Construction Certification Report
North Cell, Class I,
Leachate Basin No. 2
Tomoka Farms Road Landfill
Volusia County, Florida

Volume 1 of 1

Submitted for:

Volusia County Solid Waste
3151 East New York Avenue
DeLand, Florida 32724
(904) 943-7889

Submitted by:

SCS Engineers
555 West Granada Blvd.
Suite E4
Ormond Beach, FL 32174
(904) 673-6730

April 17, 1999
File No. 0995039.27

DEP Form # 62-701.900(2)
Form Title Certificate of Construction Completion
Effective Date May 19, 1994
DEP Application No. _____ (Filled by DEP)

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

Certification of Construction Completion of a Solid Waste Management Facility

DEP Construction Permit No.: SC64-218367 County: Volusia

Name of Project: Tomoka Farms Road Landfill – Leachate Basin No.2

Name of Owner: Volusia County

Name of Engineer: SCS Engineers

Type of Project: Leachate Storage Basin

MAY 1999 RECEIVED D.E.P. CENTRAL DISTRICT

Cost: Estimate $ N/A Actual $ N/A

Site Design: Quantity: N/A Ton/day Site Acreage: 2.5 Acres

3.3 Million Gallons Capacity

Deviations from Plans and Application Approved by DEP Please refer to the attached Construction Certification Report for deviations from plans and Application. The leachate recirculation pump for this basin has not yet been installed.

Address and Telephone No. of Site: 1990 Tomoka Farms Road
Daytona Beach, Florida 32114

Name(s) of Site Supervisor: Bill Gilley

Date Site inspection is requested: As soon as possible, please contact Bill Gilley (904) 943-7889

This is to certify that, with the exception of any deviation noted above, the construction of the project has been completed in substantial accordance with the plans authorized by Construction Permit No. SC64 - 218367 Dated: 4/18/94

Date: 12 May 99

Signature of Professional Engineer

LEE A. POWELL CERTIFICATE NO. 3[illegible] STATE OF FLORIDA

12 May 99

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SECTION 1

INTRODUCTION

1.1 GENERAL

This report, prepared for the Volusia County Department of Solid Waste Services (County) compiles and summarizes the construction activities for the Tomoka Farms Road Landfill Leachate Basin No. 2. As part of SCS Engineers (SCS) construction services, the construction activities were documented to verify that the project was completed in accordance with Florida Department of Environmental Protection (FDEP) permit.

1.2 CONSTRUCTION PERMIT

The FDEP issued permit number SC64-218367 for the construction of the Tomoka Farms Road Landfill expansion, including Leachate Basin No. 2 on April 18, 1994. This permit called for a double liner with a geosynthetic clay liner (GCL) under the secondary liner. On February 25, 1998, the FDEP issued a permit modification to incorporate an additional GCL under the primary liner, replace the leak detection lateral pipes with tri-planar geocomposite, and other minor modifications. A copy of this permit is found in the Phase I and V Certification report.

1.3 SITE DESCRIPTION

The landfill entrance is located at 1990 Tomoka Farms Road (County Road 415), approximately three miles south of the intersection of State Road 415 and U.S. 92, in Volusia County, Florida. The landfill site consists of approximately 3500 acres, including an existing Class I landfill, a construction and demolition debris area, borrow pits and stormwater facilities. The permitted landfill expansion is located on the landfill property north of the existing Class I landfill and includes a 30-acre Class I landfill with a double liner and two 3.3-million gallon leachate storage basins.

The installed liner system in Leachate Basin No. 2 consists of, from top to bottom:

- composite primary liner composed of a 60-mil thick High Density Polyethlene geomembrane placed on top of a low-permeability GCL.
- Leak Detection System (LDS) geocomposite drainage layer, consisting of a 0.25-inch thick tri-planar geonet with 7-ounce non-woven geotextile heat bonded to both sides of the geonet.
- composite secondary liner composed of a 60-mil thick HDPE geomembrane placed on top of a low-permeability GCL.
- prepared subgrade

1.4 CONTACT LIST

The County constructed the leachate basin including the GCL and the leak detection pipe with County forces. The County contracted with Comanco Environmental Corporation to install the geomembrane and the geocomposite drainage layer.

Work conducted at the Site was performed by the following:

Engineer:
SCS Engineers
555 West Granada Blvd., Suite E4
Ormond Beach, Florida 32174
(904) 673-6730

Surveying:
Blackwell and Associates
995 West Volusia Ave.
DeLand, Florida 32724
(904) 734-8050

Soil Testing:
Universal Engineering Sciences
911 Beville Road, Suite 3
South Daytona, Florida 32119
(904) 756-1105

Fence:
AAA Fence Company
801 Orange Avenue
Daytona Beach, Florida 32174
(904) 253-4212

Geosynthetic Clay Liner
CETCO
5701 Denver Street NE
St. Petersburg, Florida 33703
(813) 527-0605

Earthwork and GCL Installation:
Volusia County Solid Waste Services
3151 East State Road 44
DeLand, Florida 32724
(904) 943-7889

Geomembrane and Geocomposite Installation:
Comanco Environmental Corporation
7911 Professional Place
Tampa, Florida 33637
(813) 988-8829

Conformance Testing:
TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733-6201
(512) 263-2101

Sod:
Bell Corp.
11530 Phillips Highway
Jacksonville, Florida 32256
(904) 268-2316

Tri-planar Geocomposite
TENAX
4800 East Monument Street
Baltimore, Maryland 21205
(410) 522-7000

SECTION 2

OBSERVING CONSTRUCTION ACTIVITY

2.1 SCS FIELD ENGINEER'S DAILY REPORT

During the liner construction, daily construction activities were monitored and recorded by a field CQA monitor from SCS. The SCS monitor was present at the site on a full-time basis during the liner construction. The reports were signed and dated at the end of each day by the SCS monitor. The field reports also contained general information such as weather conditions, modifications to the plans, and issues pertaining to the project. Attachment 2.1 contains a copy of each report.

During the period of time for which the geomembrane component of the containment system was being installed, observation and testing was provided by SCS to fulfill the requirements of the FDEP approved Construction Quality Assurance (CQA) plan. Section 3 of this report discusses the geomembrane CQA activities in further detail.

2.2 CONSTRUCTION PLAN MODIFICATIONS

The following modifications were made to the design during construction of the basin:

- Textured HDPE geomembrane was replaced with smooth HDPE geomembrane to facilitate installation and future maintenance.
- Fusion welded, solid wall HDPE pipe was used in the spray irrigation system because of HDPE's ability to resist corrosion.
- A leachate recirculation pump was installed in Basin Number One, but no pump was installed in Leachate Basin Number 2. Both basins may be used for leachate storage and evaporation, and the second pump will not be needed for initial startup and operation. The County intends to install the second pump as soon as leachate generation so warrants.

ATTACHMENT 2.1

FIELD ENGINEER'S DAILY REPORTS

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pond #2 Project number: 09950039.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 1/20/99 Contract Day: _____ Contract Duration: _____
Days Remaining: _____

Weather
Temperature: (AM) 64° (PM) 80° Rain: — Duration of rain: —

Description of weather: _____

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site.
The County started construction of Leachate Pond #2. The Volvo A350 Dumptruck hauled soil to the Pond from the stockpile area. The Caterpillar D4 Bulldozer then built up the east berm of the pond, pushing up the soil in 1 foot lifts and tracking over it to compact it in place. The D4 Bulldozer also excavated the floor of the Pond, pushing the soil up into the berm.
17:30 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 1/20/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill Leachate Pond #2 Project number: 09950039.27

Owner: Volusia County Contractor: Cemanco Environmental

Date: 1/21/99 Contract Day: _____ Contract Duration: _____ Days Remaining: _____

Weather
Temperature: (AM) 65° (PM) 81° Rain: _____ Duration of rain: _____

Description of weather: _____

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site.
The County continued construction of Leachate Pond #2, excavating the floor of the pond with the Caterpillar D4 Bulldozer and pushing the soil into the west berm of the pond. The Volvo Dumptruck hauled in soil from the stockpile area that was also used to form the west berm of the pond. The Dozer pushed up the soil in 1 foot lifts, tracking over each lift to compact it in place.
17:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative _____ Date 1/21/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill Leachate Pond #2 Project number: 09503927

Owner: Volusia County Contractor: Cosanco Environmental

Date: 2/3/99 Contract Day: _____ Contract Duration: _____
Days Remaining: _____

Weather
Temperature: (AM) 63° (PM) 79° Rain: —— Duration of rain: ——

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe	(I)	1 Caterpillar 950F Frontloader	(I)		
1 Volvo A350 Dumptruck	(I)	1 Caterpillar 966F Frontloader	(I)		
1 Caterpillar D4 Bulldozer	(A)				
1 Caterpillar 944G Frontloader	(I)				

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site.
The County graded the inside slopes of Leachate Pond #2 with the Caterpillar D4 Bulldozer.
17:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 2/3/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tanoka Farms Road Landfill
Leachate Pond #2

Project number: 09P5039.27

Owner: Volusia County

Contractor: Canonco Environmental

Date: 2/4/99 Contract Day: _____ Contract Duration: _____
Days Remaining: _____

Weather
Temperature: (AM) 61° (PM) 77° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe	(I)	1 Caterpillar 950F Frontloader	(I)		
1 Volvo A35D Dumptruck	(I)	1 Caterpillar 966F Frontloader	(I)		
1 Caterpillar D4 Bulldozer	(A)				
1 Caterpillar 544G Frontloader	(I)				

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1		

Description of Construction Activity

The County continued grading the slopes, inside and outside, of Leachate Pond #2 using the Caterpillar D4 Bulldozer.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative _____ Date 2/4/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pond #2 Project number: 09950339.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 2/8/99 Contract Day: _____ Contract Duration: _____
Days Remaining: _____

Weather
Temperature: (AM) 67° (PM) 82° Rain: — Duration of rain: —

Description of weather: Overcast in the Morning, Partly Cloudy in the Afternoon

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

8:00 Arrived on-site. The County commenced bentomat deployment in Leachate Basin #2. (Secondary GCL layer.)
11:00 Comanco commenced deployment of the secondary geomembrane, deploying panels S-1 through S-28 today, for a total of 72,949.5 square feet of geomembrane deployed. A total of 3243 feet of seaming was produced today, and SCS marked destructive samples DS-1 through DS-7.
17:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary Geomembrane	72,949.5 ft²	72,949.5 ft²

Field Representative _____ Date 2/8/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill Leachate Pond #2 Project number: 09P5039.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 2/9/99 Contract Day: _____ Contract Duration: _____
Days Remaining: _____

Weather
Temperature: (AM) 63° (PM) 80° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A35D Dumptruck (I)	1 Caterpillar 966F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco commenced deployment of the secondary geomembrane, deploying panels S-29 through S-46, a total of 31,564.5 square feet deployed today. Comanco also constructed 1612 feet of seam today, and SCS marked destructive samples DS-8 through DS-10.
Comanco also constructed and tested all repairs on the secondary geomembrane.
17:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary Geomembrane	31,564.5 ft²	104,514 ft²

Field Representative Steven Gallant Date 2/9/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill Leachate Pond #2 Project number: 09P5039.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 2/10/99 Contract Day: _____ Contract Duration: _____ Days Remaining: _____

Weather
Temperature: (AM) 61° (PM) 80° Rain: — Duration of rain: —

Description of weather: P. Cloudy and Warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe	(I)	1 Caterpillar 950F Frontloader	(A)		
1 Volvo A35D Dumptruck	(A)	1 Caterpillar 966F Frontloader	(A)		
1 Caterpillar D4 Bulldozer	(I)				
1 Caterpillar 544G Frontloader	(A)				

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

8:00 Arrived on-site. Comanco deployed triplanar geocomposite in Leachate Pond #2. The County followed behind and installed the leak detection and rock packing in the trench on the bottom of the leachate pond, from the north end to the south end and up the slopes. Geotextile was placed over the rock. The County then placed primary bentomat on the floor of the Pond.
18:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary Geomembrane	0	104,514 ft2
Secondary Geocomposite		

Field Representative _____ Date 2/10/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill Leachate Pond #2 Project number: 09P5039.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 2/11/99 Contract Day: _____ Contract Duration: _____ Days Remaining: _____

Weather
Temperature: (AM) 67° (PM) 81° Rain: — Duration of rain: —

Description of weather: P. Cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A35D Dumptruck (I)	1 Caterpillar 966F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

8:00 Arrived on-site. The County deployed the primary ~~Geomembrane~~ bentomat in Leachate Pond #2.

8:40 Comanco deployed the primary geomembrane and constructed all corresponding seams and repairs. SCS marked destructive samples DP-1 through DP-10 on today's seams.

18:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary Geomembrane	0	104,514 ft2
Secondary Geocomposite	0	
Primary Geomembrane	103,911 ft2	103,911 ft2

Field Representative _____ Date 2/11/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill Leachate Pond #2 Project number: 09950039.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 2/12/99 Contract Day: _____ Contract Duration: _____
Days Remaining: _____

Weather
Temperature: (AM) 65° (PM) 78° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (1)	1 Caterpillar 950F Frontloader (1)	
1 Volvo A350 Dumptruck (1)	1 Caterpillar 966F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (1)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Comanco completed construction ~~testing of [illegible]~~ and testing of all repairs on the primary geomembrane in Leachate Pond #2.
16:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary Geomembrane	Ø	104,514 ft2
Secondary Geocomposite	Ø	
Primary Geomembrane	Ø	103,911 ft2

Field Representative [signature] Date 2/12/99
(see reverse side for documentation of quantities)

SECTION 3

LINER SYSTEM

3.1 REQUIREMENTS AND SPECIFICATIONS

This section of the report compiles and summarizes the daily geomembrane installation and construction related activities performed during the construction of Leachate Basin No. 2.

SCS was retained by the County to provide liner construction quality assurance (CQA) services during the installation of the geomembrane, in accordance with the FDEP Permit. The services provided included full-time on-site geomembrane CQA monitoring, construction documentation, non-destructive and destructive testing, and materials conformance testing. The following construction documentation was maintained:

- Daily logs.
- Subgrