661536

England-Thims & Miller, Inc.

ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS

Principals
James E. England, P.E., Pres.
Robert E. Thims, Exec. V.P.
Douglas C. Miller, P.E., Exec. V.P.
N. Hugh Mathews, P.E., Exec. V.P.

December 17, 1996

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7590

NORTHEAST DISTRICT
RECEIVED
DEC 17 1996
DEP-JACKSONVILLE

Reference: Trail Ridge Landfill
Renewal of FDEP Permit Number SC16-184444
FDEP File Nos. 296641 and 296642
ET&M No. E96-49-1C

Dear Ms. Nogas:

We have received your Request for Additional Information (RAI) dated November 25, 1996, regarding the referenced project. In the RAI, a response was requested by December 26, 1996. However, we will not be able to fully respond to your request by that date. We will require an additional 30 days and therefore, will respond by January 27, 1997.

If you have any questions regarding this request, please feel free to give me a call.

Sincerely,

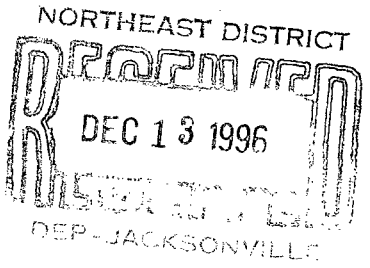
ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P.E.
Vice President

cc: Greg Mathes
Scott McCallister
Chris Pearson

3131 St. Johns Bluff Road S. • Jacksonville, FL 32246 • Tel: (904) 642-8990 • Fax: (904) 646-9485



Trail Ridge Landfill, Inc.
F.D.E.R. Volume Report
Nov-96

I. D. Number: GM3116P03090
Permit #SC116-18444

Trail Ridge Material Code	F.D.E.R. CODE	WASTE AMOUNT	
NONE	100	0.00	TONS
NONE	105	0.00	TONS
3,4,23,70,85-90,92,93	110	19,649.77	TONS
5,6,9,10,11,22,59,71,50% OF 73-78,81,84,94,95	115	20.73	TONS
NONE	120	0.00	TONS
NONE	125	0.00	TONS
1,2,7,8,25,72,50% OF 76-78	130	11,561.89	TONS
27,29	135	0.00	TONS
12, 13, 25% OF 79 & 91	200	800.25	TONS
NONE	205	0.00	TONS
25% OF 79 & 91	210	0.00	TONS
NONE	215	0.00	TONS
14, & 50% OF 76,77,79,91	220	14.23	TONS
5% OF 79 & 91	225	0.00	TONS
15	230	566.54	TONS
NONE	235	0.00	TONS
NONE	295	0.00	TONS
		0.00	TONS
	300	0.00	TONS
	305	0.00	TONS
	310	0.00	TONS
	315	0.00	TONS
	320	0.00	TONS
TOTALS		**32,613.00**	

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 26, 1996

The Honorable Betty Holzendorf
United States Senate - District 2
316 West State Street
Jacksonville, Florida 32202

Dear Senator Holzendorf:

Trail Ridge Landfill
FDEP Permit Number SC16-184444
File Numbers 296641 and 296642
Renewal Application
Duval County - Solid Waste

Please be advised that on October 28, 1996, the Department of Environmental Protection received a permit renewal application from Trail Ridge Landfill, Inc., to continue to construct and operate the Trail Ridge Landfill. The permit renewal application includes, but is not limited to, a proposal to construct Phases IIIC, IVC, and V, a proposal to increase the maximum height of the landfill from elevation 285 ft. to 350 ft., and a proposal to construct and operate an active gas collection system. The facility is located at 5110 U.S. Hwy. 301, Baldwin, Duval County, Florida.

The permit renewal application may be inspected during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Northeast District Office.

If you have any questions concerning this letter, please contact Mary Nogas, P. E., or me at the letterhead address or telephone number (904) 448-4320.

Sincerely,

Michael J. Fitzsimmons

Michael J. Fitzsimmons
Environmental Administrator-DEP

MJF:fd

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 26, 1996

Honorable Alex Robinson, Chairman
Board of County Commissioners
Baker County
55 North 3rd Street
Macclenny, Florida 32063

Dear Chairman Robinson:

Trail Ridge Landfill
FDEP Permit Number SC16-184444
File Numbers 296641 and 296642
Renewal Application
Duval County - Solid Waste

Please be advised that on October 28, 1996, the Department of Environmental Protection received a permit renewal application from Trail Ridge Landfill, Inc., to continue to construct and operate the Trail Ridge Landfill. The permit renewal application includes, but is not limited to, a proposal to construct Phases IIIC, IVC, and V, a proposal to increase the maximum height of the landfill from elevation 285 ft. to 350 ft., and a proposal to construct and operate an active gas collection system. The facility is located at 5110 U.S. Hwy. 301, Baldwin, Duval County, Florida.

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If you have any questions concerning this letter, please contact Mary Nogas, P. E., or me at the letterhead address or telephone number (904) 448-4320.

Sincerely,

Julia Beech
for Michael J. Fitzsimmons
Environmental Administrator-DEP

MJF:fd

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 26, 1996

The Honorable Stephen R. Wise
5655 Timuquana Road
Jacksonville, Florida 32238-0914

Dear Mr. Wise:

Trail Ridge Landfill
FDEP Permit Number SC16-184444
File Numbers 296641 and 296642
Renewal Application
Duval County - Solid Waste

Please be advised that on October 28, 1996, the Department of Environmental Protection received a permit renewal application from Trail Ridge Landfill, Inc., to continue to construct and operate the Trail Ridge Landfill. The permit renewal application includes, but is not limited to, a proposal to construct Phases IIIC, IVC, and V, a proposal to increase the maximum height of the landfill from elevation 285 ft. to 350 ft., and a proposal to construct and operate an active gas collection system. The facility is located at 5110 U.S. Hwy. 301, Baldwin, Duval County, Florida.

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If you have any questions concerning this letter, please contact Mary Nogas, P. E., or me at the letterhead address or telephone number (904) 448-4320.

Sincerely,

Julia Bosch

for Michael J. Fitzsimmons
Environmental Administrator-DEP

MJF:fd

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 26, 1996

The Honorable James E. King, Jr.
9485 Regency Square Boulevard, Suite 108
Jacksonville, Florida 32225-8145

Dear Mr. King:

Trail Ridge Landfill
FDEP Permit Number SC16-184444
File Numbers 296641 and 296642
Renewal Application
Duval County - Solid Waste

Please be advised that on October 28, 1996, the Department of Environmental Protection received a permit renewal application from Trail Ridge Landfill, Inc., to continue to construct and operate the Trail Ridge Landfill. The permit renewal application includes, but is not limited to, a proposal to construct Phases IIIC, IVC, and V, a proposal to increase the maximum height of the landfill from elevation 285 ft. to 350 ft., and a proposal to construct and operate an active gas collection system. The facility is located at 5110 U.S. Hwy. 301, Baldwin, Duval County, Florida.

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If you have any questions concerning this letter, please contact Mary Nogas, P. E., or me at the letterhead address or telephone number (904) 448-4320.

Sincerely,

Julia Barch

for Michael J. Fitzsimmons
Environmental Administrator-DEP

MJF:fd

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 26, 1996

The Honorable John Thrasher
772 Foxridge Center Drive
Orange Park, Florida 32065

Dear Mr. Thrasher:

Trail Ridge Landfill
FDEP Permit Number SC16-184444
File Numbers 296641 and 296642
Renewal Application
Duval County - Solid Waste

Please be advised that on October 28, 1996, the Department of Environmental Protection received a permit renewal application from Trail Ridge Landfill, Inc., to continue to construct and operate the Trail Ridge Landfill. The permit renewal application includes, but is not limited to, a proposal to construct Phases IIIC, IVC, and V, a proposal to increase the maximum height of the landfill from elevation 285 ft. to 350 ft., and a proposal to construct and operate an active gas collection system. The facility is located at 5110 U.S. Hwy. 301, Baldwin, Duval County, Florida.

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If you have any questions concerning this letter, please contact Mary Nogas, P. E., or me at the letterhead address or telephone number (904) 448-4320.

Sincerely,

Julia Bosch

for Michael J. Fitzsimmons
Environmental Administrator-DEP

MJF:fd

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 26, 1996

The Honorable Anthony C. Hill
5600 New Kings Road, Suite 1
Jacksonville, Florida 32209-2133

Dear Mr. Hill:

Trail Ridge Landfill
FDEP Permit Number SC16-184444
File Numbers 296641 and 296642
Renewal Application
Duval County - Solid Waste

Please be advised that on October 28, 1996, the Department of Environmental Protection received a permit renewal application from Trail Ridge Landfill, Inc., to continue to construct and operate the Trail Ridge Landfill. The permit renewal application includes, but is not limited to, a proposal to construct Phases IIIC, IVC, and V, a proposal to increase the maximum height of the landfill from elevation 285 ft. to 350 ft., and a proposal to construct and operate an active gas collection system. The facility is located at 5110 U.S. Hwy. 301, Baldwin, Duval County, Florida.

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If you have any questions concerning this letter, please contact Mary Nogas, P. E., or me at the letterhead address or telephone number (904) 448-4320.

Sincerely,

Elena Beech

for Michael J. Fitzsimmons
Environmental Administrator-DEP

MJF:fd

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 26, 1996

The Honorable James B. Fuller
2602 University Boulevard West
Jacksonville, Florida 32217-2113

Dear Mr. Fuller:

Trail Ridge Landfill
FDEP Permit Number SC16-184444
File Numbers 296641 and 296642
Renewal Application
Duval County - Solid Waste

Please be advised that on October 28, 1996, the Department of Environmental Protection received a permit renewal application from Trail Ridge Landfill, Inc., to continue to construct and operate the Trail Ridge Landfill. The permit renewal application includes, but is not limited to, a proposal to construct Phases IIIC, IVC, and V, a proposal to increase the maximum height of the landfill from elevation 285 ft. to 350 ft., and a proposal to construct and operate an active gas collection system. The facility is located at 5110 U.S. Hwy. 301, Baldwin, Duval County, Florida.

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If you have any questions concerning this letter, please contact Mary Nogas, P. E., or me at the letterhead address or telephone number (904) 448-4320.

Sincerely,

Julia Boesch

for Michael J. Fitzsimmons
Environmental Administrator-DEP

MJF:fd

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 26, 1996

The Honorable Dennis F. Willye
8671 Lem Turner Road
Jacksonville, Florida 32208-2666

Dear Mr. Willye:

Trail Ridge Landfill
FDEP Permit Number SC16-184444
File Numbers 296641 and 296642
Renewal Application
Duval County - Solid Waste

Please be advised that on October 28, 1996, the Department of Environmental Protection received a permit renewal application from Trail Ridge Landfill, Inc., to continue to construct and operate the Trail Ridge Landfill. The permit renewal application includes, but is not limited to, a proposal to construct Phases IIIC, IVC, and V, a proposal to increase the maximum height of the landfill from elevation 285 ft. to 350 ft., and a proposal to construct and operate an active gas collection system. The facility is located at 5110 U.S. Hwy. 301, Baldwin, Duval County, Florida.

The permit renewal application may be inspected during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Northeast District Office.

If you have any questions concerning this letter, please contact Mary Nogas, P. E., or me at the letterhead address or telephone number (904) 448-4320.

Sincerely,

Julia Boesch

for Michael J. Fitzsimmons
Environmental Administrator-DEP

MJF:fd

P 285 408 638

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to GREG MATHES	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
MR. GREG MATHES
TRAIL RIDGE LANDFILL, INC
5110 US HWY 301
BALDWIN FL 32234

4a. Article Number
P 285 408 638

4b. Service Type
☒ Registered ☐ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
11-27-96

5. Received By: *(Print Name)*
L. HAIR

8. Addressee's Address *(Only if requested and fee is paid)*
SW

6. Signature *(Addressee or Agent)*
X L Hair

PS Form **3811**, December 1994 Domestic Return Receipt

Thank you for using Return Receipt Service.

...is your RETURN ADDRESS completed on the reverse side?

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 25, 1996

CERTIFIED - RETURN RECEIPT

Mr. Greg Mathes, Division President
Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
Baldwin, Florida 32234

Dear Mr. Mathes:

Trail Ridge Landfill
Renewal of FDEP Permit Number SC16-184444
File Numbers 296641 and 296642
Request For Additional Information
Duval County - Solid Waste

The Department has completed review of the renewal application received October 28, 1996 for the subject landfill. The following reviews are enclosed:

Attachment Number 1, Review Memorandum dated November 25, 1996, prepared by Francis Dayao; and

Attachment Number 2, Review Memorandum dated November 25, 1996, prepared by Brian Kelley, P. G.

The information requested in these reviews is required in order for the Department to proceed with the processing of the application for permit renewal. Please provide the requested information by December 26, 1996. Further action will be delayed until the requested information has been received in this office. Please reference the associated FDEP file numbers in all correspondence concerning this permit renewal application.

If you have any questions concerning this matter, please contact Francis Dayao of my staff at telephone number (904) 448-4320.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN:fd

Enclosures

cc: Juanitta Clem, P. E., England-Thims & Miller, Inc.
Chris Pearson, City of Jacksonville

DEPARTMENT OF ENVIRONMENTAL PROTECTION

INTEROFFICE MEMORANDUM

NORTHEAST DISTRICT - JACKSONVILLE

TO: FILES

THROUGH: MARY C. NOGAS, P. E.
JULIA BOESCH

FROM: FRANCIS DAYAO

DATE: NOVEMBER 25, 1996

SUBJECT: **REVIEW MEMORANDUM**
TRAIL RIDGE LANDFILL
RENEWAL OF FDEP PERMIT NUMBER SC16-184444
DUVAL COUNTY - SOLID WASTE

The following comments are a result of the review of the renewal application received October 28, 1996, for the operation and construction of the Class I landfill only; the Class III landfill permit will expire December 24:

1. Please note that DEP Form Number 62-701.900(1) is the most recent permit application form.

2. Page 4 of the application form, Location Coordinates, please note that the UTM for the facility is zone 17, 399764 km. East and 3344918 km. North.

3. Please provide proof of publication to the Department of the Notice of Application.

4. The station numbers on the Site Plan prepared by LAW Engineering is not clear. Please resubmit the site plan which clearly shows the stations to help review the tabulated data for settlements. A drawing with a scale of 1 inch is to 200 feet is preferred if available.

5. Please resubmit a signed and sealed copy of the Post Construction Settlement Evaluation Memorandum found in Appendix C, from S. Laroia, P. E./J. Horton, P. E., as required by Florida Administrative Code (FAC) Rule 62-701.320(6). Alternatively, if this was work prepared under Ms. Juanitta Clem's direct supervision, and her seal is to cover this work, please advise.

6. Please justify the assumptions used for the Landfill Material Internal Friction Angles found on page 4, Appendix I.

7. Please provide an evaluation of the leachate collection (leachate collection pipes) system's integrity and operation after the expected differential settlements have occured.

8. Please justify that the SDR-11 leachate collection pipe utilized for the previous phases (filled areas) is capable of withstanding the additional load from the proposed vertical expansion.

9. Please list the personnel that will normally be present at the landfill during peak operating hours. In addition, please justify that the facility has adequate personnel to handle the expected volume of waste.

10. On page 40, please clarify what was meant by the statement "the maximum time any area may be covered with a tarpaulin is 30 days." Please note that FAC Rule 62-701.500(7)(e)(1) authorizes the use of tarpaulin as temporary cover only for those areas where additional waste will be deposited within 18 hours.

11. Please demonstrate that the facility will have sufficient equipment capable of handling a peak volume of 3500 tons per day of waste to be received.

12. Page 45, Gas Monitoring Program, please note that a specific condition shall be included in the permit that will require quarterly gas monitoring to be conducted at the site as per FAC Rule 62-701.400(10)(c).

13. Please indicate whether or not Fabric 52048000, Fabric 52049000 and Fabric 52051375 are still being utilized for initial cover. Please note that these are the only materials previously approved (modification number 288638) by the Department for the subject facility. Other equivalent geotextile materials may be utilized upon written approval from the Department.

14. Page 53, Other Wastes, please note that ash residue shall not be utilized for initial cover unless authorized by the Department.

15. Appendix H, Gas Monitoring Plan, please note that all gas monitoring probes will be considered compliance points.

16. Please discuss how the total tonnage for the waste tires being accepted at the facility is being tracked to ensure that the maximum storage capacity of 3900 tons is being met.

17. Please note that a specific condition shall be included in the permit specifying that at least 75 percent of the waste tires stored at the site at the beginning of each calendar year be processed and disposed of and that no more than 3900 tons of waste tires are stored at the waste tire processing area on any day.

18. Please note that a specific condition shall be included in the permit that shall allow waste tires cut into sufficiently small parts to be utilized as initial cover. Sufficiently small parts means that 70 percent of the waste tire is cut into pieces of 4 square inches or less and 100 percent of the waste tire material is 32 square inches or less.

19. The closure cost estimate presented in Appendix N does not seem to include closure cost of the waste tire processing facility. Please clarify.

20. Page J-1, Appendix J, Section 3, Operations and Maintenance, please note that transporting more than 25 waste tires over public highways at any one time requires vehicle registration with the Department.

PLEASE PROVIDE SUPPORTING CALCULATIONS FOR COMMENTS 21 THROUGH 25:

21. Estimated Landfill Construction Related Settlements, prepared by LAW Engineering, presented in Appendix C, Foundation Analysis.

22. Global Slope Stability and Landfill Final Cover Sliding Stability, prepared by LAW Engineering, presented in Appendix I, Slope Stability Analysis.

23. Appendix E, Design Calculations for Liner System, please illustrate how the value of L (200 ft.), length of the horizontal projection of the leachate collection layer from top of collector, was achieved. In addition, please provide supporting calculations to show how the values (37.59 cm/sec to 73.77 cm/sec) for the hydraulic conductivity were achieved.

24. Appendix L, Alternate Closure Design Design Demonstration, please illustrate how the values of the projected length L (110 ft. and 60 ft.) were achieved.

25. Please demonstrate that the 12 inches of clay with a permeability of 1 EE -7 cm/sec proposed for the side slope closure design, will result in a substantially equivalent rate of stormwater infiltration through the final cover if 18 inches of clay with a permeability of 1 EE -7 were used (FAC Rule 62-701.600(5)(g)(4)). Please note that the Alternate Design Closure Guidance Document, on page 11, item 4, stated that the guidance only applies to approval of alternate barrier layers in the final cover system. It does not apply to changes in the thickness of the protective soil layer required by the general criteria.

26. Please justify the constructibility and durability of the proposed 12 inches of clay for the side slope final cover system.

27. On page 1 of the financial assurance cost estimate form, the design life of disposal unit has been left blank. Please resubmit this page with the design life indicated.

28. The size of the proposed test strip for the side slope closure appears inadequate. Please note that EPA/600/R-93/182 recommends a test pad normally about 10 to 15 meters in width by 15 to 30 meters in length; please discuss.

Please note that the information received on November 20 for the proposed active gas collection system has not been included in this review; however, the information submitted shall be reviewed by the Department as part of your response to this request for additional information.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

To:_____
To:_____
To:_____
To:_____

INTEROFFICE MEMORANDUM

NORTHEAST DISTRICT - JACKSONVILLE

TO: Mary Nogas, P.E. -- Solid Waste Section Supervisor

THROUGH: Brian Cheary, Ph.D. -- Waste Cleanup Section Manager

FROM: Brian Kelley, P.G. -- Waste Cleanup Section BK

DATE: November 25, 1996

SUBJECT: Trail Ridge Landfill -- Duval County
Review comments regarding the Operation and Construction Renewal Application dated October 28, 1996

I have completed review of the Groundwater Monitoring Program portions of the October 1996 Operation and Construction Permit Renewal Application submitted for the referenced facility. The evaluation of historical groundwater, surface water, and leachate monitoring data, as well as hydraulic interpretation, provide a reasonable synopsis of the existing monitoring program. The following comments address recommendations to modify the existing program:

1. The addition of monitoring wells MWB-16S, MWB-18S, MWB-28S, and MWB-30S into the existing Monitoring Plan were based upon the recommendations of a hearing officer as part of the findings and conclusions of a September 20, 1991 Recommended Order which resulted from an Administrative Hearing. The findings and conclusions which addressed groundwater monitoring on the west, north, and south sides of the landfill, were incorporated into a Final Order dated November 1, 1991. Based upon the Final Order, the information presented is insufficient to approve the request to remove monitoring wells MWB-16s, MWB-18S, MWB-28S, and MWB-30S from the monitoring plan.

2. A history of infrequent detection of certain metals does not provide adequate technical justification to reduce groundwater sampling frequencies or relax any requirements of Chapter 62-701.510(1)(a) F.A.C. In consideration of any reduced sampling frequencies, a geotechnical justification is required.

3. A history of infrequent detection or non-detection of volatile organic compounds does not provide adequate technical justification to reduce groundwater sampling frequencies or relax any requirements of 62-701.510(1)(a) F.A.C. As previously stated, any reduction of sampling frequencies will require a geotechnical justification.

4. Since the Class III landfill is not being permitted, SW-3 may be removed from the monitoring program.

5. The current filter-drain stormwater system is proposed to be changed to a wet detention system; therefore, surface water sampling should continue to be conducted on a quarterly basis to monitor the effectiveness of the new system. Surface water data and the effectiveness of the stormwater system may be evaluated after one year to determine if an alternative sampling frequency is appropriate.

6. In accordance with Chapter 62-701.510(5), leachate sampling is to be characteristic of the leachate coming from the waste; before it is subjected to conditions that may change the characteristics of the leachate. The current collection system provides discreet leachate samples which are derived from specific protions of the landfill. Composite sampling results may differ significantly from individual sampling results and will not be representative of specific potential source areas. Additional justification to modify the existing leachate sampling procedures should be provided

7. A history of infrequent detection or non-detection of certain metals (arsenic, barium, beryllium, copper, selenium, silver, and vanadium) in previous leachate samples does not provide reasonable assurance that these parameters will not be expected to be in or derived from the waste to be placed in the landfill. Therefore, the frequency of sampling for these specific parameters should not be reduced without further justification.

bkk/hg

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301

Baldwin, Florida 32234
904/289-9100

A Waste Management Company

November 11, 1996

NORTHEAST DISTRICT
RECEIVED
NOV 13 1996
DEP - JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Solid Waste Supervisor
Department of Environmental Protection
Waste Management Section
7825 Baymeadows Way, Suite 200B
Jacksonville, FL 32256

RE:: Trail Ridge Landfill (SC16-184444)
Bi-Annual Monitoring Report

Dear Ms. Nogas:

In accordance with Specific Condition 37.t. of Modification No. 258517, a report evaluating the monitoring program at the site is to be submitted every two years. The purpose of this letter is to notify the Department that this report has been submitted as part of the permit renewal application document that was submitted to your office October 28, 1996. The report is listed as Appendix K in the permit application. It was written by Golder Associates, Inc., and is entitled, "Evaluation of Historical Data and Recommendations for Groundwater, Surface Water and Leachate Monitoring, Trail Ridge Landfill, Jacksonville, Florida".

Since this is the first time this report has been submitted, the report discusses the results of the monitoring data over the five year life of the site, instead of a two year period. In addition, the monitoring system is evaluated and recommendations for changes to the system are presented. The report was prepared and sealed by a qualified groundwater professional.

Since Appendix K of the permit renewal application has already been submitted and will be reviewed by the Department hydrogeologist, we are not submitting a separate copy of Appendix K. However, if this is inconvenient or causes a problem of any sort, please let me know and we will furnish additional copies of the report.

Please give me a call at 289-9100 if you have any questions or comments.

Sincerely,

Scott W. McCallister, P.G.
Senior Environmental Engineer

SWM:lh

cc: Greg Mathes

C:\MSOFFICE\WINWORD\SCOTT\1996\NOGASTR1.DOC

Printed on recycled paper.

NORTHEAST DISTRICT

Florida Department of Environmental Regulation

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

RECEIVED
OCT 10 1996
DEP JACKSONVILLE

DER Form # 17-711.900(4)
Form Title Waste Tire Processing Facility Quarterly Report
Effective Date February 28, 1994
DER Application No.
(Filled in by DER)

Waste Tire Processing Facility Quarterly Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department quarterly.

Quarter covered by this report: 7/01/96 - 9/30/96 (First quarter begins on January 1 of any given year)

1. Facility name: Trail Ridge Landfill, Inc.
2. Facility mailing address: 5110 U.S. Hwy 301

   City: Baldwin County: Duval Zip: 32234
3. Facility permit number: SC16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: Deborah A. Perez
6. Affiliation with facility: Division Compliance Coordinator
7. Telephone number (if different from above): (904) 289-9100
8. Activity: Report in tons.

	Beginning Inventory	Received	Processed	Consumed	Removed	Adjustments	Ending Inventory
Used Tires							
Other whole tires	59	72	131				0
Processed tires							
Processing Waste							
Other							
Total							

a. Explain all inventory adjustments.

b. List any period in which one or more category of inventory exceeded the permitted maximum for that category. How was that condition relieved?

For any excess inventory at the end of the quarter, state how and when this condition will be relieved. Attach additional sheets, if necessary.

9. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

Deborah A Perez — Name of Authorized Agent

Signature of Authorized Agent

10/8/96 — Date

Mail complete form to
the appropriate district office

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

August 8, 1996

NORTHEAST DISTRICT
RECEIVED
AUG 12 1996
DEP - JACKSONVILLE

Mr. Rick Rachal
Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Re: Trail Ridge Landfill Inc.
Leachate Data Submittals

Dear Mr. Rachal:

Thank you for reviewing the historical leachate data submittals for Trail Ridge Landfill. As we discussed, I recently reviewed my files and noted there was a period between December 1992, and December 1994, that leachate data was not submitted for the site. You confirmed your records indicated that the initial submittal was made in December 1992. The Department was in the process of reviewing the data when substantial changes to 17-701 were being drafted, and a decision was made not to modify the sampling plan until these regulations were finalized. When the regulations were finalized in 1994, the permit modification application was submitted in September of 1994, and the Department subsequently approved the modification in December of 1994. You were in agreement that the facility was in compliance with the permit conditions concerning leachate analysis during this period of time.

I appreciate your time in reviewing this information. If you don't agree with any of the above information, or have any questions, please give me a call at 289-9100.

Sincerely,

Scott W. McCallister, P.G.
Senior Environmental Engineer

SWM:lh

cc: Greg Mathes

Printed on recycled paper.

PATS02 184444 APPLICATION TRACKING SYSTEM STANDARD INFORMATION 08/09/96
APPL RECVD:07/27/90 TYPE CODE:SC SUBCODE:01 LAST UPDATE:03/30/92
DER OFFICE RECVD:JAX DER OFFICE TRANSFER TO:___ APPLICATION COMPLETE:10/10/90
DER PROCESSOR:NOGAS, MARY
APPL STATUS:IS DATE:12/24/91 (ACTIVE/DENIED/WITHDRAWN/EXEMPT/ISSUE/GENERAL=GP)
RELIEF:__ (SSAC=SS/EXEMPTIONS=EX/VARIANCE=VA)
(Y/N) N MANUAL TRACKING DISTRICT:31 COUNTY:16
(Y/N) Y OGC HEARING REQUESTED LAT/LONG:30.14.00/82.02.30
(Y/N) Y PUBLIC NOTICE REQD? BASIN-SEGMENT:__.____
(Y/N) N GOV BODY LOCAL APPROVAL REQD? COE #:_____
(Y/N) Y LETTER OF INTENT REQD? _ (I/ISSUE D/DENY) ALT#:___-_____

PROJECT SOURCE NAME:TRAIL RIDGE LANDFILL PLAN A CLASS I
STREET:US HWY 301/STATE RD 200 CITY:JAX
STATE:FL ZIP:_____ PHONE:___-___-____
APPLICATION NAME:TRAIL RIDGE LANDFILL, INC.
STREET:PO BOX 6987 CITY:JAX
STATE:FL ZIP:32236 PHONE:904-737-4800
AGENT NAME:DOUGLAS C. MILLER, P.E.
STREET:3131 ST. JOHN'S BLUFF RD. S. CITY:JAX
STATE:FL ZIP:32216 PHONE:904-642-8990
FEE #1 DATE PAID:07/30/90 AMOUNT PAID:02000 RECEIPT NUMBER:00158512

TAB TO HERE:_

PATS06 184444 8/09/96 10.00.40

APPLICATION COMMENTS

PROJECT NAME: TRAIL RIDGE LANDEILL PLAN A CLASS I LAST UPDATED: 11/20/95

NARRATIVE	SEQ.
MINOR MODIFICATION ON PERMIT NO. SC16-233002	(015)
PROPOSED MODIFICATION ON PERMIT NO. SO16-235083	(016)
MINOR MODIFICATION ON PERMIT NO. SO16-235269	(017)
MSSW MINOR MODIFICATION ON PERMIT NO. MS16-236940	(018)
PROPOSED MODIFICATION ON PERMIT NO SO16-237826 CONCERNING GROUND WATER	(019)
MONITORING ANALYTICAL METHODS.	(020)
MODIFICATION ON SC16-258517 REQUIRED BY RULE (62-701.510).	(021)
PROPOSED MODIFICATIONS TO PERMIT ON #SC16-263509 & #MS16-263508.	(022)
MODIFICATION REQUEST MADE ON MS16-280638.	(023)
MODIFICATION INITIATED BY DEPARTMENT; NO FEE - PROPOSED MODIFICATION	(024)
MADE ON SC16-288638.	(025)
MODIFICATION MADE ON WT16-293132	(026)

COMMENT(S) UPDATED

COPY OR TAB :_

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301

Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
AUG 5 1996
RECEIVED
DEP - JACKSONVILLE

July 31, 1996

Via Fax & U.S. Mail

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Re: Trail Ridge Landfill
FDEP Permit No. SC16-184444

Dear Ms. Nogas:

As we discussed in our recent telephone conversation, I am writing to document that Trail Ridge Landfill, Inc. intends to operate our tire processing facility in accordance with Rule 62-711.530(2), F.A.C., effective February 1994. This rule allows us to store tires not exceeding 30 times the daily through-put of the processing equipment being used, as long as we process at least 75% of the tires accumulated in one year. The daily through-put of our equipment is approximately 130 tons per day (see attached letter). Therefore, we could store as much as 3,900 tons before processing them. We do not plan to store more than 300 to 500 tons prior to processing the tires. This relieves us of having to process the tires every 90 days regardless of the number stored, as stated in the current permit condition.

As you mentioned, this modification is to incorporate changes due to a new rule, therefore we do not believe that a modification fee is required in accordance with Rule 62-4.050(4)(r)2, F.A.C.

If you have any questions regarding this request, please feel free to give me or Greg Mathes a call. Thank you for your help in this matter.

Sincerely,

Scott W. McCallister, P.G.
Senior Environmental Engineer

SWM:lh
Attachment

cc: Greg Mathes

C:\MSOFFICE\WINWORD\SCOTT\1996\NOGASTIR.DOC

Printed on recycled paper.

Florida Tire Recycling, Inc.

NORTHEAST DISTRICT
RECEIVED
AUG 5 1996
DEP-JACKSONVILLE

August 2, 1996

Fax to: Billy Purvis
Waste Management
904/289-9013

From: Dave Quarterson

Dear Billy,

Florida Tire Recycling operates four mobile waste tire processing machines all of which were manufactured by the Columbus McKinnon Corp, Sarasota, Florida. The capacity of each machine is 12 to 14 tons per hour when processing to the size established for the Florida Department of Environmental Protection for interim landfill cover (see DEP Rule 17-711.400 (3) (a).)

Each mobile crew works a ten hour shift so that daily production is between 120 and 140 tons.

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301

Baldwin, Florida 32234
904/289-9100

A Waste Management Company

July 31, 1996

Via Fax & U.S. Mail

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Re: Trail Ridge Landfill
FDEP Permit No. SC16-184444

Dear Ms. Nogas:

As we discussed in our recent telephone conversation, I am writing to document that Trail Ridge Landfill, Inc. intends to operate our tire processing facility in accordance with Rule 62-711.530(2), F.A.C., effective February 1994. This rule allows us to store tires not exceeding 30 times the daily through-put of the processing equipment being used, as long as we process at least 75% of the tires accumulated in one year. The daily through-put of our equipment is approximately 130 tons per day (see attached letter). Therefore, we could store as much as 3,900 tons before processing them. We do not plan to store more than 300 to 500 tons prior to processing the tires. This relieves us of having to process the tires every 90 days regardless of the number stored, as stated in the current permit condition.

As you mentioned, this modification is to incorporate changes due to a new rule, therefore we do not believe that a modification fee is required in accordance with Rule 62-4.050(4)(r)2, F.A.C.

If you have any questions regarding this request, please feel free to give me or Greg Mathes a call. Thank you for your help in this matter.

Sincerely,

Scott W. McCallister, P.G.
Senior Environmental Engineer

SWM:lh
Attachment

cc: Greg Mathes

C:\MSOFFICE\WINWORD\SCOTT\1996\NOGASTIR.DOC

TRAIL RIDGE LANDFILL ID:904-289-9013 AUG 02'96 15:21 No.014 P.01

Florida Tire Recycling, Inc.

August 2, 1996

Fax to: Billy Purvis
Waste Management
904/289-9013

From: Dave Quarterson

Dear Billy,

Florida Tire Recycling operates four mobile waste tire processing machines all of which were manufactured by the Columbus McKinnon Corp, Sarasota, Florida. The capacity of each machine is 12 to 14 tons per hour when processing to the size established for the Florida Department of Environmental Protection for interim landfill cover (see DEP Rule 17-711.400 (3) (a).)

Each mobile crew works a ten hour shift so that daily production is between 120 and 140 tons.

NORTHEAST DISTRICT
RECEIVED
JUL 26 1996
DEP-JACKSONVILLE

Florida Department of Environmental Regulation

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

DER Form # 17-711 900(4)
Form Title Waste Tire Processing Facility Quarterly Report
Effective Date February 28, 1994
DER Application No. _____
(Filled in by DER)

Waste Tire Processing Facility Quarterly Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department quarterly.

Quarter covered by this report: 4/01/96 - 6/30/96 (First quarter begins on January 1 of any given year)

1. Facility name: Trail Ridge Landfill, Inc.
2. Facility mailing address: 5110 U.S. Hwy 301

   City: Baldwin County: Duval Zip: 32234
3. Facility permit number: SC16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: Greg Mathes
6. Affiliation with facility: Division President & General Manager
7. Telephone number (if different from above): ( )
8. Activity: Report in tons.

	Beginning Inventory	Received	Processed	Consumed	Removed	Adjustments	Ending Inventory
Used Tires							
Other whole tires	0	59	0				59
Processed tires							
Processing Waste							
Other							
Total							

a. Explain all inventory adjustments. _____

b. List any period in which one or more category of inventory exceeded the permitted maximum for that category. How was that condition relieved? _____ For any excess inventory at the end of the quarter, state how and when this condition will be relieved. Attach additional sheets, if necessary. _____

9. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

Greg Mathes
Name of Authorized Agent

Signature of Authorized Agent

7/12/96
Date

Mail complete form to
the appropriate district office

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301

Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
JUN 12 1996
DEP JACKSONVILLE

June 10, 1996

Ms. Mary C. Nogas, PE
Solid Waste Supervisor
Florida Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Re: Trail Ridge Landfill, Inc.
Permit No.: SC16-184444
Annual Aerial Survey

Dear Ms. Nogas:

In accordance with Specific Condition 45 of permit number SC16-184444, please find enclosed, a copy of the most recent Trail Ridge Landfill topographic map taken on April 2, 1996.

The map shows the maximum elevation to be approximately 216 feet above sea level. My review of the topographic map indicates that the terraces and toe of slope are located vertically and horizontally as designed.

Please let me know if you have any questions or comments concerning this information. You can reach me at 289-9100.

Sincerely,

Scott W. McCallister, P.G.
Senior Environmental Engineer

SWM:lh
Enclosure

cc: Greg Mathes

NOGAS2.DOC

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Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

May 6, 1996

Mr. Scott W. McCallister, P.G.
Senior Environmental Engineer
Trail Ridge Landfill, Inc.
Post Office Box 548
Baldwin, Florida 32234

Dear Mr. McCallister:

Trail Ridge Landfill
FDEP Permit No. SC16-184444
Duval County - Solid Waste

The Department has reviewed the information received April 11 concerning the Fabrene Type TG Product G168, and Nicholon Baycor Style 27600 geotextile materials that you are proposing to utilize as initial cover at the subject landfill.

Please be advised that we do not have any objection to the use of these two materials, providing that Minor Modification Number 288638, allowing equivalent materials, is not petitioned.

If you have any questions concerning this matter, please do not hesitate to contact me at (904)448-4320, extension 355.

Sincerely,

Mary C. Nogas, P.E.
Solid Waste Supervisor

MCN

NORTHEAST DISTRICT

Florida Department of Environmental Regulation

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

RECEIVED
DISTRICT
DEP - JACKSONVILLE

DER Form # 17-711.900(4)
Form Title Waste Tire Processing Facility Quarterly Report
Effective Date February 28, 1994
DER Application No. _____
(Filled in by DER)

Waste Tire Processing Facility Quarterly Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department quarterly.

Quarter covered by this report: 1/01/96 - 03/31/96 (First quarter begins on January 1 of any given year)

1. Facility name: Trail Ridge Landfill, Inc.
2. Facility mailing address: 5110 U.S. Hwy 301

   City: Baldwin County: Duval Zip: 32234
3. Facility permit number: SC16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: Greg Mathes
6. Affiliation with facility: Division President & General Manager
7. Telephone number (if different from above): ( )
8. Activity: Report in tons.

	Beginning Inventory	Received	Processed	Consumed	Removed	Adjustments	Ending Inventory
Used Tires							
Other whole tires	181	70	251				0
Processed tires							
Processing Waste							
Other							
Total							

a. Explain all inventory adjustments. _____

b. List any period in which one or more category of inventory exceeded the permitted maximum for that category. How was that condition relieved? _____ For any excess inventory at the end of the quarter, state how and when this condition will be relieved. Attach additional sheets, if necessary. _____

9. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

Greg Mathes — Name of Authorized Agent

Signature of Authorized Agent

04/05/96 — Date

Mail complete form to
the appropriate district office

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

April 15, 1996

Mr. William Glenn Brown, Manager
Public Utilities Enforcement Unit
515 North Laura Street
Jacksonville, Florida 32202-3156

Dear Mr. Brown:

33rd Street & Spring Grove Avenue
Tire Disposal
Duval County - Solid Waste

The Department has reviewed your April 9 letter, requesting permission to re-bury tires found on the subject site in the Trail Ridge Landfill Facility whole, due to the difficulties of processing previously buried tires, and has no objection to same.

As we discussed, any tires excavated at the subject site must be disposed of in a permitted Class I landfill, such as the Trail Ridge facility, and not re-buried on site.

If you have any additional questions, please do not hesitate to contact me at (904)448-4320, extension 355.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
APR 11 1996
DEP - JACKSONVILLE

April 9, 1996

Ms. Mary C. Nogas, P.E.
Solid Waste Supervisor
Florida Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Re: Trail Ridge Landfill, Inc.
Modification No. 236034 of Permit No. SC16-184444

Dear Ms. Nogas:

We have experienced problems getting the exact same material specified in the above referenced modification for use as alternate initial cover tarps. As I discussed with Francis Dayo of your staff, I have specifications and test results on two other materials that I believe have equivalent qualities to those approved in the modification. Material specifications, including the NFPA 701 tests results, are enclosed for your review for Fabrene G168 and Nicolon Baycor 27600.

It is my understanding that you intend to review the information and if you agree that it is equivalent material, you will revise the language in the permit modification. The revised language will allow the use of tarps constructed of materials that are equivalent to those approved in the original modification. This would prevent us from being in the same situation again, where previously approved material is discontinued by the manufacturer, leaving us without an alternate tarp manufacturer.

Please give me a call if you have any questions or comments. I appreciate your cooperation in this matter.

Sincerely,

Scott W. McCallister, P.G.
Senior Environmental Engineer

SWM:lh
Enclosure

cc: Greg Mathes

NOGAS1.DOC

Printed on recycled paper

Baycor Products Group
A Nicolon Company
Box 1979
Cleveland Road
Cornelia, Georgia 30531
706.778.9794
Fax 706.778.2048

NORTHEAST DISTRICT
RECEIVED
APR 11 1996
DEP - JACKSONVILLE

Baycor®

ERIC D. TUCKER
Quality Control Manager

Baycor Products Group
A Nicolon Company
Box 1979
Cleveland Road
Cornelia, Georgia 30531
706.778.9794
Fax 706.778.8144

March 14, 1996

Mr. Ken Robinson
Engineered Textile Products
715 Loeffler Street
Mobile, AL 36607

Dear Mr. Robinson:

This is to certify that Nicolon Baycor style *27600* is a woven fabric of polypropylene yarns. The yarn contains stabilizers and inhibitors to make the material resistant to ultraviolet and heat deterioration. Below are the test results from current fabric to certify against NFPA 701.

Permissible Length of Char or Destroyed Material
Small Scale Test

	Maximum Average of 10 Specimens	Minimum Individual for each Specimen
NFPA 701	5.5"	6.5"
Baycor Results	3.0"	max 4.5", min 1.75"

There was no continuance of flame from any portions or residues of fabric that dripped to floor of test chamber

Any questions, comments, or suggestions are appreciated.

Sincerely,

Eric Tucker
Quality Control Manager

STYLE 27600	
CONSTRUCTION	23 X 23
WIDTH	121" Calendered
COLOR	White FR
WEIGHT	6.0 oz./sq. yd.
TENSILE STRENGTH Grab Method, ASTM D 1682	Warp: 350 lbs. Fill: 280 lbs.
ELONGATION Grab method ASTM D-1682	Warp 25% Fill 18%
TEAR STRENGTH Trapezoid Method, ASTM D-2261	Warp: 90 lbs. Fill: 65 lbs.
PUNCTURE STRENGTH ASTM D-3787, Modified	125 lbs.
BURST STRENGTH ASTM D-3786 Mullen	520 psi
AIR FLOW	340 cfm
FLAME RETARDENCY NFPA 701	passed

R E P O R T

NFPA 701 Flame Resistance on Coated Woven Polyethylene

A Report To: Fabrene Inc.
P.O. Box 4040
North Bay, Ontario
P1B 9B4

Attention: Luc Champagne

Submitted By: Fire & Flammability,
Materials Validation

Report No. 93-J52-87-3-478(A)
1 Page + Appendix

Date: November 24, 1993

ORTECH

ORTECH Corporation, 2395 Speakman Dr., Mississauga, Ontario, Canada L5K 1B3 Phone: (905) 822-4111 Fax: (905) 823-1446

1) This report is provided pursuant to an agreement between ORTECH Corporation and the addressee. In respect of services provided to the addressee and subject to the terms of the agreement, the findings contained in the report

2) Unless ORTECH's consent in writing is obtained, it may not be published in part or in full or used in any manner. Anyone other than the addressee who receives a copy of the report should read this clause and the limitations concerning its contents which may be found elsewhere in the report. ORTECH has no liability to anyone other than the addressee for the whole or any part of the report and its contents.

4) The report refers only to the particular samples and material, assessment, or other subject tested and referred to in it, and is limited to the tests and/or work performed. Similar tests may not be like the quality, and other tests on the stock or program may be desirable and might give different results. The results of assessment of products that cannot be done in connection with material reported herein are not to be construed as extended to untested materials.

5) Apart from ORTECH's obligation to treat information as confidential, ORTECH makes no representation, warranty, or guarantee as to the use of the opinions or advice given by ORTECH in connection with the purchase, sale, use of any product or material based on, or incorporating reference to, the report or to any test carried out by ORTECH. In no event shall ORTECH be liable for any direct, indirect, special or consequential damages related to the use of such information, opinions or advice.

P.O. Box 77757
Baton Rouge, LA 70879-7757

504-752-1990
1-800-673-1570
FAX 504-755-0448

Physical properties of 6168 polyethylene material.

Properties	Units	Values		Test Methods
Construction	Tapes/inch	Warp 24/Weft 16		
Tensile Grab Strength	lbf	Warp 440/Weft 335		ASTM D 1682-64
Tear Strength*	lbf	65		ASTM D 2261-71
Mullen Burst Strength	lb/in²	610		ASTM D751-73
Coating	Mils	2.0	1.5	Each Side
Colors	Scrim Coating	Natural Black/Black	Natural Black/Blue Blue/Blue Natural/Natural	
Unit Weight	oz/yd²	9.6	9.0	

*Includes force to shift fibers — test may be crosswise to direction of force

FABRENE TYPE TG

FABRENE TG is a woven fabric made of high density polyethylene tapes and coated on both sides with low density polyethylene.

ORTECH

NFPA 701 Flame Resistance — Page 1 of 1

For: Fabrene Inc. — Report No. 93-J52-[illegible]7-3-478(A)

SPECIFICATIONS OF ORDER

Determine flame resistance in accordance with the NFPA 701 Large Scale Test, as per your P.O. #019544 and authorization dated November 17, 1993.

IDENTIFICATION:

Coated woven polyethylene fabric identified as Product G168.

(ORTECH sample identification number 93-J52-80478-1)

TEST RESULTS

NFPA 701 Large Scale Test

Tested "as-received" and in single sheet configuration.

		Char length (inches)	Afterflame Time (s)	Flaming Drips?
Machine	1:	0.0	0.0	No
	2:	0.0	0.0	No
	3:	0.0	0.0	No
	4:	0.0	0.0	No
	5:	0.0	0.0	No
Cross	6:	0.0	0.0	No
	7:	0.0	0.0	No
	8:	0.0	0.0	No
	9:	0.0	0.0	No
	10:	0.0	0.0	No
Average:		0.0		
Specified by NFPA 701 Large Scale Test:		≤10.0	≤2.0	No (individual)

CONCLUSIONS

When tested in the as-received condition, the woven polyethylene fabric identified in this report complies with the requirements of the NFPA 701 Large Scale Test.

B. Ferguson,
Fire & Flammability,
Materials Validation.

H.J. Campbell Ph.D.,
Manager,
Fire & Flammability.

ORTECH

NFPA 701 Flame Resistance

For: Fabrene Inc.

Report No. 93-J52-87-3-478(A)

APPENDIX
(1 Page)

Summary of Test Procedure

NFPA 701 – 1977

Standard Methods of Tests for Flame-Resistant Textiles and Films

Large Scale Test

For conducting flame tests of fabrics in single sheets, the NFPA 701 Large Scale Test specifies at least ten specimens, 5 inches by 7 feet. The specimens are conditioned at 140 – 145°F for 1 to 1¼ hours or, if distortion or melting occurs at these temperatures, 60 – 80°F at 25 – 50% relative humidity for 24 hours.

Each specimen is removed from the conditioning chamber individually, and immediately suspended in a steel stack 12 inches square and 7 feet high, the said stack being open both top and bottom and supported 1 foot above the floor. The lower edge of the specimen is positioned 4 inches above the tip of a gas burner which is inclined at 25° to the vertical. The burner, which has been adjusted to yield a flame 11 inches in height is ignited and inserted directly beneath the specimen for 2 minutes. Char length is measured from the tip of the flame, upwards.

For conducting flame tests of fabrics hung in folds, at least four specimens 25 inches by 7 feet are required. Each specimen is folded longitudinally to form four folds.

Flame Resistance Requirements:

Specimen Configuration	Char Length or Destroyed Material Length (inches)	Afterflame Time (s)	Flaming Drips on Floor of Tester?
Single sheets	≤10.0	≤2.0	No
Folded	≤35.0	≤2.0	No

DEPARTMENT OF PUBLIC UTILITIES

Legislation/Enforcement

NORTHEAST DISTRICT
RECEIVED
APR 10 1996
DEP-JACKSONVILLE

CITY OF JACKSONVILLE, FLORIDA

April 9, 1996

Ms. Mary Nogas, P.E.
Supervisor - Solid Waste
Department of Environmental Protection
7825 Baymeadows Way
Suite B200
Jacksonville, FL 32256-7590

Dear Mrs. Nogas:

The contractor for the City of Jacksonville Retention Pond Project at 33rd Street and Spring Grove Avenue has encountered a large number of waste tires under ground at this construction site.

Due to the processing problems caused by the tires being filled with dirt, this is to request permission to re-bury them, whole, at the Trail Ridge Landfill Facility.

Thank you for your consideration in this matter. If you should have any questions or concerns, please call me at 632-8025.

Sincerely,

William Glenn Brown, Manager
Public Utilities Enforcement Unit

GB:dc

cc: Janice E. Eggleston
Chris Pearson

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301

Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
APR 08 1996
DEP - JACKSONVILLE

April 1, 1996

Ms. Mary C. Nogas, P.E.
Solid Waste Supervisor
Florida Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Re: Trail Ridge Landfill, Inc.

Dear Ms. Nogas:

I want to thank you for the letter you wrote on March 28, 1996, concerning the compliance record at Trail Ridge Landfill, Inc. As you know, we take compliance with our FDEP permits and all other regulations, very seriously, and make every attempt to remain in compliance at all times. We were pleased that you were able to provide positive comments about the facility. This will be a key part of our SWANA Landfill Excellence Award Program (LEAP) application package.

Again, thank you for your help.

Sincerely,

Greg Mathes
Division President and
General Manager

GM:lh

cc: Scott McCallister
Juanitta Clem

nogas1.doc

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Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

March 28, 1996

Mr. Greg Mathes
Division President and General Manager
Trail Ridge Landfill, Inc.
Post Office Box 548
Baldwin, Florida 32234

Dear Mr. Mathes:

Trail Ridge Landfill
FDEP Permit No. SC16-184444
Duval County - Solid Waste

In response to your request for the agency to comment on the subject site's compliance with the Department's environmental regulations, we offer the following:

The Trail Ridge Landfill is in full compliance with its permit requirements, including the control of gas and odor emissions. Leachate from the facility has never impacted the ground or surface water beyond the property boundary. Indeed, the Department has never needed to pursue formal enforcement to ensure compliance with the referenced permit, which has been in effect since December 1991.

If anyone has any additional questions concerning your facility's compliance record, please do not hesitate to suggest they contact me at (904)448-4320, extension 355.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road S., Jacksonville, FL 32246
Tel: (904) 642-8990 Fax: (904) 646-9485

Principals
James E. England, P.E., Pres.
Robert E. Thims, Exec. V.P.
Douglas C. Miller, P.E., Exec. V.P.
N. Hugh Mathews, P.E., Exec. V.P.

March 19, 1996

NORTHEAST DISTRICT
RECEIVED
MAR 19 1996
DEP - JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Regulation
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
FDEP Permit No. SC16-184444
ET&M No. E94-51

Dear Ms. Nogas:

England, Thims & Miller, Inc is preparing an application package for SWNA's 1996 Landfill Excellence Award Program (LEAP) for Trail Ridge Landfill. We believe that the facility meets the purpose of the award because it provides for the disposal of solid waste in a manner that protects public health and maintains the environmental quality.

The LEAP application must contain a letter from the "site's regulatory agency, confirming compliance with permit requirements and establishes the full term of compliance longevity." Further, the letter must "reference gas and odor emissions relative to permit requirements, and if leachate has ever impacted the groundwater or surface water beyond the property boundary." We believe that Trail Ridge Landfill is in conformance with their permit and therefore, the Department should be able to provide a letter for the LEAP application. I am sorry this is on such short notice, but the application including the letter must be submitted by March 27, 1996, for receipt by April 1, 1996. Please address the letter to Greg Mathes at Trail Ridge Landfill.

Your help is greatly appreciated. If you have any questions, please feel free to give me a call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P.E.
Vice President

cc: Greg Mathes
Scott McCallister

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road S., Jacksonville, FL 32246
Tel: (904) 642-8990 Fax: (904) 646-9485

Principals
James E. England, P.E., Pres.
Robert E. Thims, Exec. V.P.
Douglas C. Miller, P.E., Exec. V.P.
N. Hugh Mathews, P.E., Exec. V.P.

NORTHEAST DISTRICT
FEB 09 1996
DEP - JACKSONVILLE

February 8, 1996

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
2nd Construction Increment - Phases IIIB, IVA & IVB
FDEP Permit No. SC16-184444
ET&M No. E95-79-1A

Dear Ms. Nogas:

On behalf of Trail Ridge Landfill, Inc., we hereby notify the Department that the conformance testing of the geosynthetic materials for the referenced project, which is conducted in accordance with the Quality Assurance Manual, is being conducted using the latest test methods. The specific modifications are as follows:

1. Thickness is measured in accordance with ASTM D5199 (in lieu of ASTM D751) which is the latest method for measuring the thickness of geomembranes and geotextiles.

2. Mass per unit area is measured in accordance with ASTM D5261 (in lieu of ASTM D3776) which is the latest method for measuring the mass per unit area of geotextiles.

3. Tensile properties of geonet is measured in accordance with ASTM D5035 (in lieu of ASTM D1682), since ASTM D1682 has been discontinued and replaced by ASTM D5035.

These modifications will be noted in the final Quality Assurance/Quality Control Documentation for this project. If you have any questions, please feel free to give me or Doug Miller a call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P.E.
Project Manager

cc: Greg Mathes
Scott McCallister
Chris Pearson
Frank Adams

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road S., Jacksonville, FL 32246
Tel: (904) 642-8990 Fax: (904) 646-9485

Principals
James E. England, P.E., Pres.
Robert E. Thims, Exec. V.P.
Douglas C. Miller, P.E., Exec. V.P.
N. Hugh Mathews, P.E., Exec. V.P.

January 23, 1996

NORTHEAST DISTRICT
RECEIVED
JAN 23 1996
DEP - JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Regulation
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
FDEP Permit No. SC16-184444
ET&M No. E95-79-1A

Dear Ms. Nogas:

On behalf of Trail Ridge Landfill, Inc., we hereby notify the Department that the installation of the synthetic liner system for Phases IIIB, IVA AND IVB of the referenced facility will commence on February 5, 1996. In accordance with Specific Condition 2. b. of the referenced permit, we hereby provide the names of the Quality Assurance Engineer and supporting personnel for the Quality Assurance/Quality Control of the synthetic liner system installation. The qualifications of these individuals are provided in the attached resumes.

INDIVIDUAL	PROJECT INVOLVEMENT
Francis T. Adams, P.E.	Project Manager and Certifying Engineer (QAE)
R. Scott Callaway	Assistant Project Manager
Michael L. Bracci	Resident Engineer (QARE)
Frank Habermehl	Lead Geosynthetic Monitor
D. Michael Lewallen	Geosynthetic/Construction Monitor
Timothy J. Schreiber	Geosynthetic/Construction Monitor
Joel D. Byerly	Geosynthetic/Construction Monitor

If you have any questions regarding this submittal, please feel free to give me or Doug Miller a call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P.E.
Project Manager

Attachments

cc: Greg Mathes w/attachments
Scott McCallister w/attachments
Chris Pearson w/attachments

Florida Department of Environmental Regulation

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

DER Form # 17-711.900(4)
Form Title Waste Tire Processing Facility Quarterly Report
Effective Date February 28, 1994
DER Application No. _____
(Filled in by DER)

Waste Tire Processing Facility Quarterly Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department quarterly.

Quarter covered by this report: 10/01/95 - 12/31/95 (First quarter begins on January 1 of any given year)

1. Facility name: TRAIL RIDGE LANDFILL, INC.
2. Facility mailing address: 5110 U.S. HWY 301

   City: BALDWIN County: DUVAL Zip: 32234
3. Facility permit number: SC16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: GREG MATHES
6. Affiliation with facility: DIVISION PRESIDENT AND GENERAL MANAGER
7. Telephone number (if different from above): ( )
8. Activity: Report in tons.

	Beginning Inventory	Received	Processed	Consumed	Removed	Adjustments	Ending Inventory
Used Tires							
Other whole tires	94	111	24				181
Processed tires							
Processing Waste							
Other							
Total							

a. Explain all inventory adjustments. _____

b. List any period in which one or more category of inventory exceeded the permitted maximum for that category. How was that condition relieved? _____ For any excess inventory at the end of the quarter, state how and when this condition will be relieved. Attach additional sheets, if necessary. _____

9. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

Greg Mathes — Name of Authorized Agent

Signature of Authorized Agent

1-08-96 — Date

Mail complete form to
the appropriate district office

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301

Baldwin, Florida 32234
904/289-9100

A Waste Management Company

December 19, 1995

NORTHEAST DISTRICT
RECEIVED
DEC 21 1995
DEP - JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Florida Department of
Environmental Protection
Northeast District
Suite 200B
7825 Baymeadows Way
Jacksonville, Florida 32256

Re: Trail Ridge Landfill
Permit #SC16-184444
Aerial Survey

Dear Ms. Nogas:

In accordance with Specific Condition 45 of the above referenced permit, please find enclosed a copy of the survey of the waste disposal area for 1995. The design high point of this phase is elevation 220 feet. As shown by the survey, the highest point in the active area is approximately elevation 210 feet. This has not changed substantially since the photo was taken because the active area shifted to Phase IIIA in November.

Please give me a call at 289-9100 if you have any questions or comments.

Sincerely,

Scott W. McCallister, P.G.
Senior Environmental Engineer

SWM:lh

Enclosure

C:\WPDOCS\SCOTT\1995\NOGASAER.IAL

Printed on recycled paper

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS JEA
730 N.E. Waldo Road
Gainesville, Florida 32641

Telephone: 352/377-5821
FAX: 352/377-3166

FAX TRANSMITTAL SHEET

To: Mary C. Nogas, P.E.
Solid Waste Supervisor

Fax #: 904-448-4366

From: Allan Biddlecomb

Date: December 31, 1996

Project No.: 03740-648-01-07

Number Pages (Including Cover Sheet): 6

Comments: Attached is the Rosemary Hill Closed Class I Landfill Gas Monitoring Plan submitted per the permit. Please Call should you have any questions.

This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original message to us at the return address listed above via the U.S. Postal Service. Thank you.

If you do not receive all pages, please contact Linda Jones at 352/377-5821.

Original to be sent via regular mail.

Jones Edmunds & Associates, Inc. JEA
CONSULTING ENGINEERS AND SCIENTISTS

December 31, 1996

Ms. Mary C. Nogas, P.E.
Solid Waste Supervisor
Florida Department of Environmental Protection
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256-7577

RE: Clay County - Rosemary Hill Landfill (Old), Class I
Gas Monitoring Plan
Project No. 03740-648-01-07

Dear Mary:

This letter comprises the new gas monitoring plan prepared based on Specific Condition No. 18 of the permit issued for the Landfill (ID no.GMS3110C01242). The permit (permit/cert. no. SF10-222613) was issued by the Department on October 30, 1996, and will expire on February 1, 1998. This landfill is referred to as the Old Class I Landfill and the Inactive Class I Landfill even though the more recent, lined Class I landfill (referred to as the Class I Landfill Expansion) is also now inactive and in the process of closure construction.

Background and Site History

The site is located in Clay County, off County Road 315 approximately 4 miles west of the City of Green Cove Springs. The landfill is located in Section 6, Township 6 South, Range 26 East. The Old Class I Landfill is a 16-acre portion of the Rosemary Hill Landfill Facility which encompasses approximately 134 acres and includes the more recent, lined, Class I Landfill Expansion; both an active and an inactive Class III landfill; a compost area; a recycling center; a solid waste transfer facility; and administrative offices.

The Old Class I Landfill began operation in the 1970s and reached capacity in 1988. Installation of a clay cover on the Old Class Class I Landfill was completed in January 1990. A contamination assessment for the Old Class I Landfill was completed in 1991 by PBS&J with the conclusion that no further action was warranted.

The more recent Class I Landfill Expansion was operational from 1988 to 1995 as a solid waste disposal facility. The landfill expansion is owned by Clay County, but was operated and managed by Refuse Services, Inc., a subsidiary of Waste Management of North America, Inc. The landfill expansion is underlain by a synthetic liner with a leachate collection system, and is currently undergoing closure capping and construction including installation of gas vents into the landfill.

Gas Migration and Control

Because of gas detected around the Old Class I Landfill, the proximity to the lined landfill, and the potential impacts to surficial aquifer groundwater quality, the County agreed with the Department to develop a gas control system utilizing passive gas vents installed into the Old Class I Landfill. A design was submitted to the Department on October 18, 1996, and construction started in December 1996. Gas vent construction is currently proceeding and should be complete within January 1997.

It should be noted that recent results of landfill gas monitoring performed have not detected gas exceeding the lower explosive limit (LEL) at the property boundary in the vicinity of the Old Class I Landfill and the Class I Landfill Expansion. Gas generated from the Old Class I Landfill appears to be migrating short distances within the site boundaries as seen in the compliance reports and the Class I Landfill Expansion Contamination Assessment Report (CAR). In addition a recent review of the data reveals the following information.

- The Second Quarter 1995 compliance report for the Old Class I Landfill submitted in July 1995 contained data collected along the north property boundary. All of the readings were at 0% of the LEL.

- An April 1996 compliance report for the Class I Landfill Expansion contained the Fourth Quarter 1995 and First Quarter 1996 gas monitoring results. This data was collected along the southwest property boundary (along Rosemary Hill Road) and the southeast edge of the Class I Landfill Expansion. The readings indicate only four detections during Fourth Quarter 1995, and no detections for the First Quarter 1996 event. The Fourth Quarter 1995 detections were on the opposite side of the Class I Landfill Expansion from the Old Class I Landfill and occurred at a maximum of 78% of the LEL.

- Gas emanating from the Old Class I Landfill is not migrating through the vadose zone to the northern property boundary because the unnamed tributary forms a natural barrier. The vadose zone between the landfill and the creek is pinched out due to the topographic relief (deep incision of the creek into the local topography) and seepage of the surficial aquifer groundwater into the creek.

It is not proven that groundwater contamination is a result of gas migration. As discussed in the September 20, 1996 letter to the Department, it appears that other causes could be contributing to the impacts to groundwater quality. It is possible that passive gas vents may reduce the gas emitted from the Old Class I Landfill, but it is unlikely that either a passive or active gas control system will remediate groundwater quality between the landfills. Monitoring of the gas occurrence and migration will continue as described in the following section.

Old Class I Landfill Gas Monitoring Plan

The methane/landfill gas monitoring will be conducted at the locations shown on the attached map. These locations are those currently monitored, and have proven effective at detecting gas under past conditions. As discussed, the creek which passes through the north part of the property, for example between the area north of GP-18 and the locations along the northwest edge (GP-8 through 17), intersects the water table such that no gas migration through the vadose zone is possible. The 26 locations to be monitored will be tested on a quarterly schedule in accordance with Specific Condition No. 20 of the permit. This schedule requires monitoring by February 28, May 31, August 31, and November 30 of each year. Gas monitoring will be conducted using a Landtec GA-90 to indicate the presence of combustible gases or vapors in air.

The gas monitoring data will be recorded and submitted, along with a summary report, to the Department within 15 days of the monitoring event. In accordance with the rules and Specific Conditions No. 20 and 21 of the permit, methane gas concentrations shall not exceed the Lower Explosive Limit (LEL) at the property boundary, or 25% of the LEL within any structure on the property. Should exceedances occur, the County shall notify the Department within 72 hours and will take steps to ensure the protection of human health.

Please feel free to call should you have any questions.

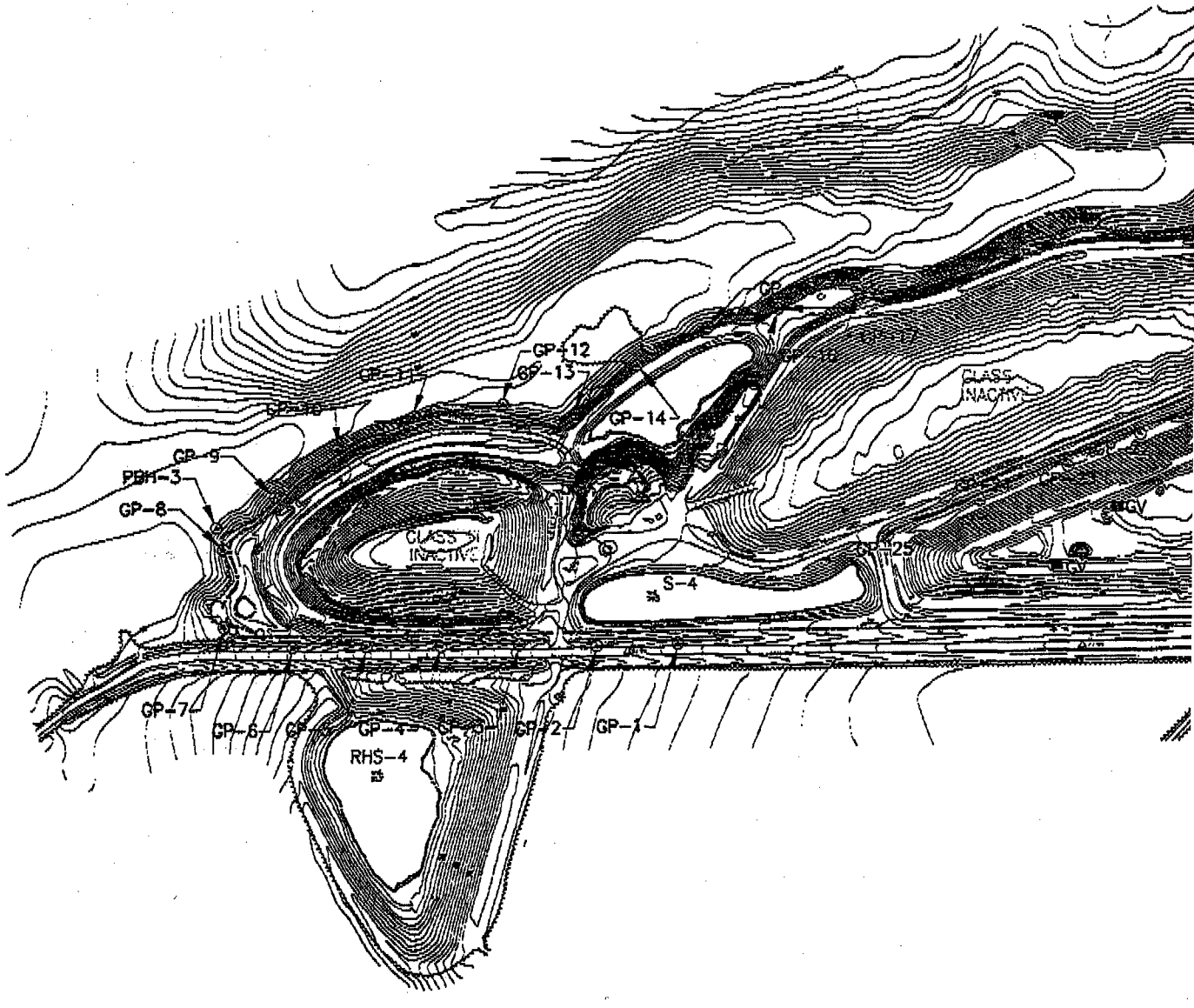
Sincerely,

JONES, EDMUNDS & ASSOCIATES, INC.

Allan H. Biddlecomb, P.G.
Project Manager

enclosure

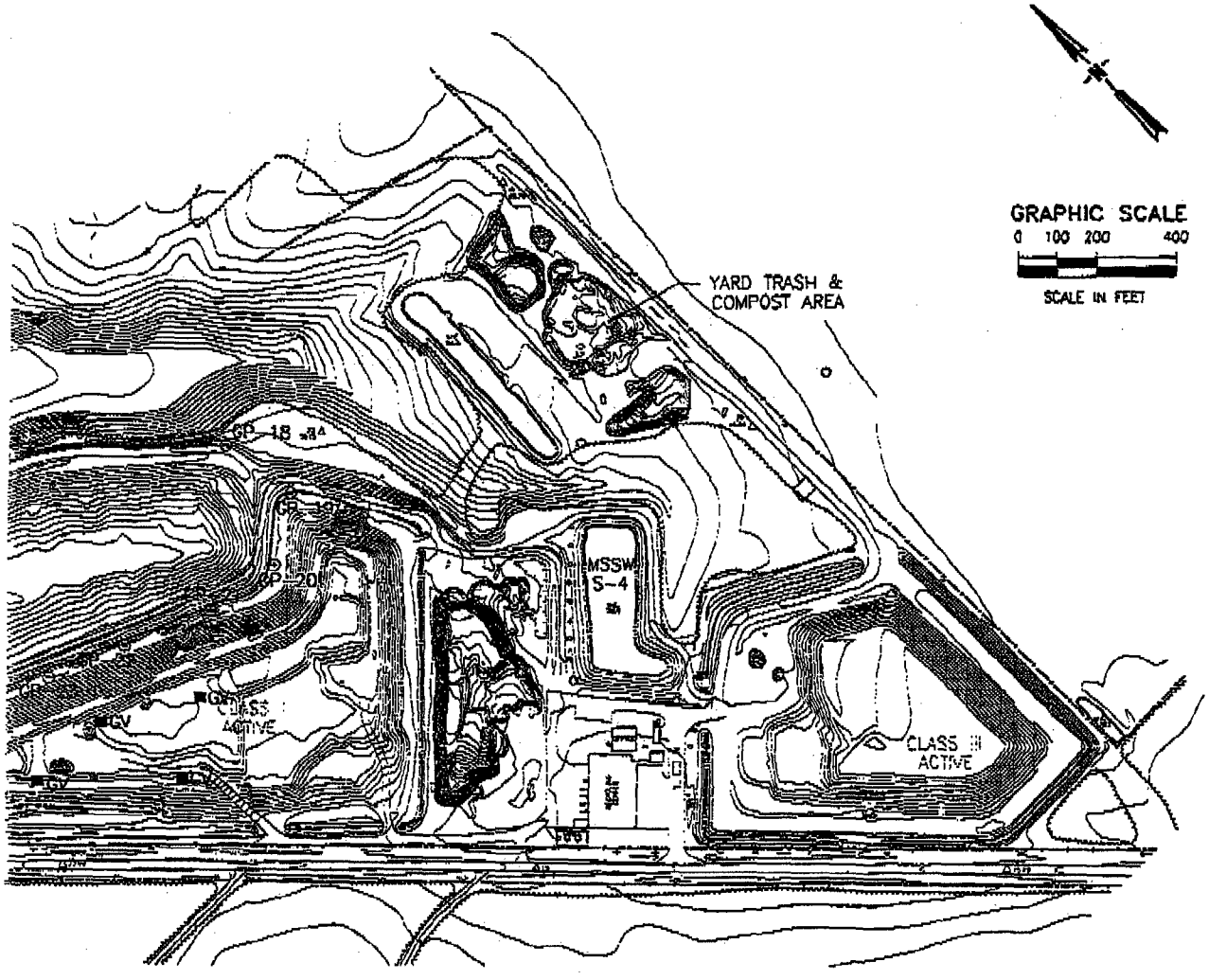
xc: Alan Altman, Clay County Solid Waste Director



				DESIGNED		APPROVED FOR JEA BY	
				DRAWN	RWB		
				CHECKED			
NO.	DATE	REVISIONS	BY	APPRD.	PROJECT ENGINEER	REG. PROF. ENGINEER	DATE

Jones Edmunds & Associates, Inc. JEA

© James, Edmunds & Associates, Inc.



GRAPHIC SCALE

0 100 200 400

SCALE IN FEET

LEGEND

■ GV	GAS VENT (APPROXIMATE LOCATION)
——	TOPOGRAPHIC CONTOUR (CONTOUR INTERVAL : 2FT)
⊕ GP-22	GAS MONITORING BORE HOLES (APPROXIMATE LOCATION)
⊕ PBH-3	GAS MONITORING PROBE

	CLAY COUNTY ROSEMARY HILL LANDFILL	GAS SAMPLE LOCATIONS	DATE: APR 1995
			PROJECT NO.: 05740-252-01-04
			SCALE: 1"=200
			DWG. NO.: 1 OF 1

1 Oversized Map Scanned Separately

Department of
Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 21, 1995

Mr. Greg Mathes
Division President and General Manager
Trail Ridge Landfill, Inc.
Post Office Box 548
Baldwin, FL 32234

Dear Mr. Mathes:

RE: Trail Ridge Landfill - Phase IIIA
and Stormwater Collection System
FDER Permit Number SC16-184444
Completion Inspection

On Tuesday, October 31, 1995 the Department of Environmental Protection personnel conducted an inspection of the stormwater facility for Trail Ridge Landfill - Phase III A. After reviewing the as-built information submitted to the Department along with a review of the permit, associated construction plans, calculations, and with the inspection of the facility, the Department finds that the constructed stormwater system is in compliance with Chapters 40C-4 and 40C-42 Florida Administrative Codes for the State of Florida.

It is the Department's understanding that the permit will now move into the operational phase, with Trail Ridge Landfill, Inc. being the responsible entity for the operation and maintenance of the stormwater system. It is Trail Ridge Landfill, Inc.'s responsibility to meet all conditions of the permit and provide information on monitoring to the Department as required by the permit. This information is to be submitted to the Stormwater Engineer.

If you should have any questions concerning this matter, please feel free to call me at (904) 448-4340, extension 326.

Sincerely,

David P. Apple, P.E.
Stormwater Permitting Manager
Northeast District

DPA/eml

CC: Jeremy Tyler - DEP
Mary Nogas - NED
Juanitta Bader Clem, P.E. England, Thimes & Millers, Inc.
Scott McCallister - Jacksonville Area Landfill

Z 104 632 031

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PS Form **3800**, March 1993

Is your **RETURN ADDRESS** completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
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1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Prof. Mathes
Trail Ridge Landfill
PO Box 548
Baldwin, FL 32234

4a. Article Number
P 104 632 031

4b. Service Type
☐ Registered ☐ Insured
☐ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
11-6-95

5. Signature (Addressee)

6. Signature (Agent)
[signature]

8. Addressee's Address (Only if requested and fee is paid)
JW

Thank you for using Return Receipt Service.

