA, LLC, 270 Barnes Road, Rockledge, Fl (321-636-3532)) plus transportation at $22.50/ton .

VI. ANNUAL COST FOR LONG-TERM CARE

(Check Term Length)

_____ 5 Years _____ 20 Years __X__ 30 Years _____ Other

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.

** Third Party Estimate/Quote must be provided for each item
** Costs must be for a third party providing all material and labor

All items must be addressed. Attach a detailed explanation for all items marked not applicable (N/A)

Description	Sampling Frequency (Events/yr.)	Number of Wells	$/Well/Event		$/Year
1. Groundwater Monitoring (62-701.510(6), and (8)(a))					
Monthly	12	0	$0.00		$0.00
Quarterly	4	0	$0.00		$0.00
Semi-Annual	2	37	$216.00	(a)	$15,984.00
Annual		0	$0.00		$0.00
Other					
Sampling	2	1	$6,126.00	(b)	$12,252.00
Biennial Report	0.5	1	$5,200.00	(c)	$2,600.00
Semi-Annual Report	2	1	$2,500.00	(c)	$5,000.00
Permit Renewal	0.20	37	$615.00	(a)	$4,551.00
		Subtotal Groundwater Monitoring:			$40,387.00
2. Surface Water Monitoring (62-701.510(4), and (8)(b))					
Monthly	12	0	$0.00		$0.00
Quarterly	4	0	$0.00		$0.00
Semi-Annual*	2	2	$380.00	(a)	$1,520.00
* Sampling and reporting are included with the groundwater monitoring.					
Annual	1	0	$0.00		$0.00
		Subtotal Surface Water Monitoring:			$1,520.00
3. Gas Monitoring					
Monthly	12	0	$0.00		$0.00
Quarterly	4	10	$50.00		$2,000.00
Semi-Annual	2	0	$0.00		$0.00
Annual	1	0	$0.00		$0.00
Semi-Annual Report	2	1	$780.00		$1,560.00
		Subtotal Gas Monitoring:			$3,560.00

(a) Includes laboratory analysis only.
(b) Includes all sampling (ground water, surface water and leachate).
(c) Includes all reporting (groundwater, surface water and leachate).

Description	Sampling Frequency (Events/yr.)	Number of Locations	$/Location/Event		$/Year
4. Leachate Monitoring (62-701.510(5), (6)(b) and 62-701.510(8))					
Monthly	12	0	$0.00		$0.00
Quarterly	4	0	$0.00		$0.00
Semi-Annual*	2	2	$607.00	(a)	$2,428.00
Annual	1	0	$0.00		$0.00
Composite*	2	1	$525.00	(a)	$1,050.00
		Subtotal Leachate Monitoring:			$3,478.00

DESCRIPTION	UNIT	QUANTITY		UNIT COST		ANNUAL COST
5. Leachate Collection/Treatment Systems Maintenance						
Maintenance						
Collection Pipes	LF	0		$0.00		$0.00
Sumps, Traps	EA	0		$0.00		$0.00
Lift Stations	EA	1		$36,000.00		$36,000.00
Cleaning	LS	0		$0.00		$0.00
Tanks	EA	0		$0.00		$0.00
Impoundments						
Liner Repair	SY	0		$0.00		$0.00
Sludge Removal	CY	0		$0.00		$0.00
Aeration System						
Floating Aerators	EA	0		$0.00		$0.00
Spray Aerators	EA	0		$0.00		$0.00
Disposal						
Off-Site (Includes Transportation and Disposal)	1000 gallons	5,072.04	(c)	$47.22	(b)	$239,501.73
		Subtotal Leachate Collection Maintenance				$275,501.73

(a) Includes laboratory analysis only. Sampling and reporting are included with the groundwater monitoring.
(b) Based upon current transportation cost of $260 per 6000 gallon load and a disposal cost of $3.88 per 1000 gallons.
(c) Based upon the average leachate generation rate of 13,896 gallons per day.

6. Leachate Collection/Treatment Systems Operations

Operation		Hours	$/Hour	Total
P.E. Supervisor	HR	52	$150.00	$7,800.00
On-Site Engineer	HR	0	$0.00	$0.00
Office Engineer	HR	0	$0.00	$0.00
On-Site Technician	HR	208	$90.00	$18,720.00
Materials	LS	0	$0.00	$0.00
Subtotal Leachate Collection/Treatment System Maintenance & Operation:				$26,520.00

7. Maintenance of Groundwater Monitoring Wells Assume replacement of one well per year.

Monitoring Wells	EA	1	$7,800.00	$7,800.00
Replacement	EA	0	$0.00	$0.00
Abandonment	EA	0	$0.00	$0.00
Subtotal Groundwater Monitoring Well Maintenance:				$7,800.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
8. Gas System Maintenance	Assume $30,000 per year for all maintenance.			
Piping, Vents	LF	0	$0.00	$0.00
Blowers	EA	0	$0.00	$0.00
Flaring Units	EA	0	$0.00	$0.00
Meters, Valves	EA	0	$0.00	$0.00
Compressors	EA	0	$0.00	$0.00
Flame Arrestors	EA	0	$0.00	$0.00
Operation	LS	0	$0.00	$0.00
			Subtotal Gas System:	$30,000.00
9. Landscape				
Mowing	AC	155	$330.96 (a)	$51,298.80
Fertilizing	AC	155	$300.00	$46,500.00
		Subtotal Landscape Maintenance		$97,798.80

(a) Based upon the current fee of $8,550 per event or $55.16 per acre and 6 events per year.

DESCRIPTION	UNIT	QUANTITY		UNIT COST		ANNUAL COST
10. Erosion Control & Cover Maintenance						
Sodding	SY	15,004	*	$2.72	(a)	$40,810.88
Regrading Included with Seeding, Soil	SY	15,004	*	$1.65	(a)	$24,756.60
Liner Repair Included with Seeding, Soil	SY	7,502	**	$5.737	(a)	$43,038.97
Clay	CY	2,501	**	$32.59	(a)	$81,507.59
		Subtotal Erosion Control and Cover Maintenance:				$190,114.04

* 2% of the 155 acre landfill
** 1% of the 155 acre landfill

11. Storm Water Management System Maintenance						
Conveyance Maintenance	LS	1		$6,000.00	(b)	$6,000.00
Ditch Cleaning	LF	10,400		$2.00		$20,800.00
		Subtotal Storm Water System Maintenance:				$26,800.00
12. Security System Maintenance		Assume $10,000 per year for all maintenance.				
Fences	LF					
Gate(s)	EA					
Sign(s)	EA					
				Subtotal Security System:		$10,000.00
13. Utilities Include Leachate Pumps, Blowers, Lighting, etc.	LS	1		$50,000.00	(c)	$50,000.00
14. Administrative						
P.E. Supervisor	HR	416		$150.00	(d)	$62,400.00
On-Site Engineer	HR	0		$0.00		$0.00
Office Engineer	HR	0		$0.00		$0.00
On-Site Technician	HR	3,120		$90.00	(e)	$280,800.00
Other (Explain)		0		$0.00		$0.00
				Subtotal Administrative:		$343,200.00
15. Contingency	% of Total	N/A	0%	$1,106,679.57		$0.00
				Subtotal Contingency:		$0.00

(a) See Unit Costs in Closure Estimates above.
(b) Assuming 1% of the Stormwater Control System as estimated above.
(c) Based on average monthly utility cost of $5,000.

16. Site Specific Costs (explain)

	Unit Costs	
	LS	
	LS	
	LS	
	Subtotal Administrative:	$0.00

ANNUAL LONG-TERM CARE COST ($/Year)	$1,106,679.57
NUMBER OF YEARS OF LONG-TERM CARE	30
TOTAL LONG-TERM CARE COST ($)	$33,200,387.18

Trail Ridge Closure Budget Dec. 2008

J. B. Coxwell Contracting, Inc.

SP122

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
10	12" Intermediate Cover	1.00	SY	3.50	3.50
20	12" Compacted Clay (6.67x10-8)	1.00	CY	33.17	33.17
30	40 mil Textured HDPE Geomembrane Liner	1.00	SY	7.56	7.56
40	12" Sand layer (1x10-3)	1.00	CY	17.94	17.94
50	Vegetative Cover	1.00	CY	22.56	22.56
60	Sod (incl overseeding)	1.00	SY	3.16	3.16
70	General Earthwork	1.00	CY	16.09	16.09
80	30" HDPE Downcomer Pipe	1.00	LF	206.97	206.97
90	24" HDPE Downcomer Pipe	1.00	LF	110.65	110.65
100	18" HDPE Downcomer Pipe	1.00	LF	69.37	69.37
110	6" HDPE Downcomer Pipe	1.00	LF	31.92	31.92
120	6" HDPE Underdrain Pipe	1.00	LF	21.78	21.78
GRAND TOTAL					**$544.67**

R.B. BAKER
CONSTRUCTION INC.

December 17, 2008

Juanitta Clem
England, Thims, & Miller
14775 Old St. Augustine Road
Jacksonville, FL 32258

Re: **Trail Ridge Landfill Budget Unit Pricing**

Juanitta;

Thanks you for allowing R. B. Baker construction, Inc. the opportunity to provide assistance on this project. We have put together some budgetary unit prices based on some of our recent landfill bids in the Southeast.

1. 12" Intermediate Cover (clean cover material for clay liner subgrade) - $5.40/SY including material costs (including delivery to the site), placement, and compaction.

2. 12" Compacted Clay (K < 6.67 x 10-8 cm/sec) - $24.60/CY including material costs (including delivery to the site), placement in 6" lifts, and compaction.

3. 40 mil textured HDPE Geomembrane Liner - $6.15/SY including material costs (including delivery to the site) and placement.

4. 12" Sand Layer (K > 1.0 x 10-3 cm/sec) - $16.70/CY including material costs (including delivery to the site) and placement on the textured HDPE liner.

5. Vegetative Cover (top soil material that is free from brush, weeds, etc. - $21.00/CY including material costs (including delivery to the site) and placement.

6. Sod - $3.00/SY including material costs (including delivery to the site) and placement.

Stormwater Controls:

1. General Earthwork/Fill - $16.30/CY including material costs (including delivery to the site), placement, and compaction. Mass excavation on-site - $4.00/CY.

Home Office
100 Morgan Industrial Blvd., Garden City, GA 31408
912.964.6513 Fax 912.964.6531

Florida Group
125 International Golf Parkway, St. Augustine, FL 32095
904.824.9901 Fax 904.824.9601

www.rbbaker.com

2. 30" HDPE Downcomer Pipe - $262.00/LF including material costs (including delivery to the site), placement, and fittings.

3. 24" HDPE Pipe - $166.00/LF including material costs (including delivery to the site), placement, and fittings.

4. 18" HDPE Pipe - $93.00/LF including material costs (including delivery to the site), placement, and fittings.

5. 6" HDPE Pipe - $22.00/LF including material costs (including delivery to the site), placement, and fittings.

6. 6" HDPE Underdrain Pipe - $36.00/LF including material costs (including delivery to the site), placement, fittings and sand envelope.

I hope this information is of use to you. Please feel free to call if you have any questions.

Sincerely,
R.B. BAKER CONSTRUCTION, INC.

Brandon Forrest
Vice President – North Florida Group

WASTE MANAGEMENT

LANDFILL CONSTRUCTION COST BID TABULATION

Project Name: LFGES Expansion - November - 2008
Project Site: Trail Ridge Landfill

Item Description	Qty	Unit	SCS Unit Cost	SCS Total Cost	B&M Unit Cost	B&M Total Cost	TRICON Unit Cost	TRICON Total Cost	Average Unit Cost
Initial Mobilization / Demobilization	1	L.S.	$42,000.00	$42,000.00	$44,750.00	$44,750.00	$55,000.00	$55,000.00	$47,250.00
Subsequent Mobilizations / Demobilizations	2	Ea.	$7,500.00	$15,000.00	$14,750.00	$29,500.00	$15,000.00	$30,000.00	$12,416.67
Condensate Knockout at Flare Station	1	L.S.	$42,000.00	$42,000.00	$37,750.00	$37,750.00	$44,500.00	$44,500.00	$41,416.67
Extraction Well Installation	1,250	VF	$95.00	$118,750.00	$94.50	$118,125.00	$95.00	$118,750.00	$94.83
New Extraction Wellhead Installation	13	Ea.	$400.00	$5,200.00	$375.00	$4,875.00	$525.00	$6,825.00	$433.33
Existing Extraction Wellhead re-installation	65	Ea.	$285.00	$18,525.00	$50.00	$3,250.00	$410.00	$26,650.00	$248.33
4" Gas Collection Pipe	1,890	LF	$26.00	$49,140.00	$28.00	$52,920.00	$32.50	$61,425.00	$28.83
6" Gas Collection Pipe	2,320	LF	$28.00	$64,960.00	$34.50	$80,040.00	$35.25	$81,780.00	$32.58
8" Gas Collection Pipe	11,550	LF	$32.00	$369,600.00	$37.00	$427,350.00	$39.50	$456,225.00	$36.17
10" Gas Collection Pipe	0	LF	$36.00	$0.00	$0.00	$0.00	$42.00	$0.00	$26.00
12" Gas Collection Pipe	2,395	LF	$46.00	$110,170.00	$48.75	$116,756.25	$48.00	$114,960.00	$47.58
18" Gas Collection Pipe	2,540	LF	$71.00	$180,340.00	$69.00	$175,260.00	$72.00	$182,880.00	$70.67
Adder for Trench Excavation and Backfill - 6 to 8 ft.	2,890	LF	$9.00	$26,010.00	$12.00	$34,680.00	$8.00	$23,120.00	$9.67
Adder for Trench Excavation and Backfill - 9 to 12 ft.	2,310	LF	$15.00	$34,650.00	$37.50	$86,625.00	$17.00	$39,270.00	$23.17
Adder for Trench Excavation and Backfill - 13 to 16 ft.	1,160	LF	$20.00	$23,200.00	$50.00	$58,000.00	$28.00	$32,480.00	$32.67
Road Crossing	9	Ea.	$1,800.00	$16,200.00	$1,995.00	$17,955.00	$2,825.00	$25,425.00	$2,206.67
Final Cover Trench Backfill	775	LF	$45.00	$34,875.00	$55.50	$43,012.50	$61.25	$47,468.75	$53.92
2" Airlines	16,255	LF	$2.00	$32,510.00	$3.50	$56,892.50	$4.00	$65,020.00	$3.17
2" Forcemain	16,255	LF	$2.00	$32,510.00	$3.50	$56,892.50	$4.00	$65,020.00	$3.17
2" Flanged Risers	20	Ea.	$150.00	$3,000.00	$85.00	$1,700.00	$230.00	$4,600.00	$155.00
6"/8" Tie-ins with Flanges to Existing 6"/8" Header Piping	5	Ea.	$350.00	$1,750.00	$1,750.00	$8,750.00	$2,450.00	$12,250.00	$1,516.67
6"/8" Tie-ins with Flanges to Existing 6"/8" Header Flanges	3	Ea.	$1,800.00	$5,400.00	$1,750.00	$5,250.00	$2,450.00	$7,350.00	$2,000.00
18" Tie-ins with Flanges to Existing 18" Header Flanges	1	Ea.	$2,500.00	$2,500.00	$2,275.00	$2,275.00	$5,600.00	$5,600.00	$3,458.33
6" Tie-ins to Existing 6" Header Valves	0	Ea.	$800.00	$0.00	$1,750.00	$0.00	$1,950.00	$0.00	$1,500.00
8" Tie-ins to Existing 6" Header Valves	8	Ea.	$850.00	$6,800.00	$1,750.00	$14,000.00	$2,300.00	$18,400.00	$1,633.33
12" Tie-ins to Existing 10" Header Valves	1	Ea.	$1,200.00	$1,200.00	$2,225.00	$2,225.00	$3,150.00	$3,150.00	$2,191.67
12" Cut-in Tees	1	Ea.	$700.00	$700.00	$2,225.00	$2,225.00	$3,400.00	$3,400.00	$2,108.33
Flanges (8"-12")	13	Ea.	$450.00	$5,850.00	$325.00	$4,225.00	$1,850.00	$24,050.00	$875.00
Flanges (18")	0	Ea.	$900.00	$0.00	$350.00	$0.00	$4,200.00	$0.00	$1,816.67
Valve Relocations 4"-10"	1	Ea.	$3,000.00	$3,000.00	$4,500.00	$4,500.00	$2,600.00	$2,600.00	$3,366.67
8" Isolation Valve	1	Ea.	$2,000.00	$2,000.00	$1,825.00	$1,825.00	$2,550.00	$2,550.00	$2,125.00
10" Isolation Valve	0	Ea.	$2,500.00	$0.00	$0.00	$0.00	$2,750.00	$0.00	$1,750.00
12" Isolation Valve	1	Ea.	$3,500.00	$3,500.00	$2,585.00	$2,585.00	$3,200.00	$3,200.00	$3,095.00
18" Isolation Valve	1	Ea.	$12,000.00	$12,000.00	$11,350.00	$11,350.00	$14,500.00	$14,500.00	$12,616.67
20" Spacer for Isolation Valve	1	Ea.	$3,000.00	$3,000.00	$2,250.00	$2,250.00	$1,450.00	$1,450.00	$2,233.33
18" Condensate Drop	2	Ea.	$18,000.00	$36,000.00	$11,175.00	$22,350.00	$15,500.00	$31,000.00	$14,891.67
Gravel Sump Condensate Drop	3	Ea.	$15,000.00	$45,000.00	$12,500.00	$37,500.00	$12,900.00	$38,700.00	$13,466.67
Performance & Payment Bond	1	LS	$18,589.00	$18,589.00	$35,000.00	$35,000.00	$64,000.00	$64,000.00	$39,196.33
TOTAL				$1,365,929.00		$1,602,643.75		$1,713,598.75	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Invoice/Credit No.	66051397	Invoice Date	February 27, 2008
Terms	Net 30 Days		
Remit to	TestAmerica Laboratories, Inc. Box 4305, Philadelphia PA, 19175-4305 Tax ID: 23-2919996		

Bill to:	Ship to:
City of Jacksonville Attn: Accounts Payable 1031 Superior St. Jacksonville, FL 32254	HDR, Inc. 200 W. Forsyth St., Suite 800 Jacksonville, FL 32202

P.O. Number	W.O. Number	Contract Number	Work Ordered by
PO802538:7			Mr. Brad Stone (904) 598-8953
Job Description	**Site Name**	**SDG Number**	**Invoice Contact**
See below	HDR/Trail Ridge Landfill		Ms. Zora Coleman

Job No.	Job Description / Method/Test Description	Receipt Date	Quantity	Unit Price	Amount
J20847-1	**Trail Ridge Landfill**	01/30/2008			
	350.1 - Nitrogen (Ammonia, Colorimetric, Automated Phenate)		24.00	10.00	240.00
	200.7 - Total Recoverable ICP Metals		24.00	48.00	1,152.00
	200.7 Rev 4.4 - Dissolved Dissolved ICP Metals		1.00	48.00	48.00
	245.1 - Dissolved Mercury in Water by CVAA		1.00	12.00	12.00
	245.1 - Mercury in Water by CVAA		24.00	12.00	288.00
	SM 2540C - Total Dissolved Solids (Dried at 180 °C)		24.00	10.00	240.00
	353.2 - Nitrate		24.00	10.00	240.00
	504.1 - EDB, DBCP, and 123TCP in Water by Microextraction and Gas Chromatography		24.00	30.00	720.00
	8260B - Volatile Organic Compounds by GC/MS		24.00	60.00	1,440.00
	SM 4500 Cl- E - Chloride (Colorimetric, Automated Ferricyanide)		24.00	7.00	168.00
	200.8 - Dissolved Dissolved Thallium		1.00	20.00	20.00
	200.8 - Total Recoverable Thallium		24.00	20.00	480.00

2/27/08 - Approved for Payment

$216/well

Project Number	Client Number	Project Manager	Subtotal	$5,048.00
66000337	1350446	Nancy Robertson		
Latest Sample Receipt Date	**Latest Report Date**	**Phone Number**	**Total**	**$5,048.00**
01/30/2008	02/27/2008	(813) 885-7427		

For proper credit, please include invoice number on all remittance.

TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634

Annual Well Analyses

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Invoice/Credit No.	66054556	**Invoice Date**	August 26, 2008
Terms	Net 30 Days		
Remit to	TestAmerica Laboratories, Inc. Dept 2314, P.O. Box 122314, Dallas, TX 75312-2314		

Bill to:	**Ship to:**
City of Jacksonville Attn: Accounts Payable 1031 Superior St. Jacksonville, FL 32254	HDR, Inc. 200 W. Forsyth St., Suite 800 Jacksonville, FL 32202

P.O. Number	**W.O. Number**	**Contract Number**	**Work Ordered by**
PO802538:7			Mr. Brad Stone (904) 598-8953
Job Description	**Site Name**	**SDG Number**	**Invoice Contact**
See below	HDR/Trail Ridge Landfill		Ms. Zora Coleman

Job No.	**Job Description** / **Method/Test Description**	**Receipt Date**	**Quantity**	**Unit Price**	**Amount**
J24424-1	**Trail Ridge Landfill**	**08/02/2008**			
	200.7 - Total Recoverable ICP Metals		9.00	60.00	540.00
	200.7 Rev 4.4 - Dissolved 200.7 Dissolved		1.00	40.00	40.00
	SM 2320B - Bicarbonate		9.00	10.00	90.00
	245.1 - HG		9.00	12.00	108.00
	SM 2540C - Total Dissolved Solids (Dried at 180 °C)		9.00	10.00	90.00
	350.1 - Ammonia		9.00	10.00	90.00
	353.2 - Nitrate		9.00	10.00	90.00
	SM 4500 CN E - Cyanide		9.00	10.00	90.00
	504.1 - EDB, DBCP		9.00	25.00	225.00
	8081A - Organochlorine Pesticides		9.00	80.00	720.00
	8082 - PCBs		9.00	20.00	180.00
	8141A - Organophosphorus Pesticides		9.00	80.00	720.00
	8260B - Volatiles		9.00	60.00	540.00
	8270C - Appendix 2		9.00	80.00	720.00
	SM 4500 Cl- E - Chloride		9.00	7.00	63.00
	SM 4500 S2 F - Sulfide		9.00	10.00	90.00
	200.8 - Total Recoverable 200.8 TL		9.00	23.00	207.00
	8151A - Chlorinated Herbicides by GC		9.00	100.00	900.00

8/29/08 - Approved for Payment

$615/well

611

Project Number	**Client Number**	**Project Manager**	**Subtotal**	**$5,503.00**
66000337	1350446	Nancy Robertson		
Latest Sample Receipt Date	**Latest Report Date**	**Phone Number**	**Total**	**$5,503.00**
08/02/2008	08/22/2008	(813) 885-7427		

For proper credit, please include invoice number on all remittance.

TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634

Permit Renewal
Well Analyses

Juanitta Clem

From: Stone, Bradford M [Brad.Stone@hdrinc.com]
Sent: Sunday, January 11, 2009 4:34 PM
To: Juanitta Clem
Subject: TRL - cost for monitoring

Juanita - per your request for Trail Ridge Landfill we are currently charging Waste Management 2500 per semiannual report. This cost does not include sampling, laboratory analysis, or resampling. Test America does the analytical work, Protech does the sampling. Let me know if you need anything more....

Brad Stone, P.E.
HDR | ONE COMPANY - ***Many Solutions***
200 W. Forsyth St., Ste 800
Jacksonville, FL 32202
Phone (904) 598-8953
Fax (904) 598-8988
Cell (904) 607-6316
Email: brad.stone@hdrinc.com

Juanitta Clem

From: Triplett, Mark [MTriple1@wm.com]
Sent: Monday, January 12, 2009 2:08 PM
To: Juanitta Clem
Subject: RE: Trail Ridge

Annually, I have a proposed budget number of $12,252 for all their sampling at Trail Ridge.

Will that be enough for this submittal?
-----Original Message-----
From: Juanitta Clem [mailto:ClemJ@etminc.com]
Sent: Monday, January 12, 2009 12:38 PM
To: Triplett, Mark
Cc: Dolihite, Brian
Subject: Trail Ridge

Mark –

I got the report costs from Brad Stone but his costs do not include the sampling costs from Protech. Do you have their costs?

Juanitta Clem
Principal/P.E.

England-Thims & Miller, Inc.
Vision • Experience • Results
14775 Old St. Augustine Road • Jacksonville, Florida 32258

Direct: 904-265-3181 Fax: 904-646-9485
Cell: 904-710-3162 Email: ClemJ@etminc.com

This message may contain confidential information. If you have received this message by mistake, please inform the sender by sending an e-mail reply. At the same time please delete the message and any attachments from your system without making, distributing or retaining any copies. Although all our e-mail messages and any attachments upon sending are automatically virus scanned we assume no responsibility for any loss or damage arising from the receipt and/or use.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Invoice/Credit No.	66051400	Invoice Date	February 27, 2008
Terms	Net 30 Days		
Remit to	TestAmerica Laboratories, Inc. Box 4305, Philadelphia PA, 19175-4305 Tax ID: 23-2919996		

Bill to:

City of Jacksonville
Attn: Accounts Payable
1031 Superior St.
Jacksonville, FL 32254

Ship to:

HDR, Inc.
200 W. Forsyth St., Suite 800
Jacksonville, FL 32202

P.O. Number	W.O. Number	Contract Number	Work Ordered by
PO802538:7			Mr. Brad Stone (904) 598-8953
Job Description	**Site Name**	**SDG Number**	**Invoice Contact**
See below	HDR/Trail Ridge Landfill		Ms. Zora Coleman

Job No.	Job Description / Method/Test Description	Receipt Date	Quantity	Unit Price	Amount
J20884-1	**Trail Ridge Landfill**	01/31/2008			
	350.1 - Nitrogen (Ammonia, Colorimetric, Automated Phenate)		2.00	10.00	20.00
	351.2 - Nitrogen, Total Kjeldahl (Colorimetric, Semi-Automated Block Digester, AAII)		2.00	15.00	30.00
	200.7 Rev 4.4 - Total Recoverable ICP Metals by 200.7		2.00	48.00	96.00
	245.1 - Mercury		2.00	12.00	24.00
	SM 2540C - Total Dissolved Solids (Dried at 180 °C)		2.00	10.00	20.00
	SM 2540D - Total Suspended Solids Dried at 103-105°C		2.00	5.00	10.00
	353.2 - Nitrate		2.00	10.00	20.00
	365.4 - Total Phosphorus		2.00	12.00	24.00
	504.1 - EDB, DBCP, and 123TCP in Water by Microextraction and Gas Chromatography		2.00	30.00	60.00
	SM 5210B - 5 Day BOD test		2.00	20.00	40.00
	SM 5220D - Chemical Oxygen Demand (COD) Colorimetric		2.00	12.00	24.00
	SM 5310C - Total Organic Carbon/Persulfate - Ultraviolet Oxidation Method		2.00	18.00	36.00
	8260B - VOCs		2.00	60.00	120.00
	SM 4500 Cl- E - Chloride (Colorimetric, Automated Ferricyanide)		2.00	7.00	14.00
	9221E - Fecal coliforms sub to AEL		2.00	31.00	62.00
	SM10200H - Chlorophyll-A subbed to AEL		2.00	50.00	100.00
	UnionizedNH3 - Unionized Ammonia by Florida DEP SOP		2.00	10.00	20.00
	200.8 - Total Recoverable Thallium		2.00	20.00	40.00

2/27/08 - Approved for Payment

Project Number	Client Number	Project Manager	Subtotal	
66000337	1350446	Nancy Robertson		$760.00
Latest Sample Receipt Date	**Latest Report Date**	**Phone Number**	**Total**	
01/31/2008	02/27/2008	(813) 885-7427		$760.00

For proper credit, please include invoice number on all remittance.

TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634

8380 | location

Annual Surface Water Analyses

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Invoice/Credit No.	66051401	Invoice Date	February 27, 2008
Terms	Net 30 Days		
Remit to	TestAmerica Laboratories, Inc. Box 4305, Philadelphia PA, 19175-4305 Tax ID: 23-2919996		

Bill to:

City of Jacksonville
Attn: Accounts Payable
1031 Superior St.
Jacksonville, FL 32254

Ship to:

HDR, Inc.
200 W. Forsyth St., Suite 800
Jacksonville, FL 32202

P.O. Number	W.O. Number	Contract Number	Work Ordered by
PO802538:7			Mr. Brad Stone (904) 598-8953
Job Description	**Site Name**	**SDG Number**	**Invoice Contact**
See below	HDR/Trail Ridge Landfill		Ms. Zora Coleman

Job No.	Job Description / Method/Test Description	Receipt Date	Quantity	Unit Price	Amount
J20885-1	Trail Ridge Landfill	01/31/2008			
	350.1 - Nitrogen (Ammonia, Colorimetric, Automated Phenate)		2.00	10.00	20.00
	200.7 Rev 4.4 - Total Recoverable All Metals Use this list not local		2.00	72.00	144.00
	SM 2320B - Bicarbonate		2.00	10.00	20.00
	245.1 - Mercury in Water by CVAA		2.00	12.00	24.00
	SM 2540C - Total Dissolved Solids (Dried at 180 °C)		2.00	10.00	20.00
	353.2 - Nitrogen, Nitrate-Nitrite (Colorimetric, Automated, Cadmium Reduction)		2.00	10.00	20.00
	SM 4500 CN E - Cyanide, Total: Colorimetric Method		2.00	20.00	40.00
	504.1 - EDB, DBCP, and 123TCP in Water by Microextraction and Gas Chromatography		2.00	30.00	60.00
	8081A - Organochlorine Pesticides by Gas Chromatography		2.00	60.00	120.00
	8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography		2.00	20.00	40.00
	8141A - Organophosphorous Compounds by Gas Chromatography, Capillary Column Technique		2.00	70.00	140.00
	8151A - Chlorinated Herbicides by GC		2.00	110.00	220.00
	8260B - Volatile Organic Compounds by GC/MS		2.00	60.00	120.00
	8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)		2.00	70.00	140.00
	SM 4500 Cl- E - Chloride (Colorimetric, Automated Ferricyanide)		2.00	7.00	14.00
	SM 4500 S2 F - Sulfide (Titrimetric, Iodine)		2.00	36.00	72.00

2/27/08 - Approved for payment

Project Number	Client Number	Project Manager	Subtotal	$1,214.00
66000337	1350446	Nancy Robertson		
Latest Sample Receipt Date	**Latest Report Date**	**Phone Number**	**Total**	$1,214.00
01/31/2008	02/27/2008	(813) 885-7427		

For proper credit, please include invoice number on all remittance.

TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634

$607/each

Annual Leachate Analyses

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Invoice/Credit No.	66051402	Invoice Date	February 27, 2008
Terms	Net 30 Days		
Remit to	TestAmerica Laboratories, Inc. Box 4305, Philadelphia PA, 19175-4305 Tax ID: 23-2919996		

Bill to:

City of Jacksonville
Attn: Accounts Payable
1031 Superior St.
Jacksonville, FL 32254

Ship to:

HDR, Inc.
200 W. Forsyth St., Suite 800
Jacksonville, FL 32202

P.O. Number	W.O. Number	Contract Number	Work Ordered by
PO802538:7			Mr. Brad Stone (904) 598-8953
Job Description	**Site Name**	**SDG Number**	**Invoice Contact**
See below	HDR/Trail Ridge Landfill		Ms. Zora Coleman

Job No.	Job Description / Method/Test Description	Receipt Date	Quantity	Unit Price	Amount
J20886-1	**Trail Ridge Landfill**	01/31/2008			
	6010B - TCLP RCRA metals		1.00	33.00	33.00
	7470A - TCLP Mercury in Liquid Waste (Manual Cold Vapor Technique)		1.00	12.00	12.00
	8081A - TCLP Organochlorine Pesticides by Gas Chromatography		1.00	120.00	120.00
	8151A - TCLP Chlorinated Herbicides by GC		1.00	120.00	120.00
	8270C - TCLP Semivolatiles		1.00	120.00	120.00
	8260B - TCLP Volatiles		1.00	120.00	120.00

2/27/08 - Approved for Payment

$525/each

Project Number	Client Number	Project Manager	Subtotal	$525.00
66000337	1350446	Nancy Robertson		
Latest Sample Receipt Date	**Latest Report Date**	**Phone Number**	**Total**	$525.00
01/31/2008	02/27/2008	(813) 885-7427		

For proper credit, please include invoice number on all remittance.

TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634

Composite Annual Leachate Analyses

Juanitta Clem

From: Parnell, Daniel P. - Manager, Industrial Pretreatment [ParnDP@jea.com]
Sent: Friday, January 09, 2009 11:52 AM
To: Juanitta Clem
Subject: Leachate Rates

Juanitta,

JEA charges the City of Jacksonville $0.00388/gallon for landfill leachate.

Dan Parnell
Manager, Industrial Pretreatment
JEA
904-665-4796 (office)
904-502-9017 (cell)
904-665-8334 (fax)

Florida has a very broad Public Records Law. Virtually all written communications to or from State and Local Officials and employees are public records available to the public and media upon request. JEA does not differentiate between personal and business e-mails. E-mail sent on the JEA system will be considered public and will only be withheld from disclosure if deemed confidential pursuant to State Law. Under Florida law, e-mail addresses are public records. If you do not want your e-mail address released in response to a public-records request, do not send electronic mail to this entity. Instead, contact JEA by phone or in writing.

COMANCO®
ENVIRONMENTAL CORPORATION

March 5, 2009

Ms. Juanitta Clem
Principal/P.E.
England-Thims & Miller, Inc.
14775 Old St. Augustine Road
Jacksonville, FL 32258
Phone (904) 265-3181
Fax (904) 646-9485

sent via email
ClemJ@etminc.com

REFERENCE:

TRAIL RIDGE LANDFILL
CLOSURE CONSTRUCTION
JACKSONVILLE, FLORIDA

SUBJECT: **BUDGET PROPOSAL**

Dear Ms. Clem:

COMANCO Environmental Corporation is pleased to provide the following budget pricing for closure work at the Trail Ridge Landfill located in Jacksonville, Florida. All pricing is being provided on a budgetary basis and has been derived assuming standard construction practices and materials. All pricing assumes availability of soil materials locally. Prior to any agreement for work to be performed, a final design would need to be furnished and all work repriced based upon the final scope and quantities of work to be performed. Our budget pricing for the various work items is as follows:

Final Cover Materials:

12" Intermediate Cover (clean cover material for clay liner subgrade) - $ .50 /SY not including material costs and placement but including compaction – *Work includes grading and compaction only.*

12" Compacted Clay ($K \leq 6.67 \times 10^{-8}$ cm/sec) - $40/CY including material costs (including delivery to the site), placement in 6" lifts, and compaction. *Please note that clay material meeting this spec will likely be difficult to find locally. Please consider the use of a Geosynthetic Clay Liner (GCL) instead.*

40 mil textured HDPE Geomembrane Liner - $3.50/SY including material costs (including delivery to the site) and placement

12" Sand Layer ($K \geq 1.0 \times 10^{-3}$ cm/sec) - $20/CY including material costs (including delivery to the site) and placement on the textured HDPE liner

Vegetative Cover (top soil material that is free from brush, weeds, etc. - $25/CY including material costs (including delivery to the site) and placement

Sod - $2.00/SY including material costs (including delivery to the site) and placement

DEP004777

COMANCO®
ENVIRONMENTAL CORPORATION

Stormwater Controls:

General Earthwork/Fill - $15/CY including material costs (including delivery to the site), placement, and compaction

30" HDPE Downcomer Pipe - $40/LF including material costs (including delivery to the site), placement, and fittings. *Assumes N-12 or equivalent materials (Smooth walled corrugated plastic pipe).*

24" HDPE Pipe - $35/LF including material costs (including delivery to the site), placement, and fittings. *Assumes N-12 or equivalent materials (Smooth walled corrugated plastic pipe).*

18" HDPE Pipe - $30/LF including material costs (including delivery to the site), placement, and fittings. *Assumes N-12 or equivalent materials (Smooth walled corrugated plastic pipe).*

6" HDPE Pipe - $20/LF including material costs (including delivery to the site), placement, and fittings. *Assumes N-12 or equivalent materials (Smooth walled corrugated plastic pipe).*

6" HDPE Underdrain Pipe - $30/LF including material costs (including delivery to the site), placement, fittings and sand envelope. *Assumes N-12 or equivalent materials (Smooth walled corrugated plastic pipe).*

Again, these prices are being provided on a budgetary basis and are reasonable prices for standard landfill closure work in this geographical area. These numbers are valid for any user or regulatory authority for use in establishing probable construction cost for such projects. Please do keep in mind, however, that the size and scope of each project is unique and, therefore, pricing for each specific project will need to be developed based upon timing, size, and market conditions at the time that the project is to be constructed.

We at COMANCO appreciate the opportunity to submit this pricing and we hope to work with you on future construction projects.

Sincerely,
COMANCO Environmental Corporation

John Jacobs
Senior Estimator

4301 Sterling Commerce Drive • Plant City, Florida 33566-7372 • (813) 988-8829 • FAX (813) 496-7305
www.COMANCO.com

APPENDIX N

FINANCIAL ASSURANCE COST ESTIMATE FORM

Florida Department of Environmental Protection

Twin Towers Office Bldg., 2600 Blair Stone Road, Tallahassee, FL 32399-2400

DEP Form # 62-701.900(28)
Form Title: Financial Assurance Cost Estimate Form
Effective Date:
DEP Application No.
(Filled by DEP)

FINANCIAL ASSURANCE COST ESTIMATE FORM

Date: January 15, 2009 Date of DEP Approval: _____

I. GENERAL INFORMATION:

Facility Name: Trail Ridge Class I Landfill
Permit Application No.: 0013493-017 (Renewal of SC16-184444)
WACS or GMSID #: NED / 16 / 00033628
Expiration Date: TBD
Facility Address: 5110 U.S. Highway 301, Baldwin, Florida 32234
Permittee: Trail Ridge Landfill, Inc.
Mailing Address: Same as facility address

Latitude: 30°13'27"N Longitude: 82°02'40"W or UTM: _____

Solid Waste Disposal Units Included in Estimate:

Phase/Cell	Acres	Date Unit Began Accepting Waste	Design Life of Unit From Date of Initial Receipt of Waste
I - V	144	18-May-92	20 +/- Years

Total Landfill Acreage included in this estimate: 119 Closure 144 Long Term Care

The entire landfill less closed areas (25 Ac +/-), after Fill Phase 10 (the estimated worse case). (71.3 acres of top area and 47.7 acres of side slope)

Type of Landfill X Class I _____ Class III _____ C&D Debris

II. TYPE OF FINANCIAL ASSURANCE DOCUMENT (Check Type)

_____ Letter of Credit*
_____ Performance Bond*
_____ Guaranty Bond*
_____ Insurance Certificate
X Escrow Account
_____ Trust Fund Agreement

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

40 CFR Part 264 H as adopted by reference in Rule 62-701.603, Florida Administrative Code sets forth the method of annual Cost estimates may be adjusted using an inflation factor or be recalculating the maximum cost of closure in current dollars. Select one of the methods of cost estimate adjustment below.

☐ **(a) Inflation Factor Adjustment**

Inflation adjustments 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 Deflator by the Deflator for the previous year. The inflation factor may also be obtained from the Solid Waste Financial Coordinator at (850) 488-0300.

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

Latest Department Approved		Current Year		Inflation Adjusted
_____	X	_____	=	_____

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		Inflation Adjusted Annual Long-Term Care Cost Estimate
_____	X	_____	=	_____

Number of Years of Long-Term Care Remaining: X _____

Inflation Adjusted Long-Term Care Cost Estimate: = _____

☒ **(b) Recalculate Estimates (see section V)**

IV. CERTIFICATION BY ENGINEER

This is to certify that the Financial Assurance 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 long-term care of the facility and comply with the requirements of Florida Administrative Code (F.A.C.), Rule 62-701.630 and all other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Financial Assurance Cost Estimates shall be submitted to the Department **annually**, revised or adjusted as required by Rule 62-701.630(4), F.A.C.

Signature of Engineer	Signature of ~~Owner~~/Operator
Juanitta Bader Clem, P.E.	R. D. McConnell, Area Vice President
Name & Title (please type)	Name & Title (please type)
43245	(904) 289-9100
Florida Registration Number (affix seal)	Telephone Number
14775 Old St. Augustine Road, Jax. FL 32258	dmcconnell@wm.com
Mailing Address	~~Owner~~/Operator E-Mail Address
(904) 265-3181	clemj@etminc.com
Telephone Number	Engineer's E-Mail Address

V. RECALCULATE ESTIMATED CLOSING COSTS

For the time period in the landfill operation when the extent and manner of its operation makes closing most expensive.

**** Third Party Estimate/Quote must be provided for each item**
**** Costs must be for a third party providing all materials and labor**

DESCRIPTION	UNIT		QUANTITY	UNIT COST		TOTAL
1. Proposed Monitoring Wells (Do not include wells already in existence)						
The monitoring wells have been installed as part of operation.	EA					$0.00
2. Slope and Fill (bedding layer between waste and barrier layer):						
Excavation	CY	NA	0	$0.00		$0.00
Placement and Spreading	SY		575,960	$2.225	(a)	$1,281,511.00
Compaction Included with Placement and Spreading	CY		0	$0.00		$0.00
Off-Site Material Included as part of operation	CY		0	$0.00		$0.00
Delivery Included as part of Placement and Spreading	CY		0	$0.00		$0.00
			Subtotal Monitoring Wells:			$1,281,511.00
3. Cover Material (Barrier Layer):						
Off-Site Clay	CY		76,956	$28.885	(b)	$2,222,874.06
Synthetics - 40 mil	SY		345,092	$6.855	(b)	$2,365,605.66
Synthetics - GCL	SY	NA	0	$0.00		$0.00
Synthetics - Geonet	SY	NA	0	$0.00		$0.00
Synthetics - Other	SY	NA	0	$0.00		$0.00
			Subtotal Barrier Layer Cover:			$4,588,479.72
4. Top Soil:						
Off-Site Material (sand)	CY		115,031	$17.32	(b)	$1,992,336.92
Off-Site Material (top soil)	CY		268,943	$21.78	(b)	$5,857,578.54
Delivery Included with material	CY		0	$0.00		$0.00
Spread Included with material	CY		0	$0.00		$0.00
			Subtotal Top Soil Cover:			$7,849,915.46

(a) This estimate is based upon the average of the Budget Unit pricing as provided by J.B. Coxwell Contracting, Inc. and R.B. Baker Construction, Inc. In addition, the price has been reduced by half because the contractor would not supply the soil material.
(b) This estimate is based upon the average of the Budget Unit pricing as provided by J.B. Coxwell Contracting, Inc. and R.B. Baker Construction, Inc.

DESCRIPTION	UNIT		QUANTITY	UNIT COST		TOTAL
5. Vegetative Layer:						
Sodding	SY		575,960	$3.08	(a)	$1,773,956.80
Hydroseeding Included with sodding	AC		0	$0.00		$0.00
Fertilizer Included with sodding	AC		0	$0.00		$0.00
Mulch	AC	N/A	0	$0.00		$0.00
Other	SY	N/A	0	$0.00		$0.00
			Subtotal Vegetative Layer:			$1,773,956.80
6. Stormwater Control System:						
Earthwork	CY		8,415	$16.195	(a)	$136,280.93
Grading Included with Earthwork	SY		0	$0.00		$0.00
Piping	LF		4,240	$234.485	(a)	$994,216.40
Ditches	LF	N/A	0	$0.00		$0.00
Berms	LF	N/A	0	$0.00		$0.00
Control Structures	EA	N/A	0	$0.00		$0.00
Other — Terrace Drains	EA		56	$6,221.41	(a) (b)	$348,398.96
Other — Underdrain	LF		41,861	$28.89	(a)	$1,209,364.29
			Subtotal Stormwater Controls:			$2,688,260.58
7. Gas Controls: Passive						
Wells	EA	N/A	0	$0.00		$0.00
Pipe and Fittings	LF	N/A	0	$0.00		$0.00
Monitoring Probes The gas monitoring probes have been installed.	EA		0	$0.00		$0.00
NSPS/Title V requirements	LS		0	$0.00		$0.00
			Subtotal Passive Gas Controls:			$0.00

(a) This estimate is based upon the average of the Budget Unit pricing as provided by J.B. Coxwell Contracting, Inc. and R.B. Baker Construction, Inc.

(b) Based upon 66 feet of 18" HDPE pipe at $81.185 per LF and 32 feet of 6" HDPE pipe at $26.975 per LF or $6,221.41 per terrace drain

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
8. Gas Control: Active Extraction				
Traps	EA	5	$13,466.67	$67,333.35
Sump Installed during operation	EA	0	$0.00	$0.00
Flare Assembly	EA	1	$200,000.00	$200,000.00
Flame Arrestor Installed during operation	EA	0	$0.00	$0.00
Mist Eliminator Installed during operation	EA	0	$0.00	$0.00
Flow Meter Installed during operation	EA	0	$0.00	$0.00
Blowers Included with the Flare Assembly	EA	0	$0.00	$0.00
Collection System				
6" Pipes and Fittings	LF	7,000	$32.58	$228,060.00
8" Pipes and Fittings	LF	1,300	$36.17	$47,021.00
10" Pipes and Fittings	LF	4,700	$42.00	$197,400.00
Other (describe)				
12" Control Valves	EA	5	$3,095.00	$15,475.00
Wells (44 wells @ 140 FT.)	FT	6,160	$94.83	$584,152.80
Well Head Assembly	EA	44	$433.33	$19,066.52
		Subtotal Active Gas Extraction:		$1,358,508.67
9. Security System:	The security system was installed as part of the operation.			
Fencing	LF	0	$0.00	$0.00
Gate(s)	EA	0	$0.00	$0.00
Sign(s)	EA	0	$0.00	$0.00
Ditches	LF	0	$0.00	$0.00
		Subtotal Security System:		$0.00
10. Engineering:				
Closure Plan Report Including Closure Permit	LS	1	$84,000.00	$84,000.00
Certified Engineer Included in Certification of Closure	LS	0	$0.00	$0.00
NSPS/Title V Air Permit A Title V Air Permit has been issued	LS	0	$0.00	$0.00
Final Survey	LS	1	$72,000.00	$72,000.00
Certification of Closure	LS	1	$24,000.00	$24,000.00
Other (Detail)				
	LS	0	$0	$0.00
Construction Drawings	LS	1	$300,000	$300,000.00
		Subtotal Engineering:		$480,000.00

11. Professional Services

	Contract Management			Quality Assurance			
	Rate/Hr	Hours	LS	Rate/Hr	Hours	LS	Total
P.E. Supervisor	$150	104	$15,600	$126.00	100	$12,600	$28,200
On-Site Engineer	$0	0	$0	$78.00	1200	$93,600	$93,600
Office Engineer	$120	208	$24,960	$108.00	400	$43,200	$68,160
On-Site Technician	$90	1300	$117,000	$48.00	4800	$230,400	$347,400
Other (Explain)							
Clerical			$7,000				$7,000
Expenses			$12,000				$12,000

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
Quality Assurance Testing	LS	1	$78,000.00	$78,000.00
		Subtotal Professional Services		$634,360.00
		Subtotal of 1-11 Above:		$20,654,992.23
12. Contingency	15 % of Total			$3,098,248.83
		Closing Cost Subtotal:		$23,753,241.06

13. Site Specific Costs (explain)

Mobilization/Demobilization (5.0% of Construction Cost)		$977,031.61
Waste Tire Facility (100 tons at $92.5 per ton)	(a)	$9,250.00
Materials Recovery Facility	N/A	$0.00
Special Wastes		$60,000.00
Leachate Management System Modification	N/A	$0.00
Other - Bonds (1.0% of Construction Costs)		$195,406.32
Erosion Control (during construction)		$300,000.00
	Subtotal Site Specific Costs:	$1,541,687.93
	TOTAL CLOSING COSTS:	$25,294,928.99

a. Based upon a disposal fee of $70/ton per Wheelabrator Ridge Energy, Inc., Auburdale, Fl (863-665-2255) plus transportation at $22.50/ton .

VI. ANNUAL COST FOR LONG-TERM CARE

(Check Term Length)

_____ 5 Years _____ 20 Years __X__ 30 Years _____ Other

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.

** Third Party Estimate/Quote must be provided for each item
** Costs must be for a third party providing all material and labor

All items must be addressed. Attach a detailed explanation for all items marked not applicable (N/A)

Description	Sampling Frequency (Events/yr.)	Number of Wells	$/Well/Event		$/Year
1. Groundwater Monitoring (62-701.510(6), and (8)(a))					
Monthly	12	0	$0.00		$0.00
Quarterly	4	0	$0.00		$0.00
Semi-Annual	2	37	$216.00	(a)	$15,984.00
Annual		0	$0.00		$0.00
Other					
Sampling	2	1	$6,126.00	(b)	$12,252.00
Biennial Report	0.5	1	$5,200.00	(c)	$2,600.00
Semi-Annual Report	2	1	$2,500.00	(c)	$5,000.00
Permit Renewal	0.20	37	$615.00	(a)	$4,551.00
		Subtotal Groundwater Monitoring:			$40,387.00
2. Surface Water Monitoring (62-701.510(4), and (8)(b))					
Monthly	12	0	$0.00		$0.00
Quarterly	4	0	$0.00		$0.00
Semi-Annual*	2	2	$380.00	(a)	$1,520.00
* Sampling and reporting are included with the groundwater monitoring.					
Annual	1	0	$0.00		$0.00
		Subtotal Surface Water Monitoring:			$1,520.00
3. Gas Monitoring					
Monthly	12	0	$0.00		$0.00
Quarterly	4	10	$50.00		$2,000.00
Semi-Annual	2	0	$0.00		$0.00
Annual	1	0	$0.00		$0.00
Semi-Annual Report	2	1	$780.00		$1,560.00
		Subtotal Gas Monitoring:			$3,560.00

(a) Includes laboratory analysis only.
(b) Includes all sampling (ground water, surface water and leachate).
(c) Includes all reporting (groundwater, surface water and leachate).

Description	Sampling Frequency (Events/yr.)	Number of Locations	$/Location/Event		$/Year
4. Leachate Monitoring (62-701.510(5), (6)(b) and 62-701.510(8))					
Monthly	12	0	$0.00		$0.00
Quarterly	4	0	$0.00		$0.00
Semi-Annual*	2	2	$607.00	(a)	$2,428.00
Annual	1	0	$0.00		$0.00
Composite*	2	1	$525.00	(a)	$1,050.00
		Subtotal Leachate Monitoring:			$3,478.00

DESCRIPTION	UNIT	QUANTITY		UNIT COST		ANNUAL COST
5. Leachate Collection/Treatment Systems Maintenance						
Maintenance						
Collection Pipes	LF	0		$0.00		$0.00
Sumps, Traps	EA	0		$0.00		$0.00
Lift Stations	EA	1		$36,000.00		$36,000.00
Cleaning	LS	0		$0.00		$0.00
Tanks	EA	0		$0.00		$0.00
Impoundments						
Liner Repair	SY	0		$0.00		$0.00
Sludge Removal	CY	0		$0.00		$0.00
Aeration System						
Floating Aerators	EA	0		$0.00		$0.00
Spray Aerators	EA	0		$0.00		$0.00
Disposal						
Off-Site (Includes Transportation and Disposal)	1000 gallons	5,072.04	(c)	$47.22	(b)	$239,501.73
		Subtotal Leachate Collection Maintenance				$275,501.73

(a) Includes laboratory analysis only. Sampling and reporting are included with the groundwater monitoring.
(b) Based upon current transportation cost of $260 per 6000 gallon load and a disposal cost of $3.88 per 1000 gallons.
(c) Based upon the average leachate generation rate of 13,896 gallons per day.

6. Leachate Collection/Treatment Systems Operations

Operation		Hours	$/Hour		Total
P.E. Supervisor	HR	104	$32.92	(a)	$3,423.68
On-Site Engineer	HR	0	$0.00		$0.00
Office Engineer	HR	0	$0.00		$0.00
On-Site Technician	HR	416	$27.00	(b)	$11,232.00
Materials	LS	0	$0.00		$0.00
Subtotal Leachate Collection/Treatment System Maintenance & Operation:					$14,655.68

7. Maintenance of Groundwater Monitoring Wells Assume replacement of one well per year.

Monitoring Wells	EA	1	$7,800.00	$7,800.00
Replacement	EA	0	$0.00	$0.00
Abandonment	EA	0	$0.00	$0.00
Subtotal Groundwater Monitoring Well Maintenance:				$7,800.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
8. Gas System Maintenance	Assume $30,000 per year for all maintenance.			
Piping, Vents	LF	0	$0.00	$0.00
Blowers	EA	0	$0.00	$0.00
Flaring Units	EA	0	$0.00	$0.00
Meters, Valves	EA	0	$0.00	$0.00
Compressors	EA	0	$0.00	$0.00
Flame Arrestors	EA	0	$0.00	$0.00
Operation	LS	0	$0.00	$0.00
			Subtotal Gas System:	$30,000.00

9. Landscape

Mowing	AC	155	$330.96	(c)	$51,298.80
Fertilizing	AC	155	$300.00		$46,500.00
		Subtotal Landscape Maintenance			$97,798.80

(a) Based upon the average hourly rate for an FDEP PE II (ranging from $4,119 to $7,292 per month)
(b) Based upon the average hourly rate for an FDEP Engineering Specialist III (ranging from $3,412 to $5,947 per month)
(c) Based upon the current fee of $8,550 per event or $55.16 per acre and 6 events per year.

DESCRIPTION	UNIT	QUANTITY		UNIT COST		ANNUAL COST
10. Erosion Control & Cover Maintenance						
Sodding	SY	15,004	*	$3.08	(a)	$46,212.32
Regrading Included with Seeding, Soil	SY	15,004	*	$2.225	(a)	$33,383.90
Liner Repair Included with Seeding, Soil	SY	7,502	**	$6.855	(a)	$51,426.21
Clay	CY	2,501	**	$28.885	(a)	$72,241.39
		Subtotal Erosion Control and Cover Maintenance:				$203,263.82

* 2% of the 155 acre landfill
** 1% of the 155 acre landfill

11. Storm Water Management System Maintenance						
Conveyance Maintenance	LS	1		$6,000.00	(b)	$6,000.00
Ditch Cleaning	LF	10,400		$2.00		$20,800.00
		Subtotal Storm Water System Maintenance:				$26,800.00
12. Security System Maintenance		Assume $10,000 per year for all maintenance.				
Fences	LF					
Gate(s)	EA					
Sign(s)	EA					
				Subtotal Security System:		$10,000.00
13. Utilities Include Leachate Pumps, Blowers, Lighting, etc.	LS	1		$50,000.00	(c)	$50,000.00
14. Administrative						
P.E. Supervisor	HR	2,080		$32.90	(d)	$68,432.00
On-Site Engineer	HR	0		$0.00		$0.00
Office Engineer	HR	0		$0.00		$0.00
On-Site Technician	HR	8,320		$27.00	(e)	$224,640.00
Other (Explain)		0		$0.00		$0.00
				Subtotal Administrative:		$293,072.00
15. Contingency	% of Total	N/A	0	$0.00		$0.00
				Subtotal Contingency:		$0.00

(a) See Unit Costs in Closure Estimates above.
(b) Assuming 1% of the Stormwater Control System as estimated above.
(c) Based on average monthly utility cost of $5,000.
(d) Based upon the average hourly rate for an FDEP PE II (ranging from $4,119 to $7,292 per month)
(e) Based upon the average hourly rate for an FDEP Engineering Specialist III (ranging from $3,412 to $5,947 per month)

16. Site Specific Costs (explain)

	Unit Costs	
	LS	
	LS	
	LS	

Subtotal Administrative: $0.00

ANNUAL LONG-TERM CARE COST ($/Year)	$1,057,837.02
NUMBER OF YEARS OF LONG-TERM CARE	30
TOTAL LONG-TERM CARE COST ($)	$31,735,110.71

Trail Ridge Closure Budget Dec. 2008

J. B. Coxwell Contracting, Inc.

SP122

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
10	12" Intermediate Cover	1.00	SY	3.50	3.50
20	12" Compacted Clay (6.67x10-8)	1.00	CY	33.17	33.17
30	40 mil Textured HDPE Geomembrane Liner	1.00	SY	7.56	7.56
40	12" Sand layer (1x10-3)	1.00	CY	17.94	17.94
50	Vegetative Cover	1.00	CY	22.56	22.56
60	Sod (incl overseeding)	1.00	SY	3.16	3.16
70	General Earthwork	1.00	CY	16.09	16.09
80	30" HDPE Downcomer Pipe	1.00	LF	206.97	206.97
90	24" HDPE Downcomer Pipe	1.00	LF	110.65	110.65
100	18" HDPE Downcomer Pipe	1.00	LF	69.37	69.37
110	6" HDPE Downcomer Pipe	1.00	LF	31.92	31.92
120	6" HDPE Underdrain Pipe	1.00	LF	21.78	21.78
GRAND TOTAL					**$544.67**

R.B. BAKER
CONSTRUCTION INC.

December 17, 2008

Juanitta Clem
England, Thims, & Miller
14775 Old St. Augustine Road
Jacksonville, FL 32258

Re: **Trail Ridge Landfill Budget Unit Pricing**

Juanitta;

Thanks you for allowing R. B. Baker construction, Inc. the opportunity to provide assistance on this project. We have put together some budgetary unit prices based on some of our recent landfill bids in the Southeast.

1. 12" Intermediate Cover (clean cover material for clay liner subgrade) - $5.40/SY including material costs (including delivery to the site), placement, and compaction.

2. 12" Compacted Clay (K < 6.67 x 10-8 cm/sec) - $24.60/CY including material costs (including delivery to the site), placement in 6" lifts, and compaction.

3. 40 mil textured HDPE Geomembrane Liner - $6.15/SY including material costs (including delivery to the site) and placement.

4. 12" Sand Layer (K > 1.0 x 10-3 cm/sec) - $16.70/CY including material costs (including delivery to the site) and placement on the textured HDPE liner.

5. Vegetative Cover (top soil material that is free from brush, weeds, etc. - $21.00/CY including material costs (including delivery to the site) and placement.

6. Sod - $3.00/SY including material costs (including delivery to the site) and placement.

Stormwater Controls:

1. General Earthwork/Fill - $16.30/CY including material costs (including delivery to the site), placement, and compaction. Mass excavation on-site - $4.00/CY.

Home Office
100 Morgan Industrial Blvd., Garden City, GA 31408
912.964.6513 Fax 912.964.6531

Florida Group
125 International Golf Parkway, St. Augustine, FL 32095
904.824.9901 Fax 904.824.9601

www.rbbaker.com

2. 30" HDPE Downcomer Pipe - $262.00/LF including material costs (including delivery to the site), placement, and fittings.

3. 24" HDPE Pipe - $166.00/LF including material costs (including delivery to the site), placement, and fittings.

4. 18" HDPE Pipe - $93.00/LF including material costs (including delivery to the site), placement, and fittings.

5. 6" HDPE Pipe - $22.00/LF including material costs (including delivery to the site), placement, and fittings.

6. 6" HDPE Underdrain Pipe - $36.00/LF including material costs (including delivery to the site), placement, fittings and sand envelope.

I hope this information is of use to you. Please feel free to call if you have any questions.

Sincerely,
R.B. BAKER CONSTRUCTION, INC.

Brandon Forrest
Vice President – North Florida Group

WASTE MANAGEMENT

LANDFILL CONSTRUCTION COST BID TABULATION

Project Name: LFGES Expansion - November - 2008
Project Site: Trail Ridge Landfill

Item Description	Qty	Unit	SCS Unit Cost	SCS Total Cost	B&M Unit Cost	B&M Total Cost	TRICON Unit Cost	TRICON Total Cost	Average Unit Cost
Initial Mobilization / Demobilization	1	L.S.	$42,000.00	$42,000.00	$44,750.00	$44,750.00	$55,000.00	$55,000.00	$47,250.00
Subsequent Mobilizations / Demobilizations	2	Ea.	$7,500.00	$15,000.00	$14,750.00	$29,500.00	$15,000.00	$30,000.00	$12,416.67
Condensate Knockout at Flare Station	1	L.S.	$42,000.00	$42,000.00	$37,750.00	$37,750.00	$44,500.00	$44,500.00	$41,416.67
Extraction Well Installation	1,250	VF	$95.00	$118,750.00	$94.50	$118,125.00	$95.00	$118,750.00	$94.83
New Extraction Wellhead Installation	13	Ea.	$400.00	$5,200.00	$375.00	$4,875.00	$525.00	$6,825.00	$433.33
Existing Extraction Wellhead re-installation	65	Ea.	$285.00	$18,525.00	$50.00	$3,250.00	$410.00	$26,650.00	$248.33
4" Gas Collection Pipe	1,890	LF	$26.00	$49,140.00	$28.00	$52,920.00	$32.50	$61,425.00	$28.83
6" Gas Collection Pipe	2,320	LF	$28.00	$64,960.00	$34.50	$80,040.00	$35.25	$81,780.00	$32.58
8" Gas Collection Pipe	11,550	LF	$32.00	$369,600.00	$37.00	$427,350.00	$39.50	$456,225.00	$36.17
10" Gas Collection Pipe	0	LF	$36.00	$0.00	$0.00	$0.00	$42.00	$0.00	$26.00
12" Gas Collection Pipe	2,395	LF	$46.00	$110,170.00	$48.75	$116,756.25	$48.00	$114,960.00	$47.58
18" Gas Collection Pipe	2,540	LF	$71.00	$180,340.00	$69.00	$175,260.00	$72.00	$182,880.00	$70.67
Adder for Trench Excavation and Backfill - 6 to 8 ft.	2,890	LF	$9.00	$26,010.00	$12.00	$34,680.00	$8.00	$23,120.00	$9.67
Adder for Trench Excavation and Backfill - 9 to 12 ft.	2,310	LF	$15.00	$34,650.00	$37.50	$86,625.00	$17.00	$39,270.00	$23.17
Adder for Trench Excavation and Backfill - 13 to 16 ft.	1,160	LF	$20.00	$23,200.00	$50.00	$58,000.00	$28.00	$32,480.00	$32.67
Road Crossing	9	Ea.	$1,800.00	$16,200.00	$1,995.00	$17,955.00	$2,825.00	$25,425.00	$2,206.67
Final Cover Trench Backfill	775	LF	$45.00	$34,875.00	$55.50	$43,012.50	$61.25	$47,468.75	$53.92
2" Airlines	16,255	LF	$2.00	$32,510.00	$3.50	$56,892.50	$4.00	$65,020.00	$3.17
2" Forcemain	16,255	LF	$2.00	$32,510.00	$3.50	$56,892.50	$4.00	$65,020.00	$3.17
2" Flanged Risers	20	Ea.	$150.00	$3,000.00	$85.00	$1,700.00	$230.00	$4,600.00	$155.00
6"/8" Tie-ins with Flanges to Existing 6"/8" Header Piping	5	Ea.	$350.00	$1,750.00	$1,750.00	$8,750.00	$2,450.00	$12,250.00	$1,516.67
6"/8" Tie-ins with Flanges to Existing 6"/8" Header Flanges	3	Ea.	$1,800.00	$5,400.00	$1,750.00	$5,250.00	$2,450.00	$7,350.00	$2,000.00
18" Tie-ins with Flanges to Existing 18" Header Flanges	1	Ea.	$2,500.00	$2,500.00	$2,275.00	$2,275.00	$5,600.00	$5,600.00	$3,458.33
6" Tie-ins to Existing 6" Header Valves	0	Ea.	$800.00	$0.00	$1,750.00	$0.00	$1,950.00	$0.00	$1,500.00
8" Tie-ins to Existing 6" Header Valves	8	Ea.	$850.00	$6,800.00	$1,750.00	$14,000.00	$2,300.00	$18,400.00	$1,633.33
12" Tie-ins to Existing 10" Header Valves	1	Ea.	$1,200.00	$1,200.00	$2,225.00	$2,225.00	$3,150.00	$3,150.00	$2,191.67
12" Cut-in Tees	1	Ea.	$700.00	$700.00	$2,225.00	$2,225.00	$3,400.00	$3,400.00	$2,108.33
Flanges (8"-12")	13	Ea.	$450.00	$5,850.00	$325.00	$4,225.00	$1,850.00	$24,050.00	$875.00
Flanges (18")	0	Ea.	$900.00	$0.00	$350.00	$0.00	$4,200.00	$0.00	$1,816.67
Valve Relocations 4"-10"	1	Ea.	$3,000.00	$3,000.00	$4,500.00	$4,500.00	$2,600.00	$2,600.00	$3,366.67
8" Isolation Valve	1	Ea.	$2,000.00	$2,000.00	$1,825.00	$1,825.00	$2,550.00	$2,550.00	$2,125.00
10" Isolation Valve	0	Ea.	$2,500.00	$0.00	$0.00	$0.00	$2,750.00	$0.00	$1,750.00
12" Isolation Valve	1	Ea.	$3,500.00	$3,500.00	$2,585.00	$2,585.00	$3,200.00	$3,200.00	$3,095.00
18" Isolation Valve	1	Ea.	$12,000.00	$12,000.00	$11,350.00	$11,350.00	$14,500.00	$14,500.00	$12,616.67
20" Spacer for Isolation Valve	1	Ea.	$3,000.00	$3,000.00	$2,250.00	$2,250.00	$1,450.00	$1,450.00	$2,233.33
18" Condensate Drop	2	Ea.	$18,000.00	$36,000.00	$11,175.00	$22,350.00	$15,500.00	$31,000.00	$14,891.67
Gravel Sump Condensate Drop	3	Ea.	$15,000.00	$45,000.00	$12,500.00	$37,500.00	$12,900.00	$38,700.00	$13,466.67
Performance & Payment Bond	1	LS	$18,589.00	$18,589.00	$35,000.00	$35,000.00	$64,000.00	$64,000.00	$39,196.33
		TOTAL		$1,365,929.00		$1,602,643.75		$1,713,598.75	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Invoice/Credit No.	66051397	Invoice Date	February 27, 2008
Terms	Net 30 Days		
Remit to	TestAmerica Laboratories, Inc. Box 4305, Philadelphia PA, 19175-4305 Tax ID: 23-2919996		

Bill to:	Ship to:
City of Jacksonville Attn: Accounts Payable 1031 Superior St. Jacksonville, FL 32254	HDR, Inc. 200 W. Forsyth St., Suite 800 Jacksonville, FL 32202

P.O. Number	W.O. Number	Contract Number	Work Ordered by
PO802538:7			Mr. Brad Stone (904) 598-8953
Job Description	**Site Name**	**SDG Number**	**Invoice Contact**
See below	HDR/Trail Ridge Landfill		Ms. Zora Coleman

Job No.	Job Description / Method/Test Description	Receipt Date	Quantity	Unit Price	Amount
J20847-1	**Trail Ridge Landfill**	01/30/2008			
	350.1 - Nitrogen (Ammonia, Colorimetric, Automated Phenate)		24.00	10.00	240.00
	200.7 - Total Recoverable ICP Metals		24.00	48.00	1,152.00
	200.7 Rev 4.4 - Dissolved Dissolved ICP Metals		1.00	48.00	48.00
	245.1 - Dissolved Mercury in Water by CVAA		1.00	12.00	12.00
	245.1 - Mercury in Water by CVAA		24.00	12.00	288.00
	SM 2540C - Total Dissolved Solids (Dried at 180 °C)		24.00	10.00	240.00
	353.2 - Nitrate		24.00	10.00	240.00
	504.1 - EDB, DBCP, and 123TCP in Water by Microextraction and Gas Chromatography		24.00	30.00	720.00
	8260B - Volatile Organic Compounds by GC/MS		24.00	60.00	1,440.00
	SM 4500 Cl- E - Chloride (Colorimetric, Automated Ferricyanide)		24.00	7.00	168.00
	200.8 - Dissolved Dissolved Thallium		1.00	20.00	20.00
	200.8 - Total Recoverable Thallium		24.00	20.00	480.00

2/27/08 - Approved for Payment

$216/well

Project Number	Client Number	Project Manager	Subtotal	$5,048.00
66000337	1350446	Nancy Robertson		
Latest Sample Receipt Date	**Latest Report Date**	**Phone Number**	**Total**	**$5,048.00**
01/30/2008	02/27/2008	(813) 885-7427		

For proper credit, please include invoice number on all remittance.

TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634

Annual Well Analyses

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Invoice/Credit No.	66054556	**Invoice Date**	August 26, 2008
Terms	Net 30 Days		
Remit to	TestAmerica Laboratories, Inc. Dept 2314, P.O. Box 122314, Dallas, TX 75312-2314		

Bill to:	**Ship to:**
City of Jacksonville Attn: Accounts Payable 1031 Superior St. Jacksonville, FL 32254	HDR, Inc. 200 W. Forsyth St., Suite 800 Jacksonville, FL 32202

P.O. Number	**W.O. Number**	**Contract Number**	**Work Ordered by**
PO802538:7			Mr. Brad Stone (904) 598-8953
Job Description	**Site Name**	**SDG Number**	**Invoice Contact**
See below	HDR/Trail Ridge Landfill		Ms. Zora Coleman

Job No.	**Job Description / Method/Test Description**	**Receipt Date**	**Quantity**	**Unit Price**	**Amount**
J24424-1	**Trail Ridge Landfill**	**08/02/2008**			
	200.7 - Total Recoverable ICP Metals		9.00	60.00	540.00
	200.7 Rev 4.4 - Dissolved 200.7 Dissolved		1.00	40.00	40.00
	SM 2320B - Bicarbonate		9.00	10.00	90.00
	245.1 - HG		9.00	12.00	108.00
	SM 2540C - Total Dissolved Solids (Dried at 180 °C)		9.00	10.00	90.00
	350.1 - Ammonia		9.00	10.00	90.00
	353.2 - Nitrate		9.00	10.00	90.00
	SM 4500 CN E - Cyanide		9.00	10.00	90.00
	504.1 - EDB, DBCP		9.00	25.00	225.00
	8081A - Organochlorine Pesticides		9.00	80.00	720.00
	8082 - PCBs		9.00	20.00	180.00
	8141A - Organophosphorus Pesticides		9.00	80.00	720.00
	8260B - Volatiles		9.00	60.00	540.00
	8270C - Appendix 2		9.00	80.00	720.00
	SM 4500 Cl- E - Chloride		9.00	7.00	63.00
	SM 4500 S2 F - Sulfide		9.00	10.00	90.00
	200.8 - Total Recoverable 200.8 TL		9.00	23.00	207.00
	8151A - Chlorinated Herbicides by GC		9.00	100.00	900.00

8/29/08 - Approved for Payment

$615/well

Project Number	**Client Number**	**Project Manager**	**Subtotal**	**$5,503.00**
66000337	1350446	Nancy Robertson		
Latest Sample Receipt Date	**Latest Report Date**	**Phone Number**	**Total**	**$5,503.00**
08/02/2008	08/22/2008	(813) 885-7427		

For proper credit, please include invoice number on all remittance.

TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634

Permit Renewal
Well Analyses

Juanitta Clem

From: Stone, Bradford M [Brad.Stone@hdrinc.com]
Sent: Sunday, January 11, 2009 4:34 PM
To: Juanitta Clem
Subject: TRL - cost for monitoring

Juanita - per your request for Trail Ridge Landfill we are currently charging Waste Management 2500 per semiannual report. This cost does not include sampling, laboratory analysis, or resampling. Test America does the analytical work, Protech does the sampling. Let me know if you need anything more....

Brad Stone, P.E.
HDR | ONE COMPANY - ***Many Solutions***
200 W. Forsyth St., Ste 800
Jacksonville, FL 32202
Phone (904) 598-8953
Fax (904) 598-8988
Cell (904) 607-6316
Email: brad.stone@hdrinc.com

Juanitta Clem

From: Triplett, Mark [MTriple1@wm.com]
Sent: Monday, January 12, 2009 2:08 PM
To: Juanitta Clem
Subject: RE: Trail Ridge

Annually, I have a proposed budget number of $12,252 for all their sampling at Trail Ridge.

Will that be enough for this submittal?
-----Original Message-----
From: Juanitta Clem [mailto:ClemJ@etminc.com]
Sent: Monday, January 12, 2009 12:38 PM
To: Triplett, Mark
Cc: Dolihite, Brian
Subject: Trail Ridge

Mark –

I got the report costs from Brad Stone but his costs do not include the sampling costs from Protech. Do you have their costs?

Juanitta Clem
Principal/P.E.

England-Thims & Miller, Inc.
Vision Experience Results
14775 Old St. Augustine Road • Jacksonville, Florida 32258

Direct: 904-265-3181 Fax: 904-646-9485
Cell: 904-710-3162 Email: ClemJ@etminc.com

This message may contain confidential information. If you have received this message by mistake, please inform the sender by sending an e-mail reply. At the same time please delete the message and any attachments from your system without making, distributing or retaining any copies. Although all our e-mail messages and any attachments upon sending are automatically virus scanned we assume no responsibility for any loss or damage arising from the receipt and/or use.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Invoice/Credit No.	66051400	Invoice Date	February 27, 2008
Terms	Net 30 Days		
Remit to	TestAmerica Laboratories, Inc. Box 4305, Philadelphia PA, 19175-4305 Tax ID: 23-2919996		

Bill to:

City of Jacksonville
Attn: Accounts Payable
1031 Superior St.
Jacksonville, FL 32254

Ship to:

HDR, Inc.
200 W. Forsyth St., Suite 800
Jacksonville, FL 32202

P.O. Number	W.O. Number	Contract Number	Work Ordered by
PO802538:7			Mr. Brad Stone (904) 598-8953
Job Description	**Site Name**	**SDG Number**	**Invoice Contact**
See below	HDR/Trail Ridge Landfill		Ms. Zora Coleman

Job No.	Job Description / Method/Test Description	Receipt Date	Quantity	Unit Price	Amount
J20884-1	**Trail Ridge Landfill**	01/31/2008			
	350.1 - Nitrogen (Ammonia, Colorimetric, Automated Phenate)		2.00	10.00	20.00
	351.2 - Nitrogen, Total Kjeldahl (Colorimetric, Semi-Automated Block Digester, AAII)		2.00	15.00	30.00
	200.7 Rev 4.4 - Total Recoverable ICP Metals by 200.7		2.00	48.00	96.00
	245.1 - Mercury		2.00	12.00	24.00
	SM 2540C - Total Dissolved Solids (Dried at 180 °C)		2.00	10.00	20.00
	SM 2540D - Total Suspended Solids Dried at 103-105°C		2.00	5.00	10.00
	353.2 - Nitrate		2.00	10.00	20.00
	365.4 - Total Phosphorus		2.00	12.00	24.00
	504.1 - EDB, DBCP, and 123TCP in Water by Microextraction and Gas Chromatography		2.00	30.00	60.00
	SM 5210B - 5 Day BOD test		2.00	20.00	40.00
	SM 5220D - Chemical Oxygen Demand (COD) Colorimetric		2.00	12.00	24.00
	SM 5310C - Total Organic Carbon/Persulfate - Ultraviolet Oxidation Method		2.00	18.00	36.00
	8260B - VOCs		2.00	60.00	120.00
	SM 4500 Cl- E - Chloride (Colorimetric, Automated Ferricyanide)		2.00	7.00	14.00
	9221E - Fecal coliforms sub to AEL		2.00	31.00	62.00
	SM10200H - Chlorophyll-A subbed to AEL		2.00	50.00	100.00
	UnionizedNH3 - Unionized Ammonia by Florida DEP SOP		2.00	10.00	20.00
	200.8 - Total Recoverable Thallium		2.00	20.00	40.00

2/27/08 - Approved for Payment

Project Number	Client Number	Project Manager	Subtotal	$760.00
66000337	1350446	Nancy Robertson		
Latest Sample Receipt Date	**Latest Report Date**	**Phone Number**	**Total**	$760.00
01/31/2008	02/27/2008	(813) 885-7427		

For proper credit, please include invoice number on all remittance.

TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634

8380 | location

Annual Surface Water Analyses

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Invoice/Credit No.	66051401	Invoice Date	February 27, 2008
Terms	Net 30 Days		
Remit to	TestAmerica Laboratories, Inc. Box 4305, Philadelphia PA, 19175-4305 Tax ID: 23-2919996		

Bill to:

City of Jacksonville
Attn: Accounts Payable
1031 Superior St.
Jacksonville, FL 32254

Ship to:

HDR, Inc.
200 W. Forsyth St., Suite 800
Jacksonville, FL 32202

P.O. Number	W.O. Number	Contract Number	Work Ordered by
PO802538:7			Mr. Brad Stone (904) 598-8953
Job Description	**Site Name**	**SDG Number**	**Invoice Contact**
See below	HDR/Trail Ridge Landfill		Ms. Zora Coleman

Job No.	Job Description / Method/Test Description	Receipt Date	Quantity	Unit Price	Amount
J20885-1	**Trail Ridge Landfill**	01/31/2008			
	350.1 - Nitrogen (Ammonia, Colorimetric, Automated Phenate)		2.00	10.00	20.00
	200.7 Rev 4.4 - Total Recoverable All Metals Use this list not local		2.00	72.00	144.00
	SM 2320B - Bicarbonate		2.00	10.00	20.00
	245.1 - Mercury in Water by CVAA		2.00	12.00	24.00
	SM 2540C - Total Dissolved Solids (Dried at 180 °C)		2.00	10.00	20.00
	353.2 - Nitrogen, Nitrate-Nitrite (Colorimetric, Automated, Cadmium Reduction)		2.00	10.00	20.00
	SM 4500 CN E - Cyanide, Total: Colorimetric Method		2.00	20.00	40.00
	504.1 - EDB, DBCP, and 123TCP in Water by Microextraction and Gas Chromatography		2.00	30.00	60.00
	8081A - Organochlorine Pesticides by Gas Chromatography		2.00	60.00	120.00
	8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography		2.00	20.00	40.00
	8141A - Organophosphorous Compounds by Gas Chromatography, Capillary Column Technique		2.00	70.00	140.00
	8151A - Chlorinated Herbicides by GC		2.00	110.00	220.00
	8260B - Volatile Organic Compounds by GC/MS		2.00	60.00	120.00
	8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)		2.00	70.00	140.00
	SM 4500 Cl- E - Chloride (Colorimetric, Automated Ferricyanide)		2.00	7.00	14.00
	SM 4500 S2 F - Sulfide (Titrimetric, Iodine)		2.00	36.00	72.00

2/27/08 - Approved for payment

Project Number	Client Number	Project Manager	Subtotal	$1,214.00
66000337	1350446	Nancy Robertson		
Latest Sample Receipt Date	Latest Report Date	Phone Number	Total	$1,214.00
01/31/2008	02/27/2008	(813) 885-7427		

For proper credit, please include invoice number on all remittance.

TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634

$607/each

Annual Leachate Analyses

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Invoice/Credit No.	66051402	Invoice Date	February 27, 2008
Terms	Net 30 Days		
Remit to	TestAmerica Laboratories, Inc. Box 4305, Philadelphia PA, 19175-4305 Tax ID: 23-2919996		

Bill to:

City of Jacksonville
Attn: Accounts Payable
1031 Superior St.
Jacksonville, FL 32254

Ship to:

HDR, Inc.
200 W. Forsyth St., Suite 800
Jacksonville, FL 32202

P.O. Number	W.O. Number	Contract Number	Work Ordered by
PO802538:7			Mr. Brad Stone (904) 598-8953
Job Description	**Site Name**	**SDG Number**	**Invoice Contact**
See below	HDR/Trail Ridge Landfill		Ms. Zora Coleman

Job No.	Job Description / Method/Test Description	Receipt Date	Quantity	Unit Price	Amount
J20886-1	**Trail Ridge Landfill**	01/31/2008			
	6010B - TCLP RCRA metals		1.00	33.00	33.00
	7470A - TCLP Mercury in Liquid Waste (Manual Cold Vapor Technique)		1.00	12.00	12.00
	8081A - TCLP Organochlorine Pesticides by Gas Chromatography		1.00	120.00	120.00
	8151A - TCLP Chlorinated Herbicides by GC		1.00	120.00	120.00
	8270C - TCLP Semivolatiles		1.00	120.00	120.00
	8260B - TCLP Volatiles		1.00	120.00	120.00

2/27/08 - Approved for Payment J Cove

$525/each

Project Number	Client Number	Project Manager	Subtotal	$525.00
66000337	1350446	Nancy Robertson		
Latest Sample Receipt Date	**Latest Report Date**	**Phone Number**	**Total**	$525.00
01/31/2008	02/27/2008	(813) 885-7427		

For proper credit, please include invoice number on all remittance.

TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634

Composite
Annual Leachate Analyses

Juanitta Clem

From: Parnell, Daniel P. - Manager, Industrial Pretreatment [ParnDP@jea.com]
Sent: Friday, January 09, 2009 11:52 AM
To: Juanitta Clem
Subject: Leachate Rates

Juanitta,

JEA charges the City of Jacksonville $0.00388/gallon for landfill leachate.

Dan Parnell
Manager, Industrial Pretreatment
JEA
904-665-4796 (office)
904-502-9017 (cell)
904-665-8334 (fax)

Florida has a very broad Public Records Law. Virtually all written communications to or from State and Local Officials and employees are public records available to the public and media upon request. JEA does not differentiate between personal and business e-mails. E-mail sent on the JEA system will be considered public and will only be withheld from disclosure if deemed confidential pursuant to State Law. Under Florida law, e-mail addresses are public records. If you do not want your e-mail address released in response to a public-records request, do not send electronic mail to this entity. Instead, contact JEA by phone or in writing.

Appendix O

DEP004803

APPENDIX O

COVER LETTER FOR THE BIENNIAL WATER QUALITY TECHNICAL REPORT AND THE SEMIANNUAL GROUNDWATER MONITORING REPORT

HDR ONE COMPANY | *Many Solutions*

October 13, 2008

Ms. Sally Heuer
Northeast District
Florida Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256

Re: Biennial Water Quality Technical Report
I.D. Number NED/16/00033628
Permit # 0013493-010-SC

Dear Ms. Heuer:

Please find the enclosed Biennial Water Quality Technical Report for the Trail Ridge Landfill. This report is submitted in part to fulfill the requirements for permit renewal at the facility.

Sincerely,
HDR Engineering, Inc.

Nandi Wang, PhD
Project Manager

Cc: Mark Triplett PE, BCEE,

HDR Engineering, Inc.
200 W Forsyth Street
Suite 800
Jacksonville, FL 32202-4321
Phone: (904) 598-8900
Fax: (904) 598-8988
www.hdrinc.com

HDR ONE COMPANY | *Many Solutions*

October 13, 2008

Ms. Sally Heuer
Northeast District
Florida Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256

Re: Semiannual Groundwater Monitoring Report
I.D. Number NED/16/00033628
Permit # 0013493-010-SC

Dear Ms. Heuer:

Enclosed is the Semiannual Groundwater Monitoring Report for the Trail Ridge Landfill. This report is submitted in part to fulfill a requirement for permit renewal at the facility. In accordance with Specific Condition 48 m of the permit, this report includes analytical data for groundwater samples analyzed for the parameters listed in Attachment 2 (including the parameters listed in 40 CFR Part 258 Appendix II) of the facility's permit.

Sincerely,
HDR Engineering, Inc.

Handi Wang, PhD
Project Manager

Cc: Mark Triplett PE, BCEE,

HDR Engineering, Inc.
200 W Forsyth Street
Suite 800
Jacksonville, FL 32202-4321
Phone: (904) 598-8900
Fax: (904) 598-8988
www.hdrinc.com

Appendix P

DEP004807

APPENDIX P

TRAIL RIDGE LANDFILL, FRP TANK INSPECTION REPORT

MAVERICK SUPPORTS & SERVICES, INC.
1611 10th Avenue West, Palmetto, FL 34221 Ph: (941) 721-1800 Fax: (941) 721-1864

November 23, 2008

Edward Schmalfeld
Waste Management, Inc.
5110 U.S. Highway 301S
Baldwin, FL 32234

Subject: Trail Ridge Landfill, FRP Tank Inspection
Report on Inspection of (6) FRP Tanks

Reference: Maverick No. 2008531

Dear Ed,

At your request and as contracted, Mr. Joe Slawter of Maverick Applied Science, Inc. conducted visual external inspections of (6) FRP leachate storage tanks at the Trail Ridge Landfill facility, Baldwin, FL. With the assistance of Waste Management, the inspection of the six (6) FRP storage tanks was conducted on November 23, 2008.

The attached report discusses observations regarding the general conditions of the tank exterior and its installation. Our observations with comments and recommendations are included in the attached report. If you have any questions or comments regarding the contents of this report, I am available for discussion at your convenience at (941) 721-1800. If we can assist in any other way please contact us.

Sincerely,

Jeffrey D. Eisenman, P.E.
President

General Scope

As part of the tank integrity program at Trail Ridge Landfill, Baldwin, FL, Maverick Applied Science, Inc. was contracted to inspect six (6) fiberglass reinforced plastic (FRP) above ground storage tanks. On November 23, 2008, Joe Slawter, of Maverick Applied Science, Inc. was on site to conduct an external visual inspection of existing FRP tanks to make an assessment of their condition and projected remaining and reliable service life. There are four (4) tanks within our scope of inspection and are described as follows:

Tank Service:	Leachate Storage
Construction:	Fiberglass Reinforced Plastic (FRP), Filament Wound Shell with Contract Molded Head and Bottom
Liner:	C Glass Veil backed with (2) plies of Chopped Strand Glass
Resin:	Ashland Hetron 922 Vinyl Ester
Capacity:	22000 Gallons
Diameter:	14 feet
Height:	19 feet
Max. Specific Gravity:	1.3
Design Pressure:	Atmospheric
Design Temperature:	Ambient
Date Manufactured:	April, 1992

MAVERICK SUPPORTS & SERVICES, INC.
1611 10th Avenue West, Palmetto, FL 34221 Ph: (941) 721-1800 Fax: (941) 721-1864

Due to the current operating conditions, each of the six (6) tanks was near full with leachate to the overflow point of full level. External inspections of the shell.

Inspection Criteria

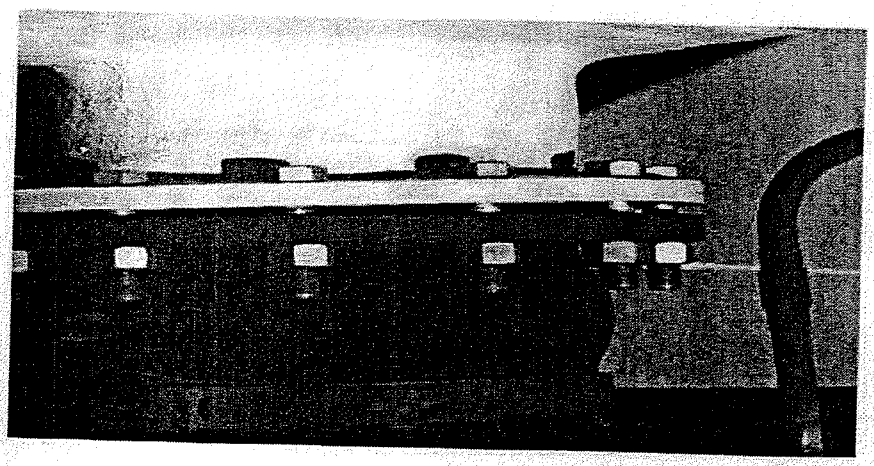
Fiberglass Reinforced Plastic (FRP) Tanks

1. The FRP tank external surfaces shall be inspected during operation.
2. Inspections were conducted in accordance with the "Visual Inspection Acceptance Criteria" as defined by ASME RTP-1, "Reinforced Thermoset Plastic Corrosion Resistant Equipment", as applicable.
3. Dimensional tolerances will be examined for tank inside diameter, fitting alignment and location, giving consideration to the original manufacturing and as defined by ASTMD3299.
4. Tank transitions and joints shall be examined for signs of stress and distortion.
5. Tank finish and wall shall be examined for signs of ultraviolet (UV) degradation.
6. Abnormalities, indications of fatigue, stress cracking and defects shall documented and evaluated in accordance with limitations as defined by ASTM D-2563, Level II, as applicable.

FRP Tank Inspections

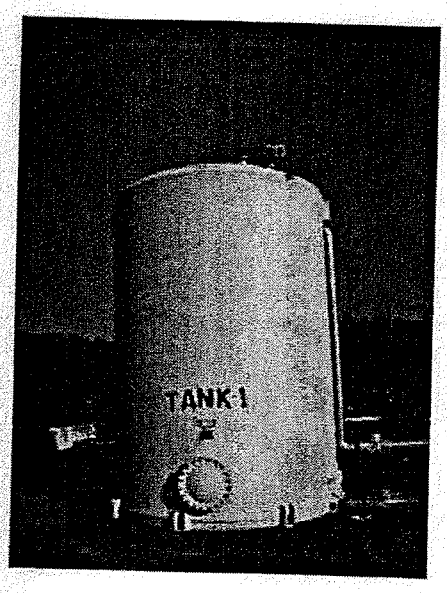
The following discussion, applies to all six Leachate tanks. An expansion joint is installed at the overflow interconnect flange of each tank. The rubber expansion joints have a raised seal and flange stop, fitted with a cast steel, van-stone type flange. The raised flange face of the adjoining steel flange creates a significant bending moment on the fiberglass flanges. The flanges should be seated and torqued, implementing an established torque procedure to assure that flange loads are evenly distributed across all bolts and around the FRP flange. If the ¾" thick FRP flanges are not appropriately torqued, flanges may be over-torqued, leading to a catastrophic or fatigue failure. Some of the flanges appear un-evenly torqued. The measurements of the gaps have been noted.

The original clear PVC liquid indicator has been removed from the tank with the instrument ports flanged or valved off.



The following description details observations of the present condition of each leachate storage tank. Assessments and recommendations for each tank shall follow.

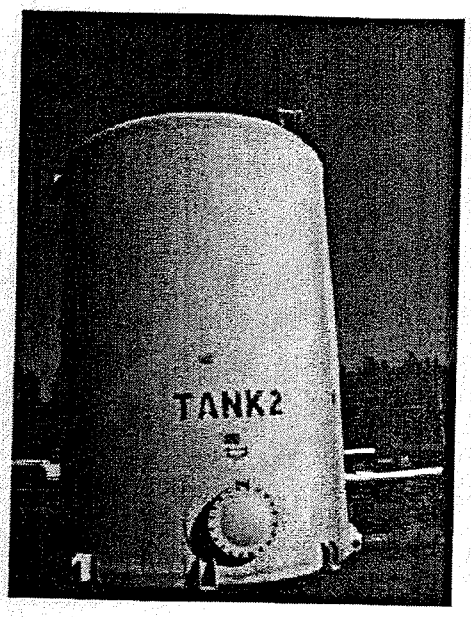
Tank #1 Leachate Storage Tank

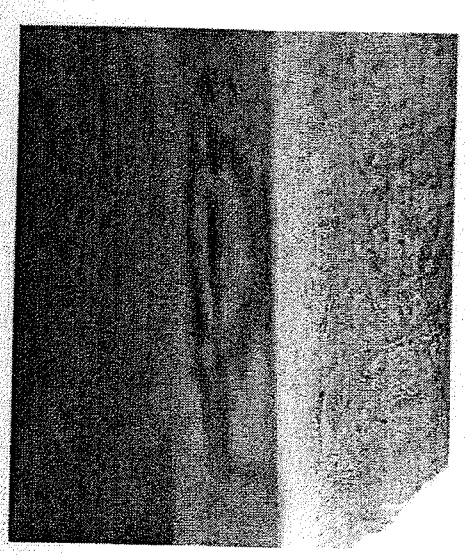


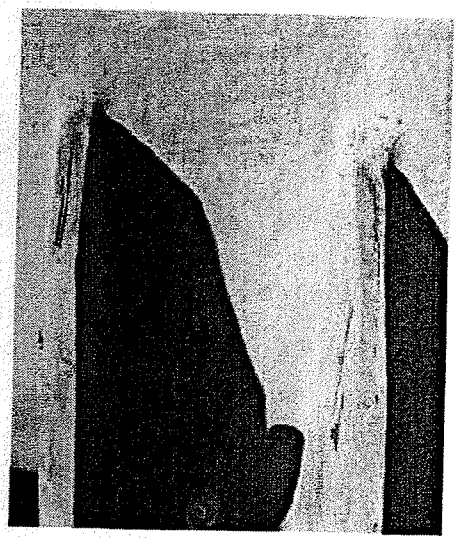
The exterior of Tank #1 was inspected and I found evidence of weathering and UV degradation of the shell walls and the top. There is a slight crack in the hold down lug to the right of the truck fill. The remaining five lugs show no signs of stress or cracks. There is a minor crack on the bottom right side of the overflow interconnect flange. There aren't any washers against the FRP flange. The man way flange gasket is cracked and weathered. The shell barcol readings average 57.5 and the man way laminate average is 59.7.

Tank #2 Leachate Storage

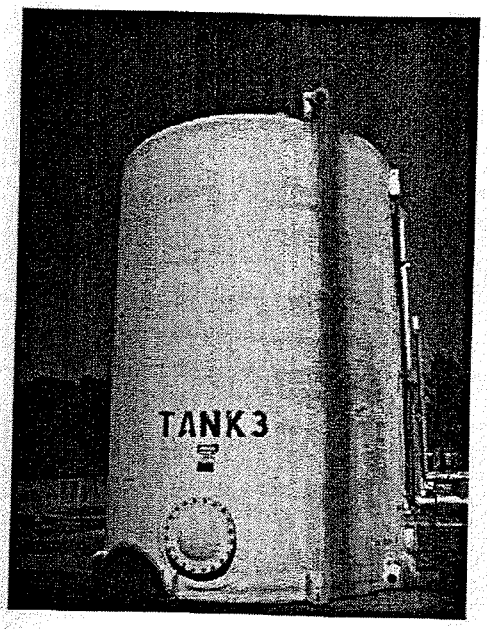
There is some evidence of weathering and UV degradation to the exterior shell and top. There are also some slight cracks in the lugs. The bolts are all tight. There is a slight crack in the lug to the right of the man way at 45 degrees. The second lug to the left of the man way, or 90 degrees and the lug at 180 degrees also have some minor voids. There is no evidence of failure. There is some discoloration at the top and down the side from the overflow. The overflow interconnect flanges have a consistent 3/8 inch gap. The barcol averages are 54.8 at the shell wall and 57.3 at the man way laminate.



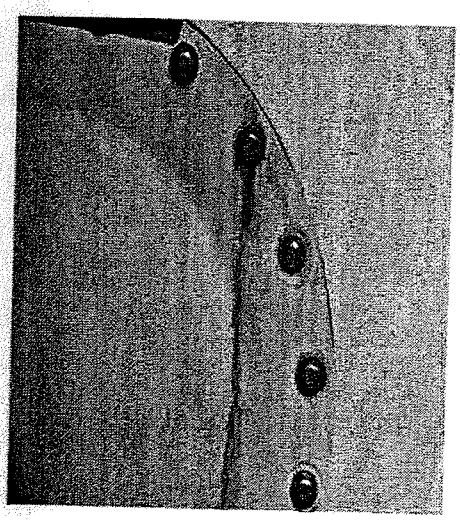


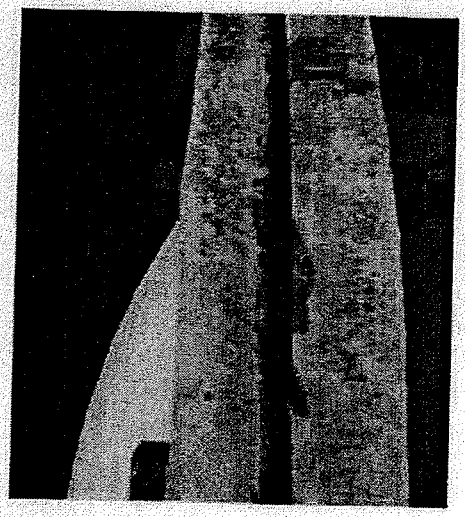


Tank #3 Leachate Storage Tank

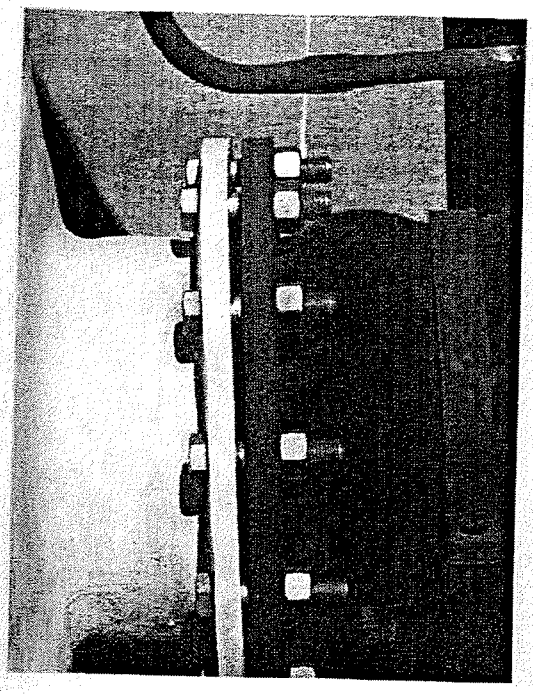


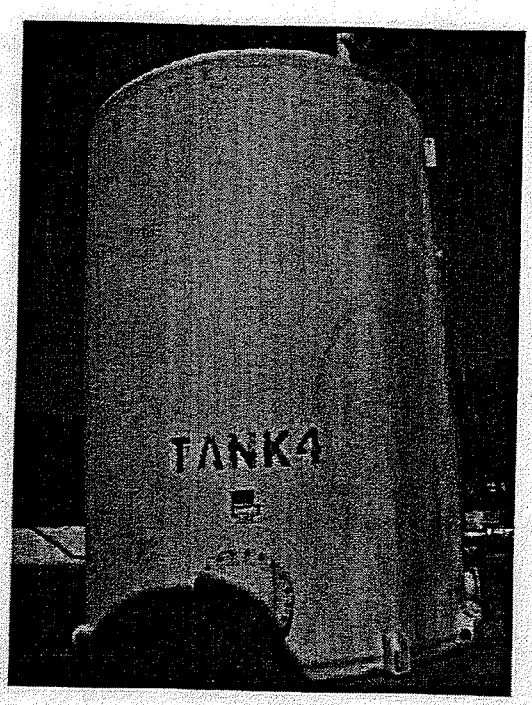
The exterior of the tank was inspected and as with the previous two there is evidence of weathering and UV degradation. The man way gasket is brittle and cracked. There are some gauges on the man way top edge, and some weathering. The overflow interconnect flange is missing the washers on the FRP side. The gap between the van stone flange side and the FRP varies from 7/16/ to ½ inch in width. There is no evidence of any leakage from any seams or flanges.

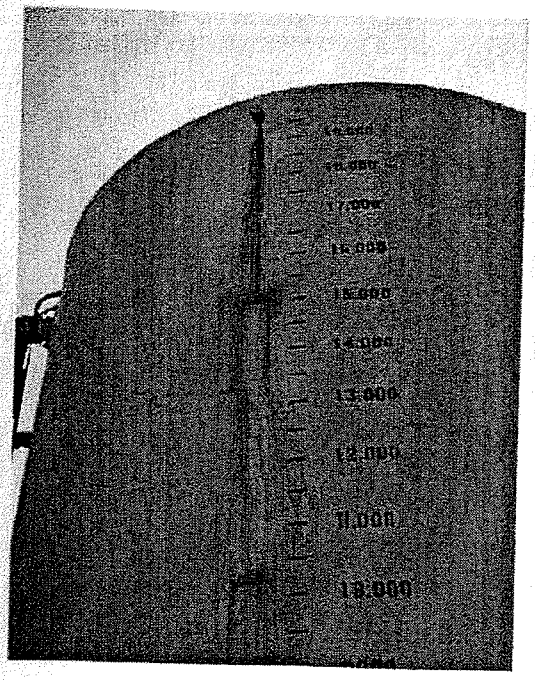




Tank #4 Leachate Storage



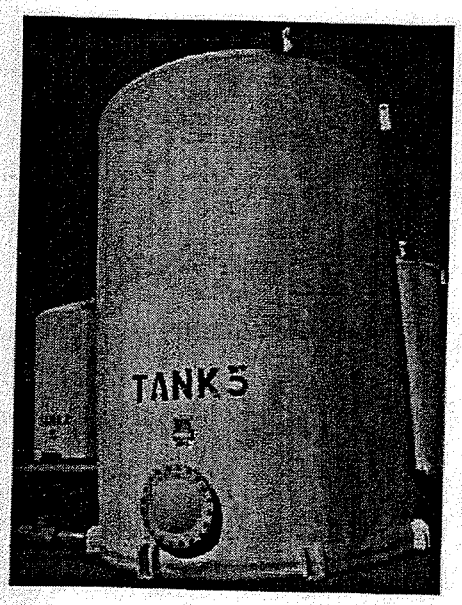


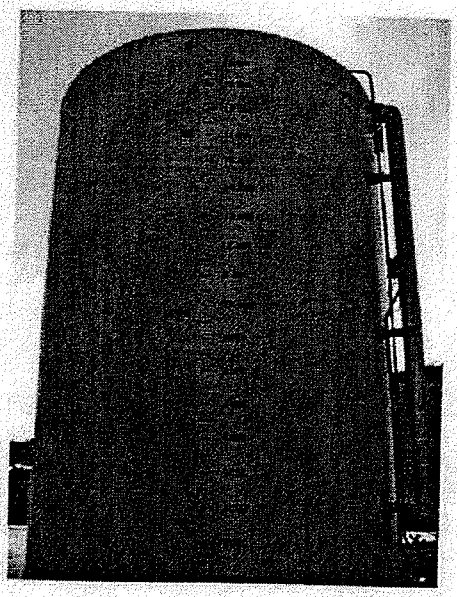


I inspected the exterior of the shell of tank 4 and found there was evidence of weathering and UV degradation. The nozzles are in good repair. The overflow interconnect flange has a slight irregular gap from 5/16 to 3/8 of an inch. There is a slight crack at the bottom of the FRP flange. There is no leakage here. The upper fluid level tube nozzle has been capped off but shows evidence of leaking when the fluid is at that level. The barcols of the shell average 42.3 and the man way laminate 52.3.

Tank #5 Leachate Storage

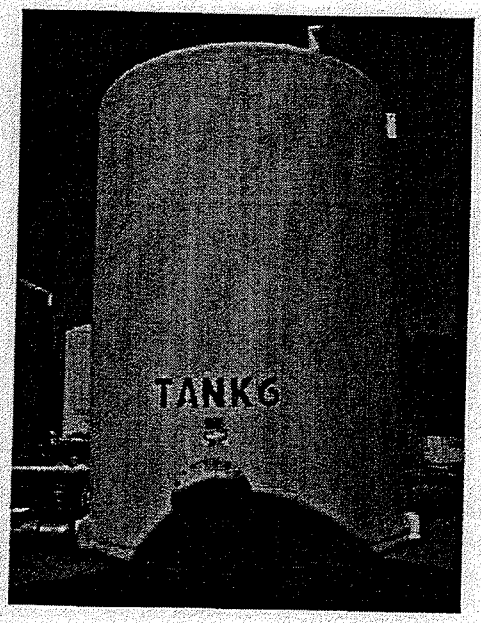
The exterior inspection of tank 5 found the shell and top weathering and UV degradation evident. The exterior laminate seams look good with no signs of separation or failure. There are eight lugs and only two have washers and four are loose in the concrete. The overflow interconnect flange has a crack on the bottom lower side of the FRP. It is probably related to improper tightening. I found no evidence of any leaks. The man way flange gasket is showing signs of age and is cracked and stiff. Barcols for the shell were averaged at 65.5 and 56 for average of the man way flange.

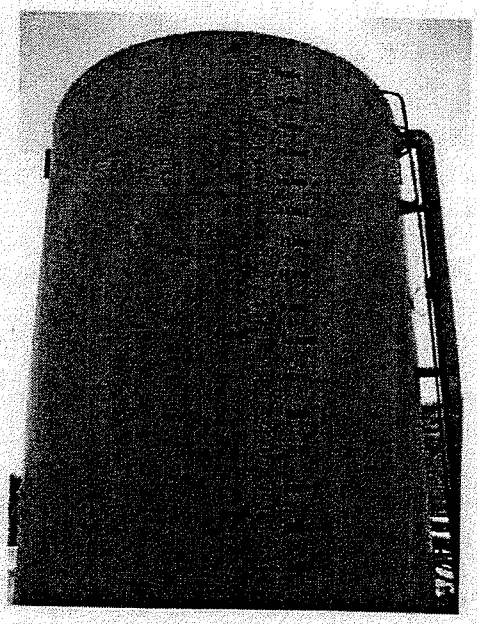


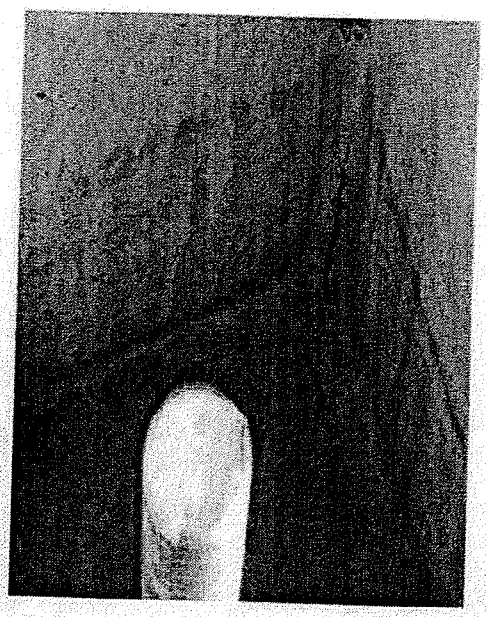


Tank #6 Leachate Storage

Examination of Tank 6 showed the same UV degradation and weathering as the other five tanks. There is a crack in one of the hold down lugs. This crack had been discovered and reported on an earlier inspection. It appears that there has been no change in the depth or length from its first discovery. The flanges at the overflow interconnection have a gap varying from 5/16 of an inch to 3/8 of an inch in width. I cannot find any evidence that the flanges are leaking. There are no flat washers against the FRP side of the flange. There is a slight crack on the back side and on the right side of this same flange. There is no evidence of any leaking at this point. The shell barcols average 55.9 and the man way barcols average 51.0.







Cracked lug – rediscovered crack

Overflow interconnect flange

Summary and Recommendations

These tanks have been in service for seventeen years and appear to be in good shape with the exception of a few points. No leaks were found.

Proper torque procedures for FRP flanges should be acquired and implemented to help prevent cracking. Our office can lend assistance if desired.

Flat washers on the FRP side of flanges allow more even torque on the flanges

Re-gel coating of the tank top and weather affected area will aid in the UV retardation and extend the life of the tank.

Inspected by:

Joe Slawter
Maverick Applied Science, Inc.

Appendix Q

DEP004819

APPENDIX Q

FIRST RAI RESPONSE TO THE F.D.E.P.

England-Thims & Miller, Inc.

14775 Old St. Augustine Road • Jacksonville, Florida 32258
tel 904.642.8990 • fax 904.646.9485 • www.etminc.com

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NORTHEAST DISTRICT
DEP-JACKSONVILLE

PRINCIPALS
Douglas C. Miller, P.E., CEO
N. Hugh Mathews, P.E., President
Joseph A. Tarver, Exec. V.P.
Juanitta Bader Clem, P.E., V.P.
Scott A. Wild, P.E., PSM, V.P.
Samuel R. Crissinger, CFO, V.P.
Robert A. Mizell, Jr., P.E., V.P.
Thomas N. Fallin, P.E., V.P.
Buckley K. Williams, C.C.C.A., V.P.
K.T. Peter Ma, P.E., V.P.

EMERITUS
James E. England, P.E.
Robert E. Thims

January 20, 2009

Mr. Emerson Raulerson, P.E.
Florida Department of Environmental Protection
Northeast District Office
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7590

RE: ***Trail Ridge Landfill***
Class I Landfill and Waste Tire Processing Facility
Operation Renewal Application
ETM No. 07-044-02

Dear Mr. Raulerson:

We have received your letter dated November 14, 2008 regarding the referenced application. We offer the following response. Please note each comment (bold face type) is repeated below followed by our response in italics.

Memorandum by Michael Bogin dated November 13, 2008

1. **In responding to this request for additional information (RAI) if one response modifies a section of the Operations Plans or the Contingency Plan and Emergency Procedures Plan, the respective section(s) should be modified accordingly. A revised, complete version of the plans that includes all revisions made in responding to this RAI should be attached. To enable DEP to view changes to the plan, all additions should be underlined (e.g., added) and all deletions should be struck through (e.g. ~~deleted~~). By this method, DEP hopes to have one final version of the respective plans that includes all revisions made during this permitting process.**

Please see the attached Permit Documents including the Application Form and Operation Plan which have been revised pursuant to your request.

2. **Since the project is reasonably expected to result in a heightened public concern or the possibility for a request for administrative processing, pursuant to Florida Administrative Code (FAC) Rule 62-110.106(7)(a)1, please publish the Notice of Application in a newspaper of general circulation in the area where the facility is located, and provide proof of publication to DEP.**

The Notice of Application was published on November 26, 2008 in the Florida Times-Union, as requested. Please see the attached proof of publication.

3. **In addition to indicating "No Change" on the application form, also identify the document (including its date) in which information was previously provided, and where in that document the information is located.**

Please see the attached Application Form which has been modified as requested.

RE: Trail Ridge Landfill
Class I Landfill and Waste Tire Processing Facility
Operation Renewal Application
ETM No. 07-044-02

4. **It appears that language in the "Permit Documents for Operation and Construction" sections is very similar to the previous Permit Application (i.e., the application submitted for the second permit renewal) and does not reflect many of the amendments and/or clarifications related to DEP's three requests for additional information for that application. Please evaluate DEP's comments and the facility's responses for that application, and address the changes in this Application.**

Please see the attached Permit Documents including the Application Form and Operation Plan which have been revised pursuant to your request.

5. **The application form was signed by Mr. Greg Mathes as a Director of Landfill Operations; however, the Florida Department of State, Division of Corporations webpage does not list him as an officer/director. Please either get the application form signed by an officer/director, or provide a letter of authorization from an officer/director (applicant) designating Mr. Greg Mathes as being authorized to act for the applicant in this matter.**

Please see the attached Application Form which has been signed by R. D. McConnell, Area Vice President. Mr. McConnell is listed as an Officer/Director on the Florida Department of State, Division of Corporations.

6. **In section A.5 of the Application Form and on the financial assurance cost estimates form, please indicate the DEP ID number as NED/16/00033628.**

Please see the attached Application Form and Financial Assurance Cost Estimate Form which have been modified, as requested.

7. **The latitude/longitude coordinates listed in Section A.7 of the Application Form (DEP Form # 62-701.900(1), Section B.7 of the Application Form (DEP Form 3 62-701.900(23), and in the financial assurance cost estimates form appear to be located offsite. Please verify the location of the latitude/longitude, which should be situated, preferably, in the middle of the active area.**

The latitude/longitude coordinates have been revised to reflect the middle of the active area on both Application Forms as well as the Financial Assurance Cost Estimate Form, as requested.

8. **In Section B.6 of the Application Form, please verify the charge for disposal. In accordance with our records, Trail Ridge Landfill currently charges $29.87 per ton.**

Please see the attached Application Form which has been modified, as requested.

9. **The Saturday hours of operation that are provided in Section B.15 of the Application Form differ from those listed on page 15 of the Permit Documents. Please clarify.**

The Saturday hours of operation in Section B. 15 of the Operation Plan have been modified to be consistent with the Application Form.

RE: Trail Ridge Landfill
Class I Landfill and Waste Tire Processing Facility
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10. Please note that the MSSW permit modification No. MS16-296691 to Solid Waste Permit No. SC16-184444 was a modification of the solid waste permit that expired within five years and, therefore, no longer exists. Thus, please indicate if a stand-alone ERP permit (including stormwater/mitigation projects) has been received.

MSSW Permit Modification No. MS16-296691 was issued by the Department on December 19, 1996, whereas Solid Waste Permit No. SC16-184444 expired on December 24, 1996 (the modification was issued prior to expiration). This modification allowed the construction/reconfiguration of the stormwater treatment system from filtration treatment to wet detention. No other separate or stand-alone ERP permit was issued.

Specific Condition No. 49. of Permit Number 0013493-002-SC (the first renewal of Solid Waste Permit No. SC16-184444) references Modification No. MS16-296691 and defines the Operation Phase of the Stormwater Management System. In addition, Specific Condition No. 43 of Permit Number 0013493-010-SC (the second renewal of Solid Waste Permit No. SC16-184444) provides the operational maintenance, inspections, etc. required for the stormwater management system. Therefore, we believe that the Solid Waste Permit has included the stormwater management system from the original permit through the current permit.

11. In Section S of the Application Form, please identify the proper location of the financial assurance cost estimates in the Application.

Please see the attached Application Form which has been modified, as requested.

12. In accordance with FAC Rule 62-701.320(7)(f) 6, "All elevations shall be referenced to National Geodetic Vertical Datum." Please confirm, and identify in the Application and on the Drawings that all elevations are in NGVD. If it is necessary, please provide conversion from one system to another (for instance, from MSL to NGVD).

The vertical datum for the drawings is based on NGVD 1929. Therefore, a note referencing the datum has been added to Drawing Nos. 6, 8, 9, 9A, 10, 11, 12, 13, 14, and 15. In addition, all references to set elevations within the Permit Documents have been revised to include a NGVD reference.

13. Please provide written quotes from two different third party sources that specialize in the precision earthwork (i.e., not ones that normally only do land clearing work) and that have no special ties to the applicant and/or the consultant. Please revise the cost estimates accordingly, utilizing the higher numbers from each set of quotes.

Pursuant to your request, we have obtained written quotes from two third party contractors, R.B. Baker Construction, Inc. and J.B. Coxwell Contracting, Inc., which are attached. The Financial Assurance Cost Estimate Form has been revised based upon those quotes. It should be noted that the cost estimates are based upon an average of the two price quotes. We believe this is a reasonable, conservative estimate because if the landfill were to close prematurely, the project would be put out to bid and more than likely, the low bid would be accepted, not the highest bid. In addition, Trial Ridge Landfill, Inc. has recently obtained bids for the expansion of the gas management system at the landfill and those bid prices were used to update the cost estimates for the gas management system.

RE: Trail Ridge Landfill
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14. Please provide written third party quotes with specific contact information for all the estimated costs. Also, please ensure that the quotes indicate that they are valid for any user (including DEP) and are not only valid for the individual requesting the quote.

Price quotes for construction were provided by two contractors. However, these prices are for estimating/budget purposes only. Contractors can not be held to a contract price without a project specific design and contract. Please see the footnotes and attachments to the Financial Assurance Cost Estimate Form for additional back-up for the various cost estimates.

15. Please note that the cost estimates need to be adjusted for removing the maximum amount of tires, processed and unprocessed. Please break down the cost to remove the tires from the site. Please provide letters from third parties quoting the cost they charge to remove tires from the site and to send them to a facility authorized to accept them, as well as the cost a facility/entity will charge to process and manage them. The costs shall not reflect any reduced costs. Also, please note that until DEP accepts the certification of closure construction completion, in writing, cost estimates to close that area are still required. Please revise your estimates accordingly.

Currently, whole waste tires are transported from Trail Ridge Landfill to Wheelabrator Ridge Energy, Inc., Auburndale, Florida for reuse/disposal. The current cost for transportation is $22.50 per ton and the cost for disposal at Wheelabrator is $70 per ton for a total fee of $92.50 per ton. These fees have been used in the revised Financial Assurance Cost Estimates contained in Appendix N.

16. Page 11 of Section V (Landfill Performance and Design Standards): In case of emergency, please propose special measures concerning leachate storage, handling, and disposal, in the event that the WWTP is unable to accept the landfill leachate.

Please see the attached letter from the JEA which states that the JEA will work with the City to find an alternate WWTP within the JEA system to provide a back-up treatment if the Buckman WWTP can not accept the leachate. In addition, it should be noted that based upon the average leachate generation of 96.5 gallon/acre/day (See Appendix E) and the 144 acre landfill footprint, the landfill will on average generate approx. 13,896 gallons of leachate per day. The six on-site leachate storage tanks can store 20,000 gallons each. Therefore, the site has the capacity to store in excess of 8 days of leachate. Therefore, between the storage capacity and the JEA back-up treatment, leachate storage, handling and treatment should be handled in the event that Buckman WWTP is not able to accept the leachate and other arrangements must be made within the JEA system.

17. Page 12 Section V (Landfill Performance and Design Standards): Please indicate whether the interior of the leachate storage tanks have been cleaned and/or repaired. Please provide records of inspections.

The leachate storage tanks were inspected by Maverick Supports and Services, Inc. on November 23, 2008. The inspection report is provided in Appendix P of the Permit Documents.

RE: Trail Ridge Landfill
Class I Landfill and Waste Tire Processing Facility
Operation Renewal Application
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18. Page 13 Section V (Landfill Performance and Design Standards): Please indicate whether the Permittee has applied for the Title V Air Operation Permit renewal, since existing permit has expired on August 31, 2008.

The Title V Air Operation Permit renewal was submitted to the Department on February 29, 2008. On December 29, 2008, the Department issued an Intent to Issue an Air Construction Permit and a Title V Air Operation Permit Renewal. A copy of the Department's Intent to Issue is attached.

19. Please indicate if the Permittee would like to continue to operate with two working faces. If yes, please amend the Operation Plan accordingly. Also, please specify the maximum working face dimensions.

The facility will need a second working face when they utilize the tipper. See the response to Question 24 below for additional information regarding the tipper. In addition, when access to the regular working face is limited due to wet weather, the facility has a wet weather operation area. Section VII. J. of the Operation Plan has been modified to include the second working face as well as the wet weather area, including dimensions.

20. Page 16 of Section VII, Part B (Contingency Operations): Please identify measures that will be taken if a vehicle arrives at the facility and it is discovered that it has a hot load. Please note that DEP considers it unacceptable to send such a load back out onto the public highways. Therefore, please delineate the area for the temporary storage of hot loads while they are being cooled, and indicate the manner in which those loads will be cooled.

Please see Sections VII B. and VII S. of the Operation Plan which explain how hot loads will be managed and extinguished. Please note that these sections were in the Operation Plan and have not been modified.

21. A discrepancy was noticed between page 21 and pages 27 and 28 of the Operation Plan concerning the amount of time when permanent vegetation will be placed over the entire surface of each completed solid waste disposal unit ("within 180 days" vs "as soon as practical"). Please clarify.

On Page 21, there is a description of when final cover, including permanent vegetation, will be placed (within 180 days after final waste placement of a solid waste disposal unit). On Pages 27 and 28, there is a description of establishing a vegetative cover (as an interim measure) on stormwater terrace after finish contours are complete but prior to the completion of the entire solid waste unit.

22. A discrepancy was noticed between page 30 and pages 21 and 27 of the Operation Plan concerning the amount of time when eroded areas will be repaired. Please clarify.

Please see the attached Operation Plan which has been revised so all three references state that the erosion repair will be implemented within three days of discovery.

RE: Trail Ridge Landfill
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23. **Pages 23 and 26 of Section VII (Operation Plan): Please provide operation and maintenance plan for both the stormwater management and the wetland irrigation systems. Please identify the discharge rate for the wet detention pond and the wetland irrigation system.**

Pursuant to your request, Sections VII L. and VII Q. of the Operation Plan have been modified to include operation and maintenance of the stormwater management and wetland irrigation systems. The discharge rate of the stormwater pumping system is between 2.11 and 2.5 cubic feet per second (cfs) and this is included in revised Section VII Q.

24. **Page 27 of Section VII (Operation Plan): Please specify if a tipper will be provided and utilized at the site.**

A tipper is provided at the site and is currently utilized for receipt of mulch. Nevertheless, the facility may utilize the tipper for solid waste disposal in the future. Section VII. J. of the Operation Plan has been modified accordingly.

25. **The existing permit allows the facility to use contaminated soil <u>as initial cover</u> (if it receives written approval from DEP). However, the Application does not have any information about these possibilities. Therefore, if the facility would like to continue this option, please amend the Application accordingly.**

Please see Sections IX B. and C. (the Special Waste Handling Section) which have been revised to include use of contaminated soil as initial cover.

26. **In the existing permit, the entire Specific Condition 32 is dedicated to contaminated soil and slag disposal or reuse, onsite storage, and records. However, the Application does not have any information about these possibilities. Therefore, if the facility would like to continue these options, please amend the Application accordingly.**

Please see Sections IX B. and C. (the Special Waste Handling Section) which have been revised to include use of contaminated soil as initial cover. In addition, see Section VII T. for the description of the use of slag for roadways.

27. **Please define in the Operation Plan the sampling protocols, including frequency and parameters, in which contaminated soil and ash will be analyzed. Please provide the methodology utilized to determine if the soils/ash are appropriate for usage as cover, based upon nuisance issues such as odors, moisture content, etc.**

Please see Sections IX. B. and C. (the Special Waste Handling Section) which have been revised to address this request.

28. **Please explain in which cases the facility will or will not provide DEP with analytical results prior to use or disposal of contaminated soil and/or ash at the facility.**

Prior to receipt of contaminated soils at the landfill, the facility will require analytical test results including TCLP for metals, volatiles, semi-volatiles, pesticides, herbicides and total PCBs. If the analytical results indicate that the material is not hazardous waste, the material may be approved for

disposal at the site without Department approval. Depending upon the contaminant of concern and the Department's approval on a case-by-case basis, the contaminated soil may be used for initial cover on interior side slopes but not on exterior side slopes. If the constituents of concern do not exceed Rule 62-777, FAC, Soil Cleanup Target Levels for Direct Exposure Based Industrial/Commercial Levels, the soil may be used for initial cover. If the soil has any visible organics or other material that may attract birds or vermin, has an odor or is saturated, it can not be utilized as initial cover. Please see Section IX. B. which has been revised.

It has been previously demonstrated that the ash contaminated soil from the Brown's Dump Site and the Jacksonville Ash Site does not typically exceed Rule 62-777, FAC, Soil Cleanup Target Levels for Direct Exposure Based Industrial/Commercial Levels. Due to the extensive data on this ash contaminated soil, a five point composite sample result will be required for every 1,000 cubic yards of soil (in lieu of every 500 tons) prior to delivery to the site. The composite sample shall be tested for TCLP for the eight RCRA Metals. If the TCLP testing indicates the soil is nonhazardous, this ash contaminated soil may be accepted at the site and used for initial cover on interior side slopes but not on exterior side slopes. However, if the soil has any visible organics or other material that may attract birds or vermin, has an odor or is saturated, it can not be utilized as initial cover. Please see Section IX. C. which has been added to the Special Waste Handling Section.

29. Please provide a scaled drawing showing the location for storage of impacted soils/ash prior to usage and a detailed description of signage and usage.

Contaminated soils that are stored on the site for future use as initial cover will be stockpiled on top of the landfill (within the lined landfill footprint). The stockpile will be located at a minimum of 20 feet from any side slopes. The storage area will be surrounded by a silt fence and a sign will be placed at each entrance. The sign will state that the area is initial cover storage area and that the material shall only be used on interior slopes. The stockpile locations will have to move during the five-year permit period. Therefore, a location plan for the permit period does not appear practical. Therefore, we propose this protocol for the stockpiles in lieu of a location plan.

30. Please list the procedures that will be followed at the facility to ensure that contaminated soil/ash is only used on internal slopes of the lined area. What safeguards will be in place to prevent it from being inadvertently placed on an external slope? What documentation will be maintained concerning the application of this material and its temporary storage prior to application?

Please see the response to Question 29 above. The facility will keep records on the amount of material received, the amount used for cover, and the location of the placement.

31. Please specify in the Operation Plan that material used for initial cover (such as shredded tires, contaminated soils, and ash) will be placed in a six-inch layer.

Please see Section VII. K. of the Operation Plan which has been revised to indicate that all initial cover material, including soil, shredded tires, contaminated soils, or ash contaminated soil, will be placed in a 6-inch layer.

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32. **Concerning the application of ash as an initial cover layer, please explain how it will affect the flow of leachate. Also, where will ash be stored? Please list the procedures that will be followed in managing ash from the time it is received until it is used.**

Ash residue received at the site will be placed on the working face and covered with additional waste or initial cover. The material will not be used as initial cover and will not be stockpiled on site.

33. **According to Section IX (Special Waste Handling), ash residue that meets the criteria of Rule 62-702.570(6), F.A.C. may be used as initial cover. Also, the Application states that "Ash residue...will be handled in accordance with Chapter 62-702, F.A.C." Please explain how the requirements of Rule 62-702.570(5), (7), (9), and (10) will be followed.**

Section IX has been modified and ash residue will not be used for initial cover. Any ash residue received at the site will be covered with additional waste or initial cover which should control fugitive dust emissions. In addition, any ash residue would be disposed with other waste (not in an isolated area) and therefore, would inhibit the formation of an impermeable layer. The facility does not plan to store ash residue on site. All ash residue will be placed within the working face on the day of receipt.

34. **Appendix D (Leachate Collection System Maintenance Program Report) was omitted from the Application. Please submit the report as required by Specific Condition 38.j of the existing permit.**

The Leachate Collection System Maintenance Report was submitted to the Department on November 10, 2008 under separate cover addressed to Emerson Raulerson. A copy is included in Appendix D of the Permit Documents in this submittal.

35. **The following comments concern the Waste Tire Processing Facility Permit Application:**

    a. **Please indicate the correct Permit number.**

    Please see the Waste Tire Processing Facility Permit Application Form which has been modified, as requested. A copy is included in Appendix I of the Permit Documents in this submittal.

    b. **Please indicate the type of permit the Application is for.**

    This application is for a permit renewal which has been indicated on the revised Application Form.

    c. **Please verify the location, which should be situated, preferably, in the middle of the active area.**

    The waste tire processing facility is located south of the non-contract drop off area and east of the operations building. The latitude/longitude of this area is indicated on the revised Application Form.

    d. **Although the existing permit limits the amount of stored whole waste tires to 100 tons, the Application indicates that 3,900 tons of whole waste tires will be stored. However, calculations were not provided showing the processing equipment has the throughput**

capacity to allow that amount of whole waste tires without violating the limitations placed by Rule 62-711.530(2)(a), F.A.C. Please clarify.

The facility will limit the storage of whole waste tires to 100 tons and the application has been modified to reflect this level. Currently, Wheelabrator is accepting the waste tires from the facility. Wheelabrator has the capacity to process in excess of 3.33 tons per day, but the facility will be limited to a maximum storage of 100 tons.

e. **In Section 3 (Operations and Maintenance) please specify the daily throughput of the processing equipment being used, and coordinate this number with requirement of the Rule 62-711.530(2)(a), F.A.C.**

Currently, Wheelabrator is accepting the waste tires from the facility. They have the capacity to accept more than 3.33 tons per day. Nevertheless, the facility will limit the maximum storage to 100 tons.

f. **In Section 3 (Operations and Maintenance) please specify if the Permittee would like to separately store used tires [as defined in the Rule 62-701.200. (130)]. If so, please confirm that the facility will be in compliance with requirement of the Rule 62-711.530(2)(b) F.A.C.**

The facility does not store used tires on site. The facility accepts waste tires only.

g. **Appendix I (Waste Tire Processing): It appears that language in the Appendix is identical with the original Application submitted for existing Permit and did not have any of the amendments provided in response to DEP's two requests for additional information. Also, please review and replace old references related to Rule 17-711.**

Please see the Waste Tire Processing Facility Plan which has been modified, as requested. A copy is included in Appendix I of the Permit Documents in this submittal.

h. **While the Application indicates that a site plan was provided in Exhibit A, that Exhibit was omitted from the Application. Please submit.**

Please see Exhibit A which was inadvertently omitted previously.

36. **Please indicate/explain why changes made to the Quality Assurance/Quality Control Plan for Side Slope Closures (Appendix K) were not made for the Quality Assurance/Quality Control Plan for the Top Area (Appendix L).**

The changes made to the Quality Assurance/Quality Control Plan for Side Slope Closures were made in response to Requests for Additional Information during the Second Permit Renewal process to address shear strength testing between the intermediate cover and the clay layer, and installation of the gas management system. The shear strength issue is not relevant to the Quality Assurance/Quality Control Plan for the Top Area because there is no clay layer. The installation of the gas management system could coincide with the closure of the Top Area; therefore the Quality Assurance/Quality Control Plan

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for the Top Area has been updated. Please see the revised plan in Appendix L of the Permit Documents in this submittal.

Memorandum by Richard Rachal dated November 14, 2008

1. **The Application references an existing monitoring plan on Page 30 and provides a semi-annual groundwater report cover page in Appendix O. Please provide an evaluation of the current monitoring program, as well as an affirmative conclusion that is adequate to monitor the facility or propose modifications to the plan.**

Please see the attached response from Brad Stone, P.E. of HDR.

Permit Condition Request

On behalf of Trail Ridge Landfill, Inc. we hereby request that the TCLP testing of the gas condensate required under Specific Condition 14.d. and 14.e. of the current permit be eliminated. The gas condensate is discharged into the leachate collection system and the combined waste stream (leachate and condensate) is tested. It does not appear necessary to test both waste streams separately.

We hope this response will adequately address your comments. Please contact me at 265-3181, if you have any questions or require additional information.

Sincerely,

ENGLAND-THIMS & MILLER, INC.

Juanitta Bader Clem, P.E.
Vice President

Attachments: Permit Documents (including the Application Form, Operation Plan, Leachate Collection System Maintenance Program Report (Appendix E), Waste Tire Processing Application (Appendix I), Quality Assurance/Quality Control Plan for Top Area (Appendix L), Financial Assurance Cost Estimate Form (Appendix N), and Leachate Storage Tank Inspection Report (Appendix P))
Proof of Publication
Price Quotes from R.B. Baker Construction, Inc. and J.B. Coxwell Contracting, Inc.
Letter from JEA
Department Intent to Issue an Air Construction Permit and a Title V Air Operation Permit Renewal
Response Letter from Brad Stone, P.E. of HDR

cc: Greg Mathes, Trail Ridge Landfill, Inc.
Chris Pearson, City of Jacksonville
Brian Dolihite, Trail Ridge Landfill, Inc.
Mark Triplett, Trail Ridge Landfill, Inc.
Scott Lockwood, P.E., ETM

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Submittal Data

Catalog	**Solid Waste**
Profile	**Permitting_Authorization**
County	**DUVAL**
Facility-Site ID	**33628 - TRAIL RIDGE LANDFILL LF1**
Document Date	**05-06-2009**
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Facility Type	**CLASS I LANDFILL (100)**
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