

RECEIVED DEL CONTROL DIST.

VISTA LANDFILL, INC.

242 W. Keene Road Apopka, FL 32703 (407) 886-2920 (407) 889-8043 Fax

September 11, 2008

F. Thomas Lubozynski, P.E. Waste Program Administrator Florida Department of Environmental Protection 3319 Maguire Boulevard, Suite 232 Orlando, Florida 32803-3767

Subject:

Orange County – SW

Vista Landfill - Class III

Permit Numbers SC48-0165969-014/SO48-0165969-015

WACS# 87081

Cell 1 Construction Final Certification Report Dated September 2008

Dear Mr. Lubozynski:

Please find enclosed two originals of the subject report. We look forward to the fixed inspection planned for September 19, 2008 at 10 am.

If you have any questions or need additional information regarding this matter please contact me at 407-902-1469.

Sincerely,

Sheree Grant

District Engineer

North Florida Market Area

Waste Management Inc. of Florida

C: Jay Davoll, P.E. City of Apopka Juan Quiroz, P.E. Geosyntec

Irv Slike, WMIF



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

DEP Form# 62	2-701,900(2)
Form Title Cert	ification of Construction Completion
Effective Date	May 19, 1994
DEP Application	n No(Filled by DEP)

Certification of Construction Completion of a Solid Waste Management Facility

DEP Construction Permit No: SC48-010	County: Orange
Name of Project: Cell 1 Construction	
Name of Owner: Vista Landfill, LLC	
Name of Engineer: Geosyntec Consulta	ants
Type of Project: Landfill cell construction	
Cost: Estimate \$	Actual \$
Site Design: Quantity: 2500	ton/day Site Acreage: 150 (total site) / 7.4 (Cell 1) Acres
Deviations from Plans and Application	Approved by DEP:
No substantial deviations from the Plans	
T)	2 West Keene Road, Apopka, Florida 32703 Telephone: 407-886-2920)
Name(s) of Site Supervisor: Sheree Grant	ant (cell phone: 407-902-1469)
Date Site inspection is requested: 19 Se	
This is to certify that, with the excep project has been completed in substanti	tion of any deviation noted above, the construction of the al accordance with the plans authorized by Construction
Permit No. SC48-0165969	:Dated: 22 February 2008
Date: 11 September 2008	Signature of Professional Engineer 11 Sept 2809
	Signature of Professional Engineer 11 Sept 2809

Page 1 of 1

Vista Landfill, Class III Cell 1 Construction Apopka, Orange County, Florida





FINAL CERTIFICATION REPORT FOR CONSTRUCTION QUALITY ASSURANCE SERVICES

SEPTEMBER 2008





Prepared For:



Vista Landfill, LLC Attn: Sheree Grant 242 West Keene Road Apopka, FL 32703

Submitted By:



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CELL 1 CONSTRUCTION VISTA LANDFILL, CLASS III

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SECTION 1: INTRODUCTION

1.1 Terms of Reference

This certification report summarizes the construction quality assurance (CQA) activities performed by Geosyntec Consultants (Geosyntec) of Boca Raton, Florida during construction of the Cell 1 liner and leachate collection system at Vista Landfill, Class III (Vista Landfill) facility located in Apopka, Florida. The Vista Landfill is owned and operated by Vista Landfill, LLC, a wholly owned subsidiary of Waste Management, Inc. of Florida (WMIF).

The CQA monitoring activities for construction of Cell 1 were performed to confirm compliance with the solid waste management facility's construction and operation permits (Permit Nos. SC48-0165969-014 and S048-0165969-015) issued by Florida Department of Environmental Protection (FDEP), Central District on 22 February 2008 and in accordance with Chapter 62-701 – Solid Waste Management Facilities of the Florida Administrative Code (FAC).

Cell 1 was constructed in accordance with the above mentioned permits and associated plans and technical specifications. This certification report was prepared for Ms. Sheree Grant, District Engineer for Vista Landfill, LLC. This CQA report was prepared by the Geosyntec CQA Site Manager, Mr. Clarence Jones, and Project Manager, Mr. Dan Schauer, P.G., and was reviewed by the Geosyntec CQA Engineer-of-Record, Dr. Juan D. Quiroz, P.E.

A description of the report content is provided below.

1.2 Report Organization

This certification report is organized as described below.

- A brief description of the project is provided in Section 2;
- A summary of the CQA program is presented in Section 3;
- A description of the CQA monitoring and testing activities performed during earthwork related construction activities for Cell 1 is provided in Section 4;
- A description of the CQA monitoring and testing activities performed during the geosynthetics installation for Cell 1 is provided in Section 5; and
- A summary of the observations resulting from the CQA monitoring and testing activities performed by Geosyntec and a certification statement signed and sealed by the CQA Engineer-of-Record, a professional engineer registered in the State of Florida, are presented in Section 6.

The geotechnical laboratory and field test results are presented in Appendix A. The geosynthetic manufacturer's quality control test results are presented in Appendix B. The independent CQA laboratory conformance test results are presented in Appendix C. The geosynthetics field CQA logs are provided in Appendix D. A record drawing depicting the cell limits and geomembrane panel layout is included in Appendix E. The hydrostatic test results for the leachate forcemain connecting Cell 1 to the leachate manhole (located south of the leachate storage tanks), along with various detail

1



drawings of the leachate collection system, are presented in Appendix F. Finally, a photographic log of major construction activities for Cell 1 is included in Appendix G of this report.





SECTION 2: PROJECT DESCRIPTION

2.1 General

The Cell 1 construction activities included installation of a liner and leachate collection system over an approximate 8-acre area at the Class III disposal facility. The cell construction limits included perimeter berms, and the floor and side slopes of the landfill cell. As indicated on the project plans and specifications, Cell 1 construction included the following: (i) excavation of existing soil within the cell footprint to the desired soil subbase elevation; (ii) preparation of the liner subbase; (iii) installation of the geosynthetics [60-mil thick textured, high-density polyethylene (HDPE) geomembrane; double-sided geocomposite lateral drainage layer; and geosynthetic clay liner (only under the leachate collection pipe and sump area)]; (iv) placement of a 2 ft-thick liner protective cover soil layer; and (v) installation of leachate collection system (LCS) components (including but not limited to a perforated leachate collection pipe along the cell floor and solid side slope riser leachate conveyance pipes, drainage gravels, and filter geotextiles). In addition, construction of the leachate transmission forcemeain from Cell 1 to the manhole located south of the leachate storage tank area is considered part of this certification report. However, construction of ancillary items (i.e., surface water runoff drainage system, access roads, etc.) were undertaken as part of this project, however the construction of these items is considered outside the certification requirements of this CQA report.

The CQA monitoring services included the following:

- CQA testing and monitoring services for the Cell 1 liner system and LCS components;
- review and approval of earthwork contractor and geosynthetic manufacturer submittals (e.g., catalog cut sheets, shop drawings, as-built drawings, manufacturer quality control test results);
- compilation of daily field reports, field and laboratory results, and photographic documentation;
- coordination of the geomembrane panel layout survey and preparation of the resulting record drawing; and
- preparation of this final CQA certification report for submittal to FDEP.

2.2 Construction Activities

This certification report documents the CQA monitoring activities performed for construction of the Cell 1 liner and leachate collection system, and includes both earthwork and geosynthetics installation as indicated in the approved permit drawings.

The Cell 1 liner and leachate collection system design exceeds the current requirements of Chapter 62-701, FAC for Class III disposal facilities. The Cell 1 liner system consists of the following components (from top to bottom):

- minimum 24-in thick protective soil layer;
- leachate collection system, consisting of a perforated leachate collection pipe wrapped in drainage gravel and geotextile filter fabric along the cell floor, a solid leachate collection sump riser pipe, and a leachate collection sump;





- geocomposite drainage layer, consisting of an HDPE geonet with a needle-punched, nonwoven geotextile heat bonded to each side, hereafter referred to as geocomposite;
- geomembrane liner, consisting of a 60-mil thick textured, HDPE geomembrane;
- geosynthetic clay liner (GCL), consisting of a Bentonite layer with a needle-punched, nonwoven geotextile on both sides; and
- prepared subbase.





SECTION 3: CONSTRUCTION QUALITY ASSURANCE PROGRAM

3.1 General

The scope of the CQA monitoring, testing, and documentation services performed by Geosyntec during the construction of Cell 1 at Vista Landfill, included review of project documents, field CQA operations, and preparation of this final certification report which includes a geomembrane panel layout record drawing. These activities are described in the following sections of this report.

The earthwork construction for Cell 1 was performed by Total Site Development, Inc. of Orlando, Florida under direct contract with Vista Landfill, LLC. Installation of the geosynthetics was performed by Environmental Specialties, Inc. (ESI) of Baton Rouge, Louisiana. Geosyntec provided the CQA monitoring, testing, and documentation during construction. A list of personnel involved in construction of Cell is included in Section 3.5 of this report. The construction of Cell 1 commenced on April 31, 2008 and was substantially complete on 14 July 2008.

3.2 Related Documents

As previously noted, this certification report summarizes the CQA activities performed by Geosyntec during construction of Cell 1 at Vista Landfill. The CQA activities conducted by Geosyntec were performed in general accordance with the requirements of the following documents:

- "Project Specifications, Vista Landfill, Class III Facility, Apopka, Florida", prepared by Geosyntec, dated July 2007; and
- "Construction Quality Assurance (CQA) Plan, Vista Landfill, Class III, Apopka, Florida", prepared by Geosyntec, dated July 2007; and
- "Cell 1 Construction, Vista Class III Landfill, Apopka, Florida," prepared by Geosyntec, dated February 2008, and "Permit Modification Drawings, Vista Class III Landfill, Apopka, Florida", prepared by Geosyntec, dated July 2007.

All of the above documents are hereafter collectively referred to as the CQA Documents in this certification report. During construction, minor modifications were made to these documents to accommodate existing site conditions. These major modifications are described in more detail below. However, no substantial changes were made to the CQA Documents.

3.3 Field CQA Operations

The following activities were performed as part of Geosyntec's on-site CQA services:

Earthwork:

- monitoring the landfill subbase surface preparation prior to installation of the geosynthetics;
- collecting samples of soils and aggregates used in construction of the cell;
- reviewing and evaluating geotechnical laboratory test results to ensure compliance of soils and aggregates with the requirements of the CQA Documents;





- monitoring soil placement, grading, and compaction of earthwork related construction activities; and
- monitoring of the protective cover soil layer placement activities.

Geosynthetics:

- monitoring delivery, storage, and tracking the inventory of geosynthetic materials delivered for the project;
- coordinating the collection of geosynthetic conformance samples from in-plant sources or delivered rolls and forwarding samples to an off-site geosynthetics testing laboratory;
- collecting and reviewing geosynthetic manufacturers' quality control (MQC) certification documents and geosynthetic laboratory conformance test results to verify compliance with the requirements of the CQA Documents;
- monitoring installation of geosynthetic materials in trial seams, production seaming, nondestructive testing, and repair operations; and
- coordinating destructive testing of geomembrane seams at the minimum frequency required by the CQA Documents.

3.4 Certification Report and Record Drawings

This CQA certification report was prepared for construction of Cell 1. The geomembrane panel layout record drawing is included in Appendix E of this report. During the construction of Cell 1, CQA monitoring and testing activities were documented by CQA personnel in Daily Field Reports (DFRs) and various other forms. In addition, MQC certificates for the geosynthetics and independent laboratory conformance results were provided to Geosyntec for review and inclusion with this report. Results of CQA monitoring and testing activities that are critical with respect to the satisfactory performance of the Cell 1 liner system and protection of the surrounding environment are included in the report appendices and are summarized in the following sections in this certification report.





3.5 Project Personnel

Major personnel or representatives of the firms involved in the project are as follows:

Owner: <u>Vista Landfill, LLC – Apopka, Florida</u>

Sheree Grant, District Engineer

CQA Consultant: <u>Geosyntec Consultants, Inc. (Geosyntec) – Boca Raton, Florida</u>

Juan D. Quiroz, Ph.D., P.E., Engineer-of-Record

Dan Schauer, P.G., CQA Project Manager

Clarence Jones, Site CQA Manager

Geosynthetics Installer: Environmental Specialties International (ESI) – Baton Rouge, LA

Ishmael Buitron, Superintendent

Earthwork Subcontractor: <u>Total Site Development, Inc. – Orlando, Florida</u>

Ronnie Stalvey, Superintendent

Surveyor: Pickett & Associates, Inc. – Bartow, Florida

Jason Martel, PSM, Professional Surveyor

Geotechnical Laboratory: Excel Geotechnical Testing, Inc. (EGT) - Roswell, Georgia

Nader Rad, Ph.D., P.E., Project Manager

Geosynthetics Laboratory: TRI/Environmental (TRI) – Austin, Texas

Sam Allen, Project Manager



SECTION 4: CONSTRUCTION QUALITY ASSURANCE – EARTHWORK

4.1 General

Geosyntec monitored earthwork related to construction of the Cell 1 liner and leachate collection system which included subbase preparation prior to placement of the geosynthetics and subsequent placement of protective soil and leachate collection system above the liner system. During construction, Geosyntec was responsible for collection of representative soil and gravel samples for laboratory testing. The off-site geotechnical laboratory tests were performed by Excel Geotechnical Testing, Inc. (EGT) of Roswell, Georgia.

4.2 Soil and Drainage Gravel Source and Requirements

The Cell 1 soil subbase surface was prepared by excavation of existing soil from the cell footprint to the desired elevations. Representative samples of the existing soil subbase were obtained by Geosyntec CQA personnel and tested by EGT to assure that the minimum specified requirements were achieved. The results of the geotechnical laboratory tests for the subbase are presented in Appendix A-1. The results of the in-situ (i.e., field) moisture and density testing are presented in Appendix A-2.

The protective cover soils were generated from the segregation of soil excavated from the Cell 1 footprint during the subbase preparation activities. During the segregation process, the protective cover soils were stockpiled on-site adjacent to the Cell 1 construction area. Representative samples of protective cover soil were obtained from the on-site stockpile and from material hauled to the cell during placement operations. These samples were tested for grain size distribution, engineering classification and hydraulic conductivity. In addition, Geosyntec verified the protective cover soil layer thickness by direct measurement at random locations across the cell area once placement activities were complete. These thickness measurements and a sketch showing the measurement locations are presented in Appendix A-3. The results of the geotechnical tests for the protective cover are presented in Appendix A-1.

The drainage gravel materials used for the leachate collection system were obtained from Conrad Yelvington Distributors, Inc. located in Orlando, Florida. Representative samples of drainage gravel were obtained and tested for grain-size distribution and carbonate content. The results of the geotechnical tests for the drainage gravel are presented in Appendix A-1.

4.3 Subbase Preparation and Testing

Upon completion of the Cell 1 footprint excavation to the desired lines and grades, the soil subbase surface was compacted with a vibratory smooth drum roller. In addition, proof rolling of the subbase was performed in accordance with the specifications and any areas which exhibited unacceptable yielding were reworked until acceptable results were achieved. A copy of the subbase acceptance form is provided in Appendix D-1; and a sealed as-built drawing for the top of subbase grades is provided in Appendix E. Representative samples of the soil subbase were collected by Geosyntec CQA personnel and tested by EGT for standard proctor (ASTM D 698), grain-size distribution (ASTM D 422) and engineering classification (ASTM D 2487). In-situ surface moisture and density tests (ASTM D 6938) were also performed to assure that the minimum specified compactation requirements were achieved. Copies of the CQA laboratory and field moisture/density results are presented in Appendices A-1 and A-2, respectively.





4.4 Protective Soil Layer

A total of approximately 28,000 cy of protective soil was placed in Cell 1. Grain-size distribution analyses (ASTM D 422), soil classification (ASTM D 2487) and hydraulic conductivity (ASTM D 2434) were performed on samples of protective soil by EGT. A total of ten (10) protective soil samples (referred as PC-01 through PC-10) were collected from materials placed in Cell 1. Grain-size distribution, soil classification and hydraulic conductivity analyses were performed on the protective layer soils. The hydraulic conductivity of the protective soil samples ranged from 1.3×10^{-2} cm/sec to 8.3×10^{-3} cm/sec which exceeded the specified minimum hydraulic conductivity of 1.0×10^{-4} cm/sec. The actual CQA test frequency of 1 test per 2,800 cy exceeded the minimum testing frequency of 1 test per 3,000 cy of in-place protective soil required by the CQA Documents. The laboratory test results for the protective soil are presented in Appendix A; and a sealed as-built drawing for the top of protective soil grades is provided in Appendix E.

4.5 Granular Drainage Materials

Granular drainage stone meeting the requirements of No. 57 stone (per ASTM D 448) were placed around the leachate collection pipe running the length of the Cell 1 floor. Granular drainage materials meeting the requirements of No. 4 stone (per ASTM D 448) were used in the Cell 1 leachate collection sump area. Grain-size distribution analyses (ASTM C 136) were performed by EGT on samples of drainage gravel collected by Geosyntec prior to installation. Results for the analyses indicating compliance of the materials with the project specifications and the laboratory results are presented in Appendix A. The No. 4 and No. 57 granular drainage materials were supplied by Conrad Yelvington Distributors located in Orlando, Florida.

The hydraulic conductivity (ASTM D 2434) of the No. 57 stone was measured to be 25 cm/sec, which exceeded the minimum specified requirement of 1 cm/sec. The hydraulic conductivity of the No. 4 stone was measured to be 45 cm/sec, which exceeded the minimum specified requirement of 10 cm/sec. Carbonate content analyses (ASTM D 3042) were also performed on the No. 57 and No. 4 stone granular drainage materials. The No. 57 and No. 4 stone used in construction of the leachate collection system were found to contain less than 5 percent carbonate.

A total of 82 cy of No. 4 drainage gravel and 80 cy of No. 57 gravel were placed in Cell 1. One (1) grain-size distribution analysis was performed on each of the drainage gravels placed in Cell 1. The laboratory test results are presented in Appendix A-1. The actual CQA test frequency of 1 test per 80 cy (approx.) for grain-size distribution analysis exceeded the minimum testing frequency of one test per 2,000 cy as required by the CQA Documents.

CQA personnel monitored the placement of the granular drainage material to ensure (i) the underlying geosynthetics were not damaged; (ii) the perforated pipes were properly surrounded by the drainage materials and the geotextile; and (iii) the drainage materials were placed in accordance with the requirements of the CQA Documents.





SECTION 5: CONSTRUCTION QUALITY ASSURANCE – GEOSYNTHETICS

5.1 General

Geosyntec monitored the installation of the geosynthetic components of the system in Cell 1, as described in Section 2. At times, several system installation operations were conducted simultaneously during construction. When this occurred, the on-site CQA personnel monitored the operations that were considered most critical to the performance of the system.

Also included in this section is the installation of the leachate transmission forcemain from Cell1 to the manhole located south of the leachate storage tank area.

5.2 CQA of Textured Geomembrane

5.2.1 Conformance Testing and Documentation

The 60-mil thick testured, HDPE geomembrane was supplied by Agru America, Inc. (Agru) of Georgetown, South Carolina. Conformance samples of textured geomembrane were collected (from the rolls produced for the project) by TRI, which coordinated with the manufacturer to collect the CQA samples at Agru's manufacturing plant. TRI also performed the CQA conformance testing in accordance with the CQA Documents on the samples of textured geomembrane collected.

The MQC certificates, test results and the CQA conformance test results were reviewed by CQA personnel and were found to be in compliance with the CQA Documents. The MQC certificates are presented in Appendix B and the CQA conformance tests are presented in Appendix C. Geosyntecs' review of the MQC and CQA tests results indicate the tests were conducted at the required test frequencies, and the acceptance criteria are in accordance with the CQA Documents.

A total of five (5) CQA conformance samples were tested for approximately 424,453 ft² of textured geomembrane delivered to the site for installation in Cell 1. The actual CQA test frequency of 1 test per 84,890 ft² for the textured geomembrane exceeded the minimum frequency of 1 test per 100,000 ft² required by the CQA Documents. As a minimum, one conformance sample was tested during CQA from each resin lot supplied for the project.

5.2.2 Interface Friction Testing

As discussed in Section 2, the liner system components used in Cell 1 consists of (from top to bottom) the protective soil layer, geocomposite, geomembrane liner, and prepared subbase. Two interface friction tests were performed in accordance with the CQA Documents to evaluate the interface shear strength for the various components of the liner system. A composite configuration (i.e., "sandwich test"), which represents the as-built liner system, was utilized for the interface friction testing. The tests for interface friction were performed by TRI.

The interface shear tests were performed as part of the CQA testing program. The tests were performed using samples of geosynthetics collected from rolls that were actually installed in Cell 1. The soils for the protective cover soil and liner subbase soil were obtained from the materials placed in Cell 1.





The CQA Documents required the evaluation of two specific cases for interface friction which simulated both high normal stress (Case 1) and low normal stress (Case 2). In Case 1, three different interfaces between the various components of the liner system were tested at normal stresses of 2,000, 7,000 and 12,000 psf. In Case 2, the three interfaces were tested at normal stresses of 100, 300 and 500 psf. Peak (at small displacements) and residual (at large displacements) shear strengths were measured at each normal stress. The interface shear tests were conducted under wetted/saturated conditions. The following liner system interfaces were tested (from top to bottom):

- 1 Protective cover soil layer / geocomposite;
- 2 geocomposite / textured geomembrane; and
- 3 textured geomembrane / subbase soil

The measured peak and residual shear strengths exceeded the minimum specification requirements. Copies of the interface friction tests are provided in Appendix C-4.

5.2.3 Field Monitoring Activities

5.2.3.1 Delivery and On-Site Storage

Upon delivery to the site, geomembrane rolls were stored in an area located northeast of Cell 1. The rolls were typically transported by an off-road forklift with a spreader bar attachment or using the nylon slings which were attached to each roll. CQA personnel periodically monitored the installer's delivery, unloading, and storage procedures to ensure that the material was handled in an appropriate manner. The CQA personnel also compared the roll numbers of the geomembrane rolls delivered to the manufacturer's bill of lading. An inventory of the rolls delivered for the project was maintained by the CQA personnel and is included in Appendix D-2.

5.2.3.2 Deployment

The geomembrane rolls were lifted using a spreader bar attached to an off-road forklift. The panels were positioned using laborers assisted by a track-mounted, low-ground pressure, all-terrain vehicle (ATV). CQA personnel monitored the deployment of each geomembrane panel. During deployment, the CQA personnel checked for the following:

- manufacturing defects;
- damage that may have occurred during shipment, storage, and handling; and
- damage resulting from installation activities, including damage as a consequence of panel placement, seaming operations, or weather.

If any materials were observed to be damaged or deficient, the installer was notified and the damaged materials were either discarded or repaired. CQA personnel observed and documented the repair locations to verify compliance with the CQA Documents. Details of the geomembrane panel





placement were recorded by CQA personnel on panel placement logs, which are included in Appendix D-3 of this report.

5.2.3.3 <u>Trial Seams</u>

Prior to production seaming, the installer prepared geomembrane trial seams for each piece of seaming equipment to be used. Additional trial seams were prepared approximately every five hours or when field conditions changed. CQA personnel evaluated the trial seams as follows:

- trial seams were welded under similar conditions as production seaming;
- test strips were cut from the trial seams at random locations with a die press;
- ten (10) test strips were tested using a field tensiometer and compared to the passing criteria for the tests, which were as follows:

Fusion

- Peel tests a minimum bonded seam strength of 91 lb/in (inside/outside); and
- Shear test a minimum bonded seam strength of 120 lb/in.

Extrusion

- Peel test a minimum bonded seam strength of 78 lb/in; and
- Shear test a minimum bonded seam strength of 120 lb/in.

If trial welds failed, the machine or welding process was adjusted and a new trial seam was prepared. The new sample was tested to ensure compliance with the above strength requirements. The procedure was repeated, as needed, until passing results were obtained.

Trial seam samples were not archived. Details of the trial seams, including the trial seam test results, are included in Appendix D-4 of this report.

5.2.3.4 Production Seams

Geomembrane production seaming operations were monitored by CQA personnel. The majority of the geomembrane production seams were fabricated using double-track fusion welders. Seam repairs were made using hand-held extrusion welders. Rub sheets were periodically used during production seaming to provide a clean surface to weld over. During or after fabrication, the geomembrane seams were visually examined for workmanship and continuity. Geomembrane seaming logs are included in Appendix D-5 of this report.

5.2.4 Nondestructive Seam Testing

5.2.4.1 <u>Scope</u>

Nondestructive testing of geomembrane seams was periodically monitored by CQA personnel. All geomembrane seams were nondestructively tested for continuity by the installer using the air pressure





procedure for double-track fusion seams and the vacuum-box test procedure for extrusion welded seams. Failed air pressure seams, if applicable, were capped and then retested using vacuum-box test methods after determining the failed seam length. Leaks identified using the vacuum-box method were repaired and retested as described in Section 5.2.5.

5.2.4.2 <u>Air Pressure Testing</u>

Accessible double-track fusion seams were nondestructively tested using the air pressure test. The procedure used by the installer for air pressure testing was as follows:

- visually observe the integrity of the annulus of the section of seam being tested and isolating the section by sealing the ends using heat and pressure;
- insert the needle of a pressure test apparatus into the annulus at one end of the seam;
- inflate the annulus to a gauge pressure between 25-30 pounds per square inch (psi) with an air pump and maintain the gauge pressure for at least 5 minutes;
- repair faulty area in accordance with Section 5.2.5 if the pressure loss exceeds 3 psi or if the pressure does not stabilize; and
- confirm airflow through the entire annulus by releasing the air from the seam at the opposite end from where the needle was inserted.

5.2.4.3 <u>Vacuum-Box Testing</u>

The vacuum-box was used by the installer to nondestructively test extrusion seams and repairs. The procedure used by the installer for vacuum testing was as follows:

- wet a strip of seam with a soapy solution;
- place the vacuum-box assembly over the wetted area, close the bleed valve and open the vacuum valve;
- force the box onto the sheet until a vacuum is observed;
- examine the seam through the viewing window for a period of approximately 20 seconds for the occurrence of air bubbles;
- remove the assembly and continue the process over the entire length of the seam; and
- record the location of any leaks.

Nondestructive seam test results for the closure in Cell 1 are presented in Appendix D-5 and D-7. If nondestructive testing indicated that repairs were necessary, repairs were made in accordance with procedures presented in Section 5.2.5. All repairs were tested using the vacuum-box test procedure.





5.2.5 Destructive Seam Sample Testing

5.2.5.1 Scope

In accordance with the CQA Documents, CQA personnel identified and collected geomembrane seam samples for destructive testing. The samples were tested by the off-site geosynthetics laboratory, TRI.

For a destructive seam sample to be considered as passing, the seam strength criteria described in Section 5.2.2.3 had to be met for at least four out of the five test specimens obtained from the sample. In addition, if one non-FTB failure was observed, the average of the four test specimens had to meet the specified strength criterion.

5.2.5.2 Sampling Procedures

The full destructive seam sample was removed by the installer and test strips were cut from the ends of sample with a die press. Each strip was peel and shear-tested in the field. At each destructive seam sample location, a test sample measuring approximately 12 inches across the seam and 42 inches along the seam was obtained. The sample was divided into three pieces and distributed to: (i) the independent off-site geosynthetics laboratory for testing, (ii) the installer for field testing, and (iii) the owner as an archive sample.

5.2.5.3 Test Results

Off-site laboratory testing of geomembrane seam samples was performed in accordance with the CQA Documents. At the off-site geosynthetics laboratory, five 1-inch wide test specimens were removed from the destructive seam sample using a die press. On a calibrated tensiometer, five test specimens were peel-tested for adhesion strength. For fusion seams, peel tests were performed on both the bottom (inside track) and top (outside track) edges. Additionally, five specimens were tested for shear strength. The seam acceptance/rejection criteria described in Sections 5.2.2.3 and 5.2.4.1 were used to evaluate the destructive seam samples.

The destructive seam test results are presented in Appendix D-6. A total of thirty-eight (38) destructive seam samples were tested for a total seam length of approximately 18,876 lineal ft (If). This corresponds to an approximate sample frequency of 1 per 497 If of seam. The actual destructive seam test frequencies exceeded the minimum frequency of 1 per 500 If of production seams required by the CQA Documents.

All geomembrane seam samples tested destructively during construction of Cell 1 met the testing criteria noted in Section 5.2.2.3.

5.2.6 Geomembrane Repairs

The repair procedures presented in this subsection were used by the installer to patch holes and tears, spot-extrude impact damage or other minor defects, and for grinding and extrusion welding small sections of failed fusion seams (if the exposed edge was accessible). In the cases where patches or caps were used to repair the damaged geomembrane (i.e., small holes, tears, or on seams which failed nondestructive or destructive testing), an approximately 12-inches wide capping strip was used.





During the repair or panel tie-in operations, the following procedures were implemented:

- technicians and seaming equipment used were required to pass trial welds;
- patches or caps extended at least 6 inches beyond the edge of the defect and all corners were rounded; and
- repairs were tested using vacuum box and visually observed for continuity.

Repair summary logs prepared by Geosyntec during CQA activities are included in Appendix D-7 of this report. A record drawing illustrating layout of panels, location of seams, destructive samples, and repairs are included in Appendix E.

5.3 CQA of Geocomposite

5.3.1 Conformance Testing and Documentation

The geocomposite used was Transnet 330-2-8 manufactured by SKAPS Industries of Georgetown, South Carolina. The geocomposite conformance samples were collected by TRI, which coordinated with the manufacturer to collect the CQA samples at the SKAPS Industries manufacturing plant in Georgetown, South Carolina. TRI also performed the CQA conformance testing on the samples of geocomposite collected.

The MQC certificates and test results and the CQA conformance test results were reviewed by CQA personnel and were found to be in compliance with the CQA Documents. The results of the MQC and CQA conformance tests for 146 rolls (407,340 ft²) of geocomposite are presented in Appendix B and C, respectively.

A total of three (3) CQA conformance samples were tested for $407,340 \text{ ft}^2$ of geocomposite approved for installation in Cell 1. The actual CQA test frequency of 1 test per $135,780 \text{ ft}^2$ (approx.) of the geocomposite exceeded the frequency of 1 test per $200,000 \text{ ft}^2$ required by the CQA Documents.

5.3.2 Field Monitoring Activities

5.3.2.1 Delivery and On-Site Storage

Upon delivery to the site, geocomposite rolls were stored in an area located northeast of the Cell 1. The rolls were typically transported by an off-road forklift. CQA personnel periodically monitored the installer's delivery, unloading, and storage procedures to ensure that the material was handled in an appropriate manner. The CQA personnel also compared the roll numbers of the geocomposite rolls delivered to the manufacturer's bill of lading. An inventory of the rolls delivered for the project was maintained by the CQA personnel and is presented in Appendix D-2.

5.3.2.2 Deployment

CQA personnel monitored the deployment of the primary geocomposite for the following:

manufacturing defects;





- damage that may have occurred during shipment, storage, and handling; and
- damage resulting from installation activities.

If the materials were observed to be damaged, the installer was notified and the damaged materials were either discarded or repaired. CQA personnel observed repair locations to verify conformance with the CQA Documents.

CQA personnel periodically monitored the deployment of the primary geocomposite, as well as its condition after installation, to confirm that the installer took measures to:

- securely anchor the geocomposite in the anchor trench or ballast it with sand bags;
- unroll the geocomposite down the slope (i.e., rolls were aligned perpendicular to the slope contours) in a manner that kept the panel in sufficient tension to avoid excessive wrinkling;
- avoid entrapment of dust, stones, or other objects that would damage or clog the geocomposite;
- avoid damaging the underlying geomembrane during deployment;
- overlap the bottom geotextile edges;
- secure the geonet component of adjacent geocomposite panels with nylon fasteners, installed on a maximum 5-ft spacing laterally and at 2-ft spacing on end seams; and
- overlap and continuously sew the upper geotextile edges.

Any observed holes in the geotextile component of the geocomposite were repaired by placing a patch of non-woven geotextile over the hole that extended at least one foot beyond the edge of the hole. These patches were continuously thermally bonded to the undamaged portion of the geocomposite. This method was also used along the tie-in at the toe of the slope and along trimmed panels. Any observed holes or tears in the geonet component of the composite were repaired by the installer by placing a patch of the same material over or under the hole or tear, at least 2-ft beyond the edges of the hole or tear. These patches were secured using nylon fasteners, followed by thermal bonding of the uppermost geotextile of the patch to the undamaged portion of the geocomposite.

5.4 CQA of Geosynthetic Clay Liner

5.4.1 Conformance Testing and Documentation

A geosynthetic clay liner (GCL) was used for construction of the liner system within the sump area and underneath the leachate collection pipe alignment in Cell 1. Bentomat-ST GCL, used for construction of Cell 1, was manufactured by Colloid Environmental Technologies Company (CETCO) of Cartersville, Georgia. Conformance samples of the GCL were collected (from the rolls produced for the project) by TRI, which coordinated with the manufacturer to collect the CQA samples at CETCO's manufacturing plant. TRI also performed the CQA conformance testing in accordance with the CQA Documents on the samples of the GCL collected.





The MQC certificates and test results and the CQA conformance test results were reviewed by CQA personnel and were found to be in compliance with the CQA Documents. The results of the MQC and CQA conformance tests for the GCL are presented in Appendix B and C, respectively.

A total of one (1) CQA conformance sample was tested for approximately 18,000 square feet (ft²) of GCL delivered to the site for installation in Cell 1. The actual CQA test frequency of 1 test per 18,000 ft² of GCL exceeded the minimum testing frequency of 1 test per 200,000 ft² required by the CQA Documents.

5.4.2 Field Monitoring Activities

5.4.2.1 <u>Delivery and On-Site Storage</u>

Upon delivery, GCL rolls were unloaded in an area located southeast of the Cell 1 construction area, stacked on an elevated soil berm, and covered with plastic tarps. The rolls were typically transported on site by an off-road forklift equipped with a stinger bar. CQA personnel periodically monitored the installer's delivery, unloading, and storage procedures and observed that the GCL was handled in an appropriate manner. The CQA personnel also compared the roll numbers of the GCL rolls delivered to the manufacturer's bill of lading. An inventory of the rolls delivered for the project was maintained by the CQA personnel. This inventory also includes the rolls that were approved for installation based on MQC and CQA test results and the rolls that were used during construction. Only approved rolls were incorporated into the work.

5.4.2.2 <u>Deployment</u>

The GCL rolls were lifted using a spreader with cargo straps attached to a low-ground pressure forklift. The rolls were deployed by unrolling the GCL rolls attached to the low-ground pressure forklift. Panels were re-positioned as necessary using laborers.

CQA personnel monitored the deployment of the GCL rolls. During deployment, the CQA personnel checked for the following:

- manufacturing defects;
- damage that may have occurred during shipment, storage, and handling; and
- damage resulting from installation activities.

If any materials were observed to be damaged, the installer was notified and the damaged materials were either discarded or repaired. CQA personnel observed repair locations to verify conformance with the requirements of the CQA Documents.

CQA personnel also periodically monitored the deployment of the GCL as well as its condition after installation to ensure that the installer followed the following procedures:





- the GCL was unrolled and placed in a manner which kept the GCL in sufficient tension to avoid excessive wrinkling and was securely anchored in the anchor trench or ballasted with sand bags;
- the rolls were deployed with the woven geotextile in contact with the geomembrane;
- adjacent GCL panels in the sump area were overlapped a minimum of 6 inches along the length of the panels and 12 inches along the width of the panels; and
- granular bentonite was added between overlap along the width of panels and repaired areas;
- measures were taken to keep the GCL free of contamination and protected from premature hydration; and
- geomembrane installation immediately followed installation of the GCL.

5.5 Leachate Forcemain Testing

As part of the Cell 1 Construction Project, ESI installed the dual-containment leachate transmission forcemain which connects the Cell 1 leachate collection system at the top of the north slope of Cell 1 to the leachate manhole located south of the auxiliary leachate storage tank area along the northwest portion of the landfill. The leachate transmission forcemain consisted of a dual-wall HDPE pipe installed outside and along the perimeter of Cell 1. The inner solid-wall HDPE pipe measured six (6) inches in diameter, and the outer HDPE solid-wall pipe was ten (10) inches in diameter.

ESI hydrostatically tested the outer 10-inch HDPE pipe on 29 May 2008; and the inner 6-inch HDPE pipe was hydrostatically tested on 30 May 2008. Various detailed drawings of the leachate transmission system are presented in Appendix F.

5.5.1 Hydrostatic Testing

The hydrostatic tests were performed after the leachate forcemain pipe was fabricated and placed in the open trench. The hydrostatic tests were performed in accordance with the guidelines for Hydrostatic Testing as provided by the Plastics Pipe Institute, and manufacturer recommendations. The tests were performed by filling the outside and inside pipes with water and pressurized with air. The inner 6-inch diameter pipe was pressurized to 50 psi and allowed to stabilize for one hour. The outer 10-inch diameter pipe was pressurized to 15 psi and allowed to stabilize for one hour. The hydrostatic tests commenced following the one hour stabilization period. Both, the 6-inch and 10-inch pipe, showed no drop in air pressure over the one hour testing period; and therefore, passed the specified hydrostatic testing requirement.





SECTION 6: SUMMARY

Observation of the construction of Cell 1 at the Vista Landfill, Class III facility was performed by Geosyntec during the period of 31 April to 14 July 2008. During this time, CQA personnel monitored the installation of the following components of Cell 1:

- earthwork (sub-base, perimeter berms, leachate collection system and protective soil layer);
- leachate transmission forcemain from Cell 1 to the manhole located south of the leachate storage tanks; and
- liner system geosynthetics in Cell 1.

During construction of the above components, CQA personnel verified that performance and conformance testing was performed at the frequencies required by the CQA Documents and that the installation met or exceeded the requirements of the CQA Documents. CQA personnel also verified that conditions or materials identified as not conforming to the CQA Plan were replaced, repaired, and/or retested, as described in this report.

The results of the CQA activities undertaken by Geosyntec as described in this report indicate that Cell 1 was constructed in accordance with the CQA Documents and the solid waste permit issued for the Vista Landfill, Class III facility.

Dan Schauer, P.G.

CQA/Project Manager

Juan D. Quiroz, Ph.D., P.E.

Juan D. Quing 11 Sept 2008

CQA Engineer-of-Record

Florida P.E. # 65275

Expiration Date: 28 February 2009



APPENDIX A

GEOTECHNICAL LABORATORY AND FIELD TEST RESULTS

SUB APPENDIX A-1

LABORATORY TEST RESULTS

SOIL SUBBASE



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

Vista Class III Landfill **Project Name:**

306 Project No:

SF-01 Client Sample ID:

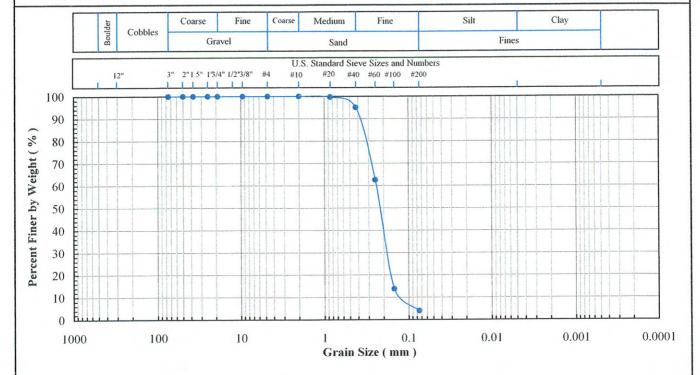
Lab Sample No:

C061

D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#10	2.00	100.0
#20	0.850	99.7
#40	0.425	95.1
#60	0.250	62.6
#100	0.150	13.8
#200	0.075	4.0

% Finer

Gravel (%):	
Sand (%):	96.0
Fines (%):	4.0
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	1.8
Coeff. Curv. (Cc):	0.9

	80	
	70	
_	60	"U" Line
ex (PI	50	CH or OH
ty Ind	40	- A Line
Plasticity Index (PI)	30	
Ь	20	CL or QK MH or OH
	10	CL-ML
	0	ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

T	Moisture	Fines Content	Att	erberg Lir	nits	Engineering Classification
	Content	< No. 200	LL	PL	PI	
	(%)	(%)	(-)	(-)	(-)	
T	1.1	4.0				SP - Poorly graded sand

Note(s):

Specific Gravity (-):

Client

Sample

ID.

SF-01

Lab

Sample

No:

C061



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 Project Name:

Vista Class III Landfill

Project No:

306

Client Sample ID:

SF-01

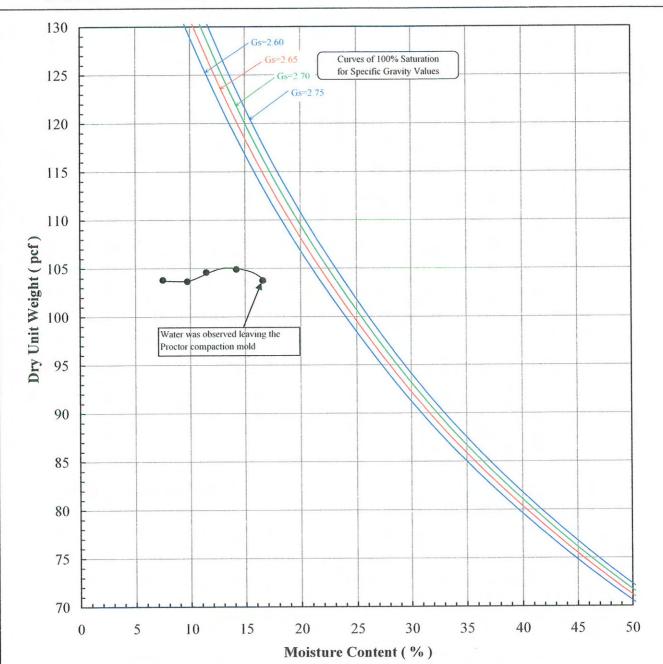
Lab Sample No:

C061

ASTM D 698

COMPACTION MOISTURE-DENSITY RELATIONSHIP

Standard - Method B



Client/Site	Lab	Maximum	Optimum	Remarks
Sample	Sample	Dry Unit Weight	Moisture Content	
ID.	No:	(pcf)	(%)	
SF-01	C061	105.1	13.6	

Note(s):

Moisture Content based on before compaction and loss of warter from the mold (taken from the mold).



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 Project Name: Vista Class III Landfill

Project No: 306

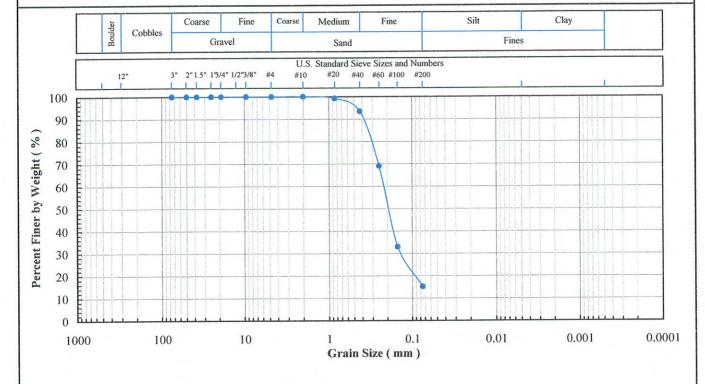
Client Sample ID: SF-02

Lab Sample No: D093

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#10	2.00	100.0
#20	0.850	99.2
#40	0.425	93.4
#60	0.250	69.1
#100	0.150	33.0
#200	0.075	15.2

Hydrometer Particle Diameter (mm)	% Finer

Gravel (%):	
Sand (%):	84.8
Fines (%):	15.2
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	

	80	
	70	
_	60	"U" Line
Plasticity Index (PI)	50	CH or OH
ty Ind	40	
lastici	30	
D	20	CL or QL MH or OH
	10	CL-ML
	0	ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Client	Lab	Moisture	Fines Content	Att	erberg Lir	nits	Engineering Classification
Sample	Sample	Content	< No. 200	LL	PL	PI	
ID.	No:	(%)	(%)	(-)	(-)	(-)	
SF-02	D093	8.8	15.2	NP	NP	NP	SM - Silty sand

Note(s):

Specific Gravity (-):

Engineering classification is based on the assumption that the fines are either ML or MH.

EGT

Excel Geotechnical Testing, Inc.

"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 Project Name: Vista Class III Landfill

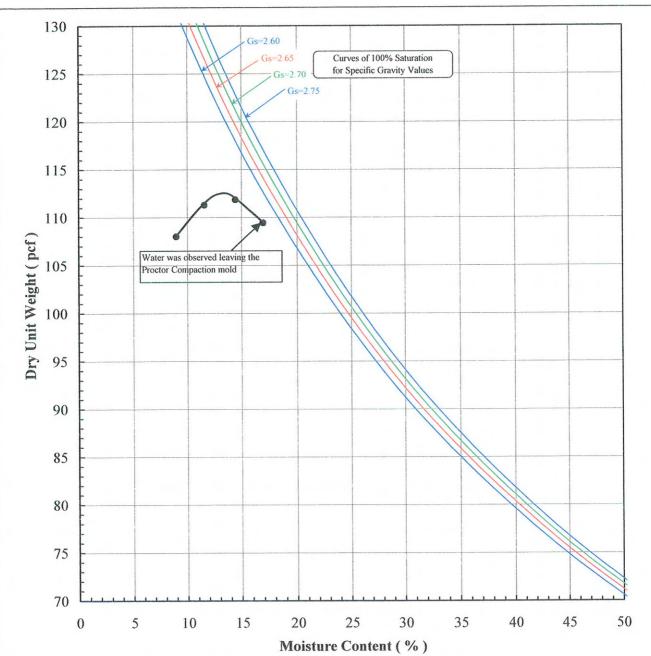
Project No: 306
Client Sample ID SF-02

Lab Sample No: D093

ASTM D 698

COMPACTION MOISTURE-DENSITY RELATIONSHIP

Standard - Method B



Client/Site	Lab	Maximum	Optimum	Remarks
Sample	Sample	Dry Unit Weight	Moisture Content	
ID.	No:	(pcf)	(%)	
SF-02	D093	112.8	13.3	

Note(s):



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Project Name:

Vista Class III Landfill

Project No:

Lab Sample No:

306

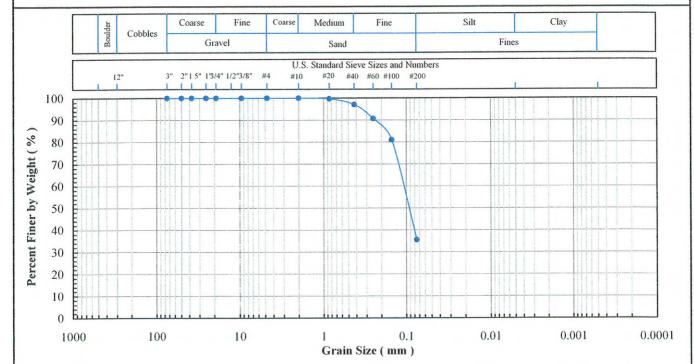
Client Sample ID: SF-03

E009

ASTM C 136, D 422, D 854,

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#10	2.00	100.0
#20	0.850	99.7
#40	0.425	97.1
#60	0.250	90.7
#100	0.150	81.1
#200	0.075	35.6

Hydrometer Particle Diameter (mm)	% Finer

Gravel (%):	
Sand (%):	64.4
Fines (%):	35.6
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	

	80	
	70	
	60	"U" Line
Plasticity Index (PI)	50	CH or OH "A" Line
ty Inde	40	- A Line
lastici	30	
Ь	20	CL or OE MH or OH
	10	
	0	ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	

Client	Lab	Moisture	Fines Content	Atterberg Limits		nits	Engineering Classification
Sample	Sample	Content	< No. 200	LL	PL	PI	
ID.	No:	(%)	(%)	(-)	(-)	(-)	
SF-03	E009	25.5	35.6	55	30	25	SC - Clayey sand

Note(s)

Specific Gravity (-):

Engineering classification is based on the assumption that the fines are either CL or CH.



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

Vista Class III Landfill **Project Name:**

Project No:

Client Sample ID:

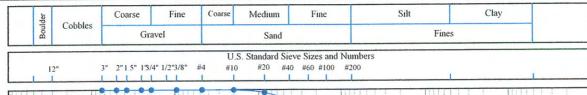
SF-04 E059

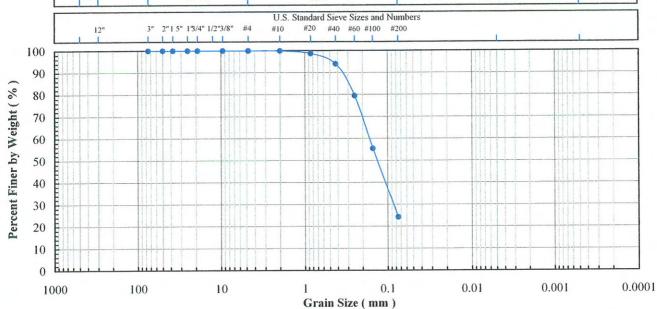
Lab Sample No:

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



SOIL INDEX PROPERTIES





Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#10	2.00	99.9
#20	0.850	98.7
#40	0.425	94.0
#60	0.250	79.4
#100	0.150	55.4
#200	0.075	24.2

Hydrometer Particle Diameter (mm)	% Finer

Gravel (%):	
Sand (%):	75.8
Fines (%):	24.2
Silt (%):	
Clay (%):	

	80	
	70	-
0	60	"U" Line
Plasticity Index (PI)	50	CH or OH "A" Line
ity Ind	40	
lastici	30	
4	20	CL or OL MH or OH
	10	CL-ML VI O
	0	ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Client	Lab	Moisture	Fines Content	Atterberg Limits		nits	Engineering Classification
Sample ID.	Sample No:	Content (%)	< No. 200	LL	PL	PI (-)	
SF-04	E059	14.4	24.2	(-)	(-)	(-)	SC - Clayey sand

Note(s):

Specific Gravity (-):

Engineering classification is based on the assumption that the fines are either CL or CH.

"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

Project Name:

Vista Class III Landfill

Project No:

306

Client Sample ID: SF-04

Lab Sample No:

E059

COMPACTION MOISTURE-DENSITY RELATIONSHIP Standard - Method B **ASTM D 698** 130 Gs=2.60 Curves of 100% Saturation for Specific Gravity Values 125 120 115 110 Dry Unit Weight (pcf) 105 100 95 90 85 80 75 70 25 50 30 35 40 45 20 5 10 15 0 Moisture Content (%)

Client/Site	Lab	Maximum	Optimum	Remarks
Sample	Sample	Dry Unit Weight	Moisture Content	
ID.	No:	(pcf)	(%)	
SF-04	E059	107.3	17.6	

Note(s):

PROTECTIVE COVER



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

Vista Class III Landfill **Project Name:**

306 Project No:

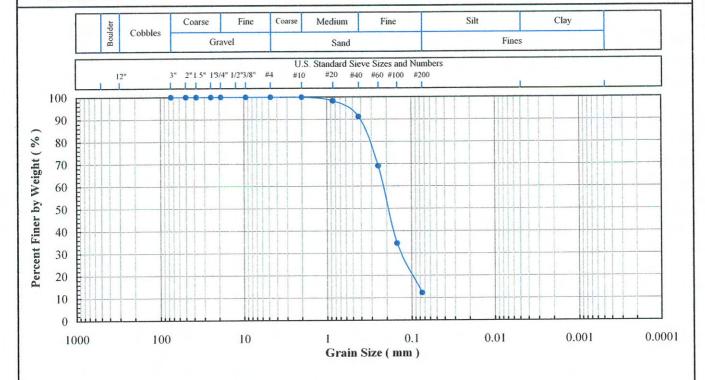
Client Sample ID: PC-01

C045 Lab Sample No:

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#10	2.00	99.9
#20	0.850	98.3
#40	0.425	91.2
#60	0.250	69.1
#100	0.150	34.4
#200	0.075	12.2

Hydrometer Particle Diameter (mm)	% Finer

Gravel (%):	
Sand (%):	87.8
Fines (%):	12.2
Silt (%):	
Clay (%):	

	80	
	70	
_	60	"U" Line
ex (PI	50	CH or OH "A" Line
Plasticity Index (PI)	40	- Line
lasticit	30	
Ь	20	CL or QE MH or OH
	10	CL-ML
	0	ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Client	Lab	Moisture	Fines Content	Atterberg Limits		nits	Engineering Classification
Sample ID.	Sample No:	Content (%)	< No. 200 (%)	LL (-)	PL (-)	PI (-)	
PC-01	C045	10.3	12.2	NP	NP	NP	SM - Silty sand

Note(s):

Specific Gravity (-):

Carbonate Content of Soils (ASTM D 4373): 0.1 %

"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

Project Name:

Vista Class III Landfill

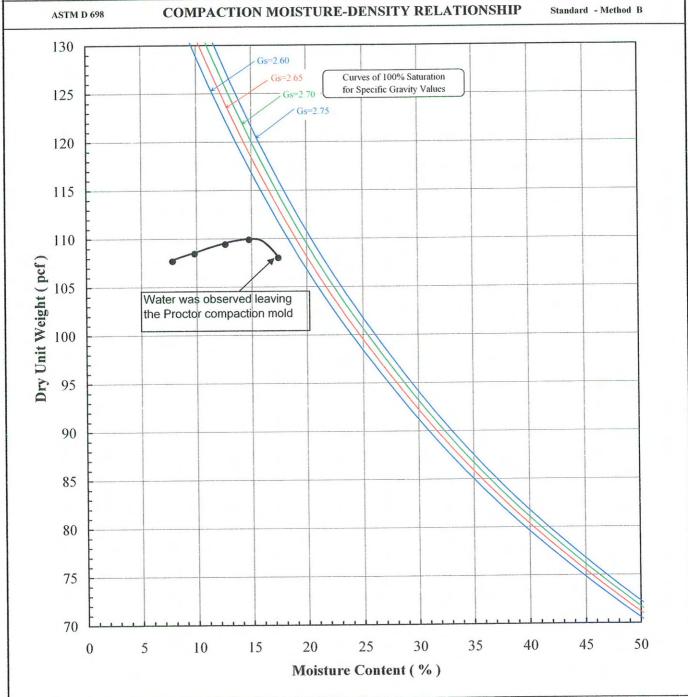
Project No:

306

Client Sample ID: PC-01

Lab Sample No:

C045



Client/Site Sample ID.	Lab Sample No:	Maximum Dry Unit Weight (pcf)	Optimum Moisture Content (%)	Remarks
PC-01	C045	110.1	15.2	

Note(s):



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RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Vista Class III Landfill **Project Name:** 306 **Project Number:** Geosyntec Consultants Client Name: PC-01 Site Sample ID: C045 Lab Sample Number: Material Type: Sand NA Specified Value (cm/sec): 3/19/2008 Date Tested:

Specimen		Specime	n Initial Co	onditions		Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid (4)		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾			
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	14.1	7.6	99.0	0.0	TW	0.14 - 0.39	8.8E-3

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 7 layers, each approximately 2.0 cm, utilizing moderate compaction energy.
- 3. A moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

* Deviations:

Laboratory temperature at 22±3 °C



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RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Project Name:

Project Number:

Geosyntec Consultants

Site Sample ID:

Lab Sample Number:

Material Type:

Sand

Specified Value (cm/sec):

Date Tested:

Vista Class III Landfill

306

Geosyntec Consultants

PC-02

Lab Sample Number:

D094

Sand

NA

4/15/2008

Specimen		Specime	n Initial Co	onditions		Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid (4)		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾			
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	14.2	7.6	103.5	0.0	TW	0.17 - 0.46	1.2E-2

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 7 layers, each approximately 2.0 cm, utilizing moderate compaction energy.
- $3.\ A$ moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

Laboratory temperature at 22±3 °C.

^{*} Deviations:



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 **Project Name:**

Vista Class III Landfill

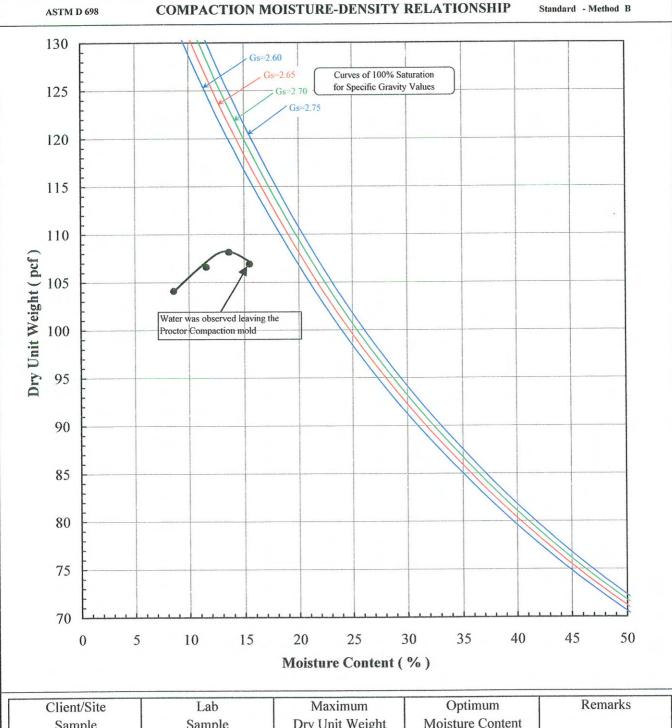
Project No:

306 PC-02

Client Sample ID

Lab Sample No:

D094



Client/Site	Lab	Maximum	Optimum	Remarks
Sample	Sample	Dry Unit Weight	Moisture Content	
ID.	No:	(pcf)	(%)	
PC-02	D094	108.2	13.5	

Note(s):



"Excellence in Testing"

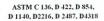
941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 Project Name: Vista Class III Landfill

Project No: 306

Client Sample ID: PC-02

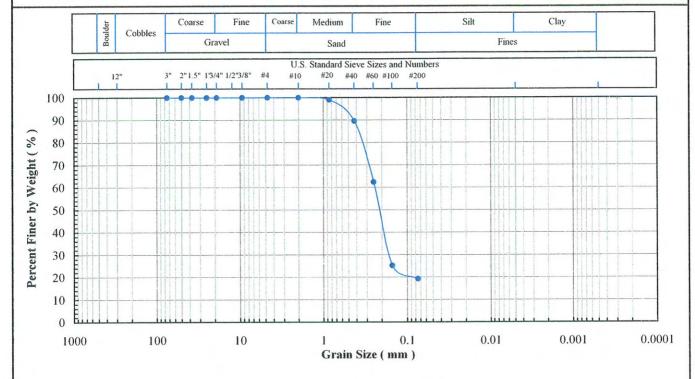
Lab Sample No: D0

D094



SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#10	2.00	100.0
#20	0.850	99.0
#40	0.425	89.6
#60	0.250	62.4
#100	0.150	25.2
#200	0.075	19.3

Hydrometer Particle Diameter	% Finer
(mm)	
	-

Gravel (%):	
Sand (%):	80.7
Fines (%):	19.3
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	

	80	
	70	
_	60	"U" Line
Plasticity Index (PI)	50	CH or OH
ty Ind	40	
astici	30	
٩	20	- CL or OV MH or OH
	10	CL-ML
	0	ML of OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Specific Gravity (-):		Coeff. Curv. (Cc):					
Client	Lab	Moisture	Fines Content	Att	erberg Li	nits	Engineering Classification
Sample	Sample	Content	< No. 200	LL	PL	PI	
ID.	No:	(%)	(%)	(-)	(-)	(-)	

19.3

NP

NP

NP

SM - Silty sand

Note(s):

PC-02

Carbonate Content of Soils (ASTM D 4373): 0.1 %

D094

Engineering classification is based on the assumption that the fines are either ML or MH.

4.9



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Project Name: Vista Class III Landfill

306 Project No:

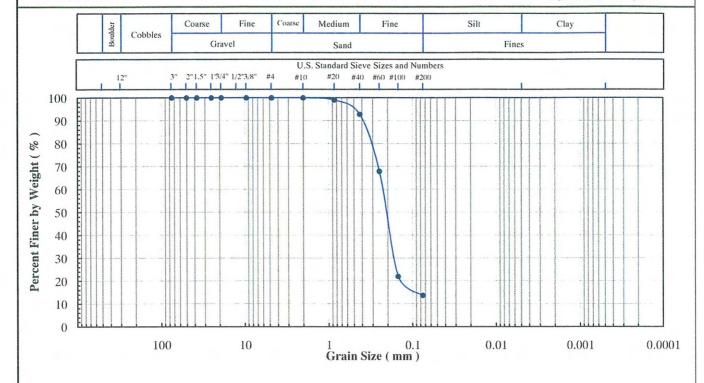
PC-03 Client Sample ID:

Lab Sample No: G014

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#10	2.00	100.0
#20	0.850	99.1
#4()	0.425	92.8
#60	0.250	67.9
#100	0.150	22.0
#200	0.075	13.7

Hydrometer Particle Diameter (mm)	% Finer

Gravel (%):	
Sand (%):	86.3
Fines (%):	13.7
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	

	80	
	70	
_	60	"U" Line
ex (PI	50	CH or OH
ty Ind	40	
Plasticity Index (PI)	30	
1	20	CL or OF. MII or OH
	10	CL-ML
	()	ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Specific Gravity (-):

Client	Lab	Moisture	Fines Content	Atterberg Limits		nits	Engineering Classification
Sample	Sample	Content	< No. 200	LL	PL	PI	
ID.	No:	(%)	(%)	(-)	(-)	(-)	
PC-03	G014	8.7	13.7	NP	NP	NP	SM - Silty sand

Note(s):

Carbonate Content of Soils (ASTM D 4373): 1.0 %



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941 Forrest Street, Roswell, Georgia 30075

RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Project Name:
Vista Class III Landfill

Project Number:
306

Client Name:
Geosyntec Consultants

Site Sample ID:
PC-03

Lab Sample Number:
G014

Material Type:
Sand

Specified Value (cm/sec):
NA

Date Tested:
7/05/2008

Specimen		Specime	n Initial Co	onditions		Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid (4)		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾			
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	14.0	7.6	97.7	0.0	TW	0.12 - 0.34	8.3E-3

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 7 layers, each approximately 2.0 cm, utilizing moderate compaction energy.
- 3. A moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

* Deviations:

Laboratory temperature at 22±3 °C.



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941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

Vista Class III Landfill **Project Name:**

Project No: 306

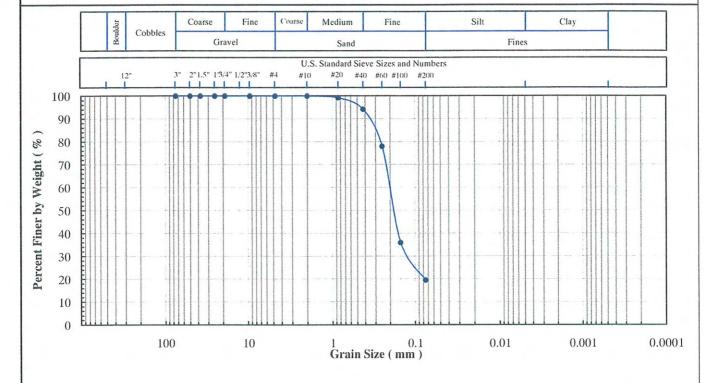
PC-04 Client Sample ID:

Lab Sample No: G015

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#10	2.00	100.0
#20	0.850	99.2
#4()	0.425	94.2
#60	0.250	78.0
#100	0.150	35.9
#200	0.075	19.5

Hydrometer Particle Diameter (mm)	% Finer

Gravel (%):	
Sand (%):	80.5
Fines (%):	19.5
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	

70)	
60	"U" Line
50	CH or OH
40	
30	
20	CL or OL: MII or OH
10	CL-ML
0	ML of OL
	0 10 20 30 40 50 60 70 80 90 100 110 13
	50 40 30 20

Client	Lab	Moisture	Fines Content	Att	erberg Li	mits	Engineering Classification
Sample	Sample	Content	< No. 200	LL	PL	PI	
ID.	No:	(%)	(%)	(-)	(-)	(-)	
PC-04	G015	12.2	19.5	NP	NP	NP	SM - Silty sand

Note(s):

Specific Gravity (-):

Carbonate Content of Soils (ASTM D 4373): 0.8 %



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941 Forrest Street, Roswell, Georgia 30075

RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Project Name: Vista Class III Landfill 306 **Project Number:** Client Name: Geosyntec Consultants Site Sample ID: PC-04 G015 Lab Sample Number: Material Type: Sand NA Specified Value (cm/sec): 7/06/2008 **Date Tested:**

Specimen		Specime	n Initial Co	onditions		Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid (4)		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾			
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	13.9	7.6	96.2	0.0	TW	0.20 - 0.55	2.9E-3

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 7 layers, each approximately 2.0 cm, utilizing moderate compaction energy.
- 3. A moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

* Deviations:

Laboratory temperature at 22±3 °C.



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Project No:

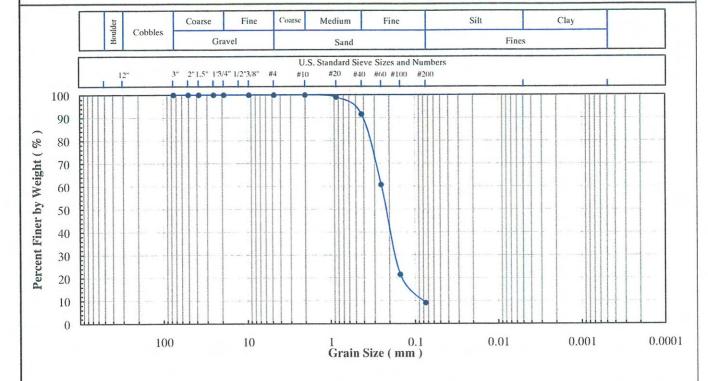
Client Sample ID: PC-05

Lab Sample No: G016

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#1()	2.00	100.0
#20	0.850	99.1
#4()	0.425	91.6
#60	0.250	60.8
#100	0.150	21.5
#200	0.075	9.1

% Finer

Gravel (%):	
Sand (%):	90.9
Fines (%):	9.1
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	3.1
Coeff. Curv. (Cc):	1.6

	80	
	70	
_	60	"U" Line
Plasticity Index (PI)	50	CH or OH
ty Inde	40	
lastici	30)	
Д	20	CL or OF MH or OH
	10	CL-ML
	0	ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Specific Gravity (-):	Specific	Gravity ((-):	
-------------------------	----------	-----------	--------	--

Client	Lab	Moisture	Fines Content	At	terberg Li	nits	Engineering Classification
Sample	Sample	Content	< No. 200	LL	PL	PI	1
ID.	No:	(%)	(%)	(-)	(-)	(-)	
PC-05	G016	5.9	9.1	NP	NP	NP	SP-SM - Poorly graded sand with sil

Note(s):

Carbonate Content of Soils (ASTM D 4373): 1.0 %



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941 Forrest Street, Roswell, Georgia 30075

RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Project Name: Vista Class III Landfill 306 **Project Number:** Geosyntec Consultants Client Name: PC-05 Site Sample ID: G016 Lab Sample Number: Material Type: Sand NA Specified Value (cm/sec): 7/06/2008 **Date Tested:**

Specimen		Specime	n Initial Co	onditions		Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid (4)		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾			
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	14.2	7.6	103.8	0.0	TW	0.20 - 0.39	1.1E-2

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 7 layers, each approximately 2.0 cm, utilizing moderate compaction energy.
- 3. A moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

* Deviations:

Laboratory temperature at 22±3 °C.



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Vista Class III Landfill **Project Name:**

Project No:

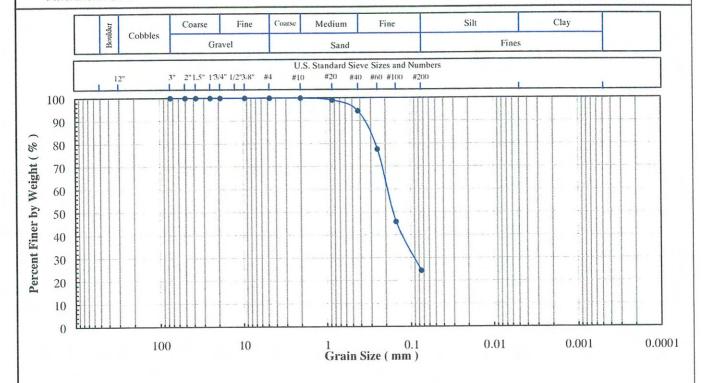
Client Sample ID: PC-06

G017 Lab Sample No:

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#1()	2.00	100.0
#20	0.850	99.1
#4()	0.425	94.3
#60	0.250	77.5
#100	0.150	45.8
#200	0.075	24.4

Particle Diameter (mm)	% Finer
(IIIII)	
Gravel (%):	
G 1 (6)	75 6

Hydrometer

Gravel (%):	
Sand (%):	75.6
Fines (%):	24.4
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	

	80	
	70	t / /
_	60	"U" I ine
Plasticity Index (PI)	50	CH or OII
ty Ind	40	
lastici	30	
Films	20	CL or Of. MII or OH
	10	CL-ML
	()	ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 120

Liquid Limit (LL)

Client	Lab	Moisture	Fines Content	Att	erberg Lir	nits	Engineering Classification
Sample	Sample	Content	< No. 200	LL	PL	PI	
ID.	No:	(%)	(%)	(-)	(-)	(-)	
PC-06	G017	11.3	24.4	NP	NP	NP	SM - Silty sand

Note(s):

Specific Gravity (-):

Carbonate Content of Soils (ASTM D 4373): 0.6 %



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075

RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Project Name:

Vista Class III Landfill

Project Number:

306

Client Name:

Geosyntec Consultants

PC-06

Lab Sample Number:

G017

Material Type:

Sand

Specified Value (cm/sec):

NA

Date Tested:

7/06/2008

Specimen		Specime	n Initial Co	onditions		Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid (4)		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾			
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	14.1	7.6	97.6	0.0	TW	0.21 - 0.51	4.1E-3

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 7 layers, each approximately 2.0 cm, utilizing moderate compaction energy.
- 3. A moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

Laboratory temperature at 22±3 °C.

^{*} Deviations:



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Project Name: Vista Class III Landfill

Project No: 306

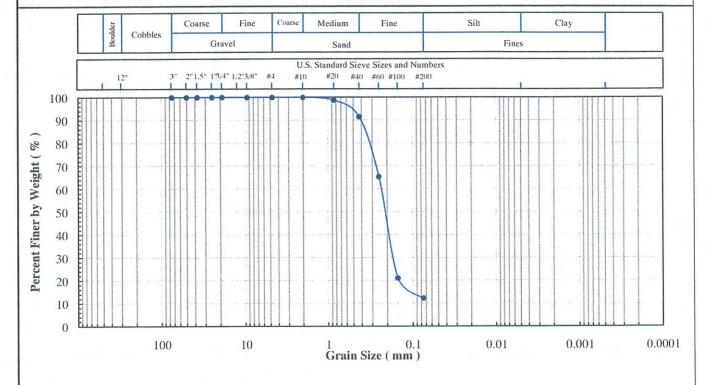
PC-07 Client Sample ID:

G018 Lab Sample No:

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#1()	2.00	100,0
#20	0.850	98.8
#4()	0.425	91.5
#60	0.250	65.3
#100	0.150	21.0
#200	0.075	12.2

Hydrometer Particle Diameter (mm)	% Finer

Gravel (%):	
Sand (%):	87.8
Fines (%):	12.2
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	

	80	
	70	1
	60	"U" Line
Fiasticity Index (F1)	50)	CH or OH
Ly Ind	40	
lastici	30	
4	20	CL or QE MIL or OH
	10	CL-ML
	()	ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 12
		Liquid Limit (LL)

Specific Gravity (-):
--------------------	-----

Client	Lab	Moisture	Fines Content	Att	erberg Lir	nits	Engineering Classification
Sample	Sample	Content	< No. 200	LL	PL	PI	
ID.	No:	(%)	(%)	(-)	(-)	(-)	
PC-07	G018	10.0	12.2	NP	NP	NP	SM - Silty sand

Note(s):

Carbonate Content of Soils (ASTM D 4373): 0.4 %



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075

RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Project Name:
Vista Class III Landfill

306
Client Name:
Geosyntec Consultants
Site Sample ID:
PC-07
Lab Sample Number:
G018
Material Type:
Sand
Specified Value (cm/sec):
NA
Date Tested:
7/06/2008

Specimen		Specime	n Initial Co	onditions		Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid (4)		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾			
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	14.1	7.6	97.4	0.0	TW	0.20 - 0.42	6.9E-3

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 7 layers, each approximately 2.0 cm, utilizing moderate compaction energy.
- 3. A moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

Deviations:

Laboratory temperature at 22±3 °C.
Test specimen final conditions are not presented.



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 Project Name: Vista Class III Landfill

Project No: 30

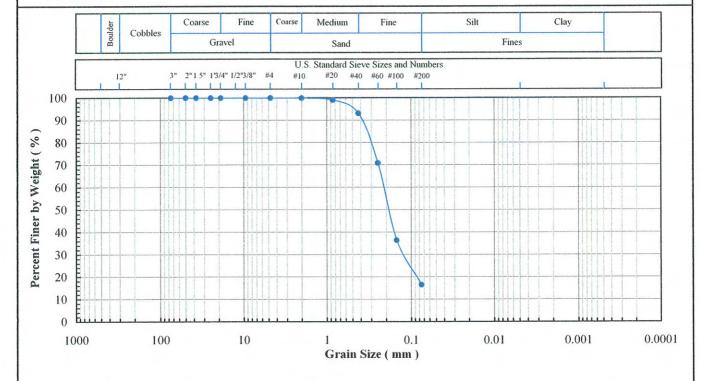
Client Sample ID: PC-08

Lab Sample No: G149

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#10	2.00	99.9
#20	0.850	99.1
#40	0.425	93.1
#60	0.250	70.9
#100	0.150	36.4
#200	0.075	16.5

Hydrometer Particle Diameter (mm)	% Finer

Gravel (%):	
Sand (%):	83.5
Fines (%):	16.5
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	

	80	
	70	
_	60	"U" Line
Plasticity Index (PI)	50	CH or OH "A" Line
ty Ind	40	- A Line
lasticit	30	
Ь	20	CL or OX MH or OH
	10	CL-ML
	0	ML of OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Client	Lab	Moisture	Fines Content	Att	erberg Lir	nits	Engineering Classification
Sample ID.	Sample No:	Content (%)	< No. 200 (%)	LL (-)	PL (-)	PI (-)	
PC-08	G149	10.9	16.5	NP	NP	NP	SM - Silty sand

Note(s):

Specific Gravity (-):

Carbonate Content of Soils (ASTM D 4373): 1.5 %



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Vista Class III Landfill **Project Name:** 306 **Project Number:** Geosyntec Consultants **Client Name:** Site Sample ID: PC-08 G149 Lab Sample Number: Sand Material Type: NA Specified Value (cm/sec): 7/30/2008 Date Tested:

Specimen	Specimen Initial Conditions					Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid (4)		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾			
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	13.8	7.6	97.2	0.0	TW	0.16 - 0.38	1.3E-2

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 7 layers, each approximately 2.0 cm, utilizing moderate compaction energy.
- $3.\ A$ moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

* Deviations:

Laboratory temperature at 22±3 °C.
Test specimen final conditions are not presented.



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 Project Name: Vista Class III Landfill

Project No: 306

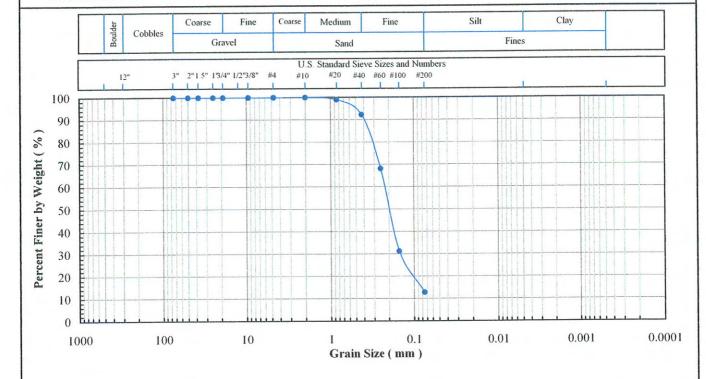
Client Sample ID: PC-09

Lab Sample No: G150

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer		
3"	75	100.0		
2"	50	100.0		
1.5"	37.5	100.0		
1"	25	100.0		
3/4"	19	100.0		
3/8"	9.5	100.0		
#4	4.75	100.0		
#10	2.00	100.0		
#20	0.850	99.0		
#40	0.425	92.3		
#60	0.250	68.1		
#100	0.150	31.2		
#200	0.075	12.8		

% Finer

Gravel (%):	
Sand (%):	87.2
Fines (%):	12.8
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	

	80	
	70	
	70	
	60	"U" Line
Plasticity Index (PI)	50	CH or OH
ex	50	"A" Line
Inc	40	
city		
asti	30	
d	20	CL or OK
	20	MH or OH
	10	
	0	ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Client	Lab	Moisture	Fines Content Atterberg Limits Engineerin	Atterberg Limits		Engineering Classification	
Sample ID.	Sample No:	Content (%)	< No. 200	LL (-)	PL (-)	PI (-)	
PC-09	G150	11.7	12.8	NP	NP	NP	SM - Silty sand

Note(s):

Specific Gravity (-):

Carbonate Content of Soils (ASTM D 4373): 1.8 %



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Project Name:
Vista Class III Landfill

Project Number:
306

Client Name:
Geosyntec Consultants

Site Sample ID:
PC-09

Lab Sample Number:
G150

Material Type:
Sand

Specified Value (cm/sec):
NA

Date Tested:
7/30/2008

Specimen		Specime	n Initial Co	onditions		Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid (4)		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾			
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	13.6	7.6	95.7	0.0	TW	0.18 - 0.49	8.2E-3

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 7 layers, each approximately 2.0 cm, utilizing moderate compaction energy.
- 3. A moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

Laboratory temperature at 22±3 °C.

^{*} Deviations:



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 Project Name: Vista Class III Landfill

Project No: 306

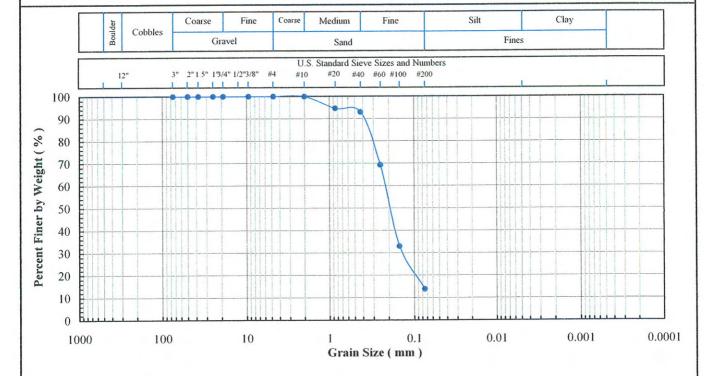
Client Sample ID: PC-10

Lab Sample No: G151

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
3/8"	9.5	100.0
#4	4.75	100.0
#10	2.00	99.9
#20	0.850	94.6
#40	0.425	93.0
#60	0.250	69.3
#100	0.150	33.0
#200	0.075	13.9

Hydrometer Particle Diameter (mm)	% Finer
(IIIII)	

Gravel (%):	
Sand (%):	86.1
Fines (%):	13.9
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	

	80	
	70	
_	60	"U" Line
x (PI	50	CH or OH
Plasticity Index (PI)	40	"A" Line
asticit	30	
Ы	20	CL or OF MH or OH
	10	
	0	CL-ML ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Client	Lab	Moisture	Fines Content	Att	erberg Li	nits	Engineering Classification
Sample ID.	Sample No:	Content (%)	< No. 200 (%)	LL (-)	PL (-)	PI (-)	
PC-10	G151	13.1	13.9	NP	NP	NP	SM - Silty sand

Note(s):

Specific Gravity (-):

Carbonate Content of Soils (ASTM D 4373): 1.1 %



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Vista Class III Landfill **Project Name:** 306 **Project Number:** Geosyntec Consultants Client Name: PC-10 Site Sample ID: G151 Lab Sample Number: Sand Material Type: NA Specified Value (cm/sec): 7/30/2008 Date Tested:

Specimen		Specime	n Initial Co	onditions		Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid (4)		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾			
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	13.7	7.6	96.3	0.0	TW	0.17 - 0.42	8.1E-3

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 7 layers, each approximately 2.0 cm, utilizing moderate compaction energy.
- 3. A moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

Laboratory temperature at 22±3 °C.

^{*} Deviations:

DRAINAGE GRAVEL



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 Project Name: Vista Class III Landfill

Project No: 306

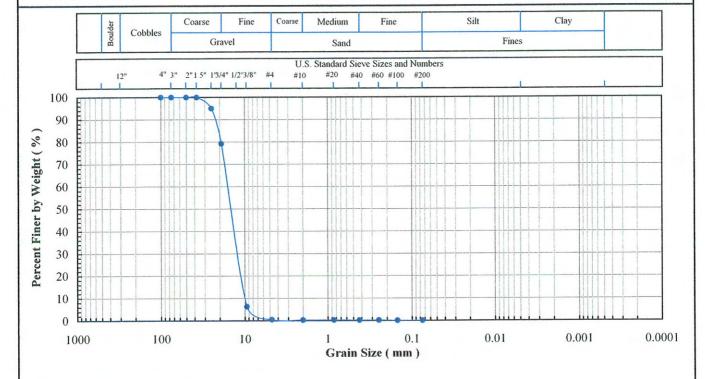
Client Sample ID: DG-03

Lab Sample No: E090

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
4"	100	100.0
3"	75	100.0
2"	50	100.0
1.5"	37.5	100.0
1"	25	95.0
3/4"	19	79.2
3/8"	9.5	6.3
#4	4.75	0.5
#10	2.00	0.3
#20	0.850	0.3
#40	0.425	0.2
#60	0.250	0.2
#100	0.150	0.1
#200	0.075	0.1

% Finer

Gravel (%):	99.5
Sand (%):	0.4
Fines (%):	0.1
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	1.6
Coeff. Curv. (Cc):	0.9

	80	
	70	[
_	60	"U" Line
ex (PI	50	CH or OH
y Ind	40	
Plasticity Index (PI)	30	
4	20	CL or QV MH or OH
	10	CL-MI
	0	ML or OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Client	Lab	Moisture	Fines Content	Att	erberg Lii	mits	Engineering Classification
Sample	Sample	Content	< No. 200	LL	PL	PI	
ID.	No:	(%)	(%)	(-)	(-)	(-)	
DG-03	E090		0.1				GP - Poorly graded gravel

Note(s):

FOOT # ST STONE



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Project Name:

Vista Class III Landfill

306

Client Name:

Geosyntec Consultants

DG-03

Lab Sample Number:

E090

Material Type:

NA

Specified Value (cm/sec):

NA

5/23/2008

Specimen		Specime	n Initial Co	onditions		Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid ⁽⁴⁾		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾			
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	30.5	23.0	95.8	0.0	TW	0.002 - 0.01	2.5E+1

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 5 layers, each approximately 6.0 cm, utilizing moderate compaction energy.
- 3. A moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

* Deviations:

Laboratory temperature at 22±3 °C.

Test specimen final conditions are not presented.

The entire sample was used (i.e., particles larger than 3/4 in. Seive were not removed).



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 Project Name:

Vista Class III Landfill

Project No:

306

Client Sample ID

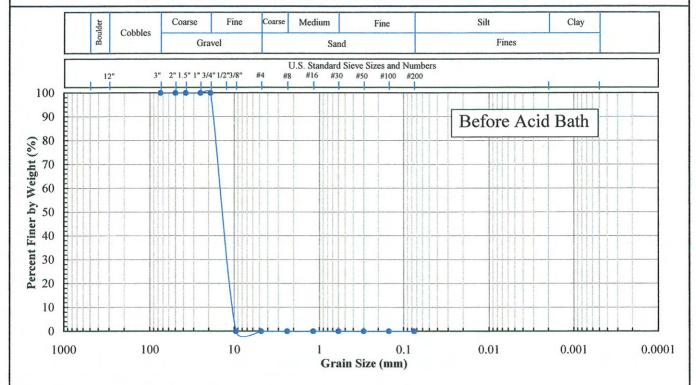
DG-03

Lab Sample No:

E090

ASTM D 3042

INSOLUBLE RESIDUE IN CARBONATE AGGREGATES

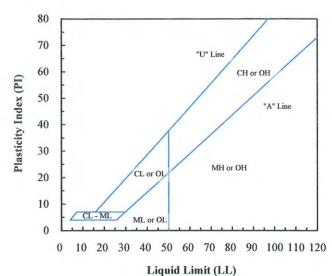


Sieve No.	Size (mm)	% Finer	
3"	75.0	100.0	
2"	50.0	100.0	
1.5"	37.5	100.0	
1"	25.0	100.0	
3/4"	19.0	100.0	
3/8"	9.50		
#4	4.75		
#8	2.00		
#16	0.850		
#30	0.425		
#50	0.250		
#100	0.150		
#200	0.075		

Hydrometer Particle Diameter (mm)	% Finer
0.050	
0.020	
0.005	
0.002	
0.001	

Gravel (%):	100.0
Sand (%):	
Fines (%):	
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	



Client	Lab	Moisture	Fines Content	Atterberg Limits		mits	Engineering Classification
Sample	Sample	Content	< No. 200	LL	PL	PI	
ID.	No:	(%)	(%)	(-)	(-)	(-)	
DG-03	E090						

Note(s):

Only particles passed through 3/4 in. Sieve and washed over 3/8 in. Sieve were used.



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 **Project Name:**

Vista Class III Landfill

Project No:

306

Client Sample ID

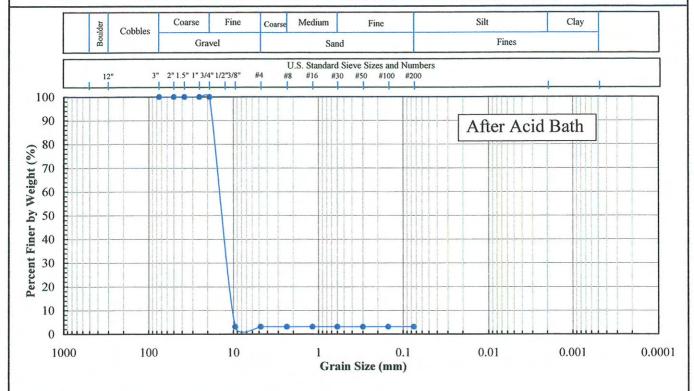
DG-03

Lab Sample No:

E090

D 3042

INSOLUBLE RESIDUE IN CARBONATE AGGREGATES

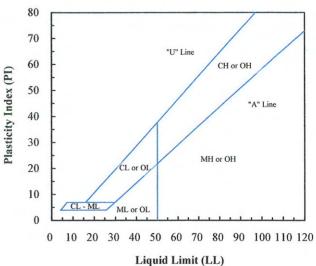


Sieve No.	Size (mm)	% Finer	
3"	75.0	100.0	
2"	50.0	100.0	
1.5"	37.5	100.0	
1"	25.0	100.0	
3/4"	19.0	100.0	
3/8"	9.50	3.2	
#4	4.75	3.2	
#8	2.00	3.2	
#16	0.850	3.2	
#30	0.425	3.2	
#50	0.250	3.2	
#100	0.150	3.2	
#200	0.075	3.2	

Hydrometer Particle Diameter (mm)	% Finer
0.050	
0.020	
0.005	
0.002	
0.001	

Gravel (%):	96.8
Sand (%):	
Fines (%):	3.2
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	



	Client	Lab	Moisture	Fines Content	Atterberg Limits		nits	Total Insoluble Residue
	Sample	Sample	Content	< No. 200	LL	PL	PI	
L	ID.	No:	(%)	(%)	(-)	(-)	(-)	(%)
	DG-03	E090		3.2				96.8

Note(s):

Only particles passed through 3/4 in. Sieve and washed over 3/8 in. Sieve were used.



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 Project Name: Vista Class III Landfill

Project No: 306

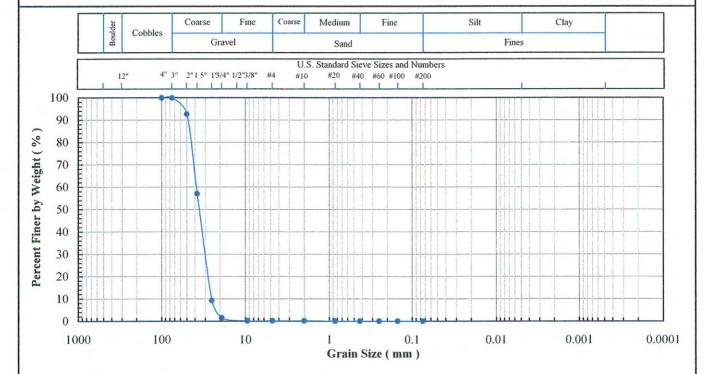
Client Sample ID: DG-04

Lab Sample No: E091

ASTM C 136, D 422, D 854, D 1140, D2216, D 2487, D4318

SOIL INDEX PROPERTIES

Grain Size, Spec. Gravity, Moist. Content, Eng. Classification, Atterberg Limits



Sieve No.	Size (mm)	% Finer
4"	100	100.0
3"	75	100.0
2"	50	92.7
1.5"	37.5	57.1
1"	25	9.4
3/4"	19	1.6
3/8"	9.5	0.2
#4	4.75	0.2
#10	2.00	0.2
#20	0.850	0.1
#40	0.425	0.1
#60	0.250	0.1
#100	0.150	0.1
#200	0.075	0.1

Hydrometer Particle Diameter (mm)	% Finer

Gravel (%):	99.8
Sand (%):	0.1
Fines (%):	0.1
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	1.6
Coeff. Curv. (Cc):	1.0

	80	
	70	
_	60	"U" Line
Plasticity Index (PI)	50	CH or OH
ty Ind	40	E A Line
lastici	30	
	20	CL or OK MH or OH
	10	
	0	ML of OL
		0 10 20 30 40 50 60 70 80 90 100 110 120
		Liquid Limit (LL)

Client	Lab	Moisture	Fines Content	Att	erberg Lir	nits	Engineering Classification
Sample	Sample	Content	< No. 200	LL	PL	PI	
ID.	No:	(%)	(%)	(-)	(-)	(-)	
DG-04	E091		0.1				GP - Poorly graded gravel

Note(s):

FDOT #4 STONE



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

RIGID WALL PERMEABILITY TEST (1) ASTM D2434 *

Project Name: Vista Class III Landfill 306 **Project Number:** Geosyntec Consultants **Client Name:** DG-04 Site Sample ID: E091 Lab Sample Number: NA Material Type: NA Specified Value (cm/sec): 5/23/2008 **Date Tested:**

Specimen		Specime	n Initial Co	onditions		Permeant	Gradient Range	Hydraulic
Number	Spec.	Spec.	Spec.	Dry Unit	Moisture	Liquid (4)		Conductivity
	Prep. (2)	Length	Diameter	Weight	Content ⁽³⁾		1 N A A	
	(-)	(cm)	(cm)	(pcf)	(%)		(-)	(cm/s)
1	R	31.4	23.0	94.0	0.0	TW	0.004 - 0.01	4.5E+1

Notes:

- 1. Constant head test procedures were followed during the testing.
- 2. Remolded specimen was formed by tamping the soil in 5 layers, each approximately 6.0 cm, utilizing moderate compaction energy.
- 3. A moisture content of 0.0% indicates that the sample was air/oven dried before being tested.
- 4. Type of permeant liquid: TW = Tap Water, DTW = Deaired Tap Water, DDI = Deaired Deionized Water

* Deviations:

Laboratory temperature at 22±3 °C.

Test specimen final conditions are not presented.

The entire sample was used (i.e., particles larger than 3/4 in. Seive were not removed).



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786 Project Name: Vista Class III Landfill

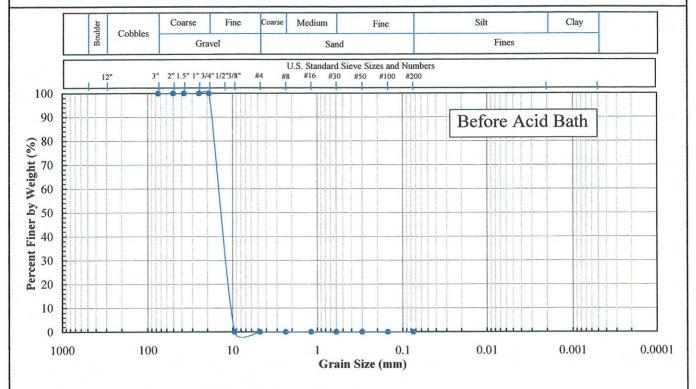
Project No: 306

Client Sample ID DG-04

Lab Sample No: E091

ASTM D 3042

INSOLUBLE RESIDUE IN CARBONATE AGGREGATES

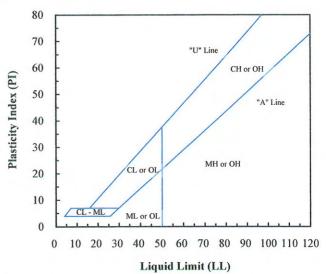


Sieve No.	Size (mm)	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.0	100.0
3/8"	9.50	
#4	4.75	
#8	2.00	
#16	0.850	
#30	0.425	
#50	0.250	
#100	0.150	
#200	0.075	

Hydrometer Particle Diameter (mm)	% Finer
0.050	
0.020	
0.005	
0.002	
0.001	

Gravel (%):	100.0
Sand (%):	
Fines (%):	
Silt (%):	
Clay (%):	

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	



ı	Client	Lab	Moisture	Fines Content	Att	erberg Li	mits	Engineering Classification
ı	Sample	Sample	Content	< No. 200	LL	PL	PI	
l	ID.	No:	(%)	(%)	(-)	(-)	(-)	
	DG-04	E091						

Note(s):

Only particles passed through 1.0 in. Sieve and washed over 3/4 in. Sieve were used.



"Excellence in Testing"

941 Forrest Street, Roswell, Georgia 30075 Tel: (770) 650 1666 Fax: (770) 650 5786

Project Name:

Vista Class III Landfill

Project No:

Lab Sample No:

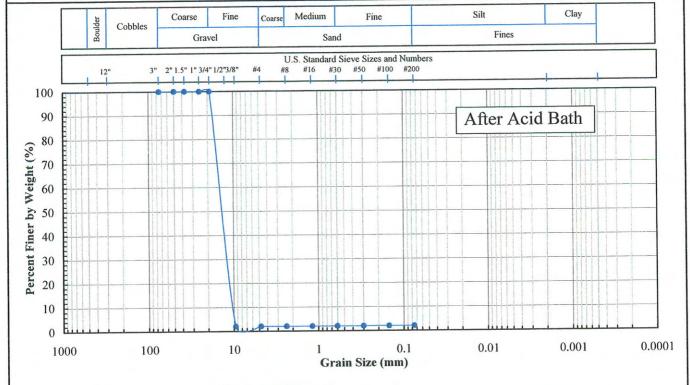
306

Client Sample ID

DG-04 E091



INSOLUBLE RESIDUE IN CARBONATE AGGREGATES

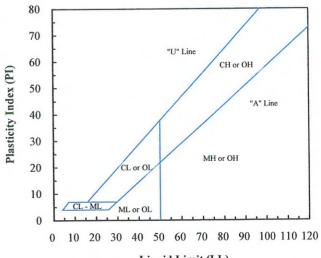


Sieve No.	Size (mm)	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.0	100.0
3/8"	9.50	2.1
#4	4.75	2.1
#8	2.00	2.1
#16	0.850	2.1
#30	0.425	2.1
#50	0.250	2.1
#100	0.150	2.1
#200	0.075	2.1

Hydrometer Particle Diameter (mm)	% Finer
0.050	
0.020	
0.005	
0.002	
0.001	

Gravel (%):	97.9	
Sand (%):		
Fines (%):	2.1	
Silt (%):		
Clay (%):		

Coeff. Unif. (Cu):	
Coeff. Curv. (Cc):	



Liquid 1	imit	all

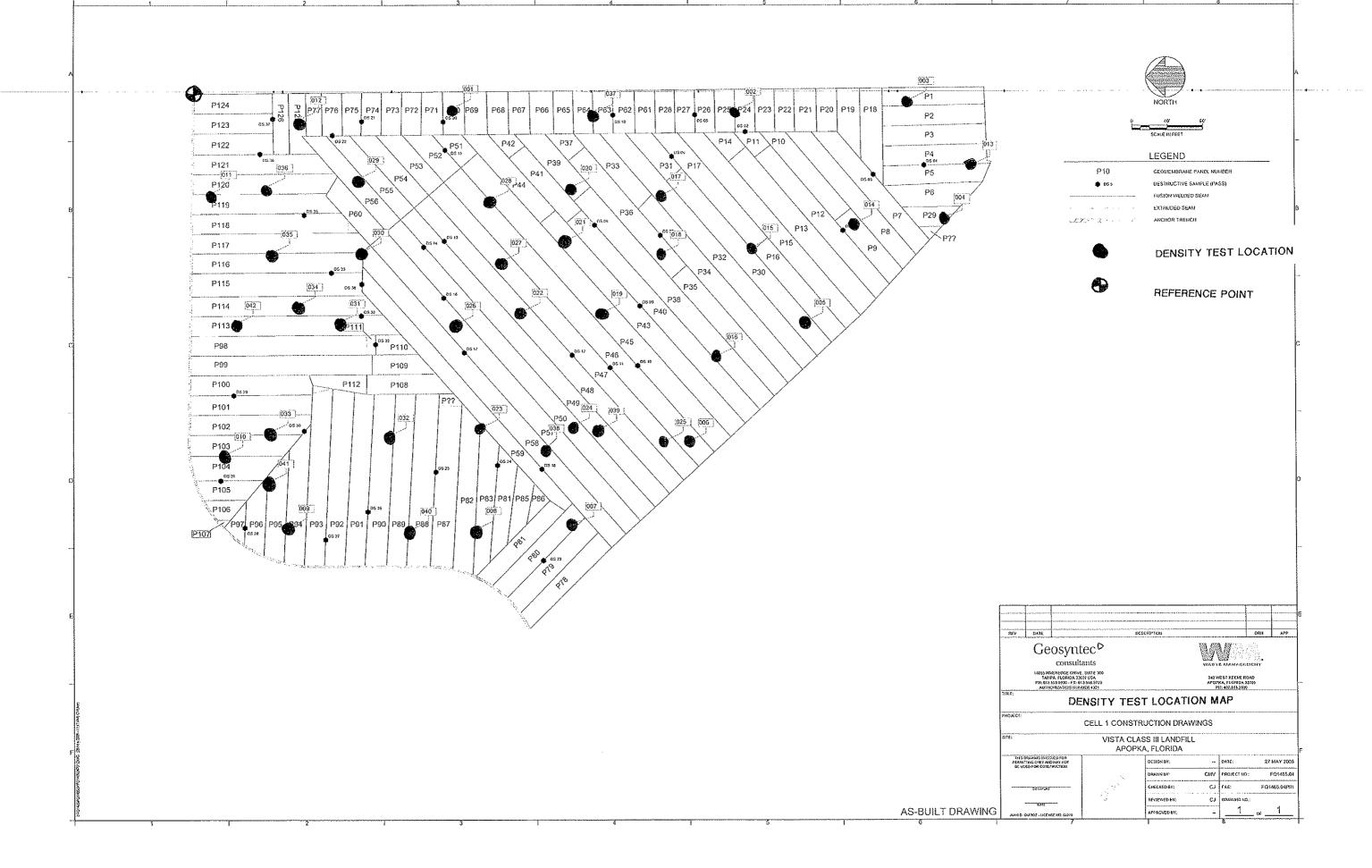
Client	Lab	Moisture	Fines Content	Att	erberg Li	mits	Total Insoluble Residue
Sample ID.	Sample No:	Content (%)	< No. 200 (%)	LL (-)	PL (-)	PI (-)	(%)
DG-04	E091		2.1				97.9

Note(s):

Only particles passed through 1.0 in. Sieve and washed over 3/4 in. Sieve were used.

SUB APPENDIX A-2

FIELD NUCLEAR DENSITY TEST RESULTS



Geosyntec^P consultants

(ASTM D 6938)		PROJECT NO.: FQ1465 TASK NO.: 02	DATE: 30 day April month 2008 year	
FIELD NUCLEAR MOISTURE/DENSITY TEST LOG	PROJECT: Vista Class III Landfill	LOCATION: Apopka, FL	DESCRIPTION: Cell 1 Construction	

	(in.)	- of OPT.	e	RE-
itu Materails	MAX. LIFT THICKNESS:	MOISTURE CONTENT RANGE: to +	CORRECTION FACTOR: Y= None	FIFT D TEST RESULTS
MATERIAL SOURCE: In Situ Materails	OTHER:		24487	
MATERIA	CLAY OTHER:	ASTM D 1557	GAUGE SERIAL NO.:	1 TC
	SUBBASE	X ASTM D 698	GAUGE	I ARORATORY RESULTS
TS:	X SUBGRADE	(%)	3430	
SPECIFICATION REQUIREMENTS:	MATERIAL TYPE: FILL	MINIMUM COMPACTION:	NUCLEAR GAUGE TYPE:	

		13.3 112.8 13.3 112.8 13.3 112.8 19.5 104 13.3 112.8 13.3 112.8 13.3 112.8 13.3 112.8 13.3 112.8 13.3 112.8 13.3 112.8 13.3 112.8 13.3 112.8 13.3 112.8	0 SF-02 13.3 112.8 0 SF-02 13.3 112.8	12 0 SF-02 13.3 112.8 12 0 SF-02 13.3 112.8
	112.8	13.3 112.8	13.3 112.8	12 0 SF-02 13.3 112.8
112.8	$\frac{ \cdot }{ \cdot }$	13.3	13.3	12 0 SF-02 13.3
	13.3 13.3 13.3 13.3 13.3 13.3 13.3 13.3		0 SF-02 0 SF-02 0 SF-03 0 SF-02 0 SF-02 0 SF-02 0 SF-02 0 SF-02	12 0 SF-02 12 0 SF-02 12 0 SF-03 12 0 SF-03 12 0 SF-02 12 0 SF-02 12 0 SF-02 12 0 SF-02 12 0 SF-02 12 0 SF-02

NOTES: (1) FIELD MOISTURE CONTENT = GAUGE READING/CORRECTED MOISTURE

neasured from the northeast corner of Cell 1	
All test locations m	
COMMENTS:	•

DAS

CHECKED BY:

Geosyntec

WASTE MANAGEMENT

		consultants	tants					WASTE MANAGEMENT	AGEMENT			
FIELD N	FIELD NUCLEAR MOISTURE/DENSITY TEST LOG	DENSITY	TEST LOG					(ASTIN	(ASTM D 6938)			
PROJECT:	T: Vista Class III Landfill	II.										
LOCATI	LOCATION: Apopka, FL						PROJEC	PROJECT NO.: FQ1465		TASK NO.: 02	0.: 02	
DESCRI	DESCRIPTION: Cell 1 Construction	on					DATE:	30	day April	month	2008	year
SPECIFIC	SPECIFICATION REQUIREMENTS:	TS:			MATERI	MATERIAL SOURCE: In Situ Materails	Situ Matera	ils				
MATER	MATERIAL TYPE: FILL	N X	SUBGRADE SUE	SUBBASE	CLAY	OTHER:		MAX	MAX. LIFT THICKNESS:	ESS:	1	(in.)
MINIM	MINIMUM COMPACTION:	95	(%) X ASTM D 698	869 0	ASTMD 1557		MOISTURE CONTENT RANGE:	RANGE: -	1 5	+ ot	of OPT.	PT.
NUCLE	NUCLEAR GAUGE TYPE:	34	3430	GAUGE	GAUGE SERIAL NO.:	24487	00	CORRECTION FACTOR: Y=	ACTOR: Y=	Z	None	1
			LABORA	LABORATORY RESULTS	JLTS		FIELD TE	FIELD TEST RESULTS				RE-
TEST NO.	TEST LOCATION	PROBE DEPTH / LIFT NO.	SAMPLE NO.	OMC	MAX. DRY	FIELD MOISTURE	WET UNIT WT	DR	PERCENT COMPACT.		RE-TEST NO.	TEST SS
				(4.)		(2)	(bct)	(bct)	(%)	ЬЧ		ЬA
015	600 S / 175 W	$12 \nearrow 0$	SF-02	13.3	112.8	10.6	119	107.6	95	PASS		
016	550 S / 275 W	$12 \nearrow 0$		13.3	112.8	10.6	118.2	106.9	95	PASS		
		\										
NOTES:	NOTES: (1) FIELD MOISTURE CONTENT = GAUGE READING/CORRECTED MOISTURE	ENT = GAUGE	E READING/CORRECT	ED MOISTL	IRE							

CHECKED BY:

COMMENTS: All test locations measured from northeast corner of Cell 1

Geosyntec P consultants



FIELD NUCLEAR MOISTURE/DENSITY TEST LOG

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Q
ASTM
(A

PROJECT: Vista Class III Landfill	
LOCATION: Apopka, FL	PROJECT NO.: FQ1465 TASK NO.: 02
DESCRIPTION: Cell 1 Construction	DATE: 1 day May month 2008 year
SPECIFICATION REQUIREMENTS: MATE	MATERIAL SOURCE: In Situ Materails
MATERIAL TYPE: TILL X SUBGRADE CLAY	OTHER: MAX. LIFT THICKNESS: (in.)
MINIMUM COMPACTION: 95 (%) X ASTM D 698 ASTM D 1557	ID 1557 MOISTURE CONTENT RANGE: to + of OPT.
NUCLEAR GAUGE TYPE: 3430 GAUGE SERIAL NO.:	.: 24487 CORRECTION FACTOR: Y= None

			LABORA	LABORATORY RESULTS	JLTS		FIELD TE	FIELD TEST RESULTS				RE-
TEST NO.	TEST LOCATION	PROBE DEPTH / LIFT NO.	SAMPLE NO.	OMC (%)	MAX. DRY UNIT WT. (pcf)	FIELD MOISTURE CONTENT¹ (%)	WET UNIT DRY UNIT WT WT (pcf) (pcf)	DRY UNIT WT (pcf)	PERCENT COMPACT. (%)	PASS FAIL	RE-TEST NO.	PASS TEST
017	500 S / 110 W	12/0	SF-02	13.3	112.8	4.7	112.2	107.2	95	PASS		
018	500 S / 175 W	12 / 0	SF-02	13.3	112.8	4.4	117.2	112.3	100	PASS		
019	450 S / 250 W	12/0	SF-02	13.3	112.8	5.1	123.1	117.1	104	PASS		
020	400 S / 100 W	12 / 0	SF-02	13.3	112.8	5.6	125	118.4	105	PASS		
021	400 S / 175 W	12 / 0	SF-02	13.3	112.8	11.4	123.6	111.0	86	PASS		
022	350 S / 250 W	12 / 0	SF-02	13.3	112.8	12.7	120.6	107.0	95	PASS		
023	300 S / 375 W	12 / 0	SF-02	13.3	112.8	6.4	120.3	113.1	100	PASS		
024	400 S / 375 W	12 / 0	SF-02	13.3	112.8	8.6	120.5	109.7	97	PASS		
025	500 S / 375 W	12 / 0	SF-02	19.5	104	12.5	111.7	99.3	95	PASS		
026	275 S / 250 W	12 / 0	SF-02	13.3	112.8	17.5	125.7	107.0	95	PASS		
027	310 S / 175 W	12 / 0	SF-02	13.3	112.8	8.4	119.1	113.6	101	PASS		
028	310 S / 110 W	12 / 0	SF-02	13.3	112.8	5.7	113.5	107.4	95	PASS		
029	175 S / 100 W	$12 \nearrow 0$	SF-02	13.3	112.8	11.1	118.6	106.8	95	PASS		
030	175 S / 175 W	12 / 0	SF-02	13.3	112.8	4.2	111.9	107.4	95	PASS		
MOTES.	NOTES, (1) ETET D MOISTI IBE CONTENT - CALICE BEAT	TOTTE - CALICE	BEADMIC/COBBECTED MOISTINE	TED MOIST	IDE							

NOTES: (1) FIELD MOISTURE CONTENT = GAUGE READING/CORRECTED MOISTURE

theast corner of Cell 1	
All test locations measured from the nor	
COMMENTS:	

CHECKED BY: DAS

Geosyntec P consultants



FIELD NUCLEAR MOISTURE/DENSITY TEST LOG

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PROJECT:	F: Vista Class III Landfill	llifbu											1
LOCATIC	LOCATION: Apopka, FL							PROJEC	PROJECT NO.: FQ1465		TASK NO.: 02	0.: 02	1
DESCRIF	DESCRIPTION: Cell 1 Construction	uction						DATE:	1	day May	month	2008	year
SPECIFIC	SPECIFICATION REQUIREMENTS:	JENTS:				MATERI	MATERIAL SOURCE: In Situ Materails	Situ Matera	ils				
MATER	MATERIAL TYPE:	FILL	X sur	X SUBGRADE SUB	SUBBASE	CLAY	OTHER:		MAX	MAX. LIFT THICKNESS:	ESS:	1	(in.)
MINIME	MINIMUM COMPACTION:	95		(%) X ASTM D 698	869 (ASTM D 1557		MOISTURE CONTENT RANGE:	RANGE: -	-	+ ot	- of OPT.	PT.
NUCLE	NUCLEAR GAUGE TYPE:		34	3430	GAUGE	GAUGE SERIAL NO.:	24487	00	CORRECTION FACTOR: Y=	ACTOR: Y=	4	None	1
				LABORA	LABORATORY RESULTS	ULTS		FIELD TE	FIELD TEST RESULTS				RE-
TEST NO.	TEST LOCATION		PROBE DEPTH / LIFT NO.	SAMPLE NO.	OMC (%)	MAX. DRY UNIT WT. (pcf)	FIELD MOISTURE CONTENT ¹ (%)	WET UNIT WT (pcf)	DRY UNIT WT (pcf)	PERCENT COMPACT. (%)	PASS	RE-TEST NO.	PASS TEST
031	150 S / 250 W	12	0	SF-02	13.3	112.8	10.9	118.3	106.7	95	PASS		-
032	200 S / 375 W	12	0	SF-02	13.3	112.8	6.7	120.7	113.1	100	PASS		
033	75 S / 375 W	12	0		13.3	112.8	7.9	134.7	124.8	111	PASS		
034	75 S / 250 W	12	0		13.3	112.8	0.8	107.6	106.7	95	PASS		
035	75 S / 175 W	12	0		13.3	112.8	1.6	110.6	108.9	97	PASS		
036	75 S / 100 W	12	0	SF-02	13.3	112.8	2.5	111.3	108.6	96	PASS		
037	425 S / 25 W	12	0 /		13.3	112.8	5.6	115.1	109.0	76	PASS		
038	375 S / 400 W	12	0 /		13.3	112.8	7.6	116.9	108.6	96	PASS		
039	425 S / 375 W	12	0 / 2		13.3	112.8	9.1	118.5	108.6	96	PASS		
040	225 S / 475 W	12	0 / 2		13.3	112.8	5.0	114.9	109.4	97	PASS		
041	80 S / 435 W	12	0 / 7		13.3	112.8	6.3	118.1	111.1	86	PASS		
042	60 S / 250 W	12	0 /		13.3	112.8	11.6	121	108.4	96	PASS		

NOTES: (1) FIELD MOISTURE CONTENT = GAUGE READING/CORRECTED MOISTURE

MME	COMMENTS: All test locations measured from the northeast corner of Cell 1		CHECKED BY: DAS
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111.1 108.4

118.1 121

13.3

SF-02 SF-02

> 80 S / 435 W 60 S / 250 W

> 041 042

SUB APPENDIX A-3

THICKNESS VERIFICATIONS

Vista Class III Landfill

Cell 1 Construction

Protective Cover Thickness Verifications Log

Date	Map Location	Thickness Measurements (inches)	Pass/Fail (P/F)
5-22-2008	1	32	P
5-22-2008	2	32	Р
5-22-2008	3	32	Р
5-22-2008	4	32	Р
5-22-2008	5	32	Р
6-23-2008	6	32	Р
6-2-2008	7	29.5	Р
6-2-2008	8	29	Р
6-2-2008	9	29.5	Р
6-13-2008	10	24	Р
6-13-2008	11	25	Р
6-13-2008	12	32	Р
6-13-2008	13	24	Р
6-13-2008	14	24	Р
6-13-2008	15	25	Р
6-16-2008	16	29	P
6-16-2008	17	24	Р
6-18-2008	18	25	P
6-23-2008	19	24	P
6-23-2008	20	21	F
6-23-2008	21	21	F
6-23-2008	22	22	F
6-23-2008	23	22	F
7-14-2008	R20	24	Р
7-14-2008	R21	24	P
7-14-2008	R22	24	Р
7-14-2008	R23	24	P
7-14-2008	R6	24	Р

Notes: 1. "R" represents retest location.

2. Pass/Fail criteria equals thickness greater than or equal to 24 inches.

4 LOCATIONS THICKNESS VERIFICATIONS CMV CELL 1 CONSTRUCTION DRAWINGS CREST OF SLOPE VISTA CLASS III LANDFILL APOPKA, FLORIDA P10 CONSULTATION
HASS PREDEDGE OWN, CANTE AND
THEM, AND CONSULTATION
AND CONSULTATION OF THE AND CONSULTAT Geosyntec^D THE DANANGS COATOLOR AS-BUILT DRAWING REPAIR 33 5 13 1 7 8 P5
 Peril
 <th CREST OF INTERCELL BERM No. P40 CREST OF INTERCELL BERM 2 2 5 E 2 P37 3 P50 | P58 10 C 10 P77 P76 P74 P73 P72 P71 P70 P88 P82 P52 w" P110 PHOS | PSG | P109 P108 18/2/3 P111 P112 PIG P114 P120 P119 P118 P117 P101 P104 P105 P116 P103 P124 P123 P122 P121 P113 P98 P99 P100 P102

APPENDIX B

MANUFACTURERS QUALITY CONTROL TEST RESULTS

SUB APPENDIX B-1

GEOMEMBRANE

microspike liner

Waste Man Vista LF doc 10151

Apopka, FL 45 rolls 60 HD microspike

HDPE 60 mil

(K)314342 .08

(K)314343 .08

7

7

875

875

125

125

1000012448 PO#

7180362

7180362

60 mil					45 TOILS 60 FID IIII	crospike				
		METRI	C DIMENS	SIONS	141 rolls 8-300-	8 comp				
roll#		width	length	area	10 spools 5mm HD CHEV	RON WEL	D ROD			
								_		A CONTRACTOR OF THE PARTY OF TH
(K)313792 .	.08	7	125	875	WM Vista Apopka, FL	45tot	1	3205	3ft- Stage	7180362
(K)313793 .		7	125	875	WM Vista Apopka, FL	45tot	2	3320		7180362
(K)314101 .		7	125	875	WM Vista Apopka, FL	45tot	3	3330		7180362
(K)314102	.08	7	125	875	WM Vista Apopka, FL	45tot	4	3325		7180362
(K)314103		7	125	875	WM Vista Apopka, FL	45tot	5	3325		7180362
(K)314104	.08	7	125	875	WM Vista Apopka, FL	45tot	6	3325		7180362
(K)314105	.08	7	125	875	WM Vista Apopka, FL	45tot	7	3330		7180362
(K)314106	.08	7	125	875	WM Vista Apopka, FL	45tot	8	3328		7180362
(K)314107		7	125	875	WM Vista Apopka, FL	45tot	9	3255		7180362
(K)314108	.08	7	125	875	WM Vista Apopka, FL	45tot	10	3260		7180362
(K)314109		7	125	875	WM Vista Apopka, FL	45tot	11	3250	Stage	7180362
(K)314110		7	125	875	WM Vista Apopka, FL	45tot	12	3250		7180362
(K)314111	.08	7	125	875	WM Vista Apopka, FL	45tot	13	3250		7180362
(K)314112	.08	7	125	875	WM Vista Apopka, FL	45tot	14	3245		7180362
(K)314113	.08	7	125	875	WM Vista Apopka, FL	45tot	15	3225		7180362
(K)314114	.08	7	125	875	WM Vista Apopka, FL	45tot	16	3240		7180362
(K)314115	.08	7	125	875	WM Vista Apopka, FL	45tot	17	3250		7180362
(K)314116	.08	7	125	875	WM Vista Apopka, FL	45tot	18	3240		7180362
(K)314117	.08	7	125	875	WM Vista Apopka, FL	45tot	19	3245		7180362
(K)314118	.08	7	125	875	WM Vista Apopka, FL	45tot	20	3240		7180362
(K)314219	.08	7	125	875	WM Vista Apopka, FL	45tot	21	3245		7180362
(K)314220	.08	7	125	875	WM Vista Apopka, FL	45tot	22	3245	Stage	7180362
(K)314221	.08	7	125	875	WM Vista Apopka, FL	45tot	23	3250		7180362
(K)314222	.08	7	125	875	WM Vista Apopka, FL	45tot	24	3245		7180362
(K)314223	.08	7	125	875	WM Vista Apopka, FL	45tot	25	3250		7180362
(K)314224	.08	7	125	875	WM Vista Apopka, FL	45tot	26	3250		7180362
(K)314225	.08	7	125	875	WM Vista Apopka, FL	45tot	27	3240		7180362
(K)314226	.08	7	125	875	WM Vista Apopka, FL	45tot	28	3245		7180362
(K)314227	.08	7	125	875	WM Vista Apopka, FL	45tot	29	3240		7180362
(K)314228	.08	7	125	875	WM Vista Apopka, FL	45tot	30	3220		7180362
(K)314229	.08	7	125	875	WM Vista Apopka, FL	45tot	31	3215		7180362
(K)314230	.08	7	125	875	WM Vista Apopka, FL	45tot	32	3220	Stage	7180362
(K)314231	.08	7	125	875	WM Vista Apopka, FL	45tot	33	3215		7180362
(K)314232	.08	7	125	875	WM Vista Apopka, FL	45tot	34	3220		7180362
(K)314233	.08	7	125	875	WM Vista Apopka, FL	45tot	35	3230		7180362
(K)314234	.08	7	125	875	WM Vista Apopka, FL	45tot	36	3225		7180362
(K)314235	.08	7	125	875	WM Vista Apopka, FL	45tot	37	3210		7180362
(K)314236	.08	7	125	875	WM Vista Apopka, FL	45tot	38	3215		7180362
(K)314237	.08	7	125	875	WM Vista Apopka, FL	45tot	39	3215		7180362
(K)314338	.08	7	125	875	WM Vista Apopka, FL	45tot	40	3215		7180362
(K)314339	.08	7	125	875	WM Vista Apopka, FL	45tot	41	3210		7180362
(K)314340	.08	7	125	875	WM Vista Apopka, FL	45tot	42	3210		7180362
(K)314341	.08	7	125	875	WM Vista Apopka, FL	45tot	43	3215	Stage	7180362

WM Vista Apopka, FL 45tot

WM Vista Apopka, FL 45tot

44

45

3210

3210



ROLL# 313792-08	Lot #:	7180362	Liner Type:	MICROSPIK	E™ HDF	È
Measurement ASTM D5994 MIN: (Modified) MAX	1.45 mm		Thickness Length Width	1.5 mm 125 ^m 7.00 m;		et eet
Asperity GRI GM12: 33 mil AVE: ODD#: TOP EVEN#: BOTTOM	1.58 mm	62 mil	DIT(Standard) ASTM D389	5 minutes 181	TEST RESUL	
Specific Gravity ASTM D792	Density		g/cc		.947	
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Inde	ex 190°C /2160 g	g/10 min		.24	
Carbon Black Content ASTM D4218	Range		%		2.19	
Carbon Black Dispersion ASTM D5596	Category			10	in Cat. 1	200000000000000000000000000000000000000
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Stren	gth @ Yield	27 N/mm	157 ppi	2,516	psi
	Average Stren	igth @ Break	32 N/mm	181 ppi	2,915	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elong	gation @ Yield	%		20.14	
Lo = 2.0" Break	Average Elong	gation @ Break	%		458.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dime	nsional change	%	hyd Frysh Nys B. Filling hyddydgillau haf yly fyn d hyn hydigal rog bynnhly hynn	46	AV
Tear Resistance ASTM D-1004 (Modified)	Average Tear	Resistance	246.0 N		55.299	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified	Load)		500.2 N		112.46	lbs
Puncture Resistance ASTM D4833 (Modified)	Load		656.5 N		147.59	lbs
ESCR ASTM D1693	Minimum Hrs	w/o Failures	1500 hrs	С	ERTIFIED	
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30	0%	300 hrs	(ONGOING	

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

Quality Control Department

REV 03 12/23/05



Measurement ASTM D5994 MIN: 1.55 mm 61 mil Length. 125 mm 4 Width. 7.00 m; 2; (Modified) MAX: 1.85 mm 73 mil Width. 7.00 m; 2; Asperity GRI GM12: 38 mil ODD #: TOP EVEN #: BOTTOM AVE: 1.65 mm 65 mil OIT(Standard) ASTM D3895 minutes 181 Specific Gravity Density d/cc d/cc	60 mil 410.1 ^{fe}	P E eet
Measurement ASTM D5994 MIN: 1.55 mm 61 mil Length	410.1 fe	et
ASTM D5994 MIN: 1.55 mm 61 mil Length		et
Asperity GRI GM12: 38 mil AVE: 1.65 mm 65 mil ODD #: TOP EVEN #: BOTTOM OIT(Standard) ASTM D3895 minutes 181	23.0 f∈	
ODD #: TOP EVEN #: BOTTOM OIT(Standard) ASTM D3895 minutes 181 Specific Gravity Density		eet
DEDSIV ORG	TEST RESUL	
ASTM D792	.947	
MFI ASTM D1238 COND. E Melt Flow Index 190°C /2160 g g/10 min GRADE: K307	.24	
Carbon Black Content Range %	2.19	and first participation and the
Carbon Black Dispersion Category 10 in	n Cat. 1	
Tensile Strength ASTM D6693 Average Strength @ Yield 29 N/mm 163 ppi ASTM D638 (Modified) (2 inches / minute)	2,516	psi
Average Strength @ Break 33 N/mm 189 ppi	2,915	psi
Elongation ASTM D6693 ASTM D638 (Modified) Average Elongation @ Yield % (2 inches / minute) Lo = 1.3" Yield	20.14	
Lo = 2.0" Break Average Elongation @ Break %	458.4	
Dimensional Stability ASTM D1204 (Modified) Average Dimensional change %	46	
Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 246.0 N	55.299	lbs
Puncture Resistance Load FTMS 101 Method 2065 (Modified) 500.2 N	112.46	lbs
Puncture Resistance Load 656.5 N ASTM D4833 (Modified)	147.59	lbs
ESCR Minimum Hrs w/o Failures 1500 hrs CER	RTIFIED	****************
Notched Constant Tensile Load pass / fail @ 30% 300 hrs ONG	IGOING	P. C. S.

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

te:....

3-31-08

Signature.

Quality Control Department



ROLL#	314101-	-08	Lot	#:		 7180362	Liı	ner	Type: N	/IICRO	SPIK	Ϊ HC	PE
Measurement ASTM D5994 (Modified)		MIN: MAX:	METF 1.53 1.86	RIC mm mm	60	GLISH mil mil	Leng	gth		1.5 m 125 7.00	e m m m;	60 mil 410.1 23.0	feet feet
Asperity GRI GM1		AVE:	1.65	mm	65	mil	OIT(Standa	rd) A	STM D3895	minutes	181	TE: RESI	
Specific Grav ASTM D792	vity		Density				g/d	CC				.94	7
MFI ASTM D COND. E GRADE:	1238 K307		Melt Flov	w Inde	ex 19	00°C /2160 g	9 9,	/10	min			.24	4
Carbon Black ASTM D4218			Range				%					2.19	9
Carbon Black ASTM D5596		o d Additional consumers and the	Category	/							10	in Cat.	1
Tensile Stren ASTM D6693 ASTM D638 (2 inches / m	(Modified)		Average	Strer	ngth (@ Yield	:	29	N/mm	163 p	pji	2,516	5 psi
			Average	Strer	igth (@ Break	777777711111111111111111111111111111111	33	N/mm	189 p	pi	2,915	5 psi
Elongation A ASTM D638 (2 inches / m Lo = 1.3" Yiel	(Modified) inute)		Average	Elon	gatio	n @ Yield	%)				20.14	1
Lo = 2.0" Bre	ak		Average	Elon	gatio	n @ Break	%	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				458.4	ı
Dimensional ASTM D1204		na a sa	Average	Dime	nsio	nal change	9	6	PT 17 TO WOOD PROTESSAGE AS S S S S S S S S S S S S S S S S S S	awy, and distributed in the state of the sta	-	4(3
Tear Resistar ASTM D-100			Average	Tear	Resi	stance	24	6.0	N			55.299) lbs
Puncture Res	sistance ethod 2065 (Mo	dified)	Load		***************************************		50	0.2	N	ikin i johin (megi, padig bakarore	arren escriberar sun sur au	112.46	3 lbs
Puncture Res ASTM D4833			Load	·			65	6.5	N	e a de la Principa que a para de la grandada de la		147.59) lbs
ESCR ASTM D1693			Minimur	n Hrs	w/o	Failures	1500 h	rs	An Arbeitan ann ma gannar à beannann a	**************************************	CE	ERTIFIED)
Notched Cons ASTM D5397	stant Tensile Lo	ad	pass / fail	@ 3	0%		300 hrs	s			0	NGOING	;

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

. 3-31-0

Quality Control Department

60HDmic.FRM REV 03



ROLL# 314	102-08	Lo	t #:		 7180362	 L	ر ine	r Type: N	/ICRO	SPIK	E™ HC	PE
Measurement ASTM D5994 (Modified)	MIN:	METF 1.54	mm	61	SLISH mil	Thi Ler	ckne	ess	1.5 m 125 7.00		60 mil 410.1 23.0	
•	MAX: mil AVE:		mm mm		mil mil			ASTM D3895		181	TE:	ST
Specific Gravity ASTM D792	A STATE OF THE STA	Density				g	/cc		- 1873 1883 W		.947	
MFI ASTM D1238 COND. E GRADE:	K307	Melt Flov	v Inde	∋x 190)°C /2160 (g (g/10	min		PP - 00000 / 4 mm do vie - 400	.24	1
Carbon Black Conter ASTM D4218	nt	Range	***************************************			9	6	**************************************			2.19)
Carbon Black Dispers ASTM D5596	sion	Category	1					THE STATE OF A STATE OF A STATE IN STATE OF A STATE OF	A STATE OF S	10	in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified (2 inches / minute)	d)	Average	Stren	igth @) Yield		28	N/mm	158 բ	pji	2,516	; psi
(=)		Average	Stren	gth @) Break		32	N/mm	184 p	pi	2,915	psi
Elongation ASTM D6 ASTM D638 (Modified (2 inches / minute) Lo = 1.3" Yield		Average	Elonç	gation	@ Yield	9,	6				20.14	- Ca Marchine & March & Marchage
Lo = 2.0" Break		Average	Elong	ation	@ Break	%	ó	D-2 M & B & M & B & B & B & B & B & B & B &			458.4	
Dimensional Stability ASTM D1204 (Modifie	ed)	Average	Dime	nsiona	al change	(%				46	
Tear Resistance ASTM D-1004 (Modifi	ed)	Average	Tear I	Resist	tance	24	46.0	N		er e de gang d'ay ay germaga ma	55.299	lbs
Puncture Resistance FTMS 101 Method 20	65 (Modified)	Load			The state of the s	50	00.2	N	than it handly for representative on the	and the second second second second	112.46	···· · · · · · · · · · · · · · · · · ·
Puncture Resistance ASTM D4833 (Modifie	ed)	Load			h hadrand dan 10 dan 11 dan 12	65	56.5	N			147.59	lbs
ESCR ASTM D1693		Minimum	ı Hrs	w/o F	ailures	1500 h	nrs	Particularly and record to a serie of all has help any constraints.		CE	RTIFIED	man der in reede is his in his min
Notched Constant Ter ASTM D5397	nsile Load	pass / fail	@ 30	1%	and was park to the same of the best of the	300 hr	s		**************************************	OI	1GOING	
with a constitute handled brought to progress on the world to the behind white and control on a way on the con-		Alterial behavior of the course of the				51-71 - 1-7						

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL.

Date:

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Quality Control Department



ROLL#	314103	-08	Lo	t #:		 7180362		Line	r Type: I	VICRO	SPIK	Ϊ HE	PE
Measurement ASTM D5994 (Modified)		MIN: MAX:	METF 1.54 1.85	RIC mm mm	61	SLISH mil mil	Le	ength.	ess	1.5 125 7.00	mm m m;	60 mil 410.1 23.0	feet feet
Asperity GRI GM1: ODD #: TOP EVEN		AVE:	1.66	mm	65	mil	OIT(Stai	ndard) .	ASTM D3895	5 minute	s 181	TE RESI	
Specific Gravi ASTM D792	ity		Density				TO STOPP OF THE BASE SEA AND SEA OF SEASON OF	g/cc	TOTOLOGICA TO CONTRACT AND ASSESSMENT OF A STATE OF A S			.94	6
MFI ASTM D1 COND. E GRADE:	238 K307		Melt Flov	w Inde	ex 190	0°C /2160 <u>დ</u>)	g/10	min		**************************************	.24	4
Carbon Black ASTM D4218	Content		Range					%		The second secon	r Phone e enconservado	2.23	3
Carbon Black ASTM D5596	Dispersion		Category	/						**************************************	10	in Cat.	1
Tensile Strenç ASTM D6693 ASTM D638 (I (2 inches / mi	Modified)		Average	Stren	ıgth @) Yield		31	N/mm	177	ppi	2,703	3 psi
			Average	Stren	igth @) Break	·	30	N/mm	170	ppi	2,600	psi
Elongation AS ASTM D638 (I (2 inches / mi Lo = 1.3" Yield	Modified) nute)		Average	Elong	gation	@ Yield		%				16.2	l
Lo = 2.0" Brea	ık		Average	Elong	ation	@ Break	· · · · · · · · · · · · · · · · · · ·	%		~~~~		407.6	}
Dimensional S ASTM D1204	*		Average	Dime	nsion	al change		%				46	3
Tear Resistan ASTM D-1004			Average	Tear	Resis	tance		240.9	N	AND AND A VANO	THE RESERVE	54.164	lbs
Puncture Resi FTMS 101 Me	stance thod 2065 (Mo	dified)	Load			· · · · · · · · · · · · · · · · · · ·		456.0	N		hada antara da da antara a sa antara a cara a c	102.52	lbs
Puncture Resi ASTM D4833			Load	1 AND SEP \$ \(\) AND \$ \(\)	e er e hendhamariere amerikane		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	648.1	N			145.69) lbs
ESCR ASTM D1693			Minimun	n Hrs	w/o F	ailures	1500	hrs	the Partie of the parties of the control of the con		CE	RTIFIED)
Notched Cons ASTM D5397	tant Tensile Lo	ad p	oass / fail	@ 30)%	**************************************	300	hrs	***************************************	***************************************	0	NGOING	
		, p	oass / fail	@ 30)%		300	hrs			0	NGOING	

Customer: Waste Management, Inc. Of Florida

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ROLL#	<u>314104</u>	-08	Lo	t #:		7180362	L	_iner	r Type: ľ	VICR	OSPI	KE™ HI	OPE	:
Measurement ASTM D5994		MIN:		mm		_ISH mil	Le	ngth.	ess	1.5 125 7.00	mm m m;	60 mi 410.1 23.0	feet feet	
(Modified) Asperity GRI GM1	l2: 39 mil	MAX: AVE:	1.87 1.67	mm mm		mil mil						TE	ST	
DDD#:TOP EVEN					nna airlea a mannar cithe a na naonn		OIT(Stan	dard) A	ASTM D3895	5 minut	es 181	RES	ULTS	5
Specific Grav ASTM D792	rity		Density					g/cc				.94	6	
MFI ASTM D COND. E GRADE:	1238 K307		Melt Flo	w Inde	ex 190	°C /2160 g	I	g/10	min			.2	4	
Carbon Black ASTM D4218			Range				Annual Property and American	%	Ama hamada hama aqua ang aga ag y y y y y y			2.2	8	
Carbon Black ASTM D5596			Categor	У							1	0 in Cat.	1	
Tensile Stren ASTM D6693 ASTM D638 (2 inches / m	(Modified)		Average	Strer	ngth @	Yield		31	N/mm	178	8 ррі	2,70	3 p	osi
(2 1101100 / 11		milita finingana rassamon a	Average	Strer	ngth @	Break		30	N/mm	171	ppi	2,60	0 p	si
Elongation A ASTM D638 (2 inches / m Lo = 1.3" Yiel	(Modified) inute)		Äverage	Elon	gation	@ Yield		%				16.2	1	
Ło = 2.0° Bre		****	Average	Elon	gation	@ Break		%				407.	6	
Dimensional : ASTM D1204	•		Average	Dime	nsiona	l change		%				4	6	
Tear Resistar ASTM D-100			Average	Tear	Resist	ance		240.9	N	—— Trimity i ten depublica della es		54.16	4 lt	bs
Puncture Res	sistance ethod 2065 (Mo	odified)	Load		`	,,,,,	in the state of th	456.0) N	na amana barri 2 mani 2000 ang ang ang ang		102.5	2 lt	bs
Puncture Res ASTM D4833			Load			THE REAL PROPERTY OF THE PERSON OF THE PERSO		648.1	l N		44, 844, 44, 444, 444, 444, 444, 444, 4	145.6	9 lt	bs
ESCR ASTM D1693			Minimu	n Hrs	w/o F	ailures	1500	hrs		THE STATE OF THE S	С	ERTIFIE	D	e de grad her
Notched Con ASTM D5397	stant Tensile Lo	oad	pass / fai	1@3	0%		300	hrs	ATTENDED TO THE TOTAL PROPERTY AND ADDRESS.	***************************************		ONGOIN	3	

Customer: Waste Management, Inc. Of Florida

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Ouglity Control Departmen

Quality Control Department



Lot #:	7180362	Liner Type:	MICROSPIK	E™ HDF	Έ
METRIC : 1.48 mm		Thickness Length	1.5 mm 125 m 7.00 m;	60 mil 410.1 fe	
: 1.64 mm		DIT(Standard) ASTM D389	5 minutes 181	TES1 RESUL	
Density		g/cc		.946	
Melt Flow Ind	ex 190°C /2160 g	g/10 min		.24	
Range		%		2.28	nd in the property of the prop
Category			10	in Cat. 1	
Average Stre	ngth @ Yield	31 N/mm	174 ppi	2,703	psi
Average Stre	ngth @ Break	29 N/mm	168 ppi	2,600	psi
Average Elon	gation @ Yield	%		16.21	
Average Elon	gation @ Break	%		407.6	
Average Dime	ensional change	%		46	
Average Tear	Resistance	240.9 N		54.164	lbs
Load d)		456.0 N	THE THE PARTY OF T	102.52	lbs
Load		648.1 N	e de la companya de	145.69	lbs
Minimum Hrs	s w/o Failures	1500 hrs	CE	ERTIFIED	***************************************
pass / fail @ 3	0%	300 hrs	O	NGOING	
	METRIC 1.48 mm X: 1.83 mm E: 1.64 mm Density Melt Flow Ind Range Category Average Street Average Street Average Elon Average Elon Average Dime Average Dime Load Load Minimum Hrs	METRIC ENGLISH 1.48 mm 58 mil X: 1.83 mm 72 mil E: 1.64 mm 65 mil Density Melt Flow Index 190°C /2160 g Range Category Average Strength @ Yield Average Elongation @ Yield Average Elongation @ Break Average Dimensional change Average Tear Resistance Load	METRIC ENGLISH 1.48 mm 58 mil Length	METRIC ENGLISH Thickness	METRIC ENGLISH Thickness

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Quality Control Department

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ROLL# 3	<u> 14106-08</u>	Lot #:	7	180362	Liner	Type: N	MICROS	SPIK	E™ HE	PE
Measurement ASTM D5994	MIN:	METRIC 1.48 mi	ENGL	.ISH mil	Thickne Length		1.5 m 125	m m	60 mil 410.1	feet
(Modified)	MAX		n 70	mil	Width		7.00	m;	23.0	feet
Asperity GRI GM12: ODD#:TOP_EVEN#:B	39 mil AVE		m 64	mil	OIT(Standard) A	STM D3895	minutes	181	TE: RESU	
Specific Gravity ASTM D792		Density			g/cc				.946	3
MFI ASTM D123 COND. E GRADE:	8 K307	Melt Flow Ir	idex 190°	°C /2160 g	g/10	min			.24	1
Carbon Black Co ASTM D4218	ntent	Range	AND	Agrinalita Adaguyy yiyin agangkala ah ugungkala garigid	%	THE PERSON NAMED IN A PARTY OF THE PERSON NAMED IN	Angula de Propinsión de la companya	A AAAA T aff Aff ik A b. up b	2.28	3
Carbon Black Dis ASTM D5596	spersion	Category						10	in Cat. 1	1
Tensile Strength ASTM D6693 ASTM D638 (Mo (2 inches / minut		Average Str	ength @	Yield	30	N /mm	172 p	pji	2,703	3 psi
(2 1101.00 / 111.111		Average Str	ength @	Break	29	N/mm	166 p	pi	2,600) psi
Elongation ASTM ASTM D638 (Mo (2 inches / minut Lo = 1.3" Yield	dified)	Average Eld	ongation (@ Yield	%				16.21	1
Lo = 2.0" Break		Average Eld	ngation (@ Break	%				407.6	3
Dimensional Stat ASTM D1204 (M	•	Average Dir	nensiona	l change	%				46	3
Tear Resistance ASTM D-1004 (N	lodified)	Average Te	ar Resist	ance	240.9	N			54.164	lbs
Puncture Resista FTMS 101 Metho		Load		a magamanan na ya sana na	456.0	N	PARTITION STREET AND STREET STREET	***************************************	102.52	2 lbs
Puncture Resista ASTM D4833 (M		Load	TO STATE OF THE ST	arti Mikaladadd (g. 1 ffelyw haladagol (g. 1 ffelyw d g	648.1	N	Y AND DES AND	***************************************	145.69) lbs
ESCR ASTM D1693		Minimum H	irs w/o Fa	ailures	1500 hrs	and the second s		CI	ERTIFIED)
Notched Constar ASTM D5397	nt Tensile Load	pass / fail @	30%		300 hrs			C	NGOING	}
L. W. A. L		NATIONAL PROPERTY OF THE RESIDENCE OF TH								

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Quality Control Department

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		11				
ROLL# 314107-0	8 Lot #:	7180362	Liner Type:	E™ HD	PE	
/3.4 11.5 11.		ENGLISH n 59 mil	Thickness Length Width	1.5 mm 125 ^m 7.00 m;		feet feet
1817		n 65 mil	OIT(Standard) ASTM D389	15 minutes 181	TES RESU	
Specific Gravity ASTM D792	Density		g/cc		.946	
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Inc	dex 190°C /2160 ç	g g/10 min		.24	,
Carbon Black Content ASTM D4218	Range		%		2.28	**************************************
Carbon Black Dispersion ASTM D5596	Category			10	in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Stre	ength @ Yield	31 N/mm	174 ppi	2,703	psi
(2 mondo / minato)	Average Stre	ngth @ Break	29 N/mm	168 ppi	2,600	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elor	ngation @ Yield	%		16.21	
Lo = 2.0" Break	Average Elor	ngation @ Break	%		407.6	
Dimensional Stability ASTM D1204 (Modified)	Average Dim	ensional change	%	The second department of the second s	46	
Tear Resistance ASTM D-1004 (Modified)	Average Tea	r Resistance	240.9 N		54.164	lbs
Puncture Resistance FTMS 101 Method 2065 (Modifi	Load ied)		456.0 N	and the second s	102.52	lbs
Puncture Resistance ASTM D4833 (Modified)	Load		648.1 N	TO THE POINT OF STORM THE BANK YOU IS THE SHEET SHEET, A SHEET SHEET	145.69	lbs
ESCR ASTM D1693	Minimum Hr	s w/o Failures	1500 hrs	CE	RTIFIED	
Notched Constant Tensile Load ASTM D5397	pass / fail @ 3	30%	300 hrs	O	NGOING	

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Lot #:	7180362	Liner Type:	E™ HDF	PE	
		Thickness Length Width	1.5 mm 125 ^m 7.00 ^m ;		eet eet
: 1.63 mm	64 mil	OIT(Standard) ASTM D389	95 minutes 181	TES RESUL	
Density		g/cc		.946	
Melt Flow Inde	ex 190ºC /2160 g	g/10 min		.24	
Range		%	MOST CAMBRIAGES STORES AND AND AND ASSESSMENT OF THE STORES AND AND AND ASSESSMENT OF THE STORES AND AS	2.31	
Category			10	in Cat. 1	
Average Strer	ngth @ Yield	29 N/mm	167 ppi	2,599	psi
Average Strer	ngth @ Break	31 N/mm	179 ppi	2,787	psi
Average Elone	gation @ Yield	%		19.06	·
Average Elon	gation @ Break	%		441.4	
Average Dime	ensional change	%		46	
Average Tear	Resistance	237.3 N		53.358	lbs
Load d)		457.1 N		102.77	lbs
Load		648.0 N	CONTRACTOR	145.67	lbs
Minimum Hrs	w/o Failures	1500 hrs	CI	ERTIFIED	APPR 71 DOI: 10.511 DA
pass / fail @ 3	0%	300 hrs	C	NGOING	
	METRIC 1.54 mm 1.77 mm 1.63 mm Density Melt Flow Ind Range Category Average Street Average Street Average Elon Average Elon Average Dime Average Tear Load Load Minimum Hrs	METRIC ENGLISH 1.54 mm 61 mil 1.77 mm 70 mil 1.63 mm 64 mil Density Melt Flow Index 190°C /2160 g Range Category Average Strength @ Yield Average Elongation @ Yield Average Elongation @ Break Average Dimensional change Average Tear Resistance Load Load	METRIC ENGLISH Thickness	METRIC ENGLISH Thickness	METRIC ENGLISH Thickness

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

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ROLL# 314109-08	Lot #:	7180362	Liner Type: MICROSPIKE™ HDPE					
Measurement ASTM D5994 MIN (Modified) MAX	1.59 mm 63	GLISH mil mil	Thickness Length Width	. 125 ^m		eet feet		
Asperity GRI GM12: 29 mil AVE	: 1.71 mm 67	mil	OIT(Standard) ASTM D38	895 minutes 181	TES RESUI			
Specific Gravity ASTM D792	Density		g/cc		.946			
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 1	90°C /2160 g	g/10 min		.24	Andrew Agency Constant		
Carbon Black Content ASTM D4218	Range	MARIANE SANCES DE S	%		2.31			
Carbon Black Dispersion ASTM D5596	Category			10	in Cat. 1			
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength	@ Yield	31 N/mm	175 ppi	2,599	psi		
Victoria de la constanta de la	Average Strength	@ Break	33 N /mm	188 ppi	2,787	psi		
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongatio	n @ Yield	%		19.06			
Lo = 2.0" Break	Average Elongatio	n @ Break	%	PROTECT TO LESS 11 LOS SAN TRANSICIONA (Algorithm & Colombia) of the Colombia (Colombia) of the Colomb	441.4			
Dimensional Stability ASTM D1204 (Modified)	Average Dimensio	nal change	%		46			
Tear Resistance ASTM D-1004 (Modified)	Average Tear Res	istance	237.3 N		53.358	lbs		
Puncture Resistance FTMS 101 Method 2065 (Modified	Load d)		457.1 N		102.77	lbs		
Puncture Resistance ASTM D4833 (Modified)	Load	nton none and an annual state of the state o	648.0 N	And the second problems are a second as a second a	145.67	lbs		
ESCR ASTM D1693	Minimum Hrs w/o	Failures	1500 hrs	CE	RTIFIED			
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%		300 hrs	C	NGOING	THE PERSON AND THE PERSON AND AND ADDRESS.		

Customer: Waste Management, Inc. Of Florida

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Quality Control Department



ROLL#	ROLL# 314110-08				Lot #: 7180			r Type: N	MICROSPIKE™ HDPE			
Measurement		MIN:	METF 1.46	RIC mm		LISH mil		ess	1.5 125	mm m	60 mil 410.1	feet
(Modified)		MAX:	1.84	mm	72	mil	Width		7.00	m;	23.0	feet
Asperity GRI GM ODD#:TOP_EVE		AVE:	1.60	mm	63	mil	OIT(Standard)	ASTM D3895	minute	s 181	TE RESU	
Specific Gra ASTM D792	•		Density				g/cc				.94	6
MFI ASTM D COND. E GRADE:)1238 . K307		Melt Flor	w Inde	ex 190	0°C /2160	g g/10) min			.24	4
Carbon Blac ASTM D421		An yanaka kalanda yaka ya aku saga bayah	Range				%	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	The antenned also All and Specific March Shirt S	Angele Stand of Marie Sale Spanning States in con-	2.3	1
Carbon Blac ASTM D559			Categor	у						10) in Cat.	1
Tensile Strei ASTM D669 ASTM D638 (2 inches / r	3 (Modified)		Average	Strer	ngth @) Yield	29	N/mm	164	1 ppi	2,599	9 psi
\			Average	Strer	ngth @) Break	31	N/mm	176	ppi	2,78	7 psi
Elongation / ASTM D638 (2 inches / r Lo = 1.3" Yie	ninute)		Average	Elon	gation	ı @ Yield	%				19.0	6
Lo = 2.0" Bre			Average	Elon	gation	@ Break	%				441.	4
Dimensional ASTM D120			Average	Dime	ension	al change	%		11 Marchanouse 1888 198		4	6
Tear Resista ASTM D-100			Average	Tear	Resis	stance	237.3	3 N			53.35	B Ibs
Puncture Re FTMS 101 M	sistance lethod 2065 (Mo	odified)	Load			от в подравнительня в почения	457.	1 N		***************************************	102.7	7 lbs
Puncture Re ASTM D483			Load			the state of the s	648.0	0 N	ernerium mumerer venne		145.6	7 lbs
ESCR ASTM D169	3		Minimu	m Hrs	w/o F	≃ailures	1500 hrs			С	ERTIFIEI)
Notched Cor ASTM D539	nstant Tensile L 7	oad	pass / fai	1@3	0%		300 hrs			(ONGOING	3
Puncture Re ASTM D483 ESCR ASTM D169 Notched Cor	sistance 3 (Modified) 3 nstant Tensile L	and	Load Minimu			≂ailures	648.0 1500 hrs			ARE	ERTIFIEI)

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Quality Control Department

REV 03 12/23/05



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8 Lot#:	7180362	Liner 7	Гуре: MICRO	SPIKETM H	IDPE
METRIC	ENGLISH	Thickness	1.5 n	nm 60 m	iil
		Length	125	m 410.1	feet
X: 1.83 mm	72 mil	Width	7.00	^{m;} 23.0	feet
Æ: 1.60 mm	63 mil	OIT(Standard) AS	TM D3895 minutes		EST SULTS
Density		g/cc		.9	46
Melt Flow Ind	lex 190°C /2160 (g g/10 m	in	•	24
Range		%		2.	31
Category				10 in Cat	. 1
Average Stre	ngth @ Yield	29 N	i/mm 164	ppi 2,5	99 psi
Average Stre	ngth @ Break	31 N	/mm 176	ppi 2,7	87 psi
Average Elon	gation @ Yield	%		19.	06
Average Elon	gation @ Break	%		441	.4
Average Dime	ensional change	%	TALL DOMESTIC CONTROL OF THE PARTY OF THE PA	-,	46
Average Tear	Resistance	237.3	N	53.3	58 lbs
Load ed)		457.1	N	102.	77 lbs
Load		648.0	N	145.	67 lbs
Minimum Hrs	s w/o Failures	1500 hrs		CERTIFIE	ED
r	***************************************	THE OWNER OF THE PERSON NAMED IN THE PERSON NA			
	METRIC N: 1.44 mm AX: 1.83 mm /E: 1.60 mm Density Melt Flow Ind Range Category Average Stre Average Elon Average Elon Average Dime Average Tear Load Load	METRIC ENGLISH N: 1.44 mm 57 mil AX: 1.83 mm 72 mil AX: 1.60 mm 63 mil Density Melt Flow Index 190°C /2160 g Range Category Average Strength @ Yield Average Elongation @ Yield Average Elongation @ Break Average Dimensional change Average Tear Resistance Load ed)	METRIC ENGLISH Thickness Length N: 1.44 mm 57 mil Length AX: 1.83 mm 72 mil AX: 1.60 mm 63 mil Density g/cc Melt Flow Index 190°C /2160 g g/10 m Range % Category Average Strength @ Yield 29 N Average Elongation @ Yield % Average Elongation @ Break 31 N Average Elongation @ Break % Average Dimensional change % Average Tear Resistance 237.3 ed) Load 457.1 Load 648.0	METRIC	METRIC

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

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Quality Control Department



ROLL # 314112-08	Lot #:	7180362	Liner Type:	MICROSPIK	E™ HDP	E
Measurement ASTM D5994 MIN: (Modified) MAX	METRIC 1.52 mm 1.86 mm		Thickness Length Width	1.5 mm 125 ^m 7.00 m;	60 mil 410.1 fe 23.0 fe	et et
Asperity GRI GM12: 35 mil AVE: ODD #: TOP EVEN #: BOTTOM	1.66 mm	65 mil	DIT(Standard) ASTM D389	5 minutes 181	TEST RESUL	
Specific Gravity ASTM D792	Density		g/cc		.946	
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Ind	ex 190°C /2160 g	g/10 min		.24	
Carbon Black Content ASTM D4218	Range		%	ANTONIO CONTRACTOR ANTONIO ENGLISH STATES ANTONIO ENGLISH STATES ANTONIO ENGLISH STATES ANTONIO ENGLISH STATES	2.31	
Carbon Black Dispersion ASTM D5596	Category			10	in Cat. 1	ha, p-a-ha,a-h
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Stre	ngth @ Yield	30 N/mm	170 ppi	2,599	psi
(2 mones / minute)	Average Stre	ngth @ Break	32 N/mm	182 ppi	2,787	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elon	gation @ Yield	%		19.06	
Lo = 2.0" Break	Average Elon	gation @ Break	%		441.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dime	ensional change	%		46	
Tear Resistance ASTM D-1004 (Modified)	Average Tear	Resistance	237.3 N		53.358	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified	Load l)		457.1 N		102.77	lbs
Puncture Resistance ASTM D4833 (Modified)	Load		648.0 N		145.67	lbs
ESCR ASTM D1693	Minimum Hrs	s w/o Failures	1500 hrs	С	ERTIFIED	
Notched Constant Tensile Load ASTM D5397	pass / fail @ 3	30%	300 hrs	(ONGOING	

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

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Quality Control Department



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ROLL#	<u> 314113-(</u>	08	Lo	l #:		7180362	Lii	nei	r Type: N	MICRO	SPIK	ETM HE	PE
Measuremen ASTM D5994 (Modified)	ı N	/IIN:	METF 1.60	mm	63	BLISH mil	Leng	gth.	ess	1.5 m 125 7.00	n m m m;	60 mil 410.1 23.0	feet feet
Asperity GRI GM	112: 33 mil A	MAX: NVE:	1.75 1.66	mm mm		mil mil			ASTM D3895	i minutes	181	TE:	ST
Specific Gra ASTM D792	•	1	Density				g/o	cc	TTY AN THE STREET AND ARTHUR AND AN HEALth against parties to support Alagon			.94	7
MFI ASTM E COND. E GRADE:	O1238 K307	1	Melt Flov	w Inde	ex 190	0°C /2160 (g g	/10	min	The first department of the property	·····	.24	4
Carbon Blac ASTM D421			Range			- Mary Marine School and Associate School and Associate School and Associate School	%	1	The state of the s	af 8/ hd 6 hasha a sphif symmy may yapayy gam	A	2.30	0
Carbon Blac ASTM D559	k Dispersion 6	(Category	/							10	în Cat. ⁻	1
Tensile Stres ASTM D669 ASTM D638 (2 inches / r	3 (Modified)	,	Average	Stren	gth @) Yield	:	28	N /mm	160 բ	ppi	2,452	2 psi
		/	Average	Stren	gth @) Break		34	N/mm	19 1 p	pi	2,930) psi
Elongation / ASTM D638 (2 inches / r Lo = 1.3" Yie	ninute)	Å	Average	Elong	ation	@ Yield	%)				20.36	6
Lo = 2.0" Bre	eak	/	Average	Elong	ation	@ Break	%					483.1	l
Dimensional ASTM D120	•	ŀ	Average	Dime	nsion	al change	9/	6				46	6
Tear Resista ASTM D-100			Average	Tear	Resis	tance	22	8.7	N			51.406	3 lbs
Puncture Re FTMS 101 M	sistance lethod 2065 (Modi	ified)	Load				44	7.7	N	and an annual property of the second		100.65	5 lbs
Puncture Re ASTM D483			Load		Word V F F F F F F F F F F F F F F F F F F	n d'Addd d amhfaith a far gallan nag g v ann gann a gael	60	3.4	N		allicina de Normano en el gran de Serger	135.64	; lbs
ESCR ASTM D1693	3		Minimun	n Hrs	w/o F	ailures	1500 h	rs			CE	RTIFIEC)
Notched Cor ASTM D5397	nstant Tensile Load 7	d p	ass / fail	@ 30)%		300 hrs	3	t S. Safe B. S. Eddinos I admin a symposy py year		0	NGOING	}
	contract and contract and a substitution						********************************		***************************************				

Customer: Waste Management, Inc. Of Florida

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Quality Control Department

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Measurement	ROLL#	ROLL# 314114-08		Lot #: 7180362				2 Liner Type: MICROSPIKE™ HDPE						PE
ODD #: TOP EVEN #: BOTTOM	ASTM D5994			1.51	mm	59	mil	Le	ength.	•••••	125	m	410.1	
ASTM D792 MFI ASTM D1238 COND. E GRADE: K307 Carbon Black Content ASTM D4218 Range			AVE:	1.63	mm	64	mil	OIT(Star	ndard) .	ASTM D3895	i minute:	s 181		
COND. E GRADE: Melt Flow Index 190°C /2160 g GRADE: g/10 min .24 Carbon Black Content ASTM D4218 Range % 2.30 Carbon Black Dispersion ASTM D5596 Category 10 in Cat. 1 Tensile Strength ASTM D6596 Average Strength @ Yield 28 N/mm 157 ppi 2,452 psi ASTM D638 (Modified) (2 inches / minute) Average Strength @ Break 33 N/mm 188 ppi 2,930 psi Elongation ASTM D6893 ASTM D638 (Modified) (2 inches / minute) Average Elongation @ Yield % 20.36 20.36 Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break % 483.1 483.1 Dimensional Stability ASTM D1204 (Modified) Average Elongation @ Break % 483.1 483.1 Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 228.7 N 51.406 lbs Puncture Resistance ASTM D4833 (Modified) Load 447.7 N 100.65 lbs ESCR ASTM D1693 Minimum Hrs w/o Failures 1500 hrs CERTIFIED Notched Constant Tensile Load Pass / fail @ 30% 300 hrs ONCOING				Density		AA Cambo bij Andrikas my k y			g/cc	The total state of the state of			.947	
ASTM D4218 Carbon Black Dispersion ASTM D5596 Category Tensile Strength ASTM D6693 ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Average Strength @ Break Average Strength @ Break Average Elongation @ Yield Category Average Strength @ Break Average Strength @ Break Average Elongation @ Yield Category Average Elongation @ Yield Category Average Elongation @ Break Average Elongation @ Stability Average Elongation @ Stabilit	COND. E			Melt Flov	v Inde	∋x 190)°C /2160 g	9	g/10	min		***************************************	.24	
ASTM D5596 Tensile Strength ASTM D6693 ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Average Strength @ Break Average Strength @ Break Average Strength @ Break Astm D638 (Modified) (2 inches / minute) Average Elongation @ Yield Variable Elongation ASTM D6693 ASTM D638 (Modified) Average Elongation @ Yield Variable Elongation & Warrage Elongation				Range		***************************************	To the second se		%		d dichina kumundafand kana yaya na kumun		2.30	
ASTM D6693				Category	/					***		10	in Cat. 1	***************************************
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break AsTM D1204 (Modified) Average Dimensional change ASTM D1204 (Modified) Average Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance FTMS 101 Method 2065 (Modified) Load Average Tear Resistance ASTM D4833 (Modified) Average Tear Resistance ASTM D4833 (Modified) Load Average Tear Resistance ASTM D4833 (Modified) Average Tear Resistance ASTM D4833 (Modified) Load Average Tear Resistance ASTM D4833 (Modified) Average Elongation @ Yield Average Elongation @ Yield Average Tear Resistance ASTM D4833 (Modified) Average Elongation @ Yield Average Elongation @ Yield Average Tear Resistance ASTM D4833 (Modified) Average Elongation @ Yield Average Tear Resistance ASTM D4833 (Modified) Average Tear Res	ASTM D669 ASTM D638	3 (Modified)		Average	Strer	ngth @) Yield		28	N/mm	157	ppi	2,452	psi
ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break Average Elongation @ Break Dimensional Stability ASTM D1204 (Modified) Average Dimensional change ASTM D-1004 (Modified) Average Tear Resistance ASTM D-1004 (Modified) Puncture Resistance FTMS 101 Method 2065 (Modified) Load Average Tear Resistance ASTM D4833 (Modified) Average Tear Resistance ASTM D4833 (Modified) Load Average Tear Resistance ASTM D4833 (Modified)	\		***************************************	Average	Stren	igth @) Break		33	N/mm	188	ppi	2,930	psi
Lo = 2.0" Break Average Elongation @ Break % 483.1 Dimensional Stability ASTM D1204 (Modified) Average Dimensional change % 46 Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 228.7 N N 51.406 lbs Puncture Resistance FTMS 101 Method 2065 (Modified) Load 447.7 N 100.65 lbs Puncture Resistance ASTM D4833 (Modified) Load 603.4 N N 135.64 lbs ESCR ASTM D1693 Minimum Hrs w/o Failures 1500 hrs CERTIFIED Notched Constant Tensile Load pass / fail @ 30% 300 hrs ONCOING	ASTM D638 (2 inches / n	(Modified) ninute)		Average	Elonç	gation	@ Yield		%				20.36	
ASTM D1204 (Modified) Average Dimensional change %46 Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 228.7 N 51.406 lbs Puncture Resistance FTMS 101 Method 2065 (Modified) Load 447.7 N 100.65 lbs Puncture Resistance ASTM D4833 (Modified) Load 603.4 N 135.64 lbs ESCR ASTM D1693 Minimum Hrs w/o Failures 1500 hrs CERTIFIED Notched Constant Tensile Load pass / fail @ 30% 300 hrs			****	Average	Elong	gation	@ Break		%				483.1	
ASTM D-1004 (Modified) Average Tear Resistance Puncture Resistance FTMS 101 Method 2065 (Modified) Puncture Resistance ASTM D4833 (Modified) Load Load 603.4 N 135.64 lbs ESCR ASTM D1693 Minimum Hrs w/o Failures Notched Constant Tensile Load pass / fail @ 30% 300 brs				Average	Dime	nsion	al change		%				46	
FTMS 101 Method 2065 (Modified) Puncture Resistance ASTM D4833 (Modified) ESCR ASTM D1693 Minimum Hrs w/o Failures Notched Constant Tensile Load pass / fail @ 30% A447.7 N 100.65 lbs 603.4 N 135.64 lbs CERTIFIED				Average	Tear	Resis	tance		228.7	' N			51.406	lbs
ASTM D4833 (Modified) ESCR ASTM D1693 Minimum Hrs w/o Failures ASTM D1693 Notched Constant Tensile Load pass / fail @ 30% 300 hrs			odified)	Load					447.7	N			100.65	lbs
ASTM D1693 Notched Constant Tensile Load pass / fail @ 30% 300 brs				Load				and the second second is a second in the	603.4	N		, waaray 1 to 1 to 14, 4, 44, 6, 14, 6, 14, 6	135.64	lbs
Dass / Tail (0) 30% 300 prs ONGOING		3		Minimur	n Hrs	w/o F	ailures	1500	hrs			CE	RTIFIED	***************************************
The state of the s			oad	pass / fail	@ 30	0%		300	hrs	to di Marie angle con Marie en que y a gappareze a pa		0	NGOING	

Customer: Waste Management, Inc. Of Florida

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Destination Apopka, FL

ate:.....



15-08										
10-00	Lot #: 7180			7180362	Line	r Type: N	MICROSPIKE™ HDPE			
MIN: MAX:	METR 1.46 1.88	mm	57	mil	Length		1.5 m 125 7.00	nm m m;	60 mil 410.1 23.0	feet feet
AVE:	1.63	mm	64	mil	OIT(Standard)	ASTM D3895	minutes	181		
	Density				g/cc	T. Ter prime a van vannen a ar kullen selektionen bestellen bestelle bestellen bestellen bestelle bestel	Philippine Street Control of the Con	F1474V.#11.A U.L.	.947	7
07	Melt Flov	v Inde	ex 190	D°C /2160 (g g/10	min			.24	ļ.
	Range		***************************************		%	**************************************	**************************************		2.30)
	Category			Makalah dan di Kapung Bulu kilah dan binggir genggera	The state of the s			10	in Cat. 1	AAT BA \ Millers hampyyyy a
,	Average	Stren	gth @) Yield	28	N/mm	157 p	pi	2,452	psi
	Average	Stren	gth @) Break	33	N/mm	188 p	pi	2,930	psi
} <i>}</i>	Average l	Elong	ation	@ Yield	%				20.36	
	Average I	Elong	ation	@ Break	%				483.1	
P	Average I	Dimer	ารion	al change	%			*****	46	
Д	\verage ~	Fear F	Resist	tance	228.7	N		***************************************	51.406	lbs
(Modified)	Load				447.7	N	till haf file tillgliche friedriche file file file file file file file fil	***************************************	100.65	lbs
	Load			M AMIN'NY INDIANA MPININA AMIN'NY PROPERTY NA TAONA MPININA NA TAONA MPININA AMIN'NY TAONA MPININA AMIN'NY TAONA	603.4	N		************	135.64	lbs
	Minimum	Hrs	w/o F	ailures	1500 hrs			CE	RTIFIED	
	MAX: AVE:	MIN: 1.46 MAX: 1.88 AVE: 1.63 Density Melt Flov Tor Range Category Average Average Average I Average I Average I Load Load	MAX: 1.88 mm AVE: 1.63 mm Density Melt Flow Inde O7 Range Category Average Stren Average Elong Average Elong Average Dimer Average Tear for Modified) Load Load	MIN: 1.46 mm 57 MAX: 1.88 mm 74 AVE: 1.63 mm 64 Density Melt Flow Index 190 Average Strength @ Average Strength @ Average Elongation Average Elongation Average Dimensiona Average Tear Resis (Modified) Load	MIN: 1.46 mm 57 mil MAX: 1.88 mm 74 mil AVE: 1.63 mm 64 mil Density Melt Flow Index 190°C /2160 g Tor Range Category Average Strength @ Yield Average Elongation @ Yield Average Elongation @ Break Average Dimensional change Average Tear Resistance (Modified)	MIN: 1.46 mm 57 mil Length MAX: 1.88 mm 74 mil Width. AVE: 1.63 mm 64 mil OIT(Standard) Density g/cc Melt Flow Index 190°C /2160 g g/10 Range % Category Average Strength @ Yield 28 Average Strength @ Break 33 Average Elongation @ Yield % Average Elongation @ Break % Average Dimensional change % Average Tear Resistance 228.7 (Modified) Load 447.7 Load 603.4	MIN: 1.46 mm 57 mil Length	MIN: 1.46 mm 57 mil Length	MIN: 1.46 mm 57 mil Length	MIN: 1.46 mm 57 mil Length

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

Date:....

4-3-08

Signature.....

Quality Control Department



ROLL# 314116-0)8 Lot #:	7180362	Liner Type:	MICROSPIK	E™ HDF	PΕ
Measurement ASTM D5994 N	METRIC NN: 1.47 mm	ENGLISH 58 mil 72 mil	Thickness Length Width	1.5 mm 125 ^m 7.00 m;	60 mil	et eet
		ı 64 mil	OIT(Standard) ASTM D389	5 minutes 181	TES [*] RESUL	
Specific Gravity ASTM D792	Density		g/cc		.947	
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Inc	lex 190°C /2160 g	g/10 min		.24	
Carbon Black Content ASTM D4218	Range		%		2.30	PROPERTY AND ADDRESS OF THE PARTY AND ADDRESS
Carbon Black Dispersion ASTM D5596	Category			10	in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Stre	ngth @ Yield	28 N/mm	157 ppi	2,452	psi
(E monoco / minuto)	Average Stre	ngth @ Break	33 N/mm	188 ppi	2,930	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elor	ngation @ Yield	%		20.36	
Lo = 2.0" Break	Average Elor	ngation @ Break	%		483.1	
Dimensional Stability ASTM D1204 (Modified)	Average Dim	ensional change	%		46	
Tear Resistance ASTM D-1004 (Modified)	Average Tea	r Resistance	228.7 N		51.406	lbs
Puncture Resistance FTMS 101 Method 2065 (Modi	Load ified)		447.7 N	THE PERSON NAMED AND ADDRESS OF THE PERSON O	100.65	ibs
Puncture Resistance ASTM D4833 (Modified)	Load		603.4 N	in an in high and a gold a way to find the development arrows a second a second as a secon	135.64	lbs
ESCR ASTM D1693	Minimum Hr	s w/o Failures	1500 hrs	CE	RTIFIED	
Notched Constant Tensile Load ASTM D5397	d pass / fail @ 3	30%	300 hrs	O	NGOING	

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

to:



ROLL# 314117-08	} Lot #:	7180362	2 Liner Type: MICROSPIKE™ HDPI					
Measurement ASTM D5994 (Modified) MAX			Thickness Length Width	1.5 mm 125 ^m 7.00 m;		eet eet		
Asperity GRI GM12: 32 mil AVE	E: 1.64 mm	65 mil	OIT(Standard) ASTM D389	5 minutes 181	TES' RESUL			
Specific Gravity ASTM D792	Density		g/cc		.947	TTTT 14. TT TVVVA RETAIL VA		
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Inde	ex 190°C /2160 g	g/10 min		.24	NEW 11-5112 A&A		
Carbon Black Content ASTM D4218	Range		%		2.30			
Carbon Black Dispersion ASTM D5596	Category		To the second	10	in Cat. 1	PRESENTATION AND THE PROPERTY OF THE PROPERTY		
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Stren	igth @ Yield	28 N/mm	158 ppi	2,452	psi		
(=)	Average Stren	gth @ Break	33 N/mm	189 ppi	2,930	psi		
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elong	gation @ Yield	%	·	20.36			
Lo = 2.0" Break	Average Elong	jation @ Break	%		483.1			
Dimensional Stability ASTM D1204 (Modified)	Average Dime	nsional change	%		46			
Tear Resistance ASTM D-1004 (Modified)	Average Tear	Resistance	228.7 N		51.406	lbs		
Puncture Resistance FTMS 101 Method 2065 (Modifie	Load d)		447.7 N		100.65	lbs		
Puncture Resistance ASTM D4833 (Modified)	Load		603.4 N	NOW THE STAND AND AND AND AND AND AND AND AND AND	135.64	lbs		
ESCR ASTM D1693	Minimum Hrs	w/o Failures	1500 hrs	CE	RTIFIED			
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30)%	300 hrs	0	NGOING	**************************************		

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

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4-3-08

Quality Control Department



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ROLL#	ROLL # 314118-08				······································	7180362	Lin	er Type: i				
Measurement			METF			SLISH		ness	1.5		60 mil	
ASTM D5994		MIN:	1.51	mm	59	mil		h	125 7.00	m m;	410.1	feet
(Modified)	V	۸AX:	1.80	mm	71	mil	VViatr		7.00	****,	23.0	feet
Asperity GRI GM ODD#: TOP EVE		NE:	1.63	mm	64	mil	OiT(Standard	i) ASTM D3895	5 minute	es 181	TE: RESU	
Specific Grav ASTM D792	vity		Density				g/c	C			.94	6
MFI ASTM D COND. E GRADE:)1238 K307		Melt Flov	w Inde	ex 19	0°C /2160	g g/°	I0 min	**************************************		.24	4
Carbon Black ASTM D4218			Range				%				2.2	7
Carbon Black ASTM D5596			Category	/						10	in Cat.	1
Tensile Strer ASTM D6693 ASTM D638 (2 inches / n	3 (Modified)		Average	Strer	ngth (@ Yield	2	9 N/mm	167	7 ppi	2,606	5 psi
(2 11.01.001)			Average	Strer	igth (@ Break	2	8 N/mm	162	ppi	2,527	7 psi
Elongation A ASTM D638 (2 inches / m Lo = 1.3" Yie	(Modified) ninute)		Average	Elong	gation	n @ Yield	%				17.37	7
Lo = 2.0" Bre			Average	Elong	gation	n @ Break	%				394.7	7
Dimensional ASTM D1204	•		Average	Dime	nsior	nal change	%		de afficient hall have men subset a someone	VI-PPILI SOCIALISTIA (A	40	3
Tear Resista ASTM D-100			Average	Tear	Resi	stance	237	'.0 N			53.272	lbs
Puncture Res	sistance lethod 2065 (Mod	lified)	Load				419		a Mariangiri ya Ay unidayi dayin diyaya.		94.339	
Puncture Res ASTM D4833		***************************************	Load				564	l.9 N			127.00) lbs
ESCR ASTM D1693	3		Minimur	n Hrs	w/o	Failures	1500 hr	s		CI	ERTIFIED)
Notched Con ASTM D5397	nstant Tensile Loa 7	ad	pass / fail	@ 30	0%		300 hrs			C	NGOING	3
									**********		***************************************	

Customer: Waste Management, Inc. Of Florida

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Destination Apopka, FL

Date:....

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ROLL# 314219-08	3 Lot #:	7180362	Liner Type:	MICROSPIK	Ϊ HDF	Ε
Measurement ASTM D5994 (Modified) MA			Thickness Length Width	1.5 mm 125 ^m 7.00 m;		eet eet
Asperity GRI GM12: 34 mil AV		64 mil	OIT(Standard) ASTM D389	5 minutes 181	TES' RESUL	
Specific Gravity ASTM D792	Density		g/cc		.946	
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Ind	ex 190°C /2160 g	g/10 min		.24	
Carbon Black Content ASTM D4218	Range		%		2.27	***************************************
Carbon Black Dispersion ASTM D5596	Category			10) in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Stren	ngth @ Yield	29 N/mm	166 ppi	2,606	psi
(2 mones / minute)	Average Stre	ngth @ Break	28 N/mm	161 ppi	2,527	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elon	gation @ Yield	%		17.37	
Lo = 2.0" Break	Average Elon	gation @ Break	%		394.7	
Dimensional Stability ASTM D1204 (Modified)	Average Dime	ensional change	%		46	
Tear Resistance ASTM D-1004 (Modified)	Average Tear	Resistance	237.0 N		53.272	lbs
Puncture Resistance FTMS 101 Method 2065 (Modific	Load ed)		419.6 N		94.339	lbs
Puncture Resistance ASTM D4833 (Modified)	Load		564.9 N		127.00	lbs
ESCR ASTM D1693	Minimum Hrs	s w/o Failures	1500 hrs	С	ERTIFIED	
Notched Constant Tensile Load ASTM D5397	pass / fail @ 3	0%	300 hrs	(ONGOING	. առածա արծ տահագոլով որ հայրոպայալ

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

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ROLL#	<u>314220</u> .	-08	Lo	t #:		7180362	Line	r Type: N	MICRO	SPIK	Ϊ HI	DPE	Ξ
Measurement			METF	RIC	ENG	SLISH	Thickne	ess	1.5 n	nm	60 mi	l	
ASTM D5994		MIN:		mm		mil			125	m	410.1	feet	
(Modified)		MAX:	1.84	mm	72	mil	Width		7.00	m;	23.0	feet	
Asperity GRI GM12 ODD#: TOP EVEN		AVE:	1.64	mm	65	mil	OIT(Standard) /	ASTM D3895	i minutes	181	TE RES	ST ULT	S
Specific Gravit ASTM D792	у		Density				g/cc	Adria S. A. A. S. S. Comment orange y a plan comments assess we		and the second section of the second	.94	6	
MFI ASTM D12 COND. E GRADE:	238 K307		Melt Flov	w Inde	ex 19	0°C /2160 g	g/10	min		me domini sensonan sela	.2	4	
Carbon Black (ASTM D4218	Content		Range				%	alata and America de A America de America de	de se escripto reculencembro e a seda secen		2.2	7	
Carbon Black I ASTM D5596	Dispersion	likim a fi meljenji mjegljan ljer ji me	Category	/	A hardink has dillaray suppress			1911		10	in Cat.	1	
Tensile Streng ASTM D6693 ASTM D638 (N (2 inches / mir	Modified)		Average	Strer	ıgth () Yield	29	N/mm	168 į	opi	2,60	6 p	osi
(=			Average	Stren	igth @) Break	29	N/mm	163	рі	2,52	7 p	osi
Elongation AS ASTM D638 (N (2 inches / mir Lo = 1.3" Yield	flodified)		Average	Elong	gation	@ Yield	%				17.3	7	
Lo = 2.0" Break	(Average	Elong	gation	@ Break	%				394.	7	
Dimensional St ASTM D1204 (Average	Dime	nsion	al change	%				4	6	
Tear Resistand ASTM D-1004		-	Average	Tear	Denia	tanco	007 A	Ni			PO 000	^ 11	
Puncture Resis FTMS 101 Met		********	Load	1691	176212	etat ICE	237.0 419.6	dalah dan berman dan dipanan dan dan dan dan dan dan dan dan dan	***************************************	PA BABBA I NA BABBANA	53.27 94.33		bs bs
Puncture Resis ASTM D4833 (tance	alt ye ahiringiridga daqaday ylaqiday v	Load	***************************************	######################################		564.9	N	***************************************		127.0	0 lk	bs
ESCR ASTM D1693	n ann an Airean Talach Talach an Airean an Airean an Airean ann an Airean ann an Airean ann an Airean ann an A		Minimun	n Hrs	w/o F	ailures	1500 hrs		allian see reasy who project dis the second	CE	RTIFIE)	1876-7846-9 6446-9
Notched Const ASTM D5397	ant Tensile Lo	ad	pass / fail	@ 30)%		300 hrs		Bythin 'n Mil neur myr , meng i yn 19 g	0	NGOING	3	

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

Date:

4-3-08

Quality Control Department



						11	===	,				
ROLL#	<u> 314221-</u>	-08	Lo	t #:		7180362	Lir	ner Type	: MICR	OSPIK	Ϊ HE	PE
Measurement ASTM D5994 (Modified)		MIN: MAX:	METF 1.47 1.88	mm	58	GLISH mil	Thick Leng	kness th h	1.5 125		60 mil 410.1 23.0	
Asperity GRI GM12: ODD#:TOP EVEN#:	30 mil	AVE:	1.61	mm mm		mil mil		rd) ASTM D38		es 181	TE: RESU	
Specific Gravity ASTM D792	<i>'</i>		Density	**************************************		The Build had had been been supply and the same	g/o	cc	a ta da	Third this bloom of whee arms were well-	.94	6
MFI ASTM D12 COND. E GRADE:	38 K307		Melt Flo	w Inde	ex 19	0°C /2160 g	g g/	'10 min			.24	4
Carbon Black C ASTM D4218	ontent		Range				%		***************************************		2.27	7
Carbon Black D ASTM D5596	ispersion		Categor	/						10	in Cat. 1	ſ
Tensile Strengtt ASTM D6693 ASTM D638 (M (2 inches / mini	odified)		Average	Strer	ngth () Yield	2	29 N/mm	165	ppi	2,606	s psi
\ C		**************************************	Average	Stren	ngth @) Break		28 N/mm	160	ppi	2,527	, psi
Elongation AST ASTM D638 (Mo (2 inches / minu Lo = 1.3" Yield	odified)		Average	Elonç	gation	ı @ Yield	%				17.37	•
Lo = 2.0" Break	YI YI MIRA KALI A KAMATAN	hiden did hij mydd ngonggan ymgyggyng	Average	Elong	gation	@ Break	%				394.7	,
Dimensional Sta ASTM D1204 (N			Average	Dime	nsion	al change	%)			46)
Tear Resistance ASTM D-1004 (I			Average	Tear	Resis	tance	237	7.0 N			53.272	lbs:
Puncture Resist FTMS 101 Meth		dified)	Load				419	9.6 N	THE RESERVE ASSESSMENT AND THE PARTY OF THE	***************************************	94.339	
Puncture Resist ASTM D4833 (M		4 4444 IV 11 A A A IVA	Load	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	***************************************	***************************************	564	1.9 N		\	127.00	lbs
ESCR ASTM D1693	and the state of t	A reference recording states	Minimur	n Hrs	w/o F	ailures	1500 hr	rs	<u></u>	CE	RTIFIED	<u>, </u>
Notched Consta ASTM D5397	nt Tensile Loa	ad t	oass / fail	@ 30)%	Value (time meets an page 19 page 11 haire).	300 hrs		ren, di e y q g Proprint, y I dia Pan' adagongan di an	0	NGOING	

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

to: 4-3-08



	044000	00	_					_				
ROLL#	314222	<u>-08</u>	Lo	t #: 		7180362	Line	r Type: I	VICRO	SPIK	Ϊ HI	DPE
Measuremer		MIN:	METF 1.51	RIC mm	ENG 59	LISH mil		ess	1.5 r 125	nm m	60 mi 410.1	l feet
(Modified)	4	MAX:	1.82	mm		mil	Width		7.00	m;	23.0	feet
Asperity GRI GN ODD#:TOP_EV		AVE:	1.61			mil	OIT(Standard) /	ASTM D3895	i minute:	s 181	TE RESI	ST JLTS
Specific Gra ASTM D792			Density				g/cc				.94	6
MFI ASTM I COND. E GRADE:	D1238 K307		Melt Flor	w Inde	эх 190	0°C /2160 g	g g/10	min			.2	4
Carbon Blac ASTM D421			Range				%	T (A. 1. T.	akanaganat at akangga ang angang at andagan		2.2	7
Carbon Blac ASTM D559	ck Dispersion 96		Categor	у					1 (A M. 18 18 18 18 18 18 18 18 18 18 18 18 18	10	in Cat.	1
Tensile Stre ASTM D669 ASTM D638 (2 inches/	93 3 (Modified)		Average	Strer	ngth @) Yield	29	N/mm	165	ppi	2,60	6 psi
(11.100)			Average	Strer	ngth @	Break	28	N/mm	160	ppi	2,52	7 psi
Elongation ASTM D638 (2 inches / Lo = 1.3" Yi	minute)		Average	Elon	gation	@ Yield	%				17.3	7
Lo = 2.0" Br			Average	Elon	gation	@ Break	%				394.	7
Dimensiona ASTM D120	il Stability 04 (Modified)	nna haas suurikanniksa aan	Average	Dime	ension	al change	%				4	6
Tear Resista ASTM D-10	ance 04 (Modified)		Average	Tear	Resis	tance	237.0	N			53.27	2 lbs
Puncture Re FTMS 101 N	esistance Vlethod 2065 (M	odified)	Load				419.6	i N			94.33	9 lbs
Puncture Re ASTM D483	esistance 33 (Modified)		Load				564.9	N		ar da antir e al las mada d	127.0	0 lbs
ESCR ASTM D169	93		Minimu	n Hrs	w/o F	ailures	1500 hrs	and the second s		CI	ERTIFIEI	D
Notched Co ASTM D539	nstant Tensile L 97	oad.	pass / fai	l @ 3	0%		300 hrs			C	NGOING	3

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

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Quality Control Department

60HDmic.FRM REV 03



} Lot #:	7180362	Liner Type: I	VICROSPIKE™ HDPE				
METRIC I: 1.43 mm	ENGLISH 56 mil	Thickness Length	1.5 mm 125 ^m 7.00 m;		et eet		
	63 mil			TEST RESUL	r		
Density		g/cc		.944			
Melt Flow Ind	ex 190°C /2160 g	g/10 min		.24			
Range		%		2.15			
Category	**************************************		10	in Cat. 1			
Average Stre	ngth @ Yield	28 N/mm	158 ppi	2,492	psi		
Average Stre	ngth @ Break	28 N/mm	161 ppi	2,541	psi		
Average Elon	gation @ Yield	%		17.30			
Average Elor	gation @ Break	%		432.6			
Average Dim	ensional change	%		46			
Average Tea	· Resistance	246.2 N		55.341	lbs		
Load ed)		470.6 N		105.80	lbs		
Load		590.9 N		132.85	lbs		
Minimum Hr	s w/o Failures	1500 hrs	С	ERTIFIED			
pass / fail @ 3	30%	300 hrs	(ONGOING			
	METRIC N: 1.43 mm X: 1.83 mm E: 1.61 mm Density Melt Flow Ind Range Category Average Stre Average Stre Average Elon Average Elon Average Dime Average Teal Load Load Minimum Hr	METRIC ENGLISH N: 1.43 mm 56 mil X: 1.83 mm 72 mil E: 1.61 mm 63 mil Density Melt Flow Index 190°C /2160 g Range Category Average Strength @ Yield Average Elongation @ Yield Average Elongation @ Break Average Dimensional change Average Tear Resistance Load ed)	METRIC ENGLISH 1.43 mm 56 mil X: 1.83 mm 72 mil E: 1.61 mm 63 mil Density g/cc Melt Flow Index 190°C /2160 g g/10 min Range % Category Average Strength @ Yield 28 N/mm Average Elongation @ Break 28 N/mm Average Elongation @ Break % Average Dimensional change % Average Tear Resistance 246.2 N Load 470.6 N Minimum Hrs w/o Failures 1500 hrs	METRIC ENGLISH Thickness	METRIC ENGLISH Thickness		

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Signature.

Quality Control Department



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ROLL# 3142	24-08	Lot	#:	·	7180362	Line	r Type: N	MICRO	SPIR	Ϊ HC	PE
Measurement ASTM D5994	MIN:	METR 1.46	IC mm	ENG 57	LISH mil	Length	ess	1.5 125	m		feet
(Modified)	MAX:	1.92	mm	76	mil	Width		7.00	m;	23.0	feet
Asperity GRI GM12: 32 r	mil AVE:	1.66	mm	65	mil	OIT(Standard)	ASTM D3895	minute	s 181	TE: RESU	
Specific Gravity ASTM D792		Density				g/cc				.944	1
MFI ASTM D1238 COND. E GRADE:	(307	Melt Flov	v Inde	ex 190)ºC /2160 g	g/10) min			.24	ļ
Carbon Black Content ASTM D4218		Range				%		Marian Pala Milan Barrian april		2.1	5
Carbon Black Dispersion ASTM D5596	on	Category	1						10) in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)		Average	Strer	ngth @) Yield	29	N/mm	163	ppi	2,492	2 psi
		Average	Strer	ngth @) Break	29	N/mm	166	ppi	2,541	psi
Elongation ASTM D66: ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	93	Average	Elon	gation	@ Yield	%				17.30)
Lo = 2.0" Break		Average	Elong	gation	@ Break	%				432.6	5
Dimensional Stability ASTM D1204 (Modified)	Average	Dime	ension	al change	%		*******		46	3
Tear Resistance ASTM D-1004 (Modified	d)	Average	Tear	Resis	tance	246.	2 N			55.341	lbs
Puncture Resistance FTMS 101 Method 206	5 (Modified)	Load	ally trade - phytograf graftfalle, age	AMERICAN SERVICES STATES OF THE SERVICES	1847-188 (1874-1848)	470.	6 N	***************************************	, pp://doi.org/10.100/10.100/10.100/10.100/10.100/10.100/10.100/10.100/10.100/10.100/10.100/10.100/10.100/10.1	105.80) lbs
Puncture Resistance ASTM D4833 (Modified)	Load				590.	9 N			132.85	5 lbs
ESCR ASTM D1693		Minimur	n Hrs	w/o F	ailures	1500 hrs			CI	ERTIFIED)
Notched Constant Tens ASTM D5397	sile Load	pass / fail	@ 3	0%	** HMM-7-4-5	300 hrs	***************************************	** *** *** *** *** *** *** **** **** ****	C	ONGOING	

Customer: Waste Management, Inc. Of Florida

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Quality Control Department



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ROLL#	314225-	08	Lo	t #:		7180362	Line	r Type: I	MICRO	SPIK	ETM HE)PE
Measuremen	t		METF	RIC	ENG	LISH	Thickn	ess	1.5 r	nm	60 mi	l
ASTM D5994	_	AIN:	1.50	mm	59	mil	Length	•••••	125	m	410.1	feet
(Modified)	1	ЛАХ:	1.62	mm	64	mil	Width	•••••	7.00	m;	23.0	feet
Asperity GRI GM ODD #: TOP EVE		NE:	1.56	mm	61	mil	OIT(Standard)	ASTM D3895	5 minutes	181	TE RESI	ST JLTS
Specific Gra ASTM D792			Density				g/cc			TO THE PERSON AS A SECURITY OF	.94	4
MFI ASTM D COND. E GRADE:)1238 K307		Melt Flov	v Inde	ex 190	0°C /2160 g	g/10) min			.2	4
Carbon Blac ASTM D421		1	Range			en e	%	We have recovered that when the second secon		· · · · · · · · · · · · · · · · · · ·	2.1	5
Carbon Blac ASTM D559	·	(Category	/						10	in Cat.	1
Tensile Strer ASTM D669 ASTM D638 (2 inches / n	3 (Modified)	,	Average	Stren	igth @) Yield	27	N/mm	153	ppi	2,492	2 psi
ANALYSIS SAME AND ANALYSIS OF THE PARTY OF T	*****	/	Average	Stren	gth @) Break	27	N/mm	156	ppi	2,541	l psi
Elongation A ASTM D638 (2 inches / n Lo = 1.3" Yie	ninute)	,	Average	Elong	jation	@ Yield	%				17.30)
Lo = 2.0" Bre	eak	/	Average	Elong	ation	@ Break	%	•			432.6	3
Dimensional ASTM D120		F	Average	Dime	nsiona	al change	%				46	3
Tear Resista ASTM D-100		F	Average	Tear I	Resist	tance	246.2	2 N			55.341	l lbs
Puncture Res	sistance lethod 2065 (Modi		Load			Principal Control of C	470.6	******************************			105.80	
Puncture Res	·	reers and his a comment has a green	Load	To make Application . No. by may find you	antinan ka missan a s. a sa	a Admiritik digila keparatkan ili yanaran 1911 kwi a 1918 bi belain	590.9) N		***************************************	132.85	5 lbs
ESCR ASTM D1693	3		Minimun	n Hrs	w/o F	ailures	1500 hrs	ALLE ALLE STATE OF THE STATE OF	THE REPLACE AND ADDRESS OF THE PARTY OF	CE	RTIFIED)
Notched Con ASTM D5397	stant Tensile Loa	d p	ass / fail	@ 30	1%	Maria deliminare processor que en	300 hrs	1885	**************************************	0	NGOING	
					********	** * *** ** ** ***		Who did not be a real property with the second second	the decide of the parties of the second with the	***********		

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

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Quality Control Department



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ROLL# 314226-08		-08	Lot#		7	180362	Line	Liner Type: MICROSPIKE™					
Measuremer ASTM D599	-	MIN:) nm	ENGL 59	ISH mil		ess	1.5 i 125 7.00	mm m m;	60 mil 410.1 23.0	feet feet	
(Modified) Asperity GRI GN		MAX: AVE:		nm nm		mil mil	y viatii	**********			TE		
ODD # : TOP EV		ΛVI	1.00				OIT(Standard) /	ASTM D389	5 minute:	s 181	RESI		
Specific Gra ASTM D792	•		Density				g/cc				.94	4	
MFI ASTM I COND. E GRADE:	D1238 K307		Melt Flow I	nde	x 190°	°C /2160 g	g/10	min			.24	4	
Carbon Blac ASTM D421			Range				%				2.1	5	
Carbon Blad ASTM D559	ck Dispersion 96	5-9-1-8-3-8-1-9-1-9-1-1-1-8-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3	Category							10	in Cat.	1	
Tensile Stre ASTM D668 ASTM D638 (2 inches /	93 3 (Modified)		Average S	tren	gth @	Yield	28	N/mm	162	ppi	2,49	2 psi	
(,		Average S	tren	gth @	Break	29	N/mm	165	ppi	2,54′	l psi	
Elongation ASTM D638 (2 inches / Lo = 1.3" Yi	minute)		Average E	ong	ation (@ Yield	%				17.30)	
Lo = 2.0" Br			Average El	ong	ation (@ Break	%	در مندون سفر سو شناطوا که افتاد اداما استاد استاد استاد	PROPERTY 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		432.6	3	
Dimensiona ASTM D120	l Stability 94 (Modified)		Average D	mer	nsiona	l change	%	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			4	6	
Tear Resista ASTM D-10	ance 04 (Modified)	W.48/2000 W1 14800 F AM	Average Te	ear I	Resista	ance	246.2	N			55.34°	i ibs	
Puncture Re FTMS 101 M	esistance Method 2065 (Mo	dified)	Load				470.6	N			105.80) lbs	
Puncture Re ASTM D483		nadena incere in	Load			etilal t kirjaka Majdiron y kampleya yawa a	590.9	N	··· , a sector ad apar, par any p		132.8	5 lbs	
ESCR ASTM D169	3		Minimum I	-Irs	w/o Fa	ailures	1500 hrs	1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-		CI	ERTIFIE)	
Notched Co ASTM D539	nstant Tensile Lo 7	ad	pass / fail @	30	1%	nick had be informated distinguish to group year year ong g	300 hrs	***************************************	de de la Rei de la la companya de l	C	NGOING	}	
***************************************					/**********				**				

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

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4-3-0

Quality Control Department



Measurement ASTM D5994 (Modified) MIN: 1.54 mm 61 mil Length	ROLL# 314227-0	08 Lot#:	7180362	Liner Type: N	/IICROSPIK	E™ HDP	E
ASPERING CRIVE: 36 mill AVE. 1.65 mill 64 mill OIT(Standard) ASTM D3895 minutes 181 RESULTS Specific Gravity ASTM D792 MFI ASTM D1238 COND. E GRADE: K307 Carbon Black Content ASTM D4218 Carbon Black Dispersion ASTM D5596 Category Average Strength @ Yield Average Strength @ Yield OIT(Standard) ASTM D3895 minutes 181 RESULTS OIT(Standard) ASTM D3895 minutes 181 RESULTS Results Results Results OIT(Standard) ASTM D3895 minutes 181 RESULTS OIT(Standard) ASTM D3895 minu	Measurement ASTM D5994	METRIC AIN: 1.54 mm	ENGLISH 61 mil	Thickness	1.5 mm 125 ^m	60 mil 410.1 fee	et
ASTM D792 MFI ASTM D1238 COND. E GRADE: K307 Carbon Black Content ASTM D4218 Carbon Black Dispersion ASTM D5596 Category Tensile Strength ASTM D693 ASTM D693 ASTM D638 (Modified) (2 inches / minute)		\VE: 1.63 mm	64 mil o	IT(Standard) ASTM D3895	minutes 181		
COND. E GRADE: K307 Carbon Black Content ASTM D4218 Carbon Black Dispersion ASTM D5596 Category Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Melt Flow Index 190°C /2160 g g/10 min 2.24 Category % Category 10 in Cat. 1 Average Strength @ Yield 28 N/mm 160 ppi 2,492 ps	•	Density		g/cc		.944	
ASTM D4218 Carbon Black Dispersion ASTM D5596 Category Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute) ASTM D638 (Modified)	COND. E	Melt Flow Ind	ex 190ºC /2160 g	g/10 min		.24	
ASTM D5596 Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)		Range		%		2.15	ALTERNATION BASE ALLE
ASTM D6693 Average Strength @ Yield 28 N/mm 160 ppi 2,492 ps ASTM D638 (Modified) (2 inches / minute)		Category			10	in Cat. 1	
	ASTM D6693 ASTM D638 (Modified)	Average Stre	ngth @ Yield	28 N/ mm	160 ppi	2,492	psi
	(2 mones / minute)	Average Stre	ngth @ Break	29 N/mm	163 ppi	2,541	psi
Elongation ASTM D6693 ASTM D638 (Modified) Average Elongation @ Yield % 17.30 (2 inches / minute) Lo = 1.3" Yield	ASTM D638 (Modified) (2 inches / minute)	Average Elon	gation @ Yield	%		17.30	
Lo = 2.0" Break Average Elongation @ Break % 432.6		Average Elon	gation @ Break	%		432.6	
Dimensional Stability ASTM D1204 (Modified) Average Dimensional change %46		Average Dime	ensional change	%	***************************************	46	
Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 246.2 N 55.341 lbs		Average Tear	r Resistance	246.2 N		55.341	lbs
Puncture Resistance Load 470.6 N 105.80 lbs		Load lified)		470.6 N		105.80	lbs
Puncture Resistance Load 590.9 N 132.85 lbs ASTM D4833 (Modified)		Load	The second of th	590.9 N		132.85	lbs
ESCR Minimum Hrs w/o Failures 1500 hrs CERTIFIED ASTM D1693		Minimum Hr	s w/o Failures	1500 hrs	CI	ERTIFIED	
Notched Constant Tensile Load pass / fail @ 30% 300 hrs ONGOING ASTM D5397		ad pass / fail @ 3	30%	300 hrs	C	NGOING	

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

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Quality Control Department



	II								
ROLL# 314228-	08 Lot#:	71803	62 Liner Ty	pe: MICROSPIK	MICROSPIKE™ HDPE				
/Banadianal	ЛIN: 1.48 m			1.5 mm 125 ^m 7.00 m;		eet eet			
		m 65 mil		1 D3895 minutes 181	TEST RESUL				
Specific Gravity ASTM D792	Density		g/cc		.946				
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow I	ndex 190°C /21	60 g g/10 min		.24				
Carbon Black Content ASTM D4218	Range		%		2.25	A-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-			
Carbon Black Dispersion ASTM D5596	Category			10) in Cat. 1				
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average St	rength @ Yield	28 N /m	nm 158 ppi	2,422	psi			
(E mones / minute)	Average St	rength @ Break	32 N/m	nm 181 ppi	2,773	psi			
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average El	ongation @ Yie	d %		18.80				
Lo = 2.0" Break	Average El	ongation @ Bre	ak %		458.9				
Dimensional Stability ASTM D1204 (Modified)	Average Di	mensional chan	ge %		46				
Tear Resistance ASTM D-1004 (Modified)	Average Te	ar Resistance	256.2 N		57.594	lbs			
Puncture Resistance FTMS 101 Method 2065 (Mod	Load lified)		461.1 N	A CONTROL OF THE CONT	103.66	lbs			
Puncture Resistance ASTM D4833 (Modified)	Load	A.C. A.S. Immedicated at Secundari Management and American America	628.6 N		141.31	lbs			
ESCR ASTM D1693	Minimum I	łrs w/o Failures	1500 hrs	C	ERTIFIED				
Notched Constant Tensile Loa ASTM D5397	ad pass / fail @	30%	300 hrs	(ONGOING				

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

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e: 4-3-

Signature.....

Quality Control Department

60HDmic.FRM REV 03



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ROLL# 314229-0	8 Lot #:	7180362	Liner Type:	MICROSPIK	Ϊ HDF	™ HDPE			
Measurement ASTM D5994 MII (Modified) MA			Thickness Length Width	1.5 mm 125 ^m 7.00 ^m ;		et et			
Asperity GRI GM12: 30 mit AV		64 mil	OIT(Standard) ASTM D389	95 minutes 181	TES ⁻ RESUL				
Specific Gravity ASTM D792	Density		g/cc		.946				
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Inde	ex 190°C /2160 g	g/10 min	ACAMARIAN A MINISTER MANAGEMENT A MINISTER MANAGEMENT AND A MINISTER MANAGEMENT AND A MINISTER MANAGEMENT AND A	.24	h (c hh mh d ga hd a m lyn, g			
Carbon Black Content ASTM D4218	Range		%		2.25				
Carbon Black Dispersion ASTM D5596	Category			10) in Cat. 1				
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Stren	gth @ Yield	27 N/ mm	155 ppi	2,422	psi			
(2 mones / minute)	Average Stren	gth @ Break	31 N/mm	178 ppi	2,773	psi			
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elong	gation @ Yield	· %		18.80				
Lo = 2.0" Break	Average Elong	jation @ Break	%		458.9				
Dimensional Stability ASTM D1204 (Modified)	Average Dime	nsional change	%	- 	46				
Tear Resistance ASTM D-1004 (Modified)	Average Tear	Resistance	256.2 N		57.594	lbs			
Puncture Resistance FTMS 101 Method 2065 (Modifi	Load ied)		461.1 N	and the second s	103.66	lbs			
Puncture Resistance ASTM D4833 (Modified)	Load	. Инс. — В мерен в мер	628.6 N		141.31	lbs			
ESCR ASTM D1693	Minimum Hrs	w/o Failures	1500 hrs	С	ERTIFIED				
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30	0%	300 hrs	(ONGOING				

Customer: Waste Management, Inc. Of Florida

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Quality Control Department

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ROLL# 314230-0	8 Lot #:	7180362	Liner Type:	: MICROSPIKE™ HDPE				
Measurement ASTM D5994 MI	METRIC N: 1.46 mm	ENGLISH 57 mil	Thickness	1.5 mm 125 ^m 7.00 m;		et		
(Modified) MA	X: 1.81 mm	71 mil	Width	7.00,		eet		
Asperity GRI GM12: 40 mil AV ODD #: TOP EVEN #: BOTTOM	E: 1.62 mm	64 mil	OIT(Standard) ASTM D389	5 minutes 181	TES' RESUL			
Specific Gravity ASTM D792	Density		g/cc		.946			
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Ind	ex 190°C /2160 g	g/10 min		.24			
Carbon Black Content ASTM D4218	Range		%		2.25			
Carbon Black Dispersion ASTM D5596	Category			10	in Cat. 1			
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Stre	ngth @ Yield	27 N/mm	154 ppi	2,422	psi		
(2 1101100 1 11111111101)	Average Stre	ngth @ Break	31 N/mm	177 ppi	2,773	psi		
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elon	gation @ Yield	%		18.80			
Lo = 2.0" Break	Average Elor	gation @ Break	%		458.9			
Dimensional Stability ASTM D1204 (Modified)	Average Dim	ensional change	%	lith philips, 8 had b philipsylpsylpsylpsy physic a physiophick block property	46			
Tear Resistance ASTM D-1004 (Modified)	Average Tea	· Resistance	256.2 N		57.594	lbs		
Puncture Resistance FTMS 101 Method 2065 (Modifi	Load ed)		461.1 N	ik Varantakki dadi Parakki Andrik Kabupaten ancarak ancarak ancarak	103.66	lbs		
Puncture Resistance ASTM D4833 (Modified)	Load	The second secon	628.6 N	aarii 1, aana uguu dii jammidad dishiindinga kan iliga in adadan ilaa adamasiinga agabaa	141.31	lbs		
ESCR ASTM D1693	Minimum Hr	s w/o Failures	1500 hrs	С	ERTIFIED			
Notched Constant Tensile Load ASTM D5397	pass / fail @ 3	30%	300 hrs	(ONGOING			

Customer: Waste Management, Inc. Of Florida

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ROLL# 314231-0)8 Lot #:	7180362	Liner Type:	: MICROSPIKE™ HDPE						
Measurement ASTM D5994	METRIC NN: 1.50 mm	ENGLISH 59 mil	Thickness Length	1.5 mm 125 ^m		eet				
(5.4. V.C. 1)	IAX: 1.79 mm	70 mil	Width	7.00 m;	23.0	eet				
Asperity GRI GM12: 31 mil A	VE: 1.62 mm		OIT(Standard) ASTM D389	95 minutes 181	TES RESU					
Specific Gravity ASTM D792	Density		g/cc		.946					
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Ind	ex 190°C /2160 g	g/10 min		.24	are the second of the second o				
Carbon Black Content ASTM D4218	Range		%		2.25					
Carbon Black Dispersion ASTM D5596	Category			10	in Cat. 1					
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Stre	ngth @ Yield	27 N/mm	154 ppi	2,422	psi				
	Average Stre	ngth @ Break	31 N/mm	177 ppi	2,773	psi				
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elon	gation @ Yield	%		18.80					
Lo = 2.0" Break	Average Elon	gation @ Break	%		458.9					
Dimensional Stability ASTM D1204 (Modified)	Average Dime	ensional change	%		46					
Tear Resistance ASTM D-1004 (Modified)	Average Tear	· Resistance	256.2 N		57.594	lbs				
Puncture Resistance FTMS 101 Method 2065 (Modi	Load ified)		461.1 N		103.66	lbs				
Puncture Resistance ASTM D4833 (Modified)	Load		628.6 N		141.31	lbs				
ESCR ASTM D1693	Minimum Hrs	s w/o Failures	1500 hrs	CI	ERTIFIED	alalah yang yang sajan ya da				
Notched Constant Tensile Loa ASTM D5397	d pass / fail @ 3	0%	300 hrs	C	NGOING					

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

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Quality Control Department

60HDmic,FRM REV 03



ROLL#	314232			180362	Ĺ	_ iner	Type: I	: MICROSPIKE™ HDPE							
Measurement ASTM D5994 (Modified)		MIN: MAX:	METR 1.44		ENGL	***************************************	Thi Ler	ckne	ss	1.5 125 7.00			60 mi 410.1 23.0		
Asperity GRI GM1 ODD#: TOP_EVEN		AVE:	1.58	mm	62	mil	OIT(Stand	tard) A	STM D3896	5 minut	tes	181	TE RESI	ST ULTS	3
Specific Grav ASTM D792	ity		Density				g	J/CC					.94	6	
MFI ASTM D' COND. E GRADE:	1238 K307		Melt Flov	v Inde	ex 190°	C /2160 g	j	g/10	min				.2	4	
Carbon Black ASTM D4218			Range			от на водината интерестра до 12 до 12 Се потеритория	g	%			**********		2.2	5	
Carbon Black ASTM D5596		*** **********************************	Category	,	Marie and the second section of the section o							10	in Cat.	1	
Tensile Stren ASTM D6693 ASTM D638 ((2 inches / m	Modified)		Average	Strer	ngth @ '	Yield		26	N/mm	15	1 p	pi	2,42	2 p	si
(2 11011007111			Average	Strer	ngth @	Break		30	N/mm	172	2 p	pi	2,77	3 p	si
Elongation A ASTM D638 ((2 inches / m Lo = 1.3" Yiel	Modified) inute)		Average	Elon	gation @	① Yield	(%					18.8	0	
Lo = 2.0" Brea			Average	Elon	gation @) Break	Q	%					458.	9	
Dimensional S ASTM D1204			Average	Dime	ensional	change		%					4	6	
Tear Resistar ASTM D-1004			Average	Tear	Resista	ince	2	256.2	N				57.59	4 lk	os
Puncture Res FTMS 101 Me	istance ethod 2065 (Mo	odified)	Load				4	161.1	N				103.6	6 It)s
Puncture Res ASTM D4833		8	Load	***************************************		rapide programme of pritting decising in gardy rapide at	6	28.6	N	(),,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	***************************************	·····	141.3	1 lk	os
ESCR ASTM D1693			Minimur	n Hrs	w/o Fa	ilures	1500	hrs			e-week a p-	CI	ERTIFIEI	D	
Notched Cons ASTM D5397	stant Tensile Lo	oad	pass / fail	@3	0%	g 111gen makg addir aggest agreen	300 h	ırs	* LANCE AN EXPERIMENTAL AND			C	NGOIN	3	***************************************

Customer: Waste Management, Inc. Of Florida

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60HDmic.FRM REV 03 12/23/05



						!1						
ROLL#	# 314233-08		Lot #: 7180362			Line	Ϊ HC	PE				
Measuremer ASTM D5994 (Modified)	4	MIN: MAX:	METF 1.49 1.85	RIC mm mm		JSH mil mil	Length.	ess	1.5 i 125 7.00	mm m m;	60 mil 410.1 23.0	feet feet
Asperity GRI GN ODD#: TOP_EVI	/12: 33 mil	AVE:	1.63			mil	OIT(Standard)	ASTM D3895	i minute:	s 181	TE: RESU	
Specific Gra ASTM D792	•		Density				g/cc				.946	6
MFI ASTM I COND. E GRADE:	D1238 K307		Melt Flor	w Inde	ex 190°	°C /2160 g	g/10	min			.24	1
Carbon Blad ASTM D421			Range				%		AND THE PERSON OF THE PERSON O		2.39)
Carbon Blac ASTM D559	ck Dispersion 96		Categor	У						10	in Cat. ′	l
Tensile Stre ASTM D669 ASTM D638 (2 inches / I	3 (Modified)		Average	Strer	ngth @	Yield	30	N/mm	170	ppi	2,656	5 psi
			Average	Strer	igth @	Break	33	N/mm	188	ppi	2,933	B psi
Elongation ASTM D638 (2 inches / Lo = 1.3" Yie	minute)		Average	Elong	gation (@ Yield	%				17.78	3
Lo = 2.0" Br	eak	es = er = 174 001 1 # 0 b 1 # 1	Average	Elong	gation (@ Break	%				457.0)
Dimensiona ASTM D120	l Stability 4 (Modified)	(~) { * * * * * * * * * *	Average	Dime	nsiona	Il change	%				46	3
Tear Resista ASTM D-10	ance 04 (Modified)		Average	Tear	Resist	ance	242.5	5 N			54.514	l lbs
Puncture Re FTMS 101 N	esistance Method 2065 (Mo	dified)	Load			The state of the s	432.9	N			97.320) lbs
Puncture Re ASTM D483	·	ALL STEEL SETTINGS TO SEE	Load	A I no mode, we recover mean	rica e cesante os contesas an	ann a Mail, Mair a Mail Aide Nach a' ga agu chuid de ga ann alga gan	615.8	l N	nframe who into \$1 classes as such	ART IN STREET	138.44	t lbs
ESCR ASTM D169	3		Minimu	n Hrs	w/o Fa	ailures	1500 hrs	nen kanan dan sampungan kanan kanan dan dan dan dan dan dan dan dan dan	المناوية المناوية والمناوية والمناوية والمناوية والمناوية والمناوية والمناوية والمناوية والمناوية والمناوية وا	CI	ERTIFIED)
Notched Co ASTM D539	nstant Tensile Lo 7	oad	pass / fai	l @ 31	0%	PARTITO THE ENGLISH STREET, ST	300 hrs	dd 8 Alm 11 8 44 y 1 mae 8 mm my p 9g y 1		C	NGOING	;

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

Quality Control Department

60HDmic.FRM REV 03 12/23/05



	244224.00		11										
ROLL#	314234-	08	08 Lot #: 718		7180362	Liner	r Type: N	e: MICROSPIKE™ HDPE					
Measuremen	ı t		METF	RIC	ENG	GLISH	Thickne	SS	1.5	mm	60 mil		
ASTM D5994	•	MIN:	1.46	mm		mil	Length.		125	m	410.1	feet	
(Modified)	1	MAX:	1.79	mm	70	mil	Width	**********	7.00	m;	23.0	feet	
Asperity GRI GM		AVE:	1.60	mm	63	mil	OIT(Standard) /	ASTM D3895	minute	s 181	TE RESI		
Specific Gra ASTM D792	•		Density				g/cc		and the same of th	B	.94	6	
MFI ASTM D COND. E GRADE:	D1238 K307	No. o godin bel k oggeting grap i	Melt Flo	w Inde	эх 19	00°C /2160 g	g/10	min	• • • • • • • • • • • • • • • • • • • •		.24	4	
Carbon Blac ASTM D421			Range	to being management and an			%	14-44-14-14-14-14-14-14-14-14-14-14-14-1			2.3	9	
Carbon Blac ASTM D559	ck Dispersion 16		Categor	y						10	in Cat.	1	
Tensile Stre ASTM D669 ASTM D638 (2 inches / r	3 - (Modified)		Average	Strer	ngth (@ Yield	29	N/mm	167	' ppi	2,650	6 psi	
(2 11101100 / 1	imiato j		Average	Strer	ngth (@ Break	32	N/mm	185	ppi	2,933	3 psi	
Elongation ASTM D638 (2 inches / r	minute)		Average	Elong	gation	n @ Yield	%				17.78	8	
Lo = 2:0" Bro			Average	Elong	gation	n @ Break	%				457.0	0	
Dimensional ASTM D120			Average	Dime	nsior	nal change	%			a garant ann an Arganina, a	4	6	
Tear Resista ASTM D-100	ance 04 (Modified)		Average	Tear	Resi	stance	242.5				54.514	4 lbs	
Puncture Re FTMS 101 M	esistance Method 2065 (Mod	*************	Load	and former on a new section			432.9	THE RESIDENCE THE RESIDENCE OF A STREET, THE STREET, T	ne waste i kale w westerman	AMERICA PROPERTY OF APPLICATION OF CASE	97.32	***************************************	
Puncture Re ASTM D483			Load		hearder state is an		615.8	N			138.4	4 lbs	
ESCR ASTM D169	3		Minimur	n Hrs	w/o	Failures	1500 hrs			CI	ERTIFIE)	
Notched Cor ASTM D539	nstant Tensile Loa 7	ad	pass / fai	0 30	0%		300 hrs			C	NGOING	3	

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

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60HDmic,FRM REV 03 12/23/05



Measurement Measurement Miln: 1.44 mm 57 mil	ROLL#			:#: 7180362			52 Liner Type: MICROSPIKE™ HDP						
Measurement ASTM D5994 (Modified) MIN. 1.44 mm 57 mil Volte. Length	NOLL#	J17200-1	JU	Teller all the services when				and the Additional to present the					
(Modified) MAX: 1.84 mm 72 mil Width. 7.00 mil 23.0 feet Asperity GRI GM12: 33 mil ODD #: TOP_EVEN.# BOTTOM AVE: 1.62 mm 64 mil mil OTT(Standard) ASTM D3895 minutes 181 TEST RESULTS Specific Gravity ASTM D792 Density g/cc 946 MFI ASTM D1238 COND. E. GRADE: K307 Melt Flow Index 190°C /2160 g g/10 min .24 Carbon Black Content ASTM D4218 Range % 2.39 Carbon Black Dispersion ASTM D5596 Category 10 in Cat. 1 Tensile Strength ASTM D6693 ASTM D6893 ASTM D638 (Modified) (2 inches / minute) Average Strength @ Freak 33 N/mm 187 ppi 2,933 psi Elongation ASTM D6893 ASTM D638 (Modified) (2 inches / minute) Average Elongation @ Yield % 17.78 Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break % 457.0 Dimensional Stability ASTM D1204 (Modified) Average Dimensional change % 457.0 Puncture Resistance ASTM D-1004 (Modified) Average Tear Resistance 242.5 N 54.514 lbs Puncture Resistance ASTM D104803 (Modified) Load		•	AINI:										
Asperity GRI GM12: 33 mill AVE: 1.62 mm 64 mil OIT(Standard) ASTM D3895 minutes 181 TEST RESULTS		•								7.00	m;		feet
New Paper Cort Co	(Modified)											TE	СТ.
ASTM D792 MFI ASTM D1238 COND. E GRADE: K307 Carbon Black Content ASTM D4218 Carbon Black Dispersion ASTM D5596 Category Tensile Strength ASTM D6893 ASTM D683 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break Average Elongation @ Break Average Dimensional Stability ASTM D1204 (Modified) Average Tear Resistance ASTM D-1004 (Modified) Puncture Resistance FTMS 101 Method 2065 (Modified) Load Melt Flow Index 190°C /2160 g g/10 min 2.24 Melt Flow Index 190°C /2160 g g/10 min 2.24 Average Strength 30 N/mm 169 ppi 2.656 psi 30 N/mm 187 ppi 2.933 psi 30 N/mm 187 ppi 2.933 psi 30 N/mm 487 ppi 4.933 psi 457.0 Dimensional Stability Average Elongation @ Break Average Elongation @ Break Average Dimensional change 457.0 Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance AVerage Tear Resistance AVERAGE Note Tear Res			NVE:	1.62	mm	64	mil	OIT(Standard)	ASTM D3895	minutes	181		
COND. E GRADE: Melt Flow Index 190°C /2160 g GRADE: g/10 min .24 Carbon Black Content ASTM D4218 Range % 2.39 Carbon Black Dispersion ASTM D596 Category 10 in Cat. 1 Tensile Strength ASTM D693 Average Strength @ Yield 30 N/mm 169 ppi 2,656 psi ASTM D638 (Modified) (2 inches / minute) Average Strength @ Break 33 N/mm 187 ppi 2,933 psi Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Average Elongation @ Yield % 17.78 Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break % 457.0 Dimensional Stability ASTM D1204 (Modified) Average Elongation @ Break % -46 Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 242.5 N 54.514 lbs Puncture Resistance FTMS 101 Method 2065 (Modified) Load 432.9 N 97.320 lbs ESCR ASTM D1693 Minimum Hrs w/o Failures 1500 hrs CERTIFIED Notched Constant Tensile Load pass / fail @ 30% 300 hrs ONGOING	,	•		Density				g/cc				.94	6
ASTM D4218 Carbon Black Dispersion ASTM D5596 Category Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Average Strength @ Break Average Strength @ Break Average Elongation @ Yield Category Average Strength @ Yield Average Strength @ Break Average Strength @ Break Average Strength @ Break Average Elongation @ Yield Category Average Elongation @ Strength @ Break Average Elongation @ Yield Category Average Elongation @ Strength @ Break Average Elongation @ Yield Category Average Elongation @ Yield Average Elongation @ Break Average Elongation @ Strength % Average Elongation @ Strength % Average Elongation @ Strength @ Strength % Average Elongation @ Strength % Average Elongation @ Strength @ Strength & S	COND. E			Melt Flor	w Inde	ex 19	0°C /2160	g g/1() min			.2	4
ASTM D5596 Tensile Strength				Range				%				2.3	9
ASTM D6693 Average Strength @ Yield 30 N/mm 169 ppi 2,656 psi ASTM D638 (Modified) (2 inches / minute) Average Strength @ Break 33 N/mm 187 ppi 2,933 psi Elongation ASTM D6693 ASTM D638 (Modified) Average Elongation @ Yield % 17.78 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break % 457.0 Dimensional Stability ASTM D1204 (Modified) Average Dimensional change %46 Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 242.5 N 54.514 lbs Puncture Resistance FTMS 101 Method 2065 (Modified) Load 432.9 N 97.320 lbs Puncture Resistance ASTM D4833 (Modified) ESCR ASTM D1693 Minimum Hrs w/o Failures 1500 hrs CERTIFIED Notched Constant Tensile Load pass / fail @ 30% 300 hrs		•		Categor	у			~~~			10	in Cat.	1
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Ło = 2.0" Break Average Elongation @ Break AsTM D1204 (Modified) Average Dimensional change AsTM D-1004 (Modified) Average Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance FTMS 101 Method 2065 (Modified) Load Average Tear Resistance ASTM D4833 (Modified) Load Astm D4833 (Modified) Average Tear Resistance Astm D4833 (Modified) Average Dimensional change Average Elongation @ Yield Average Elongation @ Yield Average Tear Resistance Average Elongation @ Yield Average Tear Resistance Average Elongation @ Yield Average Tear Resistance Average Tear Resistance Average Tear Resistance Average Elongation @ Yield Average Tear Resistance Average Tear Resistance Average Tear Resistance Average Elongation @ Yield Average Tear Resistance Aver	ASTM D669 ASTM D638	3 (Modified)		Average	Strer	ngth (@ Yield	30	N/mm	169	opi	2,65	6 psi .
ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break Av	(2 11101100 / 1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Average	Strer	ngth (@ Break	33	N/mm	187	opi	2,93	3 psi
Lo = 2.0" BreakAverage Elongation @ Break%457,0Dimensional Stability ASTM D1204 (Modified)Average Dimensional change%46Tear Resistance ASTM D-1004 (Modified)Average Tear Resistance242.5N54.514lbsPuncture Resistance FTMS 101 Method 2065 (Modified)Load432.9N97.320lbsPuncture Resistance ASTM D4833 (Modified)Load615.8N138.44lbsESCR ASTM D1693Minimum Hrs w/o Failures1500 hrsCERTIFIEDNotched Constant Tensile Loadpass / fail @ 30%300 hrsONGOING	ASTM D638 (2 inches / I	3 (Modified) minute)		Average	Elong	gatior	n @ Yield	%				17.7	8
ASTM D1204 (Modified) Average Dimensional change % 46 Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 242.5 N Puncture Resistance FTMS 101 Method 2065 (Modified) Puncture Resistance ASTM D4833 (Modified) Load Load 615.8 N 138.44 lbs ESCR ASTM D1693 Notched Constant Tensile Load Pass / fail @ 30% 300 hrs ONGOING				Average	Elong	gatior	n @ Break	%				457.	0
ASTM D-1004 (Modified) Average Tear Resistance Puncture Resistance FTMS 101 Method 2065 (Modified) Load Puncture Resistance ASTM D4833 (Modified) Load Load FSCR ASTM D1693 Minimum Hrs w/o Failures Notched Constant Tensile Load Pass / fail @ 30% Average Tear Resistance 242.5 N 97.320 lbs F3.8 N 138.44 lbs CERTIFIED ONGOING		*		Average	Dime	nsior	nal change	%				4	6
Puncture Resistance FTMS 101 Method 2065 (Modified) Puncture Resistance ASTM D4833 (Modified) ESCR ASTM D1693 Minimum Hrs w/o Failures ASTM D1693 Notched Constant Tensile Load pass / fail @ 30% A300 hrs ONGOING				Average	Tear	Resi	stance	242.	5 N			54.51	4 ibs
ASTM D4833 (Modified) ESCR ASTM D1693 Minimum Hrs w/o Failures 1500 hrs CERTIFIED Notched Constant Tensile Load pass / fail @ 30% 300 hrs ONGOING						- J. S. L.		الله الله الله الله الله الله الله الله	afrik da akiringka kalifir and ramanin amang menangan andaran sebanan s	vika dishira kumi, mika hiramara kwa vin			***************************************
ASTM D1693 Notched Constant Tensile Load pass / fail @ 30% 300 hrs ONGOING			n inn americanis es ana	Load	0000 / # 200 #4 * 1 M4 2 · 14	a colore production		615.	8 N			138.4	4 lbs
pass / fall (w 50%) 500 files (ING LING)3		Minimu	m Hrs	w/o	Failures	1500 hrs			CI	ERTIFIEI	O .
			ad	pass / fai	1@3	0%		300 hrs			C	NGOING	3

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

te: ___

Signature.....

Quality Control Department

60HDmic.FRM REV 03 12/23/05



2142	26 00				H						
ROLL# 3142	236-08	LO	t #:	****	7180362	Line	r Type: I	MICROSPIKE™ HDPE			
Measurement ASTM D5994 (Modified)	MIN: MAX		RIC mm mm	58	LISH mil mil	Length	ess	1.5 125 7.00	mm m m;	60 mil 410.1 23.0	feet feet
Asperity GRI GM12: 37 ODD #: TOP EVEN #: BOTTOM	mil AVE:		mm		mil	OIT(Standard)	ASTM D3895	i minute:	s 181	TE: RESU	
Specific Gravity ASTM D792		Density				g/cc				.940	6
MFI ASTM D1238 COND. E GRADE:	(307	Melt Flov	w Inde	ex 190	0°C /2160 ç	g g/10	min		PP A Linkship of Inggregation	.24	
Carbon Black Content ASTM D4218	The second second	Range	THE RESERVE AND THE PERSON NAMED IN		the desired and the second	%		***************************************		2.39)
Carbon Black Dispersion ASTM D5596	on	Category	/		TO POOL TO SEAL SECTION OF THE SEAL SECTION OF				10	in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)		Average	Stren	gth @) Yield	29	N/mm	168	ppi	2,656	i psi
	h a fin halo on the property has been a superproperty have	Average	Stren	gth @	Break	33	N/mm	186	ppi	2,933	psi
Elongation ASTM D669 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	93	Average i				%		And Annual Property of the Control o		17.78	
Lo = 2.0" Break	Market	Average I	Elong	ation	@ Break	%				457.0	
Dimensional Stability ASTM D1204 (Modified))	Average [Dimer	nsiona	ıl change	%				46	The second second second second second
Tear Resistance ASTM D-1004 (Modified	l)	Average 1	Геаг F	Resist	ance	242.5	N	f in the state of		54.514	lbs
Puncture Resistance FTMS 101 Method 2065	(Modified)	Load		And an artist of the second	2011 to the second seco	432.9	N	in Minimum and America year.		97.320	lbs
Puncture Resistance ASTM D4833 (Modified)		Load	****/******	ra nahirina binan iya gera	and the second second second	615.8	N	***************************************	**************************************	138.44	lbs
ESCR ASTM D1693		Minimum	Hrs v	w/o Fa	ailures	1500 hrs		ANY A STREET A PROPERTY AND A PROPERTY OF THE	CE	RTIFIED	r the last delivery by proper a servation
Notched Constant Tensi ASTM D5397	le Load	pass / fail (@ 30	%	· · · · · · · · · · · · · · · · · · ·	300 hrs	ATTE (American the best of course variable)		ON	IGOING	dichinals beautifus part to be able to any se
											***** ***********

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

Date:

4-3-08

Quality Control Department

SOHDmic.FR REV 03



Measurement	ROLL# 314237	-08	Lot#:	71	80362	Liner	Type: N	NCRO	OSPIK	E™ HDF	PE .
Aspenity GRI GM12: 32 mil	Measurement ASTM D5994	MIN:	1.45 mm	57	mil	Length		125	m	410.1 fo	eet
ASTM D792 MFI ASTM D1238 COND. E GRADE: K307 Carbon Black Content ASTM D4218 Carbon Black Dispersion ASTM D6596 Category Tensile Strength ASTM D6596 Average Strength @ Break ASTM D683 ASTM D683 (Modified) (2 inches / minute) Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break Average		AVE:	1.58 mm	62	mil	OIT(Standard) A	ASTM D3895	minute	s 181		
COND. E GRADE: K307 Carbon Black Content ASTM D4218 Carbon Black Dispersion ASTM D5596 Category Catego	•		Density			g/cc				.946	
ASTM D4218 Carbon Black Dispersion ASTM D5596 Category Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Average Strength @ Break 32 N/mm 182 ppi 2,933 psi Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Average Elongation @ Yield % 17.78 Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break % 457.0 Dimensional Stability ASTM D1201 (Modified) Average Dimensional change %46 Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 242.5 N 54.514 lbs Puncture Resistance FTMS 101 Method 2085 (Modified) Puncture Resistance Load 615.8 N 138.44 lbs ESCR Minimum Hrs w/o Failures 1500 hrs CERTIFIED	COND. E		Melt Flow Inde	ex 190°C	: /2160 g	g/10	min			.24	
Tensile Strength			Range			%				2.39	****************
ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Average Strength @ Break Average Strength @ Strength & Strength @ Strength &	•		Category	- p felon		and the second to the second s			1() in Cat. 1	
Average Strength @ Break 32 N/mm 182 ppi 2,933 psi Elongation ASTM D6693 ASTM D638 (Modified) Average Elongation @ Yield % 17.78 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break % 457.0 Dimensional Stability ASTM D1204 (Modified) Average Dimensional change %46 Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 242.5 N 54.514 lbs Puncture Resistance FTMS 101 Method 2065 (Modified) Load 432.9 N 97.320 lbs Puncture Resistance ASTM D4833 (Modified) Load 615.8 N 138.44 lbs ESCR ASTM D1693 Minimum Hrs w/o Failures 1500 hrs CERTIFIED	ASTM D6693 ASTM D638 (Modified)		Average Strei	ngth @ Y	′ield	29	N/mm	165	5 ppi	2,656	psi
ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break Average Elongation @ Break Modified) Average Elongation @ Break Average Elongation @ Average Elongation @ Break Average Elongation & Average Elongation @ Break Average Elongation @ Average Elongation @ Break Average Elongation & Verage Elongation @ Break Average Elongation & Verage Elongation @ Break Average Elongation & Verage Elo	(2 mones / minute)		Average Stre	ngth @ E	Break	32	N/mm	182	ppi	2,933	psi
Lo = 2.0* Break Average Elongation @ Break % 457.0 Dimensional Stability ASTM D1204 (Modified) Average Dimensional change %46 Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 242.5 N 54.514 lbs Puncture Resistance Load 432.9 N 97.320 lbs FTMS 101 Method 2065 (Modified) Load 615.8 N 138.44 lbs ASTM D4833 (Modified) Load 615.8 N CERTIFIED	ASTM D638 (Modified) (2 inches / minute)		Average Elon	gation @) Yield	%				17.78	
ASTM D1204 (Modified) Average Dimensional change % Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance ETMS 101 Method 2065 (Modified) Puncture Resistance ETMS 101 Method 2065 (Modified) Puncture Resistance ASTM D4833 (Modified) Load Load 615.8 N 138.44 lbs ASTM D4833 (Modified) ESCR ASTM D1693 Minimum Hrs w/o Failures ASTM D1693			Average Elon	gation @) Break	%			·	457.0	****
ASTM D-1004 (Modified) Average Tear Resistance Puncture Resistance FTMS 101 Method 2065 (Modified) Puncture Resistance ASTM D4833 (Modified) Load Load 615.8 N 138.44 lbs ASTM D4833 (Modified) ESCR ASTM D1693 Minimum Hrs w/o Failures 1500 hrs CERTIFIED	•	manna sara a man falama karaf	Average Dime	ensional	change	%		napog ny ha ayanmaykhayadd f	.,,	46	
FTMS 101 Method 2065 (Modified) Puncture Resistance ASTM D4833 (Modified) ESCR ASTM D1693 Minimum Hrs w/o Failures ASTM D1693 ASTM D1693 ASTM D1693		and the backs they be on	Average Tear	Resista	nce	242.5	5 N	escor a ere a acco a a shipping below		54.514	lbs
ASTM D4833 (Modified) ESCR Minimum Hrs w/o Failures 1500 hrs CERTIFIED ASTM D1693		odified	Load)			432.9	N			97.320	lbs
ASTM D1693 Note that Constant Targital and			Load			615.8	3 N			138.44	lbs
Notched Constant Tensile Load		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Minimum Hrs	s w/o Fai	lures	1500 hrs			C	ERTIFIED	
ASTM D5397 pass / fall @ 30% 300 nrs ONGOING		oad	pass / fail @ 3	80%		300 hrs				ONGOING	

Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

A: 4

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						1						
ROLL#	<u> 314338-</u>	08	Lo	t #:	#: 7180362 Liner		r Type: MICROSPIKE™ HDPE					
Measuremen		MIN:	METF 1.45	RIC mm	ENGL 57	.ISH mil		ess	1.5 125	mm m	60 mil 410.1	feet
(Modified)		MAX:	1.82	mm		mil	-		7.00	m;	23.0	feet
Asperity GRI GN ODD # : TOP EVI		AVE:	1.58	mm	62	mil	OIT(Standard)	ASTM D3895	minute	es 181	TES RESU	
Specific Gra ASTM D792	•		Density				g/cc				.948	5
MFI ASTM I COND. E GRADE:	D1238 K307		Melt Flo	w Inde	ex 190°	°C /2160 g	g/10	min			.24	ļ
Carbon Blac ASTM D421			Range				%		A grant hand a grant programmed	agentura parl harmoning 6 prophingsys	2.20)
Carbon Blac ASTM D559	ck Dispersion 96		Categor	у	ika kalabapapataka yanku mping					10	in Cat. 1	
Tensile Stre ASTM D669 ASTM D638 (2 inches / I	3 (Modified)		Average	Strer	igth @	Yield	29	N/mm	168	5 ppi	2,656	s psi
		····	Average	Strer	igth @	Break	29	N/mm	167	ppi	2,687	' psi
Elongation ASTM D638 (2 inches / Lo = 1.3" Yie	minute)		Average	Elong	gation (@ Yield	%				17.74	ı
Lo = 2.0" Br			Average	Elon	gation (@ Break	%				412.2	?
Dimensiona ASTM D120	Stability (Modified)	ng 1 glennyal y u N golindonykayayaya	Average	Dime	nsiona	l change	%	oo ann a sha a a sha a sha sha sha sha sha sha	18 M Nobelski o April Assockhop y p	By'll disses spiritgay A of Ay girt, bilayely by	46	3
Tear Resista ASTM D-100	ance 04 (Modified)		Average	Tear	Resista	ance	256.9) N			57.756	i lbs
Puncture Re FTMS 101 N	esistance Method 2065 (Mod	dified)	Load			MANA Mining and Spirit, recognisively by Spirit	438.7	N	this things to the second of t	raan of roof direct to be deciment execute "	98.631	l lbs
Puncture Re ASTM D483			Load				615.0) N		en communicação como como como como como como como co	138.27	7 lbs
ESCR ASTM D169	3		Minimu	m Hrs	w/o Fa	ailures	1500 hrs	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$		CI	ERTIFIED)
Notched Co ASTM D539	nstant Tensile Lo 7	ad	pass / fai	I @ 30	0%		300 hrs			C	NGOING	3

Customer: Waste Management, Inc. Of Florida

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60HDmic.FRN REV 03 12/23/05



Measurement ASTM D5994 (Modified) MIN: 1.52 mm 60 mil (Modified) Thickness (Modified) 1.5 mm 125	
Aspenty GRI GM12: 37 mil AVE. 1.62 mil 64 mil 64 oottom OIT(Standard) ASTM D3895 minutes 181 RESULTS Specific Gravity ASTM D792 Density g/cc .945	ASTM D5994 MI
ASTM D792 g/cc .945	
MELACTM D1229	•
COND. E Melt Flow Index 190°C /2160 g g/10 min .24 GRADE: K307	
Carbon Black Content Range % 2.20 ASTM D4218	
Carbon Black Dispersion Category 10 in Cat. 1 ASTM D5596	
Tensile Strength ASTM D6693 Average Strength @ Yield 30 N/mm 169 ppi 2,656 psi ASTM D638 (Modified) (2 inches / minute)	ASTM D6693 ASTM D638 (Modified)
Average Strength @ Break 30 N/mm 171 ppi 2,687 psi	
Elongation ASTM D6693 ASTM D638 (Modified) Average Elongation @ Yield % 17.74 (2 inches / minute) Lo = 1.3" Yield	ASTM D638 (Modified) (2 inches / minute)
Lo = 2.0" Break Average Elongation @ Break % 412.2	
Dimensional Stability ASTM D1204 (Modified) Average Dimensional change %46	
Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 256.9 N 57.756 lbs	
Puncture Resistance Load 438.7 N 98.631 lbs	
Puncture Resistance Load 615.0 N 138.27 lbs ASTM D4833 (Modified)	
ESCR Minimum Hrs w/o Failures 1500 hrs CERTIFIED ASTM D1693	
Notched Constant Tensile Load pass / fail @ 30% 300 hrs ONGOING ASTM D5397	

Customer: Waste Management, Inc. Of Florida

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60HDmic.FRM REV 03 12/23/05



		11				
ROLL# 314340-0)8 Lot #:	7180362	Liner T	ype: MICROSPIK	Ϊ HD	PE
. 10 1111 2000 1	METRIC IIN: 1.50 mm	ENGLISH 59 mil	Thickness Length	125 m		feet
(Modified)	IAX: 1.80 mm	71 mil	Width	7.00	23.0	feet
Asperity GRI GM12: 39 mil A ODD #: TOP EVEN #: BOTTOM	VE: 1.61 mm	63 mil	OIT(Standard) AST	M D3895 minutes 181	TES RESU	
Specific Gravity ASTM D792	Density		g/cc		.945	
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Inde	ex 190°C /2160 g	g/10 mi	n	.24	V-94 p. 2001 Ale L.
Carbon Black Content ASTM D4218	Range	And the second s	%		2.20	
Carbon Black Dispersion ASTM D5596	Category			10) in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strer	ngth @ Yield	29 N/	mm 168 ppi	2,656	psi
	Average Strer	ngth @ Break	30 N/	mm 170 ppi	2,687	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elonç	gation @ Yield	%		17.74	
Lo = 2.0" Break	Average Elon	gation @ Break	%		412.2	
Dimensional Stability ASTM D1204 (Modified)	Average Dime	nsional change	%		46	
Tear Resistance ASTM D-1004 (Modified)	Average Tear	Resistance	256.9	N	57.756	lbs
Puncture Resistance FTMS 101 Method 2065 (Modi	Load fied)		438.7	N	98.631	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	THE STATE OF THE S	615.0	V	138.27	lbs
ESCR ASTM D1693	Minimum Hrs	w/o Failures	1500 hrs	CI	ERTIFIED	
				PARTON TIMES TO THE STATE BY STATE STATE OF THE STATE OF		

Customer: Waste Management, Inc. Of Florida

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Destination Apopka, FL.

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Quality Control Department

60HDmic.FRM REV 03



Measurement ASTM D5994 (Modified) MIN: 1.48 mm 58 mil Length. 1.5 mm 410.1 feet Asperity GRI GM12: 38 mil AVE: 1.60 mm 63 mil OIT(Standard) ASTM D3895 minutes 181 TEST RESULTS Specific Gravity ASTM D792 Density g/cc .945 MFI ASTM D1238 COND. E Melt Flow Index 190°C /2160 g g/10 min .24					E™ HDP	드
Aspenty GRI GM12: 38 mil AVE. 1.00 mil 63 mil OIT(Standard) ASTM D3895 minutes 181 RESULTS Specific Gravity ASTM D792 MFI ASTM D1238 COND. E Melt Flow Index 190°C /2160 g g/10 min .24	94 MIN: 1.4	8 mm 58 mil	Length	125 ^m	410.1 fe	
ASTM D792 MFI ASTM D1238 COND. E Melt Flow Index 190°C /2160 g g/10 min .24		0 mm 63 mil	DIT(Standard) ASTM D3895	minutes 181		
COND. E Melt Flow Index 190°C /2160 g g/10 min .24		ty	g/cc		.945	
GRADE: K307	Melt F	Flow Index 190°C /2160 g	g/10 min		.24	
Carbon Black Content Range % 2.20 ASTM D4218	IX at 1 Ge	9	%		2.20	alkululuk d dap hijda car da galanggilangg
Carbon Black Dispersion Category 10 in Cat. 1 ASTM D5596	Caleu	ory		10	in Cat. 1	
Tensile Strength ASTM D6693 Average Strength @ Yield 29 N/mm 167 ppi 2,656 ps ASTM D638 (Modified) (2 inches / minute)	693 Avera 38 (Modified)	ge Strength @ Yield	29 N/mm	167 ppi	2,656	psi
		ge Strength @ Break	30 N /mm	169 ppi	2,687	psi
Elongation ASTM D6693 ASTM D638 (Modified) Average Elongation @ Yield % 17.74 (2 inches / minute) Lo = 1.3" Yield	38 (Modified) Avera / minute)	ge Elongation @ Yield	%		17.74	
Lo = 2.0" Break Average Elongation @ Break % 412.2		ge Elongation @ Break	%	-	412.2	######################################
Dimensional Stability ASTM D1204 (Modified) Average Dimensional change *46		ge Dimensional change	%	NOTES TO A SERVICE SER	46	*************
Tear Resistance ASTM D-1004 (Modified) Average Tear Resistance 256.9 N 57.756 lb	1004 (Modified)	ge Tear Resistance	256.9 N		57.756	lbs
Puncture Resistance Load 438.7 N 98.631 lb	Luau		438.7 N		98.631	lbs
Puncture Resistance Load 615.0 N 138.27 lb ASTM D4833 (Modified)	Load		615.0 N		138.27	lbs
ESCR Minimum Hrs w/o Failures 1500 hrs CERTIFIED ASTM D1693	Minir 693	num Hrs w/o Failures	1500 hrs	CE	RTIFIED	
Notched Constant Tensile Load pass / fail @ 30% 300 hrs ONGOING ASTM D5397	Dass /	fail @ 30%	300 hrs	0	NGOING	

Customer: Waste Management, Inc. Of Florida

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						16			=							
ROLL#	314342-(8 0	Lo	t #:		71	80362	2	Line	r Type:	MICR	OS	PIK	Е™ Н	DP	Έ
Measurement ASTM D5994	N	IIN:	METF 1.47	RIC mm		NGLIS B	SH mil			ess	1.5 125	mn	1 m	60 m 410.1	il fee	et
(Modified)		1AX:	1.81	mm			mil				7.00		m;	23.0	fe	et
Asperity GRI GM12 ODD#: TOP EVEN#	: 41 mil A	VE:	1.61	mm			mil	OIT(Sta	ndard) a	ASTM D389	5 minu	tes '	181	TI RES	EST UL	
Specific Gravit ASTM D792	y	Į.	Density						g/cc					.94	15	
MFI ASTM D12 COND. E GRADE:	238 K307	P	Melt Flov	w Inde	ex 1	190°C	/2160	g	g/10	min				.2	24	
Carbon Black (ASTM D4218	Content	F	Range	77 V 100 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			a dan di Tala di Angusia Banda di Angusia nyi daga	***************************************	%	PART ATT STATE TANKET MANAGEMENT CONTROL				2.2	20	
Carbon Black I ASTM D5596	Dispersion	(Category	У								********	10	in Cat.	1	
Tensile Streng ASTM D6693 ASTM D638 (N (2 inches / mir	Modified)	F	Average	Strer	ngth	h @ Y	ield		29	N/mm	16	8 pp	i	2,65	56	psi
	***************************************	ļ	Average	Strer	ngth	h @ B	reak		30	N/mm	170) pp	i	2,68	37	psi
Elongation AS ASTM D638 (N (2 inches / mir Lo = 1.3" Yield	fodified)	F	∖verage	Elon	gati	ion @	Yield		%					17.7	7 4	
Lo = 2.0" Breal	(ļ	Average	Elon	gati	ion @	Break		%					412	.2	
Dimensional St ASTM D1204 (•	<i>J</i> -	Average	Dime	ensi	ional c	hange		%					4	16	
Tear Resistand ASTM D-1004		F	\verage	Tear	Re	esistan	ice		256.9) N				57.75	66	lbs
Puncture Resis FTMS 101 Met		ified)	Load						438.7	N				98.63	31	lbs
Puncture Resis ASTM D4833 (Load						615.0) N				138.2	27	lbs
ESCR ASTM D1693			Minimur	n Hrs	s w/	o Fail	ures	1500) hrs		MATERIAL PROPERTY AND ASSESSMENT	, I king t to grape	CE	RTIFIE	D	
***************************************	ant Tensile Loa	 Н	ass / fai					300		14. FE 18.4 VET LA A LEFA I / A FEMALA LA A		*****	0	-4		

Customer: Waste Management, Inc. Of Florida

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					11									
ROLL# 314343-	08	Lot	t #:		7180362	2	Liner	Type: N	VICR	OS	SPIK	Ϊ HI	OPI	Ξ
Measurement ASTM D5994		ИЕТР 1.49	RIC mm		GLISH mil	L	ength.	ss	1.5 125	m	m	60 mi 410.1	l fee	t
48.8 P*C - JN	MAX: 1	1.76	mm	69	mil	V	∕idth		7.00		m;	23.0	fee	t
Asperity GRI GM12: 33 mil F	AVE: 1	1.63	mm	64	mil	OIT(Sta	ndard) A	ASTM D3895	i minut	es	181	TE RES	ST ULT	'S
Specific Gravity ASTM D792	Dei	nsity					g/cc		_,			.94	5	
MFI ASTM D1238 COND. E GRADE: K307	Me	It Flo	w Inde	∋x 19	90°C /2160	g	g/10	min				.2	4	
Carbon Black Content ASTM D4218	Rai	nge					%					2.2	:0	
Carbon Black Dispersion ASTM D5596	Ca	tegor	у	- La British		~~~\ <u>~</u>					10) in Cat.	1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Ave	erage	Strer	ngth	@ Yield		30	N/mm	17	0 p	pi	2,65	66	psi
(A monos / minoro)	Ave	erage	Strer	ngth	@ Break		30	N/mm	172	2 p	pi	2,68	7	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Ave	erage	Elon	gatio	on @ Yield		%					17.7	'4	
Lo = 2.0" Break	Ave	erage	Elon	gatio	n @ Break		%			*********	rampor era balangi	412	.2	f paraghini salma min prilipas vik s
Dimensional Stability ASTM D1204 (Modified)	Ave	erage	Dime	ensio	nal change		%				***	4	16	
Tear Resistance ASTM D-1004 (Modified)	Ave	erage	Tear	Res	istance		256.9	N				57.75	6	lbs
Puncture Resistance FTMS 101 Method 2065 (Mod	Lo dified)	ad					438.7	'N				98.63	31	lbs
Puncture Resistance ASTM D4833 (Modified)	Lo	ad		ann galana t	e nome nerven et la ballere la seu h		615.0) N	A STATE OF THE STA			138.2	27	lbs
ESCR ASTM D1693	Mi	nimu	m Hrs	s w/o	Failures	150	0 hrs	A service of the serv			С	ERTIFIE	D	
Notched Constant Tensile Lo ASTM D5397	ad pas	s / fa	il @ 3	0%		300	hrs			***	(ONGOIN	G	

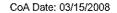
Customer: Waste Management, Inc. Of Florida

PO: 1000012448 Vista Landfill

Destination Apopka, FL

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60HDmic.FRM REV 03





Certificate of Analysis

Shipped To: AGRU AMERICA INC

500 GARRISON RD GEORGETOWN SC 29440

USA

Recipient: PALMER

Fax:

CPC Delivery #: 87612234

PO #: 004763 Weight: 188800 LB Ship Date: 03/14/2008 Package: BULK Mode: Hopper Car

Car #: PSPX001261 Seal No: 256101

Product:

MARLEX POLYETHYLENE K307 BULK

Lot Number: 7180362

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.240	g/10mi
՝ ^լ LMI Flow Rate	ASTM D1238	21.00	g/10mi
ansity	ASTM D1505	0.9370	g/cm3
Pellet Count	P02.08.03	29.000	pel/g
Production Date		03/13/2008	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP. However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Troy Griffin

Quality Systems Coordinator

For CoA questions contact Tom Scheirman at 832-813-4637

SUB APPENDIX B-2

GEOCOMPOSITE

Engineered Synthetic Products, Inc.

May 31, 2008 Agru America Inc. 500 Garrison Road Georgetown, SC 29440

> Ref.: WM Vista Landfill, FL Customer P.O. # 4785 Transnet 330-2-8

We certify that the Transnet 330-2-8 drainage composite, meets the project requirements as stated in the

specifications. The properties listed in this section are:

Property	Test Method	Unit	Required Value	Qualifier
Geonet ⁴	1 CSC PICCION			
Mass per Unit Area	ASTM D 5261	lbs/ft²	0.3	Minimum
	ASTM D 5201	mil	200	Minimum
Thickness	ASTM D 3199	%	2 - 3	Range
Carbon Black			95	Minimum
Tensile Strength	ASTM D 5035	lbs/in		
Melt Flow	ASTM D 1238 ³	g/10 min	1.0	Maximum
Density	ASTM D 1505	g/cm³	0.94	Minimum
Composite				
Ply Adhesion	GRI GC7	lb/in	1.0	MARV ⁶
Transmissivity ¹	ASTM D 4716	m²/sec	9.0 x 10 ⁻⁴	MARV
Transmissivity ²	ASTM D 4716	m²/sec	7.9 x 10 ⁻⁴	MARV
Geotextile ^{4 & 5}				
Fabric Weight	ASTM D 5261	oz/yd²	8.0	MARV
Grab Strength	ASTM D 4632	lbs	200	MARV
Tear Strength	ASTM D 4533	lbs	75	MARV
Puncture Resistance	ASTM D 4833	lbs	90	MARV
CBR Puncture	ASTM D 6241	lbs	500	MARV
Permittivity	ASTM D 4491	sec-1	0.5	MARV
AOS	ASTM D 4751	US Sieve	80	MARV

Notes:

- 1 Transmissivity measured using water at 21 \pm 2 °C (70 \pm 4 °F) with a gradient of 0.02 and a confining pressure of 500 psf between site soil & liner after 100 hours.
- 2 Transmissivity measured using water at 21 \pm 2 °C (70 \pm 4 °F) with a gradient of 0.02 and a confining pressure of 12000 psf between site soil & liner after 100 hours.
- 3 Condition 190/2.16
- 4 Geotextile and Geonet properties are prior to lamination.
- 5 Geotextile data is provided by the supplier.
- 6 MARV is statistically defined as mean minus two standard deviations and it is the value which is exceeded by 97.5% of all the test data.

Sincerely, *Nilay Patel* Nilay Patel

QA Manager

Engineered Synthetic Products, Inc.

Product:

TN330-2-8

Project :

WM Vista Landfill, FL

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project:

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile	Roll Number	Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m²/sec)
			Тор	Bottom	Minimum	Average	(III / Sec)
1	278510001	278510001 - N	2785.108	2785.141	1.48	2.56	
2	278510002	278510002 - N	2785.108	2785.141			
3	278510003	278510003 - N	2785.108	2785.141			
4	278510004	278510004 - N	2785.108	2785.141			
5	278510005	278510005 - N	2785.108	2785.141			
6	278510006	278510006 - N	2785.108	2785.141			
7	278510007	278510007 - N	2785.117	2785.103			
8	278510008	278510008 - N	2785.117	2785.103			
9	278510009	278510009 - N	2785.117	2785.103			
10	278510010	278510010 - N	2785.117	2785.103	1.33	2.21	
11	278510011	278510011 - N	2785.117	2785.103			
12	278510012	278510012 - N	2785.117	2785.103			
13	278510013	278510013 - N	2785.105	2785.119			
14	278510014	278510014 - N	2785.105	2785.119			
15	278510015	278510015 - N	2785.105	2785.119			
16	278510016	278510016 - N	2785.105	2785.119			
17	278510017	278510017 - N	2785.105	2785.119			
18	278510018	278510018 - N	2785.105	2785.119			
19	278510019	278510019 - N	2785.102	2785.106			
20	278510020	278510020 - N	2785.102	2785.106	1.56	2.48	
21	278510021	278510021 - N	2785.102	2785.106			
22	278510022	278510022 - N	2785.102	2785.106			
23	278510023	278510023 - N	2785.102	2785.106			
24	278510024	278510024 - N	2785.102	2785.106			
25	278510025	278510025 - N	2785.109	2785.124			
26	278510026	278510026 - N	2785.109	2785.124			
27	278510027	278510027 - N	2785.109	2785.124			



Engineered Synthetic Products, Inc.

Product:

TN330-2-8

Project :

WM Vista Landfill, FL

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project:

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity (m²/sec)
278510001 - N	7180185	0.9535	0.365	328	2.59	110	
278510002 - N	7180185	0.9535					
278510003 - N	7180185	0.9535					
278510004 - N	7180185	0.9535					
278510005 - N	7180185	0.9535					
278510006 - N	7180185	0.9535					
278510007 - N	7180185	0.9535					
278510008 - N	7180185	0.9535					
278510009 - N	7180185	0.9535				107	
278510010 - N	7180185	0.9535	0.354	322	2.45	107	
278510011 - N	7180185	0.9535					
278510012 - N	7180185	0.9535					
278510013 - N	7180185	0.9535					
278510014 - N	7180185	0.9535					
278510015 - N	7180185	0.9535					
278510016 - N	7180185	0.9535					
278510017 - N	7180185	0.9535					
278510018 - N	7180185	0.9535			-		
278510019 - N	7180185	0.9535			0.60	112	
278510020 - N	7180185	0.9535	0.359	330	2.62	112	
278510021 - N	7180185	0.9535					
278510022 - N	7180185	0.9535					
278510023 - N	7180185	0.9535					
278510024 - N	7180185	0.9535	-		-		
278510025 - N	7180185	0.9535					
278510026 - N	7180185	0.9535	-			-	
278510027 - N	7180185	0.9535					



Engineered Synthetic Products, Inc.

Product:

TN330-2-8

Project :

WM Vista Landfill, FL

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project:

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile	Roll Number	Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m²/sec)
			Тор	Bottom	Minimum	Average	(111 / 300)
1	278510028	278510028 - N	2785.109	2785.124			
2	278510029	278510029 - N	2785.109	2785.124			
3	278510030	278510030 - N	2785.109	2785.124	1.41	2.14	
4	278510031	278510031 - N	2785.126	2785.101			
5	278510032	278510032 - N	2785.126	2785.101			
6	278510033	278510033 - N	2785.126	2785.101			
7	278510034	278510034 - N	2785.126	2785.101			
8	278510035	278510035 - N	2785.126	2785.101			
9	278510036	278510036 - N	2785.126	2785.101			
10	278510037	278510037 - N	2785.139	2785.120			
11	278510038	278510038 - N	2785.139	2785.120			
12	278510039	278510039 - N	2785.139	2785.120			
13	278510040	278510040 - N	2785.139	2785.120	1.60	2.52	
14	278510041	278510041 - N	2785.139	2785.120			
15	278510042	278510042 - N	2785.139	2785.120			
16	278510043	278510043 - N	2785.115	2785.110			
17	278510044	278510044 - N	2785.115	2785.110			
18	278510045	278510045 - N	2785.115	2785.110			
19	278510046	278510046 - N	2785.115	2785.110			
20	278510047	278510047 - N	2785.115	2785.110			
21	278510048	278510048 - N	2785.115	2785.110			
22	278510049	278510049 - N	2785.107	2785.122			
23	278510050	278510050 - N	2785.107	2785.122	1.35	2.23	
24	278510051	278510051 - N	2785.107	2785.122			
25	278510052	278510052 - N	2785.107	2785.122			
26	278510053	278510053 - N	2785.107	2785.122			
27	278510054	278510054 - N	2785.107	2785.122			



Engineered Synthetic Products, Inc.

Product: Product : Project :

TN330-2-8

WM Vista Landfill, FL

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project:

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity (m²/sec)
278510028 - N	7180185	0.9535					
278510029 - N	7180185	0.9535					
278510030 - N	7180185	0.9535	0.352	331	2.37	109	
278510031 - N	7180185	0.9535					
278510032 - N	7180185	0.9535					
278510033 - N	7180185	0.9535					
278510034 - N	7180185	0.9535					
278510035 - N	7180185	0.9526					
278510036 - N	7180185	0.9526					
278510037 - N	7180185	0.9526					
278510038 - N	7180185	0.9526					
278510039 - N	7180185	0.9526					
278510040 - N	7180185	0.9526	0.362	333	2.54	111	
278510041 - N	7180185	0.9526					
278510042 - N	7180185	0.9526					
278510043 - N	7180185	0.9526					
278510044 - N	7180185	0.9526					
278510045 - N	7180185	0.9526					
278510046 - N	7180185	0.9526					
278510047 - N	7180185	0.9526					
278510048 - N	7180185	0.9526					
278510049 - N	7180185	0.9526					
278510050 - N	7180185	0.9526	0.357	325	2.40	108	
278510051 - N	7180185	0.9526					
278510052 - N	7180185	0.9526					
278510053 - N	7180185	0.9526					
278510054 - N	7180185	0.9526					



Engineered Synthetic Products, Inc.

Product:

TN330-2-8

Project :

WM Vista Landfill, FL

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project:

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile	ile Roll Number (lb/in) Transr		Geocomposite Transmissivity* (m²/sec)	
			Тор	Bottom	Minimum	Average	(III / Sec)
1	278510055	278510055 - N	2785.121	2785.116			
2	278510056	278510056 - N	2785.121	2785.116			
3	278510057	278510057 - N	2785.121	2785.116			
4	278510058	278510058 - N	2785.121	2785.116			
5	278510059	278510059 - N	2785.121	2785.116			
6	278510060	278510060 - N	2785.121	2785.116	1.58	2.39	
7	278510061	278510061 - N	2785.112	2785.127			
8	278510062	278510062 - N	2785.112	2785.127			
9	278510063	278510063 - N	2785.112	2785.127			
10	278510064	278510064 - N	2785.112	2785.127			
11	278510065	278510065 - N	2785.112	2785.127			
12	278510066	278510066 - N	2785.112	2785.127			
13	278510067	278510067 - N	2785.118	2785.114			
14	278510068	278510068 - N	2785.118	2785.114			
15	278510069	278510069 - N	2785.118	2785.114			
16	278510070	278510070 - N	2785.118	2785.114	1.43	2.02	
17	278510071	278510071 - N	2785.118	2785.114			
18	278510072	278510072 - N	2785.118	2785.114			
19	278510073	278510073 - N	2785.123	2785.137			
20	278510074	278510074 - N	2785.123	2785.137			
21	278510075	278510075 - N	2785.123	2785.137			
22	278510076	278510076 - N	2785.123	2785.137			
23	278510077	278510077 - N	2785.123	2785.137			
24	278510078	278510078 - N	2785.123	2785.137			
25	278510079	278510079 - N	2785.142	2785.111			
26	278510080	278510080 - N	2785.142	2785.111	1.55	2.57	
27	278510081	278510081 - N	2785.142	2785.111			



Engineered Synthetic Products, Inc.

Product:

TN330-2-8

Project :

WM Vista Landfill, FL

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project:

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity (m²/sec)
278510055 - N	7180185	0.9526					
278510056 - N	7180185	0.9526					
278510057 - N	7180185	0.9526					
278510058 - N	7180185	0.9526					
278510059 - N	7180185	0.9526					
278510060 - N	7180185	0.9526	0.368	323	2.75	112	
278510061 - N	7180185	0.9526					
278510062 - N	7180185	0.9526					
278510063 - N	7180185	0.9526					
278510064 - N	7180185	0.9526					
278510065 - N	7180185	0.9526					
278510066 - N	7180185	0.9526					
278510067 - N	7180185	0.9526					
278510068 - N	7180185	0.9526					
278510069 - N	7180185	0.9526					
278510070 - N	7180185	0.9537	0.360	330	2.39	107	
278510071 - N	7180185	0.9537					
278510072 - N	7180185	0.9537					
278510073 - N	7180185	0.9537					
278510074 - N	7180185	0.9537					
278510075 - N	7180185	0.9537					
278510076 - N	7180185	0.9537					
278510077 - N	7180185	0.9537					
278510078 - N	7180185	0.9537					
278510079 - N	7180185	0.9537					
278510080 - N	7180185	0.9537	0.366	329	2.56	110	
278510081 - N	7180185	0.9537					



Engineered Synthetic Products, Inc.

Product:

TN330-2-8

Project:

WM Vista Landfill, FL

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project:

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile	Roll Number	Ply Adi (lb/		Geocomposite Transmissivity* (m²/sec)
			Тор	Bottom	Minimum	Average	(111 / 300)
1	278510082	278510082 - N	2785.142	2785.111			
2	278510083	278510083 - N	2785.142	2785.111			
3	278510084	278510084 - N	2785.142	2785.111			
4	278510085	278510085 - N	2785.129	2785.144			
5	278510086	278510086 - N	2785.129	2785.144			
6	278510087	278510087 - N	2785.129	2785.144			
7	278510088	278510088 - N	2785.129	2785.144			
8	278510089	278510089 - N	2785.129	2785.144			
9	278510090	278510090 - N	2785.129	2785.144	1.29	2.28	
10	278510091	278510091 - N	2785.146	2785.135			
11	278510092	278510092 - N	2785.146	2785.135			
12	278510093	278510093 - N	2785.146	2785.135			
13	278510094	278510094 - N	2785.146	2785.135			
14	278510095	278510095 - N	2785.146	2785.135			
15	278510096	278510096 - N	2785.146	2785.135			
16	278510097	278510097 - N	2785.132	2785.148			
17	278510098	278510098 - N	2785.132	2785.148			
18	278510099	278510099 - N	2785.132	2785.148			
19	278510100	278510100 - N	2785.132	2785.148	1.46	2.65	
20	278510101	278510101 - N	2785.132	2785.148			
21	278510102	278510102 - N	2785.132	2785.148			
22	278510103	278510103 - N	2785.150	2785.130			
23	278510104	278510104 - N	2785.150	2785.130			
24	278510105	278510105 - N	2785.150	2785.130			
25	278510106	278510106 - N	2785.150	2785.130			
26	278510107	278510107 - N	2785.150	2785.130			
27	278510108	278510108 - N	2785.150	2785.130			



Engineered Synthetic Products, Inc.

Product:

TN330-2-8

Project:

WM Vista Landfill, FL

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project:

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity (m²/sec)
278510082 - N	7180185	0.9537					
278510083 - N	7180185	0.9537					
278510084 - N	7180185	0.9537					
278510085 - N	7180185	0.9537					
278510086 - N	7180185	0.9537					
278510087 - N	7180185	0.9537					
278510088 - N	7180185	0.9537					
278510089 - N	7180185	0.9537					
278510090 - N	7180185	0.9537	0.355	331	2.43	108	
278510091 - N	7180185	0.9537					
278510092 - N	7180185	0.9537					
278510093 - N	7180185	0.9537					
278510094 - N	7180185	0.9537					
278510095 - N	7180185	0.9537					
278510096 - N	7180185	0.9537					
278510097 - N	7180185	0.9537					
278510098 - N	7180185	0.9537					
278510099 - N	7180185	0.9537					
278510100 - N	7180185	0.9537	0.363	328	2.68	111	
278510101 - N	7180185	0.9537					
278510102 - N	7180185	0.9537					
278510103 - N	7180185	0.9537					
278510104 - N	7180185	0.9537					
278510105 - N	7180185	0.9529					
278510106 - N	7180185	0.9529					
278510107 - N	7180185	0.9529					
278510108 - N	7180185	0.9529					



Engineered Synthetic Products, Inc.

Product:

TN330-2-8

Project:

WM Vista Landfill, FL

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project:

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile	Roll Number	Ply Adi (lb/		Geocomposite Transmissivity* (m²/sec)
			Тор	Bottom	Minimum	Average	(111 / 300)
1	278510109	278510109 - N	2785.128	2785.145			
2	278510110	278510110 - N	2785.128	2785.145	1.31	2.16	
3	278510111	278510111 - N	2785.128	2785.145			
4	278510112	278510112 - N	2785.128	2785.145			
5	278510113	278510113 - N	2785.128	2785.145			
6	278510114	278510114 - N	2785.128	2785.145			
7	278510115	278510115 - N	2785.138	2785.133			
8	278510116	278510116 - N	2785.138	2785.133			
9	278510117	278510117 - N	2785.138	2785.133			
10	278510118	278510118 - N	2785.138	2785.133			
11	278510119	278510119 - N	2785.138	2785.133			
12	278510120	278510120 - N	2785.138	2785.133	1.59	2.59	
13	278510121	278510121 - N	2785.136	2785.113			
14	278510122	278510122 - N	2785.136	2785.113			
15	278510123	278510123 - N	2785.136	2785.113			
16	278510124	278510124 - N	2785.136	2785.113			
17	278510125	278510125 - N	2785.136	2785.113			
18	278510126	278510126 - N	2785.136	2785.113			
19	278510127	278510127 - N	2785.147	2785.131			
20	278510128	278510128 - N	2785.147	2785.131			
21	278510129	278510129 - N	2785.147	2785.131			
22	278510130	278510130 - N	2785.147	2785.131	1.42	2.12	
23	278510131	278510131 - N	2785.147	2785.131			
24	278510132	278510132 - N	2785.147	2785.131			
25	278510133	278510133 - N	2785.134	2785.153			
26	278510134	278510134 - N	2785.134	2785.153			
27	278510135	278510135 - N	2785.134	2785.153			



STAPS Industries

Engineered Synthetic Products, Inc.

Product:

TN330-2-8

Project :

WM Vista Landfill, FL

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project:

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity (m²/sec)
278510109 - N	7180185	0.9529					
278510110 - N	7180185	0.9529	0.351	327	2.41	109	
278510111 - N	7180185	0.9529					
278510112 - N	7180185	0.9529					
278510113 - N	7180185	0.9529					
278510114 - N	7180185	0.9529					
278510115 - N	7180185	0.9529					
278510116 - N	7180185	0.9529					
278510117 - N	7180185	0.9529					
278510118 - N	7180185	0.9529					
278510119 - N	7180185	0.9529					
278510120 - N	7180185	0.9529	0.370	332	2.53	112	
278510121 - N	7180185	0.9529					
278510122 - N	7180185	0.9529					
278510123 - N	7180185	0.9529					
278510124 - N	7180185	0.9529					
278510125 - N	7180185	0.9529					
278510126 - N	7180185	0.9529					
278510127 - N	7180185	0.9529					
278510128 - N	7180185	0.9529					
278510129 - N	7180185	0.9529					
278510130 - N	7180185	0.9529	0.361	322	2.36	107	
278510131 - N	7180185	0.9529					
278510132 - N	7180185	0.9529					
278510133 - N	7180185	0.9529					
278510134 - N	7180185	0.9529					
278510135 - N	7180185	0.9529					



Engineered Synthetic Products, Inc.

Product:

TN330-2-8

Project :

WM Vista Landfill, FL

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project:

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile	Roll Number	Ply Adi (lb/		Geocomposite Transmissivity* (m²/sec)
			Тор	Bottom	Minimum	Average	(III / Sec)
1	278510136	278510136 - N	2785.134	2785.153			
2	278510137	278510137 - N	2785.134	2785.153			
3	278510138	278510138 - N	2785.134	2785.153			
4	278510139	278510139 - N	2785.152	2785.104			
5	278510140	278510140 - N	2785.152	2785.104	1.57	2.34	
6	278510141	278510141 - N	2785.152	2785.104			
7	278510142	278510142 - N	2785.152	2785.104			
8	278510143	278510143 - N	2785.152	2785.104			
9	278510144	278510144 - N	2785.152	2785.104			
10	278510145	278510145 - N	2785.143	2785.149			
11	278510146	278510146 - N	2785.143	2785.149			
12	278510147	278510147 - N	2785.143	2785.149			
13	278510148	278510148 - N	2785.143	2785.149			
14	278510149	278510149 - N	2785.143	2785.149			
15	278510150	278510150 - N	2785.143	2785.149	1.36	2.05	
16	278510151	278510151 - N	2785.151	2785.125			
17	278510152	278510152 - N	2785.151	2785.125			
18	278510153	278510153 - N	2785.151	2785.125			
19	278510154	278510154 - N	2785.151	2785.125			
20	278510155	278510155 - N	2785.151	2785.125			
21	278510156	278510156 - N	2785.151	2785.125			
22	278510157	278510157 - N	2785.140	2785.154			
23	278510158	278510158 - N	2785.140	2785.154			
24	278510159	278510159 - N	2785.140	2785.154			
25	278510160	278510160 - N	2785.140	2785.154	1.49	2.54	
26	278510161	278510161 - N	2785.140	2785.154			
27	278510162	278510162 - N	2785.140	2785.154			



Engineered Synthetic Products, Inc.

Product:

TN330-2-8

Project :

WM Vista Landfill, FL

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project:

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft ²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity (m²/sec)
278510136 - N	7180185	0.9529					
278510137 - N	7180185	0.9529					
278510138 - N	7180185	0.9529					
278510139 - N	7180185	0.9529					
278510140 - N	7180185	0.9533	0.367	326	2.77	111	
278510141 - N	7180185	0.9533					
278510142 - N	7180185	0.9533					
278510143 - N	7180185	0.9533					
278510144 - N	7180185	0.9533					
278510145 - N	7180185	0.9533					
278510146 - N	7180185	0.9533					
278510147 - N	7180185	0.9533					
278510148 - N	7180185	0.9533					
278510149 - N	7180185	0.9533					
278510150 - N	7180185	0.9533	0.358	330	2.38	108	
278510151 - N	7180185	0.9533					
278510152 - N	7180185	0.9533					
278510153 - N	7180185	0.9533					
278510154 - N	7180185	0.9533					
278510155 - N	7180185	0.9533					
278510156 - N	7180185	0.9533					
278510157 - N	7180185	0.9533					
278510158 - N	7180185	0.9533					
278510159 - N	7180185	0.9533					
278510160 - N	7180185	0.9533	0.369	326	2.57	110	
278510161 - N	7180185	0.9533					
278510162 - N	7180185	0.9533					



ASTM D 4716

Client:

Agru America Inc.

Project:

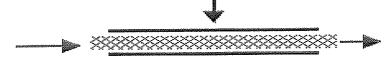
WM Vista Landfill, FL

Product:

TN330-2-8

Job # 2757

Test Configuration:



IMPLOW

OUTFLOW

12 X 12 Test Surface

Test Information:

Boundary Conditions:

Site Soil

Geocomposite

Liner

Normal Load: 500 psf Gradient:

0.02 ft

Seating Time: 100 hours

Flow Direction: MD

Test Results:

		Transmissivity, m ² /sec
Pressure (pst)		100 hours
		1.85 x 10 ⁻³
		1.89×10^{-3}
500	0.02	1.77×10^{-3}
		1.81 × 10 ⁻³
		$1.72 \times 10^{.3}$
	Pressure (psf) 500	

ASTM D 4716

Client:

Agru America Inc.

Project:

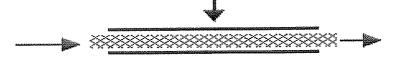
WM Vista Landfill, FL

Product:

TN330-2-8

Job # 2757

Test Configuration:



IMPLOW

12 × 12 Test Surface

OUTFLOW

Test Information:

Boundary Conditions:

Site Soil

Geocomposite

Liner

Normal Load: 12000 psf 0.02 ft

Gradient: Seating Time: 100 hours

Flow Direction: MD

Test Results:

		Curations Et	Transmissivity, m²/sec
Roll No.	Pressure, psf	Gradient, ft	100 hours
278510001			1.39 x 10 ⁻³
278510035			1.33 × 10 ⁻³
278510070	12000	0.02	1.29 x 10 ⁻³
278510105			1.25 x 10 ⁻³
278510140			1.36×10^{-3}

POLYETHYLENE RESIN CERTIFICATION

Customer Name:

Project Name:

Geocomposite Manufacturer:

Geocomposite Production Plant: Geocomposite Brand Name:

WM Vista Landfill, FL Agru America Inc.

SKAPS Industries Commerce, GA TN330-2-8

We, the Geonet Manufacturer, hereby certify the following for the material delivered to the above referenced project:

Resin Supplier	Res Produc	in Resin Brand ction Name	ind Resin Lot Number	Property	Test Method	Units	Resin Supplier Value	Tested Value*
Chevron Phillips			L	Density	ASTM D 1505	gm/cc	0.947	0.948
Chemical Company	Chevro	on, IX HDPE /	C81081/	Melt Flow Index ASTM [ASTM D 1238 ^(a)	gm/10 min	0.3	0.3

(a) Condition 190/2.16 * Data from SKAPS Quality Control

Product: TN330-2-8 Project: WM Vista Landfill, FL

We, the Geocomposite Manufacturer, hereby certify the following for the material delivered to the above referenced project :

Email: skaps@skaps.com

SUB APPENDIX B-3

GEOSYNTHETIC CLAY LINER



Date:

4/16/2008

Purchase Order: 1000012449 ORDER NUMBER: 000237117

Sheree Henninger Waste Management

Apopka, FL 32703 shenning@wm.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Waste Management. The shipments left our Cartersville, Georgia plant on 4/17/2008.

If you have any questions regarding this information, please contact me at (770) 387-7773.

Sincerely,

Melanie King.

Quality Assurance Coordinator

CETCO Cartersville Plant

Melana Ling

Ecert 1.16 FLW Page 2 of 10



GEOSYNTHETIC CLAY LINER MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Vista LF CUSTOMER P.O.: 1000012449 ORDER NUMBER: 000237117

PREPARED FOR: Waste Management

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- · Raw material test results

PREPARED BY: Melanie King Quality Assurance Coordinator CETCO 218 Industrial Park

Cartersville, GA 30121

Telephone: (770) 387-7773

Fax:

E-Mail: melanie.king@cetco.com

Ecert 1.16 FLW Page 3 of 10



PRODUCTION CERTIFICATION

PROJECT NAME: Vista LF CUSTOMER P.O.: 1000012449

PREPARED FOR: Waste Management

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat[®] geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO certifies Bentomat[®] to be essentially free of broken needles and fragments of needles that would negatively effect the performance of the final product.

Melanie King

Quality Assurance Coordinator

Melani Ling

Colloid Environmental Technologies Co. (CETCO)

Ecert 1.16 FLW Page 4 of 10



Ship Date: 4/17/2008

Order Number: 000237117

Prepared For: Waste Management

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index		24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 lbs/in MARV
ASTM D 5321	GCL Hydrated Internal Shear Strength	Periodic	500 psf (24 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10^-9 cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10^-8 m^3/m^2/sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	3.5 lbs/in Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility. All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT ST

Raw Material	test method	mass per area	units
Nonwoven Cover Fabric	ASTM D 5261	6.0	oz/yd2
Bentomat ST Woven Base Fabric	ASTM D 5261	3.2	oz/yd2

Fabric certifications from our raw material suppliers are on file at our production facility.



CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King

Quality Assurance Coordinator

CETCO Cartersville Plant

Melan King



GCL ORDER PACKING LIST

GCL shipped for certification package number 000237117

Order#	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
000237117	CV-BENTOMAT ST	200816CV	00002952	150	15	2250	3354
000237117	CV-BENTOMAT ST	200816CV	00002953	150	15	2250	2972
000237117	CV-BENTOMAT ST	200816CV	00002954	150	15	2250	3076
000237117	CV-BENTOMAT ST	200816CV	00002955	150	15	2250	3032
000237117	CV-BENTOMAT ST	200816CV	00002956	150	15	2250	2958
000237117	CV-BENTOMAT ST	200816CV	00002957	150	15	2250	2956
000237117	CV-BENTOMAT ST	200816CV	00002958	150	15	2250	3110
000237117	CV-BENTOMAT ST	200816CV	00002959	150	15	2250	2978
			Totals:	1200	120	18000	24436
				Total N	lumber	of Rolls Cer	tified: 8



GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 000237117

	GCL			(Geotextiles		Clay
<u> </u>	V-BENTOMA			'-N/W-WHI		CV-WOVEN-ST	
GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll#	Roll # Tested	Base Roll #	Clay Lot #
200816CV		00002950	200815CV	00001320	00001315	2010070862	850072A
200816CV	00002953	00002950	200815CV	00001320	00001315	2010095922	850072A
200816CV	00002954	00002950	200815CV	00001320	00001315	2010095922	850072A
200816CV	00002955	00002950	200815CV	00001320	00001315	2010095922	850072A
	00002956	00002950	200815CV	00001320	00001315	2010095922	850072A
200816CV	00002957	00002950	200815CV	00001320	00001315	2010095922	850072A
200816CV	00002958	00002950	200815CV	00001320	00001315	2010095922	850072A
200816CV	00002959		200815CV		00001315	2010095922	850072A



GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 000237117 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
	Stand	lard Test Method:	ASTM D 5993	ASTM D 6768	ASTM D 6496
	Stand	ard Specification:	0.75 lb/sq ft MARV	30lbs/in MARV	3.5lbs/in MARV
CV-BENTOMAT ST	200816CV	00002950	0.87	67.6	5.4

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.

Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.

Ecert 1.16 FLW





BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce package 000237117 has been tested by American Colloid Company and yeilded the following test results.

Reference	Swell	Fluid Loss
Test Method:	ASTM D 5890	ASTM D 5891
Specification:	24 Min	18 ml Max
850072A	26.0	17.2

Ecert 1.16 FLW Page 9 of 10



GEOTEXTILE TEST RESULTS FOR RAW MATERIAL SUPPLIED BY A CETCO FACILITY

The GCL in certification package number 000237117 was manufactured using these geotextiles:

Material	Lot #	Roll#	Mass Area	Grab Strenth
CV-NON-WOVEN	200815CV	1000013131	6.7	31.4

Ecert 1.16 FLW Page 10 of 10



GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 000237117 was manufactured with geotextiles which were tested with the following results.

BASE			
Material	Roll Number	Mass Area oz/yd2	Grab Strenth lbs
PPX 82TEX	2010070862	3.4	143.0
PPX 82TEX	2010095922	3.4	196.0

APPENDIX C

CONFORMANCE TEST RESULTS

SUB APPENDIX C-1

GEOMEMBRANE

April 3, 2008

Mail To:

Bill To:

Ms. Sheree Henninger Waste Management, Inc.

<= Same

email: shenning@wm.com

cc email: dschauer@geosyntec.com

Dear Ms. Henninger:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:

Vista Landfill - Cell 1

TRI Job Reference Number:

E2310-15-08

Material(s) Tested:

1 Agru 60 mil Microspike HDPE Geomembrane(s)

Test(s) Requested:

Thickness (ASTM D 5994)

Density (ASTM D 1505)
Carbon Content (ASTM D 1603, mod.)

Carbon Content (ASTM D 1603, mod. Carbon Dispersion (ASTM D 5596)

Tensile (ASTM D 6693)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

Dr. Mansukh Patel

Sr. Laboratory Coordinator Geosynthetic Services Division www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GEOMEMBRANE TEST RESULTS

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: Agru 60 mil Microspike HDPE Geomembrane

Sample Identification: 313792.08

TRI Log #: E2310-15-08

PARAMETER	TEST R	EPLICA	TE NUME	ER							MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10	MLAIR	DLY.	SPEC.
Thickness (ASTM D 5994)													
Thickness (mils)	61	62	62	60	64	63	66	65	66	64	63	2	60 avg
										•	60	<< min	54 min
Density (ASTM D 1505)	·												
Density (g/cm3)	0.945	0.945	0.945								0.945	0.000	0.94 min
Carbon Black Content (ASTM D 16	603, mod.)	T								· · · ·			
% Carbon Black	2.34	2.36									2,35	0.01	0.00/
			· · · · · · · · · · · · · · · · · · ·								2.33	0.03	2 - 3%
Carbon Black Dispersion (ASTM D	5596)												
Rating - 1st field view	1	1	1	1	1								9 Cat 1, 2
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693,	2 ipm strain rate	:)		***************************************									»—————————————————————————————————————
MD Yield Strength (ppi)	158	173	181	153	148						163	14	126 min
TD Yield Strength (ppi)	173	184	198	161	164						176	15	126 min
MD Break Strength (ppi)	194	195	235	166	197						197	25	90 min
TD Break Strength (ppi)	190	163	219	123	189						177	36	90 min
MD Yield Elongation (%)	22	22	22	22	22						22	0	12 min
TD Yield Elongation (%)	19	19	19	19	19						19	0	12 min 12 min
MD Break Elongation (%)	408	396	435	425	450						423	21	100 min
TD Break Elongation (%)	529	404	558	233	570						459	143	100 min
MD Machine Direction	TD Trans	verse Dir	ection						·			······	

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

April 3, 2008

Mail To:

Bill To:

Ms. Sheree Henninger Waste Management, Inc.

<= Same

email: shenning@wm.com

cc email: dschauer@geosyntec.com

Dear Ms. Henninger:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:

Vista Landfill - Cell 1

TRI Job Reference Number:

E2310-16-09

Material(s) Tested:

2 Agru 60 mil Microspike HDPE Geomembrane(s)

Test(s) Requested:

Thickness (ASTM D 5994)

Density (ASTM D 1505)

Carbon Content (ASTM D 1603, mod.) Carbon Dispersion (ASTM D 5596)

Tensile (ASTM D 6693)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

Dr. Mansukh Patel

Patel

Sr. Laboratory Coordinator Geosynthetic Services Division www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GEOMEMBRANE TEST RESULTS

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: Agru 60 mil Microspike HDPE Geomembrane

Sample Identification: 314109.08 TRI Log #: E2310-16-09

PARAMETER	TEST F	REPLIÇA	TE NUMB	ER							MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	60	61	58	60	67	71	69	70	68	69	65	5	60 avg
											58	<< min	54 min
Density (ASTM D 1505)										***************************************			
Density (g/cm3)	0.945	0.945	0.945								0.945	0.000	0.94 min
Carbon Black Content (ASTM D 1603, mo	od.)					***************************************			 				
% Carbon Black	2.37	2.37									2.37	0.00	2 - 3%
Carbon Black Dispersion (ASTM D 5596)									····				
Rating - 1st field view	1	1	1	1	1								9 Cat 1, 2
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693, 2 ipm s	train rat	e)							~~~~				
MD Yield Strength (ppi)	149	155	157	176	187						165	16	126 min
TD Yield Strength (ppi)	162	177	173	199	214						185	21	126 min
MD Break Strength (ppi)	189	205	176	222	240						206	26	90 min
TD Break Strength (ppi)	159	195	158	135	226						175	36	90 min
MD Yield Elongation (%)	21	21	21	21	21						21	0	12 min
TD Yield Elongation (%)	18	18	18	18	18						18	0	12 min
MD Break Elongation (%)	484	434	425	440	438						444	23	100 min
TD Break Elongation (%)	476	583	454	118	583						443	191	100 min
MD Machine Direction	TD Tran	sverse Dir	ection		·		<u>-</u>				1,		

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.



GEOMEMBRANE TEST RESULTS

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: Agru 60 mli Microspike HDPE Geomembrane Sample Identification: 314220.08 TRI Log #: E2310-16-09

PARAMETER	TEST	REPLICA	TE NUME	BER							MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10	MICAIA	DEV.	SPEG.
Thickness (ASTM D 5994)													
Thickness (mils)	72	70	66	61	59	61	60	58	58	58	62	5	60 avg
									-	•	58	<< min	54 min
Density (ASTM D 1505)			***************************************					····					
Density (g/cm3)	0.946	0.946	0.946								0,946	0.000	0.94 min
Carbon Black Content (ASTM D 1603,	mod.)				······································					······································			
% Carbon Black	2.40	2.35									2.38	0.04	2 - 3%
Carbon Black Dispersion (ASTM D 559	96)												
Rating - 1st field view	1	1	1	1	1								0.044.0
Rating - 2nd field view	1	1	1	1	1								9 Cat 1, 2 1 Cat 3
Tensile Properties (ASTM D 6693, 2 ipi	m strain rate	*)										~~~~	
MD Yield Strength (ppi)	171	156	145	146	150						154	11	126 min
TD Yield Strength (ppi)	190	166	166	163	157						168	13	126 min
MD Break Strength (ppi)	250	196	196	202	176						204	28	00 1-
TD Break Strength (ppi)	205	192	167	192	164						184	28 18	90 min 90 min
MD Yield Elongation (%)	22	22	22	22	22						22	0	40 mile
TD Yield Elongation (%)	19	19	19	19	19						19	0 0	12 min 12 min
MD Break Elongation (%)	454	443	451	436	460						449	0	100:
TD Break Elongation (%)	524	541	471	565	480						516	9 40	100 min 100 min
AD Machine Direction	TD Trans	verse Dire	ection	·				······································					·····

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

April 7, 2008

Mail To:

Bill To:

Ms. Sheree Henninger Waste Management, Inc.

<= Same

email: shenning@wm.com

cc email: dschauer@geosyntec.com

Dear Ms. Henninger:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:

Vista Landfill - Cell 1

TRI Job Reference Number:

E2310-19-03

Material(s) Tested:

2 Agru 60 mil Microspike HDPE Geomembrane(s)

Test(s) Requested:

Thickness (ASTM D 5994)

Density (ASTM D 1505)

Carbon Content (ASTM D 1603, mod.) Carbon Dispersion (ASTM D 5596)

Tensile (ASTM D 6693)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

Dr. Mansukh Patel

Sr. Laboratory Coordinator Geosynthetic Services Division www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GEOMEMBRANE TEST RESULTS

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: Agru 60 mil Microspike HDPE Geomembrane Sample Identification: 314230.08 TRI Log #: E2310-19-03

PARAMETER	TEST F	REPLICA	TE NUME	BER								STD.	PROJ
Thickness (ASTM D 5994)	1	2	3	4	5	6	7	8	9	10	MEAN	DEV.	SPEC
Thickness (ACTIN D 5594)													
Thickness (mils)	70	68	62	60	58	67	65	67	64	62	64	4	60 avg
											58	<< min	54 mir
Density (ASTM D 1505)				····									
Density (g/cm3)	0.945	0.945	0.945								0.945	0.000	0.94 m
Carbon Black Content (ASTM D 16	03, mod.)										0.040	0.000	0.94 111
% Carbon Black	2.29	2.33									2.31	0.03	2 - 3%
Carbon Black Dispersion (ASTM D	5596)								·		2.07	0.00	2 - 370
Rating - 1st field view	1	1	1	1	1								
Rating - 2nd field view	1	1	1	1	1								9 Cat 1, 1 Cat 3
ensile Properties (ASTM D 6693, 2	ipm strain rate)						····			· · · · · · · · · · · · · · · · · · ·		
ID Yield Strength (ppi)	142	161	156	159	155						·		
D Yield Strength (ppi)	163	154	200	162	195						155 175	7 21	126 mir 126 mir
1D Break Strength (ppi)	206	217	178	181	132								
D Break Strength (ppi)	163	163	162	168	211						183 173	33 21	90 min 90 min
1D Yield Elongation (%)	23	23	23	23	23								
D Yield Elongation (%)	21	21	21	21	21						23 21	0 0	12 min 12 min
ID Break Elongation (%)	455	469	390	410	258						······································		
D Break Elongation (%)	489	523	433	515	578						396 507	84 53	100 min 100 min
D Machine Direction	TD Trans									i	······		

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.



GEOMEMBRANE TEST RESULTS

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: Agru 60 mil Microspike HDPE Geomembrane Sample Identification: 314341.08 TRI Log #: E2310-19-03

PARAMETER	TEST F	REPLICA	TE NUMB	ER							MEAN	STD. DEV.	PROJ. SPEC.
This is a second	1	2	3	4	5	6	7	8	9	10	INCAIR	DEV.	SPEG.
Thickness (ASTM D 5994)													
Thickness (mils)	65	70	60	62	58	61	70	70	69	69	65	5	60 avq
											58	<< min	54 min
Density (ASTM D 1505)						······································							
Density (g/cm3)	0.943	0.943	0.943								0.943	0.000	0.94 mir
Carbon Black Content (ASTM D 1	603, mod.)											******	
% Carbon Black	2.31	2.29									2.30	0.01	2 - 3%
Carbon Black Dispersion (ASTM	D 5596)												
Rating - 1st field view	1	1	1	1	1								9 Cat 1.:
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693,	2 ipm strain rate))											
MD Yield Strength (ppi)	156	162	167	171	148						161	9	126 min
TD Yield Strength (ppi)	174	175	166	189	157						172	12	126 min
MD Break Strength (ppi)	200	143	196	194	198						186	24	90 min
FD Break Strength (ppi)	198	187	174	165	164						178	15	90 min
MD Yield Elongation (%)	22	22	22	22	22						22	0	12 min
D Yield Elongation (%)	19	19	19	19	19						19	0	12 min 12 min
MD Break Elongation (%)	470	331	405	399	425						406	50	100 min
D Break Elongation (%)	526	476	450	444	471						474	33	100 min
ID Machine Direction	TD Trans	verse Dir	ection										

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

SUB APPENDIX C-2

GEOCOMPOSITE

TRI / Environmental, Inc. A Toxes Research International Company

May 12, 2008

Mail To:

Bill To:

Ms. Sheree Henninger Waste Management, Inc.

<= Same

email: shenning@wm.com cc email: dschauer@geosyntec.com

Dear Ms. Henninger:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:

Vista Landfill - Cell 1

TRI Job Reference Number:

E2310-65-05

Material(s) Tested:

1 SKAPS TN330-2-8 Double Sided Geocomposite(s)

Test(s) Requested:

Transmissivity (ASTM D 4716) - GC

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

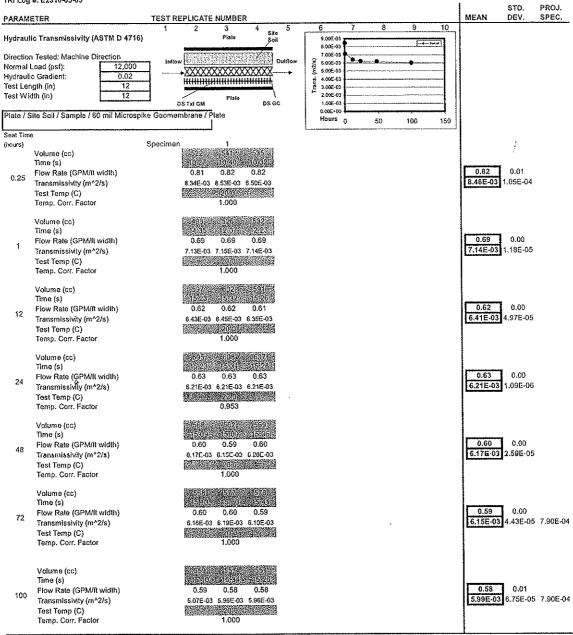
Som R. Allen

Sam R. Allen Vice President and Division Manager Geosynthetic Services Division www.GeosyntheticTesting.com



TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: SKAPS TN330-2-8 Double Sided Geocomposite Sample Identification: 278510002 TRI Log #: E2310-65-05



MD Machine Direction

TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method fieldd. Yest results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI finits reproductions of this report, except in full, without prior approval of TRI.

June 3, 2008

Mail To:

Bill To:

Ms. Sheree Henninger Waste Management, Inc.

<= Same

email: shenning@wm.com

cc email: dschauer@geosyntec.com

Dear Ms. Henninger:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:

Vista Landfill - Cell 1

TRI Job Reference Number:

E2310-65-05

Material(s) Tested:

3 SKAPS TN330-2-8 Double Sided Geocomposite(s)

Test(s) Requested:

Transmissivity (ASTM D 4716) - GC
Peel Strength (ASTM D 7005) - GC
Mass/Unit Area (ASTM D 5261) - GT
Grab Tensile (ASTM D 4632) - GT
Trapezoidal Tear (ASTM D 4533) - GT
Apparent Opening Size (ASTM D 4751) - GT

Permittivity (ASTM D 4491) - GT

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

Dr. Mansukh Patel

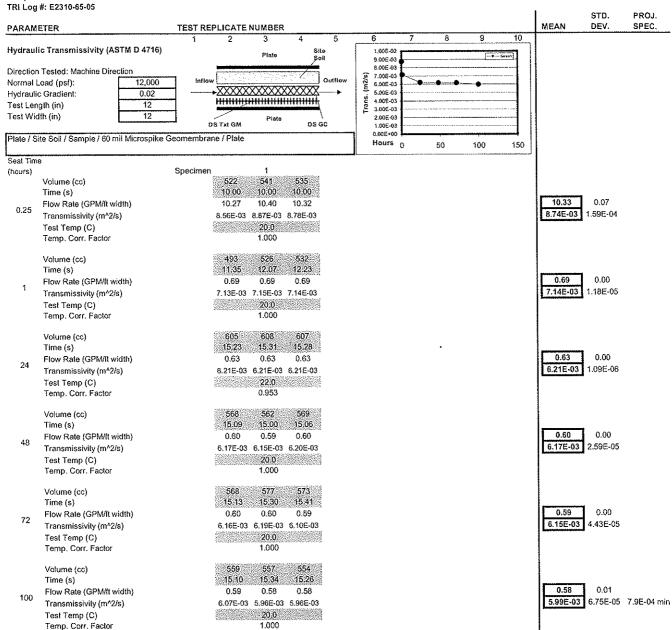
Sr. Laboratory Coordinator Geosynthetic Services Division www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: SKAPS TN330-2-8 Double Sided Geocomposite

Sample Identification: 278510002



MD Machine Direction

TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method fisted. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction: of this report, except in full, without prior approval of TRI.

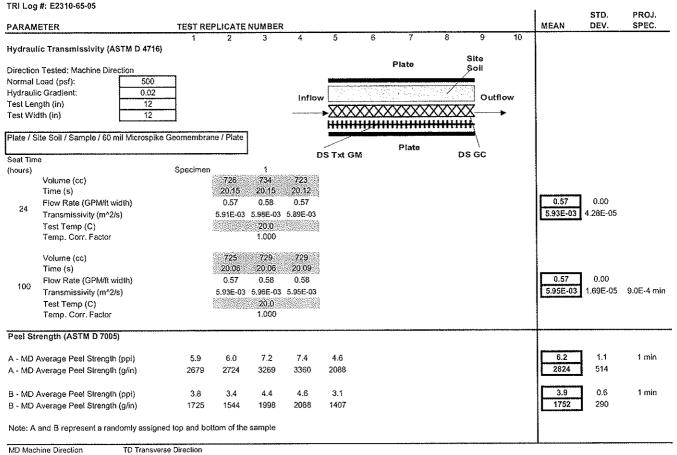


GEOCOMPOSITE TEST RESULTS TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: SKAPS TN330-2-8 Double Sided Geocomposite

Sample Identification: 278510002

Geotextile Component - Side A



The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: SKAPS TN330-2-8 Double Sided Geocomposite

Sample Identification: 278510002 TRI Log #: E2310-65-05 Geotextile Component - Side A

TRI Log #: E2310-65-05												STD.	PROJ.
PARAMETER	TEST REI	PLICATE	NUMBER								MEAN	DEV.	SPEC.
Mass/Unit Area (ASTM D 5261)	1	2	3	4	5	6	7	8	9	10			
massionit Alea (A31m D 9201)													
5" díameter circle (grams)	3.47	3.38	4.13	3.73	3.64	4.43	3.67	3.94	4.19	3.62	3.82	0.34	
Mass/Unit Area (oz/sq.yd)	8.07	7.86	9.61	8.68	8.47	10.30	8.54	9.16	9.75	8.42	8.89	0.79	8 min
Grab Tensile Properties (ASTM D 4632)												··········	
MD - Tensile Strength (lbs)	381	242	222	220	248	325	250	323	292	225	273	55	200 min
TD - Tensile Strength (lbs)	324	259	299	277	281	264	328	360	329	280	300	33	200 min
MD Store O New Lord (W)	67	CD.	70	co	70	70	85	83	89	74	75	8	
MD - Elong. @ Max. Load (%) TD - Elong. @ Max. Load (%)	67 99	69 81	73 109	69 85	72 91	101	97	03 101	69 89	87	94	9	
												-	
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	119	149	109	168	129	114	119	104	89	160	126	25	75 min
TD - Tear Strength (lbs)	164	141	139	145	128	148	125	131	157	149	143	13	75 min
Apparent Opening Size (ASTM D 4751)								······································					
Opening Size Diameter (mm)	0.150	0.180	0.125	0.150	0.150						0.151	0.019	0.21 max
Sieve No.	100	80	120	100	100						80		
Constant Head Permittivity (ASTM D 4491	, 2 in Const	ant Head)										
Water Temp. (C):	20												
Correction Factor:	1.000												
Trial =>:	<u></u>		1					2	***************************************				
Thickness (mils)	94	94	94	94	94	109	109	109	109	109			
Time (s)	12	12	12	12	12	14	14	14	14	14			
Flow (L)	2.60	2.64	2.60	2.60	2.60	2.64	2.60	2.60	2.60	2.56			
Permittivity (s-1)	2.10	2.14	2.10	2.10	2.10	1.83	1.80	1.80	1.80	1.78			
Flow rate (GPM/lt2)	157	160	157	157	157	137	135	135	135	133			
Permeability (cm/s)	0.502	0.510	0.502	0.502	0.502	0.507	0.499	0.499	0.499	0.492			
Trial =>:		~~~~	3					4					
Thickness (mils)	120	120	120	120	120	101	101	101	101	101	1		
Time (s)	16	16	16	16	16	14	14	14	11	11			
Flow (L)	2.60	2.56	2.56	2.56	2.56	2.72	2.68	2.72	2.72	2.68			
Permittivity (s-1)	1.58	1.55	1,55	1.55	1.55	1.89	1.86	1.89	1.89	1.86	1.84	0.20	
Flow rate (GPM/ft2)	118	116	116	116	116	141	139	141	141	139	137	15	
Permeability (cm/s)	0.481	0.474	0.474	0.474	0.474	0.484	0.477	0.484	0.484	0.477	0.490	0.013	
			75	MPERATI	IDE	1			Permittiv	(its (e.4)	1.84		0.5 min
			1	ORRECT				FI	ow rate (137		V.O HIRI
			ľ	VALUES					ermeabilit		0.490		
											1		

MD Machine Direction

TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed. Tast results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction: of this report, except in full, without prior approval of TRI.

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: SKAPS TN330-2-8 Double Sided Geocomposite

Sample Identification: 278510002 TRI Log #: E2310-65-05 Geotextile Component - Side B

PARAMETER Mass/Unit Area (ASTM D 5261) 5" diameter circle (grams) Mass/Unit Area (oz/sq.yd) Grab Tensile Properties (ASTM D 4632) MD - Tensile Strength (lbs) TD - Tensile Strength (ibs) MD - Elong. @ Max. Load (%) TD - Elong. @ Max. Load (%)	1 3.55 8.26 256 293 77 97	3.61 8.40 216 284	4.26 9.91 406 282	4.09 9.51	5 3.26 7.63	6 4.29 9.98	7 3.70 8.61	8 4.45 10.35	9 4.14 9.63	10 3.27 7.61	3.86 8.99	0.43 1.01	SPEC.
5" diameter circle (grams) Mass/Unit Area (oz/sq.yd) Grab Tensile Properties (ASTM D 4632) MD - Tensile Strength (lbs) TD - Tensile Strength (lbs) MD - Elong. @ Max. Load (%) TD - Elong. @ Max. Load (%) Trapezoidal Tear (ASTM D 4533)	3.55 8.26 256 293 77	3.61 8.40 216 284	4.26 9.91 406	4.09 9.51	3.28	4.29	3.70	4.45	4.14	3.27			8 min
Mass/Unit Area (oz/sq.yd) Grab Tensile Properties (ASTM D 4632) MD - Tensile Strength (lbs) TD - Tensile Strength (lbs) MD - Elong. @ Max. Load (%) TD - Elong. @ Max. Load (%) Trapezoidal Tear (ASTM D 4533)	256 293 77	216 284	9.91	9.51									8 min
Mass/Unit Area (oz/sq.yd) Grab Tensile Properties (ASTM D 4632) MD - Tensile Strength (lbs) TD - Tensile Strength (lbs) MD - Elong. @ Max. Load (%) TD - Elong. @ Max. Load (%) Trapezoidal Tear (ASTM D 4533)	256 293 77	216 284	9.91	9.51		9.98	8.61	10.35	9.63	7.61	8.99	1.01	8 min
MD - Tensile Strength (lbs) FD - Tensile Strength (lbs) MD - Elong. @ Max. Load (%) FD - Elong. @ Max. Load (%) Frapezoidal Tear (ASTM D 4533)	293 77	284								- 1	***************************************		
TD - Tensile Strength (ibs) MD - Elong. @ Max. Load (%) TD - Elong. @ Max. Load (%) Trapezoidal Tear (ASTM D 4533)	293 77	284											
MD - Elong. @ Max. Load (%) TD - Elong. @ Max. Load (%) Trapezoidal Tear (ASTM D 4533)	77		202	216	240	376	215	272	263	232	269	68	200 mir
FD - Elong. @ Max. Load (%) Trapezoidal Tear (ASTM D 4533)		77	202	288	289	281	280	338	280	266	288	19	200 mir
Trapezoidal Tear (ASTM D 4533)	97	77	73	77	75	73	77	76	81	81	77	3	
,		89	103	83	92	109	88	98	89	83	93	9	
10 T Ot //b-/												*****	
MD - Tear Strength (lbs)	98	99	104	125	88	137	100	115	154	103	112	21	75 min
TD - Tear Strength (lbs)	126	117	129	140	138	176	112	166	169	130	140	22	75 min
Apparent Opening Size (ASTM D 4751)			··										
Opening Size Diameter (mm)	0.150	0.180	0.125	0.150	0.150						0.151	0.019	0.21 ma
Sieve No.	100	80	120	100	100						80		
Constant Head Permittivity (ASTM D 4491,	2 in Const	ant Head)	ļ										
Water Temp. (C):	20												
Correction Factor:	1.000												
Trial =>:			1					2			1		
Thickness (mils)	106	106	106	106	106	119	119	119	119	119			
Time (s)	14	14	14	14	14	14 2.28	14 2.32	14 2.28	14 2.32	14 2.28			
Flow (L)	2.68	2.68	2.64	2.64	2.64	2.20	2.32	2.20	2.32	2.20			
Permittivity (s-1)	1.86	1.86	1.83	1.83	1.83	1.58	1.61	1.58	1,61	1.58			
Flow rate (GPM/ft2)	139	139	137	137	137	118	120	118	120	118			
Permeability (cm/s)	0.501	0.501	0.493	0.493	0.493	0.478	0.486	0.478	0.486	0.478	1		
Trial =>:			3					4			1		
Thickness (mils)	122	122	122	122	122	116	116	116	116	116			
Time (3)	16	16	16	16	16	16	16	16	16	16			
Flow (L)	2.68	2.72	2.68	2.68	2.68	2.72	2.72	2.72	2.68	2.72			
Permittivity (s-1)	1.63	1.65	1.63	1.63	1.63	1.65	1.65	1.65	1.63	1.65	1.68	0.10	
Flow rate (GPM/ft2)	122	124	122	122	122	124	124	124	122	124	126	7	
Permeability (cm/s)	0.504	0.512	0.504	0.504	0.504	0.486	0.486	0.486	0.479	0.486	0.492	0.010	
											1		
			TE	MOEDATI	IRE		***************************************	· · ·	Permittiv	ity (s-1)	1.68		0.5 mi
			1	MPERATI		Γ	······································		Permittiv		1.68 126	ļ	0.5 mi

MD Machine Direction

TD Transverse Direction

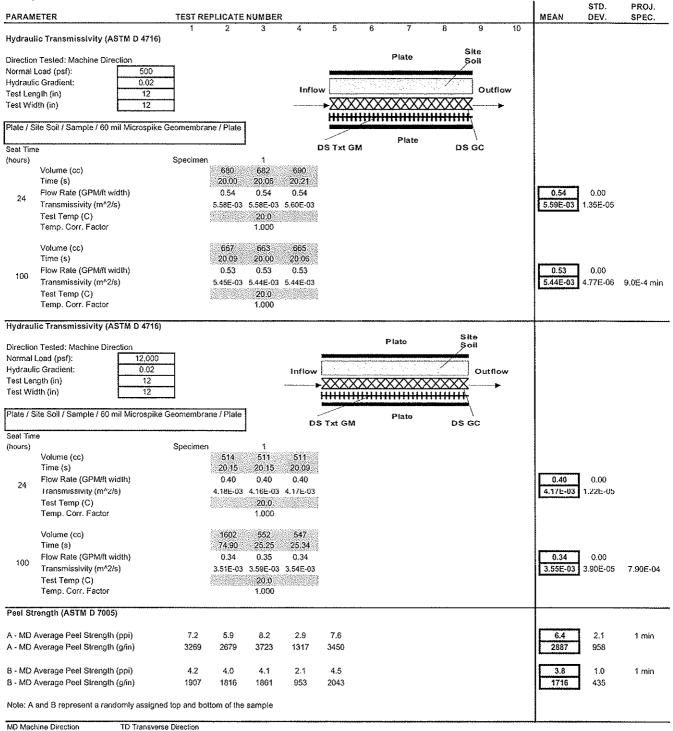
The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction: of this report, except in full, without prior approval of TRI.

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: SKAPS TN330-2-8 Double Sided Geocomposite

Sample Identification: 278510075

TRI Log #: E2310-65-05



The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material, TRI observes and maintains client confidentiality. TRI limits reproduction; of this report, except in full, without prior approval of TRI.

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: SKAPS TN330-2-8 Double Sided Geocomposite

Sample Identification: 278510075

TRI Log #: E2310-65-05

PARAMETER	TEST RE	PLICATE	NUMBER	Į.							MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)			G	eotextile	Compone	ent - Side A							
5" diameter circle (grams)	3.29	3.95	4.76	4.10	3.19	3.10	4.15	4.14	3.69	3.32	3.77	0.54	
Mass/Unit Area (oz/sq.yd)	7.65	9.19	11.07	9.54	7.42	7.21	9.65	9.63	8.58	7.72	8.77	1.26	8 min
Grab Tensile Properties (ASTM D 4632)		•	G	eotextile	Compone	nt - Side A							
MD - Tensile Strength (lbs)	250	276	292	276	213	215	282	276	234	316	263	34	200 min
TD - Tensile Strength (ibs)	311	347	299	321	227	286	331	321	303	286	303	33	200 min
MD - Elong, @ Max. Load (%)	85	85	72	87	76	79	88	72	83	87	81	6	
TD - Elong. @ Max. Load (%)	84	95	101	89	89	85	95	92	90	102	92	6	
Trapezoidal Tear (ASTM D 4533)			G	eotextile	Compone	ent - Side /			~				
MD - Tear Strength (lbs)	89	125	100	103	109	96	93	98	189	117	112	29	75 min
TD - Tear Strength (lbs)	128	149	129	145	163	116	109	136	155	175	141	21	75 min
Mass/Unit Area (ASTM D 5261)	······································		G	eotextile	Compone	ent - Side E	3					 ,	
5" diameter circle (grams)	3.78	3.83	4.27	3.80	3.91	4.66	3.85	3.49	3.18	3.59	3.84	0.41	
Mass/Unit Area (oz/sq.yd)	8.79	8.91	9.93	8.84	9.09	10.84	8.96	8.12	7.40	8.35	8.92	0.95	8 min
Grab Tensile Properties (ASTM D 4632)			G	eotextile	Compon	ent - Side l	3						
MD - Tensile Strength (lbs)	244	220	336	208	293	306	253	256	265	217	260	41	200 min
TD - Tensile Strength (lbs)	274	331	226	295	306	304	240	272	250	294	279	33	200 min
MD - Elong. @ Max. Load (%)	72	80	67	79	84	73	83	76	87	83	78	6	
TD - Elong. @ Max. Load (%)	91	91	98	84	94	125	87	87	85	97	94	12	
Trapezoldal Tear (ASTM D 4533)			G	ieotextile	Compone	ent - Side I	3						
MD - Tear Strength (lbs)	108	91	104	88	128	119	111	79	173	105	111	26	75 min
TD - Tear Strength (lbs)	129	137	156	132	130	171	164	133	154	129	144	16	75 min

MD Machine Direction TD Transverse Direction

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TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: SKAPS TN330-2-8 Double Sided Geocomposite

Sample Identification: 278510141 TRI Log #: E2310-65-05 STD. PROJ. PARAMETER TEST REPLICATE NUMBER MEAN DEV. SPEC. 8 9 10 Hydraulic Transmissivity (ASTM D 4716) Site Plate Direction Tested: Machine Direction 500 Normal Load (psf): Inflow Outflow Hydraulic Gradient: 0.02 Test Length (in) 12 Test Width (in) 12 ининдинининий Plate / Site Soil / Sample / 60 mil Microspike Geomembrane / Plate Plate DS Txt GM DS GC Seat Time (hours) Specimen Volume (cc) 662 662 660 Time (s) 15.18 15.21 15.06 Flow Rate (GPM/fl width) 0.69 0.69 0.69 0.00 0.69 24 Transmissivity (m^2/s) 7.15E-03 7.14E-03 7.19E-03 7.16E-03 2.54E-05 Test Temp (C) 20.0 Temp. Corr. Factor 1.000 Volume (cc) 622 619 622 Time (s) 15:21 15.09 15.21 Flow Rate (GPM/ft width) 0.65 0.65 0.65 0.65 0.00 100 Transmissivity (m^2/s) 6.71E-03 6.73E-03 6.71E-03 6.72E-03 1.20E-05 9.0E-4 min Test Temp (C) 20,0 Temp. Corr. Factor 1.000 Hydraulic Transmissivity (ASTM D 4716) Site Soll Plate Direction Tested: Machine Direction Normal Load (psf): 12,000 Hydraulic Gradient: 0.02 Outflow Test Length (in) 12 Test Width (in) 12 Plate / Sile Soil / Sample / 60 mil Microspike Geomembrane / Plate Plate DS Txt GM DS GC Seat Time (hours) Specimen 462 Volume (cc) 598 600 Time (s) 15.18 20.09 20.03 Flow Rate (GPM/ft width) 0.48 0.47 0.47 0.48 0.01 Transmissivity (m^2/s) 4.99E-03 4.88E-03 4.91E-03 4.93E-03 5.66E-05 Test Temp (C) 20.0 Temp. Corr. Factor 1.000 Volume (cc) 540 542 540 Time (s) 20.06 20.15 20.21 Flow Rate (GPM/ft width) 0.43 0.43 0.42 0.00 0.43 Transmissivity (m^2/s) 4.42E-03 4.41E-03 4.38E-03 4.40E-03 1.80E-05 7.90E-04 Test Temp (C) 20.0 Temp. Corr. Factor 1.000 Peel Strength (ASTM D 7005) A - MD Average Peel Strength (ppi) 3.6 4.7 4.0 6.7 4.2 4.6 1.2 1 min A - MD Average Peel Strength (g/in) 1634 2134 1816 1907 3042 2107 553 B - MD Average Peel Strength (ppi) 2.2 2.4 2.3 2.2 2.5 2.3 0.1 1 min B - MD Average Peel Strength (g/in) 999 1090 1044 999 1135 1053 59

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Note: A and B represent a randomly assigned top and bottom of the sample

TD Transverse Direction

MD Machine Direction

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: SKAPS TN330-2-8 Double Sided Geocomposite

Sample Identification: 278510141 TRI Log #: E2310-65-05

-												STO.	PROJ.
PARAMETER			NUMBER 3	4		6	7			40	MEAN	DEV.	SPEC.
Mass/Unit Area (ASTM D 5261)	1	2	-	•	5 Compone	ent - Side A		8	9	10			
5" diameter circle (grams)	4.27	3.67	3.20	3.96	4.09	4,70	3.75	3.60	3.20	4.17	3,86	0.47	
Mass/Unit Area (oz/sq.yd)	9.93	8.54	7,44	9.21	9.51	10.93	8.72	8.37	7.44	9.70	8.98	1.10	8 min
Grab Tensile Properties (ASTM D 4632)			G	eotextile	Compone	ent - Side A	·					····	
MD - Tensile Strength (lbs)	299	224	295	213	289	394	267	246	228	290	275	53	200 min
TD - Tensile Strength (lbs)	296	270	283	329	281	366	286	283	246	289	293	33	200 min
MD - Elong. @ Max. Load (%)	81	82	65	69	87	87	85	75	82	95	81	9	
TD - Elong. @ Max. Load (%)	93	84	121	93	87	123	91	103	85	85	97	15	
Trapezoidal Tear (ASTM D 4533)			G	eotextile	Compone	ent - Side A							
MD - Tear Strength (lbs)	109	111	113	99	122	129	135	92	86	91	109	17	75 min
TD - Tear Strength (lbs)	120	180	112	135	128	172	125	118	106	154	135	25	75 min
Mass/Unit Area (ASTM D 5261)			G	eotextile	Compone	ent - Side E	3	·					
5" diameter circle (grams)	3.61	3.62	5.10	3.80	3.55	4.29	3.46	3.89	3.68	3.59	3.86	0.50	
Mass/Unit Area (oz/sq.yd)	8.40	8.42	11,86	8.84	8.26	9.98	8.05	9.05	8.56	8.35	8.98	1.15	8 min
Grab Tensile Properties (ASTM D 4632)			G	eotextile	Compone	ent - Side E	3						
MD - Tensile Strength (lbs)	274	266	364	242	256	329	233	242	213	271	269	46	200 min
TD - Tensile Strength (ibs)	298	316	306	318	303	298	280	279	265	271	293	19	200 min
MD - Elong. @ Max. Load (%)	76	86	73	79	83	76	83	7 5	73	78	78	4	
TD - Elong, @ Max, Load (%)	105	90	112	91	97	108	86	103	92	81	97	10	
Trapezoidal Tear (ASTM D 4533)	······································		G	eotextile	Compone	ent - Side I	3						
MD - Tear Strength (lbs)	98	97	94	114	134	101	127	104	125	103	110	14	75 min
TD - Tear Strength (ibs)	106	165	123	134	158	118	152	152	151	134	139	19	75 min

MD Machine Direction TD Transverse Direction

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SUB APPENDIX C-3

GEOSYNTHETIC CLAY LINER

April 28, 2008

Mail To:

Bill To:

Ms. Sheree Henninger Waste Management, Inc.

<= Same

email: shenning@wm.com

cc email: dschauer@geosyntec.com

Dear Ms. Henninger:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:

Vista Landfill - Cell 1

TRI Job Reference Number:

E2308-15-08

Material(s) Tested:

1 Bentomat ST GCL(s)

Test(s) Requested:

Index Flux (ASTM D 5887)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

John M. Allen, E.I.T

Director of Geosynthetics Interaction Laboratory

Geosynthetic Services Division www.GeosyntheticTesting.com



GCL TEST RESULTS

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: Bentomat ST GCL Sample Identification: 2952 TRI Log #: E2308-15-08

PARAMETER	TEST RE	PLICAT	E NUME	BER							MEAN	STD. DEV.	PROJ. SPEC.
Index Flux (ASTM D 5887)	1	2	3	4	5	6	7	8	9	10			
Index Flux (m³/m²/sec)	2.0E-09										2.0E-09		
Hydraulic Conductivity (cm/sec)	1.7E-09										1.7E-09		5.0E-9 max

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

SUB APPENDIX C-4

INTERFACE FRICTION TEST RESULTS



Interface Friction Test Report

Client: Project: Waste Management, Inc.

Vista Landfill, Class III Test Date: 07/31/08-07/31/08

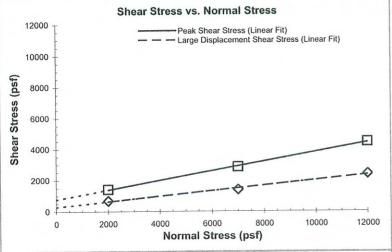
TRI Log#: E2308-09-04

Test Method: ASTM D 5321

John M. Allen, E.I.T., 07/31/2008

Quality Review/Date

Tested Interface: Liner Protective Soil (T-1) vs. Agru Double-sided Geocomposite vs. Agru 60 mil HDPE Microspike Geomembrane (314101.08) vs. Subbase Soil (B-1)



Test	Resu	lts
	Peak	Large Displacement (@ 3.0 in.)
Friction Angle (degrees):	17.0	9.7
Y-intercept or Adhesion (psf):	765	284

Shearing occurred at the geomembrane/geocomposite interface under all loads.

5	5000 T		Stress vs. Displa		
	500	•	2000 psf	⇒7000 psf	∆ 12000 psf
4	1000	A			
. 3	3500	4	/ma		
3 3 2 2	8000	ages.	4		
2	2500	201 202 203 203 204	4		
2	2000	San			
	1500		CONTRACTOR OF THE PARTY OF THE	PROGRAMMING CONTRACTOR	
	1000	Manufacture and the second			
	500				
	0				
	0.0	1.0	2.0 Displacement (in	3.0	4.0

Test Conditions								
Upper Box &	Liner protective soil remolded to 104.6 pcf at 15.2% moisture content							
Floating Lower Box	Agru double-sided geocomposite Agru 60 mil HDPE microspike geomembrane (long spike to soil) over subbase soil remolded to 99.8 pcf at 13.6% moisture content							
Box Dimensio	ns: 12"x12"x4"							

Interface soaked and loading applied for Interface a minimum of 15 minutes prior to shear. Conditioning:

Test Condition: Wet

Shearing Rate: 0.04 inches/minute

Test Data										
Specimen No.	1 1	2	3							
Bearing Slide Resistance (lbs)	27	75	122							
Normal Stress (psf)	2000	7000	12000							
Corrected Peak Shear Stress (psf)	1406	2845	4464							
Corrected Large Displacement Shear Stress (psf)	675	1391	2392							
Peak Secant Angle (degrees)	35.1	22.1	20.4							
Large Displacement Secant Angle (degrees)	18.6	11.2	11.3							



Test Date: 08/19/08-08/20/08

A Texas Research International Company

Interface Friction Test Report

Client: Project: Waste Management, Inc.

Vista Landfill, Class III

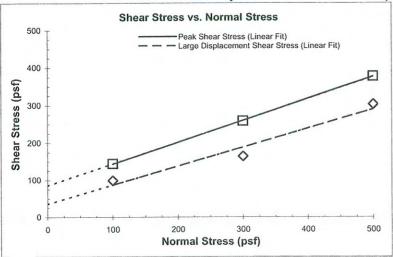
TRI Log#: E2308-09-04

Test Method: ASTM D 5321

John M. Allen, E.I.T., 08/20/2008

Quality Review/Date

Tested Interface: Liner Protective Soil (T-1) vs. Agru Double-sided Geocomposite vs. Agru 60 mil HDPE Microspike Geomembrane (314101.08) vs. Subbase Soil (B-1)



Test Results								
	Peak	Large Displacement (@ 3.0 in.)						
Friction Angle (degrees):	30.2	27.0						
Y-intercept or Adhesion (psf):	85	36						

Shearing occurred at the soil/geocomposite interface under all load.

400 T	Snear Sti	ress vs. Displa	cement	
		+ 100 psf	= 300 psf	△ 500 psf
350	20000000000000000000000000000000000000		MM	
300			7.77	
250	State of the last			
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	Test Conditions
Upper Box &	Liner protective soil remolded to 104.6 pcf at 15.2% moisture content
Floating Lower Box	Agru double-sided geocomposite Agru 60 mil HDPE microspike geomembrane (long spike to soil) over subbase soil remolded to 99.8 pcf at 13.6% moisture content

Box Dimensions: 12"x12"x4"

Interface Interface soaked and loading applied for Conditioning: a minimum of 15 minutes prior to shear.

Test Condition: Wet

Shearing Rate: 0.04 inches/minute

Test Data										
Specimen No.	1 1	2	3							
Bearing Slide Resistance (lbs)	9	11	13							
Normal Stress (psf)	100	300	500							
Corrected Peak Shear Stress (psf)	144	259	377							
Corrected Large Displacement Shear Stress (psf)	99	164	303							
Peak Secant Angle (degrees)	55.3	40.8	37.0							
Large Displacement Secant Angle (degrees)	44.7	28.7	31.2							

APPENDIX D

GEOSYNTHETICS FIELD CQA LOGS

SUB APPENDIX D-1

SUBBASE ACCEPTANCE FORMS

CERTIFICATE OF ACCEPTANCE SUBGRADE SURFACE

	UCTALLED	
	NSTALLER	PROJECT
	tal Specialist International (ESI)	NAME: Vista Class III Landfill
	7943 Pecue Lane Ste A Baton Rouge, LA 70809	LOCATION: 242 M/och // Day
	Daton Rouge, LA 70009	LOCATION: 242 West Keene Road
INSTALLER		Apopka, Florida 32703
AUTHORIZED		
REPRESENTATIVE:		OWNER: Waste Management Inc.
		Waste Management IIIC.
do hereby accept the s maintaining the suitable shall not install the ged	ility of this surface, in accordance of osynthetics until the subgrade surf	s will be installed and shall be responsible for with the project specifications. (i.e., The contractor face is acceptable. Installation of the
geosynthetics will be d	considered acceptance of the subg	grade.)
PRIMARY: X	SECONDARY: .	OTHER:
DATE	PANEL NOS.	
5-6-08	1-29	235
5-7-08	30-50	The state of the s
5-8-08	51-60	Joseph I
5-9-08	61-97	A SECONDARY OF THE PROPERTY OF
5-10-08		l los
3-10-08	98-126	
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SUB APPENDIX D-2

MATERIAL INVENTORY LOG

consultants

Material Inventory

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: FQ1465

Material Typ	Material Type: gml: 1 Manufacturer: Agru					Product Type: 60 mil textured							
Inventory				Q.A. Conformance O.C. Documen						ments			
Inv Date	Batch-Roll	Width (ft.)	Length (ft.)	QA ID	Date	Samp No	Result	QAID	Date Rec	Date Ckk	Result	QAID	
Accepted Rolls													
4/18/2008	313792	23	410.1	JEG	4/3/2008	3792	р	DAS	5/5/2008	5/5/2008	р	DAS	
4/16/2008	313793	23	410.1	JEG					5/5/2008	5/5/2008	р	DAS	
4/18/2008	314101	23	410.1	JEG		İ			5/5/2008	5/5/2008	р	DAS	
4/18/2008	314102	23	410.1	JEG					5/5/2008	5/5/2008	р	DAS	
4/18/2008	314103	23	410.1	JEG		<u> </u>			5/5/2008	5/5/2008	p	DAS	
4/18/2008	314104	23	410.1	JEG		ļ			5/5/2008	5/5/2008	p	DAS	
4/18/2008	314105	23	410.1	JEG		1			5/5/2008	5/5/2008	p	DAS	
4/18/2008	314106	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314107	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314108	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314109	23	410.1	JEG	4/3/2008	4109	р	DAS	5/5/2008	5/5/2008	p	DAS	
4/18/2008	314110	23	410.1	JEG	Trans.	<u></u>			5/5/2008	5/5/2008	p	DAS	
4/18/2008	314111	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314112	23	410.1	JEG	***************************************				5/5/2008	5/5/2008	p	DAS	
4/18/2008	314113	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314114	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314115	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314116	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314117	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314118	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314119	23	410.1	JEG					5/5/2008	5/5/2008	р	DAS	
4/18/2008	314220	23	410.1	JEG	4/3/2008	4220	D	DAS	5/5/2008	5/5/2008	p	DAS	
4/18/2008	314221	23	410.1	JEG			······································	<u>-</u>	5/5/2008	5/5/2008	p	DAS	
4/18/2008	314222	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314223	23	410.1	JEG			··· ·- ·		5/5/2008	5/5/2008	р	DAS	
4/18/2008	314224	23	410.1	JEG					5/5/2008	5/5/2008	р	DAS	
4/18/2008	314225	23	410.1	JEG			}		5/5/2008	5/5/2008	p	DAS	
4/18/2008	314226	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS	
4/18/2008	314227	23	410.1	JEG					5/5/2008	5/5/2008	р	DAS	

Geosyntec D

consultants

Material Inventory

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: <u>FQ1465</u> TaskNo: <u>01</u>

Material Typ	Material Type: gmi: 1 Manufacturer: Agru						Product Type: 60 mil textured							
Inventory				Q.A	. Conf	ormane	ce	Q.C. Documents			***************************************			
Inv Date	Batch-Roll	Width (ft.)	Length (ft.)	QA ID	Date	Samp No	Result	QAID	Date Rec	Date Ckk	Result	QAID		
4/18/2008	314228	23	410.1	JEG	,				5/5/2008	5/5/2008	р	DAS		
4/18/2008	314229	23	410.1	JEG					5/5/2008	5/5/2008	р	DAS		
4/18/2008	314230	23	410.1	JEG	4/7/2008	4230	p	DAS	5/5/2008	5/5/2008	р	DAS		
4/18/2008	314231	23	410.1	JEG		İ	<u></u>		5/5/2008	5/5/2008	р	DAS		
4/18/2008	314232	23	410.1	JEG					5/5/2008	5/5/2008	. Р	DAS		
4/18/2008	314233	23	410.1	JEG			 		5/5/2008	5/5/2008	р	DAS		
4/18/2008	314234	23	410.1	JEG		ļ	ļ ļ		5/5/2008	5/5/2008	р	DAS		
4/18/2008	314235	23	410.1	JEG		:	 		5/5/2008	5/5/2008	р	DAS		
4/18/2008	314236	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS		
4/18/2008	314237	23	410.1	JEG		-			5/5/2008	5/5/2008	p	DAS		
4/18/2008	314338	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS		
4/18/2008	314339	23	410.1	JEG		1			5/5/2008	5/5/2008	р	DAS		
4/18/2008	314340	23	410.1	JEG					5/5/2008	5/5/2008	p	DAS		
4/18/2008	314341	23	410.1	JEG	4/7/2008	4341	р	DAS	5/5/2008	5/5/2008	р	DAS		
4/18/2008	314342	23	410.1	JEG		1			5/5/2008	5/5/2008	р	DAS		
4/18/2008	314343	23	410.1	JEG		1			5/5/2008	5/5/2008	р	DAS		

Average Roll Width(ft.): 23

Total Number of Rolls: 45

Average Roll Length(ft.): 410

Cumulative Area(sq.ft.): 424453.5

Total Number of Conformance Tests: 5

Comments:

consultants

Material Inventory

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: <u>FQ1465</u>

Material Type:	aterial Type: gdl: 2 Manufacturer: Agru					Product Type: Geocomposite							
Inventory					Q.A. Conformance				Q.C. Documents				
Inv Date	Batch-Roll	Width (ft.)	Length (ft.)	QA ID	Date	Samp No	Result	QAID	Date Rec	Date Ckk	Result	QAID	
Accepted Rolls													
5/10/2008	278510001	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510002	15.5	180	JEG	5/12/2008	0002	р	DAS	5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510003	15.5	180	JEG	L.,	[5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510004	15.5	180	JEG		ļ			5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510005	15.5	180	JEG	<u> </u>				5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510006	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510007	15,5	180	JEG					5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510008	15.5	180	JEG					5/12/2008	5/12/2008	p	CJ	
5/10/2008	278510009	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510010	15.5	180	JEG	j				5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510011	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510012	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510013	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ	
5/10/2008 ;	278510014	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510015	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510016	15.5	180	JEG	,,,,				5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510017	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510018	15.5	180	JEG		***************************************			5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510019	15.5	180	JEG		,				5/12/2008	р	CJ	
5/10/2008	278510020	15.5	180	JEG					5/12/2008		р	CJ	
5/10/2008	278510021	15.5	180	JEG					5/12/2008	5/12/2008	p	CJ	
5/10/2008	278510022	15.5	180	JEG					5/12/2008		p	CJ	
5/10/2008 :	278510023	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ	
5/10/2008	278510024	15.5	180	JEG					5/12/2008		p	CJ	
5/10/2008	278510025	15.5	180	JEG					5/12/2008		p	CJ	
5/10/2008	278510026	15.5	180	JEG	***************************************			i i	5/12/2008	5/12/2008	p	CJ	
5/10/2008	278510027	15.5	180	JEG					5/12/2008		р	CJ	
5/10/2008	278510028	15.5	180	JEG						5/12/2008	p	CJ	
5/10/2008	278510029	15.5	180	jeg			·····		5/12/2008		р	CJ	

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Material Inventory

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: FO1465

Material Typ	e: gdl: 2	Manufac	turer: Ag	ru			Produ	ict Type	: Geocompo	site		
	Invent	tory	**********	1	Q.A	A. Conf	ormano	се	Q	.C. Docu	nents	· · · · · · · · · · · · · · · · · · ·
Inv Date	Batch-Roll	Width (ft.)	Length (ft.)	QA ID	Date	Samp No	Result	QAID	Date Rec	Date Ckk	Result	QAID
5/10/2008	278510030	15.5	180	JEG			[5/12/2008	5/12/2008	р	CJ
5/10/2008	278510031	15.5	180	JEG					5/12/2008	5/12/2008	p	CJ
5/10/2008	278510032	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510033	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510034	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510035	15.5	180	JEG			: :		5/12/2008	5/12/2008	р	CJ
5/10/2008	278510036	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510037	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510038	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510039	15.5	180	JEG					5/12/2008	5/12/2008	p	CJ
5/10/2008	278510040	15.5	180	JEG	****	- <u> </u>			5/12/2008	5/12/2008	р	CJ
5/10/2008	278510041	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510042	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510043	15.5	180	JEG				************	5/12/2008	5/12/2008	р	CJ
5/10/2008	278510044	15.5	180	JEG		i			5/12/2008	5/12/2008	р	CJ
5/10/2008	278510045	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510046	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510047	15.5	180	JEG					5/12/2008	5/12/2008	p	CJ
5/10/2008	278510048	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510049	15.5	180	JEG	7				5/12/2008	5/12/2008	p	CJ
5/10/2008	278510050	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510051	15.5	180	JEG		<u> </u>			5/12/2008	5/12/2008	р	CJ
5/10/2008	278510052	15.5	180	JEG	····				5/12/2008	5/12/2008	р	CJ
5/10/2008	278510053	15.5	180	JEG		1			5/12/2008	5/12/2008	р	CJ
5/10/2008	278510054	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510055	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510056	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510057	15.5	180	JEG		1			5/12/2008	5/12/2008	р	CJ
5/10/2008	278510058	15.5	180	JEG				:	5/12/2008	5/12/2008	р	CJ
5/10/2008	278510059	15.5	180	JEG	***************************************	1			5/12/2008	5/12/2008	p	CJ

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Material Inventory

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: FQ1465

Material Typ	e: gdl: 2	Manufac	turer: Ag	ŗu			Prodi	uct Type:	Geocompo	site		
	Invent	ory			Q.A	. Conf	orman	се	Q	.C. Docui	ments	tota de del tatancia de a
Inv Date	Batch-Roll	Width (ft.)	Length (ft.)	QA ID	Date	Samp No	Result	QAID	Date Rec	Date Ckk	Result	QAID
5/10/2008	278510060	15.5	180	JEG		1]	;	5/12/2008	5/12/2008	р	CJ
5/10/2008	278510061	15.5	180	JEG	}·	;	[i	5/12/2008	5/12/2008	р	CJ
5/10/2008	278510062	15.5	180	JEG			!·····		5/12/2008	5/12/2008	р	CJ
5/10/2008	278510063	15.5	180	JEG			i		5/12/2008	5/12/2008	р	CJ
5/10/2008	278510064	15.5	180	JEG		\$	(5/12/2008	5/12/2008	р	CJ
5/10/2008	278510065	15.5	180	JEG			! !		5/12/2008	5/12/2008	р	CJ
5/10/2008	278510066	15.5	180	JEG	! !	1	! !		5/12/2008	5/12/2008	р	CJ
5/10/2008	278510067	15.5	180	JEG					5/12/2008	5/12/2008	р	Cl
5/10/2008	278510068	15.5	180	JEG	: :		[5/12/2008	5/12/2008	р	CJ
5/10/2008	278510069	15,5	180	JEG	i	!			5/12/2008	5/12/2008	р	CJ
5/10/2008	278510070	15.5	180	JEG)				5/12/2008	5/12/2008	р	CJ
5/10/2008	278510071	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510072	15.5	180	JEG		}··· · · · · ·			5/12/2008	5/12/2008	р	CJ
5/10/2008	278510073	15.5	180	JEG	<u>:</u>	******************			5/12/2008	5/12/2008	р	CJ
5/10/2008	278510074	15.5	180	JEG	;	<u> </u>			5/12/2008	5/12/2008	р	CJ
5/10/2008	278510075	15.5	180	JEG	5/12/2008	0075	p	DAS	5/12/2008	5/12/2008	р	CJ
5/10/2008	278510076	15.5	180	JEG	h ,, ,,	:			5/12/2008	5/12/2008	р	CJ
5/10/2008	278510077	15.5	180	JEG			**************		5/12/2008	5/12/2008	р	CJ
5/10/2008	278510078	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510079	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/10/2008	278510080	15.5	180	JEG					5/12/2008	5/12/2008	p	CJ
5/10/2008	278510081	15.5	180	JEG		!			5/12/2008	5/12/2008	р	CJ
5/12/2008	278510082	15.5	180	JEG				ļ, ,	5/12/2008	5/12/2008	р	CJ
5/12/2008	278510083	15.5	180	JEG		,			5/12/2008	5/12/2008	p	CJ
5/12/2008	278510084	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/12/2008	278510085	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/12/2008	278510086	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/12/2008	278510087	15.5	180	JEG		1	*****************		5/12/2008	5/12/2008	p	CJ
5/12/2008	278510088	15.5	180	ÆG					5/12/2008	5/12/2008	р	CJ
5/12/2008	278510089	15.5	180	JEG		; <u>[</u>			5/12/2008	5/13/3000	p	CJ

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Material Inventory

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: <u>FQ1465</u> TaskNo: <u>01</u>

Material Ty	pe: gdl: 2	Manufac	turer: Ag	ru			Produ	uct Type	: Geocompo	osite		
~ **	Inven				Q./	. Conf	orman	се	Q	.C. Docu	ments	***************************************
Inv Date	Batch-Roll	Width (ft.)	Length (ft.)	QA ID	Date	Samp No	Result	QAID	Date Rec	Date Ckk	Result	QAID
5/12/2008	278510090	15.5	180	JEG		:	[5/12/2008	5/12/2008	р	CJ
5/12/2008	278510091	15.5	180	JEG		;			5/12/2008	5/12/2008	р	CJ
5/12/2008	278510092	15.5	180	JEG			: :	:	5/12/2008	5/12/2008	р	CJ
5/12/2008	278510093	15.5	180	JEG		:			5/12/2008	5/12/2008	р	CJ
5/12/2008	278510094	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/12/2008	278510095	15.5	180	JEG		:	 		5/12/2008	5/12/2008	р	CJ
5/12/2008	278510096	15.5	180	JEG		:	i : !		5/12/2008	5/12/2008	р	Cl
5/12/2008	278510097	15.5	180	JEG		,		 	5/12/2008	5/12/2008	р	CJ
5/12/2008	278510098	15.5	180	JEG				} }	5/12/2008	5/12/2008	p	CJ
5/12/2008	278510099	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/12/2008	278510100	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/12/2008	278510101	15.5	180	JEG	ATTOMA (I.V.)		!		5/12/2008	5/12/2008	р	CJ
5/12/2008	278510102	15.5	180	JEG		\$1000 × 200 ×		1	5/12/2008	5/12/2008	р	CJ
5/12/2008	278510103	15.5	180	JEG		,			5/12/2008	5/12/2008	р	CJ
5/12/2008	278510104	15.5	180	JEG		:			5/12/2008	5/12/2008	р	CJ
5/12/2008	278510105	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/12/2008	278510106	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/12/2008	278510107	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/12/2008	278510108	15.5	180	JEG					5/12/2008	5/12/2008	р	CJ
5/12/2008	278510109	15.5	180	JEG	*******	:	/A/h		5/12/2008	5/12/2008	р	CJ
5/12/2008	278510110	15.5	180	JEG		·			5/12/2008	5/12/2008	р	CJ
5/12/2008	278510111	15.5	180	JEG		·	***************		5/12/2008	5/12/2008	р	CJ
5/12/2008	278510112	15.5	180	JEG		ļ			5/12/2008	5/12/2008	р	CJ
5/12/2008	278510113	15.5	180	JEG					5/12/2008	5/12/2008	p	CJ
5/12/2008	278510114	15.5	180	JEG		:			5/12/2008	5/12/2008	р	CJ
5/12/2008	278510115	15.5	180	JEG					5/12/2008	5/12/2008	p	CJ
5/12/2008	278510116	15.5	180	JEG					5/12/2008	5/12/2008	p	CJ
5/12/2008	278510117	15.5	180	JEG					·	5/12/2008	р	CJ
5/12/2008	278510118	15.5	180	JEG		+			5/12/2008		р	CJ
5/12/2008	278510119	15.5	180	JEG		+				5/12/2008	D	CJ

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Material Inventory

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: <u>FQ1465</u> TaskNo: <u>Q1</u>

Material T	ype: gdl: 2	Manufac	turer: Ag	gru			Produ	ict Type	: Geocompo	site		******
	Inven	tory	***************************************		O.A	. Conf	ormane			.C. Docui	mente	
Inv Date	Batch-Roll	Width (ft.)	Length (ft.)	QA ID			y	#11 THE R. L. L. W. L. W. L. W. LOW.	Date Rec			QAID
5/12/2008	278510120	15.5	180	JEG	1	[· · · · · · · · · · · · · · · · · · ·		5/12/2008	5/12/2008	р	CJ
5/12/2008	278510121	15.5	180	JEG					ļ	5/12/2008	р	CJ
5/12/2008	278510122	15.5	180	JEG						5/12/2008	р	CJ
5/12/2008	278510123	15.5	180	JEG						5/12/2008	D	CI
5/12/2008	278510124	15.5	180	JEG	†	{ /			5/12/2008	5/12/2008	р	CJ
5/12/2008	278510125	15.5	180	JEG	7	į			·	5/12/2008	р	CJ
5/12/2008	278510127	15.5	180	JEG	<u> </u>				·	5/12/2008	р	CJ
5/12/2008	278510128	15.5	180	JEG		İ				5/12/2008	р	CJ
5/12/2008	278510129	15.5	180	JEG					5/12/2008		р	CJ
5/12/2008	278510130	15.5	180	JEG			····		5/12/2008		p	CJ
5/12/2008	278510131	15.5	180	JEG		i			5/12/2008		р	CJ
5/12/2008	278510132	15.5	180	JEG		<u> </u>			5/12/2008		р	CJ
5/12/2008	278510133	15.5	180	JEG					5/12/2008		р	CJ
5/12/2008	278510134	15.5	180	JEG		1			5/12/2008		p	CJ
5/12/2008	278510135	15.5	180	JEG					5/12/2008		p	Cl
5/12/2008	278510136	15.5	180	JEG					5/12/2008		р	CJ
5/12/2008	278510137	15.5	180	JEG					5/12/2008		p	CJ
5/12/2008	278510138	15.5	180	JEG			· · · · · · · · · · · · · · · · · · ·		5/12/2008		р	CJ
5/12/2008	278510139	15.5	180	JEG					5/12/2008		p	CJ
5/12/2008	278510140	15.5	180	JEG					5/12/2008	~~~~ <u>~</u>	p	CJ
5/12/2008	278510141	15.5	180	JEG	5/12/2008	0141	p	DAS	5/12/2008		p	CJ
5/12/2008	278510142	15.5	180	JEG					5/12/2008	· · · · · · · · · · · · · · · · · · ·	p	CJ
5/12/2008	278510143	15.5	180	JEG	~		j	1 <u>i</u>	5/12/2008		p i	CJ
5/12/2008	278510144	15.5	180	JEG					5/12/2008		<u>р</u>	CJ
5/12/2008	278510145	15.5	180	JEG				··· · · · · · · · · · · · · · · · · ·	5/12/2008		р	CJ
5/12/2008	278510146	15.5	180	JEG					5/12/2008		p	CJ
5/12/2008	278510526	15.5	180	JEG		·		;	5/12/2008		p p	CJ

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Material Inventory

WASTE MANAGEMENT

Project: Vista Class III Landfill Location: Apopka, Florida

Description: Cell 1

ProjNo: <u>FQ1465</u> TaskNo: <u>01</u>

Material 1	Type: gdl: 2	Manufac	turer: Ag	ru			Produ	ct Type:	Geocompo	site		1
	Inventor	у	· · · · · · · · · · · · · · · · · · ·		Q.A.	Confe	ormano	ce	Q	.C. Docur	nents	
Inv Date	Batch-Roll	Width (ft.)	Length (ft.)	QA ID	Date	Samp No	Result	QAID	Date Rec	Date Ckk	Result	QAID

Average Roll Width(ft.): 16

Average Roll Length(ft.): 180

Total Number of Rolls: 146

Cumulative Area(sq.ft.): 407340

Total Number of Conformance Tests: 3

Comments:

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Material Inventory

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: FQ1465

TaskNo: 01

Material	Type: gcl: 3	Manufac	turer: CE	тсо			Produ	ict Type:	Bentomat	GCL		
	Inventor	ry			Q.A.	Conf	ormano	e	Q	.C. Docui	nents	
Inv Date	Batch-Roll	Width (ft.)	Length (ft.)	QA ID	Date	Samp No	Result	QAID	Date Rec	Date Ckk	Result	QAID

Accepted Rolls

4/30/2008	200816CV-00002952	15	150	JEG	4/16/2008	2952	р	DAS	4/16/2008	4/16/2008	р	CJ
4/30/2008	200816CV-00002953	15	150	JEG		,			4/16/2008	4/16/2008	p	CJ
4/30/2008	200816CV-00002954	15	150	JEG					4/16/2008	4/16/2008	P	CJ
4/30/2008	200816CV-00002955	15	150	JEG	1				4/16/2008	4/16/2008	p	CJ
4/30/2008	200816CV-00002956	15	150	JEG				1	4/16/2008	4/16/2008	р	CJ
4/30/2008	200816CV-00002957	15	150	JEG					4/16/2008	4/16/2008	p	CJ
4/30/2008	200816CV-00002958	15	150	JEG				!	4/16/2008	4/16/2008	p	CJ
4/30/2008	200816CV-00002959	15	150	JEG					4/16/2008	4/16/2008	p	CJ

Average Roll Width(ft.): 15

Total Number of Rolls: 8

Average Roll Length(ft.): 150

Cumulative Area(sq.ft.): 18000

Total Number of Conformance Tests: 1

Comments;

SUB APPENDIX D-3

PANEL PLACEMENT LOG

consultants

Panel Placement Log

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: FQ1465

	/ Secondary: Primary			Series: 1 Mater	ial Type: gn	nl	
Panel	Batch-Roll	Date	Time	Placement/Location/Comments	Width (ft.)	Length (ft.)	QA ID
1	314232	5/6/2008	9:30	SOUTH SLOPE	22.5	119	СЛ
2	314232	5/6/2008	9:30	SOUTH SLOPE	22.5	116	JEG
3	314232	5/6/2008	9:40	SOUTH SLOPE	22.5	117	JEG
4	314236	5/6/2008	9:50	SOUTH SLOPE	22.5	121	JEG
5	313236	5/6/2008	10:00	SOUTH SLOPE	22.5	90	JEG
6	314236	5/6/2008	10:15	WEST INT. AND FLOOR	22.5	75	JEG
7	314225	5/6/2008	10:35	WEST INT. AND FLOOR	22.5	161	JEG
8	314225	5/6/2008	12:45	WEST INT. AND FLOOR	22.5	161	JEG
9	314225	5/6/2008	12:45	WEST INT, AND FLOOR	22.5	85.5	JEG
10	314236	5/6/2008	12:45	WEST INT. AND FLOOR	22.5	112	JEG
11	314236	5/6/2008	12:50	WEST INT. AND FLOOR	22.5	13	JEG
12	314224	5/6/2008	12:50	WEST INT. AND FLOOR	22.5	200	JEG
13	314224	5/6/2008	14:10	WEST INT. AND FLOOR	22.5	214	JEG
14	314116	5/6/2008	14:10	WEST INT. AND FLOOR	22.5	16	JEG
15	314116	5/6/2008	14:00	WEST INT. AND FLOOR	22.5	214	JEG
16	314116	5/6/2008	14:20	WEST INT. AND FLOOR	22.5	130	
17	314104	5/6/2008	14:30	WEST INT. AND FLOOR	22.5	143	JEG JEG
18	314104	5/6/2008	14:30	EAST INTERCELL BERM	22.5	103	
19	314104	5/6/2008	15:00	EAST INTERCELL BERM	22.5	86.5	JEG JEG
20	314104	5/6/2008	15:00	EAST INTERCELL BERM	22.5	64	
21	314114	5/6/2008	15:05	EAST INTERCELL BERM	22.5	64	JEG
22	314114	5/6/2008	16:20	EAST INTERCELL BERM	22.5	64	JEG
23	314114	5/6/2008	16:25	EAST INTERCELL BERM	22.5	64	JEG
24	314114	5/6/2008	16:30	EAST INTERCELL BERM	22.5	64	JEG
25	314114	5/6/2008	16:35	EAST INTERCELL BERM	22.5	64	JEG
26	314114	5/6/2008	16:40	EAST INTERCELL BERM	22.5		JEG
27	314237	5/6/2008	16:40	EAST INTERCELL BERM	22.5	64	JEG
28	314237	5/6/2008	16:55	EAST INTERCELL BERM		64	JEG
29	314237	5/6/2008	17:00	WEST INT. AND FLOOR	22.5	64	JEG
30	314237	5/7/2008	7:30	WEST INT. AND FLOOR	10	42	JEG
31	314114	5/7/2008	7:40	WEST INT. AND FLOOR	22.5	240	JEG JEG

consultants

Panel Placement Log

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: FQ1465

Primary	/ Secondary: Primary		3	Series: 1 Mater	ial Type: gm	ı]	• • • •
Panel	Batch-Roll	Date	Time	Placement/Location/Comments	Width (ft.)	Length (ft.)	QA ID
32	314223	5/7/2008	7:50	WEST INT. AND FLOOR	22.5	245	JEG
33	314223	5/7/2008	8:00	WEST INT. AND FLOOR	22.5	82.5	JEG
34	314343	5/7/2008	8:05	WEST INT. AND FLOOR	22.5	250	JEG
35	314343	5/7/2008	8:25	WEST INT. AND FLOOR	22.5	161	JEG
36	314338	5/7/2008	8:30	WEST INT. AND FLOOR	22.5	73	JEG
37	314114	5/7/2008	8:40	WEST INT. AND FLOOR	22.5	13	JEG
38	314114	5/7/2008	8:45	WEST INT.	22	22	cj
39	314113	5/7/2008	8:55	WEST INT. AND FLOOR	22.5	145	JEG
40	314114	5/7/2008	9:00	WEST INT. AND FLOOR	22.5	227	JEG
41	314227	5/7/2008	9:02	WEST INT. AND FLOOR	22.5	146	JEG
42	314113	5/7/2008	9:05	WEST INT. AND FLOOR	22.5	43	JEG
43	314227	5/7/2008	9:30	WEST INT. AND FLOOR	22.5	227	JEG
44	314105	5/7/2008	13:00	WEST INT. AND FLOOR	22.5	154	JEG
45	314341	5/7/2008	13:00	WEST INT. AND FLOOR	22.5	412	JEG
46	314112	5/7/2008	13:30	WEST INT. AND FLOOR	22.5	414	JEG
47	314234	5/7/2008	14:40	WEST INT. AND FLOOR	22.5	412	JEG
48	314722	5/7/2008	14:50	WEST INT. AND FLOOR	22.5	413	46
49	314108	5/7/2008	14:55	WEST INT. AND FLOOR	22.5	412	CJ
50	314110	5/7/2008	16:40	WEST INT. AND FLOOR	22.5	413	CJ
51	314105	5/8/2008	7:45	WEST INT. AND FLOOR	22.5	39	CJ
52	314105	5/8/2008	7:50	WEST INT. AND FLOOR	22.5	59	CJ
53	314105	5/8/2008	7:55	WEST INT. AND FLOOR	22.5	79	CJ
54	314105	5/8/2008	8:00	WEST INT. AND FLOOR	22.5	91	CJ
55	314340	5/8/2008	8:05	WEST INT. AND FLOOR	22.5	117	CJ
56	314340	5/8/2008	8:10	WEST INT. AND FLOOR	22.5	117	55
57	314228	5/8/2008	15:00	WEST INT. AND FLOOR	22	414	CJ
58	314103	5/8/2008	15:05	WEST INT. AND FLOOR	22.5	414	CJ
59	313792	5/8/2008	15:10	WEST INT. AND FLOOR	22	328	CJ
60	313792	5/8/2008	15:15	WEST INT. AND FLOOR	22	83	CJ
61	314102	5/9/2008	7:30	EAST INTERCELL BERM	22	64	CJ
62	314102	5/9/2008	19:35	EAST INTERCELL BERM	22	64	CJ

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Panel Placement Log

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: FO1465

	/ Secondary: Primary			Series: 1 Ma	iterial Type: gn	nl	
Panel	Batch-Roll	Date	Time	Placement/Location/Comments	Width (ft.)	Length (ft.)	QA ID
63	314102	5/9/2008	7:40	EAST INTERCELL BERM	22	64	CJ
64	314102	5/9/2008	7:45	EAST INTERCELL BERM	22	64	CJ
65	314102	5/9/2008	7:50	EAST INTERCELL BERM	22	64	CJ
66	314102	5/9/2008	7:55	EAST INTERCELL BERM	22	64	CJ
67	314235	5/9/2008	8:00	EAST INTERCELL BERM	22	64	CJ
68	314235	5/9/2008	8:05	EAST INTERCELL BERM	22	64	Cì
69	314235	5/9/2008	8:10	EAST INTERCELL BERM	22	64	CJ
70	314235	5/9/2008	8:15	EAST INTERCELL BERM	22	64	CJ
71	314235	5/9/2008	8:20	EAST INTERCELL BERM	22	64	CJ
72	314235	5/9/2008	8:25	EAST INTERCELL BERM	22	64	CJ
73	314235	5/9/2008	8:30	EAST INTERCELL BERM	22	64	CJ
74	314233	5/9/2008	8:35	EAST INTERCELL BERM	22	64	Cl
75	314233	5/9/2008	8:40	EAST INTERCELL BERM	22	64	CJ
76	314233	5/9/2008	8:45	EAST INTERCELL BERM	22	64	C)
77	314233	5/9/2008	8:50	EAST INTERCELL BERM	22	64	Cl
78	314221	5/9/2008	10:00	WEST SLOPE	22	133	CJ
79	314221	5/9/2008	10:05	WEST SLOPE	22	131	CJ
80	314221	5/9/2008	10:10	WEST SLOPE	22	140	CJ
81	314219	5/9/2008	10:15	WEST SLOPE	22	137	CJ
82	314219	5/9/2008	10:20	WEST SLOPE	22	177	CJ
83	313792	5/9/2008	10:40	WEST SLOPE	22	170	CJ
84	313792	5/9/2008	11:00	WEST SLOPE	22	125	CJ
85	313792	5/9/2008	13:45	WEST SLOPE	22	73	
86	313792	5/9/2008	14:00	WEST SLOPE	22	27	CJ
87	314115	5/9/2008	14:05	WEST SLOPE	22	199	C1
88	314115	5/9/2008	14:10	WEST SLOPE	22	201	CJ
89	314111	5/9/2008	14:15	WEST SLOPE	22	201	CJ
90	314111	5/9/2008	14:20	WEST SLOPE	22	200	CJ
91	314117	5/9/2008	14:25	WEST SLOPE	22	206	CJ
92	314117	5/9/2008	14:30	WEST SLOPE	22	200	
93	314107	5/9/2008	15:00	WEST SLOPE	22	209	C)

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Panel Placement Log

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1



ProjNo: FQ1465

Primary	/ Secondary: Primary			Series: 1 Mater	ial Type: gn	nl	
Panel	Batch-Roll	Date	Time	Placement/Location/Comments	Width (ft.)	Length (ft.)	QA ID
94	314107	5/9/2008	15:10	WEST SLOPE	22	158	CI
95	314226	5/9/2008	15:15	WEST SLOPE	22	183	CJ
96	314226	5/9/2008	15:20	WEST SLOPE	22	98	CJ
97	314226	5/9/2008	16:50	WEST SLOPE	22	54	CJ
98	314220	5/10/2008	7:30	NORTH SLOPE	22	145	CJ
99	314220	5/10/2008	7:38	NORTH SLOPE	22	145	Cl
100	314342	5/10/2008	7:50	NORTH SLOPE	22	146	СЈ
101	314342	5/10/2008	8:10	NORTH SLOPE	22	145	CJ
102	314339	5/10/2008	8:12	NORTH SLOPE	22	150	CJ
103	314339	5/10/2008	8:20	NORTH SLOPE	22	131	CJ
104	314339	5/10/2008	8:25	NORTH SLOPE	22	110	CJ
105	314226	5/10/2008	8:30	NORTH SLOPE	22	183	Cl
106	314342	5/10/2008	8:35	NORTH SLOPE	22	56	CJ
107	314342	5/10/2008	8:40	NORTH SLOPE	22	24	CJ
108	314233	5/10/2008	8:45	NORTH FLOOR	22	100	CJ
109	314340	5/10/2008	14:50	NORTH FLOOR	22	50	CJ
110	314107	5/10/2008	14:55	NORTH FLOOR	22	51	CJ
111	314219	5/10/2008	15:00	NORTH FLOOR	22	18	CJ
112	314226	5/10/2008	15:05	NORTH FLOOR	22	202	CJ
113	314118	5/10/2008	15:10	NORTH SLOPE	22	196	CJ
114	314118	5/10/2008	15:15	NORTH SLOPE	22	208	CJ
115	314229	5/10/2008	15:35	NORTH SLOPE	22	208	CJ
116	314229	5/10/2008	15:45	NORTH SLOPE	22	208	C)
117	314231	5/10/2008	15:55	NORTH SLOPE	22	208	CJ
118	314231	5/10/2008	16:00	NORTH SLOPE	22	194	CJ
119	314109	5/10/2008	16:20	NORTH SLOPE	22	194	CJ
120	314109	5/10/2008	16:25	NORTH SLOPE	22	177	-CJ
121	314110	5/10/2008	16:30	NORTH SLOPE	22	177	CI
122	314110	5/10/2008	16:35	NORTH SLOPE	22	120	CJ
123	314230	5/10/2008	16:40	NORTH SLOPE	22	122	CJ
124	314230	5/10/2008	17:00	NORTH SLOPE	22	123	CJ

Geosyntec >

consultants

Panel Placement Log

Project: Vista Class III LandfillProjNo: FQ1465Location: Apopka, FloridaTaskNo: 01

Description: Cell 1

Primary	Secondary: Primary		Series:	1 Mater	Material Type: gml				
Panel	Batch-Roll	Date	Time	Placement/Location/Comments	Width (ft.)	Length (ft.)	QA ID		
125	314340	5/10/2008	17:10	EAST INTERCELL BERM	22	70	CJ		
126	314106	5/10/2008	17:35	EAST INTERCELL BERM	22	70	CJ		
	ber of Panels: 126	C		Approx. Area (so	ft) 397	848.75			

Friday, June 27, 2008 Page 5 of 5

SUB APPENDIX D-4

TRIAL SEAM LOG

consultants

Trial Seam Log - Fusion

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1

ProjNo: FQ1465

TaskNo: 01

Tensiometer Description: EXAMO

Material Type

gml : 1

Peel Inside:

91 ppi

Shear: 120 ppi

Peel Outside: 91 ppi

Trial	Date	Time	Mach ID	Oper ID	Mat Desc	Fus	ion		Te	est Resul	ts		QA
Seam No						Wedge ° Celsius	Speed ft./Min	Peel In	Peel Out	Shear	Unit ppi/psi	Result	ID
		ı	7					r	7		T		Y1
1-001	5/6/2008	8:45	1210	ER	S/S	860	5.0	116	119	159	ppi	P	JEG
1-002	5/6/2008	8:46	019	JC	S/S	860	4.5	110	117	159	ppi	P	JEG
1-003	5/6/2008	12:10	019	JC	S/S	850	5.0	108	116	148	ppi	P	JEG
1-004	5/6/2008	12:15	1210	ER	S/S	850	5.0	104	113	149	ppi	P	JEG
1-005	5/6/2008	12:38	1210	ER	T/T	850	4.0	108	116	148	ppi	P	JEG
1-006	5/6/2008	13:00	019	JC	T/T	850	4.0	131	127	149	ppi	р	JEG
1-007	5/6/2008	14:10	1209	IS	S/S	850	5.0	112	116	148	ppi	P	JEG
1-008	5/6/2008	14:12	1209	IS	T/T	850	4.0	114	124	153	ppi	P	JEG
1-009	5/6/2008	16:20	1209	IS	T/S	850	4.0	110	109	148	ppi	p	JEG
1-010	5/7/2008	7:37	019	JC	S/S	850	4.5	116	122	171	· ppi	p	JEG
1-011	5/7/2008	7:40	019	JC	T/T	850	4.0	143	148	176	ppi	p	JEG
1-012	5/7/2008	7:40	1210	ER	S/S	850	4.5	116	122	175	ppi	р	JEG
1-013	5/7/2008	7:45	1210	ER	T/T	850	4.0	131	127	167	ppi	р	JEG
1-014	5/7/2008	7:15	1209	IS	S/S	850	5.0	110	110	165	ppi	р	JEG
1-015	5/7/2008	7:20	1209	IS	T/T	850	4.0	142	130	161	ppi	р	JEG
1-016	5/7/2008	13:07	019	JC	S/S	850	4.8	108	110	155	ppi	р	JEG
1-017	5/7/2008	13:10	019	JC	T/T	830	4.0	106	110	147	ppi	р	JEG
1-018	5/7/2008	13:10	1209	IS	S/S	850	5.0	107	110	149	ppi	р	JEG
1-019	5/7/2008	13:05	1209	18	T/T	850	4.0	129	138	153	ppi	р	JEG
1-020	5/7/2008	13:12	1210	ER	S/S	850	5.0	107	114	149	ppi	р	JEG
1-021	5/7/2008	13:15	1210	ER	T/T	850	4.5	127	118	148	ppi	р	JEG
1-022	5/8/2008	7:10	1209	IS	S/S	850	5.0	127	118	179	ppi	P	CJ
1-023	5/8/2008	7:15	1209	IS	T/T	850	4.0	124	133	160	ppi	Р	JEG
1-024	5/8/2008	7:40	24	ER	S/S	850	4.5	121	122	170	ppi	Р	CJ
1-025	5/8/2008	7:45	1210	ER	T/T	850	4.0	137	119	157	ppi	Р	CJ
1-026	5/8/2008	7:50	1208	JC	S/S	850	4.5	122	122	168	ppi	Р	CJ
1-027	5/8/2008	7:55	27	JC	T/T	860	4.0	152	151	170	ppi	P	CJ
1-028	5/8/2008	14:46	1208	JC	S/S	850	5.0	116	116	157	ppi	P	CJ
1-029	5/8/2008	14:20	1209	IS	S/S	850	5.0	116	109	157	ppi	P	CJ
1-030	5/8/2008	14:26	1210	ER	T/T	850	4.0	107	107	154	ppi	P	CJ
1-031	5/8/2008	14:30	1209	IS	T/T	850	4.0	126	127	149	ppi	P	CI
1-032	5/8/2008	15:00	1208	JC	T/T	850	4.0	117	121	148	ppi	P	CI
1-033	5/9/2008	7:20	33	JC	S/S	850	4.7	116	122	176	PPI	P	CI
1-034	5/9/2008	7:15	1209	IS	S/S	850	5	110	110	168	PPI	P	CJ

consultants

Trial Seam Log - Extrusion

Project: Vista Class III Landfill

gml: 1

Location: Apopka, Florida

Description: Cell 1

ProjNo: FQ1465

TaskNo: 01

Tensiometer Description: EXAMO

Material Type

Peel:

0 ppi

Shear:

0 ppi

Trial	Date	Time	Mach	Oper	Mat	Extri	usion		Test Res	ults		11	QA ID
Seam No			ID	ID	Desc	Pre heat ° Celsius	Barrel ° Celsius	Peel	Shear	Unit ppi/psi	Result P/F	No	
1-001	5/8/2008	9:02	1	ЕВ	T/T	500	550	127	157	PPI	P		CJ
1-002	5/8/2008	9:00	015	IS	T/T	500	550	111	153	PPI	P		CJ
1-003	5/8/2008	13:07	015	IS	T/T	500	550	110	147	PPI	P		CJ
1-004	5/8/2008	13:15	513	EB	T/T	400	550	121	150	PPI	P		CJ
1-005	5/10/2008	17:00	513	ER	T/T	400	550	128	147	PPI	Р		CJ
1-006	5/12/2008	7:15	013	IS	T/T	500	550	130	157	PPI	P		CJ
1-007	5/12/2008	7:30	513	EB	T/T	450	550	138	156	PPI	P		CJ
1-008	5/12/2008	13:10	013	IS	T/T	450	500	117	148	PPI	P		CJ
1-009	5/13/2008	7:20	013	IS	T/T	400	550	128	164	PPI	P		CJ

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Trial Seam Log - Fusion

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1

ProjNo: FQ1465

TaskNo: 01

Tensiometer Description: EXAMO

Material Type

gml : 1

Peel Inside:

91 ppi

Shear:

120 ppi

Peel Outside: 91 ppi

Trial	Date	Time	Mach ID	Oper ID	Mat Desc	Fus	ion		Te	est Resul	ts		QA
Seam No						Wedge ° Celsius	Speed ft:/Min	Peel In	Peel Out	Shear	Unit ppi/psi	Result	ID
1-035	5/9/2008	7:25	1210	ER	S/S	850	4.0	110	112	166	PPI	P	CJ
1-036	5/9/2008	7:10	1209	IS	T/T	850	4.0	156	157	170	PPI	P	CJ
1-037	5/9/2008	7:30	1210	ER	T/T	850	4.0	140	140	165	PPI	P	CJ
1-038	5/9/2008	12:42	1208	JC	S/S	850	4.5	107	107	155	PPI	P	CJ
1-039	5/9/2008	12:50	1210	ER	T/S	850	4.5	106	110	151	PPI	P	CJ
1-040	5/9/2008	12:46	1208	JC	T/S	850	4.0	109	108	148	PPI	Р	CJ
1-041	5/9/2008	14:50	1209	IS	T/S	850	4.5	117	117	150	PPI	Р	CJ
1-042	5/9/2008	14:55	1209	IS	S/S	850	5	108	109	157	PPI	P	CJ
1-043	5/10/2008	7:30	1210	ER	S/S	850	4.5	117	134	169	PPI	P	CJ
1-044	5/10/2008	7:10	1209	IS	S/S	850	5	117	110	166	PPI	P	CJ
1-045	5/10/2008	7:37	1208	JC	S/S	850	5.5	116	123	164	PPI	Р	CJ
1-046	5/10/2008	7:15	1209	IS	T/T	850	4.0	140	139	170	PPI	P	CJ
1-047	5/10/2008	7:35	1210	ER	T/T	850	4.0	116	119	162	PPI	P	CJ
1-048	5/10/2008	7:40	1208	JC	T/T	850	4.0	127	121	167	PPI	P	CJ
1-049	5/10/2008	10:20	1208	JС	T/S	850	4.0	117	112	153	PPI	Р	CJ
1-050	5/10/2008	12:13	1210	ER	S/S	850	5	110	119	148	PPI	P	CJ
1-051	5/10/2008	12:00	1209	IS	S/S	850	5	119	116	147	PPI	P	CJ
1-052	5/10/2008	12:10	1208	JC	S/S	850	4.5	114	117	150	PPI	Р	CJ
1-053	5/10/2008	12:10	1210	ER	T/T	850	4.0	116	122	150	PPI	P	CJ
1-054	5/10/2008	12:10	1209	IS	T/T	850	4.0	117	116	147	PPI	P	CJ
1-055	5/10/2008	12:14	1208	JC	T/T	850	4.0	114	116	151	PPI	Р	CJ

SUB APPENDIX D-5

PRODUCTION SEAM LOG

consultants

Production Seam Log

Project: Vista Class III Landfill

Location: Apopka, Florida Description: Cell I

ProjNo: FO1465 TaskNo: 01

Vacuum Box: 5 psi for 20 seconds Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop Specifications: : : lmg Material Type

Series: 1 Primary Primary / Secondary:

Produ	Production Seam			Location				Mondasta Tast	Toot			
t	Масh. ID	Mach. ID Oper. ID Ext	Ext/ Fus:	Series-Seam1-Seam2-Begin-End	Length	Q4 ID	Location	Detail	Oper.	Oper. Result	Action	QA ID
	019	JC	ц.	1-005-018-0-22	22	2	0-22	30-30	BS	Д	ΔΤ	5
	019	5	ĹĻ	1-003-018-0-22	22	ට	0-22	30-30	BS		AT	3 5
	019	5	i.	1-001-002 0-112	112	JEG	0-112	30-30	BS	А	AT	JEG
	1210	ER	ц	1-002-003 0-109	109	JEG	1-002-003	30-30	BS	4	AT	JEG
	019	JC	í.	1-003-024 0-113	113	JEG	1-003-004	30-30	BS	д	AT	JEG
	1210	ER	114	1-004-005 90-0	66	JEG	1-004-005	30-30	BS	ρ.,	AT	JEG
	019	S	í.	1-005-006 80-0	80	JEG	1-005-006	30-30	BS	Δ,	AT	JEG
	019	JC	ĮL,	1-007-008-161-0	161	JEG	0-152	30-29	BS	വ	AŢ	JEG
1	1210	ER	Ľ	1-009-010 22.5-0	22.5	JEG	0-22.5	30-30	BS	ď	AT	JEG
	1210	田田	Ъ	1-008-009 0-85.5	85.5	JEG	83-0	30-30	BS	Δ,	AT	JEG
	1210	ER	ц	1-008-010 0-102	102	JEG	0-102	30-30	BS	Ω,	AŢ	JEG
	610	C	и,	1-009-C12-0-86	98	JEG	98-0	30-29	BS	D.	AŢ	כ
	019	J.	щ	1-010-012 0-112	112	JEG	112-0	30-29	BS	a,	AT	JEG
	1210	ER	[J.,	1-011-012 0-22.5	22.5	JEG	0-22.5	30-30	BS	Ъ	AT	JEG
	019	ည	ji,	1-010-011 0-8.5	8.5	JEG	0-8.5	30-30	BS	Ъ	AT	JEG
13:48	1210	ER	ţr,	1-012-013 0-200.5	200.5	JEG	0-200.5	30-30	BS	Ъ	AT	JEG
			,									

consultants

Production Seam Log

Project: Vista Class III Landfill
Location: Apopka, Florida
Description: Cell 1

ProjNo: FQ1465 TaskNo: 01

· XXXIII	Ype gml: 1 Specifications: Saam Pressure: 25-30 psi for 5 minutes < 3 psi drop Vacuum Box: 5 psi for 20 seconds
The state of the s	al Type gm
	Mater

Series: 1

Primary / Secondary: Primary

	Q1 1D	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG
	Action	AT	AT	AT	AŢ	AŢ	AT	AT	AT	AT	AT	AT	AT	AT	AT	AT	AT
	Oper. Result	ը	Ь	Д	p.	۵	ρı	р.	ď	٩	Д	4	۵.,	А	Ь	ď	ρ.,
- Test	Oper.	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS
Nondestructive Test	Detail	30-30	30-30	30-30	30-30	30-30	30-30	30-29	30-30	30-30	30-30	30-29	30-30	30-30	30-30	30-29	30-30
	Location	0-22.5	13-0	214	16	125.5	35	0-86.5	144	0-22.5	0-63.5	0-64	0-63	0-64	0-64	0-64	0-64
	Ø4 ID	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG	JEG
	Length (ft.)	22.5	13	214	16	125.5	35	86.5	144	22.5	63.5	64	63	64	64	64	64
Location	SeamNo Series-Seam1-Seam2-Begin-End	1-013-014 0-22.5	1-011-013 0-13	1-013-015 0-214	1-011-014 0-16	1-015-016 0-125.5	1-014-015 0-35	1-018-019 86.5-0	1-015-017 0-144	1-016-017 0-22.5	1-019-020 0-63.5	1-020-021 0-64	1-021-022 63-0	1-022-023 0-64	1-023-024 64-0	1-024-025 0-64	1-026-(27 0-64
	Ext/ Fus:	占	ഥ	iπ	ഥ	ŗ.,	ţı,	í.	لئبر	Ľ,	11.	ц	Ľ.	ŗ.,	įx,	ഥ	H
	Oper. ID	JC	ER	JC	ER	ER	C	SI	ER	JC	SI	SI	IS	JC.	SI	ER	JC
Production Seam	Mach. ID Oper. ID	610	1210	610	1210	1210	019	1209	1210	019	1209	1209	1209	019	1209	1210	610
Produci	Time	14:00	14:20	14:20	14:25	14:30	14:45	14:46	15:00	15:00	15:05	15:10	15:17	15:24	15:30	15:30	15:46
	Date	5/6/2008	5/6/2008	8/6/2008	2/6/2008	5/6/2008	\$/6/2008	5/6/2008	\$/6/2008	2/6/2008	\$/6/2008	5/6/2008	5/6/2008	8/6/2008	\$/6/2008	5/6/2008	2/6/2008

consultants

Production Seam Log

Project: Vista Class III Landfill Location: Apopka, Florida

Description: Cell 1

ProjNo: <u>FO1465</u> TaskNo: <u>01</u>

Vacuum Box: 5 psi for 20 seconds Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop Specifications: gml : 1 Material Type

Series: 1

Primary / Secondary: Primary

	Produc	Production Seam			Location				Nondestructive Test	ve Test			
Date	Time	Mach. ID Oper. ID	Oper. ID	Ext/ Fus:	Seam?-Seam?-Begin-End	Length (ft.)	QA ID	Location	Detail	Oper.	Oper. Result	Action	Q4 ID
\$/6/2008	15:48	1209	SI	4	1-025-026 0-65	65	JEG	0-65	30-30	BS	ß.	AT	JEG
5/6/2008	15:52	1210	ER	ĹĿ	1-027-028 0-63	63	JEG	0-63	30-30	BS	ہم	AĨ	JEG
\$/6/2008	16:00	1210	ER	jų,	1-006-C29 0-42	42	JEG	0-42	30-30	BS	д	AT	Ü
5/6/2008	16:00	1209	SI	ы	1-007-C29 0-28	28	JEG	0-28	30-30	BS	Д	AT	5 3
2/6/2008	16:20	1209	SI	ഥ	1-006-007 28-56	28	JEG	28-56	30-30	BS	д	AT	Ö
5/6/2008	16:25	1210	ER	114	1-007-C20 0-21	21	JEG	0-21	30-30	BS	p.	AT	5
2/6/2008	16:30	1209	SI	ĮĽ,	1-007-018 56-86	30 .	JEG	56-86	30-30	BS	Ωı	AŢ	G
2/6/2008	16:30	1209	IS	IТ	1-007-019 86-117	31	JEG	86-117	30-30	BS	Δ,	AT	5
2/6/2008	16:30	1210	ER	ы	1-007-021 21-28	7	JEG	2-0	30-30	BS	C.	AT	G
2/6/2008	16:30	1210	ER	ı.	1-008-021 28-44	16	JEG	28-44	30-30	BS	. Δ.	AT	5 7
2/6/2008	16:33	1210	ER	ju,	1-008-022 44-59	15	JEG	44-59	30-30	BS	۵.	AT	5
2/6/2008	16:36	1210	ER	ĹĽ,	1-010-022 59-66.5	7.5	JEG	59-66.5	30-30	BS	a	AT	5
8/6/2008	16:38	1210	ER	124	1-010-023 66.5-88.5	22	JEG	66.5-88.5	30-30	BS	d,	AT	3
8/6/2008	16:42	019	Ω	ь	1-004-018-0-22	22	3	0-22	30-30	BS	4	AT	5
8/6/2008	16:44	1210	ER	ц	1-011-024 89-111.5	22.5	JEG	111.5	30-30	BS	ď	AT	JEG
8/6/2008	16:50	1210	ER	<u> </u>	1-011-025 111.5-118	6.5	JEG	111.5-118	30-30	BS	e.	AT	J
													;

Consultants Production Seam Log

Project: Vista Class III Landfill

Location: <u>Apopka, Florida</u> Description: <u>Cell 1</u>

ProjNo: <u>FO1465</u> TaskNo: <u>01</u>

Laskino;

Material Type gml: 1 Specifications: Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop

Senes: 1

Primary

Primary / Secondary:

es < 3 psi drop Vacuum Box: 5 psi for 20 seconds

	Produc	Production Seam			acitaco				M1===1				
	٠,			Ī					Nondestructive lest	e lest			
Date	Time	Mach. ID Oper. ID Ext/ Fus:	Oper. ID	Ext/ Fus:	Seam No Scrics-Seam 1-Seam 2-Begin-End	Length (ft.)	au võ	Location	Detail	Oper.	Oper. Result	Action	Q4 ID
2/6/2008	16:50	1210	ER	F	1-014-025 118-134	16	JEG	118	30-30	BS	Ъ	AT	JEG
2/6/2008	16:53	610	C	ഥ	1-002-018-0-22	22	บิ	0-22	30-30	BS	А	AT	j
2/6/2008	16:54	1210	ER	I.L.	1-014-026 134-147.5	13.5	JEG	147.5	30-30	BS	ď	AT	JEG
8/6/2008	16:58	610	5	LL,	1-001-018-0-22	22	ខ	0-22	30-30	BS	ď	AT	ซี โ
2/6/2008	17:00	1210	ER	Ľ.	1-015-026 147.5-156	8.5	JEG	147.5	30-30	BS	Ь	AT	JEG
8/6/2008	17:00	1210	ER	12.	1-015-027 156-177	21	JEG	177	30-30	BS	۵,	AT	IEG
2/6/2008	17:06	1210	ER	ír.	1-017-028 178.5-201.5	23	JEG	201.5	30-30	BS	٨	AT	JEG
\$/7/2008	8:00	019	JC	Ľ,	1-016-020 130-0	130	JEG	130	30-30	BS	М	AT	JEG
\$/7/2008	8:15	1210	ER	'n	1-030-032 0-245	242	JEG	245	30-30	BS	A.	AT	JEG
8/1/2008	8:20	1210	ER	ц	1-031-032 0-67	19	JEG	0	30-30	BS	ď	AT	JEG
5/7/2008	8:24	019	c	<u>ц</u>	1-017-030 114-0	114	JEG	114	30-30	BS	Д	AT	JEG
2/1/2008	8:30	610	JC	ы	1-032-034 252.5-0	252.5)EG	0-252.5	30-30	BS	d	AT	3
8/1/2008	8:35	1209	SI	μ,	1-034-035 0-161	161	JEG	0-161	30-29	BS	۵	AŢ	5
\$/7/2008	8:40	1209	SI	£24	1-033-036-0-88	88	JEG	88-0	30-30	BS	Ь	AT	5
\$/7/2008	8:44	1209	SI	ц	1-030-031 0-22	22	JEG	0-22	30-30	BS	ч	AT	JEG
5/7/2008	8:45	1210	ER	ш	1-035-036 0-22.5	22.5	JEG	0-22.5	30-30	BS	ď	AT	2
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consultants

Production Seam Log

Project: <u>Vista Class III Landfill</u> Location: <u>Apopka, Florida</u> Description: <u>Cell 1</u>

ProjNo: <u>PO1465</u> TaskNo: <u>01</u>

Vacuum Box: 5 psi for 20 seconds Scam Pressure: 25-30 psi for 5 minutes < 3 psi drop Specifications: gml : 1 Material Type

Series: 1 Primary Primary / Secondary:

	Produc	Production Seam			Location	,			Nondestructive Test	to Tect			
Date	Time	Mach. ID Oper. ID	Oper. ID	Ext/ Fus:	Seam?-Beam?-Begin-End	Length (ft.)	04 ID	Location	Detail		Result	Action	Q4 ID
\$/7/2008	8:50	1210	ER	ь	1-036-037 0-22	22	JEG	0-22	30-30	BS	ď	AT	ť
8/1/2008	8:54	010	S	ţr.	1-017-031-48-0	48	JEG	0.48	30-30	BS	Д	AT	JEG
8/1/2008	9:00	1210	既	ſZ4	1-036-028 0-70.5	70.5	JEG	0-70.5	30-29	BS	p.	AT	7
\$/7/2008	9:05	1209	SI	ſL,	1-033-037-0-13	13	JEG	0-13	30-30	BS	A,	AT	G
\$/7/2008	9:05	1210	ER	μı	1-035-038 0-161	161	JEG	0-161	30-29	BS	А	AT	5
5/7/2008	9:10	1210	ER	ч	1-036-039 0-112	112	JEG	0-112	30-29	BS	a,	AT	J
8/1/2008	9:12	1209	SI	н	1-033-034-0-22.5	22.5	JEG	0-22.5	30-30	BS	Δ.	AT	3
\$/7/2008	9:25	1210	ER	ſī,	1-037-039 0-32	32	JEG	0-32	30-29	BS	Ь	AT	3
8/1/2008	9:27	019	JC	μ,	1-038-039 0-22.5	22.5	JEG	0-22.5	30-30	BS	А	AT	Jö
5/7/2008	9:29	019	JC	ᅜ	1-039-041 0-145	145	JEG	0-145	30-30	BS	ď	AT	5
5/7/2008	9:31	1210	ER	(II.	1-039-042 0-24	24	JEG	0-24	30-30	BS	a	AT	ច
\$/7/2008	9:36	019	JC	μ	1-038-040 0-224	224	JEG	0-224	30-30	BS	А	AT	S
5/7/2008	9:41	019	JC	႕	1-038-041 0-5	5	JEG	0-5	30-30	BS	Ъ	AŢ	3
5/7/2008	9:46	610	Ŋ	ч	1-032-033 82.5-0	82.5	JEG	0-82.5	30-30	BS	ď	AT	5
2/1/2008	10:21	1209	IS	ц	1-034-036 0-92.5	92.5	JEG	0-92.5	30-30	BS	Δ.	AT	G
5/7/2008	11:02	1209	SI	11,	1-040-041 0-22.5	22.5	JEG	0-22.5	30-30	BS	д	AT	5
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consultants

Production Seam Log

Project: Vista Class III Landfill
Location: Apopka, Florida

ProjNo: <u>FQ1465</u> TaskNo: <u>01</u>

Description: Cell 1

Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop

22 Vacuum Box: 5 psi for 20 seconds

Primary

Primary / Secondary:

Specifications:

gml: 1

Material Type

Seri 38:

QA ID JEG JEG C C ਹ 2 ច C \Box C 5 5 Ü 5 5 \ddot{c} Action ΑI ΑT ΑT ATATΑŢ AT ATAT AT ΑŢ ATAT AT ΑŢ Result ф Д Ω., ፈ Д Δ, a, ρ., Д Д Д Д ۵, Oper. BS Nondestructive Test BS BS BS BS BS BS BS BS BS BS BS BS Detail 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 187-148 Location 164-412 0-22.5 0-265 0-105 0-412 0-150 0-414 0-414 0-413 0-164 0-227 0-43 0-18 0-39 0 QA ID JEG JEG JEG JEG JEG JEG JEG JEG 1EG EG Ü ਹ \Box \Box Ç \ddot{c} Length (ft.) 227 22.5 414 105 265 412 150 414 413 248 39 43 164 18 39 Location Seam No Series-Seam - Seam 2-Begin-End 1-041-043-187-148 -049-050-164-412 1-041-042 0-22.5 1-043-044 0-22.5 1-045-046 0-412 1-048-043-0-413 1-040-043 0-227 1-041-044 0-105 1-043-045 0-265 1-044-045 0-150 1-046-047 0-414 1-047-043-0-414 1-049-050-0-164 1-044-051-0-18 1-042-044 0-43 1-051-052-0-39 Ext/ Fus: المر ш ţx. ĬŢ, ĹŽ, ÇIL £L, ĹL, щ 14 į, ഥ Mach. ID Oper. ID IS ER 田 S S 5 5 22 \tilde{S} $^{\rm 2C}$ \mathbf{S} \mathbf{g} \mathbf{S} 田 SI SI Production Seam 1210 1209 1210 1210 1209 1209 1209 1209 1209 1209 019 019 610 019 1209 019 Time 11:15 11:39 11:45 11:46 11:49 12:03 13:32 14:04 14:15 14:43 15:40 16:06 16:47 16:59 7:53 8:00 5/7/2008 5/7/2008 5/7/2008 5/8/2008 5/7/2008 5/7/2008 \$/7/2008 5/7/2008 5/7/2008 5/7/2008 5/7/2008 5/7/2008 5/7/2008 5/7/2008 5/7/2008 5/8/2008 Date

consultants Production Seam Log

Project: Vista Class III Landfill

Location: <u>Apopka, Florida</u> Description: <u>Cell 1</u>

ProjNo: FQ1465 TaskNo: 01

Vacuum Box: 5 psi for 20 seconds Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop Specifications: gmi : 1 Material Type

Series: 1

Primary / Secondary: Primary

Production Seam Location		Location	Location	Location					Nondestructive Test	ve Test			
Date	Time	Mach. ID Oper. ID	Oper. ID	Ext/ Fus:	Seam! Scam2-Begin-End	Length (ft.)	Q4 ID	Location	Detail	Орег.	Oper. Result	Action	QA ID
5/8/2008	8:10	1210	ER	ŭ,	1-052-053-0-59	59	C	65-0	30-30	BS	ď	AT	7
5/8/2008	8:11	1209	SI	щ	1-053-054-0-79	79	3	0-79	30-30	BS	م	AT	3
2/8/2008	8:15	0128	JC	úι	1-054-055-0-91	91	5	16-0	30-30	BS	Ъ	AT	2
\$/8/2008	8:28	1209	IS	ц	1-055-056-0-117	117	ರ	0-117	30-30	BS	ď	AT	3
5/8/2008	8:51	1210	ER	H	1-045-051-0-22	22	ច	0-22	30-30	BS	a,	AT	Ö
5/8/2008	8:56	1210	ER	ш	1-046-052-0-22	22	2	0-22	30-30	BS	ռ	AT	5
5/8/2008	9:00	1210	ER	ŗ,	1-047-053-0-22	22	ខ	0-22	30-30	BS	Ь	AT	3
5/8/2008	9:03	1210	SI	ŭ,	1-050-057-0-413	413	ਹ	0-413	30-30	BS	Ъ	AT	Ü
5/8/2008	9:05	1210	ER	щ	1-048-054-0-22	22	3	0-22	30-30	BS	Д	AT	3
2/8/2008	9:10	1210	ER	щ	1-049-055-0-22	22	ฮ	0-22	30-30	BS	p.	AŢ	נ
5/8/2008	9:15	1210	ER	ſĿι	1-050-056-0-22	22	S	0-22	30-30	BS	Δ,	AT	G
2/8/2008	15:18	1208	JC	ы	1-057-058-0-414	414	3	0-414	30-30	BS	Ы	AT	5
\$/8/2008	15:40	1210	ER	ц	1-058-059-0.328	328	ರ	0-328	30-30	BS	ō,	AŢ	Ö
5/8/2008	16:03	1209	SI	ы	1-057-050-0-22	22	2	0-22	30-30	BS	Ь	AT	J
5/8/2008	16:13	1210	IS	ſλι	1-056-050-415-	4	ט	415-	30-30	BS	Ь	AT	5
5/9/2008	7:30	1208	JC	tr'	1-028-051-0-62	62	៦	0-62	30-30	BS	4	AT	5
											_		



consultants Production Seam Log

Project: Vista Class III Landfill

Location: Apopka, Florida Description: Cell J

ProjNo: <u>FQ1465</u> TaskNo: <u>01</u>

Specifications: Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop gm! : 1 Material Type

Series: 1

Primary / Secondary: Primary

Vacuum Box: 5 psi for 20 seconds

BS P AT CJ
BS P
30-30
0-63
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63
1-062-063-0-63
JC
1208
7:50
5/9/2008

consultants

Production Seam Log

Project: Vista Class III Landfill Location: Apopka, Florida Description: Cell 1

ProjNo: FQ1465 TaskNo: 01

Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop

Vacuum Box: 5 psi for 20 seconds

Series: 1 Primary Primary / Secondary:

Specifications:

gmi : I

Material Type

	QA ID	12	3 2	3 2	3 2	3 2	5	3 3		5 2	3 3	5 3		5	Ü	5 5	3 2
	Action	AT	AT	AT	VT	AT	AT	AT	AT	AT	ΑT	AT	AT	AT	AT	AT	į.
	Oper. Result	۵.	۵	. Д.	م	۵,	Ь	. 4	۵۰	a	۵	. 4	a.	٦	Д	Ь	. F
P Test	Oper.	BS	BS	BS	SR	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	00
Nondestructive Test	Detail	30-30	30-30	30-30	VTOK	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30
	Location	0-17	0-11	35-46	0-5	46-64	35-49	64-68	68-91	94-114	114-121	123-137	153-159	153-137	159-182	182-204	8-0
	Q4 ID	Ö	3	อ	ฮ	ට	3	ਹ	ฮ	ฮ	ច	3	ਹ	2	3	3	7
	Length (ft.)	17	11	Ξ	5	18	14	4	23	20	7	14	9	16	23	22	8
Location	Seam!-Seam?-Begin-End	1-031-061-0-17	1-031-062-0-11	1-032-062-35-46	1-017-061-0-5	1-032-063-46-64	1-032-062-35-49	1-033-063-64-68	1-033-064-68-91	1-037-065-94-114	1-037-066-114-121	1-039-066-123-137	1-042-067-153-159	1-039-067-137-153	1-042-068-159-182	1-044-065-182-204	1-044-07C-204-212
	Ext/ Fus:	ĹĻ	L	ш	ш	L	Ľ.,	<u>г</u>	Э	(IL	ы	ц	ŗ,	tr.	щ	ţı.	CI.
	Oper. ID	IS	SI	IS	IS	IS	IS	SI	SI	SI	IS	IS	SI	IS	IS	IS	IS
Production Seam	Mach. ID Oper. ID Exu	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209
Product	Time	9:47	9:50	9:53	9:54	9:55	9:57	9:58	10:00	10:04	10:07	10:09	10:15	10:17	10:17	10:21	10:24
	Date	5/9/2008	5/9/2008	5/9/2008	5/9/2008	\$/9/2008	5/9/2008	8/9/2008	5/9/2008	\$/9/2008	5/9/2008	\$/9/2008	5/9/2008	5/9/2008	8/9/2008	5/9/2008	5/9/2008



consultants Production Seam Log

Project: Vista Class III Landfill

Location: Apop<u>ka, Florida</u> Description: <u>Cell I</u>

Specifications:

ProjNo: <u>FQ1465</u> TaskNo: <u>01</u>

Vacuum Box: 5 psi for 20 seconds

Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop Primary Primary / Secondary:

gml : 1

Material Type

,			,		Series: 1								
	Produc	Production Seam			Location								
Date	Time	Mach. ID Oper. ID	Oper. ID	Ext/	Soum No.		5	•	Nondestructive Test	ve rest			
					Series-Seam1-Seam2-Begin-End	(ft.)	3	Location	Detail	Oper.	Oper. Result	Action	QA ID
\$/9/2008	10:26	1209	IS	F.	1-051-070-212-227	15	ō	212-227	20.00	3			
5/9/2008	10:29	1209	IS	11.	1-051-071-227-243	16	5 2	227 242	06-06	22	۵,	AT	ರ
\$/9/2008	10:32	1209	SI	ſĿ.	1-052-071-243-250		3 6	247-177	30-30	BS	Ъ	AT	ບ
5/9/2008	10:34	1209	7.	1	100000000000000000000000000000000000000	,	3	743-250	30-30	BS	Д	AT	5
00000000	1000		2]	1-032-072-073	23	ซ	250-273	30-30	BS	a.	AT	5
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\$/9/2008	10:40	1208	<u></u>	٠,	1 070 070 0 130		3	705-067	30-30	BS	ω,	AT	5
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2/6/5008	10:42	1209	S	tr.	1-054-074-302-318	16	2	302-318	30.30) [14	3
8/9/2008	10:45	1209	IS	Į.,	1-054-075-318-329	11	1	318 320	05-05	PSS	Ы	AT	C
\$/9/2008	10:47	1209	75	ប	1 055 000 100 1	11	3	316-329	30-30	BS	a,	AT	ට
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2/9/2008	10:47	1209	S	μ	1-055-076-342-363	21	S	342-363	30-30	3 6	, ,	10	3
5/9/2008	10:53	1210	ER	44	1-079-080-0-128	128	j	0.130	0000	Sa	1	Ai	<u>კ</u>
5/9/2008	10:54	1209	SI	L	1-056-077-363-386	22	3 5	071-0	06-06	BS	۵,	AT	ت ت
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\$007/6/5	12:09	1209	S	Į.,	1-059-086-0-23	23	3	0.23	30.30	i c			3
8/9/2008	13:23	1210	ER	4	1.081.083.0.22	C			0.5-0.5	00	ъ,	AI	ซี
					75-0-7-0-7	3.2	3	0-32	30-30	BS	М	AT	5
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consultants Production Seam Log

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1

ProjNo: <u>FQ1465</u> TaskNo: <u>01</u>

Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop

Specifications:

gml : 1

Material Type

Series: 1

Primary

Primary / Secondary:

Vacuum Box: 5 psi for 20 seconds

	Q4 ID	Ö	3	G	3	្រ	5	3	2	Ö	Ö	ט	ទ	2	S	Ö	3
	Action	AT	VT	AŢ	AT	AT	AT	AŢ	AT	AT	AT	AT	AT	AT	AT	AT	AT
	Oper. Result	Ъ	۵,	Ъ	Ь	a,	۵.	a	Ь	Ь	д	ď	G,	p.	a,	p.	A
Test	Oper.	BS	SR	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS
Nondestructive Test	Detail	30-30	VTOK	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30
	Location	0-125	128-134	0-27	67-101	0-173	101-134	0-196	0-73	32-67	0-189	0-20	0-22	0-22	0-198	8-0	0-198
	QA ID	G	១	3	ರ	ฮ	ខ	ਹ	ਹ	ਹ	ខ	ວ	ฮ	ວ	3	ច	3
	Length (ft.)	125	11	72	34	177	33	196	73	35	189	20	22	22	198	8	198
Location	Serics-Scam1-Scam2-Begin-End	1-083-084-0-125	1.059-Extension	1-085-086-0-27	1-081-085-67-101	1-082-083-0-177	1-081-086-101-134	1-082-087-0-196	1-084-035-0-73	1-081-084-32-67	1-087-058-0-189	1-058-031-0-20	1-058-079-0-22	1-058-078-0-22	1-088-069-0-198	1-059-081-0-8	1-089-050-198
	Ext/ Fus:	Ŧ	Э	4.,	4 1	4 44	4-(4.	ۍ.	Ŧ	ju,	Ľ	ĻĻ	ſI.,	(i.	ш	н
	Oper. ID	紐	SI	JC	ER	C	ER	C	JC	JC	既	SI	IS	SI	C	IS	照
Production Seam	Mach. ID Oper. ID Ext	1210	013	1208	1210	1208	1210	1208	1208	1208	1210	1209	1209	1209	1208	1209	1210
Produc	Time	13:40	13:52	14:03	14:10	14:14	14:17	14:35	14:40	14:45	14:45	14:56	15:04	15:08	15:09	15:17	15:28
	Date	2/9/2008	5/9/2008	5/9/2008	\$/9/2008	5/9/2008	5/9/2008	\$/9/2008	5/9/2008	5/9/2008	5/9/2008	5/9/2008	5/9/2008	2/9/2008	5/9/2008	5/9/2008	\$/9/2008



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Production Seam Log

Project: Vista Class III Landfill Location: Apopka_Florida Description: Cell_1

ProjNo: E<u>01465</u> TaskNo: <u>01</u>

gml : 1 Material Type

Specifications:

Vacuum Box: 5 psi for 20 seconds Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop

Primary / Secondary: Primary

Series: 1

	7000	riodacion seam			Location	c			Mondachus	Took			
Date	Time	Mach ID Oner ID		70.00		1			NOTIONAL LEST	ive i est			
		77		Fus:	Series-Seaml-Seam2-Begin-End	Length (ft.)	07 ED	Location	Detail	Oper.	Result	Action	Q1 1D
5/9/2008	15:36	1209	IS	F	1-059-082-96-128	128	j	96-178	00.00	i i			
5/9/2008	15:41	1209	SI	1-	1-050-082 62 06	33	3 8	077-07	30-48	22	۵.	AT	ਹ
000000					06-60-600-600-7	CC.	3	63-96	30-28	BS	Ъ	AŢ	Ü
2/9/2008	15:43	1208	ပ္	(I.,	1-090-091-0-197	197	Ö	0-197	30-30	DG	۵	£ 4	5
5/9/2008	15:46	1209	IS	ţL,	1-059-084-30-9-63	54	5	£9-6	30.00	3 5	۱ ۱	WI	3
5/9/2008	15:50	1209	SI	ŗ.	1-059-085-0-30	30		200	07-00	SS	٦,	AT	ပ
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5/9/2008	16:26	1208	IS	ц	1-093-094-0-155	155	5	0 155	00 00	2	١,	Ai	3
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\$/9/2008	17:10	1208	55	í.	1-096-097-0-51	48	5	0.51	20.20	Sa	14 S	A.	3
5/10/2008	7:48	1209	IS	ь	1-098-099-0-202	202	5	200-0	00-00	Sa	۵.,	ΑÏ	ರ
5/10/2008	7:57	1210	ER	j.	1-099-100-0-147	147	3 2	707-0	06-06	82	۵	AT	ວ
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2/10/4000	20.0	1208	ر ا	14	1-100-101-0-143	143	Ö	0-143	30~30	RS	Ω	A.T.	į
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5/10/2008	8:32	1208	55	ш	1-102-103-0-128	128	[5	0.128	30.30	2 2	4	AI	3
	,	100				,	;	271-2	20-20	20	٦.	ТΔ	5



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Production Seam Log

Project: Vista Class III Landfill Location: Apopka, Florida

ProjNo: FO1465 TaskNo: 01

Vacuum Box: 5 psi for 20 seconds Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop Specifications: gml : 1 Description: Cell 1 Material Type

Series: 1

Primary

Primary / Secondary:

	QA ID	, -	3 5	3 2	3 5	3 5	3 5	3 5	3 2	3 5	3 5	3 2	3	3 5	3 5	3 2	3
	Action	ΑT	AT	ΔT	AT	ΔT	AT	TA	TA	ΔŢ	AT	ΑŢ	AT	ΑT	ΤA	ΑT	AT
	Result	ρ.	. ام		. م	. _	. ط	ء ،	, p.	۵,	, م	.م	م	. ام	, 6	، م	Δ.
Toof	Oper.	BS	BS	BS	BS	RS	BS S	BS	BS	BS	BS	BS	BS	BS	BS BS	BS	BS
Nondestructive Test	Detail	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30
	Location	0-107	0-78	0-13	0-53	0-8	37-8	70-39	116-76	76-70	0-50	116-103	133-116	154-133	0.52	0-22	0-22
	Q.4 I.D	ਹ	ວ	ือ	ט	ខ	Ü	อ	ซ	ខ	៦	Ö	3	3	3	J	8
	Length (ft.)	107	78	17	53	8	29	31	40	9	50	13	17	21	52	22	22
Location	Series-Seaml-Seam2-Begin-End	1-103-1C4-0-107	1-104-105-0-78	1-106-107-0-17	1-105-106-0-53	1-097-107-0-8	1-097-106-37-8	1-096-105-70-39	1-095-104-103-116-76	1-096-104-76-70	1-109-110-0-50	1-095-103-116-103	1-094-103-133-116	1-094-102-154-133	1-099-1:2-0-52	1-108-112-0-22	1-099-109-0-22
	Ext/ Fus:	ы	ш	Ŀ	Ľ,	124	ů.	<u>.</u>	ŗ.	IX.	(L	ц	μ,	ш	CL.	ഥ	íz.
	Oper. ID	ER	SI	ER	JC	SI	IS	IS	IS	IS	ER	SI	SI	IS	JC	ER	ER
Production Seam	Mach. ID Oper. ID Ext	1210	1209	1210	1208	1209	1209	1209	1209	1209	1210	1209	1209	1209	1208	1210	1210
Produc	Time	8:32	8:54	9:01	9:05	9.44	9:45	9:50	9:55	9:55	9:57	10:01	10:03	10:06	10:08	10:13	10:19
	Date	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	8/10/2008	\$/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008



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consultants Production Seam Log

Project: Vista Class III Landfill

Location: Apopka, Florida Description: Cell 1

ProjNo: <u>FO1465</u> TaskNo: <u>01</u>

Material Type

Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop Specifications: •• E

Vacuum Box: 5 psi for 20 seconds

QA ID

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Action ΑĨ ΑT AT AT ΑŢ ΑT AT AT AT ΑŢ ΑŢ AT ĄŢ AT ΑT AT Oper. Result ب.ر Q, ф Д, Д Δ, Δ, ۵., Ω, Д д BS BS BS BS BS BS BS BS Nondestructive Test 3S BS BS BS BS BS Detail 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 30-30 134-163 163-192 192-220 Location 0-22 0-74 0-22 0-22 0-22 0-16 0-23 0-12 0-12 0-23 0-5 0-4 9-0 QA ID $\ddot{\mathbf{c}}$ \Box S ਹ \Box ${\bf \vec{c}}$ \ddot{c} \ddot{c} \Box \Box ਹ ਹ ਹਿ \Box ប CLength (ft.) 9 22 9 74 22 22 22 29 23 29 12 12 28 8 23 Location Series-Seam!-Seam2-Begin-End 1-059-103-134-163 -059-109-163-192 -059-110-192-220 1-110-Extension 1-098-Extension 1-093-Extension 1-091-112-0-12 1-091-108-0-12 1-093-100-0-22 1-092-112-0-23 1-093-101-0-22 1-093-102-0-4 1-108-109-0-74 1-089-108-0-23 1-099-108-0-6 1-093-112-0-5 Series: 1 Ext/ Fus: Ľ, ļį, ŗ, щ щ ŗ, ĹL, ij, ĹĻ, Ľ, į, Ľ ja., Time Mach. ID Oper. ID S S S S $| \infty |$ ER ER S일 Σ S JC. 23 S 20 S Primary Production Seam 1209 1210 1210 1208 1208 1209 1209 1208 1209 1209 1208 1209 1209 1208 1209 Primary / Secondary: 10:20 10:20 10:20 10:30 10:38 10:40 10:42 10:45 10:46 10:48 10:54 10:20 10:24 10:37 10:41 10:50 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 5/10/2008 Date

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Production Seam Log

Project: Vista Class III Landfill Location: <u>Apopka, Florida</u> Description: <u>Cell 1</u>

ProjNo: FQ1465 TaskNo: 01

Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop Specifications: gml : 1 Material Type

Series: 1

Primary

Primary / Secondary:

Vacuum Box: 5 psi for 20 seconds

	QAID	ರ	ਹ	ธ	១	ខ	S	ರ	S	2	ರ	JEG	ರ	5	ច	2	2
	Action	AT	AŢ	AT	AT	AT	AT	AT	AŢ	AT	AT	AT	AT	AT	AŢ	AT	AT
	Oper. Result	Ωı	a,	p.,	Д	Ы	4	a,	a	م	۵,	<u> </u>	Ъ	a,	ρ.,	م	a
Test	Oper.	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS
Nondestructive Test	Detail	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-29	30-29	30-30	30-29	30-30	30-30	30-30	30-30	30-30
	Location	0-29	0-22	0-22	0-23	0-22	0-193	0-22	0-193	0-205	0-34	0-18	0-205	0-205	0-22	0-191	0-119
	оч по	ច	5	ខ	5	3	ວ	3	రె	5	2	ือ	Ü	3	ฮ	ט	7
,	Length (ft.)	29	22	22	23	22	193	22	193	205	34	18	205	205	22	191	191
Location	Seam!-Stam2-Begin-End	1-059-111-220-249	1-087-Extension	1-088-108-0-22	1-090-108-0-23	1-108-Extension	1-098-113-0-193	1-111-:13-0-22	1-113-114-0-193	1-115-116-0-205	1-110-111-0-34	1-111-114-0-18	1-114-115-0-205	1-116-117-0-205	1-058-080-0-22	1-117-118-0-191	1-118-119-0-191
	Ext/ Fus:	μ,	£Z4	ц	ţL,	ĹĿ	ĹĿ	144	ĹĽı	úι	ľĽ,	ъ	ц	įI,	Lī.,	ĮL,	į,
	Oper. ID	SI	ER	IS	SI	SI	JC .	SI	ER	ည	JC	ER	SI	ER	SI)C	SI
Production Seam	Mach. ID Oper. ID Exu Fus:	1209	1210	1209	1209	1209	1208	1209	1210	1208	1208	1210	1209	1210	1209	1208	1209
Produc	Time	10:55	10:58	10:58	10:59	11:02	13:15	13:22	13:42	14:10	14:12	14:16	14:49	14:50	15:00	15:00	15:23
	Date	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	8/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	\$/10/2008	5/10/2008	5/10/2008

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Production Seam Log

Project: Vista Class III Landfill Location: Apopka, Florida

Description: Cell 1

ProjNo: FQ1465 TaskNo: 01

Vacuum Box: 5 psi for 20 seconds Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop Specifications: gml : 1 Material Type

Series: 1

Primary

Primary / Secondary:

	04 ID	5	3 2	5	13	5	J	5	כן		3 3	3	G	3	כ	G	כ
	Action	AT	AT	AT	AT	AT	AT	AT	AŢ	AT	AT	AT	AT	AT	VT	AT	ΑT
	Result	Д	A	۵۰	۵,	Ъ	4	4	Ω.	Ω,	Δ,	۵.	Ь	Δ,	م	A.	۵,
Test	1.0	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	BS	SR	BS	BS
Nondestructive Test	Detail	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	30-30	VTOK	30-30	30-30
	Location	0-164	0-174	0-117	47-76	249-277	0-23	0-119	311-300	6-0	8-0	0-12	0-120	0-16	8-0	0-58	0-19
	Q4 ID	ਹ	3	ฮ	ਹ	ខ	5	3	S	ខ	ฮ	ខ	ਹ	ខ	ਹ	ខ	3
	Length (ft.)	164	174	117	29	28	23	119	11	6	8	12	120	16	8	58	. 61
Location	Series-Seam1-Seam2-Begin-End	1-119-120-0-164	1-120-121-0-174	1-121-122-0-117	1-060-1:9-47-76	1-059-114-264-277	1-059-115-300-277	1-122-123-0-119	1-059-116-311-300	1-058-116-320-311	1-058-117-0-8	1-117-Extension	1-123-124-0-120	1-118-Extension	1-056-125-0-8	1-077-125-0-58	1-060-117-0-19
	Ext/ Fus:	F	щ	Д,	[Ja,	ſx.	Щ	ш	ţI.	ir,	щ	ъ.	4	ы	ш	íz.	ഥ
	Oper. ID	ER	IS	C	SI	SI	SI	JC	IS	SI	SI	SI	ER	SI	JC	JC	SI
Production Seam	Mach. ID Oper. ID Ext/ Fus:	1210	1209	1208	1209	1209	1209	1208	1209	1209	1209	1209	1210	1209	1208	1208	1209
Produc	Time	15:43	16:04	16:10	16:32	16:44	16:47	16:48	16:50	16:52	17:00	17:05	17:07	17:10	17:20	17:21	17:23
	Date	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008	5/10/2008

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Production Seam Log

Project: Vista Class III Landfill Location: Apopka, Florida

Description: Cell 1

Primary / Secondary:

ProjNo: EQ1465 TaskNo: 01

Vacuum Box: 5 psi for 20 seconds Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop Specifications; gml : I Material Type

Series: 1 Primary

	Produc	Production Seam			Location				Nondestructive Test	ve Test			
Date	Time	Mach. ID Oper. ID	Oper. ID	Ext/ Fus:	Serics-Seaml-Seam2-Begin-End	Length (ft.)	Q4 ID	Location	Detail	Oper.	Oper. Result	Action	QAID
5/10/2008	17:25	1209	IS	႕	1-060-118-0-6	9	3	9-0	30-30	BS	۵	ΔT	,
5/10/2008	17:27	1209	SI	ţr,	1-060-Extension	20	7	19-39	30-30	BS	, Δ	AT	3 5
5/10/2008	17:36	1209	SI	12	1-060-120-0-22	22	2	0-22	30-30	BS	, ρ.	ΑŢ	3 5
5/10/2008	17:40	1209	SI	ഥ	1-056-120-0-7	7	S	0-7	30-30	BS	۵.	AT	3 2
5/10/2008	17:40	1209	IS	F	1-056-121-7-35	28	J	7-35	30.30	Sa Sa	۵,	ΛT	3 2
5/10/2008	17:42	1208	JC	ш	1-125-126-0-70	71	S	0-71	30-30	S S	۵ ،	TA	3 5
5/10/2008	17:57	1209	SI	止	1-121-125-0-22	22	J	0-22	30-30	3 0	, 6	T .	3 8
\$/10/2008	18:01	1209	SI	ſ.L.	1-121-126-0-10	10	: 0	0-10	30-30	က်	ا د	¥	3 8
5/10/2008	18:01	1209	IS	ţ,	1-122-126-0-25	25	ן כ	\$5.0	30-30	200	u c	A F	3 8
5/10/2008	18:04	1208	IS	L	1-123-126-0-22	22	Ö	0-22	30-30	SG SG	א ב	AI	3 8
5/10/2008	18:12	1209	SI	נבי	1-124-126-0-22	22	ס	0-22	30-30	e o	٦ ۵	AI	3 3
\$/12/2008	11:17	513	EB	μı	1-099-Extension	8	3	8-0	VTOK	3 8	ų Q	A.I.	3 5
\$/12/2008	11:20	513	EB	ы	1-100-extension	9	S	9-0	VTOK	S. S.	٠, ۵	TA	3 3
5/12/2008	11:53	513	EB	Э	1-112-extension	11	3	0-11	VTOK	SR	, Δ,	٨٦	3 5
												•	3

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Production Seam Log

Project: Vista Class III Landfill Location: Apopka, Florida Description: Cell 1

ProjNo: FO1465 TaskNo: 01

Specifications: gml: 1 Material Type

Vacuum Box: 5 psi for 20 seconds

Primary / Secondary:

Primary

Seam Pressure: 25-30 psi for 5 minutes < 3 psi drop

Series: 1

Oper. Result Nondestructive Test Detail Location QA ID Length (ft.) Location SeamNo Serics-Seam1-Seam2-Begin-End Production Seam
Time Mach. ID Oper. ID Ext

QA ID

Action

Total Length Fusion: 18875.5

Date

Total Length Extrusion: 91

Comments:

SUB APPENDIX D-6

DESTRUCTIVE TEST LOG

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Destructive Test Log

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1

WASTE MANAGEMENT

ProjNo: FQ1465

TaskNo: 01

Test Reqs:

Fusion: Extrusion: Peel Inside: 91

Peel: 0

Peel Outside: 91

Shear: 0

Shear: 120

Primar	y/Sec	ondary	: Prima	ry		S	eries: I				Ma	terialTyp	e: 1		V ¹ − / √ a sheata	
~	1		7	ole Data	· · · · · · · · · · · · · · · · · · ·	·····					Test Data	3			Re test	Re tes
Samp No	Weld Type	Track Type		7	Mach ID	Oper ID	Date Samp		P	eel	Shear		Result		1	2
		- Jpc	Seam	Dist. (ft.)			Sump		Inside	Outside		ppi/psi	(P/F)	ID		
1-001	F	D	1-004-005	30	1210	ER	5/6/2008	Lab	123	118	183	ppi	Р	-	-	-
								Field	106	109	160	PPI	P	CJ		I
1-002	F	D	1-017-024	64 W	1210	ER	5/7/2008	Lab	115	138	179	ppi	р	-]	-	*
			WWW.					Field	116	113	167	PPI	P	Cı	L	I
1-003	F	D	1-007-018	72	1210	ER	5/7/2008	Lab	134	145	182	ppi	р	- 1	f - 1	-
*				~~~~	W			Field	133	122	163	PPI	P	С1	1	I
1-004	F	D	1-009-012	50	019	JC	5/7/2008	Lab	127	138	178	ppi	р	-]		-
			·········					Field	111	110	163	PPI	P	CJ	···	
1-005	F	D	1-026-027	15	019	JC	5/7/2008	Lab	114	114	178	ppi	р	-]		*
				····				Field	108	107	164	PPI	P	CJ	1	/aa/ aa aaaa, aa , a,
1-006	F	D	017-031	12 E	019	JC	5/8/2008	Lab	128	121	178	ppi	р	-]	- T	-
***************************************					····	·····		Field	109	106	160	ppi	P	СЭ		
1-007	F	D	034-036	39 W	1209	IS	5/8/2008	Lab	126	110	180	ppi	р	-	- 1	-
		******						Field	112	116	167	PPI	P	CJ		
1-008	F	D	038-040	20 W	019	JC	5/8/2008	Lab	129	120	178	ppi	р	-	-	*
,				-/44.4				Field	107	109	161	PPI	Р	CJ	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	~ · · · · · · · · · · · · · · · · · · ·
1-009	F	D	040-043	299 W	1209	IS	5/8/2008	Lab	120	115	181	ppi	р	-]]	- [-
			~	********************			770001h-bh	Field	106	107	159	PPI	Р	CJ		
1-010	F	D	045-046	94 E	1209	IS	5/8/2008	Lab	130	311	180	ppi	р	-][-	-
								Field	101	110	167	PPI	P	CJ (······································	

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Destructive Test Log

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1

WASTE MANAGEMENT

ProjNo: FQ1465

TaskNo: 01

Test Regs:

Fusion:

Peel Inside: 91

Peel Outside: 91

Shear: 120

Extrusion:

Peel: 0

Shear: 0

Primary / Secondary

Primary

Series: 1

Primai	y / Sec	ondary:	: Prima	ary		S	eries: 1		·	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Ma	terialTyp	e: I			
~	1	3	T	ole Data	1	~	· · · · · · · · · · · · · · · · · · ·				Test Dat	a			Re test	Re tes
Samp No	Weld Type	Track Type	Loca	· · · · · · · · · · · · · · · · · · ·	Mach ID	Oper ID	Date		P.	eel	Shear	Unit	Result	QA	1	2
	-340	237/0	Seam	Dist. (ft.)		10	Samp		Inside	Outside		ppi/psi	(P/F)	ID		
1-011	F	D	046-047	133 E	019	JC	5/8/2008	Lab	122	124	175	ppi	р		-	1 .
1-1-7								Field	112	110	158	PPI	P	CJ	· · · · · · · · · · · · · · · · · · ·	A
1-012	F	D	047-048	166 E	1209	IS	5/8/2008	Lab	123	117	177	ppi	р	-]	-	_
	035100E 4							Field	107	114	159	PPI	Р	Cı	L	L
1-013	F	D	048-049	370 E	019	JC	5/8/2008	Lab	121	119	175	ppi	p	-]	-	
								Field	116	114	168	PPI	P	Cì	ka	I
1-014	F	D	049-050	31 W	1209	IS	5/8/2008	Lab	147	119	174	ppi	p	-]	-	-
·								Field	110	110	164	PPI	P	Cl	L	
1-015	F	D	051-052	29 E	1209	IS	5/8/2008	Lab	122	135	176	ppi	Р	-	-	-
		***************************************	**************************************	/				Field	109	124	161	PPI	P	Cì	L	
1-016	F	D	050-057	300 E	1210	1S	5/9/2008	Lab	124	114	176	iqq	р	.]		
				\ass				Field	107	117	159	PPI	P	CJ	tevani	
1-017	F	D	057-058	250 E	1208	JC	5/9/2008	Lab	136	140	172	ppi	р	-]	[·]	
From A /-1 = bases								Field	119	107	157	PPI	P	CJ	k	
1-018	F	D	058-059	300 E	1210	ER	5/9/2008	Lab	126	126	182	ppi	р	- 1	- 1	A hadron on the same
	·//***********************************	· · · · · · · · · · · · · · · · · · ·						Field	122	116	160	PPI	P	CJ	LL	
1-019	F	D	062-063	28 E	1210	ER	5/9/2008	Lab	131	141	193	ppi	р	-	- 1	
		t to the second second	*************************	·				Field	110	110	160	PPI	Р	Cì	lu	
-020	F	D	070-071	15 E	1208	1C	5/9/2008	Lab	131	118	178	ppi	р	-	- 1	+
								Field	109	110	169	PPI	Р	CJ		

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Destructive Test Log

Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1

ProjNo: FQ1465

TaskNo: 01

Test Reqs:

Fusion: Extrusion:

Peel Inside: 91

Peel: 0

Peel Outside: 91

Shear: 0

Shear: 120

Primar	y/Seco	ondary:	Prima	ry		Sc	eries: 1				Ma	terialTyp	e: 1			
	***********		Samp	le Data		~~~					Test Data	1			Re test	Re test
Samp No	Weld Type	Track Type	Local	·	Mach ID	Oper ID	Date Samp		Pe	eel	Shear		Result	-	1	2
140	Туре	Туре	Seam	Dist. (ft.)		ענ	Samp		Inside	Outside		ppi/psi	(P/F)	ID		
1-021	F	D	074-075	8 E	1209	IS	5/9/2008	Lab	128	113	180	ppi	р	-	-	-
								Field	106	116	164	PPI	P	Ci		
1-022	F	D	055-076	356 N	1209	IS	5/9/2008	Lab	132	140	175	ррі	р	-	-	-
								Field	311	117	170	PPI	P	Cı	tronger of the	
1-023	F	D	079-080	57 E	1210	ER	5/9/2008	Lab	121	124	181	ppi	р	- 1	-	*
								Field	117	121	170	PPI	Р	Cì		,
1-024	F	D	083-084	13 W	1210	ER	5/10/2008	Lab	120	119	182	ppi	р	- 1	-	-
								Field	108	110	170	PPI	P	CJ	***************************************	*
1-025	F	D	087-088	100 E	1210	ER	5/10/2008	Lab	123	116	178	ppi	р	- 1	-	-
								Field	110	110	165	PPI	P	Cl		
1-026	F	D	090-091	150 W	1208	JC	5/10/2008	Lab	124	125	182	ppi	P	- 1	-	*
								Field	114	117	158	PPI	P	Cì		
1-027	r	D	092-093	22 E	1209	IS	5/10/2008	Lab	120	108	175	ppi	р	-	-	*
								Field	109	110	163	PPI	P	CI		
1-028	F	D	096-097	26 E	1208	JC	5/10/2008	Lab	137	123	182	ppi	p	- 1	-	-
								Field	101	117	157	PPI	P	Сл	Anazonia seriorentalia	
1-029	F	D	100-101	25 S	1208	JC	5/10/2008	Lab	131	116	174	ppi	р	- 1	-	***************************************
								Field	131	134	187	PPI	Р	Cì		
1-030	F	D	094-102	150 SE	1209	IS	5/10/2008	Lab	146	130	176	ppi	р	-]	, -	-
								Field	110	126	164	PPI	P	CJ		

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Destructive Test Log

ProjNo: FQ1465

TaskNo: <u>01</u>

Location: Apopka, Florida

Project: Vista Class III Landfill

Description: Cell 1

Test Reqs:

Fusion:

Peel Inside: 91

Peel Outside: 91

Shear: 120

Extrusion:

Peel: 0

Shear: 0

Primar	y / Sec	ondary:	Prima	ry		Se	eries: I				Ma	terialTyp	e: 1			
			Samp	le Data] [Test Data	a			Re test	Re tesi
Samp		Track	Local	ion	Mach	Oper	Date		Pe	eel	Shear		Result		1	2
No	Туре	Туре	Seam	Dist. (ft.)	ID	ID	Samp		Inside	Outside		ppi/psi	(P/F)	ID		
1-031	F	D	104-105	15 S	1209	IS	5/10/2008	Lab	129	119	180	ppi	р	-]	-	
								Field	116	116	168	PPI	P	CJ	on on the contract of the cont	
1-032	F	Ð	113-114	11 N	1210	ER	5/10/2008	Lab	126	124	186	ppi	р	*	-	-
								Field	122	122	168	PPI	P	Cl		
1-033	F	D	115-116	20 N	1208	JC	5/10/2008	Lab	119	138	181	ppi	р	•	-	-
								Field	117	117	163	PPI	P	CJ	***************************************	
1-034	F	D	110-Ext	4 E	1210	ER	5/10/2008	Lab	130	131	165	ppi	р	-	-	-
								Field	117	111	160	PPI	P	Cì		
1-035	F	D	119-120	140 S	1210	ER	5/10/2008	Lab	118	126	182	ppi	р	-]	-	
								Field	130	121	168	PPI	P	CJ		
1-036	F	D	121-122	7 N	1208	JC	5/12/2008	Lab	122	118	175	ppi	р	-]	-	-
								Field	106	110	159	PPI	P	CJ	111111111111111111111111111111111111111	
1-037	F	D	123-126	2 W	1209	IS	5/12/2008	Lab	139	128	157	ppi	р	- 7	-	~
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						The state of the s	Field	110	114	161	PPI	P	Cì	To Committee to the form of the	
1-038	F	D	059-115	9 W	1209	IS	5/12/2008	Lab	156	138	186	ррі	р	- 1	-	_
								Field	110	109	163	PPI	P	CJ	Newson services and social	//////////////////////////////////////

Comments:

SUB APPENDIX D-7

REPAIR SUMMARY LOG



Geosyntec^o consultants

Repair Summary Log

Project: Vista Class III Landfill

TaskNo: 01 ProjNo: FQ1465 Series: 1 Installer: Environmental Specialties International, Inc. Primary / Secondary: Primary Location: Apopka, Florida Description: Cell 1

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	esting	Action		ΤΛ	;   <u> </u>	1 A	VT	:  5	ΥΥ	1	1 V	Ι,	ΛŢ	VT	M	VT	1,7	7.	۸ ۲	ΛŢ	VŢ
	uctive T	Result	(þ/t)	٥	.	۵ ب	۵.	,   _	, д	, A	٦ ۵	4	Д	Ъ	Δ,	۵	۵ ،	, ,	٠,	۵,	d.
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	Z	Date		\$/8/2008	5/8/2008	5/12/2008	5/12/2008	5/12/2008	5/12/2008	\$/12/2008	5/13/2008	0000	5/13/2008	5/13/2008	5/12/2008	5/13/2008	5/13/2008	6/10/10/15	2/12/2000	5/13/2008	5/13/2008
	64	B		IFG	נו נ	3 2	3	3	J	1	5 5	; ;	3	ខ	2	ฮ	1	1	3	ਹ	JEG
	rID.	Oper ID		EB	EB	BB	EB	EB	EB	EB	EB	į	EΒ	EB	EB	EB	EB	g	מא	EB	SI
	Welder I.D.	Mach ID Oper ID		513	513	513	513	513	513	513	513		213	513	513	513	513	\$13	040	513	015
		Dia.	(ff.)																		7
	Size	Width	(ft.)	2	2	2	2	2	2	3	6	ŗ	7	2	3	7	2	,		3	7
		Length	(ft.)	5	2	2	2	2	2	3	3	·	7	2	7	7	2	2	,	7	2
derres.		Offset	(ff.)								3 E								ŗ	v E	
		Distance	(ft.)	30 S	112 N	N 601	114 N	N 06	80 N	42 N		27 E	7 70	86.5 E	53.5 W	64 W	161 E	161 E			85.5 E
	Location	Panel									1-029								000	1-008	
		Seam		1-004-005	1-001-002-018	1-002-003-018	1-003-004-018	1-004-005-018	1-005-006-018	1-006-029		1-007-018		1-007-018-019	1-007-019-020	1-007-020-021	1-007-008-021	1-007-008			1-008-009-010
	Repair	3	CLAKE	я		ய	П	ш	ш	ட	ய	ப	1	וני	ш	ш	ш	m	Į.	-	Э
,	DS No Repair	or many		100				***************************************													
,	Repair ID	}		1-001	1-002	1-003	1-004	1-005	1-006	1-008	1-010	1-011	0,0	1-012	1-013	1-014	1-015	1-016	1-017		1-018
	Repair			5/8/2008	5/8/2008	5/8/2008	5/12/2008	5/12/2008	5/12/2008	5/8/2008	5/8/2008	5/8/2008	9000,017	3/12/2008	5/8/2008	5/8/2008	5/8/2008	8/2008	\$/8/2008	0000	2/8/7008



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5/8/2008 1-033 5/8/2008 5/8/2008

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## Geosyntec^P

### consultants Repair Summary Log



Proj	ect: Vista	Project: Vista Class III Landfill	Landfill													
Locat	ion: Apol	Location: Apopka Florida	_rd				ProjNo	ProjNo: FQ1465	101	<b>[</b>	TaskNo: 01	4				
Descript	Description: Cell	1														
Insta	ller: Envi	ronmental	Specialt	Installer: Environmental Specialties International. Inc.												
Prin	Primary / Secondary:	ındary:	Primary	,			Series:	s: 1								
Repair	Repair	DS No Repair	Repair		Location				Size		Welder I.D.	rI.D.	64		Non-Destructi	뮻
Dare	a		Туре	Seam	Panel	Panel Distance	Offset	Length	Width	Dia.	Mach ID Oper ID	Oper ID	8	Date	Oper ID Re	Re
				enemana i		( <del>fi</del> .)	(ff.)	(ft.)	(ft.)	(ft.)			*********			٩
5/8/2008	1-020		ш	1-008-010-022		112 E		2	2		513	EB	JEG	5/13/2008	SR	
5/8/2008	1-021		Е	1-010-022-023		64 W		2	3		513	EB	JEG	5/13/2008	SR	***
5/8/2008	1-022		Э	1-017-024-025		64 W		3	7		513	EB	JEG	5/8/2008	SR	<b>M4</b>
5/8/2008	1-023	002	Э	1-017-024		N &		5	7		513	EB	JEG	\$/8/2008	SR	"
5/8/2008	1-024		Э	1-011-024-025		64 W	· · · · · · · · · · · · · · · · · · ·	3	2		513	EB	JEG	\$/12/2008	SR	"
5/8/2008	1-025		Э	1-014-025-026		64 W		2	3		513	EB	JEG	5/8/2008	SR	"
5/8/2008	1-026		Э	1-014-026		N &		2	7		513	EB	JEG	5/8/2008	SR	"
5/8/2008	1-027	,,,,,	Э	1-014-015-026		35 N	tradad arr	2	2		513	EB	JEG	5/8/2008	SR	"
\$/8/2008	1-028		E	1-015-026-027		64 W	to fit common	2	3		513	EB	JEG	8/8/2008	ខ	"
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5/8/2008	1-030	900	īΤ	1-026-027		15 E		5	7		513	EB	JEG	5/8/2008	SR	"
5/8/2008	1-031		Ħ	1-009-010-012		86 E		2	3	3	015	SI	ខ	5/8/2008	SR	l-t-q
5/8/2008	1-032		ਬ	1-009-012		76 E		2	4	7	015	SI	ខ	\$/8/2008	SR	""

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## **Jeosyntec^P**

### consultants Repair Summary Log

Project: Vista Class III Landfill

Location: Apopka, Florida

ProjNo: FQ1465

Oper ID Result Action QAID JEG JEG JEG JEG JEG Ü ច 2 Ç C ខ  $\Box$ ೮  $\Box$  $\Box$  $\Box$ VTOK VTOK VTOK VTOK VTOK VTOK VTOK VTOK ΥŢ Ϋ́ Z Z Non-Destructive Testing 5 Ϋ́ 7 VŢ (p/f) ρ., Д A, Д Д Α٠ д Д Д. a, Д Д Ω Д SR SR SR SR SRSR SR SR SR  $\Box$ SRSRSR SR SR R 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/12/2008 5/13/2008 5/13/2008 5/12/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 Date ប  $\Box$ ਹ ₽ 28  $\ddot{\mathbf{C}}$  $\ddot{c}$  $\Box$ ប ਹ C Ü  $\Gamma$ ប  $\Box$  $\Box$ ೦ Mach ID Oper ID EB EB 13  $\mathbf{S}$  $\mathbf{S}$ S S  $\mathbf{S}$  $\mathbf{S}$ S  $\tilde{\mathbf{S}}$ S  $\mathbf{S}$ S  $\mathbf{g}$ EB Welder I.D. TaskNo: 01 513 015 015 015 015 015 015 015 015 513 015 015 015 015 513 Dia. (ft.) Width (ft.) Size ~ 4 ~ C1 7 d 3 **C**!  $\alpha$ d 7 7 7 Length (ff.) 7 7 ~ d m m 3 m 3 'n 3 7 S Series: 1 Offset (ff.) Panel Distance 92.5 E 214 E 114 E 110 E 252 E 88 E 112 E 115 W 230 E 30E 12 E 73 E 48 W 83 W 39 E M 19 (ft.) Location Installer: Environmental Specialties International, Inc. 1-013-014-015 1-015-016-017 1-036-037-039 1-030-031-032 1-032-033-034 1-033-036-037 1-034-035-036 1-035-036-038 -017-030-031 1-017-030 1-016-030 1-031-032 1-034-036 1-034-036 035-036 1-017-031 Seam Primary DS No Repair ω Щ ш ST. ш ш 11, Ш ш Primary / Secondary: 900 007 Description: Cell 1 Repair ID 1-0391-036 1-038 1-042 1-043 1-044 1-045 1-037 1-040 1-041 1-046 1-047 1-048 1-049 1-050 1-051 5/8/2008 5/12/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 Repair Date

### Page 4 of 13

## Geosyntec[▶]

### consultants

## Repair Summary Log

Project: Vista Class III Landfill

Location: Apopka, Florida

TaskNo: 01

ProjNo: FO1465

Description: Cell 1

Installer: Environmental Specialties International, Inc.

Q4 ID JEG C ៦ ਹ ប ਹ ਹ C  $\Box$  $\Box$ ខ ខ C ਹ Ç  ${\mathbb G}$ Oper ID Result Action Non-Destructive Testing ΥŢ Ϋ́ VŢ ΛŢ ΥŢ 5 17 VI Y Ϋ́ 7 ٧T Z VΤ Y ΥŢ (p/f) a, Δ, Д ρ., Д p, Д p., Д ρ., ρ, ď Д SRSR  $\Box$ ប  $\Box$  $\Box$  $\Box$  $\Box$ SR SR SR SR SR រ SR SR 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/13/2008 5/8/2008 5/8/2008 5/8/2008 5/13/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/13/2008 5/13/2008 5/8/2008 Date JEG 28  $\Box$ ប  $\Box$ ₽  $\Box$  $\ddot{c}$  $\Box$  $\Box$  $\ddot{c}$  $\Box$  $\Box$  $\Box$  $\ddot{\Box}$  $\Box$  $\Box$ Mach ID Oper ID 品品品 出 田田田 S83 SI 23 S 2 2 EB EB 出 Welder I.D. 513 015 015 015 015 513 513 015 015 015 015 015 513 513 513 Dia. Width (<del>J</del> 3 N 'n N ~ N 'n ~ 4 m 4 ~ Length (£ Ø 6 'n 00 'n (1 m 4 0 7 9 N 40 d Series: 1 Offset (ft.) s S Distance 145 W 227 E 145 E 299 W 105 W 148 W 24 W 100 W 43 W 413 W 265 E 413 E (f.) 29 E 94 E 58 W Panel Location 1-045 1-045-046-051-052 1-046-047-052-053 1-038-039-041 1-038-040-041 1-041-043-044 1-041-042-043 1-039-04-042 1-044-045-051 1-041-044 1-038-040 1-040-043 1-041-042 1-043-044 1-045-046 1-051-052 Seam Primary DS No Repair Typeμì ω ω ш (11) ដា ш ш (II) (L) ω μ ω Щ щ Primary / Secondary: 600 010 008 015 Repair ID 1-052 1-055 1-056 I-054 1-057 1-053 1-058 1-059 1-060 1-062 1-063 1-064 1-061 1-065 1-066 1-067 5/8/2008 5/12/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 5/8/2008 Repair Date 5/8/2008 5/8/2008 5/8/2008 5/9/2008 5/8/2008



## Geosyntec^P

Consultants Repair Summary Log Project: Vista Class III Landfill

Location: Apopka, Florida

Description: Cell 1

Installer: Environmental Specialties International, Inc.

uternational, inc.

TaskNo: 01

ProjNo: FQ1465

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	e Testir	dt Ac			<u> </u>	.  >		.   >		1.1	1 1	<b>*</b>   <del> </del>	^	VI	V	VT	TV	TV		VT
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	120	8		JEG	) BB	JEG	JEG	JEG	JEG	Ē	) E	3 5	3 8	3	C	Cl	៦	ไฮ	5	2
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		Dia.	(ff.)																	
	Size	Width	( <del>ft</del> .)	\$	2	2	m	2	2	2	2	60	2		~	m	2	7	2	8
		Length	(ft.)	2	\$	2	2	5	3	S	3	10	"	, ,	4	7	3	2	5	9
Series:		Offset	(ff.)				entrante de site													
		Distance	(ft.)	130 N	N 991	414 E	M 06	370 N	164 W	31 W	412 E	A Z	64 W	14.36	N. CC	46 N	64 N	N 89	28 N	94 N
	ocation	Panel																		
	7	Seam		1-046-047	1-047-048	1-047-048-053-054	1-048-049-054-055	1-048-048	1-049-050	1-049-050	1-049-050-055-056	1-017-028-061	1-031-061-062	1-021.032.062	700-700-700-1	1-032-062-063	1-033-063	1-033-063-064	1-062-063	1-064-065
Primary	Repair	346	ereme:	ш	ш	Э	щ	ш	3	ы	ш	ы	ш	μ	, ,	ш	ш	យ	ш	п
ndary:	DS No Repair			011	012			013		014									610	
Primary / Secondary:	Repair ID			1-068	1-069	1-070	1-071	1-072	1-073	1-074	1-075	1-076	1-077	1-078		6/0-1	1-080	1-081	1-082	1-083
Prim	Repair Date			5/9/2008	8/9/2008	2/9/2008	2/9/2008	5/9/2008	5/12/2008	5/12/2008	5/9/2008	5/12/2008	5/12/2008	5/12/2008	6/12/2000	2/17/2008	5/12/2008	5/12/2008	5/12/2008	5/12/2008



## Geosyntec[▶]

consultants

Repair Summary Log

Location: Apopka, Florida

Project: Vista Class III Landfill

TaskNo: 01

ProjNo: FO1465

Description: Cell 1

Installer: Environmental Specialties International, Inc.

			04 10	\ \ \		JEG	EG.	5 5	22	ប	Ü	5	3	อ	C	5	3 8	3	S	Ü	៊		3	3	Ü
		esting	Oper ID Result Action			ΛŢ	Ϋ́	T/7	~   !	ΛI	VT	TV		. I.	Ϋ́	ΥŢ	4/1	T A	. A	Ϋ́	VT	TV		V.I	Ţ
		uctive T	Result	(p/f)	,	Д	Д.	٩		24	A,	۵	, ,	4	Д	a.	, 6	4 3	٦,	۵,	<u>а</u> ,	۵	٠, ٢	٦,	д
		Non-Destructive Testing	Oper ID			SR	SR	G.S	£ 8	χ	SR	SR	E	y.	SR	SR	as	¥ 8	X :	SR	SR	SR	ti di	AN .	SR
		<b>z</b>	Date			5/13/2008	5/13/2008	\$/13/2008	5/13/2000	3/13/2008	5/13/2008	5/12/2008	5/17/7000	3/12/2000	5/12/2008	5/13/2008	5/13/2008	2/27/2000	2/12/2008	5/12/2008	5/12/2008	5/12/2008	5/12/2000	0007/61/6	5/13/2008
		2:	3			3	ט כ	5	3 8	3		ប	5	3	ច	ฮ	5	+-	==	3	ე ე	3	+-	+	ฮ
		.I.D.	Oper ID			EB	EB	EB	H.	3	FR	EB	a:	3	EB	EB	FB	1 6	3 6	55	S	23	75	3   5	ડા
		Welder I.D.	Mach ID Oper ID		653	513	513	513	513		515	513	513		513	513	513	533	513	CYC	23	13	13	: :	51
			Dia.	(ff.)			FILMLE											T		1077-0					
		Size	Width	( <del>f</del> )	,	7	4-	2	2	,	7	7	2	,	7	7	2	2	,	1 (	7	7	2	,	7
S: 1			Length	( <del>ff</del> .)	,	1 '	n	3	2	,	7	m	2	,	¥	7	5	2	2	, ,	7	7	2	6	7
Series:			Offset	(ft.)																		w:			
			Distance	(ff.)	114 N	14 503	N C71	137 N	153	159 N		182 N	204 N	212 N		N /77	15 E	243 N	250 N	17. 57.0	VI C/7	295 N	302 N	318 N	1 212
	Tocation	Torraction	Panel																						
			Seam		1-037-065-066	1-027.036.066	000-000-000-	1-039-066-067	1-039-042-067	1-042-067-068	1042 044 050 050	1-047-044-000-002	1-044-069-070	1-044-05-070	1 061 070 071	1/0-0/0-100-1	1-070-071	1-051-052-071	1-052-071-072	-052-053-072-073		1-053-073-074	1-053-054-074	1-054-074-075	
Primary	Repair	Туре			m	a	1	ய	ы	m)	ц	2	щ	ш	μ	1	ш	ம	ш	ш	1 1	ם	ш	ш	
ndary:	DS No	Type	*******														020		***************************************						
Primary / Secondary:	Repair	a			1-084	1-085		1-086	1-087	I-088	1-089		1-090	1-091	1-092	700	1-093	1-094	1-095	1-096	1 007	1-02/	1-098	1-099	
Prin	Repair				5/12/2008	5/12/2008	0000,017	2/17/2008	5/12/2008	5/12/2008	5/12/2008		2/17/7008	5/12/2008	5/12/2008			5/12/2008	5/12/2008	5/12/2008	\$/13/2008	2/12/2000	5/12/2008	5/12/2008	

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## Jeosyntec^P

### consultants

Repair Summary Log

Project: Vista Class III Landfill

Location: Apopka, Florida Description: Cell 1

TaskNo: 01

ProjNo: FO1465

Installer: Environmental Specialties International, Inc.

Oper ID Result Action Ż Z Z Υ Non-Destructive Testing Y 7 7 V 17 7 12 Ϋ́ 5 7 5 (t/d) ۵, ρ., SR ប SR SR SR SR SR SR SR SR SR SR SR SRSR SR 5/13/2008 JEG 5/13/2008 5/13/2008 5/12/2008 5/13/2008 5/13/2008 5/13/2008 5/13/2008 5/12/2008 JEG 5/13/2008 JEG 5/13/2008 JEG 5/13/2008 5/13/2008 JEG 5/13/2008 5/13/2008 JEG 5/13/2008 Date JEG JEG JEG JEG JEG JEG JEG JEG 29 Ü  $\Box$ Mach ID Oper ID 63 83 田田 EB  $\mathbf{S}$ S S 留 83 53  $\mathbf{S}$ 留 ïS 出 S l H H Welder I.D. 513 013 013 013 33 013 513 513 513 513 513 013 513 513 013 513 Dia. (ft.) Width (ff.) 7 3 m d d a N 4 4 d Ś d * a Length (H) 4 ~ 7 S d N ~ 4 N 7 d Series: Offset (Ħ.) Panel Distance 329 S 342 S 356 S 115 S 386 E 117 S 117 S 70 E 120 S 120 S 20 S 35 S 70 E Z _ (£) 23 Location 1-055-056-076-077 1-055-075-076 1-056-077-125 1-054-055-075 1-056-121-125 1-121-125-126 1-121-122-126 1-122-123-126 1-123-124-126 1-055-076 1-077-125 1-123-126 1-074-075 1-121-122 1-122-126 1-070-071 Seam Primary DS No Repair
Type យ щ III ய ω ய ш ŒΪ ST) (L) ш ш ш <u>[1]</u> M 036 Primary / Secondary: 021 022 037 Repair ID 1-114 1-100 1-102 1-103 1-104 1-105 1-111 1-101 1-106 1-107 1-108 1-1091-110 1-112 1-113 1-115 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 Repair Date

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### Page 8 of 13

## Geosyntec⁹

### Consultants Repair Summary Log

Project: Vista Class III Landfill

Location: Apopka, Florida

TaskNo: 01

ProjNo: <u>FQ1465</u>

Description: Cell 1

Installer: Environmental Specialties International, Inc.

Primary / Secondary: Primary

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	octive Te	Result	(p/f)	ρ	.	- F	٠,	 مر	d,	<u></u>	.	-	۵,	D.	م	, a	٠ ،	۱.	Д.	Д.	Δ,	<u>ا</u>	
	Non-Destructive Testing	Oper ID Result Action		a d	5 8	ś E	AN N	SR	SR	SR	â	ź :	SR	SR	SR	a.	as as	40	SK SK	SR	SR	SR.	-
	ž	Date C	~~~	\$/13/2008	\$/13/2008	6/12/2000	3/13/4000	5/13/2008	5/13/2008	5/13/2008	5/13/2008		5/13/2008	5/13/2008	5/13/2008	5/13/2008	\$/13/2008	2012/2010	5/13/2008	5/13/2008	5/13/2008	5/13/2008	
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	Welder I.D.	Mach ID Oper ID		013	013	013		013	013	013	013	21,7	CIO	513	013	513	013		CIV	513	513	513	
		Dia.	(ff.)																				
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		Distance	(ft.)	140 S	76 E	83 E	0744	1/40	191 S	40 E	191 S	225	2	413 S	412 E	320 E	75 S	230.8		/5.8	<b></b>	20 N	
	Location	Panel													*****						1-115		
		Seam		1-119-120	1-060-119-120	1-056-060-120	1-056-120.121	171-071-000-1	1-060-118-119	I-060-118-EXT	1-117-118-EXT	1-060-117-118	1 054 050 050 117	1-02/-028-060-11/	1-050-056-057-060	1-058-116-117	1-116-117	1-116-117	1 116 120	1-113-110		1-115-116	
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Primary / Secondary:	Repair ID			1-116	1-117	1-118	1-119	1.00	1-170	1-121	1-122	1-123	1.124	171-1	1-125	1-126	1-127	1-128	1,120	777	1-130	1-131	
Prim	Repair Date			5/12/2008	5/12/2008	5/12/2008	5/12/2008	5/12/2000	3/12/2008	5/12/2008	5/12/2008	5/12/2008	\$/10/2008	2710/2000	5/12/2008	5/12/2008	5/12/2008	5/12/2008	\$/10/2008	2/10/2000	2/10/7008	5/12/2008	



## Jeosyntec[₽]

## Repair Summary Log

consultants

Project: Vista Class III Landfill

Location: Apopka, Florida

QA ID JEG JEG JEG ರ ਹ  $\Box$  $\ddot{c}$  $\Box$ ប៊ ប  $\Box$  $\Box$  $\Box$  $\ddot{\circ}$  $\Box$  $\Box$ Oper ID Result Action Non-Destructive Testing Z Y Z Ţ 7. 7 VŢ 7 7 VT 5 Y 5  $^{\prime}$ Z VT(t/d) ۵, ρ. Д ρ., ρ., Д Д SRSR SR SR SR SS SR SR SRSR SR SR SR SR SR SR5/13/2008 5/13/2008 5/13/2008 JEG | 5/13/2008 JEG 5/13/2008 5/13/2008 JEG | 5/13/2008 JEG 5/13/2008 5/13/2008 JEG 5/13/2008 5/13/2008 JEG 5/13/2008 JEG 5/13/2008 JEG 5/13/2008 5/13/2008 JEG 5/13/2008 Date JEG JEG EG JEG JEG ប 28  $\Box$ Mach ID Oper ID 8 8 田田 띪 33 S S ER IS 2 SI  $\mathbf{S}$ S S 23 Welder I.D. TaskNo: 01 513 513 013 513 513 013 013 013 513 013 013 013 013 013 13 Dia. (H Width (ff.) N 'n a 4 a 3 d ProjNo: FQ1465 Length (H) 13 2 2 ~ 7 N ~ ~ N 3 7 2 d ₹ 7 N Series: Offset (#) Distance 300 E 311 S 250 E 134 S 125 E 125 E 50 E 20 S 70 N (£ 328 3 6 E 205 193 12N 202 Panel 1-113 Location Installer: Environmental Specialties International, Inc. 1-058-059-116 1-059-115-116 1-059-114-115 1-059-111-114 1-111-113-114 1-058-080-081 1-078-111-113 1-058-059-081 1-058-079-080 1-059-115 1-113-114 1-113-114 1-057-058 1-058-059 1-050-057 Seam Primary Repair Type ш ш m m (1) ш Ш ш ω m ш ш ω ш DS No 032 016 017 038 018 Primary / Secondary: Description: Cell 1 Repair ID 1-132 1-133 1-134 1-135 1-136 1-137 1-138 1-139 1-140 1-142 1-143 1-144 1-145 1-146 1-141 1-147 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/10/2008 \$/12/2008 5/12/2008 5/13/2008 5/12/2008 5/12/2008 5/10/2008 5/10/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 Repair Date

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# Geosyntec^o consultants

## CONSULTANTS Repair Summary Log

Project: Vista Class III Landfill Location: Apopka, Florida

TaskNo: 01

ProjNo: FO1465

Description: Cell 1

Installer: Environmental Specialties International, Inc.

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		esting	2			VŢ	VT		1	VT	VŢ	TV		۷۱	ΥŁ	VT		\ \ \ \ \	VŢ	ΤΛ	ΥŢ	T/7	ĭ .	7 /	VT
		ructive T	Result	ψ/u)	,	p.	4	F	4 1	۵,	Д	Δ,	f	۲,	Д	4			a,	а	D.	۵	, ,	7	Ъ
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	1	LUCARIOR	Panel																	1.050	100				
		ľ	Seam		1-058-078-079	1 000 000	1-0/9-080	1-081-082-083	1-081-083-084	1-081-084-085	1-081-085-086	000-000-100 1	1-059-081-086	1-059-085-086	1-059-084-085	C00-100-100-1	1-059-083-084	1-083-084	1-059-082-083		TAL 200 COO 050	-0.23-002-00/-EXI	I-059-108-EXT	1-058-108-109	
Primary	Renair	Type			Ħ	ď	ो ।	ы	ш	ш	lπ.	,	T)	ш	tr.	1	ш	n)	ш	ш	μ	1	ы	ш	
f	D.S No Renair					0.23	7							********			***************************************	024							
Primary / Secondary:	Repair	<i>a</i>			1-148	1,140		OCT-1	1-151	1-152	1-153	1 154	1-134	1-155	1-156	27.	/51-1	1-158	1-159	1-160	1-161		1-162	1-163	
Prim	Repair	-100.011	*******		5/12/2008	5/12/2008	5/13/2000	3/13/2008	5/13/2008	5/12/2008	5/12/2008	5/13/2000	2/13/4000	5/12/2008	5/12/2008	5/12/2000	3/13/2008	5/12/2008	5/12/2008	5/12/2008	5/12/2008		5/12/2008	5/12/2008	

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## Geosyntec^P

### consultants

Repair Summary Log

Project: Vista Class III Landfill
Location: Apopka, Florida

TaskNo: 01

ProjNo: FO1465

Description: Cell 1

Installer: Environmental Specialties International, Inc.

QA ID JEG JEG JEG JEG JEG JEG JEG  $\Box$  $\Box$ JEG JEG JEG JEG JEG JEG Ü Oper ID Result Action Non-Destructive Testing VŢ ٧T Y ζŢ 7 5 7 ΥŢ V Ϋ́ 7 VT 5 Ϋ́ Z Ϋ́ (p/f) ρ, ρζ p., Δ, Д, Ω., p, Д Д ρ., SR SR SR SR SR S. SE SR SR SR SR SS SRSR SR SR 5/13/2008 JEG 5/13/2008 JEG 5/13/2008 5/13/2008 5/13/2008 5/13/2008 JEG 5/13/2008 JEG | 5/13/2008 JEG 5/13/2008 5/13/2008 JEG | 5/13/2008 JEG 5/13/2008 5/13/2008 JEG 5/13/2008 5/13/2008 5/13/2008 Date JEG JEG JEG JEG )EG JEG JEG JEG 28 Mach ID Oper ID S S S S S 23  $\Sigma$ 23 2 Welder I.D. S  $\mathbf{\Sigma}$ S S S S S 013 013 013 013 013 013 013 013 013 013 013 013 013 013 013 013 Dia. Width (<del>J</del> 4 4 d 3 2 4 4 4 4 Length (ff.) N ~ 3 7 ~ ~ d N 7 ~ d d N Series: Offset (ft.) Distance 192 S 214 S 198 E 100 E 198 E 193 E 195 E 209 E 150 S 175 S (H.) 26 S 37 E 70 E 76 E 7 E ш ∞ Panel Location 1-087-088-108-EXT 1-096-097-105-106 1-059-109-110 1-059-110-111 1-090-091-108 1-088-089-108 1-089-090-108 1-091-108-112 1-096-104-105 1-095-096-104 1-097-106-107 1-092-093 1-087-088 1-097-107 1-090-091 1-096-097 Seam Primary DS No Repair Typem ш (T) យ ш μı ш ш ш ш ш (1) μ) ω w ш Primary / Secondary: 025 026 027 028 Repair ID 1-166 1-167 1-164 1-165 1-168 1-169 1-170 1-172 1-171 1-173 1-174 1-175 1-176 1-179 1-177 1-178 5/12/2008 5/12/2008 5/13/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/13/2008 5/12/2008 5/12/2008 5/12/2008 Repair Date 5/12/2008

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## Geosyntec⁶

CONSUltants Repair Summary Log Project: Vista Class III Landfill

Location: Apopka, Florida

TaskNo: 01

ProjNo: FO1465

Description: Cell 1

Installer: Environmental Specialties International. Inc.

QA ID JEG JEG JEG JEG JEG JEG JEG JEG JEG JEG JEG JEG JEG JEG JEG JEG Oper ID Result Action VT 7 Non-Destructive Testing Y 7. ۲V Ϋ́ ΥZ Ϋ́ Λ Ϋ́ 7 Ϋ́ Ϋ́ VT7 Z (p/f) Δ, Ω., Д p, ሲ Д ρ., Δ, Д a, SRSR SR SS SR SR SRS. SR SR SR SE SR SRSR JEG | 5/14/2008 JEG 5/13/2008 5/13/2008 5/13/2008 JEG 5/13/2008 5/13/2008 5/13/2008 5/13/2008 5/13/2008 5/13/2008 JEG 5/13/2008 5/13/2008 5/13/2008 JEG 5/13/2008 JEG 5/13/2008 5/13/2008 Date JEG JEG JEG JEG JEG JEG JEG JEG JEG JEG 200 Mach ID Oper ID EB EB S S 田田 EB EB  $\Sigma$ EB Welder I.D. 53  $\mathbb{R}$ SI 13 3  $\mathbf{S}$  $\mathbf{S}$ 013 513 513 513 513 513 013 013 513 013 013 013 013 013 013 Dia. Width Size (£) 7 N 4 4 ~ N 7 2 7 2 ~ 7 Length (H N N d ч N a ~ d Series: Offset (ft.) Distance 103 E 116 E 150 E 154 E 133 E 195 E 147 S 143 S 195 E 195 E 195 E 202 S (ft.) 82 S 78 S 50 N 20 N Location Panel 1-095-103-104 1-094-095-103 1-092-093-112 1-109-110-EXT 1-094-102-103 1-093-094-102 1-093-101-102 1-093-100-EXT 1-093-112-EXT 1-091-092-112 I-098-099-EXT 1-099-108-112 1-099-108-109 1-093-100-101 1-094-102 1-110-EXT Seam Primary DS No Repair Typeш ш 田 (1) ш Щ ш **(11**) LL) ш ш Щ ш Primary / Secondary: 030 034 Repair ID 1-181 1-182 1-183 1-184 1-185 1-186 1-188 1-191 1-180 1-187 1-189 1-190 1-192 1-195 1-193 1-194 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/12/2008 5/13/2008 Repair Date

# Geosyntec^o consultants

## COMSULIANTS Repair Summary Log

Project: Vista Class III Landfill

Location: Apopka, Florida

TaskNo: 01

ProjNo: FO1465

Description: Cell I

Installer: Environmental Specialties International, Inc.

10   Oper ID   IS   ER   ER   ER   ER   IS   IS   IS   IS   IS   IS   IS   I	Pri	Primary / Secondary: Primary	ondary:	Primary				Series:	r~4										
1D         Seam         Panel         Distance         Offset         Length         Width         Dia.         Mach ID         Oper ID           1-196         E         1-110-111-EXT         40 N         2         2         4         013         1S           1-198         E         1-098-113         76 N         4         2         4         513         ER           1-204         029         E         1-100-101         25 S         4         013         1S           1-205         031         E         1-104-105         15 N         2         4         013         1S	Repair	Repair	DS No	Repair		Location				Size		Welde	rI.D.	24		Non-Destructive Testing	rctive T	esting	
1-196         E         1-110-111-EXT         40 N         2         2         2         013         1S           1-198         E         1-098-113         76 N         2         4         513         ER           1-199         E         1-008-113         4         2         2         4         513         ER           1-204         029         E         1-100-101         25 S         4         013         1S           1-205         031         E         1-104-105         15 N         2         4         013         1S	Date	3		1 ype		Panel	Distance (ft.)	l	Length (ft.)	Width (ft.)	Dia.	Mach ID	Oper ID		Date	Oper ID Result Action QA ID	Result (n/f)	Action	QA ID
1-190         E         1-100-111-EXI         40 N         2         2         2         013         IS           1-198         E         1-098-113         76 N         2         4         813         ER           1-199         E         1-100-101         25 S         4         2         2         4         813         ER           1-204         029         E         1-100-101         25 S         2         4         013         IS           1-205         031         E         1-104-105         15 N         2         4         013         IS	12/2000	1															,		
1-198         E         1-098-113         76 N         2         4         513         ER           1-199         E         1-098         4         2         2         4         513         ER           1-204         029         E         1-100-101         25 S         4         013         1S           1-205         031         E         1-104-105         15 N         2         4         013         1S	17/2008	- 1		Э.	1-110-111-EXT		40 N		7	~		013	S	JEG	5/13/2008	SR	a.	ΛŢ	JEG
1-199         E         1-098         4         2         2         2         513         ER           1-204         029         E         1-100-101         25.8         2         4         013         1S           1-205         031         E         1-104-105         15.N         2         4         013         1S	/10/2008	1-198		m	1-098-113		N 9L		2	4		513	ER	JEG	\$/13/2008	SR	A	ΛŢΛ	JEG
1-204         029         E         1-100-101         25 S         2         4         013         IS           1-205         031         E         1-104-105         15 N         2         4         013         IS	/13/2008			ш		1-098		4	2	2		513	田	JEG	5/13/2008	SR	e,	ΛΛ	JEG
031 E 1-104-105 15N 2 4 013 IS	/12/2008	1-204		Е	1-100-101		25 S		2	4		013	IS	JEG	5/13/2008	SR	Ъ	VT	JEG
	/12/2008	1-205		Ε	1-104-105		15 N		2	4		013	IS	JEG	5/13/2008	SR	Ь	VT	JEG

### SUB APPENDIX D-8

### **LABORATORY DESTRUCTIVE TEST RESULTS**



### TRI / Environmental, Inc.

A Texas Research International Company

May 9, 2008

Mail To:

Bill To:

Ms. Sheree Henninger Waste Management, Inc. 255 W. Keene Road

<= Same

Apopka, FL 32703

email: shenning@wm.com

cc email: dschauer@geosyntec.com cc email: cjones@geosyntec.com

Dear Ms. Henninger:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:

Vista Landfill - Cell 1

TRI Job Reference Number:

E2310-66-03

Material(s) Tested:

15 Heat Fusion Weld Seam(s)

Test(s) Requested:

SAME DAY Peel and Shear

(ASTM D 6392/GRI GM19/D 4437/NSF 54)

Codes

AD Adhesion failure (100% Peel)

BRK Break in sheeting away from Seam edge

SE Break in sheeting at edge of seam

AD-BRK Break in sheeting after some adhesion failure - partial peel SIP Separation in the plane of the sheet (leaving the bond intact)

FTB Film tearing bond (all non "AD" failures)

NON-FTB 100% peel

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

Jennifer Tenney Project Manager

Jennif T. Tenney

Geosynthetic Services Division www.GeosyntheticTesting.com

### **DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS**

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-66-03

				TEST RE	EPLICATE	NUMBER		PROJ.
P/	ARAMETER		1	2	3	4	5	MEAN SPEC.
Sa	ımple ID:	DS-1						
W	eld:	<b>Heat Fusion</b>						
								Peel A
_	Peel Strength (ppi)		130	120	125	119	119	123 91 min
Side A	Peel Incursion (%)		<10	<10	<10	<10	<10	
Sign	Peel Locus of Failure C	ode	SE	SE	SE	SE	SE	
	Peel NSF Failure Code		FTB	FTB	FTB	FTB	FTB	
								Peel B
<u></u>	Peel Strength (ppi)		115	118	120	119	119	118 91 min
Side B	Peel Incursion (%)		<10	<10	<10	<10	<10	
ŝ			SE	SE	SE	SE	SE	
	Peel NSF Failure Code		FTB	FTB	FTB	FTB	FTB	1
								Shear
	Shear Strength (ppi)		182	181	182	183	185	183 120 min
	Shear Elongation @ Br	eak (%)	>50	>50	>50	>50	>50	
Sa	mple ID:	DS-2						
	eld:	Heat Fusion						
								Peel A
	Peel Strength (ppi)		116	118	112	122	107	115 91 min
Side A	Peel Incursion (%)		<10	<10	<10	<10	<10	
Sid	Peel Locus of Failure C	ode	SE	SE	SE	SE	SE	
	Peel NSF Failure Code		FTB	FTB	FTB	FTB	FTB	
								Peel B
	Peel Strength (ppi)		137	137	140	139	138	138 91 min
о СС	Peel Incursion (%)		<10	<10	<10	<10	<10	
Sid	Peel Locus of Failure C	ode	SE	SE	SE	SE	SE	1
	Peel NSF Failure Code		FTB	FTB	FTB	FTB	FTB	
								Shear
	Shear Strength (ppi)		179	178	178	180	182	179 120 min
	Shear Elongation @ Bro	eak (%)	>50	>50	>50	>50	>50	

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### **DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS**

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-66-03

			TEST R	EPLICATE	NUMBER		1	PROJ.
PΑ	RAMETER	1	2	3	4	5	MEAN	SPEC.
Sa	mple ID: DS-3			·				
We	eld: Heat Fusion							
							Peel A	
⋖	Peel Strength (ppi)	139	133	140	128	129	134	91 min
Side /	Peel Incursion (%)	<10	<10	<10	<10	<10		
ŝ		SE	SE	SE	SE	SE		
	Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB		
							Peel B	
œ	Peel Strength (ppi)	147	145	144	146	141	145	91 min
Side	Peel Incursion (%)	<10	<10	<10	<10	<10		
က္တ		SE	SE	SE	SE	SE		
	Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB		
							Shear	
	Shear Strength (ppi)	181	183	181	180	184	182	120 min
	Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	ļ	
Sa	mple ID: DS-4							
	eld: Heat Fusion							
•••	7,047,40,011						Peel A	
	Peel Strength (ppi)	125	128	125	131	124	127	91 min
Side A	Peel Incursion (%)	<10	<10	<10	<10	<10	<b>F</b>	
Ř	Peel Locus of Failure Code	SE	SE	SE	SE	SE		
0)	Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB		
							Peel B	
	Peel Strength (ppi)	138	135	138	138	142	138	91 min
Ω		<10	<10	<10	<10	<10		
Side	Peel Locus of Failure Code	SE	SE	SE	SE	SE		
0,	Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB		
							Shear	
	Shear Strength (ppi)	178	179	176	179	180	178	120 min
	Shear Elongation @ Break (%)	>50	>50	>50	>50	>50		

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### **DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS**

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-66-03

			TEST R	EPLICATE	NUMBER		PROJ.
PARAMETER		1	2	3	4	5	MEAN SPEC.
Sample ID:	DS-5					***********	
Weld:	Heat Fusion						l l
							Peel A
Peel Strength (p		124	111	116	111	108	114 91 min
Peel Incursion (		<10	<10	<10	<10	<10	
		SE	SE	SE	SE	SE	
Peel NSF Failur	e Code	FTB	FTB	FTB	FTB	FTB	ľ
							Peel B
Peel Strength (p	1 1	120	114	116	109	109	114 91 min
_ _w Peel Incursion (		<10	<10	<10	<10	<10	
		SE	SE	SE	SE	SE	ļ
Peel NSF Failur	e Code	FTB	FTB	FTB	FTB	FTB	
							Shear
Shear Strength		178	178	178	177	181	178 120 min
Shear Elongatio	n @ Break (%)	>50	>50	>50	>50	>50	
Sample ID:	DS-6					····	
Weld:	Heat Fusion						
weiu.	neat rusion						l
Peel Strength (p	ini	133	122	127	132	124	Peel A
∢ - ∵	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	<10	<10	<10	<10		128 91 min
Peel Incursion (		SE	SE	SE		<10	
Peel NSF Failur		FTB	FTB	SE FTB	SE FTB	SE	
1 correct 1 and	0 0000	, , ,	1 1 12	LID	FID	FTB	Peel B
Peel Strength (p	opi)	109	129	115	120	133	121 91 min
ω		<10	<10	<10	<10		121 93 11481
Peel Incursion (		SE	SE	SE	SE	<10 SE	ŀ
Peel NSF Failure		FTB	FTB	FTB	FTB	FTB	
. ssi i tali		1.0	1 110	110	FID	LID	Shear
Shear Strength (	(iad)	177	180	176	179	179	178 120 min
Shear Elongation		>50	>50	>50	>50	>50	170 120 1111
onosi mongano	( 2.0011 (70)	- 00	-00	/30	-50	/30	
					·····		

### TRI / Environmental, Inc.

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### **DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS**

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-66-03

			TEST RI	EPLICATE	NUMBER		PROJ.
PARAMETER		1	2	3	4	5	MEAN SPEC.
Sample ID:	DS-7						
Weld:	Heat Fusion						
							Peel A
Peel Strengt		127	126	125	129	125	126 91 min
<ul><li>Φ Peel Incursion</li></ul>		<10	<10	<10	<10	<10	
	f Failure Code	SE	SE	SE	SE	SE	
Peel NSF Fa	ilure Code	FTB	FTB	FTB	FTB	FTB	
							Peel B
Peel Strengt	•	110	109	109	110	114	110 91 min
Peel Incursion		<10	<10	<10	<10	<10	
	f Failure Code	SE	SE	SE	SE	SE	
Peel NSF Fa	ilure Code	FTB	FTB	FTB	FTB	FTB	
							Shear
Shear Streng		181	183	179	179	180	180 120 min
Shear Elonga	ation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID:	DS-8						
Weld:	* = =						İ
weiu.	Heat Fusion						1
Peel Strength	(nni)	128	123	100	407	400	Peel A
۹ .				126	137	130	129 91 min
<del></del>	f Failure Code	<10 SE	<10	<10	<10	<10	
Peel NSF Fa		SE FTB	SE FTB	SE	SE	SE	
1 00/110/114	ilare code	ГІБ	מות	FTB	FTB	FTB	D-11D
Peel Strength	(ppi)	121	112	124	123	400	Peel B
{ <b>₹</b> }	** * *	<10	<10			122	120 91 min
*****	f Failure Code	SE	SE	<10 SE	<10	<10	
Peel NSF Fa		SE FTB	SE FTB	FTB	SE FTB	SE	
1 0011101 1 4	,410 0040	116	1. 11D	FID	FID	FTB	Chaon
Shear Streng	th (nai)	180	180	178	179	172	Shear
	ation @ Break (%)	>50	>50	=	-		178 120 min
Onear Libriga	MON W DIEAK ( /8)	~5U	>50	>50	>50	>50	

### TRI / Environmental, Inc.

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### **DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS**

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-66-03

			TEST RI	EPLICATE	NUMBER		1	PROJ.
	METER	1	2	3	4	5	MEAN	SPEC.
Sampl								
Weld:	Heat Fusion							
_							Peel A	
< ₹	eel Strength (ppi)	126	118	118	120	117	120	91 min
	el Incursion (%)	<10	<10	<10	<10	<10		
	el Locus of Failure Code	SE	SE	SE	SE	SE		
Pe	el NSF Failure Code	FTB	FTB	FTB	FTB	FTB		
D-	al Characte (a.e.)	440	444				Peel B	
<u> </u>	eel Strength (ppi)	113	111	117	117	115	115	91 min
	el Incursion (%)	<10	<10	<10	<10	<10		
	el Locus of Failure Code	SE	SE	SE	SE	SE		
Pe	el NSF Failure Code	FTB	FTB	FTB	FTB	FTB		
O.L	and Charmath (and)	404	404	400			Shear	
	ear Strength (ppi)	181	181	180	181	184	181	120 min
Sh	ear Elongation @ Break (%)	>50	>50	>50	>50	>50		
Sampl	le ID: DS-10		······································					
Weld:								
	110411 001011						Peel A	
Pe	el Strength (ppi)	121	138	124	143	125	130	91 min
Q.	el Incursion (%)	<10	<10	<10	<10	<10	100	0 1 111111
	el Locus of Failure Code	SE	SE	SE	SE	SE		
	el NSF Failure Code	FTB	FTB	FTB	FTB	FTB		
							Peel B	
Pe	ef Strength (ppi)	100	113	112	116	113	111	91 min
(3)	el Incursion (%)	<10	<10	<10	<10	<10	<u></u>	
	el Locus of Failure Code	SE	SE	SE	SE	SE		
	el NSF Failure Code	FTB	FTB	FTB	FTB	FTB		
							Shear	
She	ear Strength (ppi)	180	180	180	181	181	180	120 min
	ear Elongation @ Break (%)	>50	>50	>50	>50	>50	<u> </u>	1

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### **DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS**

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-66-03

			TEST RE	EPLICATE	NUMBER		1	PROJ.
PARAMETER		1	2	3	4	5	MEAN	SPEC.
Sample ID:	DS-11							
Weld:	Heat Fusion							
							Peel A	
Peel Strength (pr		114	115	136	114	131	122	91 min
<u>ω</u> Peel Incursion (%		<10	<10	<10	<10	<10		<del></del>
		SE	SE	SE	SE	SE		
Peel NSF Failure	Code	FTB	FTB	FTB	FTB	FTB	İ	
5 15							Peel B	
Peel Strength (pr		114	129	125	126	126	124	91 min
Peel Incursion (%	,	<10	<10	<10	<10	<10		<del>_</del>
		SE	SE	SE	SE	SE		
Peel NSF Failure	Code	FTB	FTB	FTB	FTB	FTB		
a. a							Shear	
Shear Strength (p		173	176	173	175	178	175	120 min
Shear Elongation	@ Break (%)	>50	>50	>50	>50	>50		
Sample ID:	DS-12							
Weld:	Heat Fusion							
rroiu.	ricat i asion						Peel A	
Peel Strength (pp	oi)	119	121	126	125	122	123	91 min
Peel Incursion (%		<10	<10	<10	<10	<10	120	3 1111111
Peel Locus of Fai		SE	SE	SE	SE	SE		
Peel NSF Failure		FTB	FTB	FTB	FTB	FTB		
		, , , , ,		, , ,		1110	Peel B	
Peel Strength (pp	i)	117	119	115	116	117	117	91 min
(C)	- <del>-</del> -	<10	<10	<10	<10	<10	<u> </u>	<b></b> 3 , 11,111,
Peel Incursion (%	•	SE	SE	SE	SE	SE		
Peel NSF Failure		FTB	FTB	FTB	FTB	FTB		
			–				Shear	
Shear Strength (p	ppi)	176	177	175	176	179	177	120 min
Shear Elongation		>50	>50	>50	>50	>50	-	<b>-1</b> (20 Hall)

### TRI / Environmental, Inc.

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### **DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS**

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-66-03

			TEST RE	EPLICATE	NUMBER		PROJ.
PARAMETER		1	2	3	4	5	MEAN SPEC.
Sample ID:	DS-13						
Weld:	Heat Fusion						
							Peel A
Peel Strength (pr		116	119	121	130	120	121 91 min
அ Peel Incursion (%		<10	<10	<10	<10	<10	
		SE	SE	SE	SE	SE	
Peel NSF Failure	: Code	FTB	FTB	FTB	FTB	FTB	
							Peel B
Peel Strength (pr	-	118	116	120	114	125	119 91 min
<u>υ</u> Peel Incursion (%		<10	<10	<10	<10	<10	
		SE	SE	SE	SE	SE	l
Peel NSF Failure	Code	FTB	FTB	FTB	FTB	FTB	
							Shear
Shear Strength (	• •	176	174	174	174	176	175 120 min
Shear Elongation	ı @ Break (%)	>50	>50	>50	>50	>50	
Sample ID:	DS-14						
Weld:	Heat Fusion						İ
11010.	i leat i usion						Bool
Peel Strength (pp	lic	143	146	148	151	147	Peel A 147 91 min
< 1		<10	<10	<10	<10	<10	147 3111111
Peel Incursion (% Peel Locus of Fa		SE	SE	SE	SE	SE	
Peel NSF Failure		FTB	FTB	FTB	FTB	FTB	
		, ,					Peel B
Peel Strength (pp	oi)	122	115	121	118	120	119 91 min
<u>m</u>		<10	<10	<10	<10	<10	1,0
Peel Incursion (%		SE	SE	SE	SE	SE	
Peel NSF Failure		FTB	FTB	FTB	FTB	FTB	
						, , ,,,,,	Shear
Shear Strength (p	opi)	178	173	175	171	173	174 120 min
Shear Elongation	- •	>50	>50	>50	>50	>50	120 1131
<b>J</b>		<del></del>		~~			

### TRI / Environmental, Inc.

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### **DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS**

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-66-03

			TEST RI	EPLICATE	NUMBER		ŀ	PROJ.
PARAMETER		1	2	3	4	5	MEAN	SPEC.
Sample ID:	DS-15							
Weld:	Heat Fusion							
							Peel A	
Peel Strength (p	ppi)	123	124	123	121	119	122	91 min
<ul><li>Φ Peel Incursion (</li></ul>	• •	<10	<10	<10	<10	<10		
		SE	SE	SE	SE	SE		
Peel NSF Failur	re Code	FTB	FTB	FTB	FTB	FTB		
							Peel B	
Peel Strength (p	opi)	151	120	128	150	127	135	91 min
Peel Incursion (	%)	<10	<10	<10	<10	<10	<b>1</b>	
Peel Locus of F	ailure Code	SE	SE	SE	SE	SE		
Peel NSF Failur	re Code	FTB	FTB	FTB	FTB	FTB		
							Shear	
Shear Strength	** * *	177	176	176	176	176	176	120 min
Shear Elongatio	ın @ Break (%)	>50	>50	>50	>50	>50	-	-
	•.							



### TRI / Environmental, Inc. A Texas Research International Company

May 13, 2008

Mail To:

Bill To:

Ms. Sheree Henninger Waste Management, Inc. 255 W. Keene Road <= Same

255 W. Keene Road Apopka, FL 32703

email: shenning@wm.com

cc email: dschauer@geosyntec.com cc email: cjones@geosyntec.com

Dear Ms. Henninger:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:

Vista Landfill - Cell 1

TRI Job Reference Number:

E2310-70-06

Material(s) Tested:

23 Heat Fusion Weld Seam(s)

Test(s) Requested:

SAME DAY Peel and Shear

(ASTM D 6392/GRI GM19/D 4437/NSF 54)

Codes

AD Adhesion failure (100% Peel)

BRK Break in sheeting away from Seam edge

SE Break in sheeting at edge of seam

AD-BRK Break in sheeting after some adhesion failure - partial peel

SIP Separation in the plane of the sheet (leaving the bond intact)

FTB Film tearing bond (all non "AD" failures)

NON-FTB 100% peel

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

Jennifer Tenney Project Manager

Sennig T. Tennus

Geosynthetic Services Division www.GeosyntheticTesting.com

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

				TEST R	PROJ.			
_	ARAMETER		1	2	3	4	5	MEAN SPEC.
	mple ID:	DS-16						
W	eld:	Heat Fusion						
	Peel Strength (ppi)		122	126	117	126	129	Peel A 124 91 min
ο ∀	Peel Incursion (%)		<10	<10	<10	<10	<10	124 91 min
Side A	Peel Locus of Failur	e Code	SE	SE	SE	SE	SE	
	Peel NSF Failure Co	ode	FTB	FTB	FTB	FTB	FTB	
	Peel Strength (ppi)		118	117	108	417	100	Peel B
Ω	Peel Incursion (%)		<10	<10		117	109	114 91 min
Side	Peel Locus of Failur	e Code	SE		<10	<10	<10	
(U	Peel NSF Failure Co			SE	SE	SE	SE	
	T COTTON T AND TO CO	ode	FTB	FTB	FTB	FTB	FTB	0
	Shear Strength (ppi)		173	179	175	175	176	Shear 176 120 min
	Shear Elongation @	Break (%)	>50	>50	>50	>50	>50	775
Sai	mple ID:	DS-17						
We	ld:	Heat Fusion						
	Peel Strength (ppi)		139	131	136	407	407	Peel A
¥	Peel Incursion (%)		<10	<10		137	137	136 91 min
Side A	Peel Locus of Failure	• Code	SE	SE	<10	<10	<10	ļ
۷,	Peel NSF Failure Co		FT8		SE	SE	SE	i
		uc .	ГІВ	FTB	FTB	FTB	FTB	D10
~~	Peet Strength (ppi)		143	140	147	145	127	Peel B 140 91 min
Side B	Peel Incursion (%)		<10	<10	<10	<10	<10	140 91 11111
	Peel Locus of Failure		SE	SE	SE	SE	SE	1
	Peel NSF Failure Co	de	FTB	FTB	FTB	FTB	FTB	
	Shear Strength (ppi)		174	171	173	171	171	Shear
	Shear Elongation @	Break (%)	>50	>50	>50	>50	>50	172 120 min

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

			TEST RE	PLICATE	NUMBER		1	PROJ.
PA	RAMETER	1	2	3	4	5	MEAN	SPEC.
Sa	mple ID: DS-18							
W	eld: Heat Fusio	n						
							Peel A	
<	Peel Strength (ppi)	121	116	136	126	132	126	91 min
Side /	Peel Incursion (%)	<10	<10	<10	<10	<10		
Š	Peel Locus of Failure Code	SE	SE	SE	SE	SE		
	Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB		
	Peel Strength (ppi)	123	128	132	124	121	Peel B 126	91 min
മ		<10	<10	<10	<10	<10	120	<b>1</b> 91 111111
Side	Peet Incursion (%)						i	
Ś		SE	SE	SE	SE	SE	İ	
	Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	Shear	
	Shear Strength (ppi)	181	184	180	182	181	182	120 min
	Shear Elongation @ Break (%)	>50	>50	>50	>50	>50		
Sa	mple ID: DS-19			<del> </del>				
	eld: Heat Fusio	n					1	
	7,541. 4510	••					Peel A	
	Peel Strength (ppi)	130	136	137	127	125	131	91 min
o	Peel Incursion (%)	<10	<10	<10	<10	<10		_
Side,	Peel Locus of Failure Code	SE	SE	SE	SE	SE		
	Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB		
							Peel B	
œ	Peel Strength (ppi)	139	138	138	148	142	141	91 min
Side	Peel Incursion (%)	<10	<10	<10	<10	<10		
Š		SE	SE	SE	SE	SE		
	Peel NSF Failure Code	FIR	FIR	HIB	FIR	FIB		
	Shear Strength (ppi)	193	193	192	193	193	Shear 193	120 min
	Shear Elongation @ Break (%)	*95 >50	>50	>50	>50	>50	193	120 IIIII
	onear clongation (2) break (%)	>50	200	200	<b>-50</b>	>50		

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

			1	PROJ.				
PARAMETE	R	1	2	3	4	5	MEAN	SPEC.
Sample ID:	DS-20							
Weld:	Heat Fusion							
							Peel A	_
Peel Stre	ength (ppi)	131	126	123	138	137	131	91 min
Peel Incu	ursion (%)	<10	<10	<10	<10	<10		
중 Peel Loc	us of Failure Code	SE	SE	SE	SE	SE		
Peel NSI	F Failure Code	FTB	FTB	FTB	FTB	FTB		
							Peel B	
Peel Stre	ength (ppi)	117	118	118	116	121	118	91 min
	ırsion (%)	<10	<10	<10	<10	<10		
	us of Failure Code	ŞE	SE	SE	SE	SE		
Peel NSI	Failure Code	FTB	FTB	FTB	FTB	FTB		
							Shear	-
	rength (ppi)	178	179	177	178	179	178	120 min
Shear El	ongation @ Break (%)	>50	>50	>50	>50	>50		
Sample ID:	DS-21	<u> </u>						······································
Weld:	Heat Fusion						İ	
							Peel A	
Peel Stre	ength (ppi)	127	133	127	124	129	128	91 min
Peel Incu	ırsion (%)	<10	<10	<10	<10	<10		<del></del>
്ഗ് PeelLoc	us of Failure Code	SE	SE	SE	SE	SE		
Peel NS	Failure Code	FTB	FTB	FTB	FTB	FTB		
							Peel B	<b></b> ,
Peel Stre	ength (ppi)	111	119	118	110	109	113	91 min
	rsion (%)	<10	<10	<10	<10	<10		
	us of Failure Code	SE	SE	SE	SE	SE		
Peel NS	Failure Code	FTB	FTB	FTB	FTB	FTB		
<b>A</b> 1 <b>A</b> 2		.=-					Shear	<b></b>
	rength (ppi)	178	181	179	180	180	180	120 min
Shear Ele	ongation @ Break (%)	>50	>50	>50	>50	>50		

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

				PROJ.				
PARAMETER		1	2	3	4	5	MEAN	SPEC.
Sample ID:	DS-22							
Weld:	Heat Fusion							
							Peel A	
Peel Strength (p		126	122	127	136	148	132	91 min
Peel Incursion (%	•	<10	<10	<10	<10	<10		
		SE	SE	SE	SE	SE	į	
Peel NSF Failure	Code	FT8	FTB	FTB	FTB	FTB		
Peel Strength (p	ni)	132	136	158	144	132	Peel B 140	91 min
ΔΩ	•	<10	<10	<10	<10	<10	140	<b>1</b> 91 11111
Peel Incursion (%	•	SE	SE	SE	SE	SE		
Peel NSF Failure		FTB	FTB	FTB	FTB	SE FTB		
recityor randre	Code	ГІБ	FID	FID	FID	FID	Shear	
Shear Strength (	ppi)	176	172	178	177	173	175	120 min
Shear Elongation	n @ Break (%)	>50	>50	>50	>50	>50		
Sample ID:	DS-23				***************************************			
Weld:	Heat Fusion							
							Peel A	
Peel Strength (pr	oi)	120	115	123	119	128	121	91 min
Peel Incursion (%	6)	<10	<10	<10	<10	<10		-4
Peel Locus of Fa	ilure Code	SE	SE	SE	SE	SE	Ì	
Peel NSF Failure	Code	FTB	FTB	FTB	FTB	FTB		
Bool Strongth (or	×1\	447	400	440	400		Peel B	<b>.</b>
Peel Strength (pp	•	117	135	113	120	134	124	91 min
Peel Incursion (%		<10	<10	<10	<10	<10		
**		SE	SE	SE	SE	SE		
Peel NSF Failure	Code	FTB	FTB	FTB	FTB	FTB	Phe	
Shear Strength (	opi)	182	181	179	179	182	Shear 181	120 min
Shear Elongation	• •	>50	>50	>50	>50	>50		

### TRI / Environmental, Inc. A Texas Research International Company

### **DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS**

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

			TEST R	PLICATE		PROJ.			
P/	ARAMETER		1	2	3	4	5	MEAN	SPEC.
Sa	ımpie ID:	DS-24							***************************************
W	eld:	Heat Fusion							
								Peel A	
<	Peel Strength (ppi)		114	124	123	120	118	120	91 min
Side A	Peel Incursion (%)		<10	<10	<10	<10	<10		
Š			SE	SE	SE	SE	SE		
	Peel NSF Failure C	ode	FTB	FTB	FTB	FTB	FTB		
	D 100 01 0							Peel B	~
a	Peel Strength (ppi)		116	119	119	120	119	119	91 min
Side	Peel Incursion (%)		<10	<10	<10	<10	<10		
ີ້ດັ່ນ			SE	SE	SE	SE	SE		
	Peel NSF Failure C	ode	FTB	FTB	FTB	FTB	FTB		
	01							Shear	-
	Shear Strength (ppi	•	181	183	182	182	182	182	120 min
	Shear Elongation @	) Break (%)	>50	>50	>50	>50	>50	1	
Sa	mple ID:	DS-25			<u> </u>				
	eld:	Heat Fusion							
•••		mout radion						Peel A	
	'Peel Strength (ppi)		112	124	128	124	129	123	91 min
Side A	Peel Incursion (%)		<10	<10	<10	<10	<10	P	_
Š	Peel Locus of Failur	re Code	SE	SE	SE	SE	SE	- 1	
	Peel NSF Failure Co	ode	FTB	FTB	FTB	FTB	FTB		
								Peel B	
_	Peel Strength (ppi)		118	113	115	117	116	116	91 min
Side B	Peel Incursion (%)		<10	<10	<10	<10	<10	1	
Sid	Peel Locus of Failur	e Code	SE	SE	SE	SE	SE	į	
	Peel NSF Failure Co	ode	FTB	FT8	FTB	FTB	FTB		
								Shear	
	Shear Strength (ppi	)	176	178	177	181	178	178	120 min
	Shear Elongation @	Break (%)	>50	>50	>50	>50	>50	***************************************	

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

				1	PROJ.				
_	RAMETER		1	2	3	4	5	MEAN	SPEC.
	mple ID:	DS-26							
W	eld:	Heat Fusion							
	Peel Strength (ppi)		400	404	400	400		Peel A	1
∢	Peel Incursion (%)		122	124	126	125	122	124	91 min
Side A	Peel Locus of Failur	ro Codo	<10	<10	<10	<10	<10		
S	Peel NSF Failure C		SE	SE	SE	SE	SE		
	reel Nor Famule C	oue	FTB	FTB	FTB	FTB	FTB	5 45	
	Peel Strength (ppi)		128	120	126	127	124	Peel B 125	91 min
8	Peel Incursion (%)		<10	<10	<10	<10	<10	120	93 Hill
Side	Peel Locus of Failur	re Code	SE	SE	SE	SE	SE		
	Peel NSF Failure C		FTB	FTB	FTB	FTB	FTB		
			. , .		115	1.10	118	Shear	
	Shear Strength (ppi	)	185	183	180	182	181	182	120 min
	Shear Elongation @	) Break (%)	>50	>50	>50	>50	>50	1	120 11)
Sa	mple ID:	DS-27							
	eld:	Heat Fusion							
•••		neat i usion						Dool A	
	Peel Strength (ppi)	-	126	118	117	117	121	Peel A 120	91 min
Side A	Peel Incursion (%)		<10	<10	<10	<10	<10		
Sid	Peel Locus of Failur	e Code	SE	SE	SE	SE	SE		
	Peel NSF Failure Co	ode	FTB	FTB	FTB	FTB	FTB		
								Peel B	
~	Peel Strength (ppi)		108	110	110	106	105	108	91 min
Side B	Peel Incursion (%)		<10	<10	<10	<10	<10	Income and	
Š	Peel Locus of Failur	e Code	SE	SE	SE	SE	SE		
	Peel NSF Failure Co	ode	FTB	FTB	FTB	FTB	FTB	İ	
	Shear Strength (ppi)		174	174	176	175	174	Shear	400 :
	Shear Elongation @		>50	>50	>50		174	175	120 min
	enesi Elongation (g	510dit (70)	-50	/30	>50€	>50	>50	İ	

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

			TEST REPLICATE NUMBER						
PARA	AMETER		2	3	4	5	MEAN SPEC.	_	
Samp	ple ID: DS-28	3						-	
Weld	: Heat i	Fusion							
_							Peel A		
P P	eel Strength (ppi)	145	140	136	135	129	137 91 min		
77	eel Incursion (%)	<10	<10	<10	<10	<10			
	eel Locus of Failure Code	SE	SE	SE	SE	SE			
Р	eel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	D. al D		
Р	eel Strength (ppi)	123	123	120	128	119	Peel B 123 91 min		
ω	eel Incursion (%)	<10	<10	<10	<10	<10			
~~~	eel Locus of Failure Code	SE	SE	SE	SE	SE			
	eel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	ļ		
			, , ,				Shear		
s	hear Strength (ppi)	183	181	180	184	181	182 120 mir	1	
s	hear Elongation @ Break (%)	>50	>50	>50	>50	>50			
Came	ole ID: DS-29	<u> </u>							
Weld		Fusion							
weiu	. rieat i	rasion					Peel A		
P	eel Strength (ppi)	128	133	126	139	128	131 91 min		
Side A	eel Incursion (%)	<10	<10	<10	<10	<10			
g P	eel Locus of Failure Code	SE	SE	SE	SE	SE			
	eel NSF Failure Code	FTB	FTB	FTB	FT8	FTB			
							Peel B		
P	eet Strength (ppi)	114	115	122	113	117	116 91 min		
Side B	eel Incursion (%)	<10	<10	<10	<10	<10			
Sig	eel Locus of Failure Code	SE	SE	SE	SE	SE	!		
P	eel NSF Fallure Code	FTB	FTB	FTB	FIR	FIB	•		
							Shear		
S	hear Strength (ppi)	177	174	173	175	173	174 120 mir	1	
S	hear Elongation @ Break (%)	>50	>50	>50	>50	>50			
							I		

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

				TEST R	EPLICATE	NUMBER		PROJ.
*****	RAMETER		1	2	3	4	5	MEAN SPEC.
	mple ID: DS							
We	eld: Hea	at Fusion						
	D. 10(#1 / 1)							Peel A
⋖	Peel Strength (ppi)		48	149	145	141	149	146 91 min
Side A	Peel Incursion (%)		10	<10	<10	<10	<10	
ß			SE.	SE	SE	SE	SE	
	Peel NSF Failure Code	F	TB	FTB	FTB	FTB	FTB	
	Peel Strength (ppi)	4	30	400	400	407	404	Peel B
α	Peel Incursion (%)			133	130	127	131	130 91 min
Side B	Peel Locus of Failure Code		10	<10	<10	<10	<10	
S	Peel NSF Failure Code		SE TD	SE	SE	SE	SE	
	reel Nor railule Code	r	ТВ	FTB	FTB	FTB	FTB	
	Shear Strength (ppi)	1	75	177	176	177	177	Shear 176 120 min
	Shear Elongation @ Break (9		50	>50	>50	>50	>50	176120 min
	The street of th	,,,,	J 0	-00	-00	>30	>30	İ
Sai	mple ID: DS-	31				···		
We	eld: Hea	ıt Fusion						•
								Peel A
~	Peel Strength (ppi)	1:	26	131	125	134	129	129 91 min
Side A	Peel Incursion (%)	<	10	<10	<10	<10	<10	
ö	Peel Locus of Failure Code	8	E	SE	SE	SE	SE	į
	Peel NSF Failure Code	Ł.	TB	FTB	FT8	FTB	FTB	
								Peel B
m	Peel Strength (ppi)	1:	23	120	112	121	118	119 91 min
Side B	Peel Incursion (%)	<	10	<10	<10	<10	<10	
Š	Peel Locus of Failure Code	S	E	SE	SE	SE	SE	
	Peel NSF Failure Code	F	ГB	FTB	FTB	FTB	FTB	
								Shear
	Shear Strength (ppi)		33	180	176	180	180	180 120 min
	Shear Elongation @ Break (%	6) >t	50	>50	>50	>50	>50	
								l

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

			1	PROJ.				
PARAMETER	***	1	2	3	4	5	MEAN	SPEC.
Sample ID:	DS-32					***************************************		
Weld:	Heat Fusion							
							Peel A	_
Peel Strength (p	• •	115	136	128	124	126	126	91 min
Peel Incursion (9	,	<10	<10	<10	<10	<10		-
		SE	SE	SE	SE	SE		
Peel NSF Failure	e Code	FTB	FTB	FTB	FTB	FTB		
Peel Strength (p	pi)	125	125	124	126	121	Peel B	1
Δ	• •	<10	<10	*2 4 <10	<10	<10	124	91 min
Peel Incursion (%	•	SE	SE	SE	SE			
Peel NSF Failure		FTB	FTB	FTB	FTB	SE FTB	İ	
		110	110	FID	PID	מות	Shear	
Shear Strength (ppi)	187	190	183	184	185	186	120 min
Shear Elongation	n @ Break (%)	>50	>50	>50	>50	>50		
Sample ID:	DS-33							
Weld:	Heat Fusion							
77010.	rieat i usion						Peel A	
Peel Strength (pr	oi)	119	116	120	118	120	119	91 min
Peel Incursion (%	6)	<10	<10	<10	<10	<10		
Peel Locus of Fa	ilure Code	SE	SE	SE	SE	SE		
Peel NSF Failure	: Code	FTB	FTB	FTB	FTB	FTB		
Pool Strongth (no	.n	440					Peel B	•
Peel Strength (pr	•	142	140	140	144	122	138	91 min
Peel Incursion (%) Peel Locus of Fa	•	<10	<10	<10	<10	<10	İ	
		SE	SE	SE	SE	SE	- 1	
Peel NSF Failure	Code	FTB	FTB	FTB	FTB	FTB		
Shear Strength (p	opi)	181	181	180	183	178	Shear 181	120 min
Shear Elongation		>50	>50	>50	>50	>50		120 11118

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

73 4 F3 4 8 4 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7			TEST R	EPLICATE	NUMBER		PROJ.
PARAMETER		1	2	3	4	5	MEAN SPEC.
Sample ID:	DS-34		-				
Weld:	Heat Fusion						
Peel Strength (p	ni)	122	149	404	440		Peel A
Peel Incursion (9		<10		124	119	135	130 91 min
Peel Incursion (9		SE	<10	<10	<10	<10	į.
Peel NSF Failure			SE	SE	SE	SE	1
. correct range	o Code	FTB	FTB	FTB	FTB	FTB	
Peel Strength (p	oi)	120	122	144	126	144	Peel B
Peel Incursion (%	6)	<10	<10	<10	<10		131 91 min
Peel Incursion (%	ilure Code	SE	SE	SE	SE	<10	!
Peel NSF Failure	Code	FTB	FTB	FTB		SE	
		110	ГІБ	F1D	FTB	FTB	
Shear Strength (ppi)	162	163	168	169	164	Shear 165 120 min
Shear Elongation	ı @ Break (%)	>50	>50	>50	>50	>50	165 120 min
			•	- 00	-30	>00	
Sample ID:	DS-35						
Weld:	Heat Fusion						
Peel Strength (pp	oi)	121	129	112	440		Peel A
Peel Incursion (%		<10	<10		113	114	118 91 min
Peel Locus of Fai		SE	SE	<10	<10	<10	İ
Peel NSF Failure		FTB		SE	SE	SE	•
		F18	FTB	FTB	FTB	FTB	
Peel Strength (pp	i)	127	127	122	126	130	Peel B
Peel Incursion (%) Peel Locus of Fai)	<10	<10	<10	<10		126 91 min
Peel Locus of Fai	lure Code	SE	SE	SE	SE	<10	
Peel NSF Fallure		FTB	FTB	FTB		SE	İ
		, , ,	: 10	L 1 D	FTB	FTB	01
Shear Strength (p	pi)	179	182	180	181	186	Shear
Shear Elongation	@ Break (%)	>50	>50	>50	>50		182 120 min
				. 00	- 50	>50	İ

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

				TEST RI	EPLICATE	NUMBER		PROJ.
P/	ARAMETER		1	2	3	4	5	MEAN SPEC.
Sa	imple ID:	DS-36						
W	eld:	Heat Fusion						
								Peel A
4	Peel Strength (ppi)		121	115	121	133	121	122 91 min
Side A	Peel Incursion (%)		<10	<10	<10	<10	<10	
Š			SE	SE	SE	SE	SE	
	Peel NSF Failure Co	de	FTB	FTB	FTB	FTB	FTB	
								Peel B
ш	Peel Strength (ppi)		115	122	118	118	119	118 91 min
Side B	Peel Incursion (%)		<10	<10	<10	<10	<10	
Ñ	Peel Locus of Failure		SE	SE	SE	SE	SE	
	Peel NSF Failure Co	de	FTB	FTB	FTB	FTB	FTB	į
	Ob 06 (b. / 2)							Shear
	Shear Strength (ppi)		175	175	177	175	175	175 120 min
	Shear Elongation @	Break (%)	>50	>50	>50	>50	>50	
Sa	mple ID:	DS-37						
	eld:	Heat Fusion						
		riodi i dololi						Peel A
_	Peel Strength (ppi)		139	127	142	145	144	139 91 min
Side A	Peel Incursion (%)		<10	<10	<10	<10	<10	
Š	Peel Locus of Failure	Code	SE	SE	SE	SE	SE	
	Peel NSF Failure Coo	le	FTB	FTB	FTB	FTB	FTB	
								Peel B
_	Peel Strength (ppi)		132	135	123	126	126	128 91 min
Side B	Peel Incursion (%)		<10	<10	<10	<10	<10	
Š	Peel Locus of Failure		SE	SE	SE	SE	SE	
	Peel NSF Fallure Coo	le	818	FIB	FIB	FTB	FTB	
								Shear
	Shear Strength (ppi)		157	155	155	159	157	157 120 min
	Shear Elongation @ B	Break (%)	>50	>50	>50	>50	>50	1

TRI Client: Waste Management, Inc. Project: Vista Landfill - Cell 1

Material: 60 mil HDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)

TRI Job Reference:: E2310-70-06

		TEST R	EPLICATE	NUMBER		1	PROJ.	
PARAMETER		1	2	3	4	5	MEAN	SPEC.
Sample ID:	DS-38				***************************************	***		OT E.O.
Weld:	Heat Fusion							
Peel Strength (p	~i\						Peel A	_
er "	•	154	158	133	169	167	156	91 min
Peel Incursion (%	•	<10	<10	<10	<10	<10		4
ற் Peel Locus of Fa	illure Code	SE	SE	SE	SE	SE	1	
Peel NSF Failure	Code	FTB	FTB	FTB	FTB	FTB		
Peel Strength (pr	ní)	150	110	407			Peel B	•
<u> </u>			118	137	152	134	138	91 min
		<10	<10	<10	<10	<10		_
•••		SE	SE	SE	SE	SE		
Peel NSF Failure	Code	FTB	FTB	FTB	FTB	FTB		
Shear Strength ((igo	192	185	100	400	40.4	Shear	
			-	182	185	184	186	120 min
Shear Elongation	@ p.teak (%)	>50	>50	>50	>50	>50		-

SUB APPENDIX D-9

DAILY FIELD REPORTS





DAILY FIELD REPORT

PROJECT:	Vista Class III Landfill			
LOCATION:	Apopka, Florida			
PROJECT NO:	FQ1465	TASK NO:	02	
DATE:	May 6, 2008		***************************************	
CONTRACTORS:	Environmental Specialist International (ESI)			

07:00 J. Greaves arrived on site to continue Cell 1 construction CQA monitoring.

WEATHER:

Geosyntec observed sunny to partly cloudy skies with a temperature high of 85° F.

SITE CONDITIONS:

The site conditions were dry with some dust.

WORK AREAS:

09:30 ESI (Liner Installer) started liner deployment activities advancing from the south perimeter berm north along the cell floor and west intercell berm. The crew's equipment consisted of a 4 wheel ATV, 3 fusion welding machines, air testing equipment, and a tensiometer.

PLACEMENT ACTIVITIES:

Geosyntec observed installation and welding of 60 mil thick geomembrane panels 1 thru 25. Adjoining 60 mil thick geomembrane panels were seamed with double track wedge machines.

TESTING ACTIVITIES:

J. Greaves observed Trial Weld Testing in the am and pm hours. Destructive sample (DS-1) was marked, field tested and sent to the off-site laboratory for additional destructive testing.

DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

- 1. Geosyntec (Juan Quiroz and Joe Greaves) and Waste Management Inc. (Sheree Grant) discussed additional grading deficiencies along the toe of the north slope and crest of the west perimeter berm.
- 2. A deficiency in positive drainage of the cell floor has been noticed, and the surveyors are taking another round of points. Geosyntec is reviewing the current as-builts and suggestions are being made.
- 3. The sump is undergoing final grading

COMMENTS and/or CLARIFICATION:

10:30 County officials and CDC engineers have arrived for an on site visit.

17:15 J. Greaves left the site for the day.

	CQA Representative: Joseph Greaves





DAILY FIELD REPORT

PROJECT:	Vista Class III Landfill		
LOCATION:	Apopka, Florida		
PROJECT NO:	FQ1465	TASK NO:	02
DATE:	May 7, 2008	_	
CONTRACTORS:	Environmental Specialist International (ESI)		

07:00 J. Greaves arrived on site to continue liner CQA monitoring.

10:15 C. Jones arrived on site to over see the liner CQA monitoring.

WEATHER:

Geosyntec observed sunny skies with a temperature high of 85° F.

SITE CONDITIONS:

The site conditions were dry with some dust.

WORK AREAS:

07:30 ESI (Liner Installer) continued liner deployment activities advancing south to north along the cell floor. The crew's equipment consisted of a 4 wheel ATV, 3 fusion welding machines, air testing equipment, and a tensiometer.

PLACEMENT ACTIVITIES:

Geosyntec observed installation and welding of 60 mil thick geomembrane panels 26 thru 50. Adjoining 60 mil thick geomembrane panels were seamed with double track wedge machines. TESTING ACTIVITIES:

J. Greaves observed Trial Weld Testing in the am and pm hours. Destructive samples (DS-2 thru DS-5) were marked, field tested and sent to the off-site laboratory for additional destructive testing.

DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

- 1. Geosyntec (Juan Quiroz and Clarence Jones) and Waste Management Inc. (Sheree Grant) discussed additional grading deficiencies along the toe of the north slope and crest of the west perimeter berm.
- 2. A deficiency in positive drainage of the cell floor has been noticed, and the surveyors are taking another round of points. Geosyntec is reviewing the current as-builts and suggestions are being made.
- 3. Geosyntec was alerted by WMI (Sheree Grant) that the previous 24 hour test failed the transmissity test and additional sampling was needed to run another transmissity test.

COMMENTS and/or CLARIFICATION:

15:30 J. Greaves left the site for the day to drive back to Jacksonville. C. Jones is left on site to continue the CQA process.

	CQA Representative: Joseph Greaves





DAILY FIELD REPORT

PROJECT:	Vista Class III Landfill			
LOCATION:	Apopka, Florida			
PROJECT NO:	FQ1465	TASK NO:	02	
DATE:	May 12, 2008	-		
CONTRACTORS:	Environmental Specialist International (ESI)		***************************************	

07:00 C. Jones arrived on site to continue CQA monitoring.

WEATHER:

Geosyntec observed sunny skies with a temperature high of 90° F.

SITE CONDITIONS:

The site conditions were dry.

WORK AREAS:

07:30 ESI (Liner Installer) begin geocomposite deployment activities starting at the south end of Cell 1 and advancing north. The crew's equipment consisted of a 4 wheel ATV, fusion welding machines, extrusion welding machines, 5 psi vacuum box, tensiometer, and a sewing machine w/ UV grade thread.

PLACEMENT ACTIVITIES:

ESI worked on welding repairs and geocomposite placement. Approximately 35,100 ft² of composite was deployed today.

TESTING ACTIVITIES:

C. Jones observed Trial Weld Testing in the am and pm hours. Two additional Destructive samples (DS-36 thru DS-38) were field tested and shipped with previously field tested samples (DS-16 thru DS-35) to the off-site laboratory for testing.

DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

Initial testing for Transmissity failed to meet site specification requirements for previously ordered geocomposite. Geosyntec and WMI came to an agreement to use a different geocomposite with thicker netting. In-house conformance sampling and testing was arranged with TRI for the new material.

COMMENTS and/or CLARIFICATION:

Two truck loads of geocomposite were delivered to the site yesterday (Sunday 5-11-08).

Sheree Grant (WMI) was informed that no conformance test had been received prior to geocomposite deployment.

16:30 Geosyntec (Clarence Jones) left the site for the day.

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COPY TO:	File	CQA Representative: Clarence Jones		Johns	Dones





DAILY FIELD REPORT

PROJECT:	Vista Class III Landfill			
LOCATION:	Apopka, Florida		***************************************	
PROJECT NO:	FQ1465	TASK NO:	02	
DATE:	May 13, 2008	***		
CONTRACTORS:	Environmental Specialist International (ESI)		· ·	
			·····	

07:00 C. Jones arrived on site to continue liner system CQA monitoring.

WEATHER:

Geosyntec observed sunny skies with a temperature high near 90° F.

SITE CONDITIONS:

The site conditions were dry.

WORK AREAS:

07:30 ESI (Liner Installer) continued geocomposite deployment activities working from south to north of Cell 1. The crew's equipment consisted of a 4 wheel ATV, extrusion welding machines, 5 psi vacuum box, tensiometer, and a sewing machine w/ UV grade thread.

PLACEMENT ACTIVITIES:

ESI worked on geocomposite placement and vacuum testing of repairs. Approximately 86,400 ft² of composite was deployed today.

TESTING ACTIVITIES:

C. Jones observed passing laboratory results for the last round of destructive samples (DS-16 thru DS-38).

DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

Two additional truck loads of geocomposite were delivered to the site.

COMMENTS and/or CLARIFICATION:

19:00 Geosyntec (Clarence Jones) left the site for the day.

	3	.		
CQA Representative: Clarence Jones		Jarener	D	nes





DAILY FIELD REPORT

PROJECT:	Vista Class III Landfill		
LOCATION:	Apopka, Florida		
PROJECT NO:	FQ1465	TASK NO:	02
DATE:	May 22, 2008	-	
CONTRACTORS:	Environmental Specialist International (ESI)		

0700: J. Greaves arrives on site to continue CQA monitoring

WEATHER:

Geosyntec observed cloudy/overcast skies with some rain in the AM hours. Rain clears after noon with a temperature high of 90° F.

SITE CONDITIONS:

Humid and wet after the rain in the AM.

WORK AREAS:

07:15: Total Site Development (TSD) has continued placement of the protective cover layer overtop the liner/geocomposite on the floor of Cell 1. The soils being hauled are being hauled from the stockpile to the West. The stockpile is comprised of soils excavated from the development of Cell 1. The crew's equipment consisted of 1 John Deere 750 LGP bull dozer, two Terex TA27 articulating dump-trucks, and a John Deere excavator.

PLACEMENT ACTIVITIES:

Geosyntec observed the placement of the protective layer soils on top of the liner system. All dump-truck traffic was kept on a minimum of a 3 foot lift as required by the specification. All other traffic (LGP bull dozer traffic) was kept on a minimum of a 2 foot lift. Soils were placed in a manner that keeps liner wrinkles to a minimum (i.e. soils are pushed to the leading edge of the placement then moved forward with an upward motion as to create a "cascading" effect. This ensures that the soils are placed atop the liner and not shoved into the liner). The soils were loaded into the dump-trucks via the excavator then carried to the cell floor where they were dumped, all the while taking care to ensure that the dump-trucks did not venture off the 3 foot lift. After dumping, the soils were then spread out using the method described above.

TESTING ACTIVITIES:

The required 2 foot lifts were noted and recorded. Pictures are available using the data base.

DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

Sediment in the sump area of cell number 1 may be an issue in the future as it will be after every rain event. Care will be taken when removal of any and all sediment/excess water when the time comes to place the number 4 stone in the sump area.

COMMENTS and/or CLARIFICATION:

17:00 Geosyntec (Joe Greaves) left the site for the day.

MANYY MA	200	
COPV TO		00 t to
	rile	CQA Representative: Joe Greaves
		OTTODICSCINATIVE, 30C CITEAVES





DAILY FIELD REPORT

PROJECT:	Vista Class III Landfill		
LOCATION:	Apopka, Florida		
PROJECT NO:	FQ1465	TASK NO:	02
DATE:	May 23, 2008	_	
CONTRACTORS:	Environmental Specialist International (ESI)		

0700: J. Greaves arrives on site to continue CQA monitoring

WEATHER:

Geosyntec observed partly cloudy to overcast skies with some rain in the afternoon hours. Temperature high of ~93° F.

SITE CONDITIONS:

Some moisture on the liner system is keeping the dust to a minimum.

WORK AREAS:

07:15: Total Site Development (TSD) has continued placement of the protective cover layer. The soils are being hauled from the protective cover stockpile to the West. ESI placed 57 stone over top of the leachate collection pipe on the floor of cell 1. The crew's equipment consisted of 1 John Deere 750 LGP bull dozer, two Terex TA27 articulating dump-trucks, a John Deere excavator, and a Bobcat posi-track.

PLACEMENT ACTIVITIES:

Geosyntec observed the placement of the protective layer soils on top of the liner system. All dump-truck traffic was kept on a minimum of a 3 foot lift as required by the specifications. All other traffic (LGP bull dozer traffic) was kept on a minimum of a 2 foot lift. Soils were placed in a manner that keeps liner wrinkles to a minimum (i.e. soils are pushed to the leading edge of the placement then moved forward with an upward motion as to create a "cascading" effect. This ensures that the soils are placed atop the liner and not shoved into the liner). The soils were loaded into the dump-trucks via the excavator then carried to the cell floor where they were dumped, all the while taking care to ensure that the dump-trucks did not venture off the 3 foot lift. After dumping, the soils were then spread out using the method described above.

The placement of 57 stone has started. The stone is being hauled from a stockpile located near north-west of the soil stockpile to the cell floor via the haul road created for the protective layer placement process with the Bobcat posi-track.

TESTING ACTIVITIES:

The required 2 foot lifts as well as the design of the 57 stone filter were noted and recorded. Pictures are available using the data base.

DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

Sediment in the sump area of cell 1 may be an issue after the rain of the previous day. Care will be taken when removal of any and all sediment/excess water

COMMENTS and/or CLARIFICATION:

17:00 Geosyntec (Joe Greaves) left the site for the day.

1	File	CQA Representative: Joe Greaves





DAILY FIELD REPORT

PROJECT: Vista Class III Landfill LOCATION: Apopka, Florida PROJECT NO: FO1465 TASK NO: 02 DATE:

May 27, 2008

CONTRACTORS: Environmental Specialist International (ESI)

0830: J. Greaves arrives on site to continue COA monitoring

WEATHER:

Geosyntec observed mostly sunny skies. Temperature high of ~91° F.

SITE CONDITIONS:

Some moisture on the liner system in the morning.

WORK AREAS:

07:15: Total Site Development (TSD) has continued placement of the protective cover layer. The soils are being hauled from the protective cover stockpile to the West. The crew's equipment consisted of 1 John Deere 750 LGP bull dozer, two Terex TA27 articulating dump-trucks, a John Deere excavator.

PLACEMENT ACTIVITIES:

Geosyntec observed the placement of the protective layer soils on top of the liner system. All dump-truck traffic was kept on a minimum of a 3 foot lift as required by the specifications. All other traffic (LGP bull dozer traffic) was kept on a minimum of a 2 foot lift. Soils were placed in a manner that keeps liner wrinkles to a minimum (i.e. soils are pushed to the leading edge of the placement then moved forward with an upward motion as to create a "cascading" effect. This ensures that the soils are placed atop the liner and not shoved into the liner). The soils were loaded into the dump-trucks via the excavator then carried to the cell floor where they were dumped, all the while taking care to ensure that the dump-trucks did not venture off the 3 foot lift. After dumping, the soils were then spread out using the method described above. The placement of 57 stone has finished.

TESTING ACTIVITIES:

The required 2 foot lifts were noted and recorded. Pictures are available using the data base. The placement of the 57 stone has finished. All stone is wrapped in geo-textile and sewn as described in the specs.

DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

Sediment in the sump area of cell 1 may be an issue after the rain over the weekend. Care will be taken when removal of any and all sediment/excess water.

COMMENTS and/or CLARIFICATION:

17:00 Geosyntec (Joe Greaves) left the site for the day.

COPY TO: __File CQA Representative: <u>Joe Greaves</u>





DAILY FIELD REPORT

PROJECT: Vista Class III Landfill

LOCATION: Apopka, Florida

PROJECT NO: FQ1465 TASK NO: 02

DATE: May 28, 2008

CONTRACTORS: Environmental Specialist International (ESI)

0700: J. Greaves arrives on site to continue CQA monitoring

WEATHER:

Geosyntec observed mostly sunny skies. Temperature high of ~93° F.

SITE CONDITIONS:

Some moisture on the liner system in the morning.

WORK AREAS:

07:15: Total Site Development (TSD) has continued placement of the protective cover layer. The soils are being hauled from the protective cover stockpile to the West. The crew's equipment consisted of 1 John Deere 750 LGP bull dozer, two Terex TA27 articulating dump-trucks, a John Deere excavator, and a Bobcat rubber treaded posi-trac.

PLACEMENT ACTIVITIES:

Geosyntec observed the placement of the protective layer soils on top of the liner system. All dump-truck traffic was kept on a minimum of a 3 foot lift as required by the specifications. All other traffic (LGP bull dozer traffic) was kept on a minimum of a 2 foot lift. Soils were placed in a manner that keeps liner wrinkles to a minimum (i.e. soils are pushed to the leading edge of the placement then moved forward with an upward motion as to create a "cascading" effect. This ensures that the soils are placed atop the liner and not shoved into the liner). The soils were loaded into the dump-trucks via the excavator then carried to the cell floor where they were dumped, all the while taking care to ensure that the dump-trucks did not venture off the 3 foot lift. After dumping, the soils were then spread out using the method described above.

The placement of number 4 stone in the sump area has started. All number 4 stone is confined to the specified area.

TESTING ACTIVITIES:

The required 2 foot lifts were noted and recorded. Pictures are available using the data base. The placement of the 4 stone has started. Care is taken in the placement of the stone as to not disturb the piece of 1inch HDPE solid stock located in the floor of the sump (i.e. number 4 stone is placed on both sides of the perforated leachate sump pipe and atop the 1inch HDPE solid stock).

DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

Some protective cover sand has been pushed into the open end of the 57 stone at it northern terminus. The stone had all sand removed with shovels and was brought back to grade.

COMMENTS and/or CLARIFICATION:

Hydrostatic testing of the force-main pipe will start tomorrow (5-29-08).

17:00 Geosyntec (Joe Greaves) left the site for the day.

COPY TO: File ____CQA Representative: Joe Greaves





DAILY FIELD REPORT

PROJECT: Vista Class III Landfill

LOCATION: Apopka, Florida

PROJECT NO: FQ1465 TASK NO: 02

DATE: June 2, 2008

CONTRACTORS: Environmental Specialist International (ESI)

0830: J. Greaves arrives on site to continue CQA monitoring

WEATHER:

Geosyntec observed mostly sunny skies. Temperature high of ~93° F.

SITE CONDITIONS:

Some moisture on the liner system in the morning.

WORK AREAS:

Total Site Development (TSD) has continued placement of the protective cover layer. The soils are being hauled from the protective cover stockpile to the West. The crew's equipment consisted of 1 John Deere 750 LGP bull dozer, two Terex TA27 articulating dump-trucks (one of which is broke down), a John Deere excavator (broke down), and a front end loader. PLACEMENT ACTIVITIES:

Geosyntec observed the placement of the protective layer soils on top of the liner system. All dump-truck traffic was kept on a minimum of a 3 foot lift as required by the specifications. All other traffic (LGP bull dozer traffic) was kept on a minimum of a 2 foot lift. Soils were placed in a manner that keeps liner wrinkles to a minimum (i.e. soils are pushed to the leading edge of the placement then moved forward with an upward motion as to create a "cascading" effect. This ensures that the soils are placed atop the liner and not shoved into the liner). The soils were loaded into the dump trucks via the excavator (when operational) and front end loader, then carried to the cell floor where they were dumped; all the while taking care to ensure that the dump-trucks did not venture off the 3 foot lift. After dumping, the soils were then spread out using the method described above. The placement process is making slow progress due to the constant 'downing' of equipment. At this point, when the excavator and one Terex truck is broken down, there are only ~10 truck loads being dumped per hour.

TESTING ACTIVITIES:

The required 2 foot lifts were noted and recorded. Pictures are available using the data base.

DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

The placement process is very inefficient due to the constant 'downing' of the TSD equipment. This has been brought to the attention of Sheree Grant of Waste Management (WM).

COMMENTS and/or CLARIFICATION:

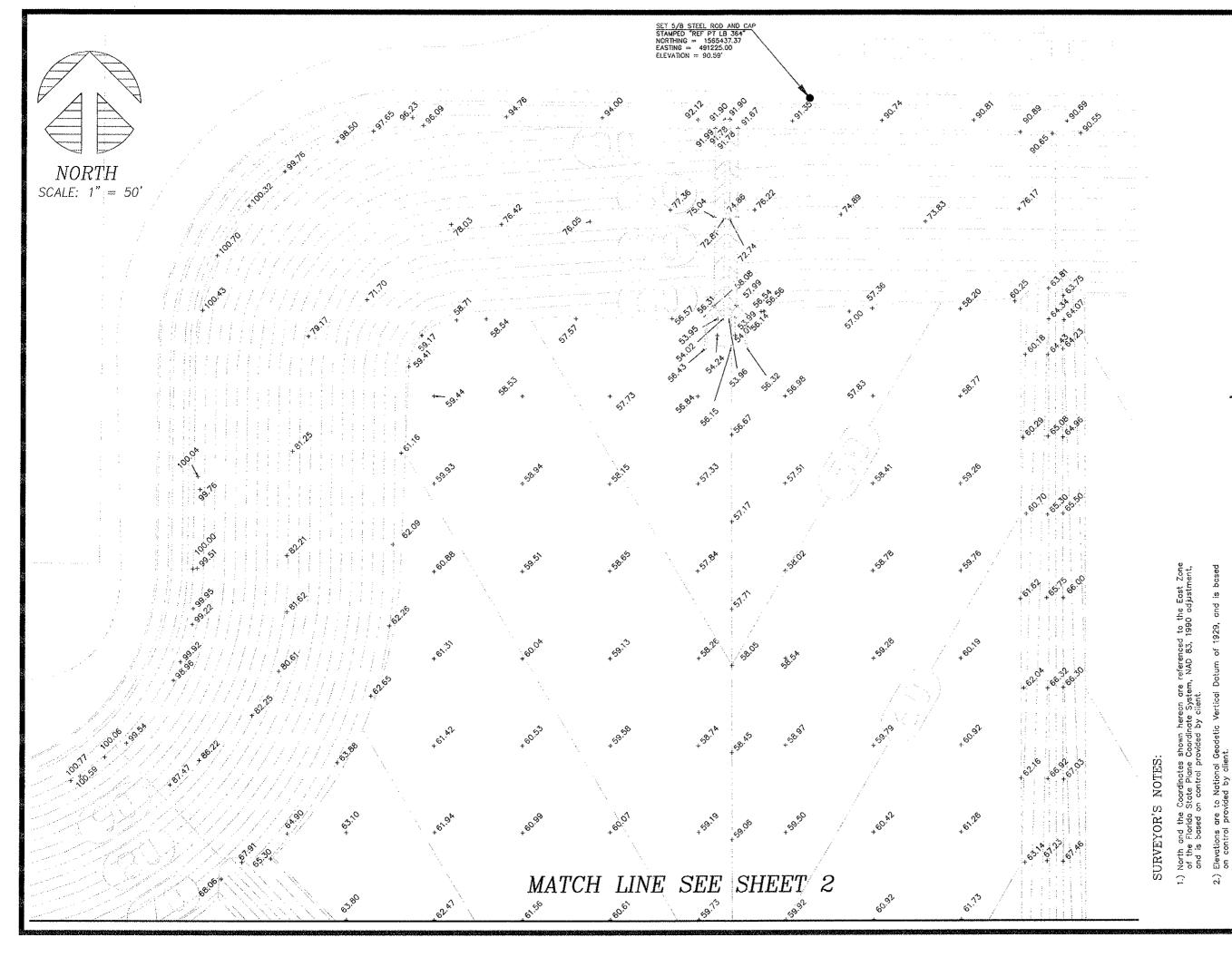
17:00 Geosyntec (Joe Greaves) left the site for the day.

		Steat object the site for the day.
COPY TO:	File	CQA Representative: <u>Joe Greaves</u>

DailyField Report(6-2-08) SHEET NO 1 OF 1

APPENDIX E

As-Built Survey — Top of Subbase Geomembrane Panel Layout Drawing As-Built Survey — Top of Protective Soil





4.) Shaded background shown hereon was provided by the Auto Codd drawing file number FL1229.02X101.

3.) Underground improvements, enci if existing, were not located as

FLORIDA REGISTRATION No. 5135 FLORIDA REGISTRATION No. LB 364

DATE OF FIELD SURVEY

NOT VALID WITHOUT

THE SIGNATURE AND

THE ORIGINAL RAISED LICENSED SURVEYOR SEAL OF A FLORIDA AND MAPPER.

Field Book

EAST,

28

SECTION

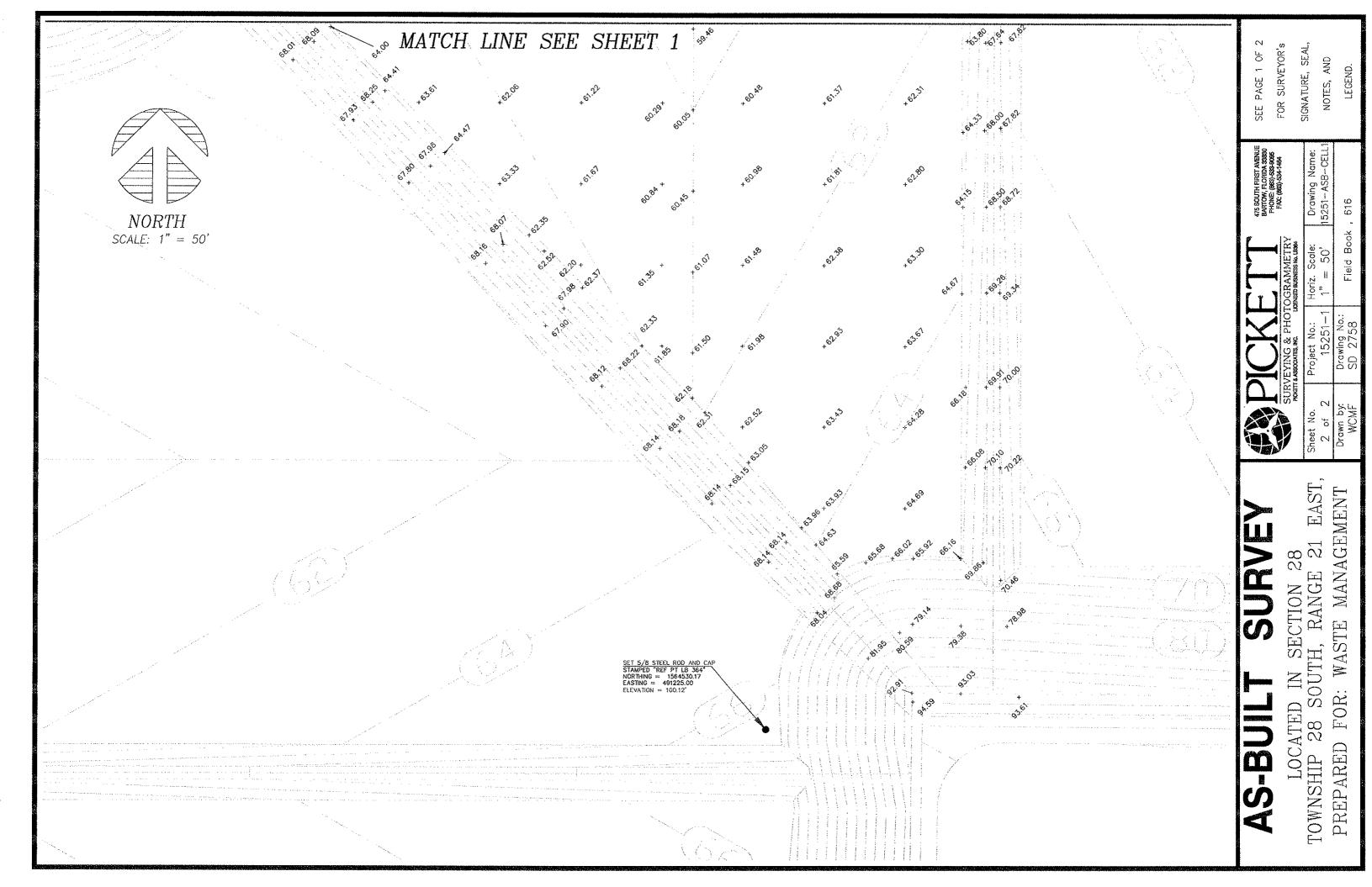
SOUTH, RANGE

WASTE MANAGEMENT

PREPARED FOR:

LOCATED TOWNSHIP 28 SC

AS-BI



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the state of the s		DRN			

Geosyntec^b

consultants

14055 RIVEREDGE DRIVE, SUITE 300 TAMPA, FLORIDA 33637 USA PH: 813.558.0990 - FX: 813-558.9726 AUTHORIZATION NUMBER 4321



255 WEST KEENE ROAD APOPKA, FLORIDA 32703 PH: 407.886.2920

LINER PANEL LAYOUT

ROJECT:

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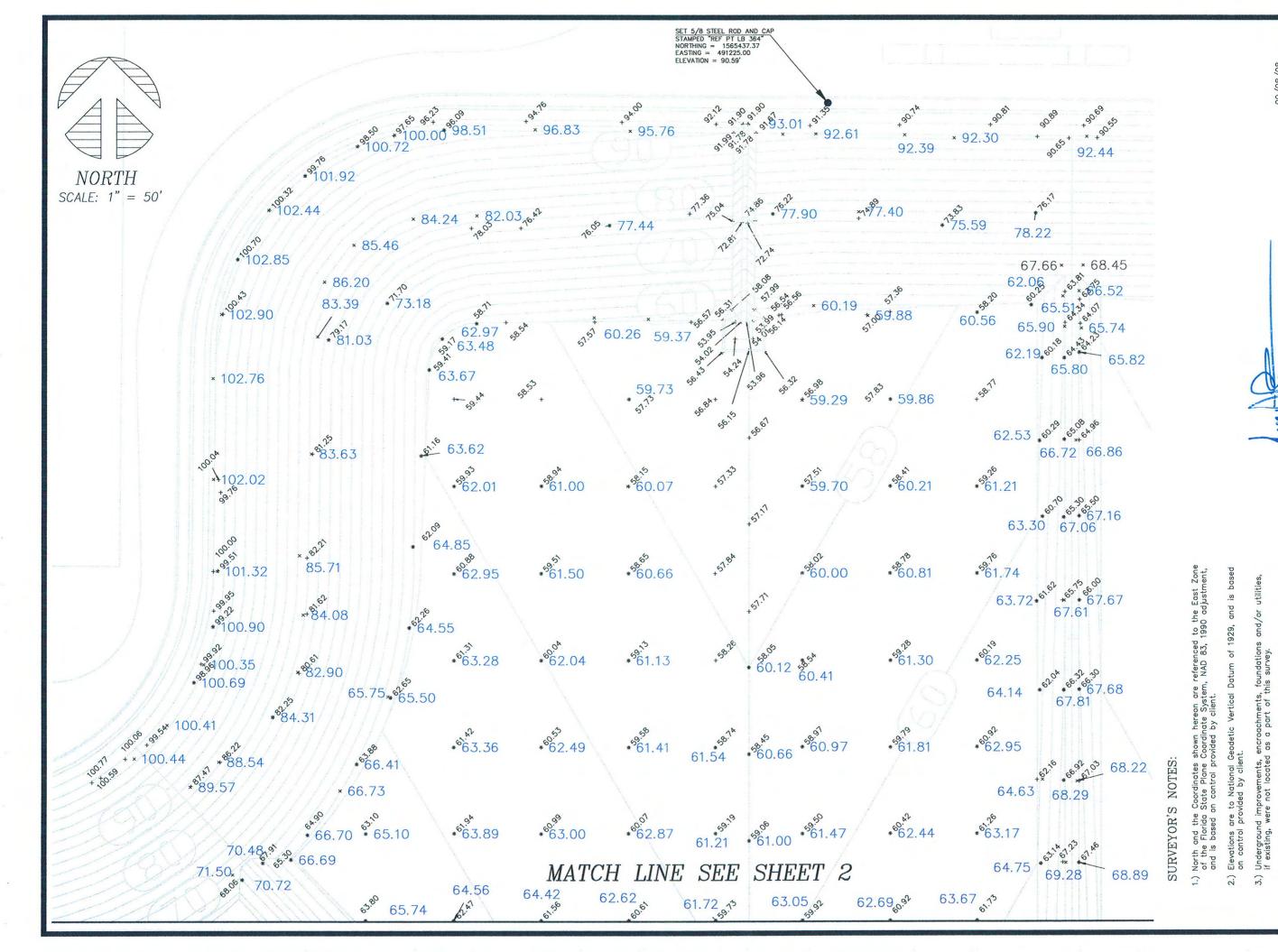
JITLE:

CELL 1 CONSTRUCTION DRAWINGS

VISTA CLASS III LANDFILL APOPKA, FLORIDA

	JUAN D. QUIROZ - LICENSE NO. 65275	11 Sept 2008	SIGNATURE	9		
	APPROVED BY: JDQ	REVIEWED BY:	CHECKED BY:	DRAWN BY: CN	DESIGN BY:	
Φ		CJ DRAWING NO.:	CJ FILE: FQ1465.0	CMV PROJECT NO.: FQ146	- DATE: 23 JULY	

- CREST OF INTERCELL BERM P1 |P77| P76 | P75 | P74 | P73 | P72 | P71 | P70 | P69 P68 P67 P66 P65 P64 P63 P62 P61 P28 P27 P26 P25 P24 P23 P22 P21 P20 P19 P18 P124 DS 05 P123 **P3** \P11\P10 DS 22 P122 LEGEND DS 36 √P39 P121 、P31 [`] 、P53 ` √P33 [°] ` P17 [`] P10 P41 GEOMEMBRANE PANEL NUMBER P5 、P54 ` DS 03 P120 P44 DS 05 DESTRUCTIVE SAMPLE (PASS) P6 FUSION WELDED SEAM P119 EXTRUDED SEAM 、P36 ` P29/ P12\ ANCHOR TRENCH P118 P13 GEOSYNTHETIC CLAY LAYER (GCL) (P8) - REPAIR P117 ______ CREST OF SLOPE P9/ TOE OF SLOPE P116 LEACHATE COLLECTION PIPE P115 ______ lc LEACHATE RISER PIPE ______ DS 38 √P38 P114 \ P40 \ P113 **∨P43** P111— DS 34 **∖**P45 P98 P110 P99 P109 P112 P100 P108 \P48 **P49** P101 \P50 DS 30 P102 CREST OF INTERCELL BERM 、P58 [`] P103 P104 DS 25 P105 | P82 | P83 | P84 | P85 | P86 P106 P97 P96 P95 P94 P93 P92 P91 P90 P89 P88 P87 DS 23 DRN APP REV Geosyntec^o consultants 14055 RIVEREDGE DRIVE, SUITE 300 TAMPA, FLORIDA 33637 USA PH: 813.558.0990 - FX: 813-558.9726 255 WEST KEENE ROAD APOPKA, FLORIDA 32703 PH: 407.886.2920 LINER PANEL LAYOUT AS-BUILT PROJECT: CELL 1 CONSTRUCTION DRAWINGS VISTA CLASS III LANDFILL APOPKA, FLORIDA DESIGN BY: -- DATE: 23 JULY 2008 FQ1465.04 CMV PROJECT NO.: DRAWN BY: FQ1465.04P01 CHECKED BY: CJ DRAWING NO.: REVIEWED BY: AS-BUILT DRAWING APPROVED BY:



PRATHER P.S.M. FLORIDA REGISTRATION No. 5135 SSOCIATES, INC., FLORIDA REGISTRATION No. LB 364

28 3 21 EAST, WASTE MANAGEMENT

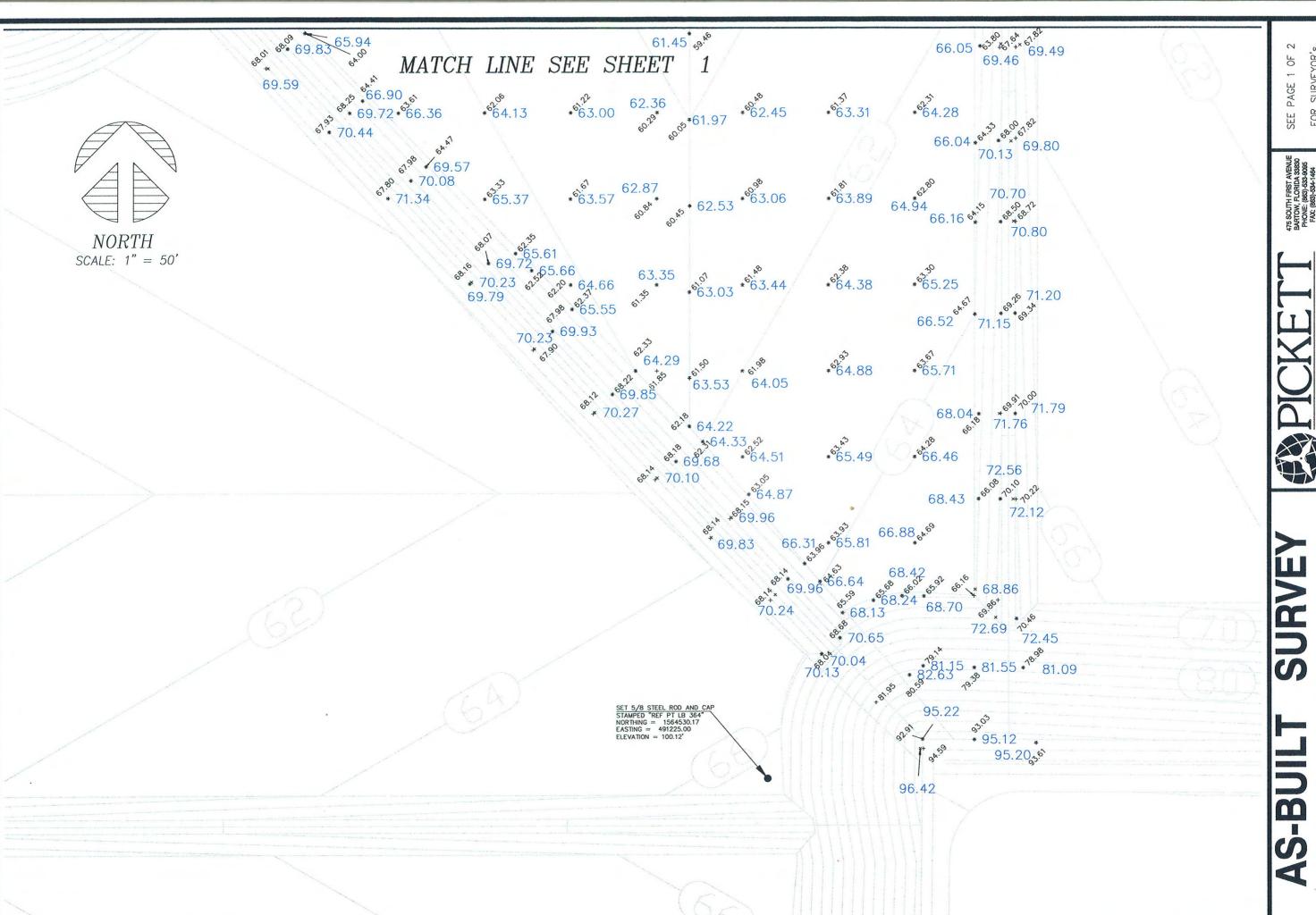
SOUTH, RANGE

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FOR:

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SECTION



LOCATED IN SECTION 28 TOWNSHIP 28 SOUTH, RANGE 21 EAST, PREPARED FOR: WASTE MANAGEMENT

Sheet No. 2 of 2

FOR SURVEYOR's SIGNATURE, SEAL, Drawing Name: 15251—ASB—CELL1

NOTES, AND

LEGEND.

APPENDIX F

HYDROSTATIC TESTING RESULTS



SYSTEM HYDROTEST FORM

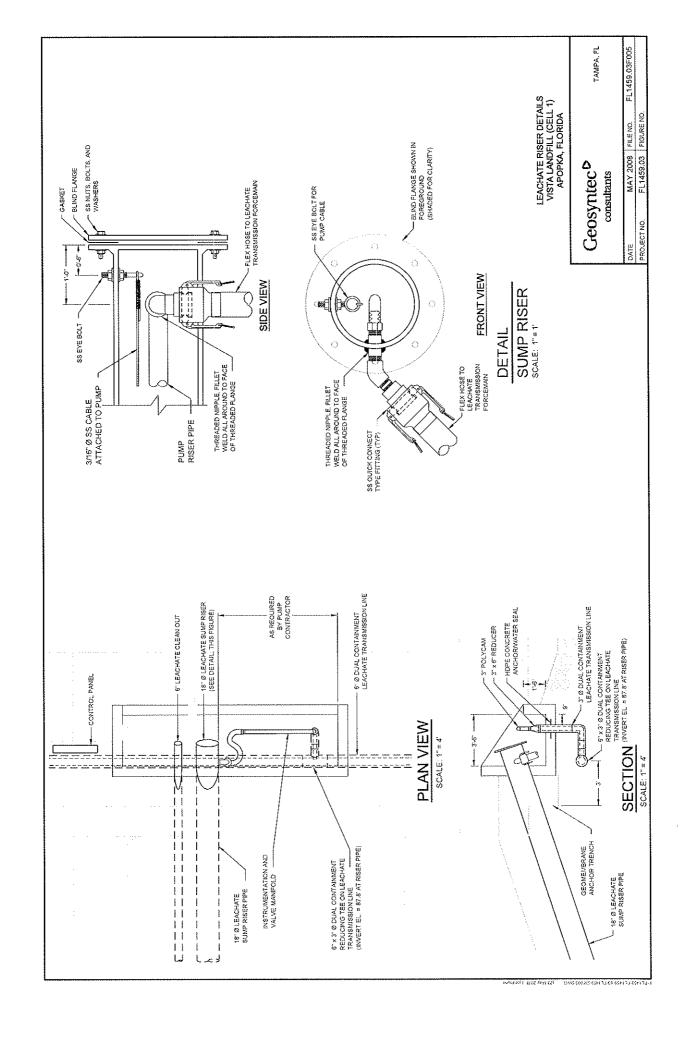
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CUSTOMER:	Waste Mana	agement - Vis	sta Landfill			DATE:	
DESCRIPTION:	HDPE Forcemain Piping Dual Contained					JOB NO. :	08-02-1032
TEST NO. :		PREPARED	D BY:				
Convert F to C = (degree in F - 32	****				Ambient Te	emp in C:
Example: (65 deg	rees F - 32) x 0	.556 = 18 deg	rees C		***************************************		
TASK							
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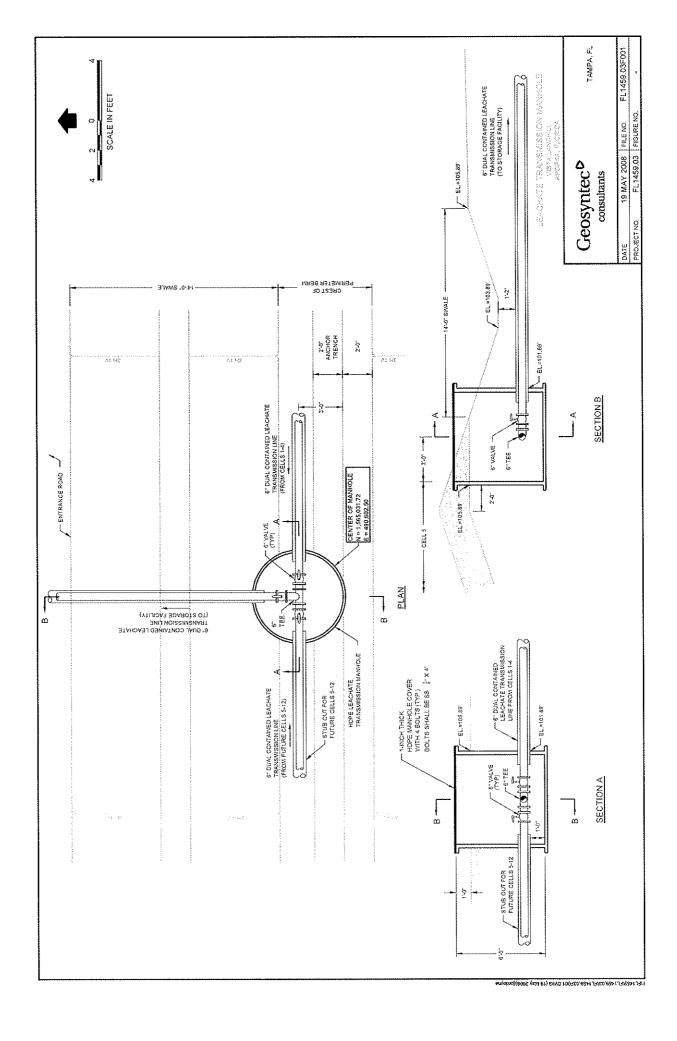
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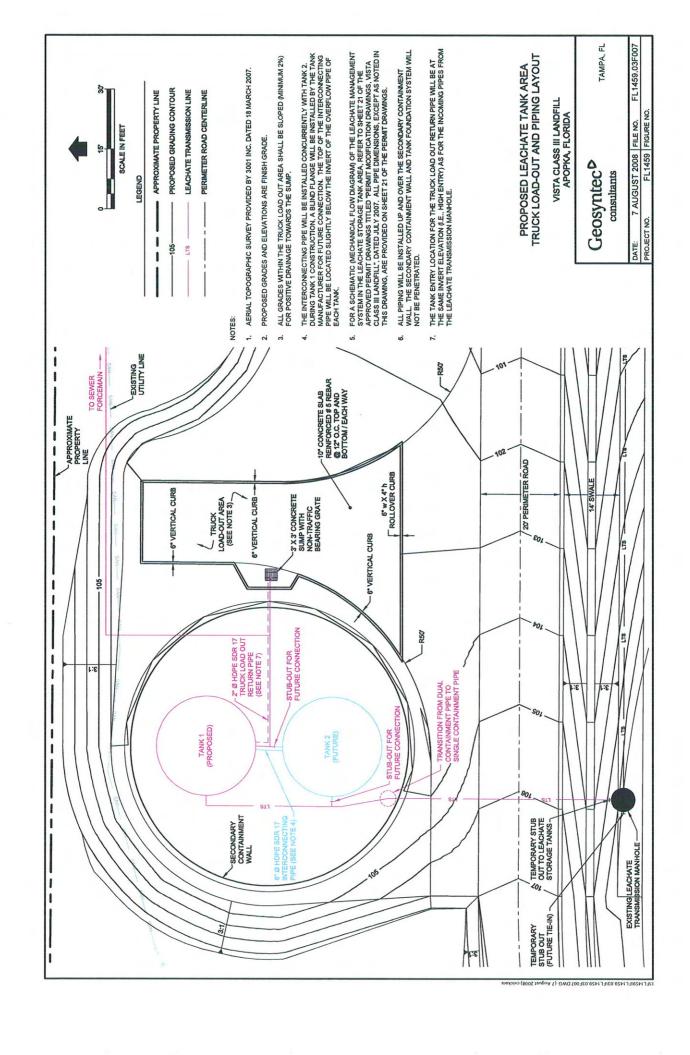
15/3/08

HYDROSTATIC TESTING PACKAGE SUMMARY Waste Management - Vista Landfill HDPE Forcemain Plping Dual Contained JOB NO.: 5/30/08 5/29/08 TEST PRESSURE, TEST MEDIA: Hodo stark in 50 ps. 60 1 ps. 10 10 10 10 10 10 10 10 10 10 10 10 10	ON DATE DATE! VERIFIED BY CUSTOMER TY COMPLETED SUPERVISOR EXCEPTIONS SUPERVISOR EXCEPTIONS FECK 5/30/06 Hyde A PRESSURE HECK 5/30/06 Hyde EXCEPTIONS FECK 5/30/06 Hyde EXCEPTIONS FECK 5/30/06 Hyde EXCEPTIONS FECK 5/30/06 Hyde EXCEPTIONS FECK 5/30/06 Hyde EXCEPTIONS	St NO WAS IN PRESULE	
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USTOMER: Waste Manage ESCRIPTION: HDPE Forcem FST NO.: C. A. TRANSMIT TO CUSTOMER TRANSMIT TO CUSTOMER EST SYSTEM PACKAGE (S) YDRO TEST RESULTS SE-HYDRO CHECKLIST SST DOCUMENTATION XCEPTION STATUS	HYDROSTATIC TESTING COMPLETENESS - FINAL ACCEPTANCE	ement - Vista Landfill nain Piping Dual Contained PREPARED BY: A Mad	ACCEPTED BY EXCEPTIONS EST CUSTOMER CUSTOMER COSTOMER COSTANER
		agement - Vista Landfill emain Piping Dual Contair PREPARED BY:	







APPENDIX G

PHOTOGRAPHIC LOG

Geosyntec consultants

Site Name: Vista Class III Landfill

Cell 1 Construction

Site Location: 242 West Keene Road

Apopka, Florida 32703

Photograph 1

Date:

9 May 2008

Direction:

N/A

Comments:

View along the cell floor during air testing a fusion welded seam.



Photograph 2

Date:

9 May 2008

Direction:

North

Comments:

View of ESI technician conducting field destructive testing.



Geosyntec consultants

Client: Vista Landfill, LLC Project Number: FQ1465

Cell 1 Construction

Site Name: Vista Class III Landfill Site Location: 242 West Keene Road

Apopka, Florida 32703

Photograph 3

Date:

9 May 2008

Direction:

West

Comments:

View of geomembrane deployment along west slope.

Photograph 4

Date:

9 May 2008

Direction:

South

Comments:

View of liner deployment along east inter-cell berm of Cell 1.





Geosyntec consultants

Client: Vista Landfill, LLC Project Number: FQ1465

Cell 1 Construction

Site Name: Vista Class III Landfill Site Location: 242 West Keene Road

Apopka, Florida 32703

Photograph 5

Date:

9 May 2008

Direction: South

Comments: View of geomembrane fusion seaming process.



Photograph 6

Date:

9 May 2008

Direction:

East

Comments: View of geomembrane fusion seaming process.



Geosyntec Consultants

Client: Vista Landfill, LLC Project Number: FQ1465

Cell 1 Construction

Site Name: Vista Class III Landfill Site Location: 242 West Keene Road

Apopka, Florida 32703

Photograph 7

Date:

10 May 2008

Direction: North

Comments:

View of GCL placed in area of leachate collection system sump and slope riser.



Photograph 8

Date:

16 May 2008

Direction:

N/A

Comments:

View of geocomposite seam sewing along west slope of Cell 1.