PS Form **3811**, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Department of
Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 2, 1995

CERTIFIED-RETURN RECEIPT

Mr. Greg Mathes, Division Manager
Trail Ridge Landfill, Inc.
Post Office Box 548
Baldwin, Florida 32234

Dear Mr. Mathes:

Trail Ridge Landfill - Phase III A
FDEP Permit Number SC16-184444
Duval County - Solid Waste

The Department has completed review of the following documents submitted to comply with the conditions of the subject permit, which must be satisfied before the Department can authorize the facility to accept waste:

A. "Quality Assurance Manual for the Installation of Lining Systems," dated April 21, 1993, prepared by Waste Management, and received March 23, 1995;

B. "Trail Ridge Landfill Project - Specific Addenda to Quality Assurance Manual," dated March 15, 1995, prepared by England, Thims and Miller, Inc., and received March 23, 1995;

C. "Minimum Qualifications of the Construction Quality Assurance Engineer and Supporting Personnel," dated May 17, 1995, prepared by England, Thims and Miller, Inc., and received May 18, 1995;

D. "Clarification to Section C - Bentonite Mat (Geosynthetic Clay Liner) of the Project - Specific Addenda to the Quality Assurance Manual," dated May 31, 1995, prepared by England, Thims and Miller, Inc., and received June 1, 1995;

E. "Certification of Construction Completion," dated September 29, 1995, prepared by England, Thims and Miller, Inc., and received October 2, 1995;

F. "As-Builts of Trail Ridge Landfill, Phases I, II and III A," dated October 2, 1995, prepared by Sunshine State Surveyors Inc., and received October 2, 1995; and

G. "Quality Control Specification Sheet for the 60 mil HDPE Geomembrane Liner," dated October 18, 1995, prepared by England, Thims and Miller, Inc., and received on October 20, 1995.

The Department made a site inspection on October 31, 1995, and has determined that the referenced facility may now accept waste in the permitted area with the following understandings:

1. The facility may not accept yard trash in accordance with Florida Administrative Code (FAC) Chapter 62-701;

2. As specified in the Method and Sequence of Filling Waste, Final Operations Plan (Revised April 14, 1992, page 9-5), received by the Department on May 1, 1992, extreme care will be taken during initial refuse placement to prevent damage to the liner. Site personnel will take extreme care to assure that no objects are placed directly on the soil cover which could be pushed through to damage the liner. Furthermore, the waste shall 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; and

3. The initial placement of select waste in the Class I area will be done under the supervision of a quality assurance engineer as required in Specific Condition Number 33 of the referenced permit.

If you have any questions concerning this letter, please contact me at telephone number (904) 448-4320.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN:fd

cc: Juanitta Bader Clem, P. E., England, Thims and Miller, Inc.
Chris Pearson, City of Jacksonville

Department of Environmental Protection

INTERNAL MEMORANDUM

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

Date: 31-Oct-1995 01:39pm EST
From: Reza Shayan JAX
SHAYAN_R
Dept: Northeast District Offi
Tel No: 904/448-4340 Ext. 345
SUNCOM: 880-4340 Ext. 345

TO: Jeremy Tyler JAX (TYLER_J)
TO: David Apple JAX (APPLE_D)

Subject: Trail Ridge Landfill-Phase IIIA,Certification of completion

The above subject project was inspected on 10/31/95 regarding the Stormwater System and was determined to be in compliance. Please note that both deviations noted in the Certification of completion were verified and they were not a substantial deviations to require a permit modification.

Therefore an acceptance letter can be sent to the Applicant.

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

TELECOPIER TRANSMITTAL LETTER

DATE: 10/18/95

TO: Francis Dayao

ATTENTION:

FROM: Juanitta Clem

REFERENCE: Trail Ridge Landfill - Phase IIIA

PROJECT NO: 95-12-1A

Please see the attached. I will mail the original.

WE ARE TRANSMITTING 4 PAGES, INCLUDING COVER PAGE. IF YOU DO NOT RECEIVE ALL PAGES OR HAVE DIFFICULTY READING THIS DOCUMENT, PLEASE CALL US IMMEDIATELY AT (904) 642-8990.

ENGLAND, THIMS & MILLER, INC. TELECOPIER NUMBER (904) 646-9485.

England·Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road S., Jacksonville, FL 32246
Tel: (904) 642-8990 Fax: (904) 646-9485

Principals
James E. England, P.E., Pres.
Robert E. Thims, Exec. V.P.
Douglas C. Miller, P.E., Exec. V.P.
N. Hugh Matthews, P.E., Exec. V.P.

October 18, 1995

Mr. Francis D. Dayao
Waste Management Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill - Phase IIIA
FDEP Permit No. SC16-184444
ET&M No. E95-12 (Certification File)

Dear Mr. Dayao:

Pursuant to your request and on behalf of Trail Ridge Landfill, Inc., we hereby provide the Quality Control Specification sheet for the 60 mil HDPE geomembrane liner as provided by the supplier, National Seal Company. As you can see, the specification sheet indicates a maximum Water Vapor Transmission of 0.024 g/day · m^2 for the geomembrane. Please note that Quality Control Certifications were submitted/ reviewed for the geomembrane and the geomembrane was conformance tested, prior to installation.

If you have any questions regarding this issue, please feel free give me a call

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P.E.
Project Manager

Attachment

cc: Greg Mathes w/attachments
Scott McCallister w/attachments
Chris Pearson w/attachments

HDPE GEOMEMBRANE
QUALITY CONTROL SPECIFICATIONS

60 mil

National Seal Company's High Density Polyethylene (HDPE) Geomembranes are produced from virgin, first quality high molecular weight resins and are manufactured specifically for containment in hydraulic structures. NSC HDPE geomembranes have been formulated to be chemically resistant, free of leachable additives and resistant to ultraviolet degradation.

The following properties are tested as a part of NSC's quality control program. Certified test results for properties on this page are available upon request. Refer to NSC's Quality Control Manual for exact test methods and frequencies.

All properties meet or exceed NSF Standard Number 54

RESIN PROPERTIES	METHOD	UNITS	MINIMUM[1]	TYPICAL
Melt Flow Index[2]	ASTM D 1238	g/10 min	0.50	0.25
Oxidative Induction Time	ASTM D 3895, Al pan, 200°C, 1 atm O_2	minutes	100	120

SHEET PROPERTIES	METHOD	UNITS	MINIMUM[1]	TYPICAL
Thickness	ASTM D 751, NSF mod.			
Average		mils	60.0	61.5
Individual		mils	57.0	59.7
Density	ASTM D 1505	g/cm³	0.940	0.948
Carbon Black Content	ASTM D 1603	percent	2.0-3.0	2.35
Carbon Black Dispersion	ASTM D 3015, NSF mod.	rating	A1, A2, B1	A1
Tensile Properties	ASTM D 638			
Stress at Yield		psi	2200	2550
		ppi	132	157
Stress at Break		psi	3800	4850
		ppi	228	295
Strain at Yield	1.3" gage length (NSF)	percent	13.0	16.9
Strain at Break	2.0" gage or extensometer	percent	700	890
	2.5" gage length (NSF)	percent	560	710
Dimensional Stability[2]	ASTM D 1204, NSF mod.	percent	1.5	0.4
Tear Resistance	ASTM D 1004	ppi	750	860
		lbs	45	53
Puncture Resistance	ASTM D 4833	ppi	1800	2130
		lbs	105	131
Constant Load ESCR, Single Point GRI, GM-5a		hours	200	>400

[1] This value represents the minimum acceptable test value for a roll as tested according to NSC's Manufacturing Quality Control Manual. Individual test specimen values are not addressed in this specification except thickness.

[2] Indicates Maximum Value

NSC
NATIONAL SEAL COMPANY
1245 Corporate Blvd., Suite 300
Aurora, IL 60504
(708) 898-1161 • (630) 323-8220
Fax (708) 898-3461

Printed on recycled paper

HDPE GEOMEMBRANE
PHYSICAL PROPERTIES

60 mil

The properties on this page are not part of NSC's Manufacturing Quality Control program and are provided on the material certifications. Seam testing is the responsibility of the installer and/or CQA personnel.

PROPERTIES	METHOD	UNITS	MINIMUM[1]	TYPICAL
Multi-Axial Tensile Elongation	GRI GM-4	percent	20.0	28.0
Critical Cone Height	GRI GM-5, NSF mod.	cm	1.0	1.5
Wide Width Tensile	ASTM D 4885			
Stress at Yield		psi	[illegible]	[illegible]
Strain at Yield		%	15.0	20.0
Brittleness Temp. by Impact	ASTM D 746	°F	[illegible]	[illegible]
Coef. of Linear Thermal Exp.[2]	ASTM D 696	[illegible]	[illegible]	[illegible]
ESCR, Bent Strip	ASTM D 1693	[illegible]	[illegible]	[illegible]
Hydrostatic Resistance	ASTM D 751	psi	[illegible]	[illegible]
Modulus of Elasticity	ASTM D 638	psi	[illegible]	[illegible]
Ozone Resistance	ASTM D 1149, 168 hrs.	P/F	P	P
Permeability[2]	ASTM E 96	[illegible]	[illegible]	[illegible]
Puncture Resistance	FTMS 101, method 2065	lbs.	1300	1700
		lbs.	[illegible]	[illegible]
Soil Burial Resistance[3]	ASTM D 3083, NSF mod.	% change	10	0
Tensile Impact	ASTM D 1822	ft-lbs/in²	260	420
Volatile Loss[4]	ASTM D 1203, A	percent	0.10	0.06
Water Absorption[2]	ASTM D 570, 23°C	percent	0.10	0.04
Water Vapor Transmission[2]	ASTM E 96	g/day/in²	0.024	0.009

SEAM PROPERTIES	METHOD	UNITS	MINIMUM[1]	TYPICAL
Shear Strength	ASTM D 4437, NSF mod.	psi	2000	2700
		[illegible]	[illegible]	[illegible]
Peel Strength	ASTM D 4437, NSF mod.	[illegible]	[illegible]	[illegible]
(hot wedge fusion)		psi	90	115
Peel Strength	ASTM D 4437, NSF mod.	psi	1300	1500
(fillet extrusion)		psi	78	93

STANDARD ROLL DIMENSIONS

Length	110 feet	Area	[illegible] m²
Width	15 feet	Weight	[illegible] pounds

This information contained herein has been compiled by National Seal Company and is to the best of our knowledge true and accurate. All suggestions and recommendations are offered without guarantee. Final determination of suitability for use based on any information provided is the sole responsibility of the user. There is no implied or expressed warranty of merchantability or fitness of the product for the contemplated use.

NSC reserves the right to update the information contained herein in accordance with technological advancements in the materials properties.

NATIONAL SEAL COMPANY
[illegible]
[illegible]
(708) 895-[illegible] (800) 323-[illegible]
Fax: (708) 895-3461

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road S., Jacksonville, FL 32246
Tel: (904) 642-8990 Fax: (904) 646-9485

Principals
James E. England, P.E., Pres.
Robert E. Thims, Exec. V.P.
Douglas C. Miller, P.E., Exec. V.P.
N. Hugh Mathews, P.E., Exec. V.P.

September 29, 1995

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Regulation
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

NORTHEAST DISTRICT
RECEIVED
OCT 02 19
DEP - JACKSONVILLE

Mr. David P. Apple, P.E.
Stormwater Section
Department of Environmental Regulation
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill - Phase IIIA
and Stormwater Collection System
FDER Permit No. SC16-184444
ET&M No. E95-12 (Certification File)

Dear Ms. Nogas and Mr. Apple:

Please find herewith the Certification of Construction Completion for the Trail Ridge Landfill Phase IIIA including the stormwater collection system for Phase IIIA in accordance with Specific Condition #19 of the subject permit. The Soils and Geosynthetic Quality Assurance documentation and As-Built Surveys are included as part of this certification.

Subject to your site inspection, Trail Ridge Landfill, Inc. respectfully requests your written authorization to accept Class I Solid Waste in Phase IIIA of Trail Ridge Landfill.

This is the partial certification for the Trail Ridge Landfill construction which commenced on April 3, 1995. Should you have any questions concerning this certification, please do not hesitate to contact me.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem, P.E.
Project Manager

Attachments: Certification of Construction Completion
QA/QC Report
Geosynthetic CQA Report
As-Built Surveys

cc: Greg Mathes w/attachments
Scott McCallister w/attachments
Chris Pearson w/attachments

Florida Department of Environmental Regulation

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

DER Form # 17-701.900(2)
Form Title: Certification of Construction Completion of a Solid Waste Management Facility
Effective Date: January 8, 1991
DER Application No.
(Filled in by DER)

Certification of Construction Completion of a Solid Waste Management Facility

DER Construction Permit No: SC16-184444 County: Duval

Name of Project: Trail Ridge Landfill - Phase IIIA

Name of Owner: City of Jacksonville; Trail Ridge Landfill; Inc. - Operator/Permittee

Name of Engineer: England, Thims & Miller, Inc.

Type of Project: Class I Landfill - Phase IIIA and Stormwater Collection System for Phase IIIA including the 8 ' x 10' box culvert & spillway

Cost: Estimate $ 3,132,200 Actual $ 3,326,900

Site Design: Quantity: 2,600 (average) ton/day Site Acreage: 8.8± Acres

Deviations from Plans and Application Approved by DER: Deviations are shown in the Construction Quality Assurance documentation and As-Built surveys. The As-built surveys were prepared by Sunshine State Surveyors, Inc. and reviewed by England, Thims & Miller, Inc. Deviations are also outlined in the attachment.

Address and Telephone No. of Site: 5110 U.S. Highway 301 Baldwin, Florida 32234; (904) 289-9100

Name(s) of Site Supervisor: Greg Mathes

Date Site inspection is requested: ASAP

This is to certify that, with the exception of any deviation noted above, the construction of the project has been completed in substantial accordance with the plans authorized by Construction Permit No. SC16-184444 and Modifications Dated: Permit 12/24/91

England, Thims & Miller, Inc. relied upon the information and certifications provided by Law Engineering, Inc., Golder Construction Services, Inc., and Sunshine State Surveyors, Inc.

Date: Sept. 29, 1995

Juanitta Rodriguez
Signature of Professional Engineer

REGfiles: 5/94

TRAIL RIDGE LANDFILL
PHASE IIIA
DEVIATIONS FROM PLANS AND APPLICATION

1. The backslope of the anchor trench was raised an additional one foot.

2. The temporary liner end treatment, located 20 feet west of the Stormwater Control Flap for Phase IIIA, was modified.

3. The temporary drainage system on the existing landfill was modified to meet existing conditions at the time of installation.

4. The Filter Point Mat ditch pavement was upgraded from an 8" mat to a 10" mat.

NORTHEAST DISTRICT

RECEIVED

DEP-JACKSONVILLE

Florida Department of Environmental Regulation

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

DER Form # 17-711.900(4)

Form Title Waste Tire Processing Facility Quarterly Report

Effective Date February 28, 1994

DER Application No. _____

(Filled in by DER)

Waste Tire Processing Facility Quarterly Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department quarterly.

Quarter covered by this report: 7/01/95 - 9/30/95 (First quarter begins on January 1 of any given year)

1. Facility name: TRAIL RIDGE LANDFILL, INC.
2. Facility mailing address: 5110 U.S. HWY 301

   City: BALDWIN County: DUVAL Zip: 32234
3. Facility permit number: SC16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: GREG MATHES
6. Affiliation with facility: DIVISION PRESIDENT AND GENERAL MANAGER
7. Telephone number (if different from above): ( )
8. Activity: Report in tons.

	Beginning Inventory	Received	Processed	Consumed	Removed	Adjustments	Ending Inventory
Used Tires							
Other whole tires	-0-	94	-0-				94
Processed tires							
Processing Waste							
Other							
Total							

a. Explain all inventory adjustments. _____

b. List any period in which one or more category of inventory exceeded the permitted maximum for that category. How was that condition relieved? _____ For any excess inventory at the end of the quarter, state how and when this condition will be relieved. Attach additional sheets, if necessary. _____

9. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

GREGORY W. MATHES — Name of Authorized Agent

Signature of Authorized Agent

10/10/95 — Date

Mail complete form to
the appropriate district office

City of Jacksonville
Fire and Rescue Department-Fire Prevention Division
1931 East Beaver Street
Jacksonville, FL 32202-1111
Phone: (904) 630-0969 Fax: (904) 630-0965

FIRE SAFETY INSPECTION

Fpd#: _____

Date: 4-20-95 New Property: ✓ Existing Property: _____

Business Name: Trail Ridge Landfill Owner/Manager: City Tax (Public Utilities)
(Please Print) (Please Print)

Address: 5110 State Road 301 Phone #: 289-9100

Occupancy Use: Business

YOUR ATTENTION IS CALLED TO THE FOLLOWING VIOLATIONS:

Discrepancy	Location	Code

Comments/Instructions: _____

FAILURE TO CORRECT THESE VIOLATIONS MAY RESULT IN CIVIL AND/OR CRIMINAL PENALTIES AS REQUIRED BY LAW.

This occupancy meets minimum firesafety requirements at this time. ✓

I acknowledge receipt of this inspection form:

Name (Please Print) _____ Signature _____ Date 4-20-95

I certify on this date, I made an inspection of the above premises.

Lt. Wm. McGuire Jr. 4-20-95
Inspector Date

Page _____ of _____

WHITE COPY - F.P.D. OFFICE COPY YELLOW COPY - FACILITY COPY PINK - OWNER/OCCUPANT COPY

PSL-4085

Florida Department of Environmental Regulation

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

NORTHEAST DISTRICT

DER Form # 17-711.900(4)

Form Title Waste Tire Processing Facility Quarterly Report

Effective Date February 28, 1994

DER Application No. _____ (Filled in by DER)

Waste Tire Processing Facility Quarterly Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department quarterly.

Quarter covered by this report: 4/1/95 - 6/30/95 (First quarter begins on January 1 of any given year)

1. Facility name: Trail Ridge Landfill, Inc.
2. Facility mailing address: 5110 U.S. Hwy 301

   City: Baldwin County: Duval Zip: 32234
3. Facility permit number: SC16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: Greg Mathes
6. Affiliation with facility: Division President & General Manager
7. Telephone number (if different from above): ( )
8. Activity: Report in tons.

	Beginning Inventory	Received	Processed	Consumed	Removed	Adjustments	Ending Inventory
Used Tires							
Other whole tires	7	149	156				0
Processed tires							
Processing Waste							
Other							
Total							

a. Explain all inventory adjustments. _____

b. List any period in which one or more category of inventory exceeded the permitted maximum for that category. How was that condition relieved? _____ For any excess inventory at the end of the quarter, state how and when this condition will be relieved. Attach additional sheets, if necessary. _____

9. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

Gregory Mathes — Name of Authorized Agent

[signature] — Signature of Authorized Agent

01/27/95 — Date

Mail complete form to
the appropriate district office

Florida Department of Environmental Regulation

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

DER Form # 17-711.900(4)
Form Title Waste Tire Processing Facility Quarterly Report
Effective Date February 28, 1994
DER Application No. _____
(Filled in by DER)

Waste Tire Processing Facility Quarterly Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department quarterly.

Quarter covered by this report: 1/1/95 - 3/31/95 (First quarter begins on January 1 of any given year)

1. Facility name: Trail Ridge Landfill, Inc.
2. Facility mailing address: 5110 U.S. Hwy 301
   City: Baldwin County: Duval Zip: 32234
3. Facility permit number: SC16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: Greg Mathes
6. Affiliation with facility: Division President & General Manager
7. Telephone number (if different from above): ( )
8. Activity: Report in tons.

	Beginning Inventory	Received	Processed	Consumed	Removed	Adjustments	Ending Inventory
Used Tires							
Other whole tires	18	71	82				7
Processed tires							
Processing Waste							
Other							
Total							

a. Explain all inventory adjustments. _____

b. List any period in which one or more category of inventory exceeded the permitted maximum for that category. How was that condition relieved? _____ For any excess inventory at the end of the quarter, state how and when this condition will be relieved. Attach additional sheets, if necessary. _____

9. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

Gregory W. Mathes — Name of Authorized Agent

[signature] — Signature of Authorized Agent

07/28/95 — Date

Mail complete form to
the appropriate district office

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

June 9, 1995

Mr. Charles Galloway
Plant Manager
Dantzler Lumber and Export Company
7850 West Beaver Street
Post Office Box 6340
Jacksonville, Florida 32236

Dear Mr. Galloway:

Attached is an interoffice memorandum concerning the concrete and soil debris removed from the drip pad at your facility. This material is considered non-hazardous solid waste, and may be disposed of at the City of Jacksonville's Trail Ridge Landfill.

If you have any questions concerning this matter, please do not hesitate to contact me at (904)448-4320.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN

DEPARTMENT OF ENVIRONMENTAL PROTECTION

INTEROFFICE MEMORANDUM

NORTHEAST DISTRICT - JACKSONVILLE

TO: Mary Nogas, Solid Waste Supervisor
Solid Waste Section

THOUGH: Ashwin Patel, Hazardous Waste Supervisor
Hazardous Waste Section

FROM: Karen Davis Cates, Environmental Specialist
Hazardous Waste Section

DATE: June 9, 1995

SUBJECT: Dantzler Lumber and Export Company
Duval County

This memo is in reference to the concrete and soil debris that was removed from the drip pad at Dantzler Lumber. In accordance with 40 CFR 265.445, the drip pad was decontaminated by sanding off the top half inch of concrete. The concrete dust was disposed of as D004/D007/F035 hazardous waste. The remaining concrete and soil from the drip pad repair was analyzed for Toxicity Characteristic Leaching Procedure (TCLP) for Metals. The analytical results showed that the concrete and soil debris was not characteristic for chromium and arsenic. The concrete and soil debris is not a characteristic or listed hazardous waste and may be disposed of as a non-hazardous solid waste.

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

June 7, 1995

VIA FACSIMILE

Mr. Thomas W. Hartley
National Sheet Metal Company
8318 Atlantic Boulevard
Jacksonville, Florida 32211

Dear Mr. Hartley:

Thank you for the copy of Todd Clark's June 2 letter of determination that the air plenum in question is not biomedical waste.

As we discussed briefly this morning, the determination of whether or not a waste is considered biomedical waste and handled accordingly rests with Mr. Clark at the Department of Health and Rehabilitative Services. Since Mr. Clark has made his determination, please be advised that the Department of Environmental Protection has no objection to the disposal of this waste in the City's Trail Ridge Landfill.

If we can be of furthjer assistance in this matter, please telephone me at (904)448-4320, extension 355.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DISTRICT FOUR • BIOMEDICAL WASTE PROGRAM

June 2, 1995

Thomas W. Hartley
National Sheet Metal Company
8318 Atlantic Boulevard
Jacksonville, Florida 32211

Dear Mr. Hartley:

The following recommendation concerning the disposal of the potentially contaminated air plenum is provided at your request.

As we discussed yesterday, it is my understanding the plenum probably contains no measurable amounts of visible liquid or solid contamination, such as formaldehyde, hair, blood, etc. If this is the case, obviously the disposal would be much easier than otherwise.

In the event this is the case, I recommend wearing the proper PPE (personal protective equipment) you deem necessary. I do not represent OSHA or the Florida Department of Labor; and it is your responsibility to follow these guidelines. If you have questions for them, OSHA as your probably know is at 732-2895; FDL's private industry spokesperson, as I understand it, is Ned Payson, at 345-5157.

Then I would remove the plenum, and while still wearing PPE, rinse it off with water. The rinsate should drain into a sanitary sewer connected to the public sewer system. According to Chapter 10D-104.007 (6), F.A.C., Biomedical Waste, "biomedical waste may be disposed into a sanitary sewer system... if the waste is in a semi-solid or liquid form..."

After rinsing there would be no visible contaminants, and the waste is therefore not biomedical in nature. It would be, in my professional opinion, normal solid waste, and as such with Mr. Waterman's approval (City Solid Waste Division spokesperson, phone number 632-4496) could be disposed of the city's Trail Ridge Landfill.

If you have any further questions, please do not hesitate to call.

Sincerely,

Todd Clark

Todd Clark
District Biomedical Waste Coordinator

900 UNIVERSITY BOULEVARD NORTH • SUITE 300 • JACKSONVILLE, FLORIDA 32211
TELEPHONE: (904) 630-3260 • TELEFAX: (904) 630-3285

National Sheet Metal Company

Direct Dial Fax No. (904) 721-1434

DATE: 6/7/95

TO:

TELECOPIER #:

ATTN: MARY MOSS

FROM: TOM HARTLEY

SUBJECT:

OF PAGES: 2 (INCLUDING COVER SHEET)

REMARKS: THANK YOU

IF IMPROPERLY RECEIVED, PLEASE CONTACT US IMMEDIATELY AT (904) 724-7476.

Z 154 631 519

Receipt for Certified Mail

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Return Receipt Showing to Whom, Date, and Addressee's Address	
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PS Form **3800**, March 1993

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

NORTHEAST DISTRICT
DEC [illegible]
JACKSONVILLE FL

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Greg Mathes
P.O. Box 548
Baldwin, FL
32234

4a. Article Number
Z 154 631 519

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
5-1

5. Signature (Addressee)

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)
Trail Ridge (16)
ML Solid Waste

PS Form **3811**, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

April 26, 1995

CERTIFIED - RETURN RECEIPT

Mr. Greg Mathes
Trail Ridge Landfill, Inc.
Post Office Box 548
Baldwin, Florida 32234

Dear Mr. Mathes:

Trail Ridge Landfill
Duval County - Solid Waste Compliance

This letter is a follow-up to an inspection by Department personnel on April 21, 1995.

The site appears to have been maintained adequately at the time of inspection. However, the following minor problem at the landfill need to be addressed before the next quarterly inspection: minor areas of initial cover need improving east of the working face.

If you have any questions, please contact Neal Newton at the letterhead address or telephone (904) 448-4320, extension 357.

Sincerely,

Mary C. Nogas, P.E.
Solid Waste Supervisor

MCN:nn

England-Thims & Miller, Inc.

Consulting & Design Engineers
3131 St. Johns Bluff Road S., Jacksonville, FL 32246
Tel: (904) 642-8990 Fax: (904) 646-9485

Principals
James E. England, P.E., Pres.
Robert E. Thims, Exec. V.P.
Douglas C. Miller, P.E., Exec. V.P.
N. Hugh Mathews, P.E., Exec. V.P.

NORTHEAST DISTRICT
APR 20 1995
DEP JACKSONVILLE

April 17, 1995

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill -Side Slope Closure
Side Slope Units 9,10 and 11
FDER Permit No. SC16-184444
ET&M No. E94-17-3 (Certification File)

Dear Ms. Nogas:

Please find herewith the Certification of Construction Completion for the Trail Ridge Landfill - Side Slope Closure. The Construction Quality Assurance/Quality Control documentation and As-Built drawings are attached.

We request a site inspection on May 1, 1995 at 9:00 A.M. Subject to your site inspection, Trail Ridge Landfill, Inc. respectfully requests your written verification that this closure is accepted by the Department.

This is the certification for the Trail Ridge Landfill Closure construction of Side Slope Units 9, 10 and 11 which commenced on May 23, 1994. Should you have any questions concerning this certification, please do not hesitate to contact me or Juanitta Clem.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

DCM:cl

Attachments: Certification of Construction Completion
As-Built Drawing
Quality Assurance and Quality Control Documentation

cc: Greg Mathes w/attachments
Scott McCallister w/attachments
Chris Pierson w/attachments
DEP Stormwater Section w/attachments

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road S., Jacksonville, FL 32246
Tel: (904) 642-8990 Fax: (904) 646-9485

Principals
James E. England, P.E., Pres.
Robert E. Thims, Exec. V.P.
Douglas C. Miller, P.E., Exec. V.P.
N. Hugh Mathews, P.E., Exec. V.P.

March 23, 1995

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Regulation
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

NORTHEAST DISTRICT
RECEIVED
MAR 23 1995
DEP JACKSONVILLE

Reference: Trail Ridge Landfill
FDEP Permit No. SC16-184444
ET&M No. E93-208-1

Dear Ms. Nogas:

By this letter and on behalf of Trail Ridge Landfill, Inc., we hereby notify the Department that the construction of Phases IIIA, IIIB, IVA and IVB of the referenced project as well as the remainder of the perimeter ditch and roadway shall begin on or about April 3, 1995. The parties involved in the construction are as follows:

General Construction Contractor - J. B. Coxwell Contracting, Inc.
Synthetic Liner System Installer - National Seal Company
General Quality Assurance/Quality Control - England, Thims & Miller, Inc.
Synthetic Liner System Quality Assurance/Quality Control - Golder Associates
Soils Quality Assurance/Quality Control - Law Engineering

On behalf of Trail Ridge Landfill, Inc. and as required by Specific Condition No. 2. of the referenced permit, we hereby submit the Quality Assurance/Quality Control Plan (consisting of "Quality Assurance Manual for the Installation of Lining Systems" and "Project Specific Addenda to Quality Assurance Manual") for installing the synthetic liner system at the referenced facility. Prior to commencement of synthetic liner installation, the names and qualifications of the Quality Assurance Engineer and supporting staff will be submitted to the Department.

If you have any questions, please feel free to call me or Juanitta Clem.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

Attachments: Quality Assurance and Quality Control Plan

cc: Greg Mathes w/attachments
Scott McCallister w/attachments
Chris Pearson w/attachments

Florida Department of Environmental Regulation

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

DER Form #	17-711.900(4)
Form Title	Waste Tire Processing Facility Quarterly Report
Effective Date	February 28, 1994
DER Application No.	(Filled in by DER)

RECEIVED
FEB 08 1995
DEP JACKSONVILLE

Waste Tire Processing Facility Quarterly Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department quarterly.

Quarter covered by this report: 10/1/94 - 12/31/94 (First quarter begins on January 1 of any given year)

1. Facility name: Trail Ridge Landfill, Inc.
2. Facility mailing address: 5110 U.S. Hwy 301

   City: Baldwin County: Duval Zip: 32234
3. Facility permit number: SC-16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: Greg Mathes
6. Affiliation with facility: Division President & General Manager
7. Telephone number (if different from above): ( )
8. Activity: Report in tons.

	Beginning Inventory	Received	Processed	Consumed	Removed	Adjustments	Ending Inventory
Used Tires							
Other whole tires	280	162	424				18
Processed tires							
Processing Waste							
Other							
Total							

a. Explain all inventory adjustments.

b. List any period in which one or more category of inventory exceeded the permitted maximum for that category. How was that condition relieved?

For any excess inventory at the end of the quarter, state how and when this condition will be relieved. Attach additional sheets, if necessary. See attached

9. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

Gregory W. Mathes — Name of Authorized Agent

Signature of Authorized Agent

01/30/95 — Date

Mail complete form to
the appropriate district office

A Waste Management Company

Waste Tire Processing Facility Quarterly Report
Attachment

8.b.

The ending inventory reported, does not exceed our permitted maximum. The excess inventory will be relieved before our permitted limit is reached.

Greg Mathes
Division President & General Manager

Printed on recycled paper

Florida Department of Environmental Regulation

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

DER Form # 17-711.900(4)
Form Title Waste Tire Processing Facility Quarterly Report
Effective Date February 28, 1994
DER Application No. _____
(Filled in by DER)

RECEIVED
FEB 08 1995
DEP JACKSONVILLE

Waste Tire Processing Facility Quarterly Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department quarterly.

Quarter covered by this report: 7/1/94 - 9/30/94 (First quarter begins on January 1 of any given year)

1. Facility name: Trail Ridge Landfill, Inc.
2. Facility mailing address: 5110 U.S. Hwy 301
   City: Baldwin County: Duval Zip: 32234
3. Facility permit number: SC-16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: Greg Mathes
6. Affiliation with facility: Division President & General Manager
7. Telephone number (if different from above): ( )
8. Activity: Report in tons.

	Beginning Inventory	Received	Processed	Consumed	Removed	Adjustments	Ending Inventory
Used Tires							
Other whole tires	0	280	0				280
Processed tires							
Processing Waste							
Other							
Total							

a. Explain all inventory adjustments. _____

b. List any period in which one or more category of inventory exceeded the permitted maximum for that category. How was that condition relieved? _____

For any excess inventory at the end of the quarter, state how and when this condition will be relieved. Attach additional sheets, if necessary. See attached

9. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

Greg Mathes — Name of Authorized Agent

Signature of Authorized Agent

01/30/95 — Date

Mail complete form to
the appropriate district office

A Waste Management Company

Waste Tire Processing Facility Quarterly Report
Attachment

8.b.

The ending inventory reported, does not exceed our permitted maximum. The excess inventory will be relieved before our permitted limit is reached.

Greg Mathes
Division President & General Manager

Florida Department of Environmental Regulation

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

DER Form # 17-711.900(4)
Form Title Waste Tire Processing Facility Quarterly Report
Effective Date February 28, 1994
DER Application No. _____
(Filled in by DER)

RECEIVED
FEB 08 1995
DEP JACKSONVILLE

Waste Tire Processing Facility Quarterly Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department quarterly.

Quarter covered by this report: 4/1/94 - 6/30/94 (First quarter begins on January 1 of any given year)

1. Facility name: Trail Ridge Landfill, Inc.
2. Facility mailing address: 5110 U.S. Hwy 301
   City: Baldwin County: Duval Zip: 32234
3. Facility permit number: SC-16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: Greg Mathes
6. Affiliation with facility: Division President & General Manager
7. Telephone number (if different from above): ( )
8. Activity: Report in tons.

	Beginning Inventory	Received	Processed	Consumed	Removed	Adjustments	Ending Inventory
Used Tires							
Other whole tires	102	224	326				0
Processed tires							
Processing Waste							
Other							
Total							

a. Explain all inventory adjustments. _____

b. List any period in which one or more category of inventory exceeded the permitted maximum for that category. How was that condition relieved? _____ For any excess inventory at the end of the quarter, state how and when this condition will be relieved. Attach additional sheets, if necessary. _____

9. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

Greg Mathes — Name of Authorized Agent

Signature of Authorized Agent

01/30/95 — Date

Mail complete form to
the appropriate district office

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
~~P.O. Box 348~~
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
JUN 23 1995
JACKSONVILLE

June 21, 1995

Ms. Mary Nogas, P.E.
Solid Waste Supervisor
Department of Environmental Protection
Northeast District
Waste Management Section
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Re: **Trail Ridge Landfill, Inc.**
SC16-184444

Dear Ms. Nogas:

I would like to confirm our recent conversation concerning the initial sampling and analysis of wells B-13 S, B-13 I, and B 23 S, associated with the Phase III landfill operation. Specific Condition 38.b.(2) of Modification No. 258517 states that initial sampling of the above listed wells must be conducted and the results submitted to the Department 60 days prior to acceptance of waste in Phase III. However, as we discussed, the "initial sampling" list of parameters is included in the original permit and not in the referenced modification. Your discussion with Mr. Rick Rachal of your office, confirmed it was not the Department's intent to require the "initial sampling" list be submitted 60 days prior to waste acceptance in Phase III or subsequent phases. The reason this is no longer necessary is because several years of quarterly data have been received and reviewed by the Department for this site. These data have established that there is presently no indication of ground water or surface water degradation. Therefore, requiring the "initial sampling" list to be conducted at this time would not provide any additional useful data. Instead, it was requested that the above referenced wells be added to the semi-annual monitoring program with the other currently active wells on-site. The next sampling event is scheduled for July 1995. Since Phase III construction will continue through July, the samples from these wells will be collected prior to waste acceptance in Phase III.

I trust the above summary accurately describes our conversation. However, should you have any questions or comments, please give me a call. Unless I hear from you, I will follow through with the schedule for sampling described above. Thank you for your consideration in this matter.

Sincerely,

Scott W. McCallister, P.G.
Senior Environmental Engineer

SWM:lh
cc: Greg Mathes
Larry Perkins
Jeff Reindl

C:\WPDOCS\SCOTT\1995\NOGAS4

Printed on recycled paper

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

May 6, 1996

CERTIFIED - RETURN RECEIPT

Mr. Greg Mathes
Division President and General Manager
Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
Baldwin, Florida 32234

Dear Mr. Mathes:

Trail Ridge Landfill - Duval County
Modification No. 288638 of Issued Permit No. SC16-184444

The Department has elected to issue the following modification to allow the use of equivalent geotextile fabrics as alternate initial cover materials.

This Notice of Modification does not alter the expiration date, the General Conditions or any of the Specific Conditions with the exception of Specific Condition 59, as noted below. **This letter must be attached to the original permit.**

Specific Condition 59 shall now read as follows:

59. Waste tires, cut into sufficiently small parts, may be utilized as initial cover at the facility. A sufficiently small part means that 70 percent of the waste tire is cut into pieces of 4 square inches or less and 100 percent of the waste tire material is 32 square inches or less. Additionally, the following geotextile materials may be utilized for initial cover: Fabric 52048000 (white), Fabric 52049000 (tan), and Fabric 52051375 (green), all manufactured by Lumite, a Division of Synthetic Industries, Inc. Other equivalent geotextile materials may be utilized upon written approval of the Department. The maximum time any area may be covered with geotextile materials is 30 days. In areas where an additional lift or final cover will not be applied within 180 days, the geotextile materials shall be in place for a maximum of 7 days, at which time they shall be removed and intermediate cover applied.

Since the proposed modification is not expected to result in any adverse environmental impact or water quality degradation, the permit is hereby modified as requested. By copy of this letter we are notifying all necessary parties of the modification.

This letter constitutes final agency action unless a person substantially affected by this action requests an administrative hearing pursuant to Section 120.57, Florida Statutes. The petition must be filed within fourteen (14) days from receipt of this letter. The petition must comply with the requirements of Florida Administrative Code Rule 28-5.201 and be filed pursuant to Rule 62-103.155(1) in the Office of General Counsel of the Department of Environmental Regulation at 3900 Commonwealth Boulevard, MS #35, Tallahassee, Florida 32399-3000. Petitions which are not filed in accordance with the above provisions will not be accepted by the Department. If a formal hearing pursuant to Section 120.57(1), is requested, at such formal hearing all parties shall have an opportunity to respond, to present evidence and argument on all issues involved, to conduct cross-examination of witnesses and submit rebuttal evidence, to submit proposed findings of facts and order, to file exceptions to any order or hearing officer's recommended order, and to be represented by counsel. If an informal proceeding is requested, the agency will, in accordance with its rules of procedure, give affected persons or parties or their counsel an opportunity, at a convenient time and place, to present to the agency or hearing officer, written or oral evidence in opposition to the agency's action or refusal to act, or a written statement challenging the grounds upon which the agency has chosen to justify its action or inaction, pursuant to Section 120.57(2), Florida Statutes. The hearing process is designed to formulate agency action. Accordingly, the Department's final action as a result of a hearing may be different from the position taken by it in this stage. Therefore, any person who may wish to contest the Department's ultimate permitting decision must petition for a hearing within the fourteen-day period described above.

Failure to file a request for a hearing within this time period shall constitute a waiver of any right such person may have to request a hearing under Section 120.57, Florida Statutes.

If you have any questions about this matter, please contact Mary C. Nogas at the letterhead address or telephone (904) 448-4320.

Sincerely,

Michael J. Fitzsimmons

Michael J. Fitzsimmons
Waste Program Administrator

MJF:mn

cc: L. Chris Pearson, City of Jacksonville, Solid Waste Division

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

[illegible] 5-6-96
Clerk Date

NORTHEAST DISTRICT
RECEIVED
FEB 03 1995
JACKSONVILLE

STORM SEWER TABULATION SHEET

Project: Trail Ridge Landfill - 2nd Increment Storm: 25 year Date: .Jan 12, 1994 **ENGLAND, THIMS & MILLER** ETM Project No. E 93-208
Phases III A & B and Phases IV A and B

Area Desciption	Type of Structure	Type of Line	Length (Ft)	Drainage Area (Acres) DEC= 0.04 Incr.	C	C*A	Tc (min.)	TL (min.)	i	Total (CA)	Runoff (cfs)	Top Elev.	Elev. of H.G. Crown El. Invert El. Up End	Dn End	Fall	Pipe Size Span (in.)	Rise (in.)	n	Slope (%)	Vel. (fps)	Q (cfs)	REMARKS
S116	10 X 4 FDOT Box Cul	Conc	40	48.50	0.95	46.08	34.18	0.10	4.66	46.08	214.84	_	139.48	139.40	0.08				0.21%	6.84	214.84	Head Loss through
													140.20	139.40		120	48	0.012				Structure = 0.58'
													136.20	135.40	0.80				2.00%			(see attached Calcs.)
S117	10 X 4 FDOT Box Cul	Conc		48.50	0.95	46.08	34.28		4.62	46.08	212.73	-	139.40						0.21%	6.77	212.7	
													139.40			120	48	0.012				
													135.40									
S118	10 x 8 FDOT Box Cul	Conc	40	106.20	0.95	100.89	39.90	0.10	4.28	100.89	431.42	_	117.94	117.30	0.64				0.11%	6.87	431.42	Head Loss through
													118.00	117.30		120	96	0.012				Structure = 0.56'
													110.00	109.30	0.70				1.75%			(see attached Calcs.)
S119	10 x 8 FDOT Box Cul	Conc		106.20	0.95	100.89	40.00		4.27	100.89	430.82	-	117.30						0.11%	6.86	430.8	
													117.30			120	96	0.012				
													109.30									
S120	30" HDPE End	HDPE	56	14.20	0.95	13.49	25.60	0.06	5.37	13.49	72.39	_	123.93	120.87	3.06					14.75		Inlet Control
													138.78	119.37		30	30	0.012				Q=CA((2gh)^(1/2)) =
													136.28	116.87	19.41				34.66%			3.06
S121	30" HDPE End	HDPE	56	8.20	0.95	7.79	25.60	0.11	5.37	7.79	41.80	_	122.03	120.26	1.77					8.52		Inlet Control
													138.78	118.76		30	30	0.012				Q=CA((2gh)^(1/2)) =
													136.28	116.26	20.02				35.75%			1.77
S122	30" HDPE End	HDPE	56	11.50	0.95	10.93	25.60	0.08	5.37	10.93	58.63	_	148.23	145.75	2.48					11.94		Inlet Control
													161.50	143.76		30	30	0.012				Q=CA((2gh)^(1/2)) =
													159.00	141.26	17.74				31.68%			2.48
S123	30" HDPE End	HDPE	56	7.90	0.95	7.51	25.60	0.11	5.37	7.51	40.27	_	145.83	144.13	1.70					8.20		Inlet Control
													161.50	142.63		30	30	0.012				Q=CA((2gh)^(1/2)) =
													159.00	140.13	18.87				33.70%			1.70
S124	Type J-1-D Manhole	CMP	180	11.90	0.95	11.31	25.60	1.56	5.37	11.31	60.67	*146.50*	146.06	145.30	0.76				0.42%	4.83	60.67	
													145.42	145.30		48	48	0.020				
													141.42	141.30	0.12				0.07%	1.92	24.11	
S125	48" CMP End	CMP		11.90	0.95	11.31	27.16		5.21	11.31	58.93	_	145.30		0.00				0.40%	4.69	58.93	
													145.30			48	48	0.020				
													141.30									
S126	FDOT MES	RCP	61	0.20	0.95	0.19	15.97		6.58	0.19	1.25	_	120.05						0.04%	1.02	1.25	
													120.05			15	15	0.013				
													118.80						0.00%			
S127	FDOT MES	RCP	61	0.20	0.95	0.19	15.00	0.97	6.74	0.19	1.28	_	120.07	120.05	0.02				0.04%	1.04	1.28	
													120.25	120.05		15	15	0.013				
													119.00	118.80	0.20				0.33%	3.01	3.70	
S128	FDOT MES	RCP	61	0.30	0.95	0.29	15.00	0.65	6.74	0.29	1.92		120.25	120.01	0.05				0.09%	1.57	1.92	
													120.25	120.01		15	15	0.013				
													119.00	118.76	0.24				0.39%	3.30	4.05	

N

GRAPHIC SCALE

300 0 150 300 600

(IN FEET)
1 INCH = 300 FT.

SECTION 24

SECTION 19

UPLANDS

S-124

S-125

11.9 AC±

Tc Path

S-2

S-122

S-3

11.5 AC±

14.2 AC±

0.7 AC±

0.7 AC±

S-55

S-123

S-56

7.9 AC±

8.2 AC±

S-52

S-53

9.7 AC±

8.7 AC±

9.7 AC±

5.2 AC±

0.8 AC±

10.4 AC±

10.1 AC±

S-50

S-49

S-47

S-44

S-41

S-38

S-116

S-117

S-48

5.0 AC±

Tc Path

S-45

S-42

S-39

1.2 AC±

WETLANDS

BAKER COUNTY

DUVAL COUNTY

PROPERTY BOUNDARY

S-24A

S-120

S-126

0.5 AC±

S-127

0.2 AC±

0.9 AC±

0.3 AC±

S-128

S-121

EXISTING RETENTION BASIN

S-27

S-28

0.41 AC±

S-30

0.52 AC±

S-31

S-29

S-119

S-118

10.15 AC±

S-33

S-34

Tc Path

2.2 AC±

S-35

S-36

WETLANDS

WET

WETLANDS

RECEIVED
FEB 03 1995
DEP JACKSONVILLE

REVISIONS:

JOB NO. E 93-209-1
DRAWN BY: S.H.L.
DESIGNED BY: S.H.L.
CHECKED BY: D.G.M.
DATE: FEBRUARY 1995

MASTER DRAINAGE PLAN

TRAILRIDGE LANDFILL - 2ND INCREMENT
PHASES II A & B AND PHASE IV A & B
FOR TRAIL RIDGE LANDFILL, INC.

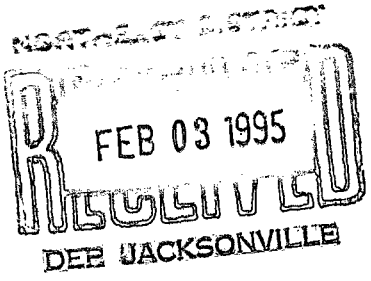
England-Thims & Miller, Inc.
Consulting & Design Engineers
JACKSONVILLE, FLORIDA

DRAWING NO.
1 of 1

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road S., Jacksonville, FL 32246
Tel: (904) 642-8990 Fax: (904) 646-9485

Principals
James E. England, P.E., Pres.
Robert E. Thims, Exec. V.P.
Douglas C. Miller, P.E., Exec. V.P.
N. Hugh Mathews, P.E., Exec. V.P.

February 2, 1995



Mr. David P. Apple, P.E.
Northeast District
Department of Environmental Protection
7825 Baymeadows Way
Suite B200
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
FDEP Permit No. SC16-184444
Modification Application No. 263508
ET&M No. E93-208-2

Dear Mr. Apple:

We received your January 30, 1995 letter regarding the referenced application. On behalf of Trail Ridge Landfill, Inc. (the Permittee), we provide the following response to your request for additional information:

1. **Please provide information on why this modification is needed to the stormwater collection system.**

   This minor modification of the previously permitted stormwater management system (including the pond and perimeter ditches) is to add three culverts across the perimeter ditch to provide access to groundwater monitoring wells located outside the paved perimeter ditch and to modify the outfall from the southern perimeter ditch into the existing stormwater pond from double 48" culverts to a concrete spillway for ease of maintenance purposes.

2. **Please provide information on the stormwater sewer system (plans and calculations for the areas that will be affected by proposed modification) as it was permitted in the original MSSW.**

   The stormwater management system was previously permitted which includes the paved perimeter ditch and the design has not been modified.

Reference: Trail Ridge landfill - Modification Application No. 263508

3. **Please provide detailed information on the proposed modifications to the stormwater collection system. This information should include the hydraulic analysis and calculations on the capacity of the concrete spillway, drainage areas discharging to the spillway and cross-sections of the spillway. Provide analysis and calculations on the culverts connecting the spillway at each crossing.**

   The paved perimeter ditch was previously permitted and has not been modified. Attached are the calculations (Storm Sewer Tabulation Sheet) for the three newly proposed culvert crossings and Drawing No. 25, Concrete Spillway Details.

4. **Please provide a detail as to how the inlet pipes will discharge to the spillway. This detail needs to appear in the plans.**

   The inlets from the perimeter swale (adjacent to the landfill) to the paved perimeter ditch were previously permitted and have not been modified.

5. **How will the discharge from the spillway effect the functioning of the existing retention pond? Will a siltation or erosion problem result at the point of discharge into the pond? Please address.**

   The spillway will not effect the functioning of the existing pond. As shown on Drawing No. 25, the end of the spillway is at Elevation 100.00 and the Design Normal Water Level (D.N.W.L.) is at Elevation 104.00 which will dissipate energy and at the end of the spillway, we will place concrete rubble.

6. **Please provide a detail on how the roadway will transition down to the spillway. Will the roadway be a normal crown road? The roadway on the Northwest side of the project appears to have a flat slope. Please describe how runoff from the roadway will be collected.**

   The perimeter road will be built with a crown in the center and runoff will be directed to the stormwater conveyance system of swales, ditches, inlets, etc. which were previously permitted and have not been modified.

Reference: Trail Ridge landfill - Modification Application No. 263508

7. **Will the ground between the east-west berm and the concrete spillway be graded such that runoff will be collected by the spillway? Was this area included in the capacity analysis of the spillway? Please provide a detail on the grading of this area in the plans if this area will be drained to the spillway.**

   All stormwater runoff from the area between the east-west berm and paved perimeter ditch will be collected and discharged to the existing pond for treatment as previously permitted.

8. **Will groundwater levels effect the spillway and culverts? Will this spillway effect the monitoring of groundwater flows? Will a de-watering operation be used during the installation of the spillway? If so, where will this pumped water be discharged? Please address.**

   The paved perimeter ditch was previously permitted and has not been modified. Prior to installation of the concrete spillway, a berm will be built around the area to isolate the area from the remainder of the stormwater pond. We anticipate that the Contractor will install a sock-drain in this area for dewatering purposes during construction. This water from the dewatering operation will be discharged to the existing stormwater pond.

9. **What effect will the spillway and culvert structures have on the existing groundwater monitoring system and current groundwater flow?**

   The spillway and culvert structures proposed in this modification will have no effect on the existing groundwater monitoring system and current groundwater flow.

10. **Please provide details on the culvert crossings. Details of each crossing should be included in the plans.**

    The type of structure for each crossing is provided in the attached Storm Sewer Tabulation Sheet. Structure S-124 is a City of Jacksonville Type J-1-D Manhole, S125 is a 48 CM (corrugated metal pipe), Structures S-116 and S-117 are a 10' x 4' FDOT box culvert, and Structures S-118 and S-119 are a 10' x 8' FDOT box cuvlert.

Reference: Trail Ridge landfill - Modification Application No. 263508

I sincerely hope that the above response is sufficient so you can issue the requested minor modification. However, if you have any questions, feel free to call me or Juanitta Clem.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

DCM:cl

Attachments: Stormwater Sewer Tabulation Sheet
Master Drainage Plan
Drawing No. 25

cc: Greg Mathes
Scott McCallister
Scott Kelly
Chris Pearson

1 Oversized Map Scanned Separately

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road S., Jacksonville, FL 32246
Tel: (904) 642-8990 Fax: (904) 646-9485

Principals
James E. England, P.E., Pres.
Robert E. Thims, Exec. V.P.
Douglas C. Miller, P.E., Exec. V.P.
N. Hugh Mathews, P.E., Exec. V.P.

January 10, 1995

NORTHEAST DISTRICT
RECEIVED
JAN 10 1995
DEP JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Stormwater Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
FDEP Permit No. SC16-184444
ET&M No. E93-208-2

Dear Ms. Nogas:

On behalf of Trail Ridge Landfill, Inc., we hereby request modification of the referenced permit. Attached are the minor modification fees of $250.00 for the Solid Waste permit and $700.00 for the Management and Storage of Surface Waters permit, the application form, and design plans. We request that the permit be modified as follows:

1. The bentonite mat in the liner system is moved from immediately below the secondary liner to immediately below the primary liner and underlaid with a 6 oz. geotextile (Trevira T-1620). Please see the attached laboratory report from NSC Research dated December 22, 1994. This report shows that the revised location of the bentonite mat in the secondary liner system meets Rule 62-701.400(3)(c)2., Florida Administrative Code which requires a minimum hydraulic conductivity of ten cm/sec in the secondary leak detection and collection system.

2. The secondary collection system in the leachate collection/detection trench includes multiple layers of geonet placed in the bottom of the trench rather than multiple layers of geonet placed on one side of the trench.

3. The stormwater sewer system which discharges from the perimeter ditch into the southwestern corner of the existing retention pond is modified to include a concrete spillway and three culverts to allow access across the perimeter ditch.

4. An overfill prevention system is added to the leachate containment tanks including level sensors, high level alarms, and automatic shut-off controls.

We plan to begin construction of Phases IIIA, IIIB, IVA, and IVB of the referenced facility within the next 60 days and therefore, we would appreciate a timely review of this modification request. If you have any questions, please feel free to call me or Juanitta Clem.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

Attachments: Application Form and Modification Fees ($250.00 and $700.00)
Design Plans (Sheet Nos. 9, 12, 13 & 18)
Laboratory Report from NSC Research

cc: Greg Mathes w/attachments
Scott McCallister w/attachments
Chris Pierson w/attachments

NORTHEAST DISTRICT
RECEIVED
JAN 10 1995
DEP JACKSONVILLE

22 December 1994

TRAIL RIDGE TRANSMISSIVITY COMPARISONS
(NSC Research No. 94100S)

INTRODUCTION

A request was made by Fred Staab for a comparison of two transmissivity profiles. The purpose was to determine what type of geotextile provided the best barrier between a geosynthetic clay liner and a geonet. The textiles to be compared were Trevira 1620 (1120 heat calendared) and Typar 3601.

PROCEDURE

Net thickness was determined using a dead weight micrometer in accordance with ASTM D 751. Four thickness measurements from each specimen were used to determine an average geonet thickness. Geonet thickness used in calculating hydraulic conductivity was 0.2117 inches (.5377 cm).

Transmissivity testing was conducted in accordance with ASTM D 4716, *Constant Head Hydraulic Transmissivity*. Parameters included confining pressures were 15,000 PSF and 22,000 PSF with gradients of 0.01 and 0.02. Profiles observed a one hour seating with continuous hydraulic flow at each pressure before readings were taken. Profiles evaluated were: Top plate/ Bentofix/ Geotextile/ PN 3000 geonet/ 60 mil HDPE liner/ Bottom Plate.

DISCUSSION

Both profiles exhibited similar hydrations with intrusion being sparse. The Trevira 1620 profile produced slightly better properties. Overall, both products provide more than adequate barrier protection between a GCL and net in order to meet a hydraulic conductivity of 10 cm/sec. Test results are summarized on Table 1. The units in which the data are recorded are included on the tables.

NATIONAL SEAL COMPANY

Beth DeSchepper

Beth DeSchepper
Laboratory Technician

Files: WP60\PHYSICAL\94100S.TRN

TRAIL RIDGE TRANSMISSIVITY
(NSC Research No. 94100S)

TABLE 1.

	Transmissivity (m^2/sec x 10^{-3})		Hydraulic Conductivity (cm/sec)	
	Trevira 1620	Typar 3601	Trevira 1620	Typar 3601
Pressure/Gradient	15K	15K	15K	15K
0.01	2.774 2.219 4.607 3.200	3.627 3.086 2.264 2.990	51.59 41.27 85.68 59.51	67.45 57.39 42.10 55.65
0.02	3.967 2.213 3.140 3.107	3.334 2.724 2.041 2.700	73.77 41.16 58.40 57.77	62.00 50.66 37.95 50.20
Pressure/Gradient	22K	22K	22K	22K
0.01	1.125 0.735 1.516 1.126	1.486 0.491 0.574 0.850	20.94 13.67 28.19 20.93	27.63 9.13 10.67 15.81
0.02	1.548 0.748 1.204 1.167	1.828 0.714 0.942 1.161	28.79 13.91 22.39 21.70	33.99 13.28 17.52 21.60

England-Thims & Miller, Inc.

Consulting & Design Engineers
3131 St. Johns Bluff Road So Jacksonville, FL 32246

DATE	INV	AMOUNT
Solid Waste & MSSW		
Permit Modifications		
to DEP Permit		
No. SC16-184444		

63-4
630

DATE 1-6-95

2411
9946

PAY NINE HUNDRED FIFTY AND 00/100 DOLLARS

CHECK AMOUNT

$ **950.00

TO THE ORDER OF Department of Environmental Protection

ENGLAND, THIMS & MILLER, INC.

BARNETT BANK
JACKSONVILLE, FLORIDA

[redacted]

AREA: NED Cash Receiving Application CRAF006A
Collection Point Log Remittance Tot: $950.00

SYS$REMT: 13737	Type: CP	Recved Date: 11-JAN-1995	Status:	RECEIVED
SYS$RCPT: 2411	PNR:	Check #: 9946	Amount:	950.00
SSN/FEI#:		Name: ENGLAND-THIMS & MILLER INC		
First:	Middle:	Title:	Suf:	
Address1: 3131 ST JOHNS BLUFF ROAD SO			Short Comments:	
Address2:			HG/BD	
City: JACKSONVILLE	ST: FL	Zip: 32246-	Country:	

P A Y M E N T (S)

SYS$PAYT	Distr CL Area..	Object Code/Description.....:	Payment Amount.....	Reference#	Applic/ Fund	S T A
14359	NED	002244 SOLID WASTE CON	$250.00	SC16263509	PFTF	CO
14360	NED	002253 MANAGEMENT & ST	$700.00	MS16263508	PFTF	CO

COMMIT FREQUENTLY $950.00 Payment total
Press <TAB> to accept Collection Point or enter F&A.
Count: *1 <Replace>

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

DER Form # 17-701.900(1)
Form Title Solid Waste Management Facility Permit
Effective Date
DER Application No.
(Filled by DER)

RECEIVED
JAN 10 1995
DEP JACKSONVILLE

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOLID WASTE MANAGEMENT FACILITY PERMIT

APPLICATION INSTRUCTIONS AND FORMS

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANAGEMENT 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) Rule 17-701. A minimum of six copies of the application shall be submitted to the Department District Office having jurisdiction over the facility. The appropriate fee in accordance with Chapter 17-4, FAC, and Rule 17-701.320(5)(c), FAC, shall be submitted with the application by check made payable to the Department of Environmental Regulation (DER).

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 R, and T
B. Asbestos Monofills - Submit parts A,B,D,E,F,I,K, M through Q, and T
C. Industrial Solid Waste Facilities - Submit parts A,B, D through Q, and T
D. Volume Reduction Facilities - Submit parts A,C,D,S, and T
E. Materials Recovery Facilities - Submit parts A,C,D,S, and T

NOTE: Portions of some parts may not be applicable.

NOTE: For facilities that have been satisfactorily constructed in accordance with thei. construction permit, the information required for A,B,C,D, and E 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, N through R, and T
B. Asbestos Monofills - Submit parts A,B, M through Q, and T
C. Industrial Solid Waste Facilities - Submit parts A,B, N through Q, and T
D. Volume Reduction Facilities - Submit parts A,C,S, and T
E. Materials Recovery Facilities - Submit parts A,C,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	-	MATERIALS RECOVERY / VOLUME REDUCTION FACILITY GENERAL INFORMATION
PART D	-	SOLID WASTE MANAGEMENT FACILITY PERMIT GENERAL REQUIREMENTS
PART E	-	LANDFILL PERMIT GENERAL REQUIREMENTS
PART F	-	GENERAL CRITERIA FOR LANDFILLS
PART G	-	LANDFILL CONSTRUCTION REQUIREMENTS
PART H	-	HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS
PART I	-	GEOTECHNICAL INVESTIGATION REQUIREMENTS
PART J	-	VERTICAL EXPANSION OF LANDFILLS
PART K	-	LANDFILL OPERATION REQUIREMENTS
PART L	-	WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS
PART M	-	SPECIAL WASTE HANDLING REQUIREMENTS
PART N	-	LANDFILL CLOSURE REQUIREMENTS
PART O	-	CLOSURE PROCEDURES
PART P	-	LONG TERM CARE REQUIREMENTS
PART Q	-	FINANCIAL RESPONSIBILITY REQUIREMENTS
PART R	-	CLOSURE OF EXISTING LANDFILL REQUIREMENTS
PART S	-	MATERIALS RECOVERY FACILITY REQUIREMENTS
PART T	-	CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

RECEIVED
JAN 10 1995
DEP JACKSONVILLE

Please Type or Print

A. GENERAL INFORMATION

1. Type of facility:

Disposal [X]

Class I Landfill	[X]	Ash Monofill	[ ]
Class II Landfill	[ ]	Asbestos Monofill	[ ]
Class III Landfill	[ ]	Industrial Solid Waste	[ ]
Other	[ ]		

Volume Reduction [ ]

Incinerator	[ ]	Pulverizer / Shredder	[ ]
Composting	[ ]	Compactor/Baling Plant	[ ]
Materials Recovery	[ ]	Energy Recovery	[ ]
Other	[ ]		

2. Type of application:

Construction	[ ]	Construction/Operation	[XX]
Operation	[ ]	Closure	[ ]

3. Classification of application:

New	[ ]	Substantial Modification	[ ]
Renewal	[ ]	Minor Modification	[X]

4. Facility name: Trail Ridge Landfill

5. DER ID number: GMS3116P03090 County: Duval

6. Facility location (main entrance): 5110 U.S. Highway 301
Baldwin, FL 32234

7. Location coordinates:
Section: 18,19 20,21 Township: 3S Range: 23E

UTMs: Zone_____ _____km E _____ km N

Latitude: 30 ° 14 ' 00 " Longitude: 82 ° 02 ' 30 "

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

Mailing address: P.O. Box 548 Baldwin, Florida 32234
Street or P.O. Box City State Zip

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

Title: Division President and General Manager

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

Mailing address: 3131 St. Johns Bluff Rd. South, Jacksonville, FL 32246
Street or P.O. Box City State Zip

Contact person: Doug Miller Telephone: (904) 642-8990

Title: Vice President

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

Mailing address: 515 N. Laura St., 6th Floor, Jacksonville, FL 32202
Street or P.O. Box City State Zip

Contact person: Scott Kelly Telephone: (904) 632-8045

11. Cities, towns and areas to be served: City of Jacksonville and neighboring environs

12. Population to be served:

Current: 700,888 (1993) Five-Year Projection: 723,065 (1995) 764,366 (2000)

13. Volume of solid waste to be received: 3,000 (peak) ~~yds/day~~ tons/day ~~gallons/day~~
2,600 tons/day (monthly average)

14. Date site will be ready to be inspected for completion: Phase IIIA - Sept. 1995

15. Estimated life of facility: 17 (from 1995) years

16. Estimated costs:

Total Construction: $ 59,000,000 Closing Costs: $ 5,430,000

17. Anticipated construction starting and completion dates:

From: Phases I and II have been completed To: 16 Years from Permit Modification

Phase IIIA - Feb. 1995 Sept. 1995

B. DISPOSAL FACILITY GENERAL INFORMATION

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

Construction and operation of a Class I Landfill

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

Title: Div. President & General Manager **Telephone:** (904) 289-9100

3. **Disposal area: Total** 148 **acres; Used** 55 **acres; Available** 93 **acres**

4. **Weighing scales used: Yes** [X] **No** [ ]

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

6. **Charge for waste received:** ~~$/yds^3~~ 59.00 $/ton

7. **Surrounding land use, zoning:**

Residential	[ ]	Industrial	[ ]	
Agricultural	[ ]	None	[ ]	
Commercial	[ ]	Other	[X]	Silvaculture

8. **Types of waste received:**

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

9. **Salvaging permitted: Yes** [ ] **No** [X]

10. **Attendant: Yes** [X] **No** [ ] **Trained operator: Yes** [X] **No** [ ]

11. **Spotters: Yes** [X] **No** [ ] **Number of spotters used:** 2

12. **Site located in: Floodplain** [ ] **Wetlands** [ ] **Other** [X] Upland Pine Flatwoods

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

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

15. **Hours of operation:** 5:00 AM - 10:00 PM

16. **Days Working Face covered:** Daily

17. **Elevation of water table:** varies **Ft. NGVD**

18. Number of monitoring wells: 43

19. Number of surface monitoring points: 3

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

Gas flaring: Yes [ ] No [X] Gas recovery: Yes [ ] No [X]

21. Landfill Unit - liner type:

Natural soils	[ ]	Double geomembrane*	[X]
Single clay liner	[ ]	Geomembrane & composite	[ ]
Single geomembrane	[ ]	Double composite	[ ]
Single composite	[ ]	None	[ ]
Slurry wall	[ ]		
Other	[ ]	w/Bentonite Mat and 6" prepared subgrade	

22. Leachate collection method:

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

23. Leachate storage method:

Tanks	[XX]	Surface impoundments	[ ]
Other	[ ]		

24. Leachate treatment method:

Oxidation	[ ]	Chemical treatment	[ ]
Secondary	[ ]	Settling	[ ]
Advanced	[ ]	None	[X]
Other	[ ]		

25. Leachate disposal method:

Recirculated	[ ]	Pumped to WWTP	[ ]
Transported to WWTP	[XX]	Discharged to surface water	[ ]
Injection well	[ ]	Evaporation (ie: Perc Pond)	[ ]
Other	[ ]		

26. For leachate discharged to surface waters:

Name and Class of receiving water: N/A

27. Storm Water:

Collected: Yes [XX] No [ ] Type of treatment: Detention w/filtration

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

28. Management and Storage of Surface Waters (MSSW) Permit number or status:

Same as Solid Waste Permit

N/A

C. **MATERIALS RECOVERY / VOLUME REDUCTION FACILITY GENERAL INFORMATION**

1. Provide brief description of materials recovery / volume reduction facility design and operations planned by this application:

_____

_____

_____

2. Facility site supervisor: _____

Title: _____ Telephone: (___)_____

3. Disposal area: Total _____ acres; Used _____ acres; Available _____ 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. Type of facility (check one or more):

Incinerator	[ ]	Composting	[ ]
Pulverizer / shredder	[ ]	Materials recovery	[ ]
Compactor/baling	[ ]	Energy recovery	[ ]
Sludge concentration	[ ]	Pyrolysis	[ ]
Other	[ ]	_____	

15. Material recovered, tons/week:

_____	Paper	_____	Glass
_____	Ferrous metals	_____	Non-ferrous metals
_____	Aluminum	_____	Plastics
_____	Other:	_____	

16. Energy recovery, in units shown:

_____	High pressure steam, lb/hr	_____	Chilled water, gal/hr
_____	Low pressure steam, lb/hr	_____	Oil, gal/hr
_____	Electricity, kw/hr	_____	Oil, BTU/hr
_____	Gas, ft^3/hr	_____	Gas, BTU/hr
_____	Other:	_____	

17. Process water management:

Recycled: Yes [ ] No [ ]

Treatment method used: _____

Discharged to: Surface waters [ ] Underground [ ] Other [ ]

Name and Class of receiving water: _____

18. Storm Water:

Collected: Yes [ ] No [ ] Type of treatment: _____

Name and Class of receiving water: _____

19. MSSW Permit number or status: _____

20. Final residue produced:

_____ % of normal processing rate

_____ % of maximum processing rate

Disposed of at (Site name): _____

21. Supplemental fuel used:

Type: _____ Quantity used/hour: _____

22. Costs:

Estimated operating costs (material-energy revenue): $ _____

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

23. State pollution control bond financing amount: $ _____

24. Estimated amount of tax exemptions that will be requested: $ _____

D. **SOLID WASTE MANAGEMENT FACILITY PERMIT GENERAL REQUIREMENTS** (17-701.320, FAC)

S	LOCATION	N/A	N/C		
X	Attached			1.	Six copies, at minimum, of the completed application form, all supporting data and reports; (17-701.320(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; (17-701.320(6),FAC)
X	Attached			3.	A letter of transmittal to the Department; (17-701.320(7)(a),FAC)
X	Attached			4.	A completed application form dated and signed by the applicant; (17-701.320(7)(b),FAC)
X	Attached			5.	Permit fee specified in Rule 17-4.050, FAC and Rule 17-7-1.320(5)(c), FAC in check or money order, payable to the Department; (17-701.320(7)(c),FAC)
			X	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; (17-701.320(7)(d),FAC))
			X	7.	Operation Plan; (17-701.320(7)(e)1,FAC)
			X	8.	Contingency Plan; (17-701.320(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) showing; (17-702.320(7)(f),FAC)
			X		a. A regional map or plan with the project location;
			X		b. A vicinity map or aerial photograph no more than 1 year old;
			X		c. A site plan showing all property boundaries certified by a registered Florida land surveyor;
			X		d. Other necessary details to support the engineering report.
			X	10.	Proof of property ownership or a copy of appropriate agreements between the facility operator and property owner authorizing use of property; (17-701.320(7)(g),FAC)

S	LOCATION	N/A	N/C		
___	_____	___	X	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 recycling goals contained in Section 403.706,FS; (17-701.320(7)(h),FAC)
___	_____	___	X	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; (17-701.320(7)(i),FAC)
___	_____	X	___	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; (17-702.320(8),FAC)
___	_____	___	X	14.	Provide a description of how the requirements for airport safety will be achieved including proof of required notices if applicable; (17-701.320(12),FAC)

E. **LANDFILL PERMIT GENERAL REQUIREMENTS** (17-701.330, FAC)

___	_____	___	X	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; (17-701.330(4)(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; (17-701.330(4)(b),FAC)
___	_____	___	X	3.	Plot plan with a scale not greater than 200 feet to the inch showing; (17-701.330(4)(c),FAC)
___	_____	___	X		a. Dimensions;
___	_____	___	X		b. Locations of proposed and existing water quality monitoring wells;
___	_____	___	X		c. Locations of soil borings;
___	_____	___	X		d. Proposed plan of trenching or disposal areas;
___	_____	___	X		e. Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;
___	_____	___	X		f. Any previously filled waste disposal areas;
___	_____	___	X		g. Fencing or other measures to restrict access.
				4.	Topographic maps with a scale not greater than 200 feet to the inch with 5-foot contour intervals showing; (17-701.330(4)(d),FAC):
___	_____	___	X		a. Proposed fill areas;
___	_____	___	X		b. Borrow areas;
___	_____	___	X		c. Access roads;
___	_____	___	X		d. Grades required for proper drainage;
___	_____	___	X		e. Cross sections of lifts;
___	_____	___	X		f. Special drainage devices if necessary;
___	_____	___	X		g. Fencing;
___	_____	___	X		h. Equipment facilities.

5. A report on the landfill describing the following; (17-701.330(4)(e),FAC)

___ _____ ___ X a. The current and projected population and area to be served by the proposed site;

___ _____ ___ X b. The anticipated type, annual quantity, and source of solid waste, expressed in tons;

___ _____ ___ X c. The anticipated facility life;

___ _____ ___ X d. The source and type of cover material used for the landfill.

___ _____ ___ X 6. Provide evidence that an approved laboratory shall conduct water quality monitoring for the facility in accordance with Rule 17-160,FAC; (17-701.330(4)(h),FAC)

___ _____ ___ X 7. Provide a statement of how the applicant will demonstrate financial responsibility for the closing and long-term care of the landfill; (17-701.330(4)(i),FAC)

F. GENERAL CRITERIA FOR LANDFILLS (17-701.340,FAC)

___ _____ ___ 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 is a washout of solid waste; (17-701.340(4)(b),FAC)

___ _____ ___ 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; (17-701.340(4)(c),FAC)

___ _____ ___ X 3. Describe what methods shall be taken to screen the landfill from public view where such screening can practically be provided; (17-701.340(4)(d),FAC)

G. **LANDFILL CONSTRUCTION REQUIREMENTS** (17-701.400,FAC)

S	LOCATION	N/A	N/C		
___	_____	___	X	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; (17-701.400(2),FAC)
				2.	Landfill liner requirements; (17-701.400(3),FAC)
				a.	General construction requirements; (17-701.400(3)(a),FAC):
___	_____	___	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;
___	_____	___	X	(2)	Document foundation is adequate to prevent liner failure;
___	_____	___	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;
___	_____	___	X	(5)	Installed to cover all surrounding earth which could come into contact with the waste or leachate.
				b.	Composite liners; (17-701.400(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.
				c.	Double liners; (17-701.400(3)(c),FAC)
___	_____	___	X	(1)	Upper and lower geomembrane thicknesses and properties;
___	_____	___	X	(2)	Design leachate head for primary LCRS to limit the head to one foot above the liner;
___	_____	___	X	(3)	Lower geomembrane sub-base design;

S	LOCATION	N/A	N/C	
X	See attached Lab. Report			(4) Leak detection and secondary leachate collection system minimum design criteria (k ≥ 10 cm/sec, ~~k ≥ 1 cm/sec~~, head on lower liner ≤ 1 inch, head not to exceed thickness of drainage layer);
				d. Standards for geomembranes; (17-701.400(3)(d),FAC)
			X	(1) Field seam test methods to ensure all field seams are at least 90 percent of the yield strength for the lining material;
			X	(2) Design of 24-inch-thick protective layer above upper geomembrane liner;
			X	(3) Describe operational plans to protect the liner and leachate collection system when placing the first layer of waste above 24-inch-thick protective layer.
				e. Geosynthetic specification requirements; (17-701.400(3)(e),FAC)
			X	(1) Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program;
X	See attached Plans			(2) Material specifications for geomembranes, geotextiles, geogrids, and geonets;
			X	(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;
			X	(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;
			X	(5) Geotextile and geogrid specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials;
			X	(6) Geonet specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials;

S	LOCATION	N/A	N/C	
				f. Standards for soil components (17-701.400(3)(f),FAC):
___	_____	___	X	(1) Description of construction procedures including overexcavation and backfilling to preclude structural inconsistencies and procedures for placing and compacting soil component in layers;
___	_____	___	X	(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;
___	_____	___	X	(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:
___	_____	___	X	(a) Allowable particle size distribution, Atterberg limits, shrinkage limit;
___	_____	___	X	(b) Placement moisture and dry density criteria;
___	_____	___	X	(c) Maximum laboratory-determine saturated hydraulic conductivit using simulated leachate;
___	_____	___	X	(d) Minimum thickness of soil liner;
___	_____	___	X	(e) Lift thickness;
___	_____	___	X	(f) Surface preparation (scarification);
___	_____	___	X	(g) Type and percentage of clay mineral within the soil component;
___	_____	___	X	(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); (17-701.400(4),FAC)
				a. The primary and secondary LCRS requirements; (17-701.400(4)(a),FAC)
___	_____	___	X	(1) Constructed of materials chemically resistant to the waste and leachate;
___	_____	___	X	(2) Have sufficient mechanical properties to prevent collapse under pressure;

S	LOCATION	N/A	N/C	
___	_____	___	X	(3) Have granular material or synthetic geotextile to prevent clogging;
___	_____	___	X	(4) Have method for testing and cleaning clogged pipes or contingent designs for rerouting leachate around failed areas;
				b. Primary LCRS requirements; (17-701.400(4)(b),FAC)
___	_____	___	X	(1) Bottom 12 inches having hydraulic conductivity $\geq 1 \times 10^{-3}$ cm/sec;
___	_____	___	X	(2) Total thickness of 24 inches of material chemically resistant to the waste and leachate;
___	_____	___	X	(3) Bottom slope design to accomodate for predicted settlement;
___	_____	___	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; (17-701.400(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 to control odors and migration of methane;
___	_____	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	
				5. Leachate storage tanks and leachate surface impoundments; (17-701.400(6),FAC)
				a. Surface impoundment requirements; (17-701.400(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;
___	_____	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 vectors and off-site odors.
				b. Above-ground leachate storage tanks; (17-701.400(6)(c),FAC)
___	_____	___	X	(1) Describe tank materials of construction and ensure foundation is sufficient to support tank;
___	_____	___	X	(2) Describe procedures for cathodic protection if needed for the tank;

S	LOCATION	N/A	N/C	
___	_____	___	X	(3) Describe exterior painting and interior lining of the tank to protect it from the weather and the leachate stored;
___	_____	___	X	(4) Describe secondary containment design to ensure adequate capacity will be provided and compatibility of materials of construction;
___	_____	___	X	(5) Describe design to remove and dispose of stormwater from the secondary containment system;
X	See attached Plans	___	___	(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;
___	_____	___	X	(a) Overfill prevention system weekly;
___	_____	___	X	(b) Exposed tank exteriors weekly;
___	_____	___	X	(c) Tank interiors when tank is drained or at least every three years;
___	_____	___	X	(d) Procedures for immediate corrective action if failures detected;
___	_____	___	X	(e) Inspection reports available for department review.
				c. Underground leachate storage tanks; (17-701.400(6)(d),FAC)
___	_____	X	___	(1) Describe materials of construction;
___	_____	X	___	(2) A double-walled tank design system to be used with the following requirements;
___	_____	X	___	(a) Interstitial space monitoring at least weekly;
___	_____	X	___	(b) Corrosion protection provided for primary tank interior and external surface of outer shell;
___	_____	X	___	(c) Interior tank coatings compatible with stored leachate;
___	_____	X	___	(d) Cathodic protection inspected weekly and repaired as needed;
___	_____	X	___	(3) Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling and provide for weekly inspections;

S	LOCATION	N/A	N/C	
___	_____	X	___	(4) Inspection reports available for department review.
___	_____	X	___	d. Schedule provided for routine maintenance of LCRS; (17-701.400(6)(e),FAC)
				6. Liner systems construction quality assurance (CQA): (17-701.400(7),FAC)
___	_____	___	X	a. Provide CQA Plan including:
___	_____	___	X	(1) Specifications and construction requirements for liner system;
___	_____	___	X	(2) Detailed description of quality control testing procedures and frequencies;
___	_____	___	X	(3) Identification of supervising professional engineer;
___	_____	___	X	(4) Identify responsibility and authority of all appropriate organizations and key personnel involved in the construction project;
___	_____	___	X	(5) State qualifications of CQA professional engineer and support personnel;
___	_____	___	X	(6) Description of CQA reporting forms and documents;
___	_____	___	X	b. An independent laboratory experienced in the testing of geosynthetics to perform required testing;
				7. Soil Liner CQA (17-701.400(8)FAC)
___	_____	___	X	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;
___	_____	___	X	b. Description of field test section construction and test methods to be implemented prior to liner installation;
___	_____	___	X	c. Description of field test methods including rejection criteria and corrective measures to insure proper liner installation.
				8. Surface water management systems; (17-701.400(9),FAC)
___	_____	___	X	a. Design of surface water management system to isolate surface water from waste filled areas and to control stormwater run-off;
___	_____	___	X	b. Details of stormwater control design including retention ponds, detention ponds, and drainage ways;

S	LOCATION	N/A	N/C		
				9.	Gas control systems; (17-701.400(10),FAC)
___	_____	___	X		a. Design details for gas control system including collection pipes and vents, and passive venting or vacuum extraction details;
___	_____	___	X		b. Documentation that the gas control system will not impact the liner or leachate control system;
___	_____	___	X		c. Proposed methods of odor control including flaring designs in accordance with Chapter 17-296, FAC;
					d. Description of a routine gas monitoring program to ensure gas control system is operating properly including:
___	_____	___	X		(1) Location of monitoring points;
___	_____	___	X		(2) Requirements for quarterly sampling of all monitoring points;
___	_____	___	X		(3) Description of corrective measures to be completed within 60 days of detection of elevated levels of explosive gases;
___	_____	___	X		e. Description of condensate collection and disposal methods.
				10.	Landfill gas recovery facilities; (17-701.400(11),FAC)
___	_____	X	___		a. Information required in Rules 17-701.320(7) and 17-701.330(4), FAC supplied;
___	_____	X	___		b. Information required in Rule 17-701.600(4), FAC supplied where relevant and practical;
___	_____	X	___		c. Estimate of current and expected gas generation rates and description of condensate disposal methods provided;
___	_____	X	___		d. Description of procedures for condensate sampling, analyzing and data reporting provided;
___	_____	X	___		e. Closure plan provided describing methods to control gas after recovery facility ceases operation;
___	_____	X	___		f. Performance bond provided to cover closure costs if not already included in other landfill closure costs.
___	_____	X	___	11.	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; (17-701.400(12),FAC)

H. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS (17-701.410, FAC)

1. Submit a hydrogeological investigation and site report including at least the following information:

___	_____	___	X	a. Regional and site specific geology and hydrogeology;
___	_____	___	X	b. Direction and rate of ground water and surface water flow including seasonal variations;
___	_____	___	X	c. Background quality of ground water and surface water;
___	_____	___	X	d. Any on-site hydraulic connections between aquifers;
___	_____	___	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;
___	_____	___	X	f. Site topography and soil characteristics;
___	_____	___	X	g. Inventory of all public and private water wells within a one-mile radius of the landfill including 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;
___	_____	___	X	h. Description of topography, soil types and surface water drainage systems;
___	_____	___	X	i. An inventory of all public and private water wells within one mile of the landfill.
___	_____	___	X	j. Existing contaminated areas on landfill site.

___	_____	___	X	2. Report signed, sealed and dated by PE or PG.

I. GEOTECHNICAL INVESTIGATION REQUIREMENTS (17-701.420,FAC)

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

J. VERTICAL EXPANSION OF LANDFILLS (17-701.430,FAC)

S	LOCATION	N/A	N/C		
___	_____	X	___	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;
___	_____	X	___	2.	Describe how the vertical expansion over unlined landfills will meet the requirements of Rule 17-701.400, FAC with the exceptions of Rule 17-701.430(1)(c),FAC;
___	_____	X	___	3.	Provide foundation and settlement analysis for the vertical expansion;
___	_____	X	___	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;
___	_____	X	___	5.	Minimum stability safety factor of 1.5 for the lining system component interface stability and deep stability;
___	_____	X	___	6.	Provide documentation to show the surface water management system will not be adversely affected by the vertical expansion;
___	_____	X	___	7.	Provide gas control designs to prevent accumulation of gas under the new liner for the vertical expansion.

K. LANDFILL OPERATION REQUIREMENTS (17-701.500,FAC)

___	_____	___	X	1.	Provide documentation that landfill will have at least one trained operator during operation and at least one trained spotter at each working face; (17-701.500(1),FAC)
				2.	Provide a landfill operation plan including procedures for: (17-701.500(2), FAC)
___	_____	___	X	a.	Designating responsible operating and maintenance personnel;
___	_____	___	X	b.	Contingency operations for emergencies;
___	_____	___	X	c.	Controlling types of waste received at the landfill;
___	_____	___	X	d.	Weighing incoming waste;
___	_____	___	X	e.	Vehicle traffic control and unloading;
___	_____	___	X	f.	Method and sequence of filling waste;
___	_____	___	X	g.	Waste compaction and application of cover;
___	_____	___	X	h.	Operations of gas, leachate, and stormwater controls;
___	_____	___	X	i.	Water quality monitoring.

S	LOCATION	N/A	N/C		
___	_____	___	X	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.) (17-701.500(3),FAC)
___	_____	___	X	4.	Describe the waste records that will be compiled monthly and provided to the Department quarterly; (17-701.500(4),FAC)
___	_____	___	X	5.	Describe methods of access control; (17-701.500(5),FAC)
___	_____	___	X	6.	Describe load checking program to be implemented at the landfill to discourage disposal of unauthorized wastes at the landfill; (17-701.500(6),FAC)
				7.	Describe procedures for spreading and compacting waste at the landfill that include: (17-701.500(7),FAC)
___	_____	___	X		a. Waste layer thickness and compaction frequencies;
___	_____	___	X		b. Special considerations for first layer of waste placed above liner and leachate collection system;
___	_____	___	X		c. Slopes of cell working face and side grades above land surface, planned lift depths during operation;
___	_____	___	X		d. Maximum width of working face;
					e. Description of type of initial cover to be used at the facility that controls:
___	_____	___	X		(1) Disease vector breeding/animal attraction
___	_____	___	X		(2) Fires
___	_____	___	X		(3) Odors
___	_____	___	X		(4) Blowing litter
___	_____	___	X		(5) Moisture infiltration
___	_____	___	X		f. Procedures for applying initial cover including minimum cover frequencies;
___	_____	___	X		g. Procedures for applying intermediate cover;
___	_____	___	X		h. Time frames for applying final cover;
___	_____	___	X		i. Description of litter policing methods;
___	_____	___	X		j. Erosion control procedures.

S	LOCATION	N/A	N/C		
				8.	Describe operational procedures for leachate management including; (17-701.500(8),FAC)
___	_____	___	X		a. Leachate level monitoring, sampling, analysis and data results submitted to the Department;
___	_____	___	X		b. Operation and maintenance of leachate collection and removal system, and treatment as required;
___	_____	___	X		c. Procedures for managing leachate if it becomes regulated as a hazardous waste;
___	_____	___	X		d. Agreements for off-site discharge and treatment of leachate;
___	_____	___	X		e. Contingency plan for managing leachate during emergencies or equipment problems;
___	_____	___	X		f. Procedures for recording quantities of leachate generated in gal/day;
___	_____	___	X		g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates.
___	_____	___	X	9.	Describe routine gas monitoring program for the landfill as required by Rule 17-701.400(10),FAC; (17-701.500(9),FAC)
___	_____	___	X	10.	Describe procedures for operating and maintaining the landfill stormwater management system to comply with the standards of Chapters 17-3, 17-302 and 17-25, FAC; (17-701.500(10),FAC)
				11.	Equipment and operation feature requirements; (17-701.500(11),FAC)
___	_____	___	X		a. Sufficient equipment for excavating, spreading, compacting and covering waste;
___	_____	___	X		b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;
___	_____	___	X		c. Communications equipment;
___	_____	___	X		d. Personnel shelter and sanitary facilities, first aid equipment;
___	_____	___	X		e. Dust control methods;
___	_____	___	X		f. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;
___	_____	___	X		g. Litter control devices;
___	_____	___	X		h. Signs indicating operating authority, traffic flow, hours of operation, disposal restrictions.

S	LOCATION	N/A	N/C		
___	_____	___	X	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; (17-701.500(12),FAC)
				13.	Additional record keeping and reporting requirements; (17-701.500(13),FAC)
___	_____	___	X		a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;
___	_____	___	X		b. Monitoring information, calibration and maintenance records, copies of reports required by permit maintained for at least 10 years;
___	_____	___	X		c. Background water quality records shall be maintained for the design period of the landfill;
___	_____	___	X		d. 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.

L. WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS (17-701.510, FAC)

S	LOCATION	N/A	N/C		
___	_____	___	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;
___	_____	___	X	a.	Based on the information obtained in the hydrogeological investigation and signed, dated and sealed by the PG or PE who prepared it; (17-701.510(2)(a),FAC)
___	_____	___	X	b.	All sampling and analysis preformed by organizations having Department approved Comprehensive Quality Assurance Plans; (17-701.510(2)(b),FAC)
				c.	Ground water monitoring requirements; (17-701.510(3),FAC)
___	_____	___	X		(1) Detection wells located downgradient from and within 50 feet of disposal units;
___	_____	___	X		(2) Downgradient compliance wells as required;
___	_____	___	X		(3) Background wells screened in all aquifers below the landfill that may be affected by the landfill;
___	_____	___	X		(4) Location information for each monitoring well;
___	_____	___	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;
___	_____	___	X		(6) Well screen locations properly selected;
___	_____	___	X		(7) Procedures for properly abandoning monitoring wells;
___	_____	X	___		(8) Detailed description of detection sensors if proposed.
				d.	Surface water monitoring requirements; (17-701.510(4),FAC)
___	_____	___	X		(1) Location of and justification for all proposed surface water monitoring points;
___	_____	___	X		(2) Each monitoring location to be marked and its position determined by a registered Florida land surveyor;
___	_____	___	X	e.	Leachate sampling locations proposed;(17-701.510(5),FAC)

S	LOCATION	N/A	N/C	
				f. Routine sampling frequency and requirements; (17-701.510(6),FAC)
___	_____	___	X	(1) Background ground water and surface water sampling and analysis requirements;
___	_____	___	X	(2) Leachate semi-annual and annual sampling and analysis requirements;
___	_____	___	X	(3) Detection well semi-annual sampling and analysis requirements;
___	_____	___	X	(4) Compliance well sampling and analysis requirements;
___	_____	___	X	(5) Surface water sampling and analysis requirements.
___	_____	___	X	g. Describe procedures for implementing assessment monitoring and corrective action as required; (17-701.510(7),FAC)
___	_____	___	X	h. Water quality monitoring report requirements; (17-701.510(9),FAC)
___	_____	___	X	(1) Semi-annual report requirements;
___	_____	___	X	(2) Bi-annual report requirements signed, dated and sealed by PG or PE.

M. SPECIAL WASTE HANDLING REQUIREMENTS (17-701.520, FAC)

S	LOCATION	N/A	N/C		
	_____	___	X	1.	Describe procedures for managing motor vehicles; (17-701.520(1),FAC)
___	_____	___	X	2.	Describe procedures for landfilling shredded waste; (17-701.520(3),FAC)
___	_____	___	X	3.	Describe procedures for asbestos waste disposal; (17-701.520(4),FAC)
___	_____	___	X	4.	Describe procedures for contaminated soil disposal; (17-701.520(5), FAC)

N. LANDFILL FINAL CLOSURE REQUIREMENTS (17-701.600,FAC)

1. Closure schedule requirements; (17-701.600(2),FAC)

___	_____	___	X	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	b.	Notice to user requirements within 120 days of final receipt of wastes;
___	_____	___	X	c.	Notice to public requirements within 10 days of final receipt of wastes.

2. Closure permit general requirements; (17-701.600(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.

S	LOCATION	N/A	N/C		
				3.	Closure report requirements; (17-701.600(4),FAC)
				a.	General information requirements;
___	_____	___	X		(1) Identification of landfill;
___	_____	___	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 17-701.330(4),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 biodegradable wastes including detailed description of test and investigation methods used;
___	_____	___	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: (17-701.600(5),FAC)
___	_____	___	X	a.	Plan sheet showing phases of site closing;
___	_____	___	X	b.	Drawings showing existing topography and proposed final grades;
___	_____	___	X	c.	Provisions to close units when they reach approved design dimensions;
___	_____	___	X	d.	Final elevations before settlement;
___	_____	___	X	e.	Side slope design including benches, terraces, down slope drainage ways, energy dissipators and discussion of expected precipitation effects;

S	LOCATION	N/A	N/C		
			X	f.	Final cover installation plans including:
			X		(1) CQA plan for installing and testing final cover;
			X		(2) Schedule for installing final cover after final receipt of waste;
			X		(3) Description of drought-resistant species to be used in the vegetative cover;
			X		(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		(1) Protective soil layer design;
			X		(2) Barrier soil layer design;
			X		(3) Erosion control vegetation;
			X		(4) Geomembrane barrier layer design.
			X	h.	Proposed method of stormwater control;
			X	i.	Proposed method of access control;
			X	j.	Description of proposed final use of the closed landfill, if any;
				5.	Closure operation plan shall include: (17-701.600(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.
			X	e.	Development and implementation of the water quality monitoring plan required in Rule 17-701.510, FAC.
			X	f.	Development and implementation of routine gas monitoring program required in Rule 17-701.400(10)(c), FAC.
			X	6.	Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (17-701.600(7),FAC)

O. **CLOSURE PROCEDURES** (17-701.610,FAC)

S	LOCATION	N/A	N/C		
___	_____	___	X	1.	Survey monuments; (17-701.610(2),FAC)
___	_____	___	X	2.	Final survey report; (17-701.610(3),FAC)
___	_____	___	X	3.	Certification of closure construction completion; (17-701.610(4),FAC)
___	_____	___	X	4.	Declaration to the public; (17-701.610(5),FAC)
___	_____	___	X	5.	Official date of closing; (17-701.610(6),FAC)
___	_____	___	X	6.	Use of closed landfill areas; (17-701.610(7),FAC)

P. **LONG TERM CARE REQUIREMENTS** (17-701.620,FAC)

___	_____	___	X	1.	Right of property access requirements; (17-701.620(4),FAC)
___	_____	___	X	2.	Successors of interest requirements; (17-701.620(5),FAC)
___	_____	___	X	3.	Requirements for replacement of monitoring devices; (17-701.620(7),FAC)
___	_____	___	X	4.	Completion of long term care signed and sealed by professional engineer (17-701.620(8), FAC).

Q. **FINANCIAL RESPONSIBILITY REQUIREMENTS** (17-701.630,FAC)

___	_____	___	X	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; (17-701.630(3)&(7), FAC).
___	_____	___	X	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; (17-701.630(4)&(8), FAC).
___	_____	___	X	3.	Describe funding mechanisms for providing proof of financial assurance and include appropriate financial assurance forms; (17-701.630(5), (6), & (9), FAC).

R. **CLOSURE OF EXISTING LANDFILLS** (17-701.640, FAC)

___	_____	___	X	1.	Demonstration that facility does not pose a bird hazard to aircraft as specified in Rule 17-701.320(12)(b), FAC.
___	_____	___	X	2.	Demonstration that facility does not restrict the flow of the 100-year flood, reduce water storage capacity or result in wash-out of solid waste as specified in Rule 17-701.340(4)(b), FAC.

S	LOCATION	N/A	N/C	
___	_____	___	X	3. Demonstration that facility is not located in a fault area, seismic zone or unstable area as specified in Rule 17-701.420(1)(c), FAC.
				4. Request for extension of closure criteria as specified in Rule 17-701.640(2)(a) & (2)(b), FAC.
___	_____	X ___	___	a. Demonstration of no alternative disposal capacity.
___	_____	X ___	___	b. Demonstration of no threat to human health or the environment.

S. MATERIALS RECOVERY FACILITY REQUIREMENTS (17-701.700,FAC)

___	_____	___	___	1. Proof of posting a performance bond payable to the Department to cover closing costs, if required; (17-701.700(4),FAC)
___	_____	___	___	2. Materials recovery facility requirements; (17-701.700,FAC)
___	_____	___	___	a. Submit information required in Rule 17-701.320,FAC
___	_____	___	___	b. Submit an engineering report including the following:
___	_____	___	___	(1) Description of the solid waste proposed to be collected, stored, processed or disposed;
___	_____	___	___	(2) Projection with assumptions for waste types and quantities expected in future years;
___	_____	___	___	(3) Description of operation and functions of all processing equipment with design criteria and expected performance;
___	_____	___	___	(4) Description of flow of solid waste, expected regular facility operations, procedures for start up and shut down, potential safety hazards and control methods including fire protection;
___	_____	___	___	(5) Description of loading, unloading, and processing areas;
___	_____	___	___	(6) Identification and capacity of temporary on-site storage areas for materials handled and provisions for solid waste and leachate containment;
___	_____	___	___	(7) Identification of potential ground water and surface water contamination;

S	LOCATION	N/A	N/C	
___	_____	___	___	(8) Plan for disposal of unmarketable recyclables and residue and contingencies for waste handling during breakdowns.
				c. Submit the following operational information:
___	_____	___	___	(1) Operation and maintenance manual;
___	_____	___	___	(2) Waste control plan to manage unauthorized wastes;
___	_____	___	___	(3) Contingency plan for emergencies;
___	_____	___	___	(4) Closure plan including the following:
___	_____	___	___	(a) Notification to Department 180 days prior to closure;
___	_____	___	___	(b) Procedures for removal of all waste within 30 days of receipt of final waste;
___	_____	___	___	(c) Completion of closure activities within 180 days of receipt of final waste and notification to the Department that closure is complete.

T. **CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER**

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 _____ Permit from the Florida Department of Environmental Regulation 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 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~~

Greg Mathes, General Manager

Name and Title

Date: 01/06/95

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

B. Professional Engineer Registered in Florida or Public Officer as required in Sectior 403.707 and 403.707(5), 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 principals applicable to such facilities. In my professional judgement, 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

Douglas C. Miller, P.E.

Name and Title (please type)

22389

Florida Registration Number

(please affix seal)

3131 St. Johns Bluff Rd. South

Mailing Address

Jacksonville, Florida 32246

City, State, Zip Code

(904) 642-8990

Telephone Number

Date: 1/10/95

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

January 30, 1995

Mr. Scott Kelly
City of Jacksonville
515 North Laura Street, 6th Floor
Jacksonville, FL 32202

Dear Mr. Kelly:

RE: Duval County - Trail Ridge Landfill, Inc.
M.S.S.W.
Application No. 263508 Modification to Permit #SC16-184444

The Department of Environmental Protection is in receipt of your Management and Storage of Surface Waters General Permit Application. Upon preliminary review of the proposed project, the following technical information is required to sufficiently review the possible impacts the project may have on the surrounding area. This information is being requested pursuant to the authority vested in the Department under Chapter 373.413(2)(h), Florida Statutes (F.S.) and Sections 40C-4.101 and 40C-4.301, Florida Administrative Code (F.A.C.).

In order to expedite the review of your application, please use the application number referenced above on all correspondence, and submit three (3) copies of all requested information unless otherwise indicated by a specific information request.

1. Please provide information on why this modification is needed to the stormwater collection system.

2. Please provide information on the stormwater sewer system (plans and calculations for the areas that will be affected by proposed modification) as it was permitted in the original MSSW.

3. Please provide detailed information on the proposed modifications to the stormwater collection system. This information should include the hydraulic analysis and calculations on the capacity of the concrete spillway, drainage areas discharging to the spillway and cross-sections of the spillway. Provide analysis and calculations on the culverts connecting the spillway at each crossing.

4. Please provide a detail as to how the inlet pipes will discharge to the spillway. This detail needs to appear in the plans.

5. How will the discharge from the spillway effect the functioning of the existing retention pond? Will a siltation or erosion problem result at the point of discharge into the pond? Please address.

6. Please provide a detail on how the roadway will transition down to the spillway. Will the roadway be a normal crown road? The roadway on the Northwest side of the project appears to have a flat slope. Please describe how runoff from the roadway will be collected.

7. Will the ground between the east-west berm and the concrete spillway be graded such that runoff will be collected by the spillway? Was this area included in the capacity analysis of the spillway? Please provide a detail on the grading of this area in the plans if this area will be drained to the spillway.

8. Will groundwater levels effect the spillway and culverts? Will this spillway effect the monitoring of groundwater flows? Will a de-watering operation be used during the installation of the spillway? If so, where will this pumped water be discharged? Please address.

9. What effect will the spillway and culvert structures have on the existing groundwater monitoring system and current groundwater flow?

10. Please provide details on the culvert crossings. Details of each crossing should be included in the plans.

If you require more than sixty (60) days to provide the requested information, please provide justification to the staff.

In addition, no construction shall begin on the proposed project until a permit is issued by the Department. This is pursuant to Section 40C-4.041(1), F.A.C., which states, "unless expressly exempt by Statute or rule, a surface water management permit must be obtained from the Department prior to the construction, alteration, operation, maintenance, removal or abandonment of any dam, impoundment, reservoir, appurtenant work or works."

If you have any questions, please do not hesitate to contact me at (904) 448-4330, extension 326.

Sincerely,

David P. Apple, P.E.
Stormwater/M.S.S.W. Engineer

DPA/eml

CC: Mr. Doug Miller - England, Thimes & Miller, Inc.
Mr. Greg Mathes - Trail Ridge Landfill
Mary Nogas - DEP - Jacksonville
Rick Rachel - DEP - Jacksonville

COPY FOR

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

NORTHEAST DISTRICT - JACKSONVILLE

TO: Mary Nogas, P.E. - Solid Waste

FROM: David Apple, P.E. - Stormwater DPA

DATE: January 30, 1995

SUBJECT: Trail Ridge Landfill

Mary, Thanks for your comments on the RAI. Based on your comments, I have made adjustments to the wording of items #2 and #4 of the RAI. The RAI will be sent out on 1/30/95. You will receive a copy of the RAI for your files. As soon as I get a response to the RAI, I will let you know, and supply you with a copy of the information we receive from England, Thimes & Miller, Inc. for your files. Thanks again for all of your help.

I also had Rick Rachel have a look at the RAI to be sure that we covered all groundwater issues.

cc: Jeremy Tyler

Jacksonville Area Landfills
5110 U.S. Highway 301
~~P.O. Box 549~~
Baldwin, Florida 32234
904/289-9100 • FAX: 904/289-9013

A Waste Management Company

November 09, 1994

NORTHEAST DISTRICT
RECEIVED
DEC 06 1994
DEP JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Solid Waste Supervisor
Waste Management Section
Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200b
Jacksonville, Florida 32256

RE: **Trail Ridge Landfill, Inc.**
Permit # SC16-184444
Permit Modification, Additional Information

Dear Ms. Nogas:

Attached is additional information pertaining to the request for modification of the Water Quality and Leachate Monitoring Requirements originally submitted September 26, 1994. This information is intended to address leachate monitoring requirements as described in Chapter 62-701.510 (5) and (6) b.

The leachate collection, pumping and storage system at Trail Ridge Landfill, Inc., is a "closed" system. Closed, meaning that the leachate is collected from sumps at the base of the landfill that are not exposed to the atmosphere. From the sumps, leachate is pumped a minimal distance through a force main into sealed storage tanks. The sumps are located on the east side of the landfill, as are the leachate storage tanks. This design minimizes the distance the leachate is pumped. The distance from the sumps to the tanks ranges from approximately 40 feet to 260 feet. The force main is buried just outside the perimeter of the landfill and surfaces at the concrete containment wall around the leachate tanks. This design would make it impractical to retrofit a sample port between the pumps and the tanks.

The leachate sample is collected from a 3/4 inch drain valve located near the bottom of each tank. The leachate from different sumps is composited into the tanks. The tanks are separated only for leachate collection from the primary liner or the secondary liner. The sample is taken from one tank containing leachate from the primary collection system. The samples are collected by personnel from Professional Technical Support Services, Inc., following their FDEP approved Comprehensive QA Plan.

Printed on recycled paper.

Based on the above information, we believe that the leachate collection and storage system design minimizes pumping and the closed system assures minimal changes in the chemical characteristics of the leachate as it is pumped from the sump to the storage tanks.

Also, related to this modification, we respectfully request the Department to consider an additional modification to the ground water monitoring plan. The currently approved plan requires monitoring of two well clusters adjacent to the south side of the Class I landfill. These wells are numbered B-25 and B-27 on the attached map. There is a shallow, intermediate and deep well in each of these clusters. We have provided ground water contour data for each quarterly event that consistently shows ground water flowing from the west to the east. Considering the location of the waste currently in the landfill, it is highly unlikely that these wells would be impacted by any contaminant released from the landfill. According to the current permit, well clusters B-24 and B-26 do not have to be monitored until construction of phase V of the landfill. As you can see, these wells are all located on the southeast corner of the site, which will not contain waste for several more years. Based on the historical ground water quality and elevation data submitted to the Department, these wells have not been impacted by the landfill. The data also indicates that they could not reasonably be expected to monitor ground water potentially impacted by the landfill until phase V is constructed. Therefore, we request to discontinue collecting samples from monitoring well cluster B-25 and B-27 until phase V is constructed. These wells will be sampled and the analytical data submitted sixty (60) days prior to waste acceptance in phase V.

Should you have any questions please give me a call at 289-9100.

Sincereiy,

Scott W. McCallister, P.G.
Senior Environmental Engineer

SWM:lh
Enclosure

cc: Greg Mathes
Scott Kelly

fn:nogas\permod.nov

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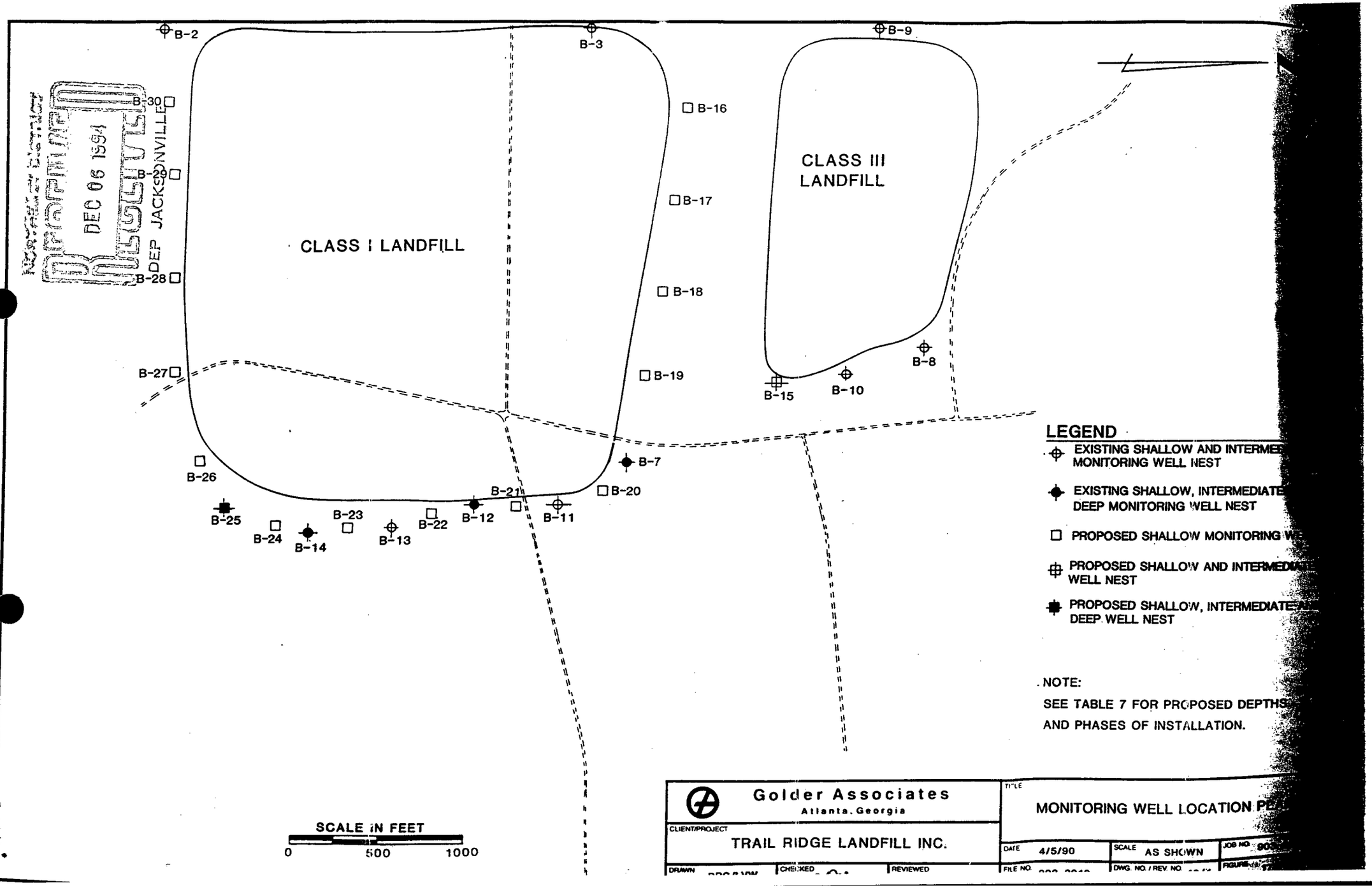
B-2
B-3
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B-25
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B-15
B-10
B-8
CLASS I LANDFILL
CLASS III LANDFILL
DEP JACKSONVILLE
DEC 06 1994
RECEIVED
LEGEND
EXISTING SHALLOW AND INTERMEDIATE MONITORING WELL NEST
EXISTING SHALLOW, INTERMEDIATE AND DEEP MONITORING WELL NEST
PROPOSED SHALLOW MONITORING WELL
PROPOSED SHALLOW AND INTERMEDIATE WELL NEST
PROPOSED SHALLOW, INTERMEDIATE AND DEEP WELL NEST
NOTE:
SEE TABLE 7 FOR PROPOSED DEPTHS AND PHASES OF INSTALLATION.
SCALE IN FEET
0
500
1000
Golder Associates
Atlanta, Georgia
CLIENT/PROJECT
TRAIL RIDGE LANDFILL INC.
TITLE
MONITORING WELL LOCATION PLAN
DATE 4/5/90
SCALE AS SHOWN
JOB NO.
DRAWN
CHECKED
REVIEWED
FILE NO.
DWG. NO. / REV. NO.
FIGURE

State of Florida

Department of Health and Rehabilitative Services

OFFICE OF LABORATORY SERVICES
SAFE DRINKING WATER

This is to certify that

HRS # 87367
WMI Env Monitoring Labs,Inc.
2100 Clearwater Dr.
Geneva, IL 60134

has complied with section 10D-41.050 of the Florida Administrative Code pertaining to safe drinking water testing in the following categories:

Metals, Lead & Copper, Nitrate & Nitrite, Inorganic Secondary, Fluoride, Insecticides, Herbicides, Disinfectant By-Products/VOCs, PCBs, THMs, Regulated VOCs, Unregulated Herbicides, Purgeables, Extractables

Specific certified analytes and methodologies within these categories are listed on the analyte sheets with this laboratory and the DHRS Water Certification Unit.

RECEIVED
OCT 2 0 1993
DEP - JACKSONVILLE

EFFECTIVE July 1, 1993 *through* June 30, 1994

1993 - 1994

Elden C. Hartwig, Jr., Sc.D., M.P.H.
Chief, Laboratory Services
Office of Laboratory Services

No. 93150
Non - Transferable

HRS Form 1629, May 93

State of Florida

Department of Health and Rehabilitative Services

HRS # E87190

OFFICE OF LABORATORY SERVICES

ENVIRONMENTAL WATER

This is to certify that

WMI Environmental
2100 Cleanwater Drive - Geneva, IL 60134

has complied with Florida Administrative Code section 10 D - 41.100 for the examination of environmental water in the following categories:

Metals, Nutrients, Pesticides/Herbicides/PCB's (GC), Purgeables (GC, GC/MS), Extractables (GC, GC/MS), Demands, General Category I, General Category II

Specific methods, parameters, and analytes certified are on file in the Office of Laboratory Services, P.O. Box 210, Jacksonville, Florida 32231.

EFFECTIVE July 1, 1993 *through* June 30, 1994

1993 - 1994

Eldert C. Hartwig, Jr.,Sc.D.,M.P.H.
Chief, Laboratory Services
Office of Laboratory Services

No. 93047
Non - Transferable

HRS Form 1697, May 93

TO: Mary Nogas, P.E.
Solid Waste Section

THROUGH: Brian Cheary, Ph.D.
Manager - Waste Cleanup Section

FROM: Richard S. Rachal, P.G.
Waste Cleanup Section

DATE: October 27, 1994

SUBJECT: Trail Ridge Landfill
Duval County
Comments on the Premit Modification Request -
Semi-annual monitoring

I have completed review of the Waste Management request to modify groundwater monitoring at the Trail Ridge Landfill to sample collection and analysis on a semi-annual basis. Based on the groundwater flow rates and the consistency of groundwater flow directions, semi-annual monitoring is appropriate. Provided samples are analyzed for the groundwater parameter list in the current 62-701, then the permit specific conditions should be modified to semi-annual groundwater sampling.

c.c. B. Cheary, PhD
file

I N T E R O F F I C E M E M O R A N D U M

Date: 25-Oct-1994 04:06pm EST
From: Neal Newton JAX
NEWTON_N
Dept: Northeast District Office
Tel No: 904-448-4320 x365
SUNCOM: 880-4320 x365

TO: Mary Nogas JAX (NOGAS_M)

Subject: Old Dump Phillips Hwy South

I went by the site last week and met with the site manager who's business card I've lost in transit and I can't remember his name. But, anyway he has receipts from Trailridge landfill for several loads of material. He had stopped hauling due to the wet weather recently making the waste not accessable. He stated he is planning to restart hauling this week to the landfill. I will keep an eye on the site's progress on my way home in the evenings. As a note the waste apparently was not an old dump site, but the next door neighbors waste thrown across the fence into a low area over many years.

I N T E R O F F I C E M E M O R A N D U M

Date: 19-Oct-1994 07:49am EST
From: Mary Nogas JAX
NOGAS_M
Dept: Northeast District Offi
Tel No: 904/448-4320 Ext. 355
SUNCOM: 880-4320

TO: Neal Newton JAX (NEWTON_N)

Subject: old dump

sally tells me that there is an old dump that has been uncovered/dug up at the site of a new rhodes furniture store -- on phillips highway, past the avenues shopping center, on the right hand side of the road -- can you find a vehicle and ride out there today ?? if they're digging up an old dump, they need to dispose of the material in a lined class i landfill... sally saw this friday, but just remembered to tell me this morning...

thanks

Jacksonville Area Landfills
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100 • FAX: 904/289-9013

A Waste Management Company

September 26, 1994

NORTHEAST DISTRICT
RECEIVED
SEP 29 1994
DEP JACKSONVILLE

Ms. Mary Nogas, P.E.
Florida Department of Environmental Protection
7825 Bay Meadows Way, Suite B-200
Jacksonville, Florida 32256-7577

Re: Trail Ridge Landfill, Inc.
Permit # SC16-184444
Application for Permit Modification

Dear Ms. Nogas:

Attached is a completed permit application requesting a modification to the above referenced permit. This modification is necessary in order to comply with recent changes made to Chapter 17-701.510 (Water Quality and Leachate Monitoring Requirements). More specifically, we request that all monitoring wells, surface water, and leachate sampling be conducted semi-annually in accordance with Chapter17-701.510 (1) (a) F.A.C.

I am familiar with and have reviewed the hydrogeology and the historical analytical data of the site. Based on this information, it appears that there are no karst areas or other highly transmissive zones. Also, there is a predominant direction of ground water and surface water flow from west to east as documented by submittal of ground water elevation contour data. The current monitoring system is designed to intercept ground water flow in this direction or any minor deviations to the north or south. Considering these factors, and a composite double liner underlying the site, semi-annual monitoring is an appropriate monitoring frequency for this facility.

As we discussed, there are no fees associated with this modification since it is a result of changes made to Chapter 17-701 F.A.C.

If you have any questions or comments concerning this submittal, please give me a call at 289-9100.

Sincerely,

Scott W. McCallister, P.G.
Senior Environmental Engineer

SWM:lh
Enclosure

cc: Greg Mathes
Scott Kelly

Printed on recycled paper.

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

DER Form #	17-701.900(1)
Form Title	Solid Waste Permit Application
Effective Date	January 6, 1993
DER Application No.	(Filled in by DER)

NORTHEAST DISTRICT
RECEIVED
SEP 2 9 1994
DEP JACKSONVILLE

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOLID WASTE MANAGEMENT FACILITY PERMIT

APPLICATION INSTRUCTIONS AND FORMS

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANAGEMENT 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) Rule 17-701. A minimum of six copies of the application shall be submitted to the Department District Office having jurisdiction over the facility. The appropriate fee in accordance with Chapter 17-4, FAC, and Rule 17-701.320(5)(c), FAC, shall be submitted with the application by check made payable to the Department of Environmental Regulation (DER).

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 Q, and S
B. Asbestos Monofills - Submit parts A,B,D,E,F,I,K, M through Q, and S
C. Industrial Solid Waste Facilities - Submit parts A,B, D through Q, and S
D. Volume Reduction Facilities - Submit parts A,C,D,R, and S

NOTE: Portions of some parts may not be applicable.

NOTE: For facilities that have been satisfactorily constructed in accordance with their construction permit, the information required for A,B,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, N through Q, and S
B. Asbestos Monofills - Submit parts A,B, M through Q, and S
C. Industrial Solid Waste Facilities - Submit parts A,B, N through Q, and S
D. Volume Reduction Facilities - Submit parts A,C,R, and S

NOTE: Portions of some parts may not be applicable.

IV. Permit Renewals

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

V. Application Codes

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

VI. LISTING OF APPLICATION PARTS

PART A	-	GENERAL INFORMATION
PART B	-	DISPOSAL FACILITY GENERAL INFORMATION
PART C	-	VOLUME REDUCTION FACILITY GENERAL INFORMATION
PART D	-	SOLID WASTE MANAGEMENT FACILITY PERMIT GENERAL REQUIREMENTS
PART E	-	LANDFILL PERMIT GENERAL REQUIREMENTS
PART F	-	GENERAL CRITERIA FOR LANDFILLS
PART G	-	LANDFILL CONSTRUCTION REQUIREMENTS
PART H	-	HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS
PART I	-	GEOTECHNICAL INVESTIGATION REQUIREMENTS
PART J	-	VERTICAL EXPANSION OF LANDFILLS
PART K	-	LANDFILL OPERATION REQUIREMENTS
PART L	-	WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS
PART M	-	SPECIAL WASTE HANDLING REQUIREMENTS
PART N	-	LANDFILL CLOSURE REQUIREMENTS
PART O	-	CLOSURE PROCEDURES
PART P	-	LONG TERM CARE REQUIREMENTS
PART Q	-	FINANCIAL RESPONSIBILITY REQUIREMENTS
PART R	-	VOLUME REDUCTION PLANT REQUIREMENTS
PART S	-	CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

Please Type or Print

A. GENERAL INFORMATION

1. Type of facility:

Disposal [X]

Class I Landfill	[X]	Ash Monofill	[ ]
Class II Landfill	[ ]	Asbestos Monofill	[ ]
Class III Landfill	[ ]	Industrial Solid Waste	[ ]
Other	[ ]	_____	

Volume Reduction [ ]

Incinerator	[ ]	Pulverizer/Shredder	[ ]
Composting	[ ]	Compactor/Baling Plant	[ ]
Materials Recovery	[ ]	Energy Recovery	[ ]
Other	[ ]	_____	

2. Type of application:

Construction	[ ]	Construction/Operation	[ ]
Operation	[X]	Closure	[ ]

3. Classification of application:

New	[ ]	Substantial Modification	[X]
Renewal	[ ]	Minor Modification	[ ]

4. Facility name: Trail Ridge Landfill, Inc.

5. DER ID number: GMS3116P03090 County: Duval

6. Facility location (main entrance): 5110 U.S. Hwy 301
Baldwin, FL 32234

7. Location coordinates:

Section: 20,21 Township: 3S Range: 23E

UTMs: Zone_____ _____km E _____ km N

Latitude: 30 ° 14 ' 00 " Longitude: 82 ° 02 ' 30 "

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

Mailing address: 5110 US Hwy 301 (Street or P.O. Box) Baldwin (City) FL (State) 32234 (Zip)

Contact person: Scott McCallister Telephone: (904) 289-9100

Title: Sr. Environmental Engineer

9. Authorized agent/Consultant: N/A

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

Contact person: _____ Telephone: (___)_____

Title: _____

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

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

Contact person: _____ Telephone: (___)_____

11. Cities, towns and areas to be served: Jacksonville and neighboring environs

_____

12. Population to be served:

Current: approx. 660,000 Five-Year Projection: 2010 projection 781,000

13. Volume of solid waste to be received: Max. 3000 ~~yds~~ yds^3/~~day~~ tons/day gallons/day

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

15. Estimated life of facility: 18 years

16. Estimated costs:

Total Construction: $ N/A Closing Costs: $ N/C

17. Anticipated construction starting and completion dates:

From: N/A To: N/A

B. **DISPOSAL FACILITY GENERAL INFORMATION**

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

N/C

2. Facility site supervisor: Greg Mathes

Title: Division President & Gen. Mgr. Telephone: (904) 289-9100

3. Disposal area: Total 176 acres; Used 46 acres; Available 130 acres

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

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

6. Charge for waste received: _____ $/yds^3 59.00 $/ton

7. Surrounding land use, zoning:

Residential	[ ]	Industrial	[ ]
Agricultural	[X]	None	[ ]
Commercial	[ ]	Other	[ ] _____

8. Types of waste received:

Residential	[ ]	C & D debris	[ ]
Commercial	[ ]	Shredded/cut tires	[ ]
Incinerator/WTE ash	[ ]	Yard trash	[ ]
Treated biohazardous	[ ]	Septic tank	[ ]
Water treatment sludge	[ ]	Industrial	[ ]
Air treatment sludge	[ ]	Industrial sludge	[ ]
Agricultural	[ ]	Domestic sludge	[ ]
Asbestos	[ ]		
Other	[ ]	N/C	

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

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

11. Spotters: Yes [X] No [ ] Number of spotters used: N/C

12. Site located in: Floodplain [ ] Wetlands [ ] Other [ ] N/C

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

14. Days of operation: Monday - Saturday

15. Hours of operation: 6 a.m. - 7 p.m.

16. Days Working Face covered: daily

17. Elevation of water table: varies Ft. NGVD

18. Number of monitoring wells: 33

19. Number of surface monitoring points: 3

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

Gas flaring: Yes [ ] No [X] Gas recovery: Yes [ ] No [X]

21. Leachate control method - liner type:

Natural soils	[ ]	Double geomembrane	[ ]
Single clay liner	[ ]	Geomembrane & composite	[ ]
Single geomembrane	[ ]	Double composite	[ ]
Single composite	[ ]	None	[ ]
Slurry wall	[ ]		
Other	[X]	double geomembrane & composite	

22. Leachate collection method:

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

23. Leachate storage method:

Tanks	[X]	Surface impoundments	[ ]
Other	[ ]		

24. Leachate treatment method:

Oxidation	[ ]	Chemical treatment	[ ]
Secondary	[ ]	Settling	[ ]
Advanced	[ ]	None	[X]
Other	[ ]		

25. Leachate disposal method:

Recirculated	[ ]	Pumped to WWTP	[ ]
Transported to WWTP	[X]	Discharged to surface water	[ ]
Injection well	[ ]	Evaporation (ie: Perc Pond)	[ ]
Other	[ ]		

26. For leachate discharged to surface waters:

Name and Class of receiving water: N/A

27. Storm Water:

Collected: Yes [X] No [ ] Type of treatment: Retention

Name and Class of receiving water: Headwaters of Deep Creek

28. Management and Storage of Surface Waters (MSSW) Permit number or status: N/A

C. **VOLUME REDUCTION FACILITY GENERAL INFORMATION** - N/A

1. Provide brief description of volume reduction facility design and operations planned by this application:

_____

_____

_____

_____

2. Facility site supervisor: _____

   Title: _____ Telephone: (___)_____

3. Disposal area: Total _____ acres; Used _____ acres; Available _____ 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. Type of facility (check one or more):

Incinerator	[ ]	Composting	[ ]
Pulverizer/shredder	[ ]	Materials recovery	[ ]
Compactor/baling	[ ]	Energy recovery	[ ]
Sludge concentration	[ ]	Pyrolysis	[ ]
Other	[ ]	_____	

15. Material recovered, tons/week:

_____	Paper	_____	Glass
_____	Ferrous metals	_____	Non-ferrous metals
_____	Aluminum	_____	Plastics
_____	Other:	_____	

16. Energy recovery, in units shown:

_____	High pressure steam, lb/hr	_____	Chilled water, gal/hr
_____	Low pressure steam, lb/hr	_____	Oil, gal/hr
_____	Electricity, kw/hr	_____	Oil, BTU/hr
_____	Gas, ft^3/hr	_____	Gas, BTU/hr
_____	Other:	_____	

17. Process water management:

Recycled: Yes [ ] No [ ]

Treatment method used: _____

Discharged to: Surface waters [ ] Underground [ ] Other [ ]

Name and Class of receiving water: _____

18. Storm Water:

Collected: Yes [ ] No [ ] Type of treatment: _____

Name and Class of receiving water: _____

19. MSSW Permit number or status: _____

20. Final residue produced:

_____ % of normal processing rate

_____ % of maximum processing rate

Disposed of at (Site name): _____

21. Supplemental fuel used:

Type: _____ Quantity used/hour: _____

22. Costs:

Estimated operating costs (material-energy revenue): $ _____

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

23. State pollution control bond financing amount: $ _____

24. Estimated amount of tax exemptions that will be requested: $ _____

D. SOLID WASTE MANAGEMENT FACILITY PERMIT GENERAL REQUIREMENTS (17-701.320, FAC)

S	LOCATION	N/A	N/C		
X	Attached			1.	Six copies, at minimum, of the completed application form, all supporting data and reports; (17-701.320(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; (17-701.320(6),FAC)
X	Attached			3.	A letter of transmittal to the Department; (17-701.320(7)(a),FAC)
X	Attached			4.	A completed application form dated and signed by the applicant; (17-701.320(7)(b),FAC)
		X		5.	Permit fee specified in Rule 17-4.050, FAC and Rule 17-7-1.320(5)(c), FAC in check or money order, payable to the Department; (17-701.320(7)(c),FAC)
			X	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; (17-701.320(7)(d),FAC))
			X	7.	Operation Plan; (17-701.320(7)(e)1,FAC)
			X	8.	Contingency Plan; (17-701.320(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) showing; (17-702.320(7)(f),FAC)
			X		a. A regional map or plan with the project location;
			X		b. A vicinity map or aerial photograph no more than 1 year old;
			X		c. A site plan showing all property boundaries certified by a registered Florida land surveyor;
			X		d. Other necessary details to support the engineering report.
			X	10.	Proof of property ownership or a copy of appropriate agreements between the facility operator and property owner authorizing use of property; (17-701.320(7)(g),FAC)

S	LOCATION	N/A	N/C		
___	_____	___	X	11.	For facilities owned or operated by a county, provide description of how, if any, the facilities covered in this application will contribute to the county's achievement of recycling goals contained in Section 403.706,FS; (17-701.320(7)(h),FAC)
___	_____	___	X	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; (17-701.320(7)(i),FAC)
___	_____	___	X	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; (17-702.320(8),FAC)
___	_____	___	X	14.	Provide a description of how the requirements for airport safety will be achieved including proof of required notices if applicable; (17-701.320(12),FAC)

E. LANDFILL PERMIT GENERAL REQUIREMENTS (17-701.330, FAC)

___	_____	___	X	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; (17-701.330(4)(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; (17-701.330(4)(b),FAC)
___	_____	___	X	3.	Plot plan with a scale not greater than 200 feet to the inch showing; (17-701.330(4)(c),FAC)
___	_____	___	X		a. Dimensions;
___	_____	___	X		b. Locations of proposed and existing water quality monitoring wells;
___	_____	___	X		c. Locations of soil borings;
___	_____	___	X		d. Proposed plan of trenching or disposal areas;
___	_____	___	X		e. Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;
___	_____	X	___		f. Any previously filled waste disposal areas;
___	_____	___	X		g. Fencing or other measures to restrict access.

S	LOCATION	N/A	N/C		
				4.	Topographic maps with a scale not greater than 200 feet to the inch with 5-foot contour intervals showing; (17-701.330(4)(d),FAC)
___	_____	___	X		a. Proposed fill areas;
___	_____	___	X		b. Borrow areas;
___	_____	___	X		c. Access roads;
___	_____	___	X		d. Grades required for proper drainage;
___	_____	___	X		e. Cross sections of lifts;
___	_____	___	X		f. Special drainage devices if necessary;
___	_____	___	X		g. Fencing;
___	_____	___	X		h. Equipment facilities.
				5.	A report on the landfill describing the following; (17-701.330(4)(e),FAC)
___	_____	___	X		a. The current and projected population and area to be served by the proposed site;
___	_____	___	X		b. The anticipated type, annual quanity, and source of solid waste, expressed in tons;
___	_____	___	X		c. The anticipated facility life;
___	_____	___	X		d. The source and type of cover material used for the landfill.
___	_____	___	X	6.	Provide evidence that an approved laboratory shall conduct water quality monitoring for the facility in accordance with Rule 17-160,FAC; (17-701.330(4)(h),FAC)
___	_____	___	X	7.	Provide a statement of how the applicant will demonstrate financial responsibility for the closing and long-term care of the landfill; (17-701.330(4)(i),FAC)

F. GENERAL CRITERIA FOR LANDFILLS (17-701.340,FAC)

___	_____	___	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 is a washout of solid waste; (17-701.340(4)(b),FAC)
___	_____	___	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; (17-701.340(4)(c),FAC)
___	_____	___	X	3.	Describe what methods shall be taken to screen the landfill from public view where such screening can practically be provided; (17-701.340(4)(d),FAC)

S	LOCATION	N/A	N/C		
G.	LANDFILL CONSTRUCTION REQUIREMENTS (17-701.400,FAC)				
___	_____	___	X	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; (17-701.400(2),FAC)
				2.	Landfill liner requirements; (17-701.400(3),FAC)
				a.	General construction requirements; (17-701.400(3)(a),FAC)
___	_____	___	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;
___	_____	___	X	(2)	Document foundation is adequate to prevent liner failure;
___	_____	___	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;
___	_____	___	X	(5)	Installed to cover all surrounding earth which could come into contact with t waste or leachate.
				b.	Composite liners; (17-701.400(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.
				c.	Double liners; (17-701.400(3)(c),FAC)
___	_____	___	X	(1)	Upper and lower geomembrane thicknesses and properties;
___	_____	___	X	(2)	Design leachate head for primary LCRS to limit the head to one foot above the liner;
___	_____	___	X	(3)	Lower geomembrane sub-base design;
___	_____	___	X	(4)	Leak detection and secondary leachate collection system minimum design criteria ($k \geq 1$ cm/sec, head on lower liner ≤ 1 inch, head not to exceed thickness of drainage layer);

S	LOCATION	N/A	N/C		
				d.	Standards for geomembranes; (17-701.400(3)(d),FAC)
___	_____	___	X		(1) Field seam test methods to ensure all field seams are at least 90 percent of the yield strength for the lining material;
___	_____	___	X		(2) Design of 24-inch-thick protective layer above upper geomembrane liner;
___	_____	___	X		(3) Describe operational plans to protect the liner and leachate collection system when placing the first layer of waste above 24-inch-thick protective layer.
				e.	Geosynthetic specification requirements; (17-701.400(3)(e),FAC)
___	_____	___	X		(1) Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program;
___	_____	___	X		(2) Material specifications for geomembranes, geotextiles, geogrids, and geonets;
___	_____	___	X		(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;
___	_____	___	X		(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;
___	_____	___	X		(5) Geotextile and geogrid specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials;
___	_____	___	X		(6) Geonet specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials;
				f.	Standards for soil components; (17-701.400(3)(f),FAC)
___	_____	___	X		(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	
___	_____	X	___	(2) Demonstration of compatibility of the so component with actual or simulated leachate in accordance with EPA Test Method 9100 or an equivalent test method;
___	_____	X	___	(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:
___	_____	___	X	(a) Allowable particle size distribution, Atterberg limits, shrinkage limit;
___	_____	___	X	(b) Placement moisture and dry density criteria;
___	_____	___	X	(c) Maximum laboratory-determined saturated hydraulic conductivity using simulated leachate;
___	_____	___	X	(d) Minimum thickness of soil liner;
___	_____	___	X	(e) Lift thickness;
___	_____	___	X	(f) Surface preparation (scarification);
___	_____	___	X	(g) Type and percentage of clay mineral within the soil component;
___	_____	___	X	(5) Procedures for constructing and using 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); (17-701.400(4),FAC)

a. The primary and secondary LCRS requirements; (17-701.400(4)(a),FAC)

___	_____	___	X	(1) Constructed of materials chemically resistant to the waste and leachate;
___	_____	___	X	(2) Have sufficient mechanical properties to prevent collapse under pressure;
___	_____	___	X	(3) Have granular material or synthetic geotextile to prevent clogging;
___	_____	___	X	(4) Have method for testing and cleaning clogged pipes or contingent designs for rerouting leachate around failed areas;

S	LOCATION	N/A	N/C	
___	_____	___	X	b. Primary LCRS requirements; (17-701.400(4)(b),FAC)
___	_____	___	X	(1) Bottom 12 inches having hydraulic conductivity $\geq 1 \times 10^{-3}$ cm/sec;
___	_____	___	X	(2) Total thickness of 24 inches of material chemically resistant to the waste and leachate;
___	_____	___	X	(3) Bottom slope design to accomodate for predicted settlement;
___	_____	___	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; (17-701.400(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 to control odors and migration of methane;
___	_____	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.
				5. Leachate storage tanks and leachate surface impoundments; (17-701.400(6),FAC)
				a. Surface impoundment requirements; (17-701.400(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;

S	LOCATION	N/A	N/C	
				(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^{-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 vectors and off-site odors.
				b. Above-ground leachate storage tanks; (17-701.400(6)(c),FAC)
___	_____	___	X	(1) Describe tank materials of construction and ensure foundation is sufficient to support tank;
___	_____	___	X	(2) Describe procedures for cathodic protection if needed for the tank;
___	_____	___	X	(3) Describe exterior painting and interior lining of the tank to protect it from the weather and the leachate stored;
___	_____	___	X	(4) Describe secondary containment design to ensure adequate capacity will be provided and compatibility of materials of construction;
___	_____	___	X	(5) Describe design to remove and dispose of stormwater from the secondary containment system;
___	_____	___	X	(6) Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling;

S	LOCATION	N/A	N/C	
				(7) Inspections, corrective action and reporting requirements;
___	_____	___	X	(a) Overfill prevention system weekly;
___	_____	___	X	(b) Exposed tank exteriors weekly;
___	_____	___	X	(c) Tank interiors when tank is drained or at least every three years;
___	_____	___	X	(d) Procedures for immediate corrective action if failures detected;
___	_____	___	X	(e) Inspection reports available for department review.
				c. Underground leachate storage tanks; (17-701.400(6)(d),FAC)
___	_____	X	___	(1) Describe materials of construction;
___	_____	X	___	(2) A double-walled tank design system to be used with the following requirements;
___	_____	X	___	(a) Interstitial space monitoring at least weekly;
___	_____	X	___	(b) Corrosion protection provided for primary tank interior and external surface of outer shell;
___	_____	X	___	(c) Interior tank coatings compatible with stored leachate;
___	_____	X	___	(d) Cathodic protection inspected weekly and repaired as needed;
___	_____	X	___	(3) Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling and provide for weekly inspections;
___	_____	X	___	(4) Inspection reports available for department review.
___	_____	X	___	d. Schedule provided for routine maintenance of LCRS; (17-701.400(6)(e),FAC)
				6. Liner systems construction quality assurance (CQA): (17-701.400(7),FAC)
___	_____	___	X	a. Provide CQA Plan including:
___	_____	___	X	(1) Specifications and construction requirements for liner system;
___	_____	___	X	(2) Detailed description of quality control testing procedures and frequencies;
___	_____	___	X	(3) Identification of supervising professional engineer;

S	LOCATION	N/A	N/C	
___	_____	___	X	(4) Identify responsibility and authority all appropriate organizations and key personnel involved in the construction project;
___	_____	___	X	(5) State qualifications of CQA professional engineer and support personnel;
___	_____	___	X	(6) Description of CQA reporting forms and documents;
___	_____	___	X	b. An independent laboratory experienced in the testing of geosynthetics to perform required testing;
				7. Surface water management systems; (17-701.400(9),FAC)
___	_____	___	X	a. Design of surface water management system to isolate surface water from waste filled areas and to control stormwater run-off;
___	_____	___	X	b. Details of stormwater control design including retention ponds, detention ponds, and drainage ways;
				8. Gas control systems; (17-701.400(10),FAC)
___	_____	___	X	a. Design details for gas control system including collection pipes and vents, and passive venting or vacuum extraction details;
___	_____	___	X	b. Documentation that the gas control system wi not impact the liner or leachate control system;
___	_____	___	X	c. Proposed methods of odor control including flaring designs in accordance with Chapter 17-210, FAC;
				d. Description of a routine gas monitoring program to ensure gas control system is operating properly including:
___	_____	___	X	(1) Location of monitoring points;
___	_____	___	X	(2) Requirements for quarterly sampling of all monitoring points;
___	_____	___	X	(3) Description of corrective measures to be completed within 60 days of detection of elevated levels of explosive gases;
___	_____	___	X	e. Description of condensate collection and disposal methods.
				9. Landfill gas recovery facilities; (17-701.400(11),FAC)
___	_____	___	X	a. Information required in Rules 17-701.320(7) and 17-701.330(4), FAC supplied;

S	LOCATION	N/A	N/C		
___	_____	___	X		b. Information required in Rule 17-701.600(4), FAC supplied where relevant and practical;
___	_____	___	X		c. Estimate of current and expected gas generation rates and description of condensate disposal methods provided;
___	_____	___	X		d. Description of procedures for condensate sampling, analyzing and data reporting provided;
___	_____	___	X		e. Closure plan provided describing methods to control gas after recovery facility ceases operation;
___	_____	___	X		f. Performance bond provided to cover closure costs if not already included in other landfill closure costs.
___	_____	X	___	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; (17-701.400(12),FAC)

H. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS (17-701.410, FAC)

				1.	Submit a hydrogeological investigation and site report including at least the following information:
___	_____	___	X		a. Regional and site specific geology and hydrogeology;
___	_____	___	X		b. Direction and rate of ground water and surface water flow including seasonal variations;
___	_____	___	X		c. Background quality of ground water and surface water;
___	_____	___	X		d. Any on-site hydraulic connections between aquifers;
___	_____	___	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;
___	_____	___	X		f. Site topography and soil characteristics;
___	_____	___	X		g. Inventory of all public and private water wells within a one-mile radius of the landfill including 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;
___	_____	___	X		h. Existing contaminated areas on landfill site.
___	_____	___	X	2.	Report signed, sealed and dated by PE or PG.

I. GEOTECHNICAL INVESTIGATION REQUIREMENTS (17-701.420,FAC)

1. Submit a geotechnical site investigation report defini. the engineering properties of the site including at least the following:

S	LOCATION	N/A	N/C	
___	_____	___	X	a. Description of subsurface conditions including soil stratigraphy and ground water table conditions;
___	_____	___	X	b. Investigate for the presence of muck, previously filled areas, soft ground, lineaments and sink holes;
___	_____	___	X	c. Estimates of average and maximum high water table across the site;
				d. Foundation analysis including:
___	_____	___	X	(1) Foundation bearing capacity analysis;
___	_____	___	X	(2) Total and differential subgrade settlement analysis;
___	_____	___	X	(3) Slope stability analysis;
___	_____	___	X	e. Description of methods used in the investigation and includes soil boring logs, laboratory results, analytical calculations, cross sections, interpretations and conclusions;
___	_____	___	X	f. Report signed, sealed and dated by PE or PG.

J. VERTICAL EXPANSION OF LANDFILLS (17-701.430,FAC)

___	_____	X	___	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;
___	_____	X	___	2. Describe how the vertical expansion over unlined landfills will meet the requirements of Rule 17-701.400, FAC with the exceptions of Rule 17-701.430(1)(c),FAC;
___	_____	X	___	3. Provide foundation and settlement analysis for the vertical expansion;
___	_____	X	___	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;
___	_____	X	___	5. Minimum stability safety factor of 1.5 for the lining system component interface stability and deep stability;
___	_____	X	___	6. Provide documentation to show the surface water management system will not be adversely affected by the vertical expansion;

S	LOCATION	N/A	N/C		
___	_____	X	___	7.	Provide gas control designs to prevent accumulation of gas under the new liner for the vertical expansion.

K. LANDFILL OPERATION REQUIREMENTS (17-701.500,FAC)

___	_____	___	X	1.	Provide documentation that landfill will have at least one trained operator during operation and at least one trained spotter at each working face; (17-701.500(1),FAC)
				2.	Provide a landfill operation plan including procedures for: (17-701.500(2), FAC)
___	_____	___	X		a. Designating responsible operating and maintenance personnel;
___	_____	___	X		b. Contingency operations for emergencies;
___	_____	___	X		c. Controlling types of waste received at the landfill;
___	_____	___	X		d. Weighing incoming waste;
___	_____	___	X		e. Vehicle traffic control and unloading;
___	_____	___	X		f. Method and sequence of filling waste;
___	_____	___	X		g. Waste compaction and application of cover;
___	_____	___	X		h. Operations of gas, leachate, and stormwater controls;
___	_____	___	X		i. Water quality monitoring.
___	_____	___	X	3.	Provide a description of the landfill operation record to be used at the landfill; (17-701.500(3),FAC)
___	_____	___	X	4.	Describe the waste records that will be compiled monthly and provided to the Department quarterly; (17-701.500(4),FAC)
___	_____	___	X	5.	Describe methods of access control; (17-701.500(5),FAC)
___	_____	___	X	6.	Describe load checking program to be implemented at the landfill to discourage disposal of unauthorized wastes at the landfill; (17-701.500(6),FAC)
				7.	Describe procedures for spreading and compacting waste at the landfill that include: (17-701.500(7),FAC)
___	_____	___	X		a. Waste layer thickness and compaction frequencies;
___	_____	___	X		b. Special considerations for first layer of waste placed above liner and leachate collection system;
___	_____	___	X		c. Slopes of cell working face and side grades above land surface, planned lift depths during operation;

S	LOCATION	N/A	N/C		
___	_____	___	X		d. Maximum width of working face;

S	LOCATION	N/A	N/C		
___	_____	___	X		e. Procedures for applying initial cover including minimum cover frequencies;
___	_____	___	X		f. Procedures for applying intermediate cover;
___	_____	___	X		g. Time frames for applying final cover;
___	_____	___	X		i. Description of litter policing methods;
___	_____	___	X		j. Erosion control procedures.
				8.	Describe operational procedures for leachate management including; (17-701.500(8),FAC)
___	_____	___	X		a. Leachate level monitoring, sampling, analysis and data results submitted to the Department;
___	_____	___	X		b. Operation and maintenance of leachate collection and removal system, and treatment as required;
___	_____	___	X		c. Procedures for managing leachate if it becomes regulated as a hazardous waste;
___	_____	___	X		d. Agreements for off-site discharge and treatment of leachate;
___	_____	___	X		e. Contingency plan for managing leachate during emergencies or equipment problems;
___	_____	___	X		f. Procedures for recording quantities of leachate generated in gal/day;
___	_____	___	X		g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates.
___	_____	___	X	9.	Describe routine gas monitoring program for the landfill as required by Rule 17-701.400(10),FAC; (17-701.500(9),FAC)
___	_____	___	X	10.	Describe procedures for operating and maintaining the landfill stormwater management system to comply with the standards of Chapters 17-3, 17-302 and 17-25, FAC; (17-701.500(10),FAC)
				11.	Equipment and operation feature requirements; (17-701.500(11),FAC)
___	_____	___	X		a. Sufficient equipment for excavating, spreading, compacting and covering waste;
___	_____	___	X		b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;

S	LOCATION	N/A	N/C		
___	_____	___	X		c. Communications equipment;
___	_____	___	X		d. Personnel shelter and sanitary facilities, first aid equipment;
___	_____	___	X		e. Dust control methods;
___	_____	___	X		f. Fire protection capabilities and procedures for notifing local fire department authorities in emergencies;
___	_____	___	X		g. Litter control devices;
___	_____	___	X		h. Signs indicating operating authority, traffic flow, hours of operation, disposal restrictions.
___	_____	___	X	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; (17-701.500(12),FAC)
				13.	Additional record keeping and reporting requirements; (17-701.500(13),FAC)
___	_____	___	X		a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;
___	_____	___	X		b. Monitoring information, calibration and maintenance records, copies of reports required by permit maintained for at least 10 years;
___	_____	___	X		c. Background water quality records shall be maintained for the design period of the landfill;
___	_____	___	X		d. 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.

L. WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS (17-701.510, FAC)

X	See Attached Letter		___	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;
___	_____	___	X		a. Based on the information obtained in the hydrogeological investigation and signed, dated and sealed by the PG or PE who prepared it; (17-701.510(2)(a),FAC)
___	_____	___	X		b. All sampling and analysis preformed by organizations having Department approved Comprehensive Quality Assurance Plans; (17-701.510(2)(b),FAC)

S	LOCATION	N/A	N/C		
				c.	Ground water monitoring requirements; (17-701.510(3),FAC)
___	_____	___	X	(1)	Detection wells located downgradient from and within 50 feet of disposal units;
___	_____	___	X	(2)	Downgradient compliance wells as required;
___	_____	___	X	(3)	Background wells screened in all aquifers below the landfill that may be affected by the landfill;
___	_____	___	X	(4)	Location information for each monitoring well;
___	_____	___	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;
___	_____	___	X	(6)	Well screen locations properly selected;
___	_____	___	X	(7)	Procedures for properly abandoning monitoring wells;
___	_____	X	___	(8)	Detailed description of detection sensors if proposed.
				d.	Surface water monitoring requirements; (17-701.510(4),FAC)
___	_____	___	X	(1)	Location of and justification for all proposed surface water monitoring points;
___	_____	___	X	(2)	Each monitoring location to be marked and its position determined by a registered Florida land surveyor;
___	_____	___	X	e.	Leachate sampling locations proposed; (17-701.510(5),FAC)
				f.	Routine sampling frequency and requirements; (17-701.510(6),FAC)
___	X See Attached Letter	___	___	(1)	Background ground water and surface water sampling and analysis requirements;
___	X Same as above	___	___	(2)	Leachate quarterly and annual sampling and analysis requirements;
___	X Same as above	___	___	(3)	Detection well quarterly sampling and analysis requirements;
___	X Same as above	___	___	(4)	Compliance well sampling and analysis as requirements;
___	X Same as above	___	___	(5)	Surface water sampling and analysis requirements.

S	LOCATION	N/A	N/C	
X	See attached letter			g. Describe procedures for implementing assessment monitoring and corrective action as required; (17-701.510(7),FAC)
				h. Water quality monitoring report requirements; (17-701.510(9),FAC)
		X		(1) Quarterly report requirements;
		X		(2) Annual report requirements including a report submitted to the Department which is signed, dated and sealed by PG or PE.

M. SPECIAL WASTE HANDLING REQUIREMENTS (17-701.520, FAC)

			X	1. Describe procedures for managing motor vehicles; (17-701.520(1),FAC)
			X	2. Describe procedures for landfilling shredded waste; (17-701.520(3),FAC)
			X	3. Describe procedures for asbestos waste disposal; (17-701.520(4),FAC)

N. LANDFILL FINAL CLOSURE REQUIREMENTS (17-701.600,FAC)

				1. Closure schedule requirements; (17-701.600(2),FAC)
			X	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	b. Notice to user requirements within 120 days of final receipt of wastes;
			X	c. Notice to public requirements within 10 days of final receipt of wastes.
				2. Closure permit general requirements; (17-701.600(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 responsbility for long term care will be provided.

S	LOCATION	N/A	N/C		
				3.	Closure report requirements; (17-701.600(4),FAC)
				a.	General information requirements;
___	_____	___	X		(1) Identification of landfill;
___	_____	___	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 17-701.330(4),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 biodegradable wastes including detailed description of test and investigation methods used;
___	_____	___	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: (17-701.600(5),FAC)
___	_____	___	X	a.	Plan sheet showing phases of site closing;
___	_____	___	X	b.	Drawings showing existing topography and proposed final grades;
___	_____	___	X	c.	Provisions to close units when they reach approved design dimensions;
___	_____	___	X	d.	Final elevations before settlement;
___	_____	___	X	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		(1) CQA plan for installing and testing final cover;

S	LOCATION	N/A	N/C		
___	_____	___	X		(2) Schedule for installing final cover after final receipt of waste;
___	_____	___	X		(3) Description of drought-resistant species to be used in the vegetative cover;
___	_____	___	X		(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		(1) Protective soil layer design;
___	_____	___	X		(2) Barrier soil layer design;
___	_____	___	X		(3) Erosion control vegetation;
___	_____	X	___		(4) Geomembrane barrier layer design.
___	_____	___	X	h.	Proposed method of stormwater control;
___	_____	___	X	i.	Proposed method of access control;
___	_____	___	X	j.	Description of proposed final use of the closed landfill, if any;
				5.	Closure operation plan shall include: (17-701.600(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.
___	_____	___	X	6.	Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (17-701.600(7),FAC)

o. **CLOSURE PROCEDURES** (17-701.610,FAC)

___	_____	___	X	1.	Survey monuments; (17-701.610(2),FAC)
___	_____	___	X	2.	Final survey report; (17-701.610(3),FAC)
___	_____	___	X	3.	Certification of closure construction completion; (17-701.610(4),FAC)
___	_____	___	X	4.	Declaration to the public; (17-701.610(5),FAC)
___	_____	___	X	5.	Official date of closing; (17-701.610(6),FAC)

S	LOCATION	N/A	N/C		
___	_____	___	X	6.	Use of closed landfill areas; (17-701.610(7),FAC)

P. LONG TERM CARE REQUIREMENTS (17-701.620,FAC)

___	_____	___	X	1.	Right of property access requirements; (17-701.620(4),FAC)
___	_____	___	X	2.	Successors of interest requirements; (17-701.620(5),FAC)
___	_____	___	X	3.	Requirements for replacement of monitoring devices; (17-701.620(7),FAC)

Q. FINANCIAL RESPONSIBILITY REQUIREMENTS (17-701.630,FAC)

___	_____	___	X	1.	Provide cost estimates for closure costs and long term care costs estimated by a PE for a third party performing the work, on a per unit basis, with the source of estimates indicated; (17-701.630(3),FAC)
___	_____	___	X	2.	Describe procedures for providing annual cost adjustments to the Department based on inflation and changes in the closure and long-term care plans; (17-701.630(4),FAC)
___	_____	___	X	3.	Describe funding mechanisms for providing proof of financial responsibility and include appropriate financial responsibility forms; (17-701.630(5)&(6),FAC)

R. VOLUME REDUCTION PLANT REQUIREMENTS (17-701.700,FAC)

___	_____	X	___	1.	Proof of posting a performance bond payable to th Department to cover closing costs, if required; (17-701.700(4),FAC)
___	_____	X	___	2.	Materials recovery facility requirements; (17-701.700,FAC)
___	_____	X	___	a.	Submit information required in Rule 17-701.320,FAC
___	_____	X	___	b.	Submit an engineering report including the following:
___	_____	X	___	(1)	Description of the solid waste proposed to be collected, stored, processed or disposed;
___	_____	X	___	(2)	Projection with assumptions for waste types and quantities expected in future years;
___	_____	X	___	(3)	Description of operation and functions of all processing equipment with design criteria and expected performance;
___	_____	X	___	(4)	Description of flow of solid waste, expected regular facility operations, procedures for start up and shut down, potential safety hazards and control methods including fire protection;

S	LOCATION	N/A	N/C	
___	_____	X	___	(5) Description of loading, unloading, and processing areas;
___	_____	X	___	(6) Identification and capacity of temporary on-site storage areas for materials handled and provisions for solid waste and leachate containment;
___	_____	X	___	(7) Identification of potential ground water and surface water contamination;
___	_____	X	___	(8) Plan for disposal of unmarketable recyclables and residue and contingencies for waste handling during breakdowns.
				c. Submit the following operational information:
___	_____	X	___	(1) Operation and maintenance manual;
___	_____	X	___	(2) Waste control plan to manage unauthorized wastes;
___	_____	X	___	(3) Contingency plan for emergencies;
___	_____	X	___	(4) Closure plan including the following:
___	_____	X	___	(a) Notification to Department 180 days prior to closure;
___	_____	X	___	(b) Procedures for removal of all waste within 30 days of receipt of final waste;
___	_____	X	___	(c) Completion of closure activities within 180 days of receipt of final waste and notification to the Department that closure is complete.

S. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

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 modification to an operation Permit from the Florida Department of Environmental Regulation 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 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

Greg Mathes, Division President & General Mgr.

Name and Title

Date: 09/27/94

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

B. Professional Engineer Registered in Florida or Public Officer as required in Secti 403.707 and 403.707(5), 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 principals applicable to such facilities. In my professional judgement, 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	Mailing Address
Name and Title (please type)	City, State, Zip Code
Florida Registration Number (please affix seal)	(___)_____ Telephone Number
	Date:

THE FAX

TRAIL RIDGE LANDFILL, INC.

TO: Mary Nogas

COMPANY:

DATE: 7/12/94

FAX NO.:

FROM: Scott McCallister

Trail Ridge Landfill
5110 U.S. Hwy. 301
Baldwin, Florida 32234

FAX NO.: 904/289-9013

NUMBER OF PAGES TO FOLLOW: 7

PLEASE CALL 904/289-9100 IF PAGES NOT RECEIVED.

MESSAGE:

Mary: I spoke with Mark yesterday about Sunbeam and he told me that you were concerned about settlement. I think there is a feeling that we are not promptly addressing settlement as it occurs on the top of the landfill. I would like to have an opportunity to show you that we have been addressing this problem and have a system currently in-place to address settlement in the future. I have attached copies of recent invoices for work that was done to eliminate erosion and settlement at the site. Also attached is a proposal that will be approved for monthly maintenance of the grass and cover system. We know that settlement will be a continuing problem, but I think we are addressing it as described in the permit. There will still be some areas where runoff is directed to the downcomer pipes that will be wetter than the surrounding higher ground. However, I think we can maintain these areas so that they don't hold water. Also, I don't believe they are holding water at this time. I would like to discuss your concerns in more detail. Please give me a call at your convenience. Thanks.

EROSION CONTROL SEEDING & MULCHING
9017 BERRY AVENUE
JACKSONVILLE, FLORIDA 32211

July 6, 1994

PROPOSAL FOR MAINTAINING SUNBEAM LANDFILL

Erosion Control proposes to perform the following tasks at the Sunbeam Landfill on a monthly basis (twelve months a year):

A. (1) Keep all minor erosions repaired. (4 inches or less)
(2) Mow once per month.
(3) Provide monthly inspection report following outline described in section 1.3 of the Sunbeam Construction Quality Assurance Plan.
(4) Keep entire site clean (including ponds and ditches).
(5) Take pictures when needed as outlined in section 3.2 of the Sunbeam Construction Quality Assurance Plan.
(6) Section 3.3 repair location requirements, the grid system we will use will be the gas well locations provided by Scott McCallister.

All above tasks will be based on 130 acres.

Price per acre $44.50

All reports will be sent to Scott McCallister by the 10th of each month.

B. All major repairs will be on a time and materials basis based on rate schedule (attached)

Term of contract will be for three (3) years.

Robert Bowers

130
x 44.50
5,785.00

EROSION CONTROL SEEDING & MULCHING
9017 BERRY AVENUE
JACKSONVILLE, FLORIDA 32211
PHONE: (904) 721-2095
FAX: (904) 720-0361

Quotes For Hourly Rates

Backhoe	$80.00 per hour
Dozer	$60.00 per hour
Tractor	$45.00 per hour
Frontend Loader	$60.00 per hour
Spread Fertilizer/acre	$45.00 per hour plus fertilizer
Placing Sod	$0.15 sq. ft.
Dump Truck	$35.00 per hour plus 1hr travel
Rubber Tire Frontend Loader/Backhoe	$45.00 per hour
Motor Grader	$60.00 per hour
Labor	$ 8.50 per hour
Lowboy & Trailer	$50.00 per hour

Minimum Charge of 4 Hours on Equipment

EROSION CONTROL SEEDING & MULCHING
9017 BERRY AVENUE
JACKSONVILLE, FLORIDA 32211
PHONE: (904) 721-2095

Trail Ridge Landfill, Inc.
5110 U.S. Hwy 301
P.O. Box 548
Baldwin, Florida 32224

March 8, 1994

Attn: Greg Mathes

Re: Sunbeam Landfill

Estimated Cost for working with gas project:

Backhoe	$80.00/hr..	70 hrs.	$5,600.00
Front End Loader	$60.00/hr.	70 hrs.	$4,200.00
Dozer	$60.00/hr.	70 hrs.	$4,200.00
Dump Truck	$35.00/hr.	70 hrs.	$2,450.00
Rubber Tire Front Loader Backhoe	$45.00/hr/	30hrs.	$1,350.00
Estimated Total			$ 17,800.00

Still need P.E.

Estimated Cost for working on settlement and erosion repairs:

Backhoe	$80.00/hr.	110 hrs.	$8,800.00
Front End Loader	$60.00/hr.	30 hrs.	$1,800.00
Dozer	$60.00/hr.	110 hrs.	$6,600.00
Off Road Truck	$80.00/hr.	110 hrs.	$8,800.00
Seed & Mulch	$835.00/acre	10 acres	$8,350.00
Sod	.10/sq. ft.	130,000 sq.ft.	$13,000.00
Tractor	$ 45.00/hr.	30 hrs.	$1,350.00
Estimated Total			$48,700.00

Still need P.E.

Estimated Cost for fence right of way clearing:

Dozer	$60.00/hr.	28 hrs.	$1,680.00
Loader	$60.00/hr.	6 hrs.	360.00
Estimated Total			$2,040.00

C. Cr. for fence

INVOICE

EROSION CONTROL
Seeding & Mulching
9017 Berry Ave.
Jacksonville, Florida 32211

No. 01851

INVOICE DATE: April 22, 1994

CUSTOMER'S ORDER NO.:

SOLD TO:

Trail Ridge Landfill, Inc.
5110 U.S. Hwy 301
Jacksonville, Florida
Attn: Greg Mathes

SHIP TO:

Sunbeam Landfill

SALESMAN	SHIPPED VIA	TERMS	F.O.B.
		DUE ON RECEIPT	

QTY. ORDERED	QTY. SHIPPED	DESCRIPTION	UNIT	AMOUNT
		Settlement and Erosion Repairs		
		Backhoe 122 hrs. @ $80.00 per hr.	$	9,760.00
		Dozer 156 " " $60.00 " "		9,360.00
	Front	End Loader 68 " " $60.00 " "		4,080.00
	Off	Road Truck 118 " " $80.00 " "		9,440.00
		Tractor 48 " " $45.00 " "		2,160.00
Rubber	Tire Front	Loader/Backhoe 18 " " $45.00 " "		810.00
		Replaced 18" pipe		461.44
		Bentinite Clay		602.23
		Labor 251 hrs. @ $ 8.50 per hr.		2,133.50
		Sod 117,600 sq. ft.		13,230.00
		Dump Truck 14 hrs. @ $35.00 per hr.		490.00
		Seed & Mulch 24 acres @ $835.00 per acre		20,040.00
		Amount Due	$	72,567.17
		Right of Way Clearing		
		Dozer 34 hrs. @ $60.00 per hr.	$	2,040.00
		Loader 19 " " " " "		1,140.00
	Off	Road Truck 9 " " $80.00 " "		720.00
		Labor 48 " " $ 8.50 " "		408.00
		Amount Due	$	4,308.00
		Grand Total Due	$	76,875.17

CL
GM

OSION CONTROL
eding & Mulching
017 Berry Ave.
Jacksonville, Florida 32211

JUN 3

No. 01860

INVOICE DATE
June 3, 1994
CUSTOMER'S ORDER NO.

SOLD TO:
Jacksonville Area Landfills
5110 U S Hwy 301
Jacksonville, Florida 32234
Attn: Karen Sewell

SHIP TO:
Sunbeam Landfill

SALESMAN	SHIPPED VIA	TERMS	F.O.B.
		DUE ON RECEIPT	

QTY. ORDERED	QTY. SHIPPED	DESCRIPTION	UNIT	AMOUNT
5-24		Loader 10½ hrs. @ $60.00 per hr.		$ 630.00
"		Move in		200.00
"		Move out		200.00
"		Truck # AFT71 9 hrs. @ $35.00 per hr.		315.00
5-25		Loader 8 hrs. @ $60.00 per hr.		480.00
"		Truck # AFT71 9 hrs. @ $35.00 per hr.		315.00
5-26		Trackhoe 10 hrs. @ $80.00 per hr.		800.00
"		Move in		200.00
"		Move out		200.00
5-30		Loader 6 hrs. @ $60.00 per hr.		360.00
"		Move in		200.00
"		Move Out		200.00
6- 3		Trackhoe 8 hrs. @ $80.00 per hr.		640.00
"		Move in		200.00
"		Move out		200.00
6- 4		Loader 8 hrs. @ $60.00 per hr.		480.00
"		Motor Grader 8 hrs. @ $60.00 per hr.		480.00
"		Move in (loader)		200.00
"		Move out (loader)		200.00
"		Move in (motor grader)		200.00
"		Move out (motor grader)		200.00
5-26		Dozer 10 hrs. @ $60.00 per hr.		600.00
		Seeding & Mulching 7½ acres @ $835.00 per acre		6,262.50
		Total Amount Due		$13,762.50

Invoice

[redacted] **LIMITED SERVICES AGREEM[redacted]**

PER No.

Agreement Date: November 29, 1993

OWNER Agreement No. SU93-RUST03

[redacted]

Name: RUST E & I
Street: 8375 Dix Ellis Trail, Suite 402
City/State/Zip: Jacksonville, FL 32256
Phone: 904-363-9999
Designated Rep: Tom Martin

[redacted]

Name: Refuse Services Inc
Street: 5110 U S Hwy 301
City/State/Zip: Baldwin, FL 32234
Phone: 904-289-9100
Designated Rep: Greg Mathas

[redacted] Sunbeam Landfill Gas Well Monitoring

[redacted] Jacksonville, FL

[redacted] Provide bi-weekly monitoring of the LGMS at Sunbeam Landfill. Adjust wellfield as necessary and provide reports to owner.

[redacted] Start Work Date: 12-01-93 Complete Work Date: 12-31-94

NOTE: Use attachments for additional milestone items, descriptions, dates and % contract price.

[redacted]

TASK NO./ COST ACCT	BID ITEMS/ DELIVERABLES (TASK DESCRIPTION)	ESTIMATED QUANTITIES (WITH UNITS)	BID UNIT PRICES	EXTENDED BID PRICES
1	Wellfield Maintenance	29	$1150	$37,350

RECEIVED
NOV 9 1993
TRAIL RIDGE

Owner's PMS No.

CONTRACT PRICE $ 37,350

NOTE: Use attachments for additional bid items (tasks), definitions and prices.

[redacted]

[redacted]

Lump Sum	[ ]
Unit Price	[ ]
Unit Price (Not to Exceed)	[X]
Cost Reimbursable	[ ]
Cost Reimbursable (Not to Exceed)	[ ]

IN WITNESS WHEREOF, the parties accept this Agreement.

[redacted]

By: _____ (Signature)

Its: Lloyd H. Stebbins, P.E., DEE, Operations Director (Authorized Agent's Typed Name and Title)

Date: _____

[redacted]

By: _____ (Signature)

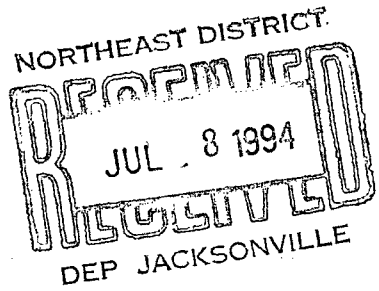
Its: Division President & General Manager (Authorized Agent's Typed Name and Title)

Date: 11/19/93

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

July 8, 1994



Ms. Mary C. Nogas, P.E.
Waste Management Section
Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Permit No. SC16-184444
Side Slope Closure Units 9, 10 & 11
ET&M No. E94-17-1

Dear Ms. Nogas:

On behalf of Trail Ridge Landfill, Inc., we hereby request a time extension for completion of the incremental closure (Side Slope Units 9, 10 & 11) at the subject facility. This extension is necessary due to rain delays. Attached is a letter from the Contractor regarding his rain delays. As you can see, the Contractor has been delayed 17.5 working days during the month of June and the normal number of rain days over 0.5 " of rainfall for the month of June is only 3 days. According to facility records, the site has experienced a total of 12.4 inches of rainfall during the month of June and the normal rainfall for the month is only 5.7 inches. These rain delays represent a month of work days and therefore, we request an extension from October 14, 1994 to November 14, 1994.

Should you have any questions regarding this extension, please contact me or Doug Miller.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P.E.
Project Manager

attachment

cc: Greg Mathes
Scott McCallister
Neal Rushing
John Coxwell
Pat Knapp

J. B. Coxwell Contracting, Inc.

NORTHEAST DISTRICT
RECEIVED
JUL 8 1994
DEP JACKSONVILLE

July 06, 1994

TRAIL RIDGE LANDFILL, INC.
C/O England-Thims & Miller, Inc.
3131 St. Johns Bluff Road South
Jacksonville, FL 32246

Attention: Ms. Juanitta Clem

RE: TRAIL RIDGE LANDFILL, PHASE II
SIDE SLOPE CLOSURE-Units 9, 10 and 11
JBCCI NO. 9411 RAIN DELAYS

Dear Ms. Clem:

We have encountered the following delays on the above project which we will define by the following categories:

1) RAIN OUT ON WORK DAYS.
2) RAIN ON NON WORK DAYS WHICH PREVENTED WORK UNTIL A PERIOD OF DRYING WOULD ALLOW EQUIPMENT ON THE SLOPES.
3) RECOVERY TIME TO REPAIR SLOPES TO A CONDITION EXISTING PRIOR TO THE RAIN DAMAGE.

The following is a list of dates grouped by categories 1, 2 and 3:

1)	JUNE 6, 7, 8, 17 AND 23 (½) =	4½ DAYS
2)	JUNE 9, 10, 11, 12, 13, 14, 15, 18, 24 AND 25 =	10 DAYS
3)	JUNE 19, 26 AND 27 =	3 DAYS
	TOTAL	17½ DAYS

The above dates indicate that 76% of the time during the period June 04, 1994 to June 27, 1994 the site was unable to be worked or progress. We request this time be considered if a time extension is required.

Thank you for your prompt attention to this matter

Very truly yours,

J. B. COXWELL CONTRACTING, INC.

Patrick J. Knapp
Project Manager

PJK/np
9411tim.ext

encl

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
JUN 13 1994
DER JACKSONVILLE

Trail Ridge Landfill, Inc.
F.D.E.R. Volume Report
May, 1994

I. D. Number: GM316P03099
Permit #SC116-18444

Trail Ridge Material Code	F.D.E.R. CODE	WASTE CODE	WASTE AMOUNT
NONE	100	0.00	TONS
NONE	105	0.00	TONS
3,4,23,70,85-90,92,93	110	9,274.27	TONS
5,6,9,10,11,22,59,71,50% OF 73-78,81,84,94,95	115	97.39	TONS
NONE	120	0.00	TONS
NONE	125	0.00	TONS
1,2,7,8,25,72,50% OF 76-78	130	42,665.49	TONS
27,29	135	0.00	TONS
		0.00	
12, 13, 25% OF 79 & 91	200	974.71	TONS
NONE	205	0.00	TONS
25% OF 79 & 91	210	0.00	TONS
NONE	215	0.00	TONS
14, & 50% OF 76,77,79,91	220	14.81	TONS
5% OF 79 & 91	225	0.00	TONS
15	230	757.45	TONS
NONE	235	0.00	TONS
NONE	295	0.00	TONS
		0.00	TONS
	300	0.00	TONS
	305	0.00	TONS
	310	0.00	TONS
	315	0.00	TONS
	320	0.00	TONS
	TOTALS	**53784.00**	

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S.W

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

DER Form # 17-711.900(4)
Form Title Waste Tire Processing Facility Annual Report
Effective Date February 22, 1989
DER Application No. _____ (Filled in by DER)

NORTHEAST DISTRICT
RECEIVED
JUN 6 1994
DEP JACKSONVILLE

RECEIVED
JUN 2 1994
EA, SOLID WASTE

Waste Tire Processing Facility Annual Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department annually.

1. Facility name: Trail Ridge Landfill, Inc.
2. Facility mailing address: 5110 U.S. Hwy 301
   City Baldwin County Duval Zip 32234
3. Facility permit number: Sc16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: Greg Mathes
6. Affiliation with facility: Division President & General Manager
7. Telephone number (if different from above): (_____) _____
8. The year covered by the report: 1993
9. Quantity of waste tires or processed tires, expressed in tons, received at the facility during the calendar year covered by the report (assume 100 tires per ton or 10 tires per cubic yard): 1,046.16 tons
10. Quantity of waste tires or processed tires, expressed in tons, shipped from the facility during the calendar year covered by the report (assume 100 tires per ton or 10 tires per cubic yard): 0 tons
11. Quantity of waste tires and processed tires, expressed in tons, located at the facility at the beginning of the calendar year covered by the report (assume 100 tires per ton or 10 tires per cubic yard): 0 tons
12. Describe the general disposition of waste tires, processed tires, and residuals shipped from the facility during the year covered by the report:
    - _____ % Shipped for disposal in a permitted solid waste management facility.
    - _____ % Shipped to retreader.
    - _____ % Shipped to another processing facility.
    - _____ % Shipped to fuel user.
    - _____ % Shipped to recycling end user. Describe type of recycling use: _____
    - _____ % Other. Explain. _____
13. Attach the most recent closure cost estimate prepared using the criteria in Rule 17-711.510, F.A.C. n/a
14. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

Gregory W. Mathes
Name of Authorized Agent

Signature of Authorized Agent

05/10/94
Date

Mail completed form to
the appropriate district office
listed below.

Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794
904-436-8300

Northeast District
3426 Bills Rd.
Jacksonville, Florida 32207
904-798-4200

Central District
3319 Maguire Blvd. Suite 232
Orlando, Florida 32803-3767
305-894-7555

Southwest District
4520 Oak Fair Blvd.
Tampa, Florida 33610-7347
813-623-5561

South District
2269 Bay St.
Fort Myers, Florida 33901-2896
813-332-2667

Southeast District
1900 S. Congress Ave., Suite A
West Palm Beach, Florida 33406
305-964-9668

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

DER Form # 17-711.900(4)
Form Title Waste Tire Processing Facility Annual Report
Effective Date February 22, 1989
DER Application No. (Filled in by DER)

NORTHEAST DISTRICT
RECEIVED
JUN 6 1994
DEP - JACKSONVILLE

Waste Tire Processing Facility Annual Report

Pursuant to Rule 17-711.530, Florida Administrative Code, the owner or operator of a waste tire processing facility shall submit the following information to the Department annually.

1. Facility name: Trail Ridge Landfill, Inc.
2. Facility mailing address: 5110 U.S. Hwy 301
   City Baldwin County FL Zip 32234
3. Facility permit number: SC-16-184444
4. Facility telephone number: (904) 289-9100
5. Authorized person preparing report: Greg Mathes
6. Affiliation with facility: Division President & General Manager
7. Telephone number (if different from above): ( )
8. The ~~year~~ quarter covered by the report: First Quarter 1994
9. Quantity of waste tires or processed tires, expressed in tons, received at the facility during the calendar year covered by the report (assume 100 tires per ton or 10 tires per cubic yard): 360.25 tons
10. Quantity of waste tires or processed tires, expressed in tons, shipped from the facility during the calendar year covered by the report (assume 100 tires per ton or 10 tires per cubic yard): 0 tons
11. Quantity of waste tires and processed tires, expressed in tons, located at the facility at the beginning of the calendar year covered by the report (assume 100 tires per ton or 10 tires per cubic yard): 0 tons
12. Describe the general disposition of waste tires, processed tires, and residuals shipped from the facility during the year covered by the report:
    - ____ % Shipped for disposal in a permitted solid waste management facility.
    - ____ % Shipped to retreader.
    - ____ % Shipped to another processing facility.
    - ____ % Shipped to fuel user.
    - ____ % Shipped to recycling end user. Describe type of recycling use: ____
    - ____ % Other. Explain. ____
13. Attach the most recent closure cost estimate prepared using the criteria in Rule 17-711.510, F.A.C. n/a
14. Certification:

To the best of my knowledge and belief, I certify the information provided in this report is true, accurate and complete.

Gregory W. Mathes		05/18/94
Name of Authorized Agent	Signature of Authorized Agent	Date

Mail completed form to the appropriate district office listed below.

Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794
904-436-8300

Northeast District
3426 Bills Rd.
Jacksonville, Florida 32207
904-798-4200

Central District
3319 Maguire Blvd. Suite 232
Orlando, Florida 32803-3767
305-894-7555

Southwest District
4520 Oak Fair Blvd.
Tampa, Florida 33610-7347
813-623-5561

South District
2269 Bay St.
Fort Myers, Florida 33901-2896
813-332-2667

Southeast District
1900 S. Congress Ave., Suite A
West Palm Beach, Florida 33406
305-964-9668

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
JUN 7 1994
DEP-JACKSONVILLE

June 3, 1994

Ms. Mary C. Nogas, P.E.
Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

RE: **Trail Ridge Landfill**
Side Slope Closure

Dear Ms. Nogas,

This letter is a follow-up to the conversation we had yesterday concerning inspection and approval of the side slope construction that has been completed at the site. I would like to confirm in writing that it is the desire of Trail Ridge Landfill, Inc. to have the DEP inspect/approve each increment of closure as they are completed. We plan to submit a Certification of Construction Completion for each increment of closure. The first submittal included the Certification and the back-up QA/QC documents, as well as, the As-Built drawing for Side Slope Units 5,6,7,(partial) and 8 (partial). This was submitted on behalf of Trail Ridge Landfill, Inc. by England, Thims & Miller, Inc. on February 3, 1994.

Please let me know if our plans to follow this procedure in the future is not acceptable to the Department. If this procedure is acceptable, please let me know when you would like to schedule the inspection.

We would be glad to discuss this matter in further detail at your convenience.

Your cooperation in this matter is appreciated.

Sincerely,

Scott McCallister
Senior Environmental Engineer

SM:mm

cc: Greg Mathes
Doug Miller

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OPH 5-17-94

A Waste Management Company

Trail Ridge Landfill, Inc.
F.D.E.R. Volume Report
April, 1994

I. D. Number: GM3116P03090
Permit #SC116-18444

Trail Ridge Material Code	F.D.E.R. CODE	WASTE CODE	WASTE AMOUNT
NONE	100	0.00	TONS
NONE	105	0.00	TONS
3,4,23,70,85-90,92,93	110	21,319.25	TONS
5,6,9,10,11,22,59,71,50% OF 73-78,81,84,94,95	115	68.08	TONS
NONE	120	0.00	TONS
NONE	125	0.00	TONS
1,2,7,8,25,72,50% OF 76-78	130	29,034.96	TONS
27,29	135	0.00	TONS
		0.00	
12, 13, 25% OF 79 & 91	200	1,035.20	TONS
NONE	205	0.00	TONS
25% OF 79 & 91	210	0.00	TONS
NONE	215	0.00	TONS
14, & 50% OF 76,77,79,91	220	14.41	TONS
5% OF 79 & 91	225	0.00	TONS
15	230	676.71	TONS
NONE	235	0.00	TONS
NONE	295	0.00	TONS
		0.00	TONS
	300	0.00	TONS
	305	0.00	TONS
	310	0.00	TONS
	315	0.00	TONS
	320	0.00	TONS
	TOTALS	**52149.00**	

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England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

May 17, 1994

Ms. Mary C. Nogas, P.E.
Waste Management Section
Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

NORTHEAST DISTRICT
RECEIVED
MAY 18 1994
DEP - JACKSONVILLE

Reference: Trail Ridge Landfill
Permit No. SC16-184444
Side Slope Closure Units 9, 10 and 11
ET&M No. E94-17

Dear Ms. Nogas:

By this letter and on behalf of Trail Ridge Landfill, Inc., we hereby notify the Department that the closure construction of Side Slope Units 9, 10 and 11 as required by Specific Condition 34 of the referenced permit shall begin on May 23, 1994. The parties involved in the construction are as follows:

Construction Contractor - J. B. Coxwell Contracting, Inc.
General Quality Assurance Engineer - Juanitta Bader Clem, P.E.
Soils Quality Assurance Engineer - James Horton, P.E.
General/Soils Quality Control Monitor - Ken Bunnell

As in the previous closure construction, the field density of the clay layer shall be established by the Soils QA Engineer based upon 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). Thus, the field density will be based upon the clay material to be used in the project.

Should you have any questions regarding this construction, please give me a call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P.E.
Project Manager

cc: Greg Mathes
Scott McCallister
Neil Rushing

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
~~P.O. Box 548~~
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
MAY - 5 1994
DEP - JACKSONVILLE

May 3, 1994

Ms. Mary C. Nogas, P.E.
Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

Re: **Trail Ridge Landfill**
Permit No. SC16-184444
DEP File No. 236034
Duval County - Solid Waste

Dear Ms. Nogas,

Enclosed is information concerning the flammability or "self extinguishing" properties of three different textile materials that we are considering for use as an alternate daily cover. The manufacturer tells us that there are several different types of tests for determining flammability of a textile. The data enclosed shows that three different textiles were subject to two different test procedures and all of the textiles passed. NFPA 701 uses methane gas as a fuel and therefore, was thought to be a reasonable test for our purposes.

Please let me know if you have any questions or concerns after you have had a chance to review this information. If you approve of the test results, we would obviously ask the manufacturer to construct the tarps using one of these three materials. If you would like to speak with the manufacturer, feel free to call Mr. Peter Stevenson from ETP at the number listed.

Sincerely,

Scott McCallister
Senior Environmental Engineer

SM:mm

cc: Greg Mathes

c:\wp51\scott\Flame.nog

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NORTHEAST DISTRICT
RECEIVED
MAY - 5 1994
DEP - JACKSONVILLE

TELEFAX MESSAGE TO: Greg Mathes
 # OF PAGES 8

ETP Engineered Textile Products, Inc

Geotextile/Construction Products Division, P.O. Box 347, Easley, SC 29641

fabricated geosynthetic products: engineered to specification

803-855-0619 **Fax 803-859-1698**

April 11, 1994

Mr. Greg Mathes
Waste Management
Fax 904 289 9013

Dear Greg:

As we discussed by phone there are several fabrics that are fire retardant and you will be able to choose those covers that meet your specific needs. I hope the following information will assist you in presenting your case.

First a definition: covers and the fabrics they are made of are relatively thin membranes. It is misleading to consider them as fire retardant or fire proof. (As you know, anything can be made to burn if the temperature is high enough). In Alternate Daily Covers and most other textile applications, the correct characterization is whether the material is self extinguishing. Self extinguishing means that the material will not continue to burn when an external source of flame (ignition) is removed.

The following reports present two separate test methods and the results of the tests when run on a set of fabrics that are used for ADC type applications. Either of these test methods (or one of several other test methods) can be performed on any self extinguishing cover material.

The fabrics tested in these reports are tightly woven monofilament fiber from polypropylene polymer.

It seems to me that you need to persuade the regulators to specify a test method and then to allow you to purchase Alternate Daily Covers that meet the standards set by the method.

Please let me know what the next step is. We stand ready to assist you in any way we can.

Yours truly,

Peter E. Stevenson

United States Testing Company, Inc.

5555 TELEGRAPH ROAD • LOS ANGELES, CALIFORNIA 90040 • 213-723-7181 • Fax: 213-722-8961

REPORT OF TEST

LUMITE®
Div. of Synthetic Industries, Inc.
P.O. Box 977/2100 Atlanta Highway
Gainesville, GA 30503

190551-1
2/12/93

SUBJECT - FLAMMABILITY OF COATED FABRICS

REFERENCE:

1. Client's letter dated January 27, 1993 and confirmation dated February 2, 1993 per Arthur D. Ellington, Jr.

2. Client's Purchase Order Number 06404 dated January 27, 1993 signed by Larry Bateman.

SAMPLE IDENTIFICATION:

Three samples of coated fabric submitted and identified by the Client as:

A) 52048000 (white)
B) 52049000 (tan)
C) 52051375 (green)

TEST REQUEST AND METHOD:

Flammability per Department of Transportation Federal Motor Vehicle Safety Standard (FMVSS) No. 302 "Flammability of Interior Materials", as specified in the Code of Federal Regulations, Title 49, Transportation, Section 571.302.

Signed for the Company:

Norma C. Trinidad

N. C. Trinidad
Assistant Manager
Mat./Tex. Dept.

Alice Nishimoto
Associate Technologist

SGS Member of the SGS Group (Société Générale de Surveillance)

• Biology • Chemistry • Environmental • Materials • Facilities in Principal Cities •

UNITED STATES TESTING COMPANY, INC. REPORTS AND LETTERS ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED AND THEY AND THE NAME OF THE UNITED STATES TESTING COMPANY, INC. DATA, SEALS OR INSIGNIA ARE NOT TO BE USED UNDER ANY CIRCUMSTANCES IN ADVERTISING TO THE GENERAL PUBLIC AND THEIR COMMUNICATION TO ANY OTHERS OR THE USE OF THE NAME OF UNITED STATES TESTING COMPANY, INC. MAY RECEIVE OUR PRIOR WRITTEN APPROVAL. OUR REPORTS APPLY ONLY TO THE STANDARDS OR PROCEDURES IDENTIFIED, TO THE TESTS CONDUCTED, AND TO THE SAMPLE(S) TESTED AND/OR INSPECTIONS MADE. UNLESS OTHERWISE SPECIFIED THE TEST AND/OR INSPECTION RESULTS ARE NOT INDICATIVE OR REPRESENTATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN OR OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS AND NOTHING CONTAINED IN OUR REPORTS SHALL BE DEEMED TO IMPLY OR MEAN THAT UNITED STATES TESTING COMPANY, INC. CONDUCTS ANY QUALITY CONTROL PROGRAM FOR THE CLIENT TO WHOM THE REPORT IS ISSUED. SAMPLES NOT DESTROYED IN TESTING ARE RETAINED A MAXIMUM OF THIRTY DAYS AT WHICH TIME THEY MAY BE SHIPPED BACK TO THE CLIENT.

United States Testing Company, Inc.

LUMITE®

190551-1
2/12/93

TEST RESULTS:

Flammability per FMVSS 302
Rate of Burning

Sample	Specimen	(Inches/Minute)	Compliance
A) 52048000 (White)	1	SE (0.00"/Min.)	
	2	SE (0.00"/Min.)	
	3	SE (0.00"/Min.)	
	4	SE (0.00"/Min.)	PASS
B) 52049000 (Tan)	1	SE (0.00"/Min.)	
	2	SE (0.00"/Min.)	
	3	SE (0.00"/Min.)	
	[illegible]	[illegible]	PASS
C) 52051375 (Green)	1	SE (0.00"/Min.)	
	2	SE (0.00"/Min.)	
	3	SE (0.00"/Min.)	
	4	SE (0.00"/Min.)	PASS

Requirements:

Any portion (e.g., and individual test specimen) of a single or composite material which is within 1/2 inch of the occupant compartment air space shall not burn, nor transmit a flame front across its surface, at a rate of more than 4 inches per minute.

Legend:

* SE (0.0"/Minute)-Self-Extinguishing (SE). The material ignites on either surface, but the flame extinguishes itself before reaching the first scribed line.

Appr'd by MCJ

United States Testing Company, Inc.

5555 TELEGRAPH ROAD • LOS ANGELES, CALIFORNIA 90040 • 213-723-7161 • Fax: 213-722-8251

REPORT OF TEST

Lumite
Division of Synthetic Industries, Inc.
P.O. Box 977
2100 Atlanta Hwy.
Gainesville, GA 30503

190621-1
3/2/93

SUBJECT: Flammability of Coated Fabrics

REFERENCE:

Client's confirmation dated February 25, 1993 showing P.O. No. 6407 signed by Arthur D. Ellington, Jr.

SAMPLE IDENTIFICATION:

Three samples of coated fabric submitted and identified by the Client as:

A. 52048000 (white)
B. 52049000 (tan)
C. 52051375 (green)

TEST REQUEST AND METHOD:

Flammability per NFPA 701, "Standard Method of Fire Tests for Flame Resistant Textiles and Films", 1989 Edition, Small Scale Test. The sample was tested in the original condition only.

Conditioning: Oven Exposure @140°F for 1 hour prior to testing.
Flame Applied: 12 seconds
Fuel: Methane Gas

Signed for the Company

Norma C. Trinidad
N.C. Trinidad
Asst. Mgr. Mat./Tex. Dept.

B. Dewayne Kidd
B. Dewayne Kidd
Asst. Vice President
Mgr. Mat./Tex. Dept.

SGS Member of the SGS Group (Société Générale de Surveillance)

• Biology • Chemistry • Environmental • Materials • Facilities in Principal Cities •

UNITED STATES TESTING COMPANY, INC. REPORTS AND LETTERS ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED AND THEY AND THE NAME OF THE UNITED STATES TESTING COMPANY, INC. OR ITS SEALS OR INSIGNIA ARE NOT TO BE USED UNDER ANY CIRCUMSTANCE IN ADVERTISING TO THE GENERAL PUBLIC AND THEIR COMMUNICATION TO ANY OTHERS OR THE USE OF THE NAME OF UNITED STATES TESTING COMPANY, INC. MUST RECEIVE OUR PRIOR WRITTEN APPROVAL. OUR REPORTS APPLY ONLY TO THE STANDARDS OR PROCEDURES IDENTIFIED TO THE TESTS CONDUCTED AND TO THE SAMPLE(S) TESTED AND/OR INSPECTIONS MADE. UNLESS OTHERWISE SPECIFIED, THE TEST AND/OR INSPECTION RESULTS ARE NOT INDICATIVE OR REPRESENTATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN OR OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS AND NOTHING CONTAINED IN OUR REPORTS SHALL BE DEEMED TO IMPLY OR MEAN THAT UNITED STATES TESTING COMPANY, INC. CONDUCTS ANY QUALITY CONTROL PROGRAM FOR THE CLIENT TO WHOM THE REPORT IS ISSUED. SAMPLES NOT DESTROYED IN TESTING ARE RETAINED A MAXIMUM OF THIRTY DAYS AT WHICH TIME THEY ARE DISPOSED OF OR RETURNED TO THE CLIENT.

United States Testing Company, Inc.

Lumite 190621-1

TEST REQUEST AND METHOD: (Cont.)

Requirement:

	For Use as Curtains and Draperies (W_1 & W_2)	For Other Uses (W_1)	For Other Uses (W_2)
A. Afterflame, Seconds -Individual specimen	N/A	2.0	2.0
B. Char Length, Inches -Individual specimen	7.5	6.5	5.5
-Average of 10 specimens	6.5	5.5	4.5
C. Drippings and Broken Fragments, Seconds -Individual specimen	N/A	0.0	0.0
-Average of 10 specimens	2.0	N/A	N/A

Legend:

W_1 - For fabric weights of 3.0-6.0 oz./sq.yd.
W_2 - For fabric weights of >6.0-10.0 oz./sq.yd.

NOTE:

Actual Fabric Weights of Samples: (Reference: USTC Report No. 190551).

-Sample #5204800 (White): 6.60 oz./sq.yd.
-Sample #5204900 (Tan): 6.75 oz./sq.yd.
-Sample #5205175 (Green): 6.90 oz./sq.yd.

Approved by: BWL

United States Testing Company, Inc.

Lumite 190621-1

TABLE I

Flammability per NFPA 701-1989 Edition
Small Scale Test, Original Condition
Sample: #5204800 - White

Direction & Specimen No.	Afterflame (Seconds)	Drip Exting. & Afterglow (Seconds)	Char Length (Inches)
Direction 1			
1*	0.0	0.0	3.9
2*	0.0	0.0	4.1
3*	0.0	0.0	3.3
4	0.0	0.0	3.0
5	0.0	0.0	4.6
Direction 2			
6*	0.0	0.0	3.0
7*	0.0	0.0	4.2
8*	0.0	0.0	3.6
9	0.0	0.0	4.2
10	0.0	0.0	3.1
Avg.	N/A	0.0	3.7

NOTE:

*Test results for specimens Nos. 1, 2, 3, 6, 7, and 8 are also listed under USTC Report No. 190551-2 dated February 12, 1993.

COMPLIANCE:

Passed- Flammability requirements of the NFPA 701 (Small Scale Test) when tested for use as curtains and draperies and other uses.

Approved by: BBC

United States Testing Company, Inc.

Lumite 190621-1

TABLE II

Flammability per NFPA 701-1989 Edition
Small Scale Test, Original Condition
Sample: #5204900 - Tan

Direction & Specimen No.	Afterflame (Seconds)	Drip Exting. & Afterglow (Seconds)	Char Length (Inches)
Direction 1			
1*	0.0	0.0	4.9
2*	0.0	0.0	4.9
3*	0.0	0.0	5.0
4	0.0	0.0	4.9
5	0.0	0.0	4.8
Direction 2			
6*	0.0	0.0	4.4
7*	0.0	0.0	3.3
8*	0.0	0.0	4.1
9	0.0	0.0	4.4
10	0.0	0.0	3.4
Avg.	N/A	0.0	4.4

NOTE:

*Test results for specimens Nos. 1, 2, 3, 6, 7, and 8 are also listed under USTC Report No. 190551-2 dated February 12, 1993.

COMPLIANCE:

Passed- Flammability requirements of the NFPA 701 (Small Scale Test) when tested for use as curtains and draperies and other uses.

Approved by: BDC

United States Testing Company, Inc.

Lumite 190621-1

TABLE III

Flammability per NFPA 701-1989 Edition
Small Scale Test, Original Condition
Sample: #52051375 - Green

Direction & Specimen No.	Afterflame (Seconds)	Drip Exting. & Afterglow (Seconds)	Char Length (Inches)
Direction 1			
1*	0.0	0.0	4.6
2*	0.0	0.0	3.6
3*	0.0	0.0	4.4
4	0.0	0.0	4.7
5	0.0	0.0	4.3
Direction 2			
6*	0.0	0.0	2.8
7*	0.0	0.0	2.8
8*	0.0	0.0	3.4
9	0.0	0.0	5.2
10	0.0	0.0	3.8
Avg.	N/A	0.0	4.0

NOTE:

*Test results for specimens Nos. 1, 2, 3, 6, 7, and 8 are also listed under USTC Report No. 190551-2 dated February 12, 1993.

CONPLIANCE:

Passed- Flammability requirements of the NFPA 701 (Small Scale Test) when tested for use as curtains and draperies and

Approved by: _____

SW

Jacksonville Area Landfills
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100 • FAX: 904/289-9013

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
MAR 22 1994
DEP-JACKSONVILLE

February 24, 1994

Dear Vendor,

This is to notify you that all invoices for Trail Ridge Landfill, Rosemary Hill Landfill, Trinity Landfill and Sunbeam Landfill should be sent to the following address:

JACKSONVILLE AREA LANDFILLS
5110 U.S. Hwy. 301
Jacksonville, FL 32234

Attn: Karen Sewell

If any further information is needed please contact me at 904/289-9100.

Thank you.

Sincerely,

Karen Sewell
Accounting Clerk

KS:mm

Printed on recycled paper.

CHARLES W. ARNOLD, JR.
GENERAL COUNSEL

OFFICE OF
GENERAL COUNSEL
CITY OF JACKSONVILLE
6th FLOOR, CITY HALL
220 EAST BAY STREET
JACKSONVILLE, FLORIDA 32202

TEL (904) 630-1300
FAX (904) 630-1316

RECEIVED
NE DISTRICT
JACKSONVILLE
MAR 14 '94
FLA DEPT OF
ENVIRONMENTAL
PROTECTION

March 11, 1994

Pls Done copy + send copy to You. 3/14/94 MF

Mr. Michael Fitzsimmons
Environmental Administrator
Waste Management Program
Florida Department of Environmental Protection, Northeast District
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7577

RE: Trail Ridge Landfill

Dear Mr. Fitzsimmons:

As we discussed at our meeting yesterday, enclosed is a copy of the City's agreement with Baker County on the use of Trail Ridge. You were particularly concerned about the City's contribution to Baker County to assist in funding the closure of its landfill.

Attached is Resolution 91-454-331 approving the Interlocal Agreement with Baker County. Please note numbered paragraph 3 on page 3 of Exhibit "A" to the Resolution which provides, "The City shall pay to Baker County the sum of $1,300,000.00 to assist in funding the closure of its landfill."

Hopefully, this responds to your inquiry. If you have any other questions, please call me. My telephone number is 630-1857.

Sincerely,

Gregory K. Radlinski
Assistant General Counsel
Environmental Law Division

enc.

cc:
GKR/lou/fitztrail.rid

Introduced by the Council President at the request of the Mayor:

RESOLUTION 91-954-331

A RESOLUTION APPROVING AN AGREEMENT WITH BAKER COUNTY CONCERNING TRAIL RIDGE LANDFILL; AUTHORIZING THE MAYOR AND THE CORPORATION SECRETARY TO ENTER INTO THE FIRST AMENDMENT TO LANDFILL DESIGN AND CONSTRUCTION AGREEMENT BETWEEN THE CITY OF JACKSONVILLE AND TRAIL RIDGE LANDFILL, INC.; AUTHORIZING THE MAYOR AND CORPORATION SECRETARY TO ENTER INTO, WITH BAKER COUNTY, A MEMORANDUM OF AGREEMENT FOR IMPLEMENTATION OF GOOD NEIGHBOR POLICY AND AN AGREEMENT OF IMPLEMENTATION OF GOOD NEIGHBOR POLICY FOR TRAIL RIDGE LANDFILL; PROVIDING AN EFFECTIVE DATE.

BE IT RESOLVED by the Council of the City of Jacksonville:

Section 1. The Mayor and Corporation Secretary are hereby authorized to enter into an agreement with Baker County concerning Trail Ridge Landfill and other solid waste issues. A copy of the agreement is attached hereto as Exhibit A and incorporated by this reference.

Section 2. The Mayor and Corporation Secretary are hereby authorized to enter into the First Amendment to Landfill Design and Construction Agreement between City of Jacksonville and Trail Ridge Landfill, Inc., in substantially the form attached hereto as Exhibit B and incorporated by this reference.

Section 3. The Mayor and Corporation Secretary are hereby authorized to enter into a Memorandum of Agreement for Implementation of Good Neighbor Policy with

Baker County in substantially the form attached hereto as Exhibit C and incorporated by this reference.

Section 4. The Mayor and Corporation Secretary are hereby authorized to enter into an agreement entitled Implementation of Good Neighbor Policy for Trail Ridge Landfill in substantially the form attached hereto as Exhibit D and incorporated by this reference.

Section 5. This resolution shall become effective upon signature by the Mayor or upon becoming effective without the Mayor's signature.

Form approved:

Stephen Michael Dunbar
Assistant Counsel

SD/lmt 8/13/91

EXHIBIT A

INTERLOCAL AGREEMENT

WHEREAS, the City of Jacksonville, Florida ("the City") and Baker County have common responsibilities to provide safe, economic disposal of solid waste; and

WHEREAS, the Northeast Florida Regional Planning Council "Good Neighbor Policy" encourages neighboring political jurisdictions to explore joint use of sanitary landfills located within two miles of their political boundaries; and

WHEREAS, the City has selected the Trail Ridge Landfill site adjacent to Baker County to provide long-term solid waste disposal for Duval County; and

WHEREAS, there are significant economic and environmental benefits that accrue to both the City and Baker County by the by cooperative use of a single sanitary landfill when feasible; and

WHEREAS, the City and Baker County desire to cooperate to achieve these environmental and economic benefits.

NOW, THEREFORE, BE IT RESOLVED that the City of Jacksonville and Baker County agree as follows:

1. The City shall accept or cause to be accepted solid waste generated in Baker County for disposal at the Trail Ridge Landfill; and Baker County or any

municipality therein may deliver nonhazardous solid waste generated in Baker County for disposal to Trail Ridge Landfill.

2. Baker County acknowledges that the City will own the Trail Ridge Landfill but that said facility will be operated by a private contractor. The Agreement between the City and the contractor is comprehensive in nature and attempts to anticipate most contingencies. The City's obligation to Baker County is to provide the same service to Baker County and any municipality therein made available to it through the performance of its contractor. If the City places solid waste into said facility, then Baker County or any municipality therein shall be allowed to place the same type of waste into said facility in accordance with the terms of this Interlocal Agreement. If, however, any class of solid waste from the City is excluded due to regulatory agency action, injunction, Court Order, disaster, permit cancellation or revocation, contract breach or other unforeseen cause, and as a result of such, the Trail Ridge Landfill is not available to the City for that class of solid waste, then the City shall have no obligation to provide disposal for that class of solid waste generated in Baker County. The duty of

the City set forth in this paragraph shall be binding on any successor or transferee in the event that the City transfers its ownership interest in the Trail Ridge Landfill.

3. The City shall pay to Baker County the sum of $1,300,000.00 to assist in funding the closure of its landfill.

4. The amount of the tipping fee at the Trail Ridge Landfill shall be equal to the actual cost incurred by the City in utilizing the Trail Ridge Landfill. Therefore, at the outset of this Agreement, Baker County shall actually pay the City a rate which is the result of the following formula: operation expense ($8.39) + capital cost (estimated $5.30) plus the City's operation expenses ($0.42) plus closure expense ($1.05) = disposal fee. The per ton rate shall be adjusted according to the formulas and provisions set forth in the Landfill Operation and Construction Agreements between the City and Trail Ridge Landfill, Inc. (the "Agreement"). Baker County shall be subject to the same scheduled and unscheduled adjustments to said rate as the City including, but not limited to, those resulting from changes in the law, changes in closure escrow requirements, changes in capital

financing costs, and annual operation rate adjustments. Payments to the City shall be due 30 days from the date of the invoice.

5. Baker County and all municipalities therein shall be subject to the same terms, conditions and charges regarding unacceptable and special waste as the City.

6. The City shall allow Baker County and all municipalities therein to deliver recyclable materials collected within Baker County to the City's materials recovery facility. The City will process and market said recyclable materials for Baker County and any municipality therein under the same terms and conditions available to the City.

7. The City, through its Department of Public Utilities will, if requested, provide a reasonable amount of technical assistance to Baker County and the municipalities therein in the establishment and implementation of their recycling programs. Said assistance shall include "time and expertise" of the City staff, but shall not include any capital expenditures or manpower for actual implementation.

8. The City and Baker County hereby acknowledge the long-term environmental and financial benefits of the shared regional solid waste disposal facility, Trail Ridge

Landfill. The life expectancy for the landfill is difficult to project due to possible variations in tonnage requirements and/or alternate disposal sites or technologies. Current estimates run from 20 to 26 years, based on the delivery of 1,800 tons per day. However, pursuant to the terms of their contract with the City, Trail Ridge Landfill, Inc. must, at all times, be capable of taking 3,000 tons per day. Further, the rate structure negotiated by the City is such that the most favorable rate to the City begins at 1,800 tons per day. In recognition of the long-term benefits of a shared facility, Baker County agrees to allow the landfill facility to be expanded up to, but not over, the county line between Duval and Baker Counties if Baker County disposes of any solid waste in Trail Ridge Landfill.

9. There shall be no expansion of the Trail Ridge Landfill into Baker County beyond that described in paragraph 8 above without further authorization from the Baker County Commission. The parties hereto agree that in the event this covenant is breached, Baker County would have no adequate remedy at Law and would, therefore, be entitled to injunctive relief in the event of any such breach.

10. The Agreement requires Trail Ridge Landfill, Inc., to provide a ten million dollar environmental liability insurance policy. The City will require that Baker County and the owners of any residence located within one thousand yards of that part of S.R. 228 lying between Interstate 10 and the Duval/Baker County line be named insureds on that $10 million environmental liability insurance policy.

11. Upon execution of this Agreement, Baker County hereby agrees that it will cause to be filed with the Division of Administrative Hearings the Notice of Voluntary Dismissal attached hereto. Baker County agrees that it will no longer contest or object to the issuance of any federal, state or local permit, authorization or certificate, or any modifications or renewals thereof, required by the City of Jacksonville or Trail Ridge to design, construct, operate and close the Trail Ridge Landfill. Baker County agrees that it will not take or support any action which would have the affect of hindering or delaying permitting, constructing or operation of the Trail Ridge Landfill. The parties hereto agree that in the event that any of these covenants are breached by Baker County, neither the City nor Trail Ridge would have an adequate remedy at law and would, therefore, be entitled to injunctive relief in the event of any such breach.

12. The benefits and burdens of Paragraphs 1, 2, 4, 5 and 10 of this Interlocal Agreement are contingent upon (a) All permits being issued for the construction and operation of said facility and (b) A Notice to Proceed being issued by the City to Trail Ridge Landfill, Inc., for the landfill's construction.

13. This Agreement shall continue for the life of the Trail Ridge Landfill. The City has no duty to expand the Trail Ridge Landfill beyond its initial design parameters.

IN WITNESS WHEREOF, the parties have executed this Interlocal Agreement as of this ___ day of _____, 1991.

APPROVED AS TO LEGAL FORM:

_____
Baker County Attorney

BAKER COUNTY

By _____
Its Chairman of the Board of County Commissioners

_____
Clerk Deputy Clerk

CITY OF JACKSONVILLE

_____
General Counsel

By _____
Its Mayor

Attest: _____
Its Corporation Secretary

Exhibit B

**FIRST AMENDMENT TO
LANDFILL DESIGN AND CONSTRUCTION AGREEMENT
BETWEEN THE CITY OF JACKSONVILLE AND
TRAIL RIDGE LANDFILL, INC.**

THIS FIRST AMENDMENT TO AGREEMENT, made and entered into in duplicate this _____ day of _____, 1991, by and between the City of Jacksonville, a municipal corporation in Duval County, Florida, hereinafter referred to as the **CITY**, and Trail Ridge Landfill, Inc., a subsidiary of Waste Management, Inc., hereinafter referred to as the **CONTRACTOR**;

WITNESSETH:

WHEREAS, the parties entered into a certain Landfill Design and Construction Agreement dated the 26th day of June, 1991; and

WHEREAS, the parties wish to amend the said Agreement to provide that the **CONTRACTOR** shall pay the sum of **ONE MILLION THREE HUNDRED THOUSAND DOLLARS AND NO CENTS ($1,300,000.00)** to Baker County, Florida on August 15, 1991 and to further provide that the **CITY** shall reimburse the **CONTRACTOR** for the said sum together with simple interest at the rate of **TEN PERCENT (10%)** per annum if and when the closing provided for by the said Agreement occurs;

NOW THEREFORE, for and in consideration of the premises and of the mutual covenants and agreements hereinafter contained, the parties agree as follows:

1. The said Agreement is hereby amended by the addition of a new sub-section 2.4(5), to read as follows:

> "(5) Payment to Baker County, Florida: The **CONTRACTOR** shall pay the sum of **ONE MILLION THREE HUNDRED THOUSAND DOLLARS AND NO CENTS ($1,300,000.00)** to Baker County, Florida on August 15, 1991."

2. The said Agreement is hereby amended by the addition of a new sub-section 5.2.7, to read as follows:

> "5.2.7 Reimbursement for Payment to Baker County, Florida. The lump sum amount of **ONE MILLION THREE HUNDRED THOUSAND DOLLARS AND NO CENTS ($1,300,000.00)**."

3. The said Agreement is hereby amended by the addition of a new sub-section 8.1(c), to read as follows:

> "(c) In addition to all other amounts to be paid at closing, the CITY shall pay the CONTRACTOR the amount stated in Paragraph 5.2.7 together with simple interest at the rate of TEN PERCENT (10%) per annum from August 15, 1991 through the date of closing."

SAVE AND EXCEPT as hereby expressly amended, all terms and conditions of the original Agreement dated the 26th day of June, 1991 shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have caused this First Amendment to Agreement to be duly executed as of the date first above written.

ATTEST:

Linnie C. Williams
Corporation Secretary

CITY OF JACKSONVILLE

Ed Austin
Mayor

ATTEST:

By_____
Its

TRAIL RIDGE LANDFILL, INC.

By_____
Its

In compliance with the Charter of the City of Jacksonville, I do certify that there is an unexpended, unencumbered and unimpounded balance in the appropriation sufficient to cover the foregoing Amendment and that provision has been made for the payment of the moneys provided therein to be paid. Said certification is made subject to issuance and sale of the Financing referred to in Paragraph 2.4(4) of the Agreement between the parties dated the 26th day of June, 1991.

Director of Finance
City of Jacksonville

Form approved:

Assistant Counsel
City of Jacksonville

GEE:ewh:8/13/91

EXHIBIT C

MEMORANDUM OF AGREEMENT

FOR

IMPLEMENTATION OF GOOD NEIGHBOR POLICY

WHEREAS, development within the proximity of a local government's jurisdiction can result in impacts, or opportunities which cross jurisdictional boundaries; and

WHEREAS, the City of Jacksonville (and Duval County, both being hereinafter referred to as "the City") and Baker County desire to coordinate activities which may mutually impact their jurisdictions; and

WHEREAS, the Local Government Comprehensive Plans of the City and Baker County contain policies which require coordination of projects which could be considered to be locally undesirable land uses within two miles of the boundary of an adjacent local government; and

WHEREAS, The Northeast Florida Comprehensive Regional Policy plan contains goals and policies relating to intergovernmental coordination of the siting of locally undesirable land uses within two miles of an adjacent local government's boundary; and

WHEREAS, the City and Baker County desire to outline procedures, responsibilities and guidelines for carrying out this coordination function;

NOW, THEREFORE, the City and Baker County agree to the following:

1. SITING PUBLIC FACILITIES

A. Should the City or Baker County determine that it may be necessary to site a locally undesirable land use within their respective jurisdictions, and if any potential site under consideration lies within two miles of the boundary of the adjacent local government, the siting local government will inform the adjacent local government, by letter, prior to site determination and request input, coordination and cooperation from the adjacent local government. Communications at this stage should be limited to coordination efforts which might result in shared facilities if the adjacent local government is also in need of such facility, or may need such facilities in the near future.

B. Once potential sites are determined which are within two miles of Duval and Baker Counties' borders, a meeting will be held between the siting local government and the adjacent local government to discuss issues and concerns. At this time, the potential for shared facilities might be discussed in addition to any other concerns that the local governments may have concerning potential sites.

C. Should a site within two miles of Duval County or Baker County be determined to be the preferred site, a formal meeting must be held between the local governments to

discuss coordination and impact mitigation across jurisdictional boundaries.

1. The formal meeting must include the chief elected official of each local government or their appointed representative.

2. A formal written agreement will be drafted for review and approval by the governing bodies of each local government. This agreement shall address mitigation of impacts and opportunities for coordination.

D. The City and Baker County agree to discuss land use issues concerning the siting of locally undesirable land uses prior to making land use decisions that may impact one anothers. A locally undesirable land use is defined as a type of development which directly affect the quality of life and/or meets the infrastructure needs of a community. These facilities are built to enhance or maintain the existing quality of life, and will benefit the general population. In contrast, some may be, or may appear to be, inconvenienced or adversely affected by such development. Examples include: landfills, prisons, airports, affordable housing, hazardous waste transfer stations, incinerators, industrial mills, recycling centers, juvenile detention centers, group homes and wastewater treatment facilities.

2. SITING PRIVATE FACILITIES

A. When a local government receives a request for a land use change, zoning change, development permit, or other permit request by the local government, assurances must be given by the applicant that coordination with the adjacent local government has occurred. This coordination should include a meeting between the private entity and the adjacent local government to discuss issues and concerns. The permitting local government should be provided notification of the meeting and should make every effort to attend. At this meeting, the potential for shared facilities must be discussed in addition to any other concerns that the local governments may have concerning potential sites.

B. Prior to final permitting, a formal meeting must be held between the local governments to discuss coordination and impact mitigation across jurisdictional boundaries.

1. The formal meeting must include the chief elected official of each local government or their appointed representative.

2. A formal written agreement will be signed by the chief elected official for each local government which address opportunities for coordination and mitigation of impacts.

3. LOCAL GOVERNMENT'S REFUSAL TO SIGN SITING AGREEMENT

A. If the City and Baker County cannot come to a formal agreement on the siting of a locally undesirable land use in the corridor along their borders, they will seek informal mediation assistance from the Northeast Florida Regional Planning Council. The mediation process shall consist of the following:

1. A meeting will be held by the City and Baker County and the Northeast Florida Regional Planning Council to determine the optimal method of addressing the conflict within one month of a request for such a meeting.

2. A meeting with the City, Baker County and Northeast Florida Regional Council will be held within two weeks to implement the agreed upon process for resolving the conflict.

3. All subsequent meetings will be held within two week intervals to resolve the conflict in an expeditious manner.

4. Either party may withdraw from the mediation process following the initial meeting if good faith efforts are not being utilized to resolve the conflict in a mutually agreeable and expeditious fashion.

B. Following successful resolution of the conflict, both parties will sign an agreement stating its resolution. If no resolution is found, then the parties may proceed through legal channels with the development and/or opposition of the site.

4. COMPLAINTS BY LOCAL GOVERNMENT

A. If one local government feels that the activities are taking place in the adjacent local government's jurisdiction which may impact them, they may request that a meeting take place as proposed in Articles 1. or 2.A.

B. If the other local government does not respond, then the local government should make a formal request to the Northeast Florida Regional Planning Council to initiate procedures under Article 3.

JACKSONVILLE CITY COUNCIL

DATE:_____ By_____
Its_____

BAKER COUNTY COMMISSION

DATE: 8-13-91 By Steve Kennedy
Its_____

EXHIBIT D

IMPLEMENTATION OF GOOD NEIGHBOR POLICY

FOR TRAIL RIDGE LANDFILL

WHEREAS, The City of Jacksonville (and Duval County both being hereinafter referred to as "the City") proposes to build Trail Ridge Landfill on its border in Duval County immediately adjacent to Baker County; and

WHEREAS, the City and Baker County have now entered into a Memorandum of Agreement for implementation of Good Neighbor Policy, which provides a procedure for the two counties to follow regarding the coordination of projects which could be considered to be locally undesirable land uses within two miles of the boundary of adjacent local governments; and

WHEREAS, the Baker County Commission and representatives from the City have had a continuing dialogue with regard to the siting of the Trail Ridge Landfill for over twelve months; and

WHEREAS, the Jacksonville City Council has offered an Interlocal Agreement to Baker County which addresses the mitigation of impacts; and

WHEREAS, the Baker County Commission and representatives from the City have had numerous public meetings to discuss coordination and impact mitigation across jurisdictional boundaries; and

WHEREAS, the siting procedure for Trail Ridge Landfill preceded the final development of the Memorandum of Agreement for Implementation of Good Neighbor Policy and preceded the requirement that said policy be established;

NOW, THEREFORE, the City and Baker County mutually agree to the following:

The coordination between the City and Baker County with regard to the Trail Ridge Landfill has satisfied the requirements of the Memorandum of Agreement for Implementation of Good Neighbor Policy which fosters coordination and cooperation between adjacent local governments. Any failure by either county to comply with the terms of said Memorandum of Agreement is hereby waived.

JACKSONVILLE CITY COUNCIL

DATE:_____ By_____
Its_____

BAKER COUNTY COMMISSION

DATE: 8-13-91 By Steve Kennedy
Its_____

RESOLUTION 91-954-331

CERTIFICATE OF AUTHENTICATION

DECLARED AN EMERGENCY MEASURE AND
ADOPTED BY THE COUNCIL

August 13 ,19 91

Warren A. Jones

WARREN A. JONES
COUNCIL PRESIDENT

ATTEST:

Beverly S. Simmons

BEVERLY S. SIMMONS
SECRETARY TO THE COUNCIL

APPROVED AUG 15 ,19 91

Ed Austin

ED AUSTIN, MAYOR

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

February 16, 1994

NORTHEAST DISTRICT
RECEIVED
FEB 16 1994
DEP - JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Waste Management Section
Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Permit No. SC16-184444
ET&M No. E93-118-2

Dear Ms. Nogas:

On behalf of Trail Ridge Landfill, Inc. and in accordance with Specific Condition 45 of the referenced permit, we hereby submit the 1993 survey of the waste disposal area.

If you have any questions regarding this submittal, please do not hesitate to call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P.E.
Project Manager

attachment

cc: Greg Mathes w/attachment
Scott McCallister w/attachment

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
FEB 04 1994
DEP - JACKSONVILLE

February 3, 1994

Ms. Mary C. Nogas, P.E.
Solid Waste Supervisor
Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7577

Re: Trail Ridge Landfill
1993 Annual Topographic Survey

Dear Ms. Nogas:

Attached is a topographic survey of Trail Ridge Landfill that was produced from aerial photography taken on December 27, 1993. This information is being submitted as required by Specific Condition 45 of Permit Number SC16-184444. I have asked England, Thims & Miller to also provide me with a copy of the topographic survey overlying the approved design plans. I will forward a copy of this drawing as soon as it is available.

Please give me a call if you have any questions or comments.

Sincerely,

Scott McCallister
Senior Environmental Engineer

cc: Greg Mathes

SM:kps

Printed on recycled paper.

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32216
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

January 24, 1994

NORTHEAST DISTRICT
JAN 24 1994
DEP - JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Waste Management Section
Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Permit No. SC16-184444
Side Slope Closure Units 5, 6, 7 (Partial) & 8 (Partial)
ET&M No. E93-143-3

Dear Ms. Nogas:

By this letter and on behalf of Trail Ridge Landfill, Inc., we hereby notify the Department that the side slope closure construction of Units 5, 6, 7 (partial), and 8 (partial) has been substantially completed in accordance with Specific Condition 34 of the referenced permit. We are currently preparing the certification and quality assurance/quality control documentation and will provide them to the Department as soon as possible.

Should you have any questions regarding the construction and certification, please contact me or Juanitta Clem.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

cc: Greg Mathes
Scott McCallister
Chris Pearson

DEPARTMENT OF ENVIRONMENTAL REGULATION

To:_____
To:_____
To:_____
To:_____

INTEROFFICE MEMORANDUM

NORTHEAST DISTRICT - JACKSONVILLE

TO: Michael Eaton

FROM: Mary Nogas

DATE: January 25, 1994

SUBJECT: Trail Ridge Landfill, Inc.
Permit Number SC16-184444

Attached is a copy of the second annaul wetland monitoring report required by Specific Condition 48.i. of the referenced permit, for your review. I have kept a copy of the report for our files.

Florida Department
Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7577

Virginia B. Wetherell
Secretary

January 25, 1994

Mr. Douglas C. Miller, P. E.
Vice President
England-Thims & Miller, Inc.
3131 St. Johns Bluff Road, South
Jacksonville, Florida 32246

Dear Mr. Miller:

Trail Ridge Landfill
Permit SC16-184444
Side Slope Closure Units 5,6,7 & 8
Duval County - Solid Waste

Please accept this as written confirmation of the verbal approval given To Juanitta Bader Clem, P. E., of your request for an extension of time to complete the initial closure, described in your letter of December 27, to January 24, 1994.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN:ml

Printed on recycled paper.

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

NORTHEAST DISTRICT
RECEIVED
DEC 27 1993
DEP - JACKSONVILLE

December 23, 1993

Ms. Mary C. Nogas, P.E.
Waste Management Section
Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Permit No. SC16-184444
Side Slope Closure Units 5, 6, 7 & 8
ET&M No. E93-143-1

Dear Ms. Nogas:

On behalf of Trail Ridge Landfill, Inc., we hereby request a time extension of the initial closure (Side Slope Units 5, 6, 7 & 8) at the referenced facility. The Contractor for the referenced construction has been delayed six (6) working days in the month of November due to rain. Even though the Contractor anticipates completion of the initial closure by January 15, 1994 (the current deadline) and will make every effort to complete the project by the deadline, we request on extension to January 24, 1994 due to these rain delays. Attached is a letter from the Contractor regarding his rain delays and charts of the average rain days for the City of Jacksonville. As you will see, the Contractor has been delayed six (6) working days during the month of November and normal number of rain days over 0.5 " of rainfall for November is only one (1) day.

Should you have any questions regarding this notification, please contact me or Juanitta Clem.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Douglas C. Miller, P.E.
Vice President

attachments

cc: Greg Mathes
Scott McCallister
Chris Pearson
John Coxwell

J. B. Coxwell Contracting, Inc.

RECEIVED
DEC 27 1993
DEP JACKSONVILLE

December 20, 1993

TRAIL RIDGE LANDFILL, INC.
C/O England-Thims & Miller, Inc.
3131 St. Johns Bluff Road South
Jacksonville, FL 32246

RECEIVED
DEC 2 01993
ENGLAND-THIMS, MILLER
Sunshine State Surveyors

Attention: Ms. Juanitta Clem

RE: TRAIL RIDGE LANDFILL
SIDE SLOPE CLOSURE
JBCCI NO. 9322

RAIN DELAYS NOV. 07 THRU NOV. 30, 1993

Dear Ms. Clem:

We have encountered the following delays on the above project which we will define by the following categories:

1) RAIN OUT ON WORK DAYS.

2) RAIN ON NON WORK DAYS WHICH PREVENTED WORK UNTIL A PERIOD OF DRYING WOULD ALLOW EQUIPMENT ON THE SLOPES.

3) RECOVERY TIME TO REPAIR SLOPES TO A CONDITION EXISTING PRIOR TO THE RAIN DAMAGE.

The following is a list of dates grouped by categories 1, 2 and 3:

1)	NOVEMBER 6, 9, 10	=	3 DAYS
2)	NOVEMBER 7, 8, 11	=	3 DAYS
		TOTAL....06 DAYS	

The above dates indicate that 25% of the time during the period November 07 to November 30, 1993, the site was unable to be worked or to progress. We feel this has effected our progress and we request this time be considered if a time extension is required.

Thank you for your prompt attention to this matter.

Very truly yours,

J. B. COXWELL CONTRACTING, INC.

Patrick J. Knapp
Estimator

PJK/np
encl

CU C027577 * CU C053355 * CU C053986

NORTHEAST DISTRICT
RECEIVED
DEC 27 1993
DEP JACKSONVILLE

RAIN DAYS
LAND FILL

10-6-93	RAINED out 11:00 AM
10-7-93	RAINED out 9:00 AM
10-8-93	REPAIRING SLOPES AFTER PREVIOUS DAYS RAIN
10-9-93	REPAIRING SLOPES AFTER PREVIOUS DAYS RAIN
10-14-93	REPAIRING SLOPES AFTER SATURDAY EVENING HARD RAINS.
10-15-93	~~BEGAN~~ ~~RAINING~~ JOB RAINED out 12:30 PM
10-16-93	UNABLE to WORK DUE to RAIN
10-17-93	UNABLE to WORK DUE to SATURDAYS RAINS.
10-18-93	REPAIR SLOPES AFTER SATURDAYS RAINS.
10-19-93	UNABLE to WORK DUE to PREVIOUS RAINS
10-24-93	DRIZZLING RAIN (NO WORK)
10-25-93	DRIZZLING RAIN (NO WORK)
10-26-93	DRIZZLING RAIN (NO WORK)
10-27-93	UNABLE to WORK DUE to PREVIOUS RAIN.
10-30-93	RAINED Out
10-31-93	UNABLE to WORK DUE to PREVIOUS RAIN.
11-1-93	UNABLE to WORK DUE to SAT. RAIN
11-6-93	Rained Out
11-7-93	Unable to Work due to Prev. days Rain
11-8-93	Unable to Work due to ~~Rain~~ Saturdays Rain.
11-9-93	Rained out at Landfill
11-10-93	Rained out
11-14-93	Unable to Work due to Prev. days Rain

February 14, 1992

EXHIBIT C
AVERAGE NUMBER OF DAYS GREATER THAN .50 INCHES
1962 - 1990

	YEARS																													
MONTHS	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	AVERAGE DAYS > .50
1-JAN.	2	4	5	0	4	1	0	0	3	1	4	2	0	3	2	2	3	4	2	1	2	7	2	1	2	3	4	2	0	2
2-FEB.	0	5	4	6	3	3	2	1	4	2	3	4	1	2	1	2	5	2	0	3	1	3	3	1	2	6	3	1	4	3
3-MAR.	3	2	1	3	0	1	1	5	3	1	1	4	2	1	3	1	2	1	4	3	3	6	2	1	5	4	1	1	1	2
4-APRIL	2	2	2	1	2	2	1	0	1	3	2	4	1	3	0	2	1	3	4	0	3	4	2	2	1	0	2	2	1	2
5-MAY	1	1	2	0	7	1	1	2	1	1	5	5	3	2	6	2	7	6	2	2	3	1	1	2	1	0	1	2	0	2
6-JUNE	4	11	3	5	3	7	4	2	2	5	2	2	4	5	1	2	2	3	4	2	4	5	4	3	0	4	1	1	0	3
7-JULY	5	3	4	1	3	4	6	5	5	3	1	3	8	4	3	1	4	2	3	2	2	5	5	4	2	3	1	6	3	3
8-AUG.	6	4	3	7	3	7	4	8	9	8	7	7	4	5	5	5	2	2	3	4	4	5	3	7	7	3	4	6	3	5
9-SEPT.	3	5	4	5	4	1	1	7	2	3	2	5	5	3	3	6	3	9	2	1	5	3	4	7	1	6	7	8	3	4
10-OCT.	0	2	4	1	1	1	4	5	4	4	3	2	0	4	1	1	1	0	2	1	2	3	1	5	1	0	1	1	3	2
11-NOV.	1	2	1	2	0	0	2	2	0	1	3	0	1	0	2	2	1	3	1	2	1	1	2	2	2	2	2	0	1	1
12-DEC.	1	2	3	2	1	3	0	4	1	3	1	3	2	1	3	2	2	1	0	3	1	3	0	1	5	0	1	2	1	2

*INFORMATION TAKEN FROM THE MICROPRINT ANNUAL CLIMATOLOGICAL SUMMARY, JACKSONVILLE, FLORIDA 62 THROUGH 90
OBTAINED FROM U.S. DEPARTMENT OF COMMERCE; N.O.A.A.

RECEIVED
DEC 27 1993
NORTHEAST DISTRICT
DEP - JACKSONVILLE

P 771 975 931

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, June 1985

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Doug Mills
Trail Ridge
NORTHEAST DISTRICT
DEC 27 1991
RECEIVED
Al. Tit Ltr
DEP - JACKSON

4a. Article Number
P 771 975 931

4b. Service Type
☒ Registered ☐ Insured
☐ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
12-27-91

5. Signature (Addressee)
M J Mills

8. Addressee's Address (Only if requested and fee is paid)
SW

6. Signature (Agent)

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Florida Department of
Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7577

Virginia B. Wetherell
Secretary

December 20, 1993

CERTIFIED - RETURN RECEIPT

Mr. Greg Mathes
Division President and General Manager
Trail Ridge Landfill, Inc.
Post Office Box 548
Baldwin, Florida 32234

Dear Mr. Mathes:

Trail Ridge Class III Landfill
Permit No. SC16-184444
Duval County - Solid Waste

As an owner/operator of a Class III landfill in the Northeast District, we wish to bring to your attention Florida Administrative Code Rule 17-701.340(3)(d). Since you were not receiving waste at the permitted location on January 6, 1993 nor subsequent to that date, please be advised that a permit modification is not required at this time. However, prior to accepting waste at the facility, you must submit and have approved a permit modification to bring your permit into compliance with this rule.

If you have any questions as to whether or not you need to apply for a modification, please contact Mark Cadenhead of the Solid Waste Section, at (904)448-4320.

Thank you for your cooperation.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN:ml

Printed on recycled paper.

Florida Department of
Environmental Protection

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7577

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

December 8, 1993

Mr. Douglas C. Miller, P.E.
Vice President
England-Thims & Miller, Inc.
3131 St. Johns Bluff Road South
Jacksonville, Florida 32246

Dear Mr. Miller:

Trial Ridge Landfill
Permit No. SC16-184444
Side Slope Closure Units 5,6,7,& 8
Duval County - Solid Waste

The Department has reviewed your November 12 letter requesting an extension of time for completion of the initial closure from December 9, 1993 to January 15, 1994.

Please be advised that the Department herewith approves this extension request.

If you have any questions concerning this matter, please feel free to contact me at (904)448-4320, extension 355.

Sincerely,

Mary C. Nogas, P.E.
Solid Waste Supervisor

MCN:ml

Administration 448-4300
Air 448-4310
Waste Management 448-4320

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Water Facilities 448-4330
Water Management 448-4340
FAX 448-4366

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

RECEIVED
NE DISTRICT
JACKSONVILLE
NOV 12 '93
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION

November 12, 1993

Ms. Mary C. Nogas, P.E.
Waste Management Section
Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Permit No. SC16-184444
Side Slope Closure Units 5, 6, 7 & 8
ET&M No. E93-143-1

Dear Ms. Nogas:

On behalf of Trail Ridge Landfill, Inc., we hereby request a time extension for completion of the initial closure (Side Slope Units 5 & 6) at the subject facility. This extension is necessary due to rain delays. Attached is a letter from the Contractor regarding his rain delays and charts of the average monthly rainfall and average rain days for the City of Jacksonville. As you will see, the Contractor has been delayed 17 working day during the month of October and normal number of rain days over 0.5 " of rainfall for October is only 2 days. According to facility records, the site has experienced a total of 10.5 inches of rainfall for the month of October and the normal rainfall as indicated on the attached chart is only 2.99 inches. Due to the extensive rain delays and the upcoming holidays, we request an extension from December 9, 1993 to January 15, 1994.

Should you have any questions regarding this extension, please contact me or Juanitta Clem.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

for Juanitta Bader Clem

Douglas C. Miller, P.E.
Vice President

attachment

cc: Greg Mathes
Jim Lukens
Chris Pearson
John Coxwell

J. B. Coxwell Contracting, Inc.

RECEIVED
NE DISTRICT
JACKSONVILLE

November 08, 1993

Nov 12 '93
DEPARTMENT OF ENVIRONMENTAL PROTECTION
RECEIVED
NOV 08 1993
ENGLAND-THIMS, MILLER
Sunshine State Surveyors

TRAIL RIDGE LANDFILL, INC.
C/O England-Thims & Miller, Inc.
3131 St. Johns Bluff Road South
Jacksonville, FL 32246

Attention: Ms. Juanitta Clem

RE: TRAIL RIDGE LANDFILL
SIDE SLOPE CLOSURE
JBCCI NO. 9322

RAIN DELAYS OCT. 06 THRU NOV. 01, 1993

Dear Ms. Clem:

We have encountered the following delays on the above project which we will define by the following categories:

1) RAIN OUT ON WORK DAYS.

2) RAIN ON NON WORK DAYS WHICH PREVENTED WORK UNTIL A PERIOD OF DRYING WOULD ALLOW EQUIPMENT ON THE SLOPES.

3) RECOVERY TIME TO REPAIR SLOPES TO A CONDITION EXISTING PRIOR TO THE RAIN DAMAGE.

The following is a list of dates grouped by categories 1, 2 and 3:

1)	OCTOBER 6, 7, 15, 24, 25, 26 AND 30	=	7 DAYS
2)	OCTOBER 16, 17, 19, 27, 31 AND NOVEMBER 1	=	6 DAYS
3)	OCTOBER 8, 9, 11 AND 18	=	4 DAYS
		TOTAL	17 DAYS

The above dates indicate that 63% of the time during the period October 06 to November 01, 1993, the site was unable to be worked or to progress. We feel this has effected our progress and we request this time be considered if a time extension is required.

Thank you for your prompt attention to this matter.

Very truly yours,

J. B. COXWELL CONTRACTING, INC.

Patrick J. Knapp
Estimator

PJK/np
encl

CU C027577 * CU C053355 * CU C053986

10-6 TO 11-1 = 27

17/27 = 63%

RAIN DAYS
LAND FILL

(C) LANDFILL GAUGE				
(1)	WED	10-6-93		RAINED OUT 11:00 AM
(1)	THU	10-7-93		RAINED OUT 9:00 AM
(3)	FRI	10-8-93	REC	REPAIRING SLOPES AFTER PREVIOUS DAYS RAIN
(3)	SAT	10-9-93	REC	REPAIRING SLOPES AFTER PREVIOUS DAYS RAIN
(3)	MON	10-11-93	REC	REPAIRING SLOPES AFTER SATURDAY EVENINGS HARD RAINS.
(1)	FRI	10-15-93		~~BEGAN RAINING~~ JOB RAINED OUT 12:30 PM
(2)	SAT	10-16-93		UNABLE TO WORK DUE TO RAIN
(2)	SUN	10-17-93		UNABLE TO WORK DUE TO SATURDAYS RAINS.
(3)	MON	10-18-93	REC	REPAIR SLOPES AFTER SATURDAYS RAINS.
(2)	TUE	10-19-93		UNABLE TO WORK DUE TO PREVIOUS RAINS
(1)	SUN	10-24-93		DRIZZLING RAIN (NO WORK)
(1)	MON	10-25-93		DRIZZLING RAIN (NO WORK)
(1)	TUE	10-26-93		DRIZZLING RAIN (NO WORK)
(2)	WED	10-27-93		UNABLE TO WORK DUE TO PREVIOUS RAIN.
(1)	SAT	10-30-93		RAINED OUT
(2)	SUN	10-31-93		UNABLE TO WORK DUE TO PREVIOUS RAIN.
(2)	MON	11-1-93		UNABLE TO WORK DUE TO SAT. RAIN

RECD
11-02-93

February 14, 1992

EXHIBIT B
AVERAGE MONTHLY RAINFALL
1962 - 1990

	YEARS																													
MONTH	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	AVERAGE RAINFALL
1-JAN.	2.16	5.39	7.29	.65	4.56	3.05	.82	.84	4.18	2.01	5.77	4.64	.28	3.48	2.29	2.96	4.64	6.28	2.61	.92	3.00	7.19	2.13	1.05	4.19	4.09	6.36	1.73	1.84	3.52
2-FEB.	.52	6.93	6.55	5.50	5.97	4.35	3.05	3.39	8.85	2.55	3.46	5.07	1.28	2.58	1.05	3.24	4.17	3.75	1.06	4.53	1.67	4.27	4.67	1.45	4.72	6.47	6.08	1.77	4.07	3.90
3-MAR.	3.10	2.23	1.76	3.91	.71	.81	1.20	4.23	9.96	2.41	4.43	10.18	3.47	2.46	3.41	1.03	2.83	1.00	6.83	5.41	4.26	8.46	5.77	1.26	5.44	6.27	2.65	2.14	1.59	3.77
4-APRIL	2.36	1.75	4.65	.95	2.25	2.00	.99	.34	1.77	4.07	2.96	11.61	1.53	5.78	.63	1.76	2.24	4.18	3.91	.32	3.60	4.65	3.14	2.76	.93	.14	3.44	2.79	1.34	2.75
5-MAY	1.12	1.74	4.80	.94	10.43	1.18	2.17	3.78	1.84	1.90	8.26	5.33	4.14	7.00	10.02	3.07	9.18	7.54	3.02	1.48	3.55	1.38	1.46	2.08	2.13	.75	1.35	1.55	.18	3.56
6-JUNE	8.22	12.49	4.67	9.79	7.74	12.90	12.25	5.12	2.65	5.52	6.75	4.10	5.53	5.21	4.26	2.65	2.62	5.91	4.59	3.51	8.06	6.86	4.76	3.71	2.53	4.18	3.71	3.66	1.59	5.70
7-JULY	6.31	6.47	6.12	2.71	11.09	5.22	6.84	5.89	7.60	5.07	3.15	5.45	9.83	6.36	5.41	1.97	6.67	4.67	5.29	2.46	3.81	6.11	6.01	6.33	3.27	4.40	4.50	8.98	6.33	5.67
8-AUG.	10.07	4.95	5.63	9.56	3.88	12.31	16.24	15.10	10.96	12.83	9.76	7.49	11.23	6.23	6.57	7.26	2.39	4.78	3.97	6.47	6.93	4.63	3.78	8.93	9.60	4.48	8.48	9.16	3.81	7.24
9-SEPT.	4.37	4.91	10.31	11.02	5.94	1.80	2.68	10.33	3.20	4.17	2.60	7.86	8.13	5.24	8.56	7.45	4.40	17.75	3.03	1.22	9.32	4.61	12.28	16.82	1.99	7.13	16.36	14.57	2.60	7.26
10-OCT.	1.13	1.53	5.09	1.75	1.38	1.13	5.09	9.81	3.95	6.46	4.46	4.08	.34	3.63	1.63	1.68	1.26	.25	2.69	1.35	3.37	4.29	1.53	8.34	1.80	.30	2.35	1.39	4.34	2.99
11-NOV.	2.08	2.70	3.33	1.92	.21	.24	1.30	4.56	T	.83	4.22	.44	1.03	.39	2.43	5.11	.80	3.64	2.32	4.92	1.93	3.52	3.30	2.07	2.85	5.02	4.27	.51	1.17	2.24
12-DEC.	2.46	3.60	4.83	3.75	1.14	4.69	1.09	3.87	1.57	5.87	1.43	4.32	1.73	1.79	4.81	3.38	1.84	2.01	.21	3.36	2.02	6.42	.13	3.59	4.65	.16	1.13	3.40	1.94	2.80

*INFORMATION TAKEN FROM THE MICROPRINT ANNUAL CLIMATOLOGICAL SUMMARY, JACKSONVILLE, FLORIDA 62 THROUGH 90
OBTAINED FROM U.S. DEPARTMENT OF COMMERCE; N.D.A.A.

RECEIVED
NE DISTRICT
JACKSONVILLE
NOV 12 '93
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION

February 14, 1992

EXHIBIT C
AVERAGE NUMBER OF DAYS GREATER THAN .50 INCHES
1962 - 1990

	YEARS																												
MONTHS	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	AVERAGE DAYS > .50
1-JAN.	2	4	5	0	4	1	0	0	3	1	4	2	0	3	2	2	3	4	2	1	2	7	2	1	2	3	4	2	0	2
2-FEB.	0	5	4	6	3	3	2	1	4	2	3	4	1	2	1	2	5	2	0	3	1	3	3	1	2	6	3	1	4	3
3-MAR.	3	2	1	3	0	1	1	5	3	1	1	4	2	1	3	1	2	1	4	3	3	6	2	1	5	4	1	1	1	2
4-APRIL	2	2	2	1	2	2	1	0	1	3	2	4	1	3	0	2	1	3	4	0	3	4	2	2	1	0	2	2	1	2
5-MAY	1	1	2	0	7	1	1	2	1	1	5	5	3	2	6	2	7	6	2	2	3	1	1	2	1	0	1	2	0	2
6-JUNE	4	11	3	5	3	7	4	2	2	5	2	2	4	5	1	2	2	3	4	2	4	5	4	3	0	4	1	1	0	3
7-JULY	5	3	4	1	3	4	6	5	5	3	1	3	8	4	3	1	4	2	3	2	2	5	5	4	2	3	1	6	3	3
8-AUG.	6	4	3	7	3	7	4	8	9	8	7	7	4	5	5	5	2	2	3	4	4	5	3	7	7	3	4	6	3	5
9-SEPT.	3	5	4	5	4	1	1	7	2	3	2	5	5	3	3	6	3	9	2	1	5	3	4	7	1	6	7	8	3	4
10-OCT.	0	2	4	1	1	1	4	5	4	4	3	2	0	4	1	1	1	0	2	1	2	3	1	5	1	0	1	1	3	2
11-NOV.	1	2	1	2	0	0	2	2	0	1	3	0	1	0	2	2	1	3	1	2	1	1	2	2	2	2	2	0	1	1
12-DEC.	1	2	3	2	1	3	0	4	1	3	1	3	2	1	3	2	2	1	0	3	1	3	0	1	5	0	1	2	1	2

*INFORMATION TAKEN FROM THE MICROPRINT ANNUAL CLIMATOLOGICAL SUMMARY, JACKSONVILLE, FLORIDA 62 THROUGH 90
OBTAINED FROM U.S. DEPARTMENT OF COMMERCE; N.O.A.A.

RECEIVED
NE DISTRICT
JACKSONVILLE
NOV 12 '93
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION

A Waste Management Company

Trail Ridge Landfill, Inc.
F.D.E.R. Volume Report
October, 1993

I. D. Number: GM3116P03090
Permit #SC116-18444

11/10/93

Trail Ridge Material Code	F.D.E.R. CODE	WASTE CODE	WASTE AMOUNT
NONE	100	0.00	TONS
NONE	105	0.00	TONS
3,4,23,70,85-90,92,93	110	20,545.19	TONS
5,6,9,10,11,22,59,71,50% OF 73-78,81,84,94,95	115	54.76	TONS
NONE	120	0.00	TONS
NONE	125	0.00	TONS
1,2,7,8,25,72,50% OF 76-78	130	29,479.00	TONS
27,29	135	0.00	TONS
		0.00	
12, 13, 25% OF 79 & 91	200	0.00	TONS
NONE	205	0.00	TONS
25% OF 79 & 91	210	0.00	TONS
NONE	215	0.00	TONS
14, & 50% OF 76,77,79,91	220	0.00	TONS
5% OF 79 & 91	225	0.00	TONS
15	230	0.00	TONS
NONE	235	0.00	TONS
NONE	295	0.00	TONS
		0.00	TONS
	300	0.00	TONS
	305	0.00	TONS
	310	0.00	TONS
	315	0.00	TONS
	320	0.00	TONS
	TOTALS	**50079.00**	

Printed on recycled paper

P 771 975 863

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, June 1985

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Trap Mobley
Trail Ridge
Jacksonville

4a. Article Number: 771 975 863

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Date of Delivery: 11/16/93

5. Signature (Addressee): Trap Mobley

6. Signature (Agent): M. J. Mills

7. Addressee's Address (Only if requested and fee is paid): SW

NOV 15 1993

Thank you for using Return Receipt Service.

PS Form 3811, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Florida Department of
Environmental Protection

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7577

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

November 8, 1993

CERTIFIED-RETURN RECEIPT

Mr. Greg Mathes
Division President and General Manager
Trail Ridge Landfill, Inc.
Post Office Box 548
Baldwin, Florida 32234

Dear Mr. Mathes:

Trail Ridge Landfill
Permit No. SC16-184444
DEP File No. 236034
Duval County - Solid Waste

The Department has reviewed your additional information, received October 11, 1993, concerning your request to utilize geotextile fabric and shredded tires as initial cover at the Trail Ridge Landfill. In order to proceed with the processing of your request, the following information is needed:

1. Please note that the Department understands that any geosynthetic used will meet the nominal values for material properties listed on Page 6-1 of the "Alternate Daily Cover Study"; and

2. Please provide the Department with reasonable assurances that the proposed geotextile will minimize fire potential.

Please provide the requested information by December 10, 1993. Action on the permit modification application will be delayed until the requested information has been received in this office.

Please reference the associated DEP file number and the permit number in all written correspondence concerning this project. If you have any questions concerning this matter, please contact me.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN:ml

Administration 448-4300
Air 448-4310
Waste Management 448-4320

Water Facilities 448-4330
Water Management 448-4340
FAX 448-4366

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P 520 288 865

RECEIPT FOR CERTIFIED MAIL

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(See Reverse)

Sent to Doug Miller	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, June 1985 ☆U.S.G.P.O. 1989-234-555

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Doug Miller

NORTHEAST DISTRICT
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NOV 9 1993
RETAIL UNIT
JACKSONVILLE

4a. Article Number
P 520 288 865

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
11-8-93

5. Signature (Addressee)
Kay Reed

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)
SW

PS Form **3811**, November 1990 ☆U.S. GPO: 1991—287-066 **DOMESTIC RETURN RECEIPT**

Florida Department of
Environmental Protection

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7577

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

November 5, 1993

CERTIFIED-RETURN RECEIPT

Mr. Douglas C. Miller, P.E.
England-Thims & Miller, Inc.
3131 St. Johns Bluff Road South
Jacksonville, FL 32216

Dear Mr. Miller:

Trail Ridge Landfill Phases IC and IIC
Permit No. SC16-184444
Duval County-Solid Waste

The Department has reviewed the following documents submitted in accordance with the permit:

1. Construction Quality Assurance Monitoring of the Geosynthetic Lining System for the Trail Ridge Landfill Phases IC, IIA, IIB, and IIC - Final Report (Volumes I, II, III, IV, V and VI), prepared by Geosyntec Consultants, received on February 12, 1993, and supplemented on March 4, 1993, March 23, 1993, April 9, 1993, May 14, 1993, June 4, 1993 and October 21, 1993.

2. Report of Soils Quality Assurance Testing Phase IC and Phase II Trail Ridge Landfill, prepared by Law Engineering, received on February 12, 1993, and supplemented on March 23, 1993;

3. Phases I and II "As-Builts" of Trail Ridge Landfill, Sheets 1 through 20 and WT1 through WT4, prepared by Sunshine State Surveyors, Inc., received on February 12, 1993; and

4. Certificate of Construction Completion for Trail Ridge Landfill Phases IIA and IIB including the Phase II Stormwater Collection System, prepared by Douglas C. Miller, P.E., received on March 4, 1993.

Please be advised that all applicable submissions required for Phases IC and IIC have been received and found acceptable. Therefore, Trail Ridge Landfill, Inc. may begin accepting waste in Phases IC and IIC of the subject landfill.

If you have any questions, please contact me.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

cc: Greg Mathes, Trail Ridge Landfill, Inc.
Allan E. Williams, City of Jacksonville

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32216
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

NORTHEAST DISTRICT
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November 2, 1993

Ms. Mary C. Nogas, P.E.
Waste Management Section
Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Permit No. SC16-184444
Side Slope Closure Units 5, 6, 7 & 8
ET&M No. E93-143

Dear Ms. Nogas:

By this letter and on behalf of Trail Ridge Landfill, Inc., we hereby notify the Department that the test strip for the referenced project has been completed and based upon the test strip results, the field density of the clay layer has been revised to "not less than 85% of Standard Proctor Density (ASTM D 698)".

Construction is continuing based on this revision. Should you have any questions regarding this revision to the QA/QC Plan for the closure of exterior side slope units, please contact me or Juanitta Clem.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

attachment

cc: Greg Mathes
Jim Lukens
Chris Pearson

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32216
904-642-8990

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DISTRICT
JACKSONVILLE
OCT 21 1993
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

October 21, 1993

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Regulation
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Phases IC and IIC Certification
Permit No. SC16-184444
ET&M No. E91-118

Dear Ms. Nogas:

Please find herein four copies of the response report from GeoSyntec Consultants regarding the September 20, 1993 Memorandum from Mr. Mark Cadenhead on the subject certification, specifically addressing the Construction Quality Assurance Monitoring of the Geosynthetic Lining System.

If you have any questions, please give me or Juanitta Clem a call. We look forward to receipt of the Department's written authorization to accept Class I solid waste in Phases IC and IIC at Trail Ridge Landfill.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

DCM:cl

cc: Luke DeBock
Greg Mathes
Jim Lukens

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
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OCT 18 1993
DEP - JACKSONVILLE

October 12, 1993

Mr. Chris Pearson, Sr. Assistant Engineer
Department of Public Utilities
Solid Waste Division
37-2 West First Street
Jacksonville, FL 32206

Dear Mr. Pearson,

Thank you for your letter dated October 6, 1993 in which you indicate the City employees are not spotters.

I concur with your definition of the City's responsibilities and please note that in my August 12, 1993 response to the Department of Environmental Protection that I referred to the City employee as "inspectors" not spotters as you indicate in your letter.

If you should have any questions or feel that further clarification is warranted please do not hesitate to contact me.

Sincerely,

Greg Mathes
Division President and General Manager

GM:mm

cc: Bill Boyle
Scott Kelly
Mary Nogas

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
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OCT 18 1993
DEP - JACKSONVILLE

October 8, 1993

Division of Waste Management

Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Attn: Mr. John M. Ruddell
Division Director

RE: Placement of Documents in the Operating Record
Trail Ridge Landfill

In accordance with Federal Regulation 40 CFR 258.29(b), this letter serves to notify you that the following documents have been placed in the operating record at Trail Ridge Landfill.

- Any location restriction demonstrations required under 40 CFR 258, Subpart B or, if applicable, documentation that the location restriction does not apply.

- Documentation of the program and training implemented at the facility for detecting and preventing the disposal of regulated hazardous wastes or PCB wastes as required in 40 CFR 258.20.

- Closure and post-closure care plans as required by 40 CFR 258.60 and 40 CFR 258.61.

In accordance with 40 CFR 258.29(b), you will continue to be notified when any documents are placed in or added to the operating record.

Should you have any questions regarding the above notification, please do not hesitate to call.

Sincerely,

Greg Mathes, Division President and General Manager

cc: Mary Ardiff
Jim Lukens
Scott McCallister
Mary Nogas, FDEP

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT

RECEIVED
OCT 11 1993
DEP-JACKSONVILLE

October 8, 1993

Ms. Mary C. Nogas, P.E.
Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256

RE: Trail Ridge Landfill, Permit No. SC16-184444
DEP File No. 236034
Duval County - Solid Waste

Dear Ms. Nogas:

The attached Alternate Daily Cover Study, prepared by the Waste Management of North America, Inc. Engineering Group in March 1991, is submitted in response to your Request for Additional Information, dated September 8, 1993. The study describes the use of various geosynthetics and tarpaulins as initial cover with no adverse environmental or health effects resulting from vectors, fire, litter, or odors.

The particular geotextile or tarpaulin to be used at Trail Ridge has not been determined. We want the opportunity to select various materials in order to ensure that the best available material is selected at the time of purchase. All materials will be similar to those meeting the minimum specifications recommended in the study.

The maximum time any area will be covered with geotextiles will be 30 days. In areas where an additional lift or final cover will not be applied within 180 days, the geotextiles will be in place for a maximum of 7 days at which time they will be removed and intermediate cover applied in accordance with FAC 17-701.500(7)(f). All geotextile initial cover will be inspected daily with any necessary maintenance performed by the end of the operating day. We believe that daily inspection and maintenance provides assurance that the intent of FAC 17-701.500(7)(e) is met.

If you have any further questions concerning this matter, please call.

Sincerely,

Greg Mathes
Division President and General Manager

c:\wp51\dep\trcover.oct\1.1.2
cc: Jim Lukens
Doug Miller

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NORTHEAST DISTRICT
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OCT 11 1993
DEP - JACKSONVILLE

August 30, 1993

Mrs. Mary Nogas
Department of Environmental Protection
7825 Baymeadows Way
Jacksonville, FL 32256-7577

RE: Trail Ridge Sanitary Landfill
Rosemary Hill Landfill

Dear Mrs. Nogas:

In anticipation of deletion of the 18 hour exemption for initial cover as a result of Subtitle D, we respectfully request the Department's approval to use geosynthetics or tarpaulins in lieu of 6 inches of compacted earth as initial cover in those areas where solid waste will be deposited on the working face within 18 hours.

References from Chapter 17-701 F.A.C. follow:

"17.701.200 (37) "Initial cover" means a 6 inch layer of compacted earth used to cover an area of solid waste before placement of additional waste, intermediate cover, or final cover. The term also includes other material or thickness, approved by the Department, that minimizes vector breeding, animal attraction, and moisture infiltration, minimizes fire potential, prevents blowing litter, controls odors, and improves landfill appearance.

17.701.500 (7)(e) Initial cover shall be applied and maintained at landfills in order to minimize any adverse environmental, safety, or health effects such as those resulting from birds, unauthorized wastes, blowing litter, odors, vectors, or fires. The minimum frequency for applying cover is:

1. For Class I landfill, at the end of each working day, except in those areas where solid waste will be deposited on the working face within 18 hours."

Waste Management has successfully used geosynthetics and tarpaulins as initial cover at several landfills in states which did not have the 18 hour exclusion rules. Use of geosynthetics or tarpaulins at these landfills has resulted in no adverse environmental, safety, or health effects such as those resulting from birds. unauthorized wastes. blowing litter, odors, vectors, or fires.

A comprehensive study was performed with the results given in a March 31, 1991 report. A copy is enclosed for your reference. In addition, I would be pleased to visit with you and present a brief video of deployment of these alternate cover materials if you desire such a presentation.

We respectfully request the Department's approval of geosynthetics or tarpaulins with similar characteristics to those described in the report as an alternate material as defined in Chapters 17.701.20 (37) and 17.701.500 (7)(e) F.A.C.

Your early review and response are requested at your earliest convenience.

Should you have questions or require additional information, I'll respond promptly to your request.

Sincerely,

Harvey H. Bush, Jr., P.E.
Senior Environmental Engineering Manager
Vice President

HHB/lsf

cc: Mary Jean Yon
Scott McCallister
Mary Ardiff
Greg Mathes
Jim Lukens
DeWayne Igou

attachments

cover.alt

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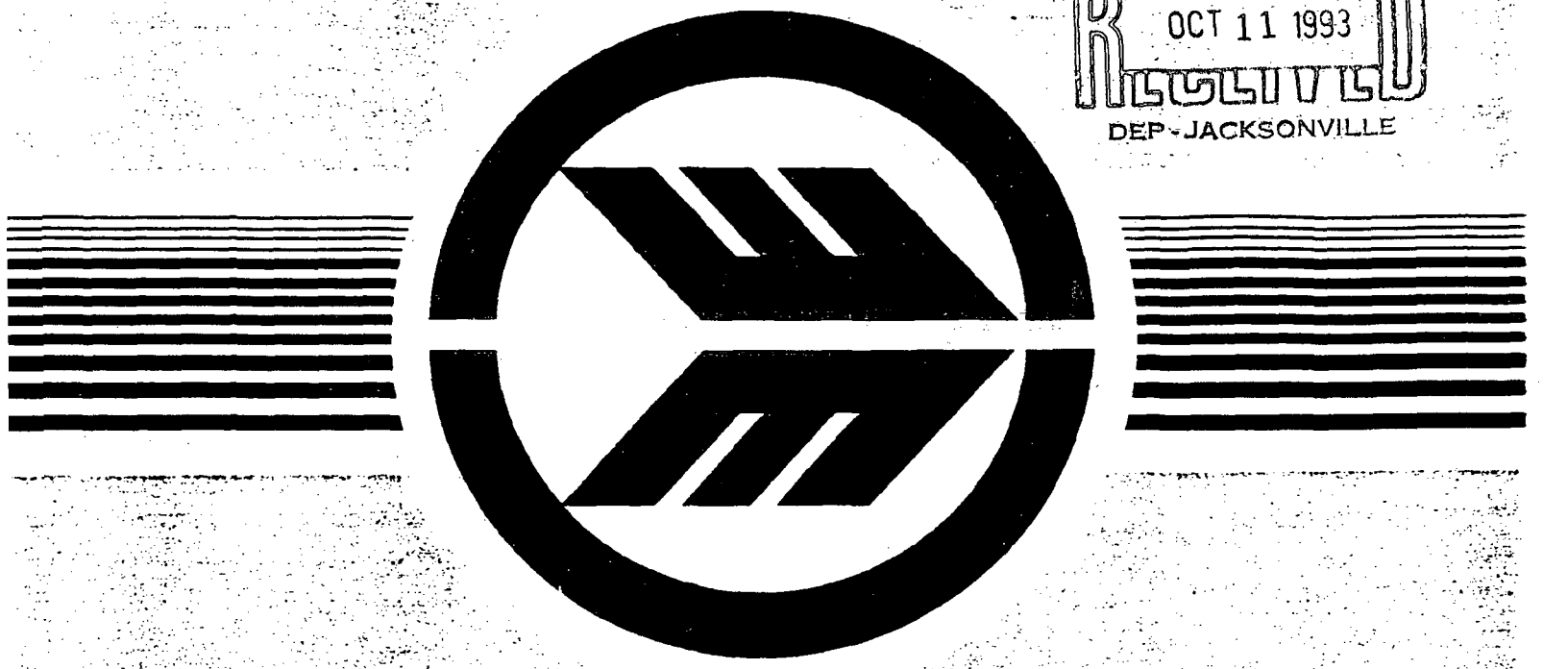

Alternative Daily Cover Study

Waste Management of North America, Inc.
3003 Butterfield Road • Oak Brook, Illinois 60521

NORTHEAST DISTRICT
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OCT 11 1993
DEP - JACKSONVILLE

GEOSYNTHETIC

ALTERNATIVE DAILY COVER STUDY

Prepared By

ENGINEERING GROUP
WASTE MANAGEMENT OF NORTH AMERICA, INC.
3003 Butterfield Road
Oak Brook, IL 60521

March 1991

GEOSYNTHETIC
ALTERNATIVE DAILY COVER STUDY

i EXECUTIVE SUMMARY

1.0 INTRODUCTION

2.0 DAILY COVER PERFORMANCE CRITERIA

3.0 FIELD EXPERIENCE AND RESULTS OF GEOSYNTHETICS TESTED

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- 3.2 Amoco
- 3.3 Fabrisoil
- 3.4 Griffolyn
- 3.5 Tarpaulin Daily Cover
- 3.6 Typar
- 3.7 Other Geosynthetic ADC materials
  - 3.7.1 Biodegradable Geosynthetics
  - 3.7.2 Geotextiles Manufactured from Recycled Plastics
  - 3.7.3 Plastic Films

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- 4.2 Maneuverability
- 4.3 Field Deployment
- 4.4 Maintenance
- 4.5 Working Face Preparation

5.0 ADVANTAGES AND DISADVANTAGES

6.0 MATERIAL RECOMMENDATIONS

7.0 ECONOMIC EVALUATION

8.0 CONCLUSIONS AND RECOMMENDATIONS

9.0 PHOTOGRAPHIC SUMMARY

10.0 ADC ECONOMIC ANALYSIS

EXECUTIVE SUMMARY
GEOSYNTHETIC
ALTERNATIVE DAILY COVER STUDY

Waste Management of North America, Inc. (WMNA) has been evaluating substitutes to soil for daily cover. Incorporation of Alternate Daily Cover (ADC) materials into daily operations has resulted in increased available refuse airspace in the landfill, reductions of required soil daily cover quantities, reduction of labor and equipment normally used to apply and remove soil daily cover, while improving leachate and gas management. The geosynthetic ADC materials evaluated included:

- Amoco, both woven and nonwoven geotextiles,
- Phillips Fabrisoil, a nonwoven geotextile,
- Griffolyn, a nylon reinforced plastic,
- Tarpaulins, made of high density polyethylene, and
- Typar, a spunbound geotextile.

This study presents field experiences, economic evaluations, conclusions and recommendations for the use of geosynthetics as ADC, based from evaluation of woven and non-woven geosynthetics during 1990 at WMNA's sites.

The geosynthetic ADC materials used have shown to meet the minimum performance requirements of daily cover, including:

- litter control,
- odor reduction,
- vector control,
- minimization of rainfall infiltration, and
- aesthetics.

The following recommendations for nominal material property values for ADC geosynthetic materials, are based on evaluations at WMNA sites and research of physical properties of geosynthetic ADC materials tested under this study. These are recommended nominal values only and are not meant to eliminate any other geosynthetic material which may seem worthy candidates for ADC use:

- weight $\geq$ 5.0 oz/sy
- puncture strength (ASTM-D-4833) $\geq$ 60 lbs
- trapezoidal tear strength (ASTM-D-4533) $\geq$ 60 lbs
- permittivity (ASTM-D-4491) $\leq$ 1.7 sec^{-1}

In addition to using geosynthetics as ADC materials, other products should be further evaluated, including but not limited to: biodegradable plastics, geotextiles manufactured from recycled plastics, spray-on-compounds, and treated POTW sludges.

ALTERNATIVE DAILY COVER
GEOSYNTHETIC MEMBRANE STUDY

1.0 INTRODUCTION

The application of daily cover material is standard operating procedure at most solid waste landfills. Traditionally, daily cover consists of a soil layer, typically up to six inches thick, applied over the active working face at the end of the day. Most commonly, operators have attempted to remove as much of the daily cover as possible before filling begins on the next day. However, there are practical limitations as to how much soil can be recovered depending upon the soil type. Furthermore, some regulatory agencies also restrict this practice. Placement and removal of daily cover soil is time consuming, and at locations where the soil material is imported, it also becomes an expensive operation. Because landfill airspace has become more scarce, there has been a heightened interest in recovering the airspace displaced by the daily cover.

Waste Management of North America, Inc. (WMNA) has been evaluating a number of geosynthetics for use as Alternative Daily Cover (ADC) materials as substitutes for soil as daily cover. Because of their negligible airspace displacement, their simple operation and their relatively low price, geosynthetic ADC materials are an attractive alternative to soil for daily cover. Yet there may be situations when geosynthetic daily covers cannot be used every day, such as extreme weather conditions, in which cases soil should be used.

The purpose of this report is to present WMNA's experience using geosynthetics as daily cover. The daily cover performance criteria is discussed in Section 2. A discussion of the geosynthetic daily cover evaluation program conducted at several landfills during 1990 is presented in Section 3. Application and removal practices are discussed in Section 4. Advantages and disadvantages of the tested geosynthetics are discussed in Section 5. Material recommendations are presented in Section 6. An economic evaluation is presented in Section 7. Conclusions and recommendations are discussed in Section 8.

2.0 DAILY COVER PERFORMANCE CRITERIA

Daily cover material must be capable of meeting or exhibiting certain performance criteria. Based on historical daily cover requirements, review of various regulations, and WMNA's experience at operating landfills, the following performance criteria was developed. In order to function effectively, daily cover should:

- Minimize dust;
- Minimize odors;
- Minimize blowing litter;
- Limit infiltration of precipitation;
- Control the harborage of flies, mosquitoes, rodents and other vermin;
- Be aesthetically acceptable;
- Allow migration of leachate and gas within the landfill.

3.0 EXPERIENCE AND RESULTS OF GEOSYNTHETICS TESTED

3.1 General

Various commercially available geosynthetic materials have been successfully tested and evaluated at WMNA landfills over the last few years. Experience gained during these evaluations proved that the geosynthetics tested fulfill the required performance criteria for daily covers. A major finding experienced at these sites was that strong winds introduce difficulties in handling the material and adequately covering the working face. Only a limited amount of experience is available thus far using geosynthetics during snowy conditions. Light snowfall amounts have not produced a problem. Freezing conditions have created some difficulty when removing the panels, and a large overnight snowfall may result with the panel not recoverable the next morning.

The WMNA Engineering Group (EG) has assisted in and monitored field testing at sites interested in alternate daily covers, and has identified and worked with manufacturers to develop and test products for this study. This section describes various products, WMNA site experiences and the results with each geosynthetic daily cover. Samples and manufacturer information of these materials are presented in Section 11 and Section 12.

3.2 Amoco Geotextiles

Amoco woven and non-woven geotextiles have been successfully used at Lake Landfill, Illinois. Amoco 4504 and Amoco 9298 are non-woven geotextiles. Amoco 9298 is a special run of Amoco 4506 heat set on both sides to increase runoff potential and strength properties of the geotextile. Specifications for Amoco 9298 will be available in mid-1991. The geotextiles were equipped with a 6 inch sleeve around the perimeter allowing the panel to be moved on site from any side. The non-woven geotextiles were reused 12 to 15 times before being disposed in the landfill. The panels gained weight with moisture or dirt build up in the geotextile. The non-woven Amoco 4504 and Amoco 9298 geotextiles did not shed water as well as the woven Amoco 2006 geotextiles. Amoco 2006 shed water effectively; moisture and dirt did not build up in this material which makes it lighter to use over time. Overall, the Amoco 2006 held up

well in all types of weather and has lasted through ninety six (96) reuses at Lake Landfill, Illinois.

Both materials were first applied with equipment dragging the panels to the working face. Site operations then decided to experiment with using smaller panels which could be maneuvered manually, thereby saving the cost of machinery and operators. Walking on the refuse should be limited. Daily cover panels at Lake Landfill are applied by 3 to 4 laborers. Using smaller panels enables the site to cover portions of the working face earlier in the afternoon, so covering time after the landfill closes is minimized. Another advantage to using multiple panels is that large sites with more than one fill area can be covered with geosynthetics effectively. Both the woven and non-woven Amoco geotextiles fulfilled the performance criteria of a daily cover, although Lake Landfill prefers using the Amoco woven geotextiles because of their all weather durability and cost effectiveness.

3.3 Fabrisoil

Fabrisoil is a non-woven needle punched polypropylene geotextile manufactured by Phillips Fibers Corporation of Greenville, South Carolina. A typical panel placed as a cover for the working face consists of individual 15 foot wide panels sewn together. Six inch sleeves are also sewn on the perimeter to facilitate towing.

Fabrisoil is currently being used at the following sites: Turnkey Landfill, New Hampshire; Woodland Meadows Landfill, Michigan; Pinnacle Road Landfill, Ohio; Lake County Landfill, Ohio; Eagle Valley, Michigan; and, Tri-City Landfill, Michigan. Based on experience at these WMNA sites, during mild weather conditions, one panel may last through approximately 20 reuses. Hand application of the geotextile without the use of heavy equipment dragging the material will generally yield a higher panel life, but walking on the refuse should be limited as much as possible.

Most sites use either one or two pieces of equipment, and attach the panel to it by means of a rope or chain. The panel or panels are then dragged to the working face and spread out to cover the working face (See Photo 9, Section 9) and anchored with either tires or sandbags (See

Photos 9 and 10 Section 9). The next day after removing the weights, the panel is dragged to a neutral area, away from the daily filling activity.

Fabrisoil performs well and meets the minimum performance criteria for daily cover. Site experience with this product has been favorable due to its durability and maneuverability.

3.4 Griffolyn

Griffolyn T-85 a nylon reinforced plastic fabric manufactured by Griffolyn Reef Industries of Houston, Texas, is commonly used as an outdoor storage cover. Because of its low permeability and chemical resistance, Griffolyn T-85 also makes a good daily cover. This material has been tested at Colorado Springs Landfill, Colorado. The geomembrane was equipped with a six inch sleeve around the perimeter to facilitate towing. The panel was typically deployed using two pieces of equipment to drag the tarp to the working face and spread it out. The tarp was then secured to the working face with tires. The next day the panel was removed by first removing the tires and then dragging the panel to a neutral area away from the daily filling activity. Colorado Springs Landfill was able to reuse the geosynthetic seventeen (17) times before disposing it in the landfill.

Overall the Griffolyn geomembrane fulfilled the minimum performance requirements for a daily cover. Site experience has shown that repairs with patch tape to the Griffolyn are not permanent and the material seems to tear easily when dragging on and off the working face. Colorado Springs prefers using a Typar geotextile (Section 3.6) to the Griffolyn geosynthetic because of its lower cost and durability.

3.5 Tarpaulin Daily Cover

Woven tarpaulin (tarps) are made of high density polyethylene manufactured by Wire Rope Specialists of Baton Rouge, Louisiana. Tarpaulins have been used mostly in the Eastern/South Central Region. Tarps have been equipped with nylon web straps sewn across the tarp in both directions. The tarps are also referred to as "beanie blankets," originating from the pioneer of their use, Wildred "Beanie" Acosta.

A tarpaulin daily cover is currently being used at Kelvin Landfill, Louisiana; Woodside Landfill, Louisiana; Alexandria Landfill, Louisiana; Magnolia Landfill, Louisiana; B.J. Landfill, Georgia; Rolling Hills Landfill, Georgia; Hickory Hill, South Carolina; and, New Milford Landfill, Connecticut. Site experience has shown that this material can perform up to six months or more as a daily cover, depending on site conditions. Application and removal of tarpaulins is accomplished generally with the use of a spreader bar attached to landfill equipment. The tarp panels are attached to the bar. The tarp is lifted with half the tarp dragging. The tarp is then brought to the working face and spread out. Some sites use multiple panels and overlap them. Each overlap is further secured with sandbags, or tires or connected with buckles. This method of overlapping or "shingling" is desirable when applying the tarps.

Greater Wenatchee Regional Landfill, Washington and DADS Landfill, Colorado have experimented with using large sized tarp panels, dragging them on and off the working face. Sizes ranged from approximately 50-ft by 50-ft to 100-ft by 100-ft. The use of tarps with approximate size of 100-ft by 100-ft were quite difficult to apply and remove in this manner, because their large size and heavy weight, made them difficult to maneuver, especially during windy conditions.

Overall the woven tarpaulins make good daily covers and fulfill all the performance criteria. Their overall durability and high panel life make them economically effective, and site experience has been very favorable. Their only drawback is their high initial investment, since tarpaulins are the most expensive geotextile per square yard. However, because of their numerous reuses, the effective cost is considerably reduced.

3.6 Typar

Typar is a non-woven spunbound geotextile, manufactured by Reemay, Inc. of Old Hickory, Tennessee. Colorado Springs Landfill, Colorado, is currently using Typar 3601, where site operations prefer its use to the Griffolyn geosynthetic because of its high strength, lighter weight and lower cost. So far, they have used the material forty (40) times before disposing in the landfill. The geotextile panel is applied with two pieces of equipment dragging the panel

over the working face, and anchoring it with tires. The next day the tires are removed and the panel is dragged to a neutral area, away from the daily filling activity.

Overall the site prefers using the geosynthetics to soil daily covers because of the time saved in moving soils to the daily working face. Scrapers can be better utilized for constructing their new cell, instead of hauling daily cover soil.

Typar has performed well in fulfilling the performance criteria of daily cover. The geotextile's light weight makes it easy to maneuver larger panel sizes. Typar's durability and lower cost per square yard make it an economically favorable daily cover as well.

3.7 Other Geosynthetic ADC Materials

During the development of this geosynthetic study, other geosynthetic ADC materials have been field tested at WMNA sites, including but not limited to the following. Biodegradable geosynthetics at Shannon Road Landfill, Arkansas, and geotextiles manufactured from recycled plastics, at Lancaster Landfill, California.

3.7.1 Biodegradable Geosynthetics

EG has been in contact with Nesbit Industries and DuPont both from Canada who are developing biodegradable ADC materials. At this time, prototype materials have not been available for field testing from neither manufacturer. Biodegradable geosynthetics purchased through National Seal Seal Company and manufactured by Favorite Plastics Co. of Dallas, Texas were previously tested at Shannon Road Landfill, Arkansas. A copy of the report prepared for that field test is available upon request from the Engineering Group.

Application of a .5 mil biodegradable plastic at Shannon Road Landfill, Arkansas was done manually with two men walking down the outer edges of the working face to spread out a panel. Afterwards, sand bags were used to anchor the panel in place. Removal of the plastic was somewhat difficult because rain and moisture built up in low spots which made the panel very heavy and unmanageable. A single panel lasted through only three (3) reuses, it was

destroyed when attempts made to remove the panel from the working face after a heavy rainfall failed.

Overall the biodegradable plastic material fulfilled the minimum requirements of a daily cover. However, the low durability and weather sensitivity of these materials allows for only a limited number of reuses.

3.7.2 Geotextiles Manuafactured from Recycled Plastics

Quline, a geotextile manufactured from recycled plastic beverage containers by Wellman, Inc. of Denver, Colorado are also being considered for ADC use. Unfortunately, these materials were not available for field test during the development of this study. Lancaster Landfill, California, is planning a pilot test with recycled textiles during the first quarter of 1991.

Contact has been made with other geotextiles manufactured from recycled plastics manufactures including Terra Environmental Products from Dallas, North Carolina. Future field testing with their products are planned.

3.7.3 Plastic Films

A disposable 1.5 mil clear plastic film manufactured by Poly-America, Inc. of Grand Prairie, Texas has been successfully used as a daily cover at Lake Landfill, Illinois. This material does not meet all the recommended physical properties but meets WMNA daily cover performance criteria.

4.0 APPLICATION AND REMOVAL

4.1 Fabrication and Size

The application and removal of geosynthetics used as ADC are adapted to meet specific site conditions including, the size of the working face, and available labor and equipment at each site. Typically, the working face for a small landfill (less than 500 tons/day) is about 2,500 squared feet, while for a large landfill (in excess of 10,000 tons/day) is at least 15,000 squared feet. Overall, the smaller the working face results in a more efficient application and removal of geosynthetic as daily cover.

The geosynthetic panels are fabricated by sewing manufactured roll widths with a commercial machine to a desired panel dimension. A typical geosynthetic roll width is approximately 15 feet, with length in excess of 200 ft. Depending upon the material properties and the site specific conditions, geosynthetic panels have been fabricated to sizes smaller than 50-ft by 50-ft (2,500 SF) to larger than 120-ft by 120-ft (14,400 SF) sections.

Generally, the manufacturers fabricate the geosynthetic panels before being transported to the site. However, because of the easy handling of most materials, it is possible to fabricate the panels by sewing panels of material together at the site. In addition, it is possible to repair panels at the site that have minor rips or tears, with the use of sewing machines or patch tape. Manufactures can also provide a means of hooking up panels to available equipment on site. A six inch sleeve is sometimes sewn around the perimeter of the panel where a pipe can be inserted. The pipe acts as a spreader bar when a rope is tied to it and fastened to a piece of equipment. Some manufacturers provide panels equipped with 1-inch Cordia nylon web straps spaced approximately 12-foot apart sewn across the tarp in both directions as well as the edges. The straps extend over the hem of the panel 4 inches and a dee-ring is sewn at the end, to connect the tarp to a piece of equipment.

4.2 Maneuverability

Geosynthetic panels with dimensions of approximately 75-ft by 120-ft (9,000 SF) have been

maneuvered and handled at landfills quite easily with one or two compactors and up to two laborers. Experience with geosynthetics at some WMNA sites has demonstrated that panels with dimensions of 120-ft by 120-ft (14,400 SF) are the largest that can be effectively maneuvered to cover the working face. This application makes use of two machines and two laborers.

Large sized working faces can be covered using multiple small panels. Various WMNA sites have experimented with using multiple geosynthetic panels. The individual panels are approximately 50-ft by 50-ft, and are applied in a configuration to effectively cover the working face of the landfill overlapped like roofing shingles. These smaller panels can be applied manually but require more care in handling. Manual application requires additional precautions from the laborers, since they would have to walk over the refuse. More laborer time is required when applying the covers manually yet the equipment that was used for the covering can be utilized for other landfill duties.

4.3 Field Deployment

The deployment of geosynthetic panels depends largely upon the equipment and labor available at the site. Section 9 presents photos depicting various aspects of geosynthetics being used as daily covers.

Typically, the use of geosynthetic daily cover proceeds as follows at the end of each day; a panel is dragged over the working face with landfill equipment until the panel covers the working face. The panel can be attached to landfill equipment by the use of ropes or chains attached to sleeves, slits, rings, or knots in the geosynthetic panels corners or edges. Materials such as dirt, sand bags, or tires are then placed around the perimeter of the panel to keep it in place. The next day the panel is removed from the working face by dragging the panel off of the working face with landfill equipment. The panel can be dragged far enough off of the working face so that it is in a neutral area out of the way of operations, or it can be folded or rolled as needed based on space limitations. Photos 1-4 in Section 9 shows a typical panel deployment.

Dragging of the geosynthetic panel over the working face is the easiest way of deployment, but also the most stressful for the panel itself. Devices for lifting or rolling the panels have been used at some landfills where geosynthetics are extensively use as daily covers. Photo 5 in Section 5 shows a lifting device used with the beanie blanket at Kelvin Landfill, Louisiana. Photo 6 shows a rolling frame used with a geotextile at Greene Valley Landfill, Illinois.

4.4 Maintenance

The life of a geosynthetic material can be prolonged by exercising care and common sense when using them and through proper maintenance. For geotextiles small tears can be easily repaired with the use of a sewing machine. High density polyethylene materials as well as other plastics can be repaired using a patch tape.

4.5 Working Face Preparation

Special care should be taken when applying and removing the geosynthetic daily covers. The working face should be relatively free from protruding refuse that may harm the geosynthetic daily cover. Extra compaction of the working face prior to cover placement helps the covering operation go smoothly, and minimizes excessive tearing, as well as gaining better refuse compaction. A geotextile that is partially damaged can be recycled by cutting the material to remove severely torn areas, and using the remaining material. When the geosynthetics are severely torn and cannot be repaired or recycled, the suggested method of disposal is to compress the material together into a pile and bury with refuse.

5.0 ADVANTAGES AND DISADVANTAGES

The utilization of geosynthetic materials as ADC provides many advantages to the landfill operation, including:

- Use is easily adapted to sites;
- no special equipment is required;
- reduces required soil quantities;
- realizes air space savings within the landfill;
- reduces labor and equipment associated with applying and removing daily cover;
- no special skills or training required for use;
- the working face receives a blanketed cover which eliminates flagging of refuse and the guesswork of how thick a cover has been applied;
- controls blowing litter;
- minimizes the escape of odor and insects;
- minimizes dust because trucks will not need to haul as much soil for daily cover;
- controls vector access to the refuse;
- improves leachate and gas management by eliminating additional soil barrier layers within the landfill; and is
- aesthetically pleasing.

There are certain disadvantages also associated with geosynthetic daily covers as well, including:

- Geosynthetics are difficult to use during wind conditions above 20 mph;
- Geosynthetics are difficult to use during snowy conditions;
- Geosynthetics need to be brought to neutral areas on site away from daily operations when not in use or folded to keep them out of daily operations area;
- Most geosynthetics are not fire retardant at this time; and
- Geosynthetics can become odorous when used on refuse for a long time.

The geosynthetics tested will not self ignite. However, results from simple flame testing where a lighter was held to a small sample of fabric showed that the geosynthetics discussed will sustain a flame and are not fireproof. However, the flame extinguishes after the flame source is removed. The flame does not propogate without the presence of a fire source. Based on this experiment, none of the materials are fire instigators however, they could not be used to put out a fire or prevent a fire from occurring. No fires on any working face have been reported during this study. WMNA is investigating the cost and efficiency of fire retardant treatments.

Generally, the advantages for using geosynthetic daily covers outweigh the disadvantages. There may be many situations where site conditions are not conducive to geosynthetic daily cover use. Alternative daily covers will probably not totally replace soil in daily cover applications, but they should be used as much as practical and possible.

TABLE 6–1
GEOSYNTHETIC DAILY COVER MATERIAL PROPERTY INDEX

		NON-WOVEN GEOTEXTILES				WOVEN GEOTEXTILE	TARPAULINS	
PROPERTY	TEST METHOD	AMOCO 4504	AMOCO *9298	PHILLIPS FABRISOIL	TYPAR 3601	AMOCO 2006	GRIFFOLYN T–85	WIRE ROPE SPECIALISTS
WEIGHT (OZ/SY)	N/A	4.0	NOT AVAIL.	6.0	5.8	7.0	5.6	9.0–9.6
GRAB TENSILE (LBS)	ASTM D–4632	85.0	NOT AVAIL.	170.0	200.0	300.0	115.0 (ASTM D–882)	440.0 (ASTM D–1682–64)
GRAB ELONGATION (%)	ASTM D–4632	50.0	NOT AVAIL.	70.0	60.0	15.0	160.0 (ASTM D–882)	NOT AVAIL.
MULLEN BURST (PSI)	ASTM D–3786	225.0	NOT AVAIL.	300.0	210.0	600.0	NOT AVAIL.	610.0 (ASTM D–751–73)
PUNCTURE (LBS)	ASTM D–4833	55.0	NOT AVAIL.	100.0	6.0	120.0	NOT AVAIL.	NOT AVAIL.
TRAPEZOIDAL TEAR (LBS)	ASTM D–4533	35.0	NOT AVAIL.	65.0	75.0	120.0	23.0 (ASTM D–2582)	65.0 (ASTM D–2261–71)
UV RESISTENCE (%)	ASTM D–4355	70.0	NOT AVAIL.	70.0	90.0	70.0	NOT AVAIL.	NOT AVAIL.
COEFFICIENT OF PERMIABILITY (CM/SEC)	ASTM D–4497	0.20	NOT AVAIL.	0.293	0.01	NOT AVAIL.	NOT AVAIL.	NOT AVAIL.
PERMITTIVITY (1/SEC)	ASTM D–4491	NOT AVAIL.	NOT AVAIL.	1.678	0.1	0.02	NOT AVAIL.	NOT AVAIL.
FLUX (GAL\MIN\SF)	ASTM D–4491	100.0	NOT AVAIL.	132.6	25.0	2.0	NOT AVAIL.	NOT AVAIL.
THICKNESS (MIL)	ASTM D–1777	40.0	NOT AVAIL.	55.0	18.0	NOT AVAIL.	NOT AVAIL.	NOT AVAIL.
MATERIAL TYPE	N/A	POLY–PROPYL.	POLY–PROPYL.	POLY–PROPYL.	POLY–PROPYL.	POLY–PROPYL.	HDPE	HDPE

* Material Properties for Amoco 9298 will be available in 1991.

6.0 MATERIAL RECOMMENDATIONS

Based on evaluations at WMNA sites and research of physical properties of geosynthetic materials, the following recommendations are made as nominal values for geosynthetic daily covers:

- weight $\geq$ 5.0 oz/sy
- puncture strength (ASTM-D-4833) $\geq$ 60 lbs
- trapezoidal tear strength (ASTM-D-4533) $\geq$ 60 lbs
- permittivity (ASTM-D-4491) $\leq$ 1.7 sec^{-1}

These values are recommended as target values for geosynthetics daily cover materials. These values are not meant to eliminate geosynthetics which seem worthy candidates for daily cover.

A summary of the material properties for the geosynthetic daily covers tested during this study is presented on Table 6.1.

In addition to using geosynthetics as ADC materials, other products should be further evaluated, including but not limited to: biodegradable plastics, geotextiles manufactured from recycled plastics, spray-on-compounds, and treated POTW sludges.

7.0 ECONOMIC EVALUATION

The use of geosynthetic ADC at WMNA landfills has proven to be economically feasible and operationally practical. Incorporation of these materials into daily operations has resulted in reductions of required soil quantities, reduction of labor and equipment normally used to apply and remove soil daily cover, while increasing refuse airspace and improving leachate and gas management in the landfill.

Average geosynthetic ADC costs (material and freight) used during this study are presented on Table 7-1. These costs are based on a vendor's survey conducted in late 1990 and are subject to change by the manufacturer. The geosynthetic ADC effective cost (cost per use) may be different than shown, depending upon the number of usages at the site.

Site specific economic assessments were performed prior to the selection of each site pilot test and were calibrated after the field data was compiled. Because of the confidential nature of the information reported in each site economic assessments, they are not presented with this study.

An economic assessment model was developed to evaluate each site condition. The economic assessment model takes into account labor, material and equipment costs. The daily cover annual cost also includes closure accrurual and cell development write-off costs. Detailed description and assumptions of the economic assessment model is presented in Section 10.0. This economic assessment model is available as a Lotus 1-2-3 spread sheet from EG. Various examples of the economic assessment model are presented as part of the following economic evaluation.

ADC economic analysis examples for two hypothetical sites using Fabrisoil and Wire Rope Specialists Tarpaulin are presented on Tables 7-2 through 7-5. Site A has a remaining airspace capacity of 4,000,000 BCY, takes 800 gate yards per day and has a working face of 1,800-SF while site B has a remaining airspace capacity of 8,000,000 BCY, takes 4,000 gate yards per day and has a working face of 7,000 SF. Detailed economic analysis for each site is presented in Section 10.0. Fabrisol and Tarpaulin materials were selected for these ADC economic analysis examples because they have been the most widely used during this study.

The results from economic assessment from the two hypothetical landfills are very similar in nature to what would be expected at WMNA sites.

Overall, as the size of the working face and the usage of ADC increases, the net annual daily cover cost decreases. From our two landfill examples, the annual daily cover costs shows decreases from between 9 and 13 percent when using ADC. As the soil daily cover used was reduced by approximately 75 percent, the refuse to soil ratio changed from 8.7:1 to 16.7:1 for the 800 gate cubic yard site, while the refuse to soil ratio changed from 5.2:1 to 9.1:1 for the 4,000 gate cubic yard site.

TABLE 7-1
AVERAGE GEOSYNTHETIC ADC COSTS

GEOTEXTILES	PRICE ($/SY) Material	Freight	Total	Field Usage	Effective Cost
Amoco 4504 - Non-woven Geotextile	$0.50	$0.08	$0.58	15	$0.039
Amoco 9298 - Non-woven Geotextile	$0.65	$0.08	$0.73	15	$0.050
Amoco 2006 - Woven Geotextile	$0.70	$0.08	$0.78	96	$0.008
Phillips Fabrisoil Non-Woven Geotextile	$1.62	$0.20	$1.82	20	$0.090
Griffolyn T-85 - High Density, Rubber Modified Polythylene	$2.25	$0.09	$2.34	17	$0.138
Typar 3601 - Spunbound, Non-Woven Geotextile	$0.90	$0.08	$0.98	40	$0.025
Wire Rope Specilists TGNN - Woven HDPE Tarpaulin	$2.91	$0.20	$3.11	120	$0.026

NOTES:

1. Prices are as per vendor's quotes during a survey in late 1990 and does not include pertinent taxes. Prices accordingly to purchase order quantity.
2. Delivery prices may also vary depending on site location.
3. Field usage based from the various pilot tests conducted during this study. Field usage may increase as site operations and labor becomes more familiar with the ADC.
4. Effective costs is the material daily cost of using ADC and is calculated by dividing the manufacturer's material and freight cost by the number of field usages.

TABLE 7-2
ADC ECONOMIC ANALYSIS EXAMPLE
FOR LANDFILLS USING FABRISOIL

LANDFILL A:
Remaining Airspace capacity = 4,000,000 BCY
Gate Rate = 800 CY per day
Average working face = 1,800 SF
ADC usage = 75%

		Alternative Daily Cover		
	Soil	Five Uses	Ten Uses	Twenty Uses
Daily Refuse Rate (BCY)	229	229	229	229
Daily Cover Volume (BCY)	17	5	5	5
Intermediate Cover Volume (BCY)	10	10	10	10
Daily Total Operation (BCY)	255	244	244	244
Estimated Refuse to Soil Ratio	8.7:1	16.7:1	16.7:1	16.7:1
Site Life (Years)	54.9	57.73	57.73	57.73
Additional BCY available for Refuse Disposal	N/A	185,000	185,000	185,000
Annual Cost for Daily Cover	$138,553	$136,593	$128,331	$124,200

NOTES:
1. For detailed economic analysis, see Section 10.
2. Adverse weather conditions and occassional site operations constraints requires the use of soil as daily cover while using ADC. ADC usage of 75% has been an average found during this study.
3. Intermediate soil cover volume is not replaced by ADC usage.

TABLE 7-3
ADC ECONOMIC ANALYSIS EXAMPLE
FOR LANDFILLS USING FABRISOL

LANDFILL B:
Remaining Airspace capacity = 8,000,000 BCY
Gate Rate = 4,000 CY per day
Average working face = 7,000 SF
ADC usage = 75%

		Alternative Daily Cover		
	Soil	Five Uses	Ten Uses	Twenty Uses
Daily Refuse Rate (BCY)	2,000	2,000	2,000	2,000
Daily Cover Volume (BCY)	216	54	54	54
Intermediate Cover Volume (BCY)	167	167	167	167
Daily Total Operation (BCY)	2,383	2,221	2,221	2,221
Estimated Refuse to Soil Ratio	5.2:1	9.1:1	9.1:1	9.1:1
Site Life (Years)	12	13	13	13
Additional BCY available for Refuse Disposal	N/A	490,000	490,000	490,000
Annual Cost for Daily Cover	$278,494	$302,159	$270,020	$253,961

NOTES:
1. For detailed economic analysis, see Section 10.
2. Adverse weather conditions and occassional site operations constraints requires the use of soil as daily cover while using ADC. ADC usage of 75% has been an average found during this study.
3. Intermediate soil cover volume is not replaced by ADC usage.

TABLE 7-4
ADC ECONOMIC ANALYSIS EXAMPLE
FOR LANDFILLS USING WIRE ROPE SPECIALISTS TARPAULIN

LANDFILL A:
Remaining Airspace capacity = 4,000,000 BCY
Gate Rate = 800 CY
Average working face = 1,800 SF
ADC usage = 75%

		Alternative Daily Cover	
	Soil	One Month Usage	Six Month Usage
Daily Refuse Rate (BCY)	229	229	229
Daily Cover Volume (BCY)	17	5	5
Intermediate Cover Volume (BCY)	10	10	10
Daily Total Operation (BCY)	255	244	244
Estimated Refuse to Soil Ratio	8.7:1	16.7:1	16.7:1
Site Life (Years)	5.5	5.8	5.8
Additional BCY available for Refuse Disposal	N/A	185,000	185,000
Annual Cost for Daily Cover	$138,553	$126,492	$121,078

NOTES:
1. For detailed economic analysis, see Section 12.
2. Adverse weather conditions and occassional site operations constraints requires the use of soil as daily cover while using ADC. ADC usage of 75% has been an average found during this study.
3. Intermediate soil cover volume is not replaced by ADC usage.

TABLE 7-5
ADC ECONOMIC ANALYSIS EXAMPLE
FOR LANDFILLS USING WIRE ROPE SPECIALISTS TARP

LANDFILL B:
Remaining Airspace capacity = 8,000,000 BCY
Gate Rate = 4,000 CY
Average working face = 7,000 SF
ADC usage = 75%

	Soil	One Month Usage	Six Months Usage
Daily Refuse Rate (BCY)	2,000	2,000	2,000
Daily Cover Volume (BCY)	216	54	54
Intermediate Cover Volume (BCY)	167	167	167
Daily Total Operation (BCY)	2,383	2,221	2,221
Estimated Refuse to Soil Ratio	5.2:1	9.1:1	9.1:1
Site Life (Years)	12	13	13
Additional BCY available for Refuse Disposal	N/A	490,000	490,000
Annual Cost for Daily Cover	$278,494	$262,874	$241,820

NOTES:
1. For detailed economic analysis, see Section 12.
2. Adverse weather conditions and occassional site operations constraints requires the use of soil as daily cover while using ADC. ADC usage of 75% has been an average found during this study.
3. Intermediate soil cover volume is not replaced by ADC usage.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The following are the conclusions of this ADC study, based on evaluations of geosynthetic daily covers used at various WMNA sites:

- The use of geosynthetics has proved to be performance equivalent to soil cover and meet the daily cover criteria;
- geosynthetics are economically favorable to site operations when compared to soil daily cover.

Utilization of geosynthetics seem to work best when incorporating a combination of manual work and landfill equipment. Caution needs to be used when manual application and removal requires workers to be on the working face, which should be avoided as much as possible.

The use of geosynthetic daily covers at WMNA landfills has proven to be economically feasible and operationally practical. Incorporation of these materials into the daily operations provide reductions in terms of soil quantities required, reductions of labor and equipment to apply and remove daily cover, improved leachate and gas management, and increased available airspace in the landfill.

Based on the findings of this study, continued use and further deployment of geosynthetic ADC at WMNA landfills is recommended. Selection of the ADC to be used at each site should be based on an economic assessment to take into account site specifics prior to full implementation.

In addition to using geosynthetic as ADC materials, other products should be further evaluated, other products should be further evaluated, including but not limited to: biodegradable plastics, geotextiles manufactured from recycled plastics, spray-on-compounds, and treated POWT sludges.

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9.0 PHOTOGRAPHIC SUMMARY

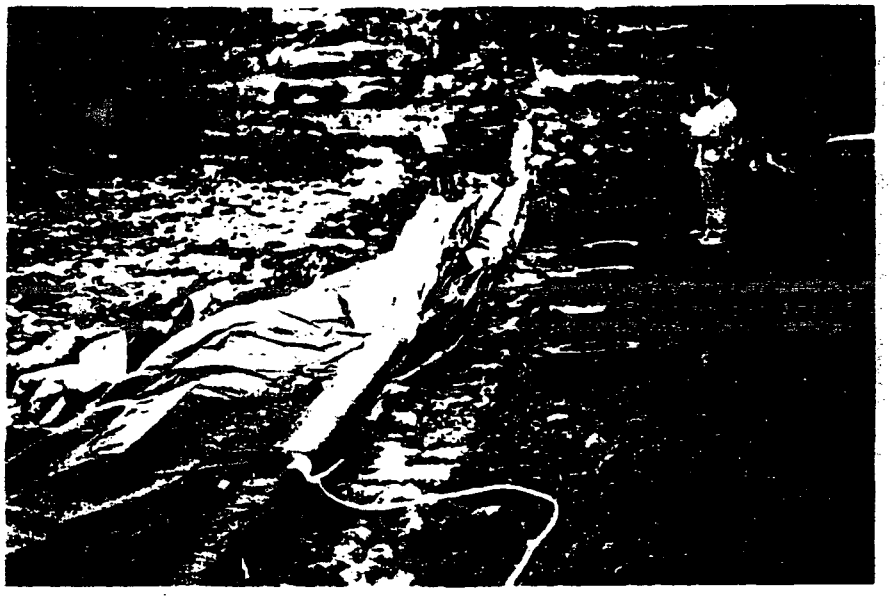

PHOTO 1: PREPARATION OF GEOSYNTHETIC PRIOR TO DEPLOYMENT. NYLON ROPE TIED TO PVC PIPE PLACED THROUGH 6" SLEEVE FOR TOWING (PHOTO TAKEN 08/14/90).

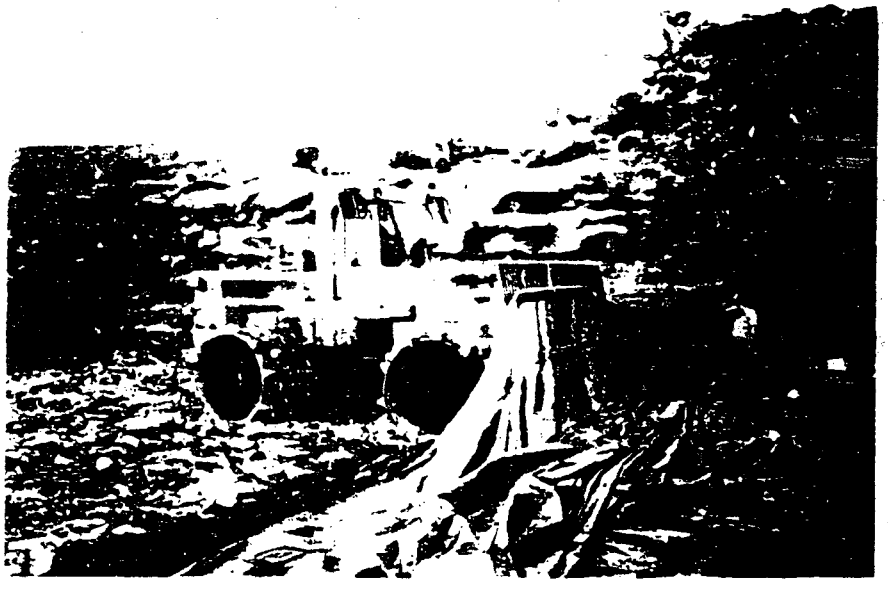

PHOTO 2: TRANSPORTING GEOSYNTHETIC TO WORKING FACE BY A COMPACTOR (PHOTO TAKEN 08/14/90).

PHOTO 3: DEPLOYING GEOSYNTHETIC OVER WORKING FACE USING A COMPACTOR (PHOTO TAKEN 08/14/90).

PHOTO 4: ANCHORING GEOSYNTHETIC WITH TIRES (PHOTO TAKEN 08/14/90). PHOTOS 1-4 TAKEN AT COLORADO SPRINGS LANDFILL, COLORADO USING A GRIFFOLYN GEOSYNTHETIC.

PHOTO 5: DEPLOYMENT OF A WIRE ROPE TARPAULIN , USING A SPREADER BAR LIFTING DEVICE AT KELVIN LANDFILL, LOUISIANA (PHOTO TAKEN 03/88).

PHOTO 6: DEPLOYMENT OF A GEOTEXTILE USING A ROLLING FRAME AT GREENE VALLEY LANDFILL, ILLINOIS (PHOTO TAKEN 09/14/90).

PHOTO 7: DEPLOYMENT OF A TYPAR GEOTEXTILE USING A BACKHOE AT COLORADO SPRINGS LANDFILL, COLORADO (PHOTO TAKEN 09/18/90).

PHOTO 8: MANUAL DEPLOYMENT OF AN AMOCO GEOTEXTILE AT LAKE LANDFILL, ILLINOIS (PHOTO TAKEN 09/06/90).

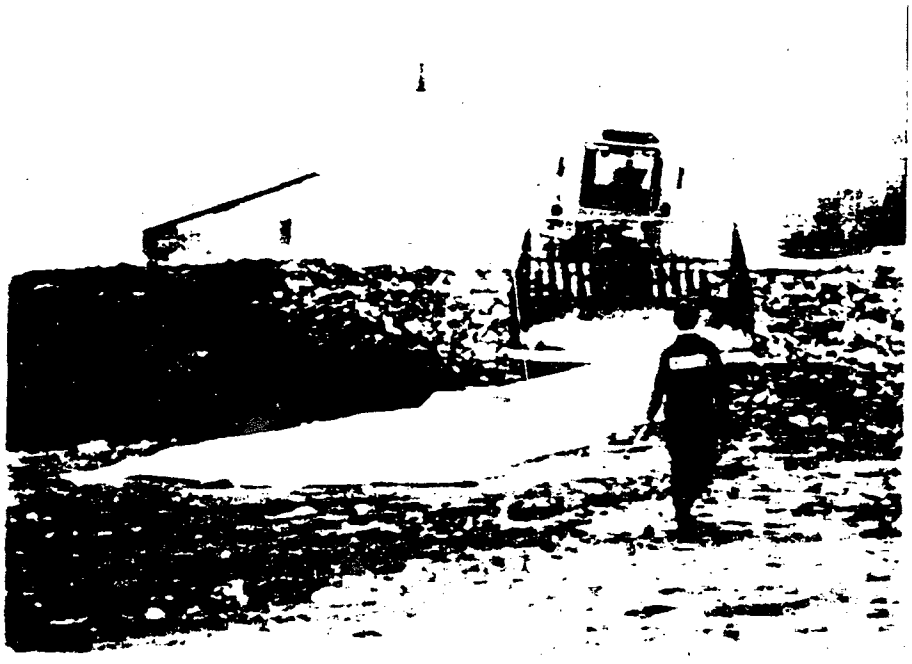

PHOTO 9: DEPLOYMENT OF A FABRISOIL GEOTEXTILE WITH ONE COMPACTOR AT EDMONTON LANDFILL, CANADA (PHOTO TAKEN 10/09/90).

PHOTO 10: ANCHORING WIRE ROPE SPECIALISTS TARP WITH SAND BAGS AT GREATER WENATCHEE REGIONAL LANDFILL, WASHINGTON (PHOTO TAKEN 07/11/90).

10.0 ADC ECONOMIC ANALYSIS

ALTERNATIVE DAILY COVER EVALUATION EQUATIONS

Refuse Bank Rate $\left(\frac{BCY}{day}\right)$

$$= \frac{\text{Incoming Waste Volume } \left(\frac{GCY}{day}\right)}{\text{Refuse Compaction Ration } \left(\frac{GCY}{BCY}\right)}$$

Average Daily Intermediate Cover Area (SF)

$$= \frac{\text{Refuse Bank Rate } \left(\frac{BCY}{day}\right)}{\text{Average Height of Lift (ft)}} \times \left(\frac{27\ ft^3}{yd^3}\right)$$

Daily Cover Volume (BCY)

= Thickness of Daily Cover Remaining (in) x Average Daily Working Face Area (SF) x $\left(\frac{yd^3}{27\ ft^3}\right)$ x $\left(\frac{1\ ft}{12\ in}\right)$

Intermediate Cover Volume (BCY)

= Thickness of Intermediate Cover Remaining (in) x Average Daily Intermediate Cover Area (SF) x $\left(\frac{yd^3}{27\ ft^3}\right)$ x $\left(\frac{1\ ft}{12\ in}\right)$

Total Daily Operations Volume (BCY)

= Refuse Bank Rate (BCY) +Daily Cover Volume (BCY) +Intermediate Cover Volume (BCY)

Site Life Using Soil as Daily Cover (years)

$$= \frac{\left[\frac{\text{Remaining Landfill Airspace Capacity (BCY)}}{\text{Total Daily Operations Volume (BCY)}}\right]}{\left[\text{Landfill Operating Schedule}\left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{52\ \text{weeks}}{\text{year}}\right)\right]}$$

Site Life Using Alternative as Daily Cover (years)

$$= \Bigg(\text{Remaining Landfill Airspace Capacity (BCY)} +$$

$$\left\{ \left[\frac{\text{Percent Use of Alternative(\%)}}{100} \times \left(\text{Refuse Bank Rate (BCY)} + \text{Intermediate Cover Volume (BCY)} \right)\right] \right.$$

$$\left. + \left[\left(1 - \frac{\text{Percent Use of Alternative (\%)}}{100}\right) \times \text{Total Daily Operations Volume (BCY)}\right] \right\} \Bigg)$$

$$+ \left[\text{Landfill Operating Schedule}\left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{52\ \text{weeks}}{\text{year}}\right)\right]$$

Percent Increase in Site Life (%)

$$= \left[\frac{\left(\text{Site Life Using Alternative (years)} - \text{Site Life Using Soil (years)} \right)}{\text{Site Life Using Soil (years)}}\right] \times 100$$

Additional Airspace Available for Refuse Disposal (BCY)

$$= [\text{Site Life Using Alternative as Daily Cover (years)} - \text{Site Life Using Soil as Daily Cover (years)}] \times$$

$$\left(\frac{52\ \text{weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule}\left(\frac{\text{days}}{\text{week}}\right) \times \text{Refuse Bank Rate}\left(\frac{\text{BCY}}{\text{day}}\right)$$

Value of Additional Airspace for Refuse Disposal ($)

= Additional Airspace Available for Refuse Disposal (BCY) x Refuse Compaction Ratio $\left(\frac{GCY}{BCY}\right)$ x Gate Rate $\left(\frac{\$}{GCY}\right)$

Cost of Soil Daily Cover Material ($)

= Site Life Using Soil as Daily Cover (years) x $\left(\frac{52\ weeks}{year}\right)$ x Landfill Operating Schedule $\left(\frac{days}{week}\right)$

x Daily Cover Volume (BCY) x Daily and Intermediate Soil Cost ($)

Cost of Soil Daily Cover and Equipment($)

= Site Life Using Soil as Daily Cover (years) x $\left(\frac{52\ weeks}{year}\right)$ x Landfill Operating Schedule $\left(\frac{days}{week}\right)$ x

$\left\{\sum\left[\text{Equipment Usage (hr/day)} \times (\text{Equipment Cost (\$/hr)} + \text{Operator Cost (\$/hr)})\right]\right\}$

Total Soil Daily Cover Cost ($)

= Cost of Soil Daily Cover Labor and Equipment ($) + Cost of Soil Daily Cover Material ($)

Cost Of Soil as a Daily Cover on a Square Foot Basis ($/SF)

= Total Soil Daily Cover Cost ($) ÷

$\left\{\text{Site Life Using Soil as Daily Cover (years)} \times \left(\frac{52\ weeks}{year}\right) \times\right.$

$\left.\text{Landfill Operating Schedule}\left(\frac{days}{week}\right) \times \text{Average Daily Working Face Area (SF)}\right\}$

Cost of Daily Alternative Cover Material ($)

$$= \text{Site Life Using Alternative as Daily Cover (years)} \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times$$

$$\left[\frac{\text{Percent Use of Alternative(\%)}}{100}\right] \times \text{Average Daily Working Face Area (SF)} \times \text{Cost of Alternative (\$/SF)}$$

Cost of Alternative Daily Cover Labor and Equipment ($)

$$= \text{Site Life Using Alternative as Daily Cover (years)} \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times$$

$$\Big\{ \sum (\text{Sanifoam Machine Usage (hr/day)} \times \text{Equipment Cost (\$/hr)}) +$$

$$\sum (\text{Equipment Usage (hrs/day)} \times \text{Equipment Cost (\$/hr)}) +$$

$$\sum (\text{Operator Time (hr)} \times \text{Labor Rate (\$/hr)}) +$$

$$\left[\left(\sum \text{Foam Machine Preparation Time (hr)}\right) \times \text{Labor Rate (\$/hr)}\right] \Big\}$$

Cost of Soil as Daily Cover when Alternative is not Feasible ($)

$$= \text{Site Life Using Alternative as Daily Cover (years)} \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times$$

$$\left[1 - \left(\frac{\text{Percent Use of Alternative(\%)}}{100}\right)\right] \times$$

$$\left[\frac{\text{Total Soil as Daily Cover Costs (\$)}}{\left(\text{Site Life Using Soil as Daily Cover (years)} \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right)\right)}\right]$$

Soil Savings Credit ($)

= Additional Airspace Available for Refuse Disposal (BCY) x Daily and Intermediate Soil Cost ($/CY)

Total Alternative Daily Cover Cost ($)

= Cost of Daily Alternative Cover Material ($) + Cost of Alternative Daily Cover Labor and Equipment ($)

+ Cost of Soil as Daily Cover when Alternative is not Feasible ($) - Soil Savings Credit ($)

Cost of Alternative Daily Cover Material on a Square Foot Basis ($/SF)

$$= \frac{\left\{\frac{\text{Cost of Alternative Daily Cover Material (\$)} + \text{Cost of Labor and Equipment (\$)}}{\left[\text{Site Life Using Soil Cover (yrs)} \times \left(\frac{52\ \text{weeks}}{\text{year}}\right) \times \text{Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times \frac{\text{Percent Use of Alternative (\%)}}{100}\right]}\right\}}{\text{Average Daily Face Working Area (SF)}}$$

Net Gain (or Loss) ($)

= [Value of Additional Airspace for Refuse Disposal ($) + Total Soil Daily Cover Cost ($)]

- [Cost of Daily Alternative Cover Material ($) + Cost of Alternative Daily Cover Labor and Equipment ($)

+ Cost of Soil as Daily Cover when Alternative is not Feasible ($)]

Refuse to Soil Ratio if Soil Used as a Daily Cover

$$= \frac{\text{Refuse Bank Rate} \left(\frac{\text{BCY}}{\text{day}}\right)}{(\text{Daily Cover Volume (BCY)} + \text{Intermediate Cover Volume (BCY)})}$$

Refuse to Soil Ratio if Alternative Used as a Daily Cover

$$= \text{Refuse Bank Rate} \left(\frac{\text{BCY}}{\text{day}}\right)$$

$$+ \left\{\left[\left(\frac{\text{Percent Use of Alternative(\%)}}{100}\right) \times \text{Intermediate Cover Volume (BCY)}\right]\right.$$

$$\left. + \left[\left(1 - \frac{\text{Percent Use of Alternative(\%)}}{100}\right) \times (\text{Daily Cover Volume (BCY)} + \text{Intermediate Cover Volume (BCY)})\right]\right\}$$

Break Even Cost on a Gate Cubic Yard Basis ($/GCY)

$$= [\text{Cost of Daily Alternative Cover Material (\$)} + \text{Cost of Alternative Daily Cover Labor and Equipment (\$)}$$

$$+ \text{Cost of Soil as Daily Cover when Alternative is not Feasible (\$)} - \text{Total Soil Daily Cover Cost (\$)}]$$

$$+ [\text{Additional Airspace Available for Refuse Disposal (BCY)} \times \text{Refuse Compaction Ratio (GCY/BCY)}]$$

Current Remaining Gate Yardage Capacity (GCY)

$$= \left\{\text{Remaining Landfill Airspace Capacity (BCY)} - \left[\frac{\text{Remaining Landfill Airspace Capacity (BCY)}}{(\text{Refuse to Soil Ratio if Soil Used as Daily Cover} + 1)}\right]\right\}$$

$$\times \text{Refuse Compaction Ratio (GCY/BCY)}$$

Revised Estimated Gate Yardage Capacity Using Alternative Daily Cover (GCY)

$$= \left\{\text{Remaining Landfill Airspace Capacity (BCY)} - \left[\frac{\text{Remaining Landfill Airspace Capacity (BCY)}}{(\text{Refuse to Soil Ratio if Soil Used as Daily Cover} + 1)}\right]\right.$$

$$\left. + \text{Additional Airspace Available for Refuse Disposal (BCY)}\right\} \times \text{Refuse Compaction Ratio (GCY/BCY)}$$

Revised Cell Development Cost per Gate Cubic Yard by Utilizing Alternative Daily Cover ($)

$$= \frac{\text{Current Remaining Gate Yardage Capacity (GCY)} \times \text{Current Cell Development Cost per Gate Yard ($)}}{\text{Revised Estimated Gate Yardage Capacity Using Alternative Daily Cover (GCY)}}$$

Annual Imported Soil Daily Cover Material Cost ($)

$$= \frac{\text{Cost of Soil Daily Cover Material ($)}}{\text{Site Life Using Soil as a Daily Cover (year)}}$$

Annual Cost of Soil Daily Cover Labor ($)

$$= \left[\text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{52\ \text{weeks}}{\text{year}}\right)\right]$$

$$\times \left\{\sum \left[\text{Equipment Usage (hrs/day)} \times \text{Equipment Cost ($/hr)}\right]\right\}$$

Annual Cost of Soil Daily Cover Equipment ($)

$$= \left[\text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{52\ \text{weeks}}{\text{year}}\right)\right]$$

$$\times \left\{\sum \left[\text{Equipment Usage (hrs/day)} \times \text{Labor Cost ($/hr)}\right]\right\}$$

Annual Closure Accrual Cost ($)

$$= \left[\frac{\text{Closure/Post Closure Cost Remaining to be Accrued ($)}}{\text{Current Remaining Gate Yardage Capacity (GCY)}}\right]$$

$$\times \left[\text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{52\ \text{weeks}}{\text{year}}\right) \times \text{Incoming Waste Volume (GCY/day)}\right]$$

Annual Cell Development Cost Write-Off ($)

= Current Cell Development Cost per Gate Yard ($)

$$\times \left[\text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}} \right) \times \left(\frac{52 \text{ weeks}}{\text{year}} \right) \times \text{Incoming Waste Volume (GCY/day)} \right]$$

Total Annual Cost to Use Soil as a Daily Cover ($)

= Annual Imported Soil Daily Cover Material Cost ($) + Annual Cost of Soil Daily Cover Labor ($)

+ Annual Cost of Soil Daily Cover Equipment ($) + Annual Closure Accrual Cost ($)

+ Annual Cell Development Cost Write-Off ($)

Annual Alternative Daily Cover Material Cost ($)

$$= \text{Average Daily Face Working Area (SF)} \times \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}} \right) \times \left(\frac{52 \text{ weeks}}{\text{year}} \right)$$

$$\times \text{Cost of Alternative Daily Cover Product (\$/SF)} \times \left(\frac{\text{Percent Use of Alternative(\%)}}{100} \right)$$

Annual Alternative Daily Cover Labor Cost ($)

$$= \left\{ \sum \left[\text{Equipment Usage (hrs/day)} \times \text{Labor Cost (\$/hr)} \right] + \sum \left[\text{Foam Machine Preparation Time (hrs/day)} \times \text{Labor Cost (\$/hr)} \right] \right\}$$

$$\times \left[\text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}} \right) \times \left(\frac{52 \text{ weeks}}{\text{year}} \right) \right]$$

Annual Alternative Daily Cover Equipment Cost ($)

$$= \left[\text{Landfill Operating Schedule } \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{\text{52 weeks}}{\text{year}}\right) \right]$$

$$\times \left\{ \sum \left[\text{Equipment Usage (hrs/day)} \times \text{Equipment Cost (\$/hr)} \right] \right\}$$

Annual Soil Daily Cover Material and Placement Cost When Alternative Daily Cover Cannot Be Used ($)

$$= \left[\text{Annual Imported Soil Daily Cover Material Cost (\$)} + \text{Annual Cost of Soil Daily Cover Labor (\$)} \right.$$

$$\left. + \text{Annual Cost of Soil Daily Cover Equipment (\$)} \right] \times \left[1 - \left(\frac{\text{Percent Use of Alternative(\%)}}{100}\right) \right]$$

Annual Closure Accrual ($)

$$= \frac{\text{Closure/Post Closure Cost Remaining to be Accrued (\$)}}{\text{Revised Estimated Gate Yardage Capacity Using Alternative Daily Cover (GCY)}}$$

$$\times \left[\text{Landfill Operating Schedule } \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{\text{52 weeks}}{\text{year}}\right) \times \text{Incoming Waste Volume (GCY/day)} \right]$$

Annual Cell Development Cost Write-Off ($)

$$= \text{Revised Cell Development Cost per Gate Cubic Yard by Utilizing Alternative Daily Cover (\$)} \times$$

$$\left[\text{Landfill Operating Schedule } \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{\text{52 weeks}}{\text{year}}\right) \times \text{Incoming Waste Volume (GCY/day)} \right]$$

Annual Soil Savings Credit ($)

$$= \frac{\text{Soil Savings Credit ($)}}{\text{Site Life Using Soil as Daily Cover (years)}}$$

Total Annual Cost to Use Alternative as a Daily Cover ($)

= Annual Alternative Daily Cover Material Cost ($) + Annual Alternative Daily Cover Labor Cost ($)

+ Annual Soil Daily Cover Material and Placement Cost When Alternative Daily Cover Cannot Be Used ($)

+ Annual Closure Accrual ($) +Annual Cell Development Cost Write-Off ($) - Annual Soil Savings Credit ($)

Annual Cost Increase (or Decrease) to Utilize Alternative as a Daily Cover ($)

= Total Annual Cost to Use Alternative as a Daily Cover ($) - Total Annual Cost to Use Soil as a Daily Cover ($)

301

Equal Opportunity Employer

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OCT 8 '93
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION

DEPARTMENT OF PUBLIC UTILITIES
Solid Waste Disposal Division

October 6, 1993

Mr. Greg Mathes, General Manager
Trail Ridge Landfill, Inc.
5110 U. S. Highway 301
Baldwin, Florida 32234

RE: Role of City personnel at landfill

Dear Mr. Mathes,

After receipt of the attached correspondence from you to the Florida Department of Environmental Protection (FDEP), as a follow up to the FDEP inspection conducted August 3, I find it necessary to clarify the duties of our personnel at the landfill. The City of Jacksonville's employees stationed near the working face of the landfill act only as observers. Their responsibilities are to the City to gather information for the City's use in the overall management of the facility. They have no responsibility to Trail Ridge and are not to act as spotters for the Trail Ridge Landfill nor do they have the responsibility to screen waste on the working face.

Please contact me if additional information is needed regarding the matter.

Sincerely,

L. Chris Pearson
Sr. Assistant Engineer

LCP/

cc: Mary C. Nogas, P.E., FDEP
Scott D. Kelly, P.E.
William C. Boyle
Reading File
Lofs

37-2 West 1st St. 32206
AREA CODE 904 / 630-0973 / 1961 EDGEWOOD AVENUE WEST / JACKSONVILLE, FLORIDA 32208

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Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Compa

August 12, 1993

Ms. Mary C. Nogas, P.E.
Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

RE: **Trail Ridge Landfill**
Permit #SC16-184444
DEP Inspection, 8-3-93

Dear Ms. Nogas,

This is a follow up to the DEP inspection conducted on August 3 at the referenced site. Specifically, this letter will address the issues mentioned in the narrative, labelled as part VIII of the report.

1. *Report Comment:* "#76. Truck dumping and compactors working on one-half of face, areas not being filled-on need cover." "Several areas of inadequate cover east and west of working face".

   Response: The initial lift was recently placed under the current fill area. This area is therefore below elevation with respect to the surrounding fill area. At the time of the inspection, a thin lift was being applied and the area was being graded to promote stormwater runoff and prevent ponding. In such an effort the active face may become larger from the minimum required for the dumping activity alone.

   Rest assured however, that while the first thin lift results in a larger working face, our normal daily operations reflects a narrower working face with typical lifts averaging 8-14 feet in elevation. The area of concern received six inches of initial cover as required by Rule at the end of the day.

2. *Report Comment:* "#41. Intermediate cover needs to be applied within 7 days of leaving fill area if not filling within 180 days. area next to leachate tanks needs intermediate cover completed, March last date in that area."

   Response: Please note that the area had in fact received 18 inches of cover as required earlier in the year. However, as we discussed in our May, 1993 meeting, this area was being prepared for final cover placement, including construction of

the drainage terraces. These terraces, specified in our design, had not been implemented under the site's previous general manager and needed to be constructed prior to final cover placement. This regrading effort has resulted in temporary disturbance of the area, involving exposure of some of the previously filled material. Additionally, part of the cover was stripped away by the elements over a period of time. However, cover was applied to all exposed areas at the end of each operating day and proper 18" cover has been applied to each area upon completion of grading in that area. Application of the cover is almost complete and every effort will be made to maintain this even until final cover is constructed.

3. *Report Comment:* "evidence of one bag of possible (untreated) biohaz(ard)\biomedical waste in fill. Spotters need to try and intercept this type of waste".

Response: Operations at Trail Ridge Landfill involve random inspections of incoming loads three times a week. Additionally, the City of Jacksonville typically provides two to three inspectors at the active face perimeter. Trail Ridge Landfill does not accept untreated biohazardous waste streams, and per our Special Waste Agreement with the City of Jacksonville, none of their waste customers are to allow such materials in their Trail Ridge bound waste streams. Any trucks identified as carrying untreated biohazardous wastes are therefore rejected and banned from Trail Ridge Landfill, and no biohazardous waste has knowingly been accepted at the site. Additionally, all spotters and equipment operators were made aware of this report's comment, so they will have an increased awareness to this issue.

If you require any further information, please contact me at 289-9100.

Sincerely,

Greg Mathes
Division President and General Manager

GM:mm

cc: Jim Lukens
Chris Pearson

c:\wp51\jeff\inspect.nov\2.2

Please mail
back to
Jeff Reindl
@ Trail Ridge

—Thanks

DONE

Golder Associates Inc.

9104 Cypress Green Drive, Suite 100
Jacksonville, FL USA 32256
Telephone (904) 448-0605
Fax (904) 448-0703

Golder Associates

NORTHEAST DISTRICT
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SEP 2 9 1993
923-3350
DEP - JACKSONVILLE

RECEIVED
AUG 11 1993
TRAIL RIDGE

August 10, 1993

Trail Ridge Landfill
5110 U.S. Highway 301
P.O. Box 548
Baldwin, FL 32234

Attn: Mr. Jim Lukens
Site Engineer

RE: ABANDONMENT OF MONITORING WELL MWB-22S
TRAIL RIDGE LANDFILL
DUVAL COUNTY, FLORIDA

Gentlemen:

As requested, Golder Associates Inc. (Golder Associates) has reviewed our files for information pertaining to the abandonment of monitoring well MWB-22S. Based on our file review and discussions with Golder Associates personnel (Mr. Jim Frere and Mr. Barry Browne) who were involved in the installation of the groundwater monitoring wells for the Trail Ridge site, the following chronology was developed:

- Monitoring well MWB-22S was installed on January 27, 1992.
- On January 28, 1992 Mr. Scott McCallister of WMNA visited the site and observed that MWB-22S was only about 65 feet from MWB-12. The well had been drilled where the surveyors had located it, but based on design contained in the permit, MWB-22S was supposed to be approximately 200 feet from MWB-12. It was decided to properly abandon MWB-22S and replace it with a new well (designated MWB-22SR) located in the position shown in the permit documents (200 feet from MWB-12).
- Monitoring well MWB-22SR was installed on February 14, 1992.
- Monitoring well MWB-22SR was developed on March 6, 1992.
- Monitoring well MWB-22S was abandoned on March 11, 1992. Abandonment consisted of lowering a 1-inch diameter tremie pie to the bottom of the well and pumping a bentonite-cement mix until return was observed at the surface. The top 5 feet of 2-inch diameter PVC riser was removed from MWB-22S and then topped off again with grout.
- Monitoring well MWB-22SR was baseline sampled by Golder Associates on March 16, 1993. Due to limited space on the analytical laboratory's field sampling forms, MWB-22SR is noted as "MWB-22S". It is noted that the original MWB-22S was never sampled.

We hope that this summary is helpful in completing your records. If you should have any questions regarding this letter, please call.

Very truly yours,

GOLDER ASSOCIATES INC.

Kenneth B. Karably, P.E., P.G.
Senior Engineer

WP51\T-RIDGE\MWB-22SR.LTR\kbk

P 771 975 834

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Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
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PS Form 3800, June 1985

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- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

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Consult postmaster for fee.

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Trailer Resort C&A

SEP 23 1993
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4a. Article Number
P 771 975 834

4b. Service Type
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☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
9-24-93

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)
SW

6. Signature (Agent)
M Mathison

SEP 1993

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

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Environmental Protection

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7577

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

September 21, 1993

CERTIFIED - RETURN RECEIPT

Ms. Juanitta Bader Clem, P. E.
Project Manager
England-Thims & Miller, Inc.
3131 St. Johns Bluff Road South
Jacksonville, Florida 32246

Dear Ms. Clem:

Trail Ridge Landfill
Review of CQA Final Report
Cells IC and IIC
Duval County - Solid Waste

The Department has reviewed your submittal, received February 12, 1993 and supplemented on June 4, 1993, concerning Construction Quality Assurance at the above-referenced landfill. The following review is enclosed:

Attachment No. 1, Review Memorandum dated September 20, 1993, prepared by Mark Cadenhead.

Please provide the requested information by October 21, 1993. Further action on the certification of construction will be delayed until the requested information has been received in this office.

If you have any questions concerning this matter, please contact me at telephone number (904) 448-4320.

Sincerely,

Mary C. Nogas, P.E.
Solid Waste Supervisor

MCN:mc

Administration 448-4300
Air 448-4310
Waste Management 448-4320

Water Facilities 448-4330
Water Management 448-4340
FAX 448-4366

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DEPARTMENT OF ENVIRONMENTAL REGULATION

TO: _____
TO: _____
TO: _____
TO: _____

INTEROFFICE MEMORANDUM

NORTHEAST DISTRICT - JACKSONVILLE

TO: FILES

THROUGH: MARY C. NOGAS, P. E.

FROM: MARK CADENHEAD

DATE: SEPTEMBER 20, 1993

SUBJECT: REVIEW MEMORANDUM
TRAIL RIDGE LANDFILL
CERTIFICATION OF CONSTRUCTION, PHASES IC AND IIC
DUVAL COUNTY - SOLID WASTE

The following comments are a result of a review of the Construction Quality Assurance Monitoring of the Geosysthetic Lining System.

TRAIL RIDGE LANDFILL CONSTRUCTION CERTIFICATION-PHASE IC

Primary Liner:

I. Seaming Logs and Air Pressure Test:

1. P357/P359-376 and P358/P376-377 Please clarify whether or not the seams were air pressure tested and if so how the test is being indicated in the Air Pressure Test Log. If the entire length was extrusion welded, please indicate. Please indicate where in the Seaming Log these seams may be located.

Secondary Liner:

I. Seaming Logs:

1. S372/S343-369 Please clarify whether or not the seams were air pressure tested and if so how the test is being indicated in the Air Pressure Test Log. Also, clarify where in the Seaming Log these seams are indicated. Is the tie-in seam at the east end the seaming of these panels?

II. Air Pressure Test (APT) Log:

1. S329/S330 Was the entire seam extrusion welded? If not, was an APT performed?

2. S340/S341 Was the seam from 213' to 259' extrusion welded? If yes, was an APT test performed above and below the extrusion weld?

III. Comparison of Seam Sketch to Panel Layout:

1. S251/S252 From 124.5' to 147.5', the repair sketch does not indicate the extrusion weld that the APT log noted.

2. S326/S327 Please update the Panel Layout to indicate that there should not be a extrusion weld at the South End of the seam. This correction was made in the Repair Sketch but is not being reflected in the Panel Layout.

3. S344/S345 The Panel Layout does not indicate the extrusion weld noted in both the Repair Sketch and the APT Log.

TRAIL RIDGE LANDFILL CONSTRUCTION CERTIFICATION-PHASE IIC

Primary Liner:

I. Seaming Log:

1. The seaming log did not indicate the following seams: P312/P314, P317/P326, P332/P334, P345/P353, P346/P352, P353/P347, P348/P351 and P326 thru P357 (with IIB).

II. Air Pressure Test Log:

1. P356/P358 There were no APT results for this seam.

2. P355/P359 There is an APT in the log but the panels do not touch. Please clarify.

III. Comparison of Seam Sketch to Panel Layout:

1. P255/P256 Extrusion weld from 67' to 95' does not appear to be represented in the Panel Layout.

2. P280/P281 The extrusion weld from 152' to 163' does not appear to be represented in the Panel Layout.

3. P308/P309 The extrusion weld from 275' to 281' does not appear to be represented in the Panel Layout.

4. P336/P337 The extrusion weld from 169' to 172' is not shown on the Panel Layout.

Secondary Liner:

I. Seaming Log:

1. The following seams did not appear in the Seaming Log: S399/S401, S402/S403, S403/S419 and S400/IIB Tie In.

2. S391/S401 The panels are listed in the seaming log but the panels do not appear to touch.

II. Air Pressure Test Log:

1. S252/S254 The Department has interpreted that the APT was performed for 120' to 276' and 276' to End rather than 120' to 267' and 267' to End noted in the APT log due to the location of the destructive seam test. Please indicate whether or not this interpretation is correct and the numbers were accidentally misprinted. This interpretation is in line with previous logging practices.

2. S377/S378 The extrusion weld noted in the APT log is not shown on the Panel and Seam Repair Field Sketch for 314' to S. End.

3. S386/S388 The extrusion weld is not shown on either the Panel and Seam Repair Field Sketch or the Panel Layout.

4. S388/S389 The extrusion weld is not shown on either the Panel and Seam Repair Field Sketch or Panel Layout.

III. Comparison of Seam Sketch to Panel Layout:

1. S280/S281 The Panel Layout does not indicate that the full seam was extrusion welded.

2. S325/S328 The extrusion weld from 143' to 158' may not be represented on the Panel Layout. Please correct the drawing if necessary.

3. S349/S350 Please clarify if the Panel Layout from 150' to 237' is indicating an extruded seam or a fusion seam.

4. S416/S417 The Panel Layout indicates that the seam was extruded; however, the APT log shows a test on the seam. Please clarify.

TRAIL RIDGE LANDFILL, INC.
5110 U.S. HWY. 301
P. O. BOX 548
BALDWIN, FL 32234

GLOBAL CASH MANAGEMENT
Mellon Bank
Mellon Bank N.A.
Pittsburgh, PA

00317

Sep 09 19 93

8-26
430

PAY TWO HUNDRED FIFTY AND 00/100********** DOLLARS $ 250.00

TO THE ORDER OF FLORIDA DEPT OF ENVIRONMENTAL PROTECTION

[redacted]

TRAIL RIDGE LANDFILL, INC.

DETACH AND RETAIN THIS STATEMENT
THE ATTACHED CHECK IS IN PAYMENT OF ITEMS DESCRIBED BELOW.
IF NOT CORRECT PLEASE NOTIFY US PROMPTLY. NO RECEIPT DESIRED.

DELUXE - FORM WVCP-3 V-2

DATE	DESCRIPTION	AMOUNT
	467 727 67 $250.00 MINOR MODIFICATION ON SC16-184444	

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

217071

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from TRAIL RIDGE LANDFILL, INC. Date 9-15-93

Address 5110 U.S. HWY 301 P.O. BOX 548 BALDWIN FL 32234 Dollars $ 250.00

Applicant Name & Address TRAIL RIDGE LANDFILL, INC. P.O. BOX 6987 JACKSONVILLE FL 32236

Source of Revenue TRAIL RIDGE LANDFILL

Revenue Code 002245 CK00317 Application Number SO16-237826

By Brenda Deaver

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

CERTIFIED MAIL #P415 285 157

NORTHEAST DISTRICT
RECEIVED
SEP 15 1993
DEP-JACKSONVILLE

September 8, 1993

Ms. Mary C. Nogas, P.E.
Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Fl 32256

RE: **Trail Ridge Landfill**
Permit # SC16-184444

Dear Ms. Nogas:

As requested in your letter dated August 18, 1993, I hereby request a minor modification to the above permit and have enclosed a check for the $250 processing fee. This request is to allow either EPA method 601/602 or EPA method 624 to be utilized to analyze the ground and surface water samples.

Information provided by the Environmental Monitoring Laboratory is attached for your review. The information includes the method detection limits and state of Florida approval. EPA method 624 will enable the required peak analysis to be performed as the method utilizes the GC/MS analysis.

If you need any further information on this request, please call.

Sincerely,

Greg Mathes
Division President and General Manager

cc: Jim Lukens
Scott McCallister
Doug Miller (ETM)
Chris Pearson (City of Jax)
Jeff Reindl

c:\wp51\greg\permit.ltr

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A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
SEP 15 1993
DEP-JACKSONVILLE

RECEIVED
AUG 0 1993
TRAIL RIDGE

DATE: August 9, 1993

TO: Jim Lukens

FROM: Janet Holmgren Janet M. Holmgren

SUBJECT: Method 624 Information

Per your request for information regarding the use of EPA method 624 for the analysis of volatile organic compounds at Trail Ridge Landfill, please find attached a list of the EML method detection limits for this method. The EML is approved by the state of Florida to use method 624 as outlined in certificate E87190. If you have any further questions or need additional information, please do not hesitate to call me at 708-208-3126.

NORTHEAST DISTRICT
RECEIVED
SEP 15 1993
DEP - JACKSONVILLE

Analyte	Method Detection Limit
1,1,1-trichloroethane	2.0 ug/L
1,1,2,2-tetrachloroethane	2.0 ug/L
1,1,2-trichloroethane	1.0 ug/L
1,1-dichloroethane	3.0 ug/L
1,1-dichloroehtene	2.0 ug/L
1,2-dichlorobenzene	1.0 ug/L
1,2-dichloroethane	2.0 ug/L
1,2-dichloropropane	2.0 ug/L
1,3-dichlorobenzene	2.0 ug/L
1,4-dichlorobenzene	2.0 ug/L
2-chloroethylvinyl ether	5.0 ug/L
benzene	1.0 ug/L
bromodichloromethane	1.0 ug/L
bromoform	1.0 ug/L
bromomethane	2.0 ug/L
carbon tetrachloride	1.0 ug/L
chlorobenzene	1.0 ug/L
chloroethane	3.0 ug/L
chloroform	2.0 ug/L
chloromethane	2.0 ug/L
cis-1,3-dichloropropene	1.0 ug/L
dibromochloromethane	1.0 ug/L
ethylbenzene	1.0 ug/L
methylene chloride	3.0 ug/L
tetrachloroethene	1.0 ug/L
toluene	1.0 ug/L
trans-1,2-dichloroethene	3.0 ug/L
trans-1,3-dichloropropene	1.0 ug/L
trichloroethene	1.0 ug/L
trichlorofluoromethane	2.0 ug/L
vinyl chloride	2.0 ug/L
dichlorodifluoromethane	0.6 ug/L*

* Please note that this compound is not in the method 624 analyte list.

P 326 083 210

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NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

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Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, June 1985 ☆U.S.G.P.O. 1989-234-555

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SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
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- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
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I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
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Consult postmaster for fee.

3. Article Addressed to:

Greg Mathews
Trial Atty LF

4a. Article Number 326083210

4b. Service Type
☐ Registered ☐ Insured
☐ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery 4-10-93

5. Signature (Addressee) James H. Terrell

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

JW

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Florida Department of
Environmental Protection

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7577

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

September 8, 1993

CERTIFIED - RETURN RECEIPT

Mr. Greg Mathes
Division President and General Manager
Trail Ridge Landfill, Inc.
Post Office Box 548
Baldwin, Florida 32234

Dear Mr. Mathes:

Trail Ridge Landfill
Permit No. SC16-184444
DEP File No. 236034
Duval County - Solid Waste

The Department has reviewed your request, received August 12, 1993, to utilize geotextile fabric and shredded tires as initial cover at the Trail Ridge Landfill. In order to proceed with the processing of your request, the following information is needed:

1. Please provide specifications for the particular geotextile proposed to be utilized;

2. Please provide the Department with reasonable assurances that the proposed geotextile will minimize vector breeding, animal attraction, and moisture infiltration, minimize fire potential, prevent blowing litter, control odors, and improve landfill appearance; and

3. What is the maximum time any area would remain covered by geotextile? Please provide information to give the Department reasonable assurance that the functions of initial cover would be maintained for that time period.

Please provide the requested information by October 11, 1993. Action on the permit modification application will be delayed until the requested information has been received in this office.

Please reference the associated DEP file number and the permit number in all written correspondence concerning this project. If you have any questions concerning this matter, please contact me.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN:ml

Administration 448-4300
Air 448-4310
Waste Management 448-4320

Water Facilities 448-4330
Water Management 448-4340
FAX 448-4366

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Florida Department of
Environmental Protection

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7577

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

September 8, 1993

Mr. Harvey H. Bush, Jr., P.E.
Senior Environmental Engineering Manager
Vice President
Waste Management of North America-South
500 Cypress Creek Road West, Suite 300
Fort Lauderdale, Florida 33309

Dear Mr. Bush:

Trail Ridge and Rosemary Hill Landfills
Clay and Duval Counties - Solid Waste

The Department has reviewed your letter, received September 7, 1993, to utilize tarpaulins or geosynthetics at the referenced facilities in lieu of 6 inches compacted earth as initial cover in those areas where solid waste will be deposited on the working face within 18 hours.

Since neither the existing rule nor the facilities' permits require daily cover, we have no objection to your proposal. Should, however, you wish to use these alternative covers for areas which will not receive additional waste within 18 hours, or if the rule changes to require daily cover, a permit modification for each landfill must be obtained to utilize the tarpaulins or geosynthetic.

If you have any questions concerning this matter, please do not hesitate to contact me by telephone at (904)448-4320, extension 355.

Sincerely,

Mary C. Nogas, P.E.
Solid Waste Supervisor

MCN:ml

cc: Greg Mathes, Trail Ridge, Inc.
Allan Williams, Duval County
J. D. Igou
Bill Green, Clay County

DEPARTMENT OF REGULATORY &
ENVIRONMENTAL SERVICES
Air Quality Division

September 7, 1993

Mr. Greg Mathes
Division President and General Manager
Trail Ridge Landfill, Inc.
P.O. Box 548
Baldwin, Florida 32234

Reference: Your correspondence of August 29, 1993

Subject: Trail Ridge Landfill
Late submittal of asbestos disposal site notification
Response to Notice to Correct No. 3705

Dear Mr. Mathes:

The Air Quality Division (AQD) hereby acknowledges receipt and acceptance of the above-referenced response to Notice to Correct No. 3705. No further enforcement action is anticipated in regards to this matter, and the AQD case is now closed.

As previously stated, the Florida Department of Environmental Protection (DEP) and the U. S. Environmental Protection Agency (EPA) share regulatory authority in this matter with the AQD. The DEP or EPA may choose to pursue separate enforcement action for late submittal of the report.

Your conscientious effort to ensure that the Trail Ridge Landfill is operating in compliance with applicable regulations is appreciated. Any questions in this matter should be directed to Mr. Jeremy Lucas at (904) 630-3484.

Very truly yours,

James O. Sewell, P.E.
Bio-Environmental Engineer
Air Quality Division

JSO/JWL/ema

cc: Ms. Judy Tatum, DEP
Ms. Mary C. Nogas, P.E., DEP
Ms. Alfreda Freeman, EPA
Greg Radlinski, Esq., OGC
AQD Enforcement File
AQD File: NP - T

421 West Church Street - Suite 412
Jacksonville, Florida 32202-4111

Area Code 904/630-3666

Mary C. Nogan, P.E.

NORTHEAST DISTRICT
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SEP 9 1993
DEP - JACKSONVILLE

NORTHEAST DISTRICT
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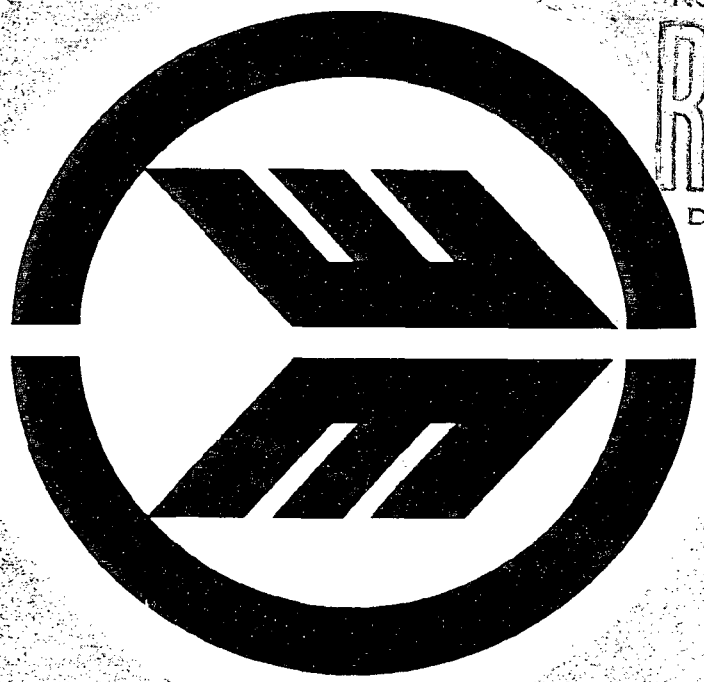
SEP 7 1993
DEP - JACKSONVILLE



Alternative Daily Cover Study

Waste Management of North America, Inc.
3003 Butterfield Road • Oak Brook, Illinois 60521

GEOSYNTHETIC

ALTERNATIVE DAILY COVER STUDY

Prepared By

ENGINEERING GROUP
WASTE MANAGEMENT OF NORTH AMERICA, INC.
3003 Butterfield Road
Oak Brook, IL 60521

March 1991

GEOSYNTHETIC
ALTERNATIVE DAILY COVER STUDY

i EXECUTIVE SUMMARY

1.0 INTRODUCTION

2.0 DAILY COVER PERFORMANCE CRITERIA

3.0 FIELD EXPERIENCE AND RESULTS OF GEOSYNTHETICS TESTED

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- 3.2 Amoco
- 3.3 Fabrisoil
- 3.4 Griffolyn
- 3.5 Tarpaulin Daily Cover
- 3.6 Typar
- 3.7 Other Geosynthetic ADC materials
  - 3.7.1 Biodegradable Geosynthetics
  - 3.7.2 Geotextiles Manufactured from Recycled Plastics
  - 3.7.3 Plastic Films

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- 4.2 Maneuverability
- 4.3 Field Deployment
- 4.4 Maintenance
- 4.5 Working Face Preparation

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6.0 MATERIAL RECOMMENDATIONS

7.0 ECONOMIC EVALUATION

8.0 CONCLUSIONS AND RECOMMENDATIONS

9.0 PHOTOGRAPHIC SUMMARY

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EXECUTIVE SUMMARY
GEOSYNTHETIC
ALTERNATIVE DAILY COVER STUDY

Waste Management of North America, Inc. (WMNA) has been evaluating substitutes to soil for daily cover. Incorporation of Alternate Daily Cover (ADC) materials into daily operations has resulted in increased available refuse airspace in the landfill, reductions of required soil daily cover quantities, reduction of labor and equipment normally used to apply and remove soil daily cover, while improving leachate and gas management. The geosynthetic ADC materials evaluated included:

- Amoco, both woven and nonwoven geotextiles,
- Phillips Fabrisoil, a nonwoven geotextile,
- Griffolyn, a nylon reinforced plastic,
- Tarpaulins, made of high density polyethylene, and
- Typar, a spunbound geotextile.

This study presents field experiences, economic evaluations, conclusions and recommendations for the use of geosynthetics as ADC, based from evaluation of woven and non-woven geosynthetics during 1990 at WMNA's sites.

The geosynthetic ADC materials used have shown to meet the minimum performance requirements of daily cover, including:

- litter control,
- odor reduction,
- vector control,
- minimization of rainfall infiltration, and
- aesthetics.

The following recommendations for nominal material property values for ADC geosynthetic materials, are based on evaluations at WMNA sites and research of physical properties of geosynthetic ADC materials tested under this study. These are recommended nominal values only and are not meant to eliminate any other geosynthetic material which may seem worthy candidates for ADC use:

- weight $\geq$ 5.0 oz/sy
- puncture strength (ASTM-D-4833) $\geq$ 60 lbs
- trapezoidal tear strength (ASTM-D-4533) $\geq$ 60 lbs
- permittivity (ASTM-D-4491) $\leq$ 1.7 sec^{-1}

In addition to using geosynthetics as ADC materials, other products should be further evaluated, including but not limited to: biodegradable plastics, geotextiles manufactured from recycled plastics, spray-on-compounds, and treated POTW sludges.

ALTERNATIVE DAILY COVER
GEOSYNTHETIC MEMBRANE STUDY

1.0 INTRODUCTION

The application of daily cover material is standard operating procedure at most solid waste landfills. Traditionally, daily cover consists of a soil layer, typically up to six inches thick, applied over the active working face at the end of the day. Most commonly, operators have attempted to remove as much of the daily cover as possible before filling begins on the next day. However, there are practical limitations as to how much soil can be recovered depending upon the soil type. Furthermore, some regulatory agencies also restrict this practice. Placement and removal of daily cover soil is time consuming, and at locations where the soil material is imported, it also becomes an expensive operation. Because landfill airspace has become more scarce, there has been a heightened interest in recovering the airspace displaced by the daily cover.

Waste Management of North America, Inc. (WMNA) has been evaluating a number of geosynthetics for use as Alternative Daily Cover (ADC) materials as substitutes for soil as daily cover. Because of their negligible airspace displacement, their simple operation and their relatively low price, geosynthetic ADC materials are an attractive alternative to soil for daily cover. Yet there may be situations when geosynthetic daily covers cannot be used every day, such as extreme weather conditions, in which cases soil should be used.

The purpose of this report is to present WMNA's experience using geosynthetics as daily cover. The daily cover performance criteria is discussed in Section 2. A discussion of the geosynthetic daily cover evaluation program conducted at several landfills during 1990 is presented in Section 3. Application and removal practices are discussed in Section 4. Advantages and disadvantages of the tested geosynthetics are discussed in Section 5. Material recommendations are presented in Section 6. An economic evaluation is presented in Section 7. Conclusions and recommendations are discussed in Section 8.

A Photographic Summary is presented in Section 9. Detailed economic analysis is presented in Section 10.

2.0 DAILY COVER PERFORMANCE CRITERIA

Daily cover material must be capable of meeting or exhibiting certain performance criteria. Based on historical daily cover requirements, review of various regulations, and WMNA's experience at operating landfills, the following performance criteria was developed. In order to function effectively, daily cover should:

- Minimize dust;
- Minimize odors;
- Minimize blowing litter;
- Limit infiltration of precipitation;
- Control the harborage of flies, mosquitoes, rodents and other vermin;
- Be aesthetically acceptable;
- Allow migration of leachate and gas within the landfill.

3.0 EXPERIENCE AND RESULTS OF GEOSYNTHETICS TESTED

3.1 General

Various commercially available geosynthetic materials have been successfully tested and evaluated at WMNA landfills over the last few years. Experience gained during these evaluations proved that the geosynthetics tested fulfill the required performance criteria for daily covers. A major finding experienced at these sites was that strong winds introduce difficulties in handling the material and adequately covering the working face. Only a limited amount of experience is available thus far using geosynthetics during snowy conditions. Light snowfall amounts have not produced a problem. Freezing conditions have created some difficulty when removing the panels, and a large overnight snowfall may result with the panel not recoverable the next morning.

The WMNA Engineering Group (EG) has assisted in and monitored field testing at sites interested in alternate daily covers, and has identified and worked with manufacturers to develop and test products for this study. This section describes various products, WMNA site experiences and the results with each geosynthetic daily cover. Samples and manufacturer information of these materials are presented in Section 11 and Section 12.

3.2 Amoco Geotextiles

Amoco woven and non-woven geotextiles have been successfully used at Lake Landfill, Illinois. Amoco 4504 and Amoco 9298 are non-woven geotextiles. Amoco 9298 is a special run of Amoco 4506 heat set on both sides to increase runoff potential and strength properties of the geotextile. Specifications for Amoco 9298 will be available in mid-1991. The geotextiles were equipped with a 6 inch sleeve around the perimeter allowing the panel to be moved on site from any side. The non-woven geotextiles were reused 12 to 15 times before being disposed in the landfill. The panels gained weight with moisture or dirt build up in the geotextile. The non-woven Amoco 4504 and Amoco 9298 geotextiles did not shed water as well as the woven Amoco 2006 geotextiles. Amoco 2006 shed water effectively; moisture and dirt did not build up in this material which makes it lighter to use over time. Overall, the Amoco 2006 held up

well in all types of weather and has lasted through ninety six (96) reuses at Lake Landfill, Illinois.

Both materials were first applied with equipment dragging the panels to the working face. Site operations then decided to experiment with using smaller panels which could be maneuvered manually, thereby saving the cost of machinery and operators. Walking on the refuse should be limited. Daily cover panels at Lake Landfill are applied by 3 to 4 laborers. Using smaller panels enables the site to cover portions of the working face earlier in the afternoon, so covering time after the landfill closes is minimized. Another advantage to using multiple panels is that large sites with more than one fill area can be covered with geosynthetics effectively. Both the woven and non-woven Amoco geotextiles fulfilled the performance criteria of a daily cover, although Lake Landfill prefers using the Amoco woven geotextiles because of their all weather durability and cost effectiveness.

3.3 Fabrisoil

Fabrisoil is a non-woven needle punched polypropylene geotextile manufactured by Phillips Fibers Corporation of Greenville, South Carolina. A typical panel placed as a cover for the working face consists of individual 15 foot wide panels sewn together. Six inch sleeves are also sewn on the perimeter to facilitate towing.

Fabrisoil is currently being used at the following sites: Turnkey Landfill, New Hampshire; Woodland Meadows Landfill, Michigan; Pinnacle Road Landfill, Ohio; Lake County Landfill, Ohio; Eagle Valley, Michigan; and, Tri-City Landfill, Michigan. Based on experience at these WMNA sites, during mild weather conditions, one panel may last through approximately 20 reuses. Hand application of the geotextile without the use of heavy equipment dragging the material will generally yield a higher panel life, but walking on the refuse should be limited as much as possible.

Most sites use either one or two pieces of equipment, and attach the panel to it by means of a rope or chain. The panel or panels are then dragged to the working face and spread out to cover the working face (See Photo 9, Section 9) and anchored with either tires or sandbags (See

Photos 9 and 10 Section 9). The next day after removing the weights, the panel is dragged to a neutral area, away from the daily filling activity.

Fabrisoil performs well and meets the minimum performance criteria for daily cover. Site experience with this product has been favorable due to its durability and maneuverability.

3.4 Griffolyn

Griffolyn T-85 a nylon reinforced plastic fabric manufactured by Griffolyn Reef Industries of Houston, Texas, is commonly used as an outdoor storage cover. Because of its low permeability and chemical resistance, Griffolyn T-85 also makes a good daily cover. This material has been tested at Colorado Springs Landfill, Colorado. The geomembrane was equipped with a six inch sleeve around the perimeter to facilitate towing. The panel was typically deployed using two pieces of equipment to drag the tarp to the working face and spread it out. The tarp was then secured to the working face with tires. The next day the panel was removed by first removing the tires and then dragging the panel to a neutral area away from the daily filling activity. Colorado Springs Landfill was able to reuse the geosynthetic seventeen (17) times before disposing it in the landfill.

Overall the Griffolyn geomembrane fulfilled the minimum performance requirements for a daily cover. Site experience has shown that repairs with patch tape to the Griffolyn are not permanent and the material seems to tear easily when dragging on and off the working face. Colorado Springs prefers using a Typar geotextile (Section 3.6) to the Griffolyn geosynthetic because of its lower cost and durability.

3.5 Tarpaulin Daily Cover

Woven tarpaulin (tarps) are made of high density polyethylene manufactured by Wire Rope Specialists of Baton Rouge, Louisiana. Tarpaulins have been used mostly in the Eastern/South Central Region. Tarps have been equipped with nylon web straps sewn across the tarp in both directions. The tarps are also referred to as "beanie blankets," originating from the pioneer of their use, Wildred "Beanie" Acosta.

A tarpaulin daily cover is currently being used at Kelvin Landfill, Louisiana; Woodside Landfill, Louisiana; Alexandria Landfill, Louisiana; Magnolia Landfill, Louisiana; B.J. Landfill, Georgia; Rolling Hills Landfill, Georgia; Hickory Hill, South Carolina; and, New Milford Landfill, Connecticut. Site experience has shown that this material can perform up to six months or more as a daily cover, depending on site conditions. Application and removal of tarpaulins is accomplished generally with the use of a spreader bar attached to landfill equipment. The tarp panels are attached to the bar. The tarp is lifted with half the tarp dragging. The tarp is then brought to the working face and spread out. Some sites use multiple panels and overlap them. Each overlap is further secured with sandbags, or tires or connected with buckles. This method of overlapping or "shingling" is desirable when applying the tarps.

Greater Wenatchee Regional Landfill, Washington and DADS Landfill, Colorado have experimented with using large sized tarp panels, dragging them on and off the working face. Sizes ranged from approximately 50-ft by 50-ft to 100-ft by 100-ft. The use of tarps with approximate size of 100-ft by 100-ft were quite difficult to apply and remove in this manner, because their large size and heavy weight, made them difficult to maneuver, especially during windy conditions.

Overall the woven tarpaulins make good daily covers and fulfill all the performance criteria. Their overall durability and high panel life make them economically effective, and site experience has been very favorable. Their only drawback is their high initial investment, since tarpaulins are the most expensive geotextile per square yard. However, because of their numerous reuses, the effective cost is considerably reduced.

3.6 Typar

Typar is a non-woven spunbound geotextile, manufactured by Reemay, Inc. of Old Hickory, Tennessee. Colorado Springs Landfill, Colorado, is currently using Typar 3601, where site operations prefer its use to the Griffolyn geosynthetic because of its high strength, lighter weight and lower cost. So far, they have used the material forty (40) times before disposing in the landfill. The geotextile panel is applied with two pieces of equipment dragging the panel

over the working face, and anchoring it with tires. The next day the tires are removed and the panel is dragged to a neutral area, away from the daily filling activity.

Overall the site prefers using the geosynthetics to soil daily covers because of the time saved in moving soils to the daily working face. Scrapers can be better utilized for constructing their new cell, instead of hauling daily cover soil.

Typar has performed well in fulfilling the performance criteria of daily cover. The geotextile's light weight makes it easy to maneuver larger panel sizes. Typar's durability and lower cost per square yard make it an economically favorable daily cover as well.

3.7 Other Geosynthetic ADC Materials

During the development of this geosynthetic study, other geosynthetic ADC materials have been field tested at WMNA sites, including but not limited to the following. Biodegradable geosynthetics at Shannon Road Landfill, Arkansas, and geotextiles manufactured from recycled plastics, at Lancaster Landfill, California.

3.7.1 Biodegradable Geosynthetics

EG has been in contact with Nesbit Industries and DuPont both from Canada who are developing biodegradable ADC materials. At this time, prototype materials have not been available for field testing from neither manufacturer. Biodegradable geosynthetics purchased through National Seal Seal Company and manufactured by Favorite Plastics Co. of Dallas, Texas were previously tested at Shannon Road Landfill, Arkansas. A copy of the report prepared for that field test is available upon request from the Engineering Group.

Application of a 5 mil biodegradable plastic at Shannon Road Landfill, Arkansas was done manually with two men walking down the outer edges of the working face to spread out a panel. Afterwards, sand bags were used to anchor the panel in place. Removal of the plastic was somewhat difficult because rain and moisture built up in low spots which made the panel very heavy and unmanageable. A single panel lasted through only three (3) reuses, it was

destroyed when attempts made to remove the panel from the working face after a heavy rainfall failed.

Overall the biodegradable plastic material fulfilled the minimum requirements of a daily cover. However, the low durability and weather sensitivity of these materials allows for only a limited number of reuses.

3.7.2 Geotextiles Manuafactured from Recycled Plastics

Quline, a geotextile manufactured from recycled plastic beverage containers by Wellman, Inc. of Denver, Colorado are also being considered for ADC use. Unfortunately, these materials were not available for field test during the development of this study. Lancaster Landfill, California, is planning a pilot test with recycled textiles during the first quarter of 1991.

Contact has been made with other geotextiles manufactured from recycled plastics manufactures including Terra Environmental Products from Dallas, North Carolina. Future field testing with their products are planned.

3.7.3 Plastic Films

A disposable 1.5 mil clear plastic film manufactured by Poly-America, Inc. of Grand Prairie, Texas has been successfully used as a daily cover at Lake Landfill, Illinois. This material does not meet all the recommended physical properties but meets WMNA daily cover performance criteria.

4.0 APPLICATION AND REMOVAL

4.1 Fabrication and Size

The application and removal of geosynthetics used as ADC are adapted to meet specific site conditions including, the size of the working face, and available labor and equipment at each site. Typically, the working face for a small landfill (less than 500 tons/day) is about 2,500 squared feet, while for a large landfill (in excess of 10,000 tons/day) is at least 15,000 squared feet. Overall, the smaller the working face results in a more efficient application and removal of geosynthetic as daily cover.

The geosynthetic panels are fabricated by sewing manufactured roll widths with a commercial machine to a desired panel dimension. A typical geosynthetic roll width is approximately 15 feet, with length in excess of 200 ft. Depending upon the material properties and the site specific conditions, geosynthetic panels have been fabricated to sizes smaller than 50-ft by 50-ft (2,500 SF) to larger than 120-ft by 120-ft (14,400 SF) sections.

Generally, the manufacturers fabricate the geosynthetic panels before being transported to the site. However, because of the easy handling of most materials, it is possible to fabricate the panels by sewing panels of material together at the site. In addition, it is possible to repair panels at the site that have minor rips or tears, with the use of sewing machines or patch tape. Manufactures can also provide a means of hooking up panels to available equipment on site. A six inch sleeve is sometimes sewn around the perimeter of the panel where a pipe can be inserted. The pipe acts as a spreader bar when a rope is tied to it and fastened to a piece of equipment. Some manufacturers provide panels equipped with 1-inch Cordia nylon web straps spaced approximately 12-foot apart sewn across the tarp in both directions as well as the edges. The straps extend over the hem of the panel 4 inches and a dee-ring is sewn at the end, to connect the tarp to a piece of equipment.

4.2 Maneuverability

Geosynthetic panels with dimensions of approximately 75-ft by 120-ft (9,000 SF) have been

maneuvered and handled at landfills quite easily with one or two compactors and up to two laborers. Experience with geosynthetics at some WMNA sites has demonstrated that panels with dimensions of 120-ft by 120-ft (14,400 SF) are the largest that can be effectively maneuvered to cover the working face. This application makes use of two machines and two laborers.

Large sized working faces can be covered using multiple small panels. Various WMNA sites have experimented with using multiple geosynthetic panels. The individual panels are approximately 50-ft by 50-ft, and are applied in a configuration to effectively cover the working face of the landfill overlapped like roofing shingles. These smaller panels can be applied manually but require more care in handling. Manual application requires additional precautions from the laborers, since they would have to walk over the refuse. More laborer time is required when applying the covers manually yet the equipment that was used for the covering can be utilized for other landfill duties.

4.3 Field Deployment

The deployment of geosynthetic panels depends largely upon the equipment and labor available at the site. Section 9 presents photos depicting various aspects of geosynthetics being used as daily covers.

Typically, the use of geosynthetic daily cover proceeds as follows at the end of each day; a panel is dragged over the working face with landfill equipment until the panel covers the working face. The panel can be attached to landfill equipment by the use of ropes or chains attached to sleeves, slits, rings, or knots in the geosynthetic panels corners or edges. Materials such as dirt, sand bags, or tires are then placed around the perimeter of the panel to keep it in place. The next day the panel is removed from the working face by dragging the panel off of the working face with landfill equipment. The panel can be dragged far enough off of the working face so that it is in a neutral area out of the way of operations, or it can be folded or rolled as needed based on space limitations. Photos 1-4 in Section 9 shows a typical panel deployment.

Dragging of the geosynthetic panel over the working face is the easiest way of deployment, but also the most stressful for the panel itself. Devices for lifting or rolling the panels have been used at some landfills where geosynthetics are extensively use as daily covers. Photo 5 in Section 5 shows a lifting device used with the beanie blanket at Kelvin Landfill, Louisiana. Photo 6 shows a rolling frame used with a geotextile at Greene Valley Landfill, Illinois.

4.4 Maintenance

The life of a geosynthetic material can be prolonged by exercising care and common sense when using them and through proper maintenance. For geotextiles small tears can be easily repaired with the use of a sewing machine. High density polyethylene materials as well as other plastics can be repaired using a patch tape.

4.5 Working Face Preparation

Special care should be taken when applying and removing the geosynthetic daily covers. The working face should be relatively free from protruding refuse that may harm the geosynthetic daily cover. Extra compaction of the working face prior to cover placement helps the covering operation go smoothly, and minimizes excessive tearing, as well as gaining better refuse compaction. A geotextile that is partially damaged can be recycled by cutting the material to remove severely torn areas, and using the remaining material. When the geosynthetics are severely torn and cannot be repaired or recycled, the suggested method of disposal is to compress the material together into a pile and bury with refuse.

5.0 ADVANTAGES AND DISADVANTAGES

The utilization of geosynthetic materials as ADC provides many advantages to the landfill operation, including:

- Use is easily adapted to sites;
- no special equipment is required;
- reduces required soil quantities;
- realizes air space savings within the landfill;
- reduces labor and equipment associated with applying and removing daily cover;
- no special skills or training required for use;
- the working face receives a blanketed cover which eliminates flagging of refuse and the guesswork of how thick a cover has been applied;
- controls blowing litter;
- minimizes the escape of odor and insects;
- minimizes dust because trucks will not need to haul as much soil for daily cover;
- controls vector access to the refuse;
- improves leachate and gas management by eliminating additional soil barrier layers within the landfill; and is
- aesthetically pleasing.

There are certain disadvantages also associated with geosynthetic daily covers as well, including:

- Geosynthetics are difficult to use during wind conditions above 20 mph;
- Geosynthetics are difficult to use during snowy conditions;
- Geosynthetics need to be brought to neutral areas on site away from daily operations when not in use or folded to keep them out of daily operations area;
- Most geosynthetics are not fire retardant at this time; and
- Geosynthetics can become odorous when used on refuse for a long time.

The geosynthetics tested will not self ignite. However, results from simple flame testing where a lighter was held to a small sample of fabric showed that the geosynthetics discussed will sustain a flame and are not fireproof. However, the flame extinguishes after the flame source is removed. The flame does not propogate without the presence of a fire source. Based on this experiment, none of the materials are fire instigators however, they could not be used to put out a fire or prevent a fire from occurring. No fires on any working face have been reported during this study. WMNA is investigating the cost and efficiency of fire retardant treatments.

Generally, the advantages for using geosynthetic daily covers outweigh the disadvantages. There may be many situations where site conditions are not conducive to geosynthetic daily cover use. Alternative daily covers will probably not totally replace soil in daily cover applications, but they should be used as much as practical and possible.

6.0 MATERIAL RECOMMENDATIONS

Based on evaluations at WMNA sites and research of physical properties of geosynthetic materials, the following recommendations are made as nominal values for geosynthetic daily covers:

- weight $\geq$ 5.0 oz/sy
- puncture strength (ASTM-D-4833) $\geq$ 60 lbs
- trapezoidal tear strength (ASTM-D-4533) $\geq$ 60 lbs
- permittivity (ASTM-D-4491) $\leq$ 1.7 sec^{-1}

These values are recommended as target values for geosynthetics daily cover materials. These values are not meant to eliminate geosynthetics which seem worthy candidates for daily cover.

A summary of the material properties for the geosynthetic daily covers tested during this study is presented on Table 6.1.

In addition to using geosynthetics as ADC materials, other products should be further evaluated, including but not limited to: biodegradable plastics, geotextiles manufactured from recycled plastics, spray-on-compounds, and treated POTW sludges.

TABLE 6–1
GEOSYNTHETIC DAILY COVER MATERIAL PROPERTY INDEX

		NON-WOVEN GEOTEXTILES				WOVEN GEOTEXTILE	TARPAULINS	
PROPERTY	TEST METHOD	AMOCO 4504	AMOCO *9298	PHILLIPS FABRISOIL	TYPAR 3601	AMOCO 2006	GRIFFOLYN T–85	WIRE ROPE SPECIALISTS
WEIGHT (OZ/SY)	N/A	4.0	NOT AVAIL.	6.0	5.8	7.0	5.6	9.0–9.6
GRAB TENSILE (LBS)	ASTM D–4632	85.0	NOT AVAIL.	170.0	200.0	300.0	115.0 (ASTM D–882)	440.0 (ASTM D–1682–64)
GRAB ELONGATION (%)	ASTM D–4632	50.0	NOT AVAIL.	70.0	60.0	15.0	160.0 (ASTM D–882)	NOT AVAIL.
MULLEN BURST (PSI)	ASTM D–3786	225.0	NOT AVAIL.	300.0	210.0	600.0	NOT AVAIL.	610.0 (ASTM D–751–73)
PUNCTURE (LBS)	ASTM D–4833	55.0	NOT AVAIL.	100.0	6.0	120.0	NOT AVAIL.	NOT AVAIL.
TRAPEZOIDAL TEAR (LBS)	ASTM D–4533	35.0	NOT AVAIL.	65.0	75.0	120.0	23.0 (ASTM D–2582)	65.0 (ASTM D–2261–71)
UV RESISTENCE (%)	ASTM D–4355	70.0	NOT AVAIL.	70.0	90.0	70.0	NOT AVAIL.	NOT AVAIL.
COEFFICIENT OF PERMIABILITY (CM/SEC)	ASTM D–4497	0.20	NOT AVAIL.	0.293	0.01	NOT AVAIL.	NOT AVAIL.	NOT AVAIL.
PERMITTIVITY (1/SEC)	ASTM D–4491	NOT AVAIL.	NOT AVAIL.	1.678	0.1	0.02	NOT AVAIL.	NOT AVAIL.
FLUX (GAL\MIN\SF)	ASTM D–4491	100.0	NOT AVAIL.	132.6	25.0	2.0	NOT AVAIL.	NOT AVAIL.
THICKNESS (MIL)	ASTM D–1777	40.0	NOT AVAIL.	55.0	18.0	NOT AVAIL.	NOT AVAIL.	NOT AVAIL.
MATERIAL TYPE	N/A	POLY–PROPYL.	POLY–PROPYL.	POLY–PROPYL.	POLY–PROPYL.	POLY–PROPYL.	HDPE	HDPE

* Material Properties for Amoco 9298 will be available in 1991.

7.0 ECONOMIC EVALUATION

The use of geosynthetic ADC at WMNA landfills has proven to be economically feasible and operationally practical. Incorporation of these materials into daily operations has resulted in reductions of required soil quantities, reduction of labor and equipment normally used to apply and remove soil daily cover, while increasing refuse airspace and improving leachate and gas management in the landfill.

Average geosynthetic ADC costs (material and freight) used during this study are presented on Table 7-1. These costs are based on a vendor's survey conducted in late 1990 and are subject to change by the manufacturer. The geosynthetic ADC effective cost (cost per use) may be different than shown, depending upon the number of usages at the site.

Site specific economic assessments were performed prior to the selection of each site pilot test and were calibrated after the field data was compiled. Because of the confidential nature of the information reported in each site economic assessments, they are not presented with this study.

An economic assessment model was developed to evaluate each site condition. The economic assessment model takes into account labor, material and equipment costs. The daily cover annual cost also includes closure accrurual and cell development write-off costs. Detailed description and assumptions of the economic assessment model is presented in Section 10.0. This economic assessment model is available as a Lotus 1-2-3 spread sheet from EG. Various examples of the economic assessment model are presented as part of the following economic evaluation.

ADC economic analysis examples for two hypothetical sites using Fabrisoil and Wire Rope Specialists Tarpaulin are presented on Tables 7-2 through 7-5. Site A has a remaining airspace capacity of 4,000,000 BCY, takes 800 gate yards per day and has a working face of 1,800-SF while site B has a remaining airspace capacity of 8,000,000 BCY, takes 4,000 gate yards per day and has a working face of 7,000 SF. Detailed economic analysis for each site is presented in Section 10.0. Fabrisol and Tarpaulin materials were selected for these ADC economic analysis examples because they have been the most widely used during this study.

The results from economic assessment from the two hypothetical landfills are very similar in nature to what would be expected at WMNA sites.

Overall, as the size of the working face and the usage of ADC increases, the net annual daily cover cost decreases. From our two landfill examples, the annual daily cover costs shows decreases from between 9 and 13 percent when using ADC. As the soil daily cover used was reduced by approximately 75 percent, the refuse to soil ratio changed from 8.7:1 to 16.7:1 for the 800 gate cubic yard site, while the refuse to soil ratio changed from 5.2:1 to 9.1:1 for the 4,000 gate cubic yard site.

TABLE 7-1
AVERAGE GEOSYNTHETIC ADC COSTS

GEOTEXTILES	PRICE ($/SY) Material	Freight	Total	Field Usage	Effective Cost
Amoco 4504 - Non-woven Geotextile	$0.50	$0.08	$0.58	15	$0.039
Amoco 9298 - Non-woven Geotextile	$0.65	$0.08	$0.73	15	$0.050
Amoco 2006 - Woven Geotextile	$0.70	$0.08	$0.78	96	$0.008
Phillips Fabrisoil Non-Woven Geotextile	$1.62	$0.20	$1.82	20	$0.090
Griffolyn T-85 - High Density, Rubber Modified Polythylene	$2.25	$0.09	$2.34	17	$0.138
Typar 3601 - Spunbound, Non-Woven Geotextile	$0.90	$0.08	$0.98	40	$0.025
Wire Rope Specilists TGNN - Woven HDPE Tarpaulin	$2.91	$0.20	$3.11	120	$0.026

NOTES:

1. Prices are as per vendor's quotes during a survey in late 1990 and does not include pertinent taxes. Prices accordingly to purchase order quantity.
2. Delivery prices may also vary depending on site location.
3. Field usage based from the various pilot tests conducted during this study. Field usage may increase as site operations and labor becomes more familiar with the ADC.
4. Effective costs is the material daily cost of using ADC and is calculated by dividing the manufacturer's material and freight cost by the number of field usages.

TABLE 7-2
ADC ECONOMIC ANALYSIS EXAMPLE
FOR LANDFILLS USING FABRISOIL

LANDFILL A:
Remaining Airspace capacity = 4,000,000 BCY
Gate Rate = 800 CY per day
Average working face = 1,800 SF
ADC usage = 75%

		Alternative Daily Cover		
	Soil	Five Uses	Ten Uses	Twenty Uses
Daily Refuse Rate (BCY)	229	229	229	229
Daily Cover Volume (BCY)	17	5	5	5
Intermediate Cover Volume (BCY)	10	10	10	10
Daily Total Operation (BCY)	255	244	244	244
Estimated Refuse to Soil Ratio	8.7:1	16.7:1	16.7:1	16.7:1
Site Life (Years)	54.9	57.73	57.73	57.73
Additional BCY available for Refuse Disposal	N/A	185,000	185,000	185,000
Annual Cost for Daily Cover	$138,553	$136,593	$128,331	$124,200

NOTES:
1. For detailed economic analysis, see Section 10.
2. Adverse weather conditions and occassional site operations constraints requires the use of soil as daily cover while using ADC. ADC usage of 75% has been an average found during this study.
3. Intermediate soil cover volume is not replaced by ADC usage.

TABLE 7-3
ADC ECONOMIC ANALYSIS EXAMPLE
FOR LANDFILLS USING FABRISOL

LANDFILL B:
Remaining Airspace capacity = 8,000,000 BCY
Gate Rate = 4,000 CY per day
Average working face = 7,000 SF
ADC usage = 75%

		Alternative Daily Cover		
	Soil	Five Uses	Ten Uses	Twenty Uses
Daily Refuse Rate (BCY)	2,000	2,000	2,000	2,000
Daily Cover Volume (BCY)	216	54	54	54
Intermediate Cover Volume (BCY)	167	167	167	167
Daily Total Operation (BCY)	2,383	2,221	2,221	2,221
Estimated Refuse to Soil Ratio	5.2:1	9.1:1	9.1:1	9.1:1
Site Life (Years)	12	13	13	13
Additional BCY available for Refuse Disposal	N/A	490,000	490,000	490,000
Annual Cost for Daily Cover	$278,494	$302,159	$270,020	$253,961

NOTES:
1. For detailed economic analysis, see Section 10.
2. Adverse weather conditions and occassional site operations constraints requires the use of soil as daily cover while using ADC. ADC usage of 75% has been an average found during this study.
3. Intermediate soil cover volume is not replaced by ADC usage.

TABLE 7-4
ADC ECONOMIC ANALYSIS EXAMPLE
FOR LANDFILLS USING WIRE ROPE SPECIALISTS TARPAULIN

LANDFILL A:
Remaining Airspace capacity = 4,000,000 BCY
Gate Rate = 800 CY
Average working face = 1,800 SF
ADC usage = 75%

		Alternative Daily Cover	
	Soil	One Month Usage	Six Month Usage
Daily Refuse Rate (BCY)	229	229	229
Daily Cover Volume (BCY)	17	5	5
Intermediate Cover Volume (BCY)	10	10	10
Daily Total Operation (BCY)	255	244	244
Estimated Refuse to Soil Ratio	8.7:1	16.7:1	16.7:1
Site Life (Years)	5.5	5.8	5.8
Additional BCY available for Refuse Disposal	N/A	185,000	185,000
Annual Cost for Daily Cover	$138,553	$126,492	$121,078

NOTES:
1. For detailed economic analysis, see Section 12.
2. Adverse weather conditions and occassional site operations constraints requires the use of soil as daily cover while using ADC. ADC usage of 75% has been an average found during this study.
3. Intermediate soil cover volume is not replaced by ADC usage.

TABLE 7-5
ADC ECONOMIC ANALYSIS EXAMPLE
FOR LANDFILLS USING WIRE ROPE SPECIALISTS TARP

LANDFILL B:
Remaining Airspace capacity = 8,000,000 BCY
Gate Rate = 4,000 CY
Average working face = 7,000 SF
ADC usage = 75%

	Soil	One Month Usage	Six Months Usage
Daily Refuse Rate (BCY)	2,000	2,000	2,000
Daily Cover Volume (BCY)	216	54	54
Intermediate Cover Volume (BCY)	167	167	167
Daily Total Operation (BCY)	2,383	2,221	2,221
Estimated Refuse to Soil Ratio	5.2:1	9.1:1	9.1:1
Site Life (Years)	12	13	13
Additional BCY available for Refuse Disposal	N/A	490,000	490,000
Annual Cost for Daily Cover	$278,494	$262,874	$241,820

NOTES:
1. For detailed economic analysis, see Section 12.
2. Adverse weather conditions and occassional site operations constraints requires the use of soil as daily cover while using ADC. ADC usage of 75% has been an average found during this study.
3. Intermediate soil cover volume is not replaced by ADC usage.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The following are the conclusions of this ADC study, based on evaluations of geosynthetic daily covers used at various WMNA sites:

- The use of geosynthetics has proved to be performance equivalent to soil cover and meet the daily cover criteria;
- geosynthetics are economically favorable to site operations when compared to soil daily cover.

Utilization of geosynthetics seem to work best when incorporating a combination of manual work and landfill equipment. Caution needs to be used when manual application and removal requires workers to be on the working face, which should be avoided as much as possible.

The use of geosynthetic daily covers at WMNA landfills has proven to be economically feasible and operationally practical. Incorporation of these materials into the daily operations provide reductions in terms of soil quantities required, reductions of labor and equipment to apply and remove daily cover, improved leachate and gas management, and increased available airspace in the landfill.

Based on the findings of this study, continued use and further deployment of geosynthetic ADC at WMNA landfills is recommended. Selection of the ADC to be used at each site should be based on an economic assessment to take into account site specifics prior to full implementation.

In addition to using geosynthetic as ADC materials, other products should be further evaluated, other products should be further evaluated, including but not limited to: biodegradable plastics, geotextiles manufactured from recycled plastics, spray-on-compounds, and treated POWT sludges.

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9.0 PHOTOGRAPHIC SUMMARY

PHOTO 1: PREPARATION OF GEOSYNTHETIC PRIOR TO DEPLOYMENT. NYLON ROPE TIED TO PVC PIPE PLACED THROUGH 6" SLEEVE FOR TOWING (PHOTO TAKEN 08/14/90).

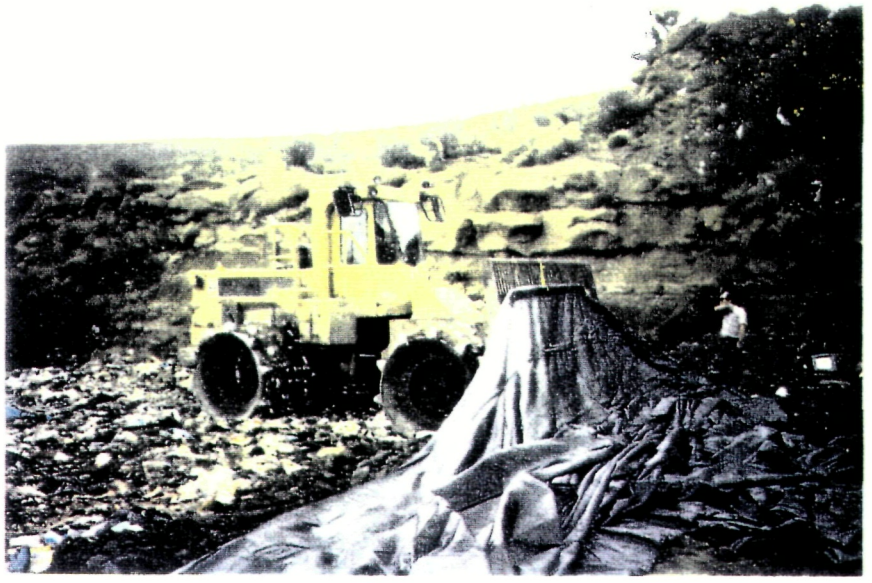

PHOTO 2: TRANSPORTING GEOSYNTHETIC TO WORKING FACE BY A COMPACTOR (PHOTO TAKEN 08/14/90).

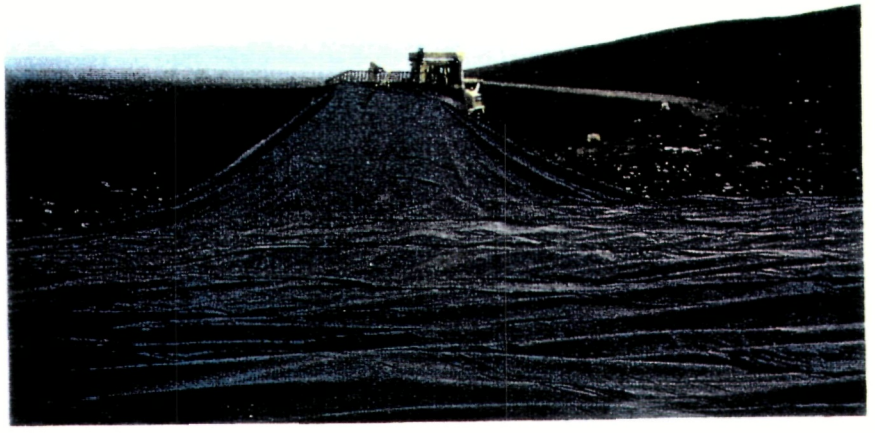

PHOTO 3: DEPLOYING GEOSYNTHETIC OVER WORKING FACE USING A COMPACTOR (PHOTO TAKEN 08/14/90).

PHOTO 4: ANCHORING GEOSYNTHETIC WITH TIRES (PHOTO TAKEN 08/14/90). PHOTOS 1-4 TAKEN AT COLORADO SPRINGS LANDFILL, COLORADO USING A GRIFFOLYN GEOSYNTHETIC.

PHOTO 5: DEPLOYMENT OF A WIRE ROPE TARPAULIN , USING A SPREADER BAR LIFTING DEVICE AT KELVIN LANDFILL, LOUISIANA (PHOTO TAKEN 03/88).

PHOTO 6: DEPLOYMENT OF A GEOTEXTILE USING A ROLLING FRAME AT GREENE VALLEY LANDFILL, ILLINOIS (PHOTO TAKEN 09/14/90).

PHOTO 7: DEPLOYMENT OF A TYPAR GEOTEXTILE USING A BACKHOE AT COLORADO SPRINGS LANDFILL, COLORADO (PHOTO TAKEN 09/18/90).

PHOTO 8: MANUAL DEPLOYMENT OF AN AMOCO GEOTEXTILE AT LAKE LANDFILL, ILLINOIS (PHOTO TAKEN 09/06/90).

PHOTO 9: DEPLOYMENT OF A FABRISOIL GEOTEXTILE WITH ONE COMPACTOR AT EDMONTON LANDFILL, CANADA (PHOTO TAKEN 10/09/90).

PHOTO 10: ANCHORING WIRE ROPE SPECIALISTS TARP WITH SAND BAGS AT GREATER WENATCHEE REGIONAL LANDFILL, WASHINGTON (PHOTO TAKEN 07/11/90).

10.0 ADC ECONOMIC ANALYSIS

ALTERNATIVE DAILY COVER

EVALUATION EQUATIONS

Refuse Bank Rate $\left(\frac{BCY}{day}\right)$

$$= \frac{\text{Incoming Waste Volume } \left(\frac{GCY}{day}\right)}{\text{Refuse Compaction Ration } \left(\frac{GCY}{BCY}\right)}$$

Average Daily Intermediate Cover Area (SF)

$$= \frac{\text{Refuse Bank Rate } \left(\frac{BCY}{day}\right)}{\text{Average Height of Lift (ft)}} \times \left(\frac{27\ ft^3}{yd^3}\right)$$

Daily Cover Volume (BCY)

= Thickness of Daily Cover Remaining (in) x Average Daily Working Face Area (SF) x $\left(\frac{yd^3}{27\ ft^3}\right)$ x $\left(\frac{1\ ft}{12\ in}\right)$

Intermediate Cover Volume (BCY)

= Thickness of Intermediate Cover Remaining (in) x Average Daily Intermediate Cover Area (SF) x $\left(\frac{yd^3}{27\ ft^3}\right)$ x $\left(\frac{1\ ft}{12\ in}\right)$

Total Daily Operations Volume (BCY)

= Refuse Bank Rate (BCY) +Daily Cover Volume (BCY) +Intermediate Cover Volume (BCY)

Site Life Using Soil as Daily Cover (years)

$$= \frac{\left[\frac{\text{Remaining Landfill Airspace Capacity (BCY)}}{\text{Total Daily Operations Volume (BCY)}}\right]}{\left[\text{Landfill Operating Schedule}\left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{52\ \text{weeks}}{\text{year}}\right)\right]}$$

Site Life Using Alternative as Daily Cover (years)

$$= \Bigg(\text{Remaining Landfill Airspace Capacity (BCY)} + \Bigg\{ \left[\frac{\text{Percent Use of Alternative(\%)}}{100} \times \left(\text{Refuse Bank Rate (BCY)} + \text{Intermediate Cover Volume (BCY)} \right)\right] + \left[\left(1 - \frac{\text{Percent Use of Alternative (\%)}}{100}\right) \times \text{Total Daily Operations Volume (BCY)}\right] \Bigg\} \Bigg) + \left[\text{Landfill Operating Schedule}\left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{52\ \text{weeks}}{\text{year}}\right)\right]$$

Percent Increase in Site Life (%)

$$= \left[\frac{\left(\text{Site Life Using Alternative (years)} - \text{Site Life Using Soil (years)} \right)}{\text{Site Life Using Soil (years)}}\right] \times 100$$

Additional Airspace Available for Refuse Disposal (BCY)

$$= [\text{Site Life Using Alternative as Daily Cover (years)} - \text{Site Life Using Soil as Daily Cover (years)}] \times \left(\frac{52\ \text{weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule}\left(\frac{\text{days}}{\text{week}}\right) \times \text{Refuse Bank Rate}\left(\frac{\text{BCY}}{\text{day}}\right)$$

Value of Additional Airspace for Refuse Disposal ($)

$$= \text{Additional Airspace Available for Refuse Disposal (BCY)} \times \text{Refuse Compaction Ratio} \left(\frac{\text{GCY}}{\text{BCY}}\right) \times \text{Gate Rate} \left(\frac{\$}{\text{GCY}}\right)$$

Cost of Soil Daily Cover Material ($)

$$= \text{Site Life Using Soil as Daily Cover (years)} \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right)$$

$$\times \text{Daily Cover Volume (BCY)} \times \text{Daily and Intermediate Soil Cost ($)}$$

Cost of Soil Daily Cover and Equipment($)

$$= \text{Site Life Using Soil as Daily Cover (years)} \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times$$

$$\left\{\Sigma \left[\text{Equipment Usage (hr/day)} \times (\text{Equipment Cost (\$/hr)} + \text{Operator Cost (\$/hr)})\right]\right\}$$

Total Soil Daily Cover Cost ($)

= Cost of Soil Daily Cover Labor and Equipment ($) + Cost of Soil Daily Cover Material ($)

Cost Of Soil as a Daily Cover on a Square Foot Basis ($/SF)

= Total Soil Daily Cover Cost ($) +

$$\left\{\text{Site Life Using Soil as Daily Cover (years)} \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \right.$$

$$\left. \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times \text{Average Daily Working Face Area (SF)}\right\}$$

Cost of Daily Alternative Cover Material ($)

$$= \text{Site Life Using Alternative as Daily Cover (years)} \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times \left[\frac{\text{Percent Use of Alternative(\%)}}{100}\right] \times \text{Average Daily Working Face Area (SF)} \times \text{Cost of Alternative (\$/SF)}$$

Cost of Alternative Daily Cover Labor and Equipment ($)

$$= \text{Site Life Using Alternative as Daily Cover (years)} \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times \left\{ \Sigma \left(\text{Sanifoam Machine Usage (hr/day)} \times \text{Equipment Cost (\$/hr)}\right) + \Sigma \left(\text{Equipment Usage (hrs/day)} \times \text{Equipment Cost (\$/hr)}\right) + \Sigma \left(\text{Operator Time (hr)} \times \text{Labor Rate (\$/hr)}\right) + \left[\left(\Sigma \text{ Foam Machine Preparation Time (hr)}\right) \times \text{Labor Rate (\$/hr)}\right] \right\}$$

Cost of Soil as Daily Cover when Alternative is not Feasible ($)

$$= \text{Site Life Using Alternative as Daily Cover (years)} \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times \left[1 - \left(\frac{\textit{Percent Use of Alternative(\%)}}{100}\right)\right] \times \left[\frac{\textit{Total Soil as Daily Cover Costs (\$)}}{\left(\text{Site Life Using Soil as Daily Cover (years)} \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right)\right)}\right]$$

Soil Savings Credit ($)

= Additional Airspace Available for Refuse Disposal (BCY) x Daily and Intermediate Soil Cost ($/CY)

Total Alternative Daily Cover Cost ($)

= Cost of Daily Alternative Cover Material ($) + Cost of Alternative Daily Cover Labor and Equipment ($)

+ Cost of Soil as Daily Cover when Alternative is not Feasible ($) - Soil Savings Credit ($)

Cost of Alternative Daily Cover Material on a Square Foot Basis ($/SF)

$$= \frac{\left\{\dfrac{\text{Cost of Alternative Daily Cover Material (\$)} + \text{Cost of Labor and Equipment (\$)}}{\left[\text{Site Life Using Soil Cover (yrs)} \times \left(\dfrac{52\ \text{weeks}}{\text{year}}\right) \times \text{Operating Schedule} \left(\dfrac{\text{days}}{\text{week}}\right) \times \dfrac{\text{Percent Use of Alternative(\%)}}{100}\right]}\right\}}{\text{Average Daily Face Working Area (SF)}}$$

Net Gain (or Loss) ($)

= [Value of Additional Airspace for Refuse Disposal ($) + Total Soil Daily Cover Cost ($)]

- [Cost of Daily Alternative Cover Material ($) + Cost of Alternative Daily Cover Labor and Equipment ($)

+ Cost of Soil as Daily Cover when Alternative is not Feasible ($)]

Refuse to Soil Ratio if Soil Used as a Daily Cover

$$= \frac{\text{Refuse Bank Rate} \left(\dfrac{\text{BCY}}{\text{day}}\right)}{(\text{Daily Cover Volume (BCY)} + \text{Intermediate Cover Volume (BCY)})}$$

Refuse to Soil Ratio if Alternative Used as a Daily Cover

$$= \text{Refuse Bank Rate} \left(\frac{\text{BCY}}{\text{day}}\right) + \left\{\left[\left(\frac{\text{Percent Use of Alternative(\%)}}{100}\right) \times \text{Intermediate Cover Volume (BCY)}\right] + \left[\left(1 - \frac{\text{Percent Use of Alternative(\%)}}{100}\right) \times (\text{Daily Cover Volume (BCY)} + \text{Intermediate Cover Volume (BCY)})\right]\right\}$$

Break Even Cost on a Gate Cubic Yard Basis ($/GCY)

$$= [\text{Cost of Daily Alternative Cover Material (\$)} + \text{Cost of Alternative Daily Cover Labor and Equipment (\$)} + \text{Cost of Soil as Daily Cover when Alternative is not Feasible (\$)} - \text{Total Soil Daily Cover Cost (\$)}] + [\text{Additional Airspace Available for Refuse Disposal (BCY)} \times \text{Refuse Compaction Ratio (GCY/BCY)}]$$

Current Remaining Gate Yardage Capacity (GCY)

$$= \left\{\text{Remaining Landfill Airspace Capacity (BCY)} - \left[\frac{\text{Remaining Landfill Airspace Capacity (BCY)}}{(\text{Refuse to Soil Ratio if Soil Used as Daily Cover} + 1)}\right]\right\} \times \text{Refuse Compaction Ratio (GCY/BCY)}$$

Revised Estimated Gate Yardage Capacity Using Alternative Daily Cover (GCY)

$$= \left\{\text{Remaining Landfill Airspace Capacity (BCY)} - \left[\frac{\text{Remaining Landfill Airspace Capacity (BCY)}}{(\text{Refuse to Soil Ratio if Soil Used as Daily Cover} + 1)}\right] + \text{Additional Airspace Available for Refuse Disposal (BCY)}\right\} \times \text{Refuse Compaction Ratio (GCY/BCY)}$$

Revised Cell Development Cost per Gate Cubic Yard by Utilizing Alternative Daily Cover ($)

$$= \frac{\text{Current Remaining Gate Yardage Capacity (GCY)} \times \text{Current Cell Development Cost per Gate Yard (\$)}}{\text{Revised Estimated Gate Yardage Capacity Using Alternative Daily Cover (GCY)}}$$

Annual Imported Soil Daily Cover Material Cost ($)

$$= \frac{\text{Cost of Soil Daily Cover Material (\$)}}{\text{Site Life Using Soil as a Daily Cover (year)}}$$

Annual Cost of Soil Daily Cover Labor ($)

$$= \left[\text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{52 \text{ weeks}}{\text{year}}\right)\right]$$

$$\times \left\{\sum \left[\text{Equipment Usage (hrs/day)} \times \text{Equipment Cost (\$/hr)}\right]\right\}$$

Annual Cost of Soil Daily Cover Equipment ($)

$$= \left[\text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{52 \text{ weeks}}{\text{year}}\right)\right]$$

$$\times \left\{\sum \left[\text{Equipment Usage (hrs/day)} \times \text{Labor Cost (\$/hr)}\right]\right\}$$

Annual Closure Accrual Cost ($)

$$= \left[\frac{\text{Closure/Post Closure Cost Remaining to be Accrued (\$)}}{\text{Current Remaining Gate Yardage Capacity (GCY)}}\right]$$

$$\times \left[\text{Landfill Operating Schedule} \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{52 \text{ weeks}}{\text{year}}\right) \times \text{Incoming Waste Volume (GCY/day)}\right]$$

Annual Cell Development Cost Write-Off ($)

= Current Cell Development Cost per Gate Yard ($)

$$\times \left[\text{Landfill Operating Schedule } \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{\text{52 weeks}}{\text{year}}\right) \times \text{Incoming Waste Volume (GCY/day)} \right]$$

Total Annual Cost to Use Soil as a Daily Cover ($)

= Annual Imported Soil Daily Cover Material Cost ($) + Annual Cost of Soil Daily Cover Labor ($)

+ Annual Cost of Soil Daily Cover Equipment ($) + Annual Closure Accrual Cost ($)

+ Annual Cell Development Cost Write-Off ($)

Annual Alternative Daily Cover Material Cost ($)

$$= \text{Average Daily Face Working Area (SF)} \times \text{Landfill Operating Schedule } \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{\text{52 weeks}}{\text{year}}\right)$$

$$\times \text{Cost of Alternative Daily Cover Product (\$/SF)} \times \left(\frac{\text{Percent Use of Alternative(\%)}}{100}\right)$$

Annual Alternative Daily Cover Labor Cost ($)

$$= \left\{ \sum \left[\text{Equipment Usage (hrs/day)} \times \text{Labor Cost (\$/hr)}\right] + \sum \left[\text{Foam Machine Preparation Time (hrs/day)} \times \text{Labor Cost (\$/hr)}\right] \right\}$$

$$\times \left[\text{Landfill Operating Schedule } \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{\text{52 weeks}}{\text{year}}\right) \right]$$

Annual Alternative Daily Cover Equipment Cost ($)

$$= \left[\text{Landfill Operating Schedule } \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{\text{52 weeks}}{\text{year}}\right) \right]$$

$$\times \left\{ \sum \left[\text{Equipment Usage (hrs/day)} \times \text{Equipment Cost (\$/hr)} \right] \right\}$$

Annual Soil Daily Cover Material and Placement Cost When Alternative Daily Cover Cannot Be Used ($)

$$= \Big[\text{Annual Imported Soil Daily Cover Material Cost (\$)} + \text{Annual Cost of Soil Daily Cover Labor (\$)}$$

$$+ \text{Annual Cost of Soil Daily Cover Equipment (\$)} \Big] \times \left[1 - \left(\frac{\text{Percent Use of Alternative(\%)}}{100} \right) \right]$$

Annual Closure Accrual ($)

$$= \frac{\text{Closure/Post Closure Cost Remaining to be Accrued (\$)}}{\text{Revised Estimated Gate Yardage Capacity Using Alternative Daily Cover (GCY)}}$$

$$\times \left[\text{Landfill Operating Schedule } \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{\text{52 weeks}}{\text{year}}\right) \times \text{Incoming Waste Volume (GCY/day)} \right]$$

Annual Cell Development Cost Write-Off ($)

$$= \text{Revised Cell Development Cost per Gate Cubic Yard by Utilizing Alternative Daily Cover (\$)} \times$$

$$\left[\text{Landfill Operating Schedule } \left(\frac{\text{days}}{\text{week}}\right) \times \left(\frac{\text{52 weeks}}{\text{year}}\right) \times \text{Incoming Waste Volume (GCY/day)} \right]$$

Annual Soil Savings Credit ($)

$$= \frac{\text{Soil Savings Credit ($)}}{\text{Site Life Using Soil as Daily Cover (years)}}$$

Total Annual Cost to Use Alternative as a Daily Cover ($)

= Annual Alternative Daily Cover Material Cost ($) + Annual Alternative Daily Cover Labor Cost ($)

+ Annual Soil Daily Cover Material and Placement Cost When Alternative Daily Cover Cannot Be Used ($)

+ Annual Closure Accrual ($) +Annual Cell Development Cost Write-Off ($) - Annual Soil Savings Credit ($)

Annual Cost Increase (or Decrease) to Utilize Alternative as a Daily Cover ($)

= Total Annual Cost to Use Alternative as a Daily Cover ($) - Total Annual Cost to Use Soil as a Daily Cover ($)

Waste Management of North America - South
500 Cypress Creek Road, West ◦ Suite 300
Fort Lauderdale, Florida 33309
305/771-9850
West Fax: 305/938-0212
East Fax: 305/938-0210

NORTHEAST DISTRICT
RECEIVED
SEP 7 1993
DEP - JACKSONVILLE

August 30, 1993

Mrs. Mary Nogas
Department of Environmental Protection
7825 Baymeadows Way
Jacksonville, FL 32256-7577

RE: Trail Ridge Sanitary Landfill
Rosemary Hill Landfill

Dear Mrs. Nogas:

In anticipation of deletion of the 18 hour exemption for initial cover as a result of Subtitle D, we respectfully request the Department's approval to use geosynthetics or tarpaulins in lieu of 6 inches of compacted earth as initial cover in those areas where solid waste will be deposited on the working face within 18 hours.

References from Chapter 17-701 F.A.C. follow:

"17.701.200 (37) "Initial cover" means a 6 inch layer of compacted earth used to cover an area of solid waste before placement of additional waste, intermediate cover, or final cover. The term also includes other material or thickness, approved by the Department, that minimizes vector breeding, animal attraction, and moisture infiltration, minimizes fire potential, prevents blowing litter, controls odors, and improves landfill appearance.

17.701.500 (7)(e) Initial cover shall be applied and maintained at landfills in order to minimize any adverse environmental, safety, or health effects such as those resulting from birds, unauthorized wastes, blowing litter, odors, vectors, or fires. The minimum frequency for applying cover is:

1. For Class I landfill, at the end of each working day, except in those areas where solid waste will be deposited on the working face within 18 hours."

Waste Management has successfully used geosynthetics and tarpaulins as initial cover at several landfills in states which did not have the 18 hour exclusion rules. Use of geosynthetics or tarpaulins at these landfills has resulted in no adverse environmental, safety, or health effects such as those resulting from birds. unauthorized wastes. blowing litter, odors, vectors, or fires.

A comprehensive study was performed with the results given in a March 31, 1991 report. A copy is enclosed for your reference. In addition, I would be pleased to visit with you and present a brief video of deployment of these alternate cover materials if you desire such a presentation.

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We respectfully request the Department's approval of geosynthetics or tarpaulins with similar characteristics to those described in the report as an alternate material as defined in Chapters 17.701.20 (37) and 17.701.500 (7)(e) F.A.C.

Your early review and response are requested at your earliest convenience.

Should you have questions or require additional information, I'll respond promptly to your request.

Sincerely,

Harvey H. Bush, Jr., P.E.
Senior Environmental Engineering Manager
Vice President

HHB/lsf

cc: Mary Jean Yon
Scott McCallister
Mary Ardiff
Greg Mathes
Jim Lukens
DeWayne Igou

attachments

cover.alt

Printed on recycled paper.

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

September 1, 1993

NORTHEAST DISTRICT
RECEIVED
SEP 2 1993
DEP-JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Waste Management Section
Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Permit No. SC16-184444
ET&M No. E93-143

Dear Ms. Nogas:

By this letter and on behalf of Trail Ridge Landfill, Inc., we hereby notify the Department (in accordance with Specific Condition No. 1 of the subject permit) that closure construction of Side Slope Units 5, 6, 7, 8, 9 and 10 will commence on September 7, 1993. The Contractor chosen for this closure construction is J.B. Coxwell Contracting, Inc.

Attached is the Quality Assurance/Quality Control Plan for this project. Upon completion of construction, the necessary QA/QC documentation will be submitted to the Department as a part of the certification documents.

Should you have any questions regarding this information, please do not hesitate to give me or Juanitta Clem a call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

attachment

cc: Greg Mathes
Mary Ardiff
Jim Lukens
Chris Pearson

NORTHEAST DISTRICT
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SEP 2 1993
DEP - JACKSONVILLE

TRAIL RIDGE LANDFILL CLOSURE
PHASES I AND II
CONSTRUCTION QA/QC PLAN

This plan addresses the quality assurance and quality control (QA/QC) for the side slope unit closure construction. This plan delineates the quality procedures and standards for the construction.

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 is the owner of Trail Ridge Landfill and Trail Ridge Landfill, Inc. is the permittee/operator of the landfill. The landfill began to receive waste in May of 1992. England, Thims & Miller, Inc. is the design engineer. The Contractor for the construction has not been chosen. The name of the Contractor will be provided to the Department of Environmental Protection, once a Contractor is chosen.

The QA/QC Plan for this project includes General QA/QC and Soils QA/QC. The General QA/QC includes periodic observation of the contractor's work to verify substantial compliance with permits, plans, specifications and design concepts. These services will be conducted by England, Thims & Miller, Inc. and 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 weekly progress reports of the construction (including observation data sheets, problem identification and correction logs), make note of any construction deviations, and coordinate qualifying and testing of materials. This individual shall be experienced in civil site construction and solid waste regulations and shall work under the supervisor of the General Quality Assurance Engineer.

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/construction and shall be a registered Professional Engineer.

8/5/93
Rev. 8/13/93
Rev. 8/25/93

The General QA/QC includes monitoring the construction and construction sequence of the following activities:

1. General Earthwork
2. Underdrain Installation
3. Drainage Installation
4. Gas Well Installation
5. Sodding/Overseeding
6. General Construction Quality Control
7. Prepare As-Built Drawings and Surveys

The Soils QA/QC for this project includes full-time services to periodically observe the Contractor's work and conduct soil material qualifying and testing to verify substantial compliance with the material standards. This work will be conducted by Law Engineering and 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, prior to installation. This individual shall be experienced in civil site construction and soil testing standards and procedures and shall work under the supervisor of the Soils Quality Assurance Engineer.

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 civil site construction and soil testing procedures and shall be a registered Professional Engineer.

The QA/QC Program includes monitoring the construction of the following:

A. Final Cover Installation (Initial Cover, Compacted Clay Layer and Top Soil)

The final cover shall consist of 18" (minimum) of initial cover, 12" (minimum) of compacted clay, and 24" (minimum) of top soil. The compacted clay layer of the final cover must be tied into any existing compacted clay layers, if applicable and must be placed in two 6" (minimum) lifts. The Soils Quality Control Monitor shall observe the construction of the final cover on a full time (on-site) basis. The QA/QC for the final cover is as follows:

1. Tie-In to Existing Cover (When 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.

   c. Frequency - The Soils Quality Control Monitor shall monitor the tie-in on a continuous basis.

2. Initial Cover (Compacted Clay Layer Subgrade)

   a. Location - Any material used to amend the existing soils shall be pre-qualified at the borrow source.

   The soil shall be tested for thickness and density in place after compaction. The location of testing shall be determined by the Soils Quality Control Monitor.

   b. Standard - Any material used to amend the existing soils shall be clean granular soil, free from organics, roots, stumps, rocks and any other deleterious materials.

   The initial cover shall be at least 18" in thickness (compacted).

   Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557).

   c. Frequency - Any soil used to amend the existing soils shall be tested once per 500 CY of material.

   Depth measurements shall be taken at the frequency of four measurements per acre for the first five acres. Thereafter, depth measurements shall be taken at the frequency of two measurements per acre.

   Density tests shall be conducted at a frequency of four tests per acre for the first five acres. Thereafter, density tests shall be conducted at a frequency of two tests per acre.

3. Compacted Clay Layer

a. Borrow Source - Prior to installation of the compacted clay layer, an appropriate borrow source shall be located. Suitability of the 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 compacted clay layer construction shall be submitted to an independent soil testing laboratory to document through index 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.

(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 an independent soil testing laboratory to document the horizontal and vertical extent and the homogeneity of the soil strata proposed for use as compacted clay 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 in variability 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.

b. Test Strip - Prior to full-scale installation of the compacted clay layer, 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. The test strip(s) shall be constructed in accordance with the following requirements:

(1) The test section shall be of sufficient size (20' x 60' minimum) such that full-scale 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 installation;

(3) At a minimum, the compacted clay layer test section shall be subject to the following field and laboratory testing requirements:

(a) A minimum of five random samples of the 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 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. 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. Compacted Clay Layer Installation - Full scale compacted clay layer installation may begin only after completion of a successful test section. During construction, quality control testing shall be provided to document that the installed layer conforms to project specifications. The compacted clay layer shall be installed in two 6" (minimum) lifts for a total minimum thickness of 12" (minimum).

(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) Compacted Clay Layer Subgrade - Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557).

(b) Field Density - The field density of the clay layer shall not be less than 90% 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 1×10^{-7} 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 shall be conducted at a minimum rate of four tests per acre for the first five acres. Thereafter, density tests shall be conducted at a frequency of two tests per acre;

(b) A minimum of four moisture content and field density determinations shall be conducted per acre per lift of the compacted clay layer for the first five acres per lift. Thereafter, two moisture content and field density determinations shall be conducted per acre per lift of the compacted clay. The degree of compaction shall be checked using the one-point field Proctor test or other appropriate test procedures; and

(c) A minimum of eight thickness measurements shall be conducted per acre per lift of the compacted clay layer for the first five acres per lift. Thereafter, four thickness measurements shall be conducted per acre per lift of the compacted clay layer.

(4) Laboratory Testing Frequency -

(a) Percent fines (ASTM D 1140) of the liner construction material shall be determined at a minimum frequency of four tests per acre per lift of the installed compacted clay layer for the first five acres per lift. Thereafter, the percent fines shall be determined at a minimum frequency of two tests per acre per lift of the compacted clay layer;

(b) Atterberg limits determinations shall be performed on two samples per acre per lift of the installed compacted clay layer for the first five acres per lift. Thereafter, Atterberg limits determinations shall be performed on one sample per acre per lift of the compacted 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 two tests per acre per lift for the first five acres per lift. Thereafter, hydraulic conductivity testing 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 compacted clay layer section does not meet the requirements of the project specifications, additional random samples may be tested from that 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 section will be considered acceptable. If not, that section shall be reworked or reconstructed so that it does meet these requirements.

4. Top Soil Layer

a. Location - The top soil shall be pre-qualified at the borrow source.

After placement, the top soil layer shall be tested in place. The location of testing shall be determined by the Soils Quality Control Monitor.

b. Standard - Top soil shall have an organic content of at least 1.5 percent but not more than 10.0 percent (ASTM D 2974) and shall have a pH value between 5.0 and 7.0 (ASTM E 70). Top soil shall be suitable for plant growth and reasonably free of brush, weeds, litter, roots, stumps, stones and any other extraneous or toxic matter harmful to plant growth. Roots greater than 3/8" diameter shall be removed.

The top soil layer shall be at least 21" in thickness (compacted).

Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557).

c. Frequency - The soil shall be monitored on a continuous basis for extraneous matter.

Organic content and pH shall be tested at the frequency of four tests per acre for the first five acres. Thereafter, the organic content and pH shall be tested at the frequency of two tests per acre.

Depth measurements shall be taken at the frequency of four measurements per acre for the first five acres. Thereafter, the depth measurements shall be taken at the frequency of two measurements per acre.

Density tests shall be conducted at a frequency of four tests per acre for the first five acres. Thereafter, the density tests shall be conducted at a frequency of two tests per acre.

B. Downcomer Pipes (Clay Encasement)

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 encased in clay as shown on the Construction Drawings. The clay around the pipes shall be compacted into a uniform homogeneous material. Prior to placement of top soil on 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) Compacted Clay Layer Subgrade - Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557) (18" thick).

(b) Field Density - The field density of the clay layer shall not be less than 90% of Standard Proctor Density (ASTM D 698).

(c) Thickness - One foot minimum below pipe.

(d) Hydraulic Conductivity - The compacted clay layer shall have an in-place hydraulic conductivity no greater than 1×10^{-7} 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 60 L.F. of pipe.

(b) A minimum of one moisture content and field density determination of the compacted clay layer shall be conducted per 60 L.F. of pipe

(c) A minimum of two thickness measures of the compacted clay layer shall be conducted per 60 L.F. 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 60 L.F. of pipe. 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 at the borrow source. A chain-of-custody shall be provided via truck tickets from the source to the project site.

The location of the on-site hydraulic conductivity test shall be from on-site stockpile.

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. The sand shall have a hydraulic conductivity no less than $1x10^{-3}$ cm/sec at a density of 100 percent Modified Proctor. The hydraulic conductivity testing shall be by Constant Head Method (ASTM D 2434).

c. Frequency - This material shall be pre-qualified at the source at a frequency of 1 test per side slope unit. The hydraulic conductivity of the sand shall be tested once per side slope unit.

D. Gas Wells

Gas wells shall be installed through the final cover at the locations shown on the Construction Drawings. The QA/QC for gas well materials shall be as follows:

1. Gravel

a. Location - The gravel shall be pre-qualified at the borrow source. A chain-of-custody shall be provided via truck tickets from the source to the project site.

b. Standard - The gravel shall be clean, well-rounded gravel with no fines. The gravel shall be 1"-3" in size with an average size of 1.5", FDOT No. 2 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 gas well.

2. Backfill Material

a. Location - The soil shall be pre-qualified at the source by the Soil Quality Control Monitor.

b. Standard - The backfill material shall be a cohesionless soil.

c. Frequency - The soil shall be tested once per gas well.

3. Granular Bentonite

a. Location - The material shall be pre-qualified at the source with documentation provided to the Soils Quality Control Monitor.

b. Standard - The material shall be a homogeneous, inorganic material with at least 50 percent, by weight, passing the No. 200 sieve (ASTM D 1140)

The material shall be chemically inert to methane and carbon dioxide gasses, or any gaseous combination thereof.

c. Frequency - The material shall be certified by the supplier, one time only.

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

S/P

NORTHEAST DISTRICT
RECEIVED
SEP 2 1993
DEP - JACKSONVILLE

August 29, 1993

Mr. Jeremy Lucas
Mr. Robert S. Pace
City of Jacksonville
Regulatory and Environmental Services Department
Air Quality Division
421 W. Church Street, Suite 412
Jacksonville, FL 32202-4111

Re: **Trail Ridge Landfill**
Notice of Violation
FAC 17-296.810

Dear Sirs:

In accordance with your letter of August 13, 1993 requiring an explanation for the date of submittal of the Trail Ridge Asbestos Disposal Notification, I hereby offer the following response:

Compliance with all local, state, and federal regulations and requirements is a top priority at Trail Ridge Landfill. As you may recall, my responsibilities as General Manager and Division President of Trail Ridge Landfill, Inc. began in early April of 1993. As a personal policy, one of my first tasks at a new site is to conduct a review of all on-site files to determine the degree of compliance of the site. This review did not reveal a copy of submittal of a Notification of Asbestos Disposal as required by FAC 17-296.610 and 40 CFR 61.153(a). Thus, being unsure that prior management had submitted the notification, and as a matter of abundant caution, a letter was promptly submitted to the City identifying Trail Ridge Landfill as an asbestos disposal site.

If you should have any further questions or wish to meet to discuss this issue please contact me at Trail Ridge Landfill, (904) 289-9100.

Sincerely,

Greg Mathes
Division President and General Manager

GM:mm

cc: Mary Ardiff
Jim Lukens
Scott McCallister
Greg Rodunski, Esq. OGL
Judy Tatum, DEP
Mary Nogas, PE, DEP
Alfreda Freeman, EPA

c:\wp51\jeff\dispnote.asb\3.0

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England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

August 25, 1993

NORTHEAST DISTRICT
RECEIVED
AUG 26 1993
DEP - JACKSONVILLE

Mr. Jai P. Prasad, P.E.
Florida Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7577

Reference: Trail Ridge Landfill
Permit No. SC16-184444
ET&M No. E93-118-1

Dear Mr. Prasad:

We hereby request a minor modification of the subject permit. Attached is a $700.00 check to cover the MSSW minor modification fee in accordance with Chapter 40C-1.603(4)(b), F.A.C.

As per the meeting with you on Friday, August 13, 1993, this modification is to revise the westerly diversion berm. As you will recall, this berm diverts the off-site stormwater around our site and is not a part of the on-site stormwater conveyance or treatment system. Attached are revised Drawing Nos. 24 and 36. In particular, please see the modified Details D3 and D7 on Drawing No. 36.

If you have any questions regarding this minor modification, please give me or Juanitta Clem a call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Project Manager

DCM:cl

cc: Mary Nogas
Greg Mathes
Jim Lukens
Chris Pearson

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
AUG 20 1993
DEP - JACKSONVILLE

August 19, 1993

Ms. Mary C. Nogas, P.E.
Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

Re: **Trail Ridge Landfill**
Permit #SC16-184444
Minor Modification Request Withdrawal
File #233002

Dear Ms. Nogas,

Please withdraw the Trail Ridge Landfill request for a minor modification to Specific Conditions 38K.3 and 39C.3 of the subject permit. This request for modification involved deletion of the above conditions as they conflict with the approved Trail Ridge monitoring program with respect to analytical methodologies and detection limits. At this time, we would like to withdraw this request.

We appreciate your response to this withdrawal and apologize for any inconvenience it may have caused.

Sincerely,

Jeff Reindl
Staff Engineer

cc: Jim Lukens
Greg Mathes
Scott McCallister
Janet Holgren, EML

c:\wp51\jeff\wthdrl.req

Printed on recycled paper.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee
To _____ Location _____
To _____ Location _____
To _____ Location _____
From _____ Date _____

Interoffice Memorandum

TO: Amanda Lewis, Accountant IV
Bureau of Finance and Accounting

FROM: Mark Cadenhead, Eng. IV

DATE: August 19, 1993

SUBJECT: Request for Refund

Please issue a refund for the attached application(s). Below is a list of applicants and the amount requested for refund:

Applicant Name	Receipt #	Amount	Voucher #	Warrant #	Warrant Date
Trail Ridge 4F, Inc.	211226	$250			

/1/87

STATE OF FLORIDA

NORTHEAST DISTRICT

RECEIVED
JUL 20 1993
DEP-JACKSONVILLE

NORTHEAST DISTRICT

RECEIVED
JUL 12 1993
DEP-JACKSONVILLE

ATE OF FLORIDA)

COUNTY OF Duval)

Pursuant to the provisions of Section 215.26, or Section _____, Florida Statutes, I hereby apply for a refund and request that a State warrant be drawn in favor of:

NAME: Trail Ridge Landfill, Inc.

ADDRESS: 5110 U.S. Hwy. 301

Baldwin, FL 32234

AMOUNT: $250.00

which represents moneys I paid into the State Treasury subject to refund, and to substantiate such claim the following facts are submitted:

Reason for Claim: Permit SC16-184444 MSSW modification dated 4/29/93. $700 submitted on 5-5-93, therefore, need refund of $250 submitted on 4/29/93.

CERTIFIED TRUE AND CORRECT this 1 day of July, 19 93.

Signature

*Must be completed if authority is other than Section 215.26, Florida Statutes.

(FOR AGENCY USE ONLY)

(1) Agency recommends denial of above claim based on the following facts, including statutory authority for collection: _____

or

(2) Agency recommends approval of above claim and submits the following information to substantiate such claim. The amount recommended: $ 250.

The amount requested above was originally deposited into the State Treasury, included in State Treasurer's Receipt # 211226, dated 4/30/93.

NAME OF ACCOUNT:

SAMAS ACCOUNT CODE

Statutory Authority for Collection _____

It is requested that payment be made from:

NAME OF ACCOUNT:

SAMAS ACCOUNT CODE

CERTIFIED TRUE AND CORRECT this 19th day of August, 19 93.

Department of Environmental Protection
Agency

Signature of Authorized Person

Waste Program Administrator
Title

SECTION 215.26 STATES, IN PART: "APPLICATION FOR REFUNDS AS PROVIDED BY THIS SECTION SHALL BE FILED WITH THE COMPTROLLER, EXCEPT AS OTHERWISE PROVIDED HEREIN, WITHIN 3 YEARS AFTER THE RIGHT TO SUCH REFUND SHALL HAVE ACCRUED ELSE SUCH RIGHT SHALL BE BARRED." Three years is interpreted as meaning three years from the date of payment into the State Treasury.

Trail Ridge Landfill, Inc.
5118 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
JUL 20 1993
DEP-JACKSONVILLE

July 7, 1993

NORTHEAST DISTRICT
RECEIVED
JUL 12 1993
DEP-JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Department of Environmental Regulations
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

RE: **TRAIL RIDGE LANDFILL**

Dear Ms. Nogas,

Attached is a request for refund in the amount of $250. for overpayment of minor modification fees. A $250 fee was submitted on April 20, 1993 for an MSSW modification. This fee was insufficient and another fee of $700 was submitted on May 5 in accordance with Chapter 40C-1.603(4)(b) F.A.C. Therefore, we request the $250 original fee be refunded.

If you need any additional information, please call.

Sincerely,

Greg Mathes,
Division President and General Manager

GM:mm

cc: Jim Lukens
Jeff Reindl

TRAIL RIDGE LANDFILL, INC.
5110 U.S. HWY. 301
P. O. BOX 548
BALDWIN, FL 32234

GLOBAL CASH MANAGEMENT
Mellon Bank
Mellon Bank, N.A.
Pittsburgh, PA

00276

APR 28 19 93

8-26
430

PAY SEVEN HUNDRED FIFTY AND 00/100********** DOLLARS $ 750.00

TO THE ORDER OF DEPARTMENT OF ENVIRONMENTAL REGULATION

[redacted]

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

211226

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from TRAIL RIDGE LANDFILL, INC. 5110 U.S. HWY. 301 Date 4-30-93

Address P.O. BOX 548 BALDWIN FL 32234 Dollars $ 750.00

TRAIL RIDGE LANDFILL, INC.
Applicant Name & Address P.O. BOX 6987 JACKSONVILLE FL 32236

Source of Revenue TRAIL RIDGE L/F MINOR MODIFICATION

Revenue Code 001055 CK#00276 Application Number SC16-230403 SC16-230404 SC16-230405

By Brenda Deavers

REGULATORY & ENVIRONMENTAL
SERVICES DEPARTMENT
Air Quality Division

NORTHEAST DISTRICT
RECEIVED
AUG 18 1993
DEP-JACKSONVILLE

August 13, 1993

Mr. Greg Mathes
Division President and General Manager
Trail Ridge Landfill, Inc.
P.O. Box 548
Baldwin, Florida 32234

Reference: Your correspondence of August 3, 1993

Subject: Trail Ridge Landfill
Asbestos disposal site notification

Dear Mr. Mathes:

The Air Quality Division (AQD) hereby acknowledges receipt of the above-referenced notification which provides information in regards to the Trail Ridge Landfill asbestos disposal site. The information generally meets the requirements of 40 Code of Federal Regulations (CFR) § § 61.153(a)(5) and 61.10, except that the notification was not filed within ninety (90) days after start up of the facility, as required by 40 CFR § 61.153(a).

Enclosed is a "Notice of Violation" citing the Jacksonville Environmental Protection Board (JEPB) Rule which was allegedly violated by late submittal of the report. A written response is required on or before August 31, 1993, and should include an explanation as to why the report was not submitted in a timely manner.

The matter of late submittal of the report is also being referred by copy of this letter to the Department of Environmental Protection (DEP) Solid Waste Disposal Section and the U. S. Environmental Protection Agency (EPA) Asbestos Compliance Section. The DEP and EPA share regulatory authority in this matter with the AQD. The DEP or EPA may choose to pursue separate enforcement action for late submittal of the report.

Your cooperation is appreciated. Any questions in this matter should be directed to Mr. Jeremy Lucas at (904) 630-3666.

Very truly yours,

Robert S. Pace, P.E.
Chief, Air Quality Division

RSP/JWL/ema

cc: Ms. Judy Tatum, DEP
Ms. Mary C. Nogas, P.E., DEP
Ms. Alfreda Freeman, EPA
Greg Radlinski, Esq., OGC
AQD Enforcement File
AQD File: NP - T

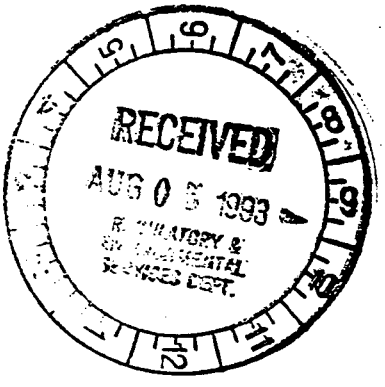
421 West Church Street - Suite 412
Jacksonville, Florida 32202-4111

Area Code 904/630-3666

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

CERTIFIED MAIL

A Waste Management Company



August 3, 1993

Mr. Steve Pace
Regulatory and Environmental Services Department
Air Quality Division
421 West Church Street
Jacksonville, FL 32202

RE: **Trail Ridge Landfill, Duval County, FL**
Asbestos Disposal Site Notification

Dear Mr. Pace,

I hereby notify you that Trail Ridge Landfill is an active waste disposal site that receives asbestos containing waste material. The following site description and attached source report is provided in accordance with the reporting requirements contained in 40 CFR part 61.153(a)(5).

Trail Ridge is owned by the City of Jacksonville and operated by Trail Ridge Landfill, Inc. at the above address. The landfill is located on an approximately 978 acre property in the southwest corner of Duval County. The property is surrounded by natural wetland and timber barriers with access restricted by a perimeter fence. The landfill footprint and asbestos containing material disposal area is approximately 148 acres permitted by the Department of Environmental Protection. All asbestos containing material is handled in accordance with 40 CFR part 61-154. Emissions are controlled by covering all asbestos containing material with at least six inches of compacted non-asbestos containing material, at the end of each operating day.

If you have any questions concerning this notice, please feel free to call.

Sincerely,

Greg Mathes
Division President and General Manager

GM:mm

cc: EPA Air Quality Division
Chris Pearson - City of Jacksonville
Jim Lukens - Trail Ridge

c:\wp51\asbest.trl\7.2

Mary C. Nogas, DEP

P 326 083 192

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, June 1985 ☆U.S.G.P.O. 1989-234-555

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SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
James M. Taborn
Trail Ridge

NORTHEAST DISTRICT
RECEIVED
AUG 27 1993
DEP-JACKSONVILLE

4a. Article Number
P 326 083 192

4b. Service Type
☐ Registered ☐ Insured
☐ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
8-23-93

5. Signature (Addressee)
Mary Mal Sapp.

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

JW

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Florida Department of
Environmental Protection

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7577

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

August 18, 1993

CERTIFIED-RETURN RECEIPT

Mr. James M. Lukens
Trail Ridge Landfill, Inc.
Post Office Box 548
Baldwin, Florida 32234

Dear Mr. Lukens:

Trail Ridge Landfill
Permit No. SC16-184444
Duval County - Solid Waste

The Department has received your August 12, 1993 letter addressed to Richard Rachal requesting to "supplement" Minor Modification Request No. 233002.

After consultation with our Office of General Counsel, it was determined that the August 12, 1993 letter was not a supplement to your previous request, but a new proposal which will require detailed review. Therefore, please resubmit this request as a new request for a Minor Modification, and include a $250.00 processing fee.

If you have any questions on this matter, please feel free to telephone me at (904)448-4320, extension 355.

Sincerely,

MC Nogas

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN:ml

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
AUG 13 1993
DEP - JACKSONVILLE

August 12, 1993

Mr. Rick Rachel
Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

RE: **Trail Ridge Landfill**
Permit #SC16-184444
Minor Modification Request - Supplement

Dear Mr. Rachel,

Pursuant to our August 9 phone conversation, I am providing the enclosed information as a supplement to our minor modification request concerning the EPA peak identification specified in Specific Condition 38. The information was provided by the Environmental Monitoring Laboratories in support of using EPA Method 624 in place of EPA 601/602. The information includes the EML method detection limits and information on Florida approval to use EPA Method 624.

Based on this information and our conversation, we request this minor modification be to use EPA Method 624 in place of EPA Method 601/602, instead of deleting the reference to EPA peak identification. The EPA Method 624 utilizes the GC/MS analysis necessary to perform the library search for the mass spectra of additional peaks.

If you need any additional information to process this request, please call.

Sincerely,

Jim Lukens
Staff Engineer

cc: Greg Mathes
Jeff Reindl

c:\wp51\jim\1.1.2

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A Waste Management Company

RECEIVED
AUG 0 1993
TRAIL RIDGE

DATE: August 9, 1993

TO: Jim Lukens

FROM: Janet Holmgren Janet M. Holmgren

SUBJECT: Method 624 Information

Per your request for information regarding the use of EPA method 624 for the analysis of volatile organic compounds at Trail Ridge Landfill, please find attached a list of the EML method detection limits for this method. The EML is approved by the state of Florida to use method 624 as outlined in certificate E87190. If you have any further questions or need additional information, please do not hesitate to call me at 708-208-3126.

Analyte	Method Detection Limit
1,1,1-trichloroethane	2.0 ug/L
1,1,2,2-tetrachloroethane	2.0 ug/L
1,1,2-trichloroethane	1.0 ug/L
1,1-dichloroethane	3.0 ug/L
1,1-dichloroehtene	2.0 ug/L
1,2-dichlorobenzene	1.0 ug/L
1,2-dichloroethane	2.0 ug/L
1,2-dichloropropane	2.0 ug/L
1,3-dichlorobenzene	2.0 ug/L
1,4-dichlorobenzene	2.0 ug/L
2-chloroethylvinyl ether	5.0 ug/L
benzene	1.0 ug/L
bromodichloromethane	1.0 ug/L
bromoform	1.0 ug/L
bromomethane	2.0 ug/L
carbon tetrachloride	1.0 ug/L
chlorobenzene	1.0 ug/L
chloroethane	3.0 ug/L
chloroform	2.0 ug/L
chloromethane	2.0 ug/L
cis-1,3-dichloropropene	1.0 ug/L
dibromochloromethane	1.0 ug/L
ethylbenzene	1.0 ug/L
methylene chloride	3.0 ug/L
tetrachloroethene	1.0 ug/L
toluene	1.0 ug/L
trans-1,2-dichloroethene	3.0 ug/L
trans-1,3-dichloropropene	1.0 ug/L
trichloroethene	1.0 ug/L
trichlorofluoromethane	2.0 ug/L
vinyl chloride	2.0 ug/L
dichlorodifluoromethane	0.6 ug/L*

* Please note that this compound is not in the method 624 analyte list.

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

August 11, 1993

NORTHEAST DISTRICT
RECEIVED
AUG 12 1993
DEP - JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Waste Management Section, Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Permit No. SC16-184444
Modification No. 230404 and 231431
ET&M No. E92-148-4

Dear Ms. Nogas:

We received the referenced July 27, 1993 modification to "define an exterior side slope both vertically and horizontally". However, the Department approval does not specifically make note of the 90 day extension for closure of side slope units 5, 6, 7 and 9, as requested. Per our telephone conversation on August 11, 1993, we understand that the Department has also approved the 90 day extension of this initial closure until December 9, 1993.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P.E.
Project Manager

cc: Greg Mathes
Mary Ardiff
Jim Lukens

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

August 11, 1993

Ms. Mary C. Nogas, P.E.
Waste Management Section, Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

NORTHEAST DISTRICT
RECEIVED
AUG 12 1993
DEP - JACKSONVILLE

Reference: Trail Ridge Landfill
Permit No. SC16-184444
Modification No. 230403
ET&M No. E92-148-4

Dear Ms. Nogas:

We received the referenced July 27, 1993 modification to "substitute the use of eighteen (18) inches of barrier soil with a permeability of 1 EE-5 cm/sec with twelve (12) inches of compacted clay with a permeability of 1 EE-7 cm/sec". However, the Department approval does not specifically make note of the modification of the vegetative cover layer from 12 inches of sand and 12 inches of top soil to 24 inches of top soil as requested and shown on the modification plans. Per our telephone conversation on August 11, 1993, we understand that the Department has also approved the 24 inches of top soil.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P.E.
Project Manager

cc: Greg Mathes
Mary Ardiff
Jim Lukens

P 326 083 088

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to MR. GREG MATHES	
Street and No. TRAIL RIDGE LANDFILL, INC.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, June 1985 ☆U.S.G.P.O. 1989-234-555

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
MR. GREG MATHES
TRAIL RIDGE LANDFILL, INC.
POST OFFICE BOX 548
BALDWIN, FLORIDA 32234

NORTHEAST DISTRICT
RECEIVED
AUG 16 1993
DEP-JACKSONVILLE

4a. Article Number
P 326 083 088

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☒ Return Receipt for Merchandise

7. Date of Delivery
8-13-93

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)

SWIMN

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Florida Department of
Environmental Protection

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7577

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

August 12, 1993

Margaret,
These are copies for your files. Originals mailed 8-11-93. c.c. L.M.

CERTIFIED - RETURN RECEIPT

Mr. Greg Mathes
Trail Ridge Landfill, Inc.
Post Office Box 548
Baldwin, Florida 32234

Dear Mr. Mathes:

Trail Ridge Landfill
Duval County - Solid Waste Compliance

This letter is a follow-up to an inspection by Department personnel on August 3, 1993.

The following minor problems at the Landfill needs to be addressed before the next inspection:

"16. Narrow working face practiced? 17-701.500(7)(d)."

Comment: only half of the working face was being used or worked by trucks and compactors during the inspection. Areas of fill that are not used as a working face need to have cover applied to reduce size of exposed waste.

"40. Frequency, amount and quality of initial cover, as required? 17-701,500(7)(e)."

Conmment: areas west of the working face needed initial cover improvements.

"41. Frequency, amount, and quality of intermediate cover, as required? 17-701.500(7)(f)."

Comment: intermediate cover needs improving in areas on east slope of Phase IA & IB, these areas have waste flagging.

If you have any questions, please contact Neal Newton at the letterhead address or telephone (904) 448-4320.

Sincerely,

Mary C. Nogas, P.E.
Solid Waste Supervisor

MCN:nn

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

August 12, 1993

NORTHEAST DISTRICT
RECEIVED
AUG 13 1993
DEP - JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

RE: **Trail Ridge Landfill**
Permit #SC16-184444
DEP Inspection, 8-3-93

Dear Ms. Nogas,

This is a follow up to the DEP inspection conducted on August 3 at the referenced site. Specifically, this letter will address the issues mentioned in the narrative, labelled as part VIII of the report.

1. *Report Comment:* "#76. Truck dumping and compactors working on one-half of face, areas not being filled-on need cover." "Several areas of inadequate cover east and west of working face".

   Response: The initial lift was recently placed under the current fill area. This area is therefore below elevation with respect to the surrounding fill area. At the time of the inspection, a thin lift was being applied and the area was being graded to promote stormwater runoff and prevent ponding. In such an effort the active face may become larger from the minimum required for the dumping activity alone.

   Rest assured however, that while the first thin lift results in a larger working face, our normal daily operations reflects a narrower working face with typical lifts averaging 8-14 feet in elevation. The area of concern received six inches of initial cover as required by Rule at the end of the day.

2. *Report Comment:* "#41. Intermediate cover needs to be applied within 7 days of leaving fill area if not filling within 180 days, area next to leachate tanks needs intermediate cover completed, March last date in that area."

   Response: Please note that the area had in fact received 18 inches of cover as required earlier in the year. However, as we discussed in our May, 1993 meeting, this area was being prepared for final cover placement, including construction of

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the drainage terraces. These terraces, specified in our design, had not been implemented under the site's previous general manager and needed to be constructed prior to final cover placement. This regrading effort has resulted in temporary disturbance of the area, involving exposure of some of the previously filled material. Additionally, part of the cover was stripped away by the elements over a period of time. However, cover was applied to all exposed areas at the end of each operating day and proper 18" cover has been applied to each area upon completion of grading in that area. Application of the cover is almost complete and every effort will be made to maintain this even until final cover is constructed.

3. *Report Comment:* "evidence of one bag of possible (untreated) biohaz(ard)\biomedical waste in fill. Spotters need to try and intercept this type of waste".

   Response: Operations at Trail Ridge Landfill involve random inspections of incoming loads three times a week. Additionally, the City of Jacksonville typically provides two to three inspectors at the active face perimeter. Trail Ridge Landfill does not accept untreated biohazardous waste streams, and per our Special Waste Agreement with the City of Jacksonville, none of their waste customers are to allow such materials in their Trail Ridge bound waste streams. Any trucks identified as carrying untreated biohazardous wastes are therefore rejected and banned from Trail Ridge Landfill, and no biohazardous waste has knowingly been accepted at the site. Additionally, all spotters and equipment operators were made aware of this report's comment, so they will have an increased awareness to this issue.

If you require any further information, please contact me at 289-9100.

Sincerely,

Greg Mathes
Division President and General Manager

GM:mm

cc: Jim Lukens
Chris Pearson

TRAIL RIDGE LANDFILL, INC.
5110 U.S. HWY. 301
P. O. BOX 548
BALDWIN, FL 32234

GLOBAL CASH MANAGEMENT
Mellon Bank
Mellon Bank N.A.
Pittsburgh, PA

00311

August 10 19 93

8-26
430

PAY TWO HUNDRED FIFTY AND 00/100********** DOLLARS $ 250.00

TO THE ORDER OF Department of Environmental Protection

[redacted]

TRAIL RIDGE LANDFILL, INC.

DETACH AND RETAIN THIS STATEMENT
THE ATTACHED CHECK IS IN PAYMENT OF ITEMS DESCRIBED BELOW.
IF NOT CORRECT PLEASE NOTIFY US PROMPTLY. NO RECEIPT DESIRED.

DELUXE - FORM WVCP-3 V-2

DATE	DESCRIPTION	AMOUNT
	Alternate daily cover minor modification $250.00	

V-2

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

August 10, 1993

NORTHEAST DISTRICT
RECEIVED
AUG 12 1993
DEP-JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

RE: **Trail Ridge Landfill**
SC16-184444, Minor Modification Request
Alternate Daily Covers

Dear Ms. Nogas,

I hereby request a minor modification for approval of alternate daily cover materials at Trail Ridge. In particular, I wish to use geotextile fabric and shredded waste tires as alternatives to the required six inch soil cover. These alternate materials will be a cost effective means to minimize vectors, animal attraction, moisture infiltration, fire potential, litter and odor, as well as improve the landfill appearance on a day to day basis.

The geotextile fabrics will be rolled or pulled over the area to receive initial cover. The fabric rolls will be overlapped a minimum of six inches and will be weighed down with either sand bags or whole waste tires. The tarps will be removed prior to the next waste placement over that area and reused.

Waste tires will be used as initial cover in accordance with 17-711.400(3). The tires will be cut into sufficiently small parts, meaning that 70 per cent of the waste tire material is cut into pieces of 4 square inches or less and 100 per cent of the waste tire material is 32 square inches or less. The waste tires will be applied in a six inch layer over the active area at the end of the operating day.

I have enclosed the required $250 minor modification fee for you to process this request. If you have any questions concerning this request, please feel free to call.

Sincerely,

Greg Mathes
Division President and General Manager

cc: Jim Lukens
Chris Pearson
Jeff Reindl

c:\wp51\nogas\Alterna.Cov

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J. ALAN COX
ATTORNEY AT LAW

820 EAST PARK AVENUE
SUITE F-100
TALLAHASSEE, FLORIDA 32301-2600

(904) 222-4480
FACSIMILE: 561-1188

OF COUNSEL TO
MACLEAN AND EMA
POMPANO BEACH, FLORIDA

NORTHEAST DISTRICT
RECEIVED
AUG 2 - 1993
DEP - JACKSONVILLE

TO: Ms. Mary Nogas, P.E.

FROM: J. Alan Cox

DATE: July 30, 1993

RE: **Trail Ridge Landfill - Duval County**
Modification No. 230717 of Issued Permit No. SC16-184444

MEMORANDUM

I appreciate having received all relevant information on this case, however it is no longer necessary to keep me informed of any modifications to Permit No. SC16-184444. Please remove my name from the list of "interested parties."

For your files, my current address is:

820 East Park Avenue
Suite F-100
Tallahassee, Florida 32301-2600

JAC/dc

Florida Department of
Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

July 29, 1993

NORTHEAST DISTRICT
RECEIVED
JUL 30 1993
DEP - JACKSONVILLE

Mr. Richard Cohee
City Treasurer
City of Jacksonville
Department of Finance
220 E. Bay Street
Jacksonville, Florida 32202-3418

RE: GMS 3116P02787 - Trail Ridge Landfill
GMS 3116M10016 - North Duval Landfill
GMS 3116M10002 - East Duval Landfill

Dear Mr. Cohee:

We have received the Independent Auditors' Report on the Landfill Management Escrow Account of the above referenced landfills for the year ended September 30, 1992. Based on the information that you provided, the funding in the escrow account cannot be evaluated at this time. Rule 17-701.630 (3) F.A.C., requires Department-approved current dollar cost estimates. Our files do not show any current estimates approved by the district office. To calculate the balance needed in your escrow account, these estimates are required. Please contact Mary Nogas at the Northeast District Office for more information.

Rule 17-701.630 (5) (c) F.A.C, requires the owner or operator to file a signed duplicate original of the escrow account agreement with the department. The only escrow account we have on file is the one provided for in Ordinance 91-27-17 (copy enclosed). We need to know if this is the same account addressed in the audit refered to as Closure Fund No. 858. If it is not, submit the following for the new account:

* An escrow agreement (example enclosed) identifying the financial institution where the escrow account is established and the account number.

If you have any questions, call me at (904) 922-6104.

Sincerely,

Rita Pate

Rita Pate
Solid Waste Section

RFP

cc: Fred Wick
Mary Nogas

Printed on recycled paper.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

214451

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from Trail Ridge Landfill, Inc, Date 08/12/93

Address 5110 U.S. Hwy 301/P.O. Box 548, Baldwin, FL 32234 Dollars $ 250.00

Applicant Name & Address Same/P.O. Box 6987, Jax, FL 32236

Source of Revenue Trail Ridge L/F

Revenue Code 002245 ck # 00311 Application Number SO16—236034

By Deirdre P. Hollis

TRAIL RIDGE LANDFILL, INC.

TO: MARK CADENHEAD

FROM: JIM LUKENS

COMPANY: FDEP

DATE: 7-23-93

FAX NO.: 448-4366

Trail Ridge Landfill
5110 U.S. Hwy. 301
Baldwin, Florida 32234

FAX NO.: 904/289-9013

NUMBER OF PAGES TO FOLLOW: 3

PLEASE CALL 904/289-9100 IF PAGE NOT RECEIVED.

MESSAGE:

Per our conversation we want to ammend Ops Plan wording. Ammendment is not a significant change in operations procedures, just a change in wording. p 9-1 A.2. states that the Dept. be notified (i.e. not minor mod.)

Thank you for your cooperation.

OPERATION PLAN

A. Designation of Responsible Person(s)

An experienced General Manager selected from Waste Management of North America (WMNA) Corporate personnel will be responsible for the overall operation of the Trail Ridge Landfill. The manager's responsibility is to assure that operations at the site are performed in accordance with the procedures outlined in this Operating Plan.

The General Manager and the Site Supervisor will both be certified operators under Rule 17-703. One or both will be on-site during operating hours. The operating hours and site personnel are as follows:

1. Hours of Operation (Monday through Saturday)
   a. Normal - 8:00 A.M. to 8:00 P.M.
   b. Maximum Hours Open: 6:30 A.M.
      Close: 10:00 P.M.

2. Peak and Off-Peak Hours
   a. Peak - 11:00 A.M. to 5:00 P.M.
   b. Off-Peak - 8:00 A.M. (6:30 A.M. maximum) to 11:00 A.M. and 5:00 P.M. to 8:00 P.M. (10:00 P.M. maximum)

   If adjustment to these hours is necessary to accommodate the waste receipt rate, Florida Department of Environmental Regulation shall be notified prior to implementation.

3. Allocation of Personnel to Class I and Class III

PERSONNEL	TOTAL	CLASS I	CLASS III
General Manager	1	0.9	0.1
Equipment Operators	8	7*	1
Site Supervisor	1	0.9	0.1
Mechanic	1	0.9	0.1
Labors/Spotters	2	1.8	0.2
Clerical	3	2.7	0.3

*Class I Off-Peak 3

OPERATION PLAN

A. Designation of Responsible Person(s)

An experienced General Manager selected from Waste Management Inc. (WMI) Corporate Personnel will be responsible for the overall operation of the Trail Ridge Landfill. The manager's responsibility is to assure that the operations at the site are performed in accordance with the procedures outlined in this Operating Plan.

At least one trained operator will be present at all times during operating hours when the site is accepting waste. Trained operators will satisfy the requirements of Chapter 17-703, F.A.C.

1. Hours of Operation (Monday through Saturday)
   a. Normal - 6:00 am to 7:00 pm
   b. Maximum Hours Open 5:00 am
      Close 10:00 pm

2. Peak and Off-Peak Hours
   a. Peak - 11:00 am to 5:00 pm
   b. Off-Peak - 8:00 am (5:00 am maximum) to 11:00 am and 5:00 pm to 8:00 pm (10:00 pm maximum)

   If adjustment to these hours is necessary to accomodate the waste receipt rate, Florida Department of Environmental Protection shall be notified prior to implementation.

3. Allocation of Personnel to Class I and Class III

PERSONNEL	TOTAL	CLASS I	CLASS III**
General Manager	1	0.9	0.1
Equipment Operators	8	7*	1
Site Supervisor	1	0.9	0.1
Mechanic	1	0.9	0.1
Labors/Spotters	2	1.8	0.2
Clerical	3	2.7	0.3

* Class I Off-Peak 3
** Class III not in operation

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32216
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

May 15, 1992

Mrs. Mary Nogas P.E.
Waste Management Section
Florida Department of Environmental Regulations
7825 Bay Meadows Way, Suite B-200
Jacksonville, Florida 32256-7577

RE: Trail Ridge Landfill - Hours of Operation
FDER Permit No. SC16-184444
ETM No. 91-126-1

Dear Mrs. Nogas,

Trail Ridge Landfill, Inc. herein notifies the FDER that the hours of operation in the final Operation Plan be changed as follows:

a. Normal - 8:00 a.m. to 8:00 p.m.
b. Maximum - Open: 5:30 a.m.
Close: 9:00 p.m.

Should you have any questions, please call.

Sincerely,

Douglas C. Miller, P.E.

cc: Tom Nelson
Alan Williams

Rec'd 5/15/92
- M. Nogas

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

September 24, 1992

NORTHEAST DISTRICT
RECEIVED
SEP 28 1992
DER-JACKSONVILLE

Mrs. Mary C. Nogas, P.E.
Department of Environmental Regulations
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Re: Trail Ridge Operating Hours

Dear Mrs. Nogas,

I have received the attached memo from the City directing me to change the hours of operation at Trail Ridge Landfill. The revised hours fall within the operating hours established in our permit.

If you have any questions on this action please call me.

Sincerely,

Tom Nelson
General Manager

TN:mm
attachment

Printed on recycled paper

DEPARTMENT OF PUBLIC UTILITIES
Office of the Deputy Director

Recycling
Sanitation
Solid Waste

M E M O R A N D U M

TO: Bill Boyle
Disposal Activity

Earl Wilson
Collection and Recycling Activity

FROM: Scott D. Kelly, P.E., Chief
Solid Waste Division

DATE: September 18, 1992

SUBJECT: **TRAIL RIDGE LANDFILL MULCH FACILITY**

Effective September 28, 1992, the following operating hours should be adopted for Trail Ridge Landfill and Mulch Facility:

DAYS	OPEN	CLOSE
TRAIL RIDGE LANDFILL		
Monday - Friday	6:00 a.m.	7:00 p.m.
Saturday	6:00 a.m.	3:00 p.m.
Sunday	CLOSED	
MULCH FACILITY		
Monday	6:00 a.m.	7:00 p.m.
Tuesday - Friday	7:00 a.m.	7:00 p.m.
Saturday	8:00 a.m.	6:00 p.m.
Sunday	CLOSED	

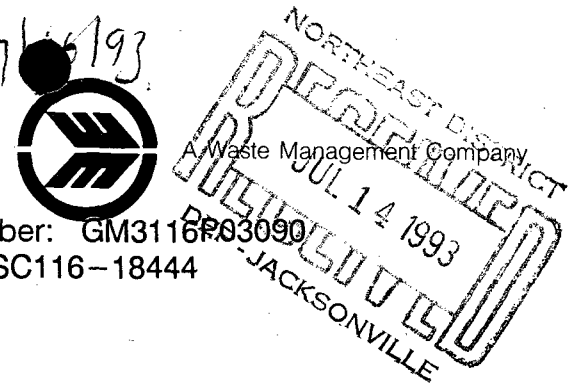
The closing time may be extended for one (1) hour if the scale house is notified no later than 5:00 p.m. Monday through Friday and by 3:00 p.m. on Saturday.

Please take the necessary steps to inform the contractors and the public.

SDK:dt

cc: Chris Pearson
Tom Nelson
Frank Frazier

OPH 7/6/93



A Waste Management Company

Trail Ridge Landfill, Inc.
F.D.E.R. Volume Report
June, 1993

I. D. Number: GM3116P03090
Permit #SC116-18444

Trail Ridge Material Code	F.D.E.R. CODE	WASTE CODE	WASTE AMOUNT
NONE	100	0.00	TONS
NONE	105	0.00	TONS
3,4,23,70,85-90,92,93	110	22,347.22	TONS
5,6,9,10,11,22,59,71,50% OF 73-78,81,84,94,95	115	899.28	TONS
NONE	120	0.00	TONS
NONE	125	0.00	TONS
1,2,7,8,25,72,50% OF 76-78	130	26,863.11	TONS
27,29	135	0.04	TONS
12, 13, 25% OF 79 & 91	200	839.21	TONS
NONE	205	0.00	TONS
25% OF 79 & 91	210	0.21	TONS
NONE	215	0.00	TONS
14, & 50% OF 76,77,79,91	220	24.00	TONS
5% OF 79 & 91	225	0.00	TONS
15	230	677.00	TONS
NONE	235	0.00	TONS
NONE	295	0.00	TONS
			TONS
	300	0.00	TONS
	305	0.00	TONS
	310	0.00	TONS
	315	0.00	TONS
	320	0.00	TONS
	TOTALS	51650.00	

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO: _____
TO: _____
TO: _____
TO: _____

INTEROFFICE MEMORANDUM

NORTHEAST DISTRICT - JACKSONVILLE

TO: RITA PATE

THROUGH: MARK CADENHEAD MC

FROM: AMY WATSON AKW

DATE: JULY 12, 1993

SUBJECT: CLOSURE COST ESTIMATES FOR EAST, NORTH, TRAIL RIDGE, PUTNAM, INTERLACHEN, AND HUNTINGTON LANDFILLS

To date none of the six facilities in which you were interested have received closure certification from the Department.

The Northeast District accepted East Landfill's closure cost estimates on December 5, 1990.

Estimates from the other five landfills have not yet been approved.

enclosures

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

July 7, 1993

NORTHEAST DISTRICT
RECEIVED
JUL 12 1993
DEP - JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Department of Environmental Regulations
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

RE: **TRAIL RIDGE LANDFILL**

Dear Ms. Nogas,

Attached is a request for refund in the amount of $250. for overpayment of minor modification fees. A $250 fee was submitted on April 20, 1993 for an MSSW modification. This fee was insufficient and another fee of $700 was submitted on May 5 in accordance with Chapter 40C-1.603(4)(b) F.A.C. Therefore, we request the $250 original fee be refunded.

If you need any additional information, please call.

Sincerely,

Greg Mathes,
Division President and General Manager

GM:mm

cc: Jim Lukens
Jeff Reindl

Please return original to Mr. Mathes
Done 7-14-93

Printed on recycled paper.

OF Duval)

Pursuant to the provisions of Section 215.26, or Section _____*, Florida Statutes, I hereby apply for a refund and request that a State warrant be drawn in favor of:

NAME: Trail Ridge Landfill, Inc.

ADDRESS: 5110 U.S. Hwy. 301

Baldwin, FL 32234

AMOUNT: $250.00

NORTHEAST DISTRICT
RECEIVED
JUL 12 1993
DEP-JACKSONVILLE

which represents moneys I paid into the State Treasury subject to refund, and to substantiate such claim the following facts are submitted:

Reason for Claim: Permit SC16-184444 MSSW modification dated 4/29/93. $700 submitted on 5-5-93, therefore, need refund of $250 submitted on 4/29/93.

CERTIFIED TRUE AND CORRECT this 1 day of July, 19 93.

Signature

*Must be completed if authority is other than Section 215.26, Florida Statutes.

(FOR AGENCY USE ONLY)

(1) Agency recommends denial of above claim based on the following facts, including statutory authority for collection: _____

or

(2) Agency recommends approval of above claim and submits the following information to substantiate such claim. The amount recommended: $_____.

The amount requested above was originally deposited into the State Treasury, included in State Treasurer's Receipt #_____, dated_____.

NAME OF ACCOUNT:

SAMAS ACCOUNT CODE

Statutory Authority for Collection _____
It is requested that payment be made from:

NAME OF ACCOUNT:

SAMAS ACCOUNT CODE

CERTIFIED TRUE AND CORRECT this _____ day of _____, 19_____.

Agency

Signature of Authorized Person

Title

SECTION 215.26 STATES, IN PART: "APPLICATION FOR REFUNDS AS PROVIDED BY THIS SECTION SHALL BE FILED WITH THE COMPTROLLER, EXCEPT AS OTHERWISE PROVIDED HEREIN, WITHIN 3 YEARS AFTER THE RIGHT TO SUCH REFUND SHALL HAVE ACCRUED ELSE SUCH RIGHT SHALL BE BARRED." Three years is interpreted as meaning three years from the date of payment into the State Treasury.

P 771 975 773

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, June 1985

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Scott Kelly
Public Affairs Officer
Trail Ridge

4a. Article Number
P 771 975 773

4b. Service Type
☐ Registered ☐ Insured
☐ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

NORTHEAST DISTRICT
RECEIVED
JUN 23 1993
RESOURCE MGMT
JACKSONVILLE

7. Date of Delivery
6-21-93

5. Signature (Addressee)
Theresa Kerr

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

June 18, 1993

CERTIFIED-RETURN RECEIPT

Mr. Scott Kelly, P. E.
Assistant Director
Public Utilities Department
219 Newnan Street
Jacksonville, Florida 32202

Dear Mr. Kelly:

Trail Ridge Landfill
DER Files No. 233002
Duval County - Solid Waste

Please be advised that the Department has received an application from Trail Ridge Landfill,Inc., for a minor modification to Permit No. SC16-184444 to modify Specific Conditions 38.k.3 and 39.c.3.

The application may be inspected during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Northeast District Office.

If you have any questions, please contact Mary C. Nogas, P. E., at the letterhead address, or telephone number 904/448-4320.

Sincerely,

M C Nogas

for Michael J. Fitzsimmons
Waste Program Administrator

MJF:ml

Administration 448-4300
Air 448-4310
Waste Management 448-4320

Recycled Paper
Printed with Soy Based Inks

Water Facilities 448-4330
Water Management 448-4340
FAX 448-4366

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

NORTHEAST DISTRICT - JACKSONVILLE

TO: Mark Cadenhead

FROM: Jai P. Prasad, P.E. JPP

DATE: June 16, 1993

SUBJECT: Trail Ridge Minor Modification
File #231431

I agree with the consultant's request to delete the specific condition that requires replanting in the littoral zones.

JPP/eml

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
JUN 16 1993
DER-JACKSONVILLE

June 14, 1993

Ms. Mary C. Nogas, P.E.
Department of Environmental Regulations
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

RE: **Trail Ridge Landfill**
Permit #SC16-184444
Minor Modification Request

Dear Ms. Nogas,

We request a minor modification to Specific Condition numbers 38k.3. and 39c.3. of the above permit. A $250 minor modification fee is submitted for this request.

According to Specific Conditions Nos. 38k.3. and 39c.3., "All peaks greater than the EPA specified detection limit for the analytical method shall be identified." In order to identify the required peaks a gas chromatography/mass spectrometry (GC/MS) analysis must be performed along with a library search for the mass spectra of additional peaks. However, the Trail Ridge monitoring program was approved for EPA methods 601 and 602, which specify gas chromatography only. While the gas chromatography (GC) results in lower detection limits, a library search cannot be performed. To continue receiving results with lower detection limits, the G.C. methods should be performed. Therefore, we request these conditions be deleted from the permit.

If you have any questions concerning this request, please call.

Sincerely,

Greg Mathes
Division President and General Manager

cc: Janet Holmgren, EML
Jim Lukens
Scott McCallister

c:wp51\nogas\minor.mod

Printed on recycled paper.

State of Florida
Department of Environmental Protection

INTEROFFICE MEMORANDUM

TO: Mary Nogas, P.E.
Solid Waste Supervisor

THROUGH: Brian S. Cheary, Ph.D.
Waste Cleanup Manager

FROM: Richard S. Rachal, P.G.
Waste Cleanup Section

DATE: July 15, 1993

SUBJECT: Trail Ridge Landfill
Duval County
Minor Modification to Groundwater and Surface Water Monitoring Requirements

Review of the information presented indicates that the proposed modification should not be approved. The intent of the specific condition is to require identification of organic compounds which may be discharging into the groundwater or surface water. Reasonable assurance that the system is working as permitted requires that organic compounds which are present as a result of the landfill be noted and identified. All peaks greater than the method detection levels are of interest and minimum detection levels should be at or below the Florida groundwater standards and/or criteria.

c.c. B. Cheary, Ph.D.
file

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

211520

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from TRAIL RIDGE LANDFILL INC Date 6-16-93

Address 5110 US HWY 301 PO BOX 548 BALDWIN FL 32234 Dollars $ 250.00

Applicant Name & Address SAME

Source of Revenue TRAIL RIDGE LANDFILL - MM

Revenue Code 001055 CK 00293 Application Number SC 16 - 233002

By Gloria Badger

TRAIL RIDGE LANDFILL, INC.
5110 U.S. HWY. 301
P. O. BOX 548
BALDWIN, FL 32234

GLOBAL CASH MANAGEMENT
Mellon Bank
Mellon Bank N.A.
Pittsburgh, PA

00293

June 16 19 93

8-26
430

PAY TWO HUNDRED FIFTY AND 00/100********** DOLLARS $250.00

TO THE ORDER OF FLORIDA DEPT OF ENVIRONMENTAL REGULATION

[redacted]

TRAIL RIDGE LANDFILL, INC.

DETACH AND RETAIN THIS STATEMENT
THE ATTACHED CHECK IS IN PAYMENT OF ITEMS DESCRIBED BELOW.
IF NOT CORRECT PLEASE NOTIFY US PROMPTLY. NO RECEIPT DESIRED.

DELUXE - FORM WVCP-3 V-2

DATE	DESCRIPTION	AMOUNT
	PERMIT MODIFICATION SC16-184444 467 140 50	

V-2

Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
P.O. Box 548
Baldwin, Florida 32234
904/289-9100

A Waste Management Company

NORTHEAST DISTRICT
RECEIVED
JUN 16 1993
DER-JACKSONVILLE

June 15, 1993

Ms. Mary C. Nogas, P.E.
Department of Environmental Regulations
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

RE: Trail Ridge Landfdill
Permit Nos. SC16-184444 and 161821182
Mitigation Monitoring Report No. 1

Dear Ms. Nogas,

In accordance with Permit No. SC16-184444, Specific Condition 51, and Permit No. 161821182, Specific Condition 11, we are hereby submitting Mitigation Monitoring Report No. 1 (enclosed). Should you have any questions concerning the report, please contact myself or Jim Lukens at 289-9100.

Sincerely,

Greg Mathes
Division President and General Manager

cc: Mike Eaton, DER
Nam Hyunh, Water Quality Division/Water Resources Division (w/enclosure)
Jim Lukens (w/enclosure)
Byron Peacock, Mitigation Services, Inc. (w/o enclosure)
Chris Pearson, Dept. of Public Utilities (w/enclosure)

c:\wp51\nogas\MitMon.rpt

Printed on recycled paper.

ENVIRONMENTAL SERVICES, INC.
8711 PERIMETER PARK BOULEVARD, SUITE 11
JACKSONVILLE, FLORIDA 32216

(904) 645-9900

RECEIVED
JUN - 9 1993
TRAIL RIDGE

NORTHEAST DISTRICT
RECEIVED
JUN 10 1993
DER-JACKSONVILLE

April 15, 1993

Mr. David Salyers
Trail Ridge Landfill
Waste Management of North America, Inc.
P.O. Box 548
5110 U.S. 301
Baldwin, Florida 32234

RE: Trail Ridge Landfill
Mitigation Monitoring
Permits No. 161821182 and SC16-184444

Dear Mr. Salyers:

Enclosed is the first monitoring report for the wetland creation effort at the Trail Ridge Landfill site per Specific Conditions 6, 11, 12, 13 and 14 and Conditions 46, 51, 52, 53 and 54 of the above-referenced permits (see Appendix A). Data referencing tree survivorship, percent herbaceous cover and natural recruitment are include with photographs of the mitigation area. Future reports will follow per permit specifications.

If this report meets with your approval, please forward it to the local DER office to the attention of Mrs. Lisa Adams.

Should you have any questions, please call Byron Peacock or me.

Sincerely yours,

MITIGATION SERVICES, INC.

Nancy C. Zyski
President

Attachments

(DT\kh\91-297.4\Apr93)

TRAIL RIDGE LANDFILL

MITIGATION MONITORING REPORT NO. 1

DER PERMITS 161821182 AND SC16-184444

31 March 1993

PREPARED FOR:

Mr. David Salyers
Trail Ridge Landfill
Waste Management of North America, Inc.
P.O. Box 548
5110 U.S. 301
Baldwin, Florida 32234

PREPARED BY:

Mitigation Services, Inc.
8711 Perimeter Park Boulevard, Suite 11
Jacksonville, Florida 32257

ENVIRONMENTAL SERVICES, INC.
8711 PERIMETER PARK BOULEVARD, SUITE 11
JACKSONVILLE, FLORIDA 32216

(904) 645-9900

MITIGATION MONITORING FOR TRAIL RIDGE LANDFILL

A. INTRODUCTION

On 1 April 1993, Mitigation Services, Inc. conducted the first monitoring of the forested wetland creation effort located off State Road 210 at the new Trail Ridge Landfill site in Duval County (see Drawing 1). Pursuant to Conditions 6, 11, 12 13 and 14 of Permit # 12-031-055 (see Appendix A) this evaluation was undertaken to document the success of the creation area at the beginning of its first growing season. This report will discuss the status of the project in terms of the following:

- Percent survival and density of planted species
- Recruitment density and composition
- Percent cover of herbaceous species
- Recorded growth via established parameters for trees and shrubs
- Hydrological conditions
- Wildlife utilization

The earthwork phase of construction was completed during the summer of 1992. The mitigation area was over-excavated approximately 0.5 foot below the existing grade of the adjacent wetlands. The area was then backfilled with mulch consisting of the upper soil layer from impacted wetlands on-site to promote natural revegetation by herbaceous recruits. Planting of the forested creation area was completed on 16 November 1992. A mixture of 3-gallon trees and 1-gallon shrubs were planted on 10-foot centers throughout the mitigation area. A total of 2,095 native wetland trees and 125 native wetland shrubs were installed. A completion report of the species planted was submitted on 10 December 1992. Planted tree and shrub species included:

Native Wetland Trees

Species	Size	Number
Bald cypress (Taxodium distichum)	3-gallon	419
Red Maple (Acer rubrum)	3-gallon	419
Sweetgum (Liquidambar stryaciflua)	3-gallon	419
Black gum (Nyssa sylvatica var. biflora)	3-gallon	95
Sweet bay (Magnolia virginiana)	3-gallon	295
Water Tupelo (Nyssa aquatica)	3-gallon	448

Native Wetland Shrubs

Species	Size	Number
Wax myrtle (Myrica cerifera)	1-gallon	31
Fetterbush (Lyonia lucida)	1-gallon	46
Buttonbush (Cephalanthus occidentalis)	1-gallon	31
Virginia willow (Itea virginica)	1-gallon	17

B. ANALYTICAL TECHNIQUES

A total of eight (8) permanent belt transects were established within the forested mitigation area (Figure 2) and marked with 4-foot PVC stakes for reference. Four transects were orientated north-south, and four were orientated east-west to capture a uniform cross-section of the entire creation area. Each transect is 10 feet in width. All tree specimens within each transect were counted, and the health of each specimen was observed by noting new twig and leaf growth.

A total of ten (10) square meter plots were also permanently installed at each point of intersection between the various transects. The Herbaceous density and growth parameters were noted by visual estimation. Recruitment of nuisance and non-nuisance species were noted throughout the mitigation area. Any observed wildlife in the vicinity of the mitigation area was also noted.

The methodology used in assessing growth and survivorship of planted trees and shrubs was as follows:

1. **Survivorship.** All trees and shrubs growing within each transect were counted. This number was divided by the total number of trees or shrubs originally planted within that belt transect to obtain the percent survivorship of planted species.

2. **Growth.** Two (2) trees in each transect were permanently marked with an identifying numbered tag.

    a. **Caliper.** The width of tree trunks was measured six (6) inches from the ground.

3. **Recruitment.** The natural recruitment of wetland trees, shrubs and herbs in each transect was determined by visual assessment.

The methodology used in assessing growth and coverage of herbaceous vegetation was as follows:

a. **Growth and Coverage.** The percent cover by wetland species of the total area of each square meter plot was determined and recorded.

b. **Recruitment.** The natural recruitment of herbaceous wetland species within each plot was determined by visual assessment. Any recruited herbs observed throughout the mitigation area were also noted.

C. RESULTS

Survivorship. Data collected on 1 April 1993 will serve as a reference for all future iterations. Tree specimens throughout the mitigation area are exhibiting new leaf and twig growth. Please refer to Table 1 for background survivorship and data.

Growth. Growth data were collected within the mitigation area during the site visit (Table 1) and will serve as background data for future iterations. All marked trees appear to be healthy, exhibiting fresh twig growth and a vibrant green cambium layer.

Coverage. Coverage of the mitigation area by the infilling of herbaceous recruits has been exceptional to date. Though no herbaceous vegetation was installed within the creation site, percent coverage of the area by hydrophytic species is approximately 55 - 60 %. Species composition within each of the fixed position quadrats is summarized below:

1. Quadrat No. 1

- 3% Spikerush (Eleocharis sp.)
- 97% Exposed sand

2. Quadrat No. 2

- 3% Red ludwigia (Ludwigia repens)
- 3% Low panicum (Panicum sp.)
- 4% St. Johns wort (Hypericum fasciculatum)
- 5% Beak rushes (Rhynchospora spp.)
- 5% Redroot (Lachnanthes caroliniana)
- 40% Spikerush
- 40% Exposed sand

3. Quadrat No. 3

- 10% Beak rushes
- 30% Spikerush
- 40% Low panicum
- 20% Exposed sand

4. Quadrat No. 4

- 5% Beak rushes
- 5% Red ludwigia
- 20% Low panicum
- 60% Spikerush
- 10% Open water

5. Quadrat No. 5

- 2% Red ludwigia
- 38% Open water
- 60% Exposed sand

6. Quadrat No. 6

- 100% Exposed sand

7. Quadrat No. 7

- 5% Spikerush
- 95% Exposed sand

8. Quadrat No. 8

- 20% Low panicum
- 20% Beak rushes
- 30% Spikerush
- 30% Exposed sand

9. Quadrat No. 9

- 5% Various sedges (Cyperus spp.)
- 10% Low panicum
- 60% Spikerush
- 25% Exposed ground

10. Quadrat No. 10

- 5% Softrush (Juncus effusus)
- 10% Low panicum
- 10% Beak rushes
- 55% Spikerush
- 20% Exposed sand

Recruitment. A large variety of herbaceous species have naturally recruited into the mitigation area, contributing to the formation of a diverse and thickly vegetated community. Notable recruits include beak rushes, sphagnum moss (Sphagnum sp.), various sedges, soft- rush, pennywort (Hydrocotyle umbellata), bamboo (Smilax laurifolia), spikerush, redroot, low panicum (Panicum sp.), St. Johns wort, yellow-eyed grass (Xyris sp.), blue maidencane (Amphicarpum muhlenbergianum), red ludwigia and fetterbush.

Nuisance Species. No nuisance species were observed within the mitigation area. Historically tenacious nuisance species such as cattails (Typha sp.) were notably absent from the area. However, one non-listed species of grass, a species of Panicum was noted. This species accounted for less than 10 percent coverage of the creation area and does not appear to pose any threat to the continued recruitment of hydrophytic herbs.

Hydrologic Conditions. Water elevations varied throughout the site depending on topography. The photographs in Appendix B exhibit this variation in water depths. Standing water was observed within the submerged zones, and the transitional zones were saturated by groundwater.

Wildlife Utilization. During the site visit various species of minnows (Fundulus sp.), mosquitofish (Gambusia sp.), frogs and tadpoles were observed within the creation area. These organisms represent pioneer species which would be expected to colonize developing wetlands, indicating the emergence of a stable ecosystem.

D. CONCLUSION

The wetland creation area at the Trail Ridge Landfill is exhibiting signs of success at the beginning of its first growing season. Planted trees and shrubs appear to be healthy and growing as evidenced by new leaf and twig growth. Although no tree survivorship or growth data had been taken prior to this iteration, data collected on 1 April 1993 will be utilized for future comparison. Percent cover by herbaceous species has been excellent thus far, with herbaceous natural recruits accounting for approximately 55 - 60 % coverage of the creation area. No nuisance species have been observed within the project site. Proper hydrology and the presence of pioneer faunal species indicate the early successional development of a healthy, viable wetland ecosystem.

TABLE 1
PERCENT SURVIVAL & GROWTH DATA OF PLANTED TREES

TRANSECT NUMBER	NO. OF PLANTED TREES	NO. OF TREES LIVING M^1 M^2 M^3 M^4 M^5 M^6	PERCENT SURVIVAL M^1 M^2 M^3 M^4 M^5 M^6	TREE - NUMBER SPECIES	CALIPER (INCHES)
1	37	37	*	T1-1 (Taxodium distichum) T1-2 (Liquidambar stryaciflua)	0.4 0.5
2	40	40	*	T2-1 (Taxodium distichum) T2-2 (Nyssa sylvatica var. biflora)	0.5 0.3
3	45	45	*	T3-1 (Taxodium distichum) T3-2 (Magnolia virginiana)	0.6 0.5
4	31	37	*	T4-1 (Acer rubrum) T4-2 (Acer rubrum)	0.5 0.3
5	91	91	*	T5-1 (Acer rubrum) T5-2 (Acer rubrum)	0.4 0.5
6	80	80	*	T6-1 (Magnolia virginiana) T6-2 (Magnolia virginiana)	0.7 0.8
7	46	46	*	T7-1 (Acer rubrum) T7-2 (Liquidambar stryaciflua)	0.4 0.6
8	44	44	*	T8-1 (Acer rubrum) T8-2 (Taxodium distichum)	0.4 0.7

Note: M^1 designates the first monitoring iteration, M^2 the second, etc.

* Since no previous survivorship data has been taken, data from the first iteration will serve as background for future comparison.

(kh\91-297.3TB\2Apr93)

APPENDIX A

PROJECT INFORMATION

Date: 31 March 1993	
Project Name: Trail Ridge Landfill	Project No: 91-297.3
Monitoring Period: Spring 1993	Monitoring Rep: 1 of 6

Permit No: 161821182 and SC16-184444

Total Wetlands Created: ± 4.76 acres

Monitoring Conditions: Permit No. 161821182 - Specific Conditions 6, 11, 12, 13 and 14 (46, 51, 52, 53 and 54 for Permit No. SC16-184444).

6(46). The mitigation plan, "Trail Ridge Landfill Wetland Impacts and Mitigation Plan," submitted on June 18, 1990, shall be appended as a Specific Condition of this permit. Any specific condition requirements listed herein, shall supersede or modify any requirements contained in the appended mitigation plan.

11(51). The permittee shall furnish the Department with monitoring reports on the wetland creation areas describing:

a. Percent survival and diversity of planted species within each stratum;
b. Recruitment density and composition within each stratum;
c. Recorded growth via established parameters for planted trees and shrubs;
d. Percent cover of herbaceous species;
e. Surface water elevations referenced to N.G.V.D., or if surface water is not present, groundwater elevation referenced to N.G.V.D.

The first monitoring year shall start as of the planting date and data shall be collected and submitted in accordance with Specific Condition Number 6. Reports to the Department must also include photographs, descriptions of problems encountered and solutions undertaken.

Monitoring Conditions 6, 11, 12, 13 and 14 (46, 51, 52, 53 and 54) Continued

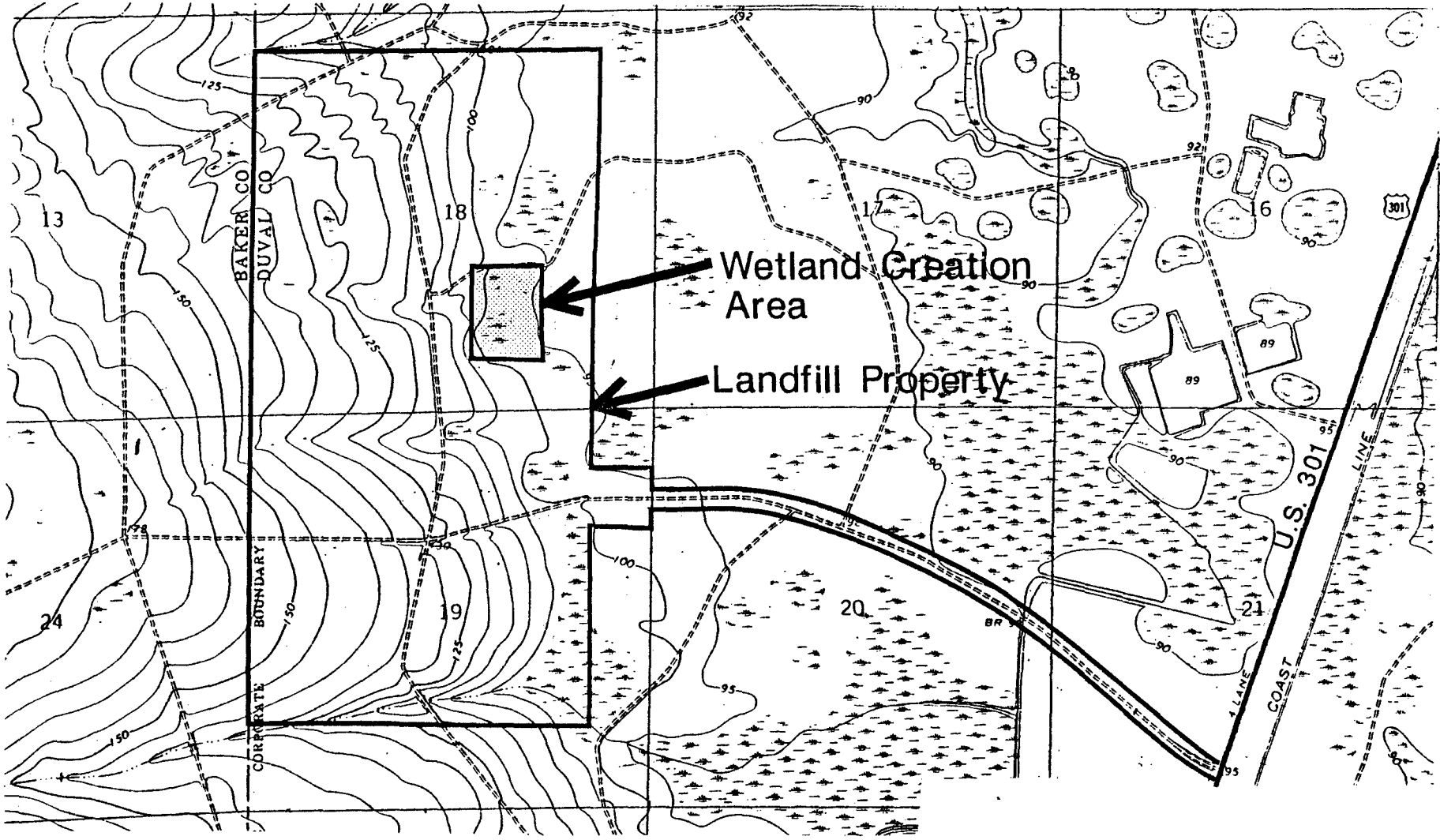
12(52). Within the wetland creation areas, non-native vegetation and nuisance vegetation such as Typha sp. shall be controlled by hand clearing or other methods approved by the Department so that they constitute no more than 10% of the areal cover at any monitoring period.

13(53). Successful establishment of the wetland creation shall occur when:

a. On an annual basis at least 80 percent of the planted individuals in each stratum have survived and are showing signs of normal annual growth, based on standard growth parameters such as height and base diameter, or canopy circumference; and

b. The above criteria has been achieved and maintained for a three (3) year period following initial planting.

14(54). In the event that the success criteria as stated in Specific Number 13 are not achieved by the expiration date of this permit, the permittee shall enter into a long term agreement with the Department so as to insure the success of the mitigation plan.



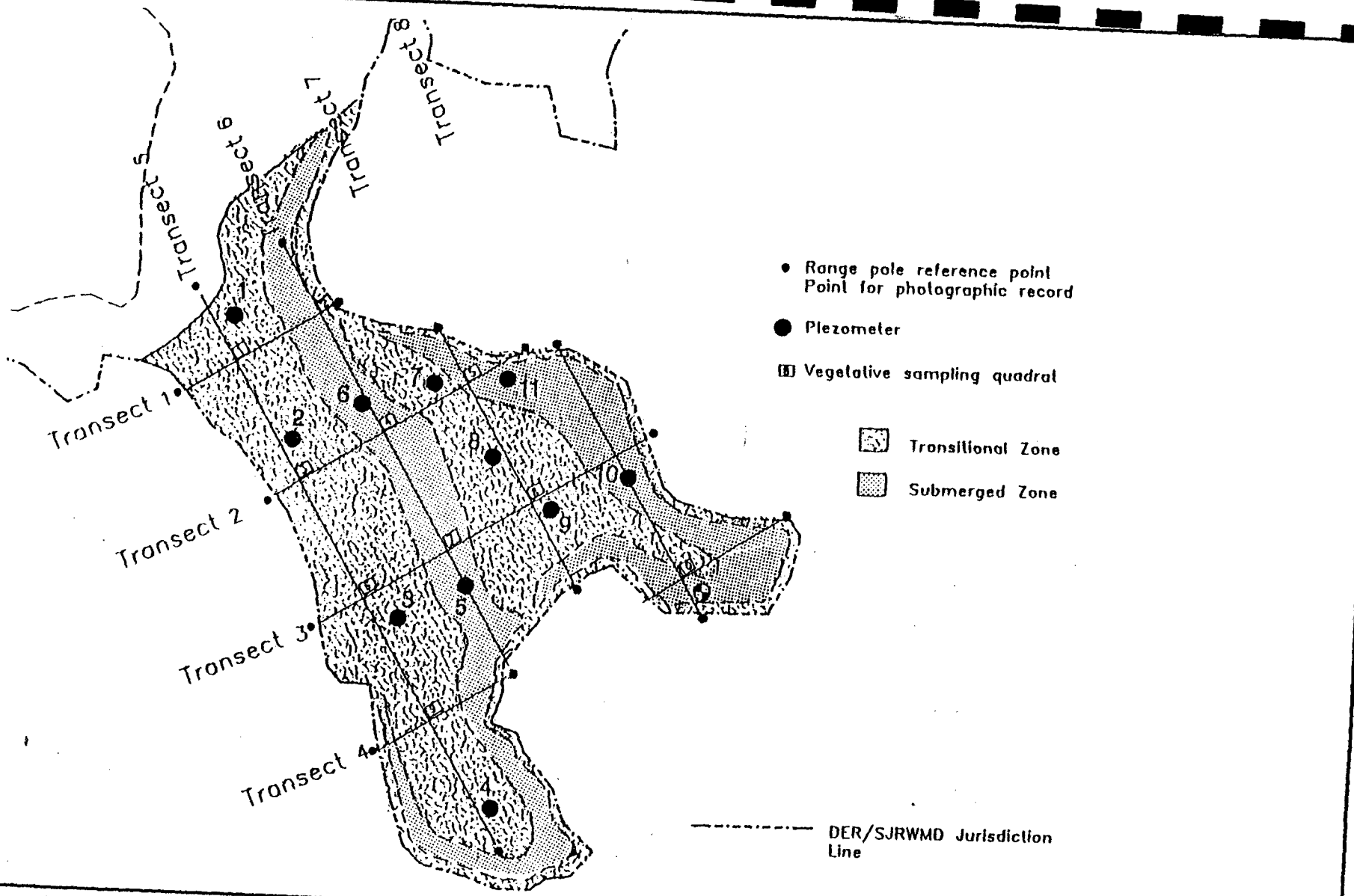
Source: U.S.G.S. Topographical Survey, Maxville, FL., Quadrangle. (1970)

Figure 1
Location Map

ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill Mitigation Monitoring

Project No.	91-297.3
Date	5/26/93
Scale	1"=2000'
Drawing No.	1 of 2



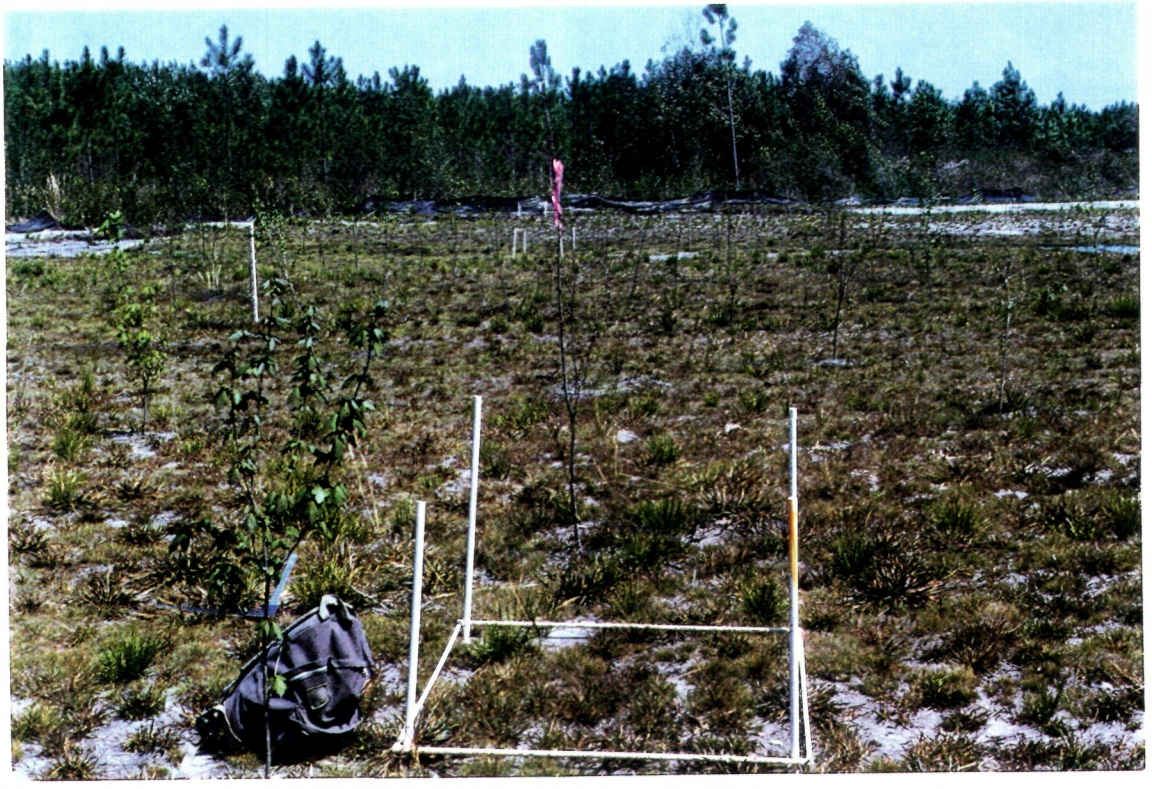
ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill
Mitigation Plan
4.76 Acres

Project No.	91-297.3
Date	5/26/93
Scale	1"=150'
Drawing No.	2 of 2

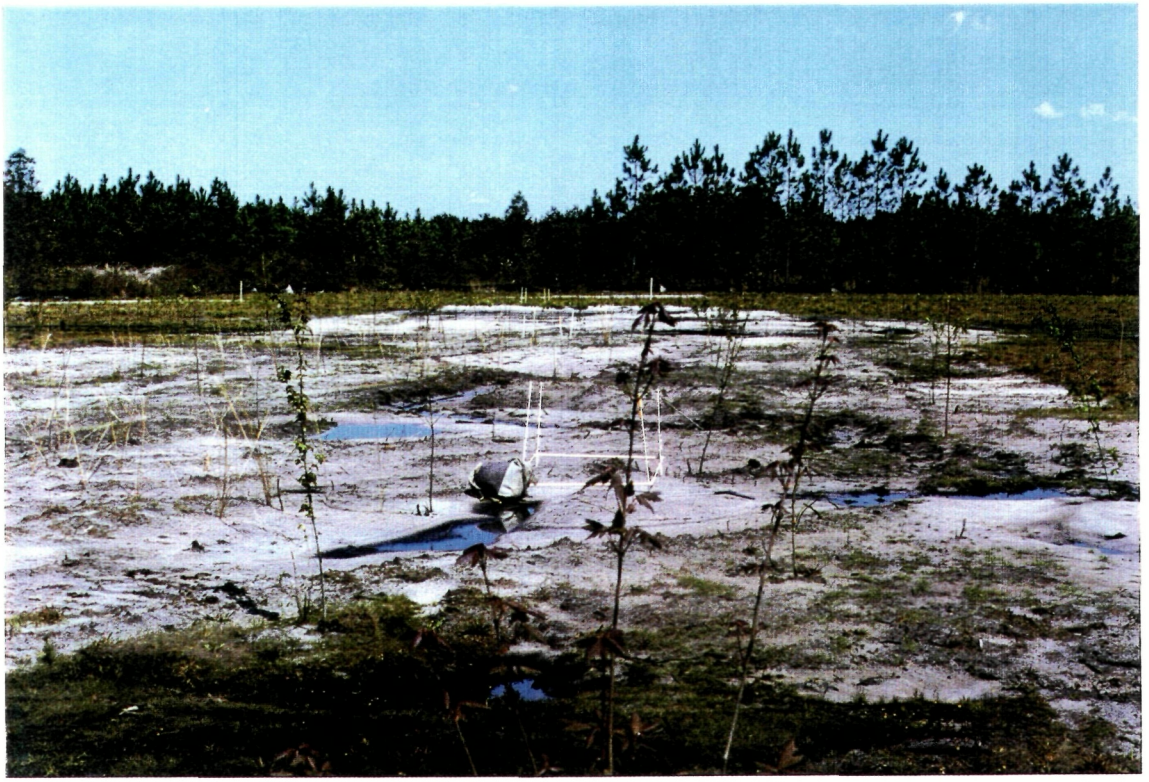
TRAIL RIDGE LANDFILL
Wetland Creation

Transect No. 1



Transect No. 2

Exhibit 1



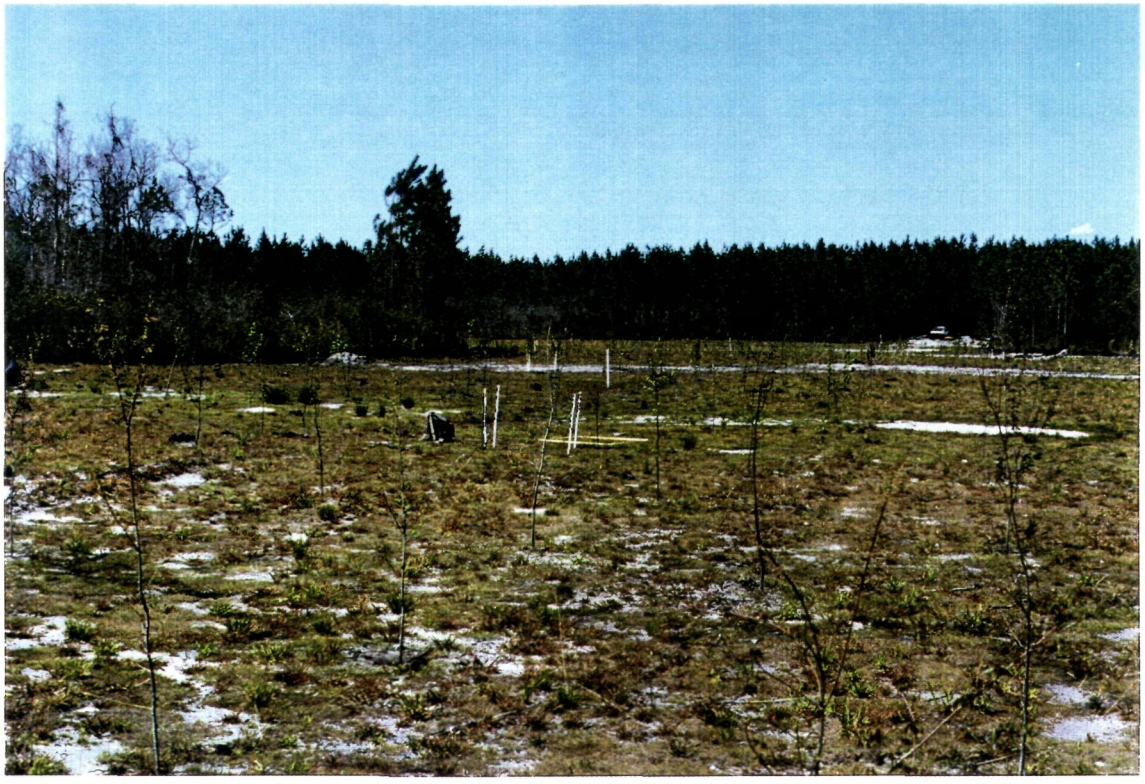
Transect No. 3

TRAIL RIDGE LANDFILL
Wetland Creation

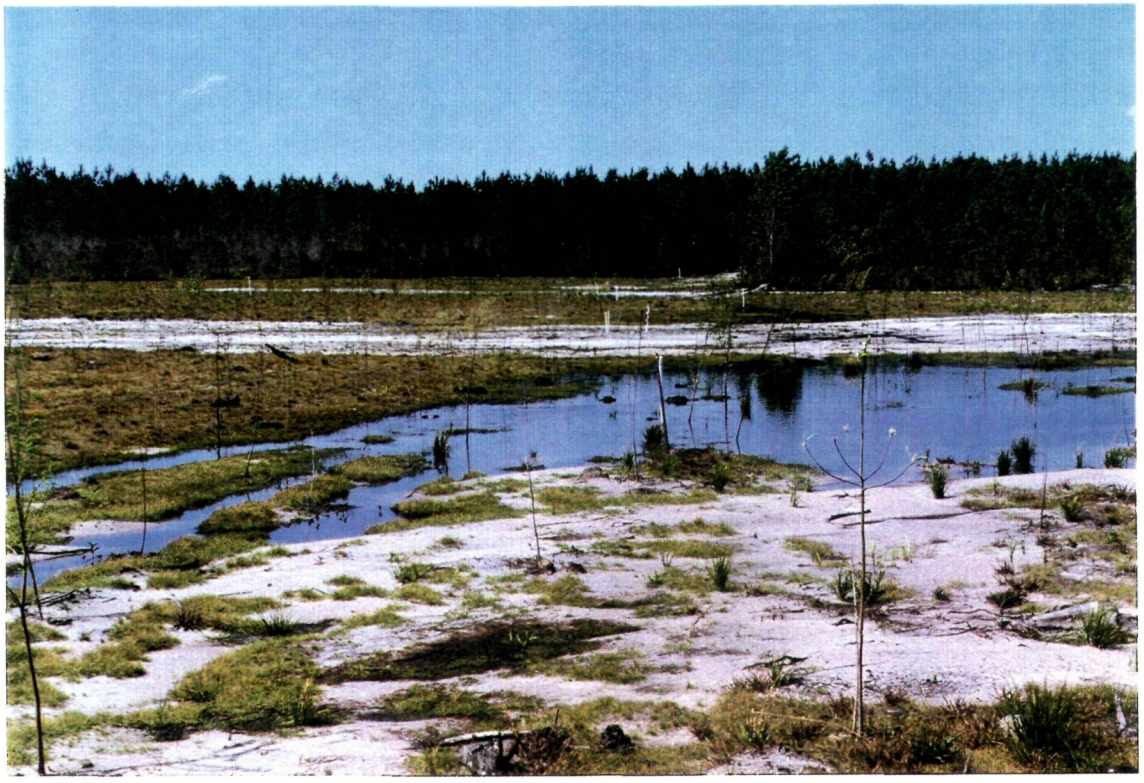
Transect No. 4 - Looking East

Transect No. 4 - Looking West

Exhibit 3



Transect No. 5



Transect No. 6

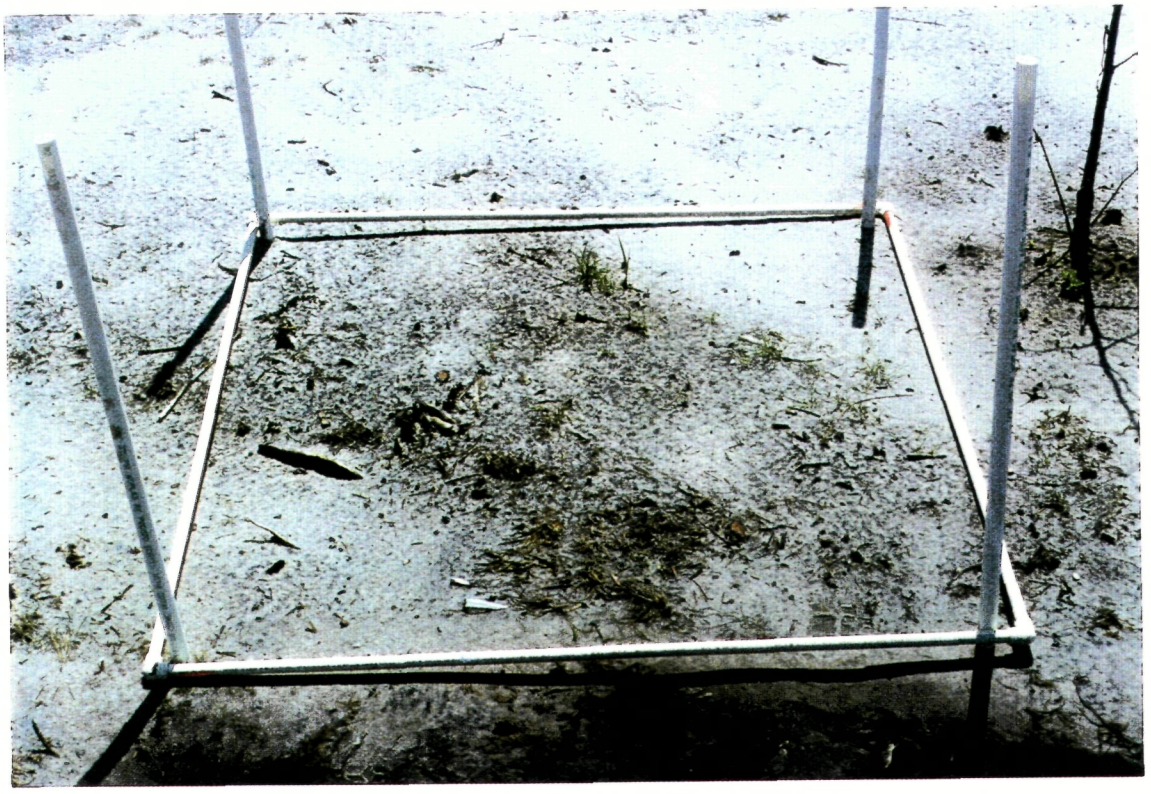
TRAIL RIDGE LANDFILL
Wetland Creation

Transect No. 7

Transect No. 8

Exhibit 5

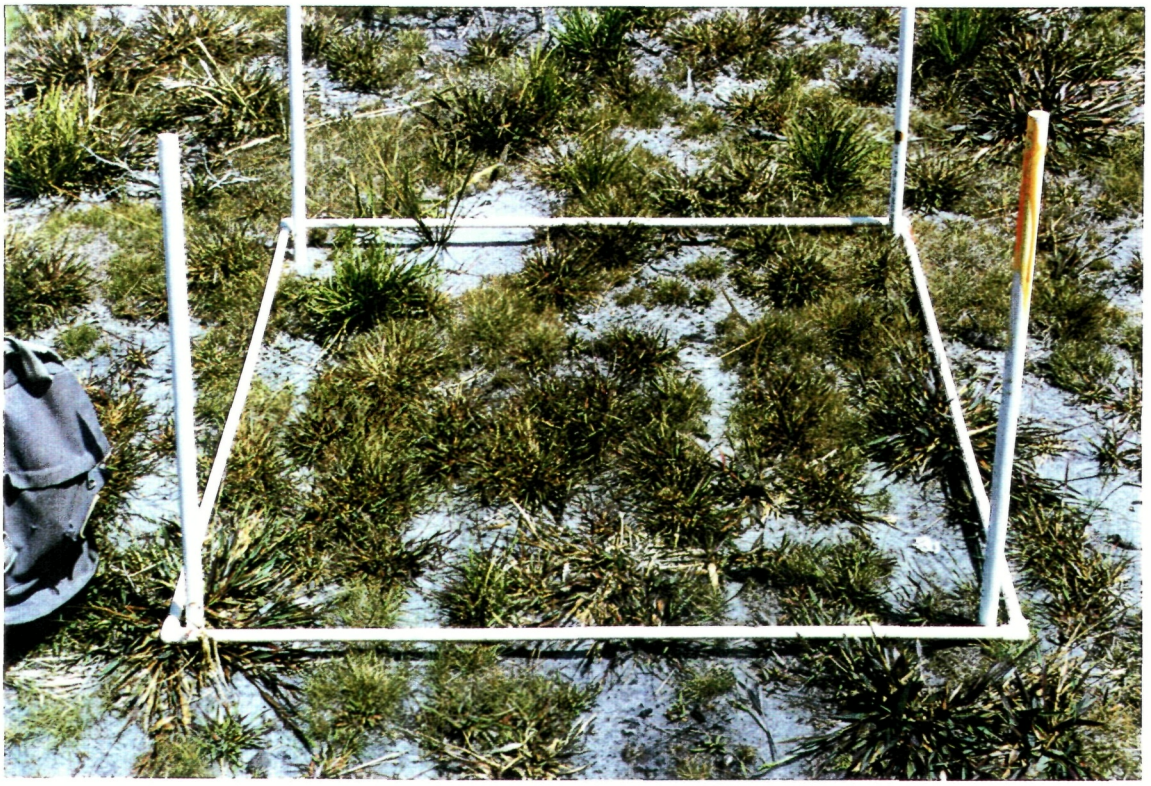
TRAIL RIDGE LANDFILL
Wetland Creation



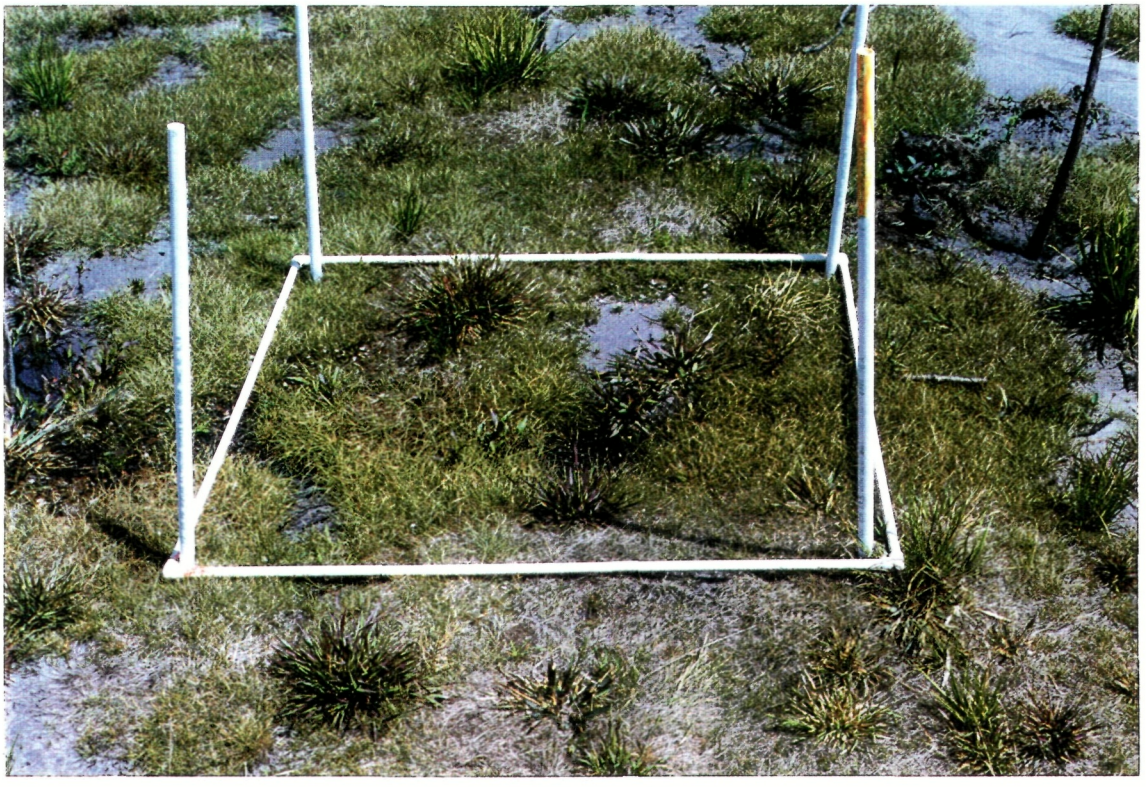
Sample Quadrat No. 1

Sample Quadrat No. 2

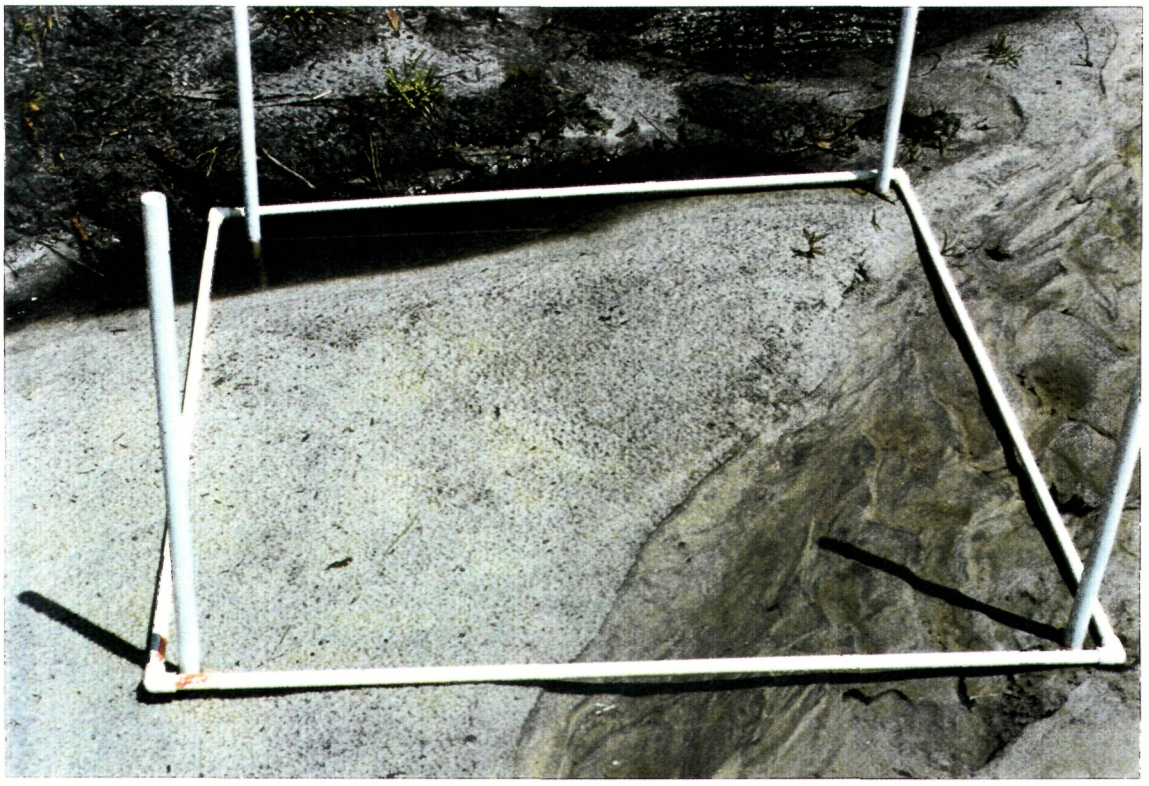
Exhibit 6



Sample Quadrat No. 3



Sample Quadrat No. 4



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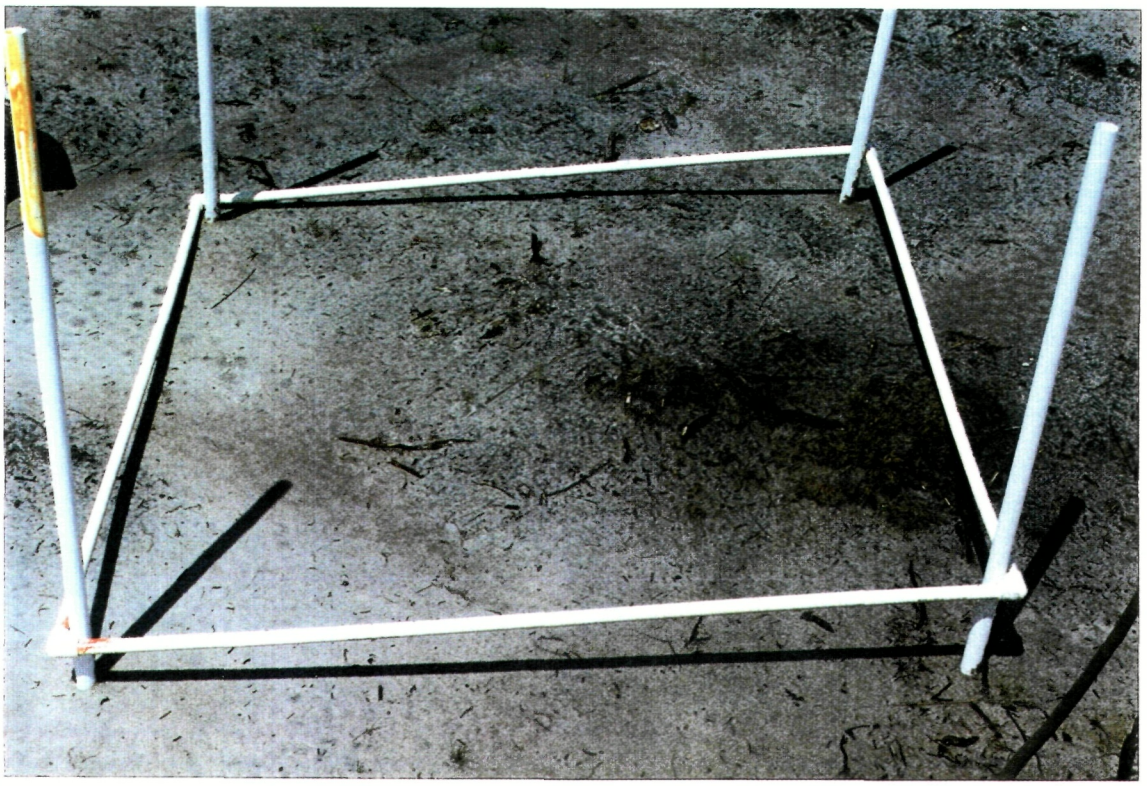
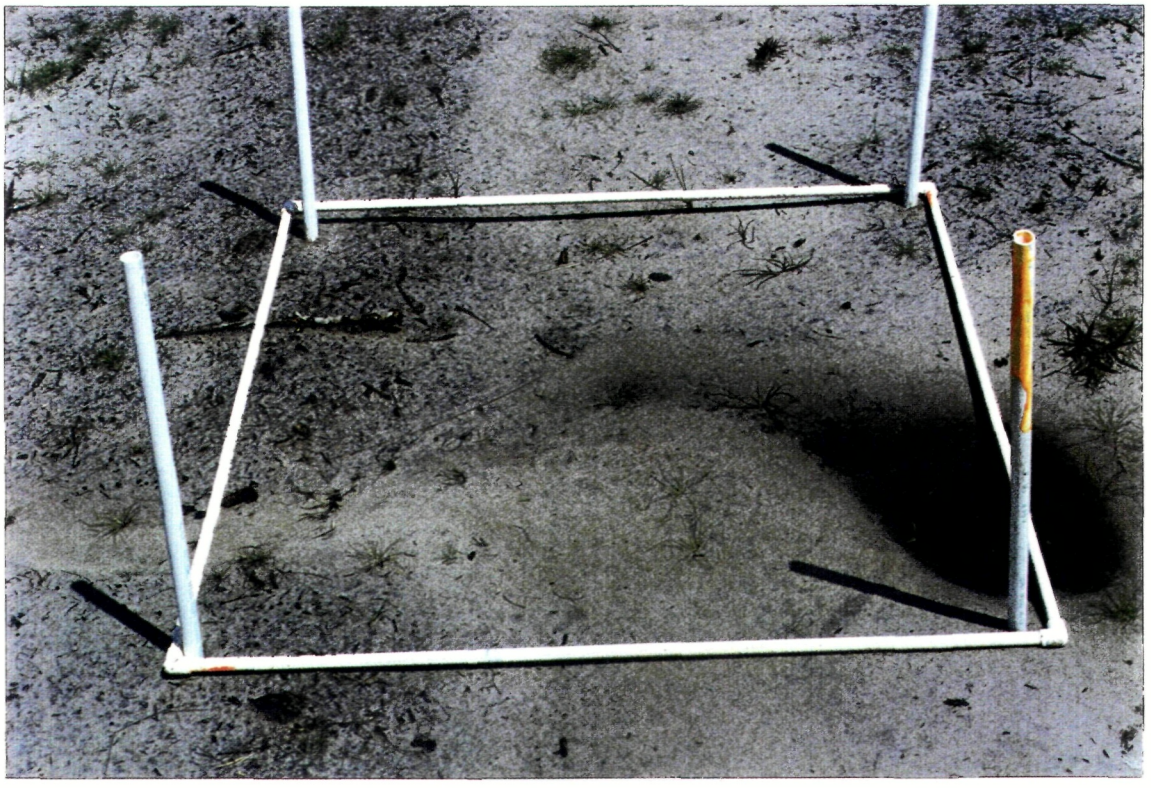
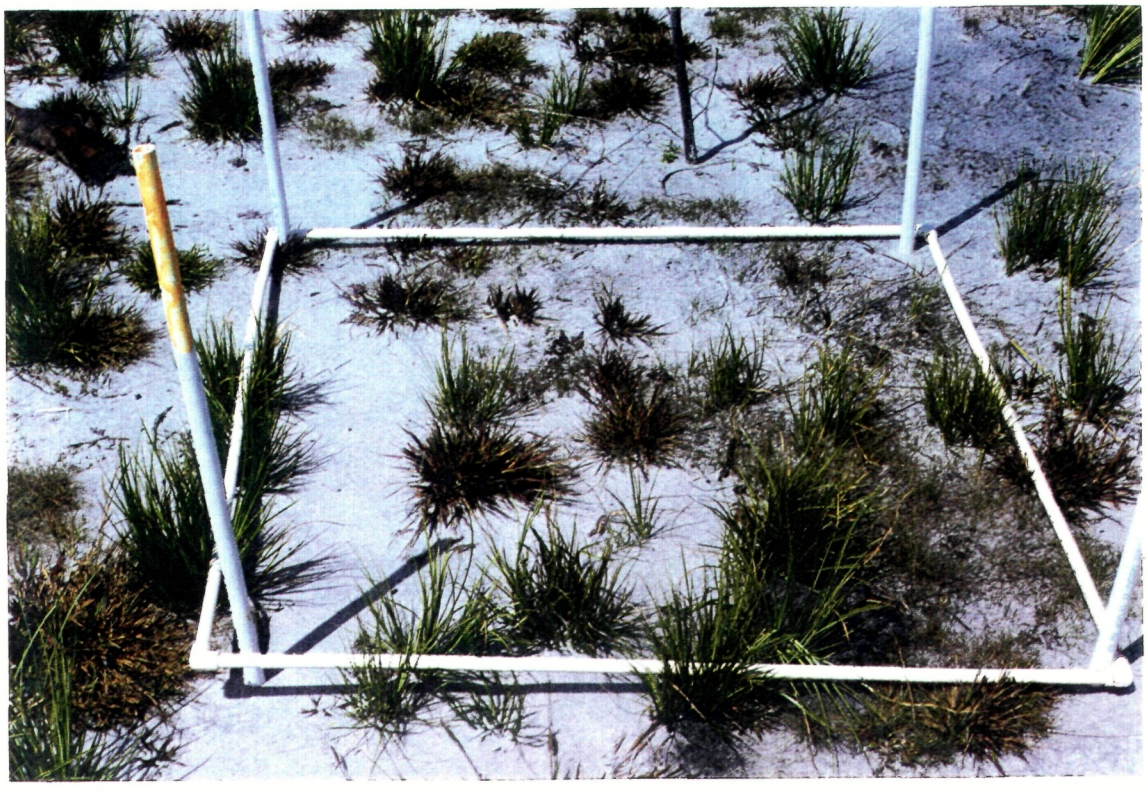


Sample Quadrat No. 6

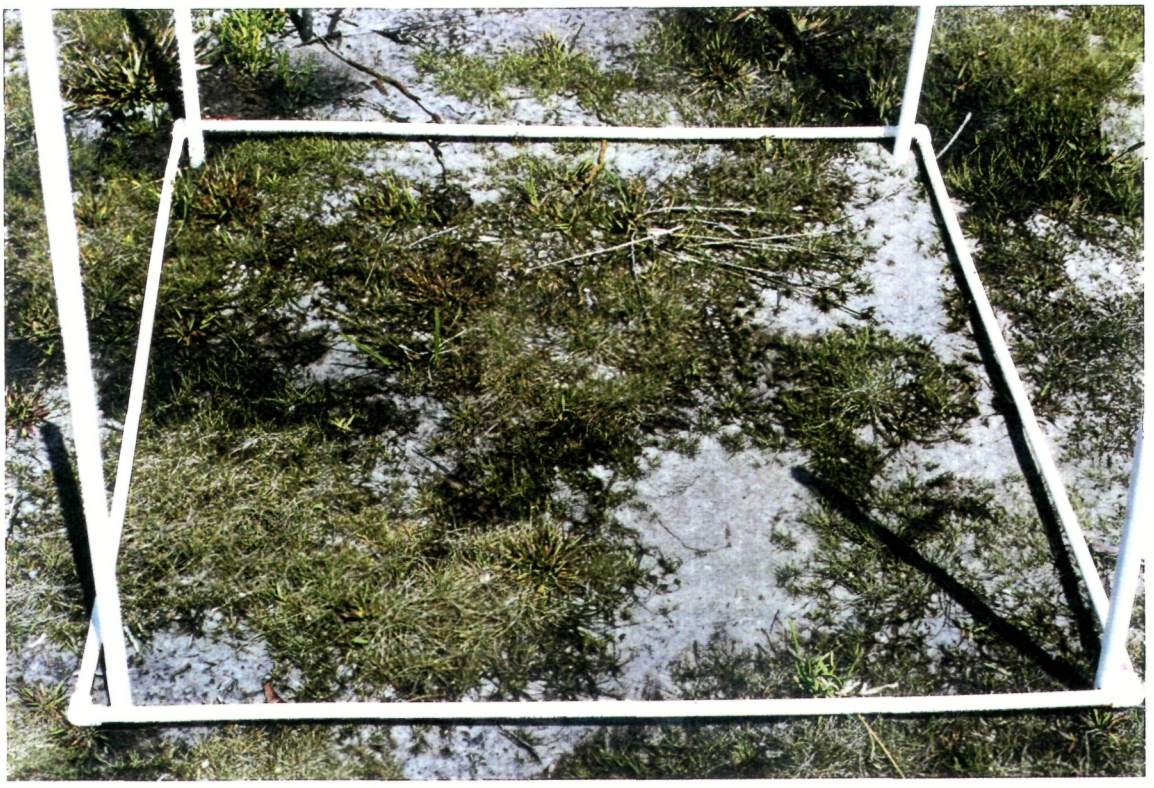
TRAIL RIDGE LANDFILL
Wetland Creation



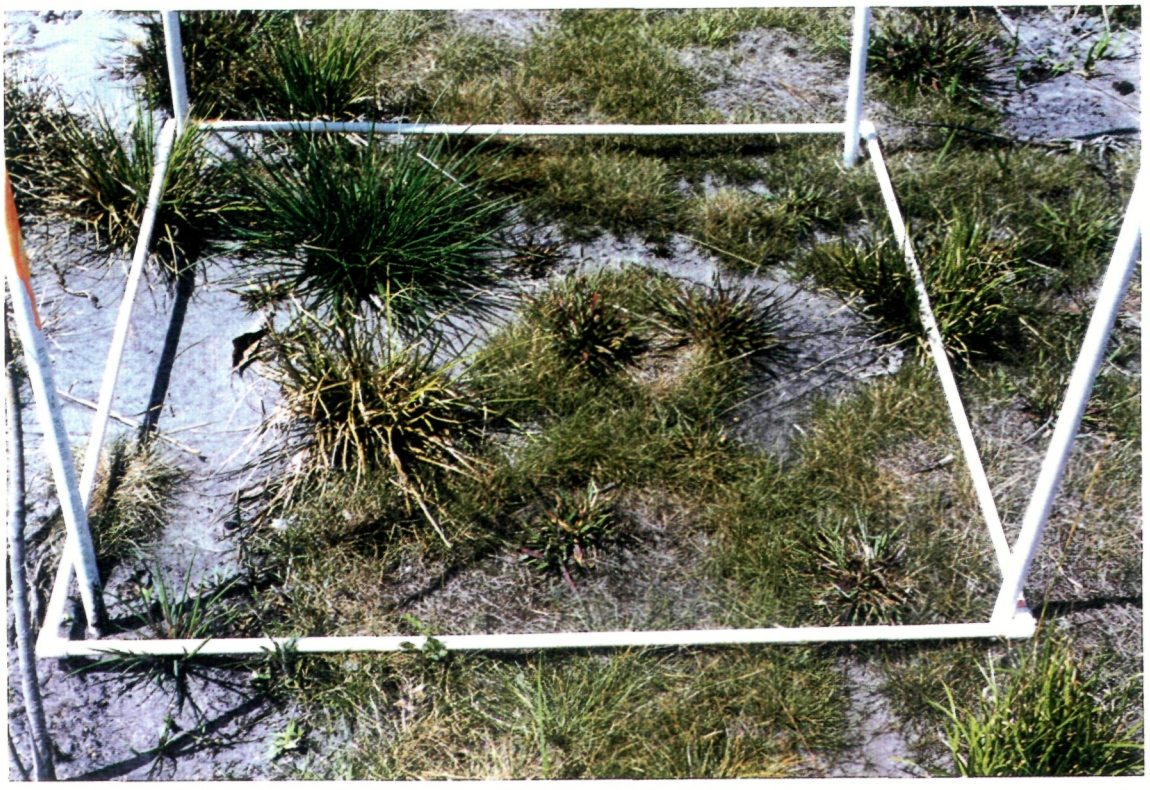
Sample Quadrat No. 7 Exhibit 9



Sample Quadrat No. 8 Exhibit 10



Sample Quadrat No. 9



Sample Quadrat No. 10

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

June 1, 1993

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Regulation
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

NORTHEAST DISTRICT
RECEIVED
JUN - 4 1993
DER - JACKSONVILLE

Mr. Jai P. Prasad, P.E.
Stormwater Section
Department of Environmental Regulation
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill - Phases IC and IIC
and Stormwater Management System for the Ancillary Facilities
FDER Permit No. SC16-184444
ET&M No. E91-156-2 (Certification File)

Dear Ms. Nogas and Mr. Prasad:

Please find herewith the Certification of Construction Completion for the Trail Ridge Landfill Phases IC and IIC including the stormwater management system for the ancillary facilities in accordance with specific condition #19 of the subject permit. The As-Built Surveys are included. The Liner and Soils Quality Assurance documentation were submitted with the previous Phase IC certification on February 12, 1993. Attached is Supplement No. 3 for the Construction Quality Assurance Final Report for the southern end treatment of Phases IC and IIC at Trail Ridge Landfill as prepared by GeoSyntec. Also attached is a letter response from GeoSyntec regarding the CQA of Phases IC and IIC. Phase IA, Phase IB and the Phase I Stormwater Management System and Leachate Storage Facility were previously certified on May 15, 1992, June 18, 1992 and September 15, 1992, respectively. Phase IIA, Phase IIB and the Phase II Stormwater Collection System were previously certified on March 4, 1993.

Subject to your site inspection, Trail Ridge Landfill, Inc. respectfully requests your written authorization to accept Class I Solid Waste in Phases IC and IIC of the Trail Ridge Landfill.

This is the final certification for the Trail Ridge Landfill construction which commenced on January 3, 1992. Should you have any questions concerning this matter, please do not hesitate to contact me.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

Attachments: Certification of Construction Completion
As-Built Surveys
Supplement No. 3 to CQA Final Report
Letter Response regarding CQA for Phases IC and IIC

cc: Luke DeBock
Greg Mathes w/attachments
Jim Lukens w/attachments
Chris Pierson w/attachments

NORTHEAST DISTRICT
RECEIVED
JUN - 4 1993
FLORIDA
DER - JACKSONVILLE

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CERTIFICATION OF CONSTRUCTION COMPLETION
OF A SOLID WASTE MANAGEMENT FACILITY

DER Construction Permit No.: SC16-184444 County: Duval

Name of Project: Trail Ridge Landfill - Phases IC and IIC

Name of Owner: City of Jacksonville; Trail Ridge Landfill, Inc.-Operator/Permittee

Name of Engineer: England, Thims & Miller, Inc.

Type of Project: Class I Landfill - Phases IC and IIC and Stormwater Management System for the Ancillary Facilities.

Cost: Estimated $ 4,775,000 Actual $ 3,557,000

Site Design: Quantity: 2,600 (avg) ton/day Site Acreage: 18.6± Acres

Population: 659,000± (1990) Dumping Fees: $ 55 /Ton

Deviations from Plans and Application Approved by DER:

Deviations are shown in the Construction Quality Assurance documentation and As-Built surveys. The As-Built surveys were prepared by Sunshine State Surveyors, Inc. and reviewed by England, Thims & Miller, Inc. Deviations are also outlined in the Supplement No. 3 CQA Final Report. **

Water Monitoring Data Submitted to DER, Date: April 15, 1993

Address and Telephone No. of Site: 5110 U.S. Highway 301
Baldwin, Florida 32234; (904) 289-9100

Name(s) of Site Supervisor: Greg Mathes

Date Site Inspection is requested: ASAP

This is to certify that, with the exception of deviation noted above, the construction of the project has been completed in accordance with the plans authorized by Construction Permit No.: SC16-184444 and Modifications Dated: Permit 12/24/91

England, Thims & Miller relied upon the information and certifications provided by Law Engineering, GeoSyntec Consultants and Sunshine State Surveyors, Inc.

Date: 6-3-93

Signature of Professional Engineer

**NOTE: The Construction Quality Assurance documentation was previously submitted with the Phase IC certification on February 12, 1993.

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

June 1, 1993

NORTHEAST DISTRICT
RECEIVED
JUN - 4 1993
DER - JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Regulation
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Mr. Jai P. Prasad, P.E.
Stormwater Section
Department of Environmental Regulation
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill - Phases IC and IIC
and Stormwater Management System for the Ancillary Facilities
FDER Permit No. SC16-184444
ET&M No. E91-156-2 (Certification File)

Dear Ms. Nogas and Mr. Prasad:

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ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

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Letter Response regarding CQA for Phases IC and IIC

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Chris Pierson w/attachments

NORTHEAST DISTRICT
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STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CERTIFICATION OF CONSTRUCTION COMPLETION
OF A SOLID WASTE MANAGEMENT FACILITY

DER Construction Permit No.: SC16-184444 County: Duval

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Water Monitoring Data Submitted to DER, Date: April 15, 1993

Address and Telephone No. of Site: 5110 U.S. Highway 301
Baldwin, Florida 32234; (904) 289-9100

Name(s) of Site Supervisor: Greg Mathes

Date Site Inspection is requested: ASAP

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England, Thims & Miller relied upon the information and certifications provided by Law Engineering, GeoSyntec Consultants and Sunshine State Surveyors, Inc.

Date: 6-3-93

Signature of Professional Engineer

**NOTE: The Construction Quality Assurance documentation was previously submitted with the Phase IC certification on February 12, 1993.

I N T E R O F F I C E M E M O R A N D U M

Date: 02-Jun-1993 12:02pm EST
From: Michael Eaton JAX
EATON_M
Dept: Northeast District Office
Tel No: 904/448-4340 X349
SUNCOM: SC 880-4340

TO: Mary Nogas JAX (NOGAS_M)

CC: Jeremy Tyler JAX (TYLER_J)
CC: Lisa Adams JAX (ADAMS_L)

Subject: Trail Ridge Mod Request

Mary -

#2. Specific condition No. 16(g) - not a wetland requirement. Stormwater maintenance condition.

#3. Specific condition No. 51 should refer to specific condition 49 not 4. Needs to be modified.

#4. Specific condition No. 54 should refer to specific condition 53 not 33. Needs to be modified.

Mike

I N T E R O F F I C E M E M O R A N D U M

Date: 18-May-1993 12:09pm EST
From: Mary Nogas JAX
NOGAS_M
Dept: Northeast District Offi
Tel No: 904/448-4320 X355
SUNCOM: SC 880-4320

TO: Michael Eaton JAX (EATON_M)

CC: Mark Cadenhead JAX (CADENHEAD_M)

Subject: trail ridge minor mod

The file number for the minor mod I left you is 231431

DEPARTMENT OF ENVIRONMENTAL REGULATION

To:_____
To:_____
To:_____
To:_____

INTEROFFICE MEMORANDUM

NORTHEAST DISTRICT - JACKSONVILLE

TO: Michael Eaton

FROM: Mary Nogas MN

DATE: May 16, 1993

SUBJECT: Trail Ridge Landfill
Permit No. SC16-184444
File No.

Please review the attached and provide comments by June 8, 1993. I'll get a File Number assigned this week.

Thanks.

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E., President
Robert E. Thims, V.Pres., Sec.
Douglas C. Miller, P.E., V. Pres.
N. Hugh Mathews, P.E., V. Pres.

May 14, 1993

NORTHEAST DISTRICT
RECEIVED
MAY 14 1993
DER-JACKSONVILLE

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Regulation
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
FDER Permit No. SC16-184444 (Modification Request)
ET&M No. E92-148-6

Dear Ms. Nogas:

In accordance with Chapter 17-4.080(2), F.A.C., we hereby request a minor modification of the subject permit. The modification is to correct minor errors or typographical errors and does not involve technical review. Therefore, in accordance with 17-4.050(4)(p)(1), there is no fee for such modification.

The requested modification is as follows:

1. Specific Condition No. 4 - "The final design shall be implemented by Permittee for each solid waste disposal side slop unit described in Specific Condition No. 34." It appears that the Specific Condition referenced should be No. 36 and slope is misspelled. Please modify accordingly.

2. Specific Condition No. 16. (g) - "Replanting if vegetative cover in littoral zones falls below 80% coverage." There are no littoral zones on the site, therefore we request that this condition be deleted from the permit.

3. Specific Condition No. 51 - "The first monitoring year shall start as of the planting date and data shall be collected and submitted in accordance with Specific Condition No. 4." It appears that the Specific Condition referenced should be No. 49. Please modify accordingly.

4. Specific Condition No. 54 - "In the event that the success criteria as stated in Specific Condition No. 33 are not achieved by the expiration date of this permit, ..." It appears that the Specific Condition referenced should be No. 53. Please modify accordingly.

Should you have any questions regarding these proposed modifications, please give me or Juanitta Clem a call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

cc: Greg Mathes
Jim Lukens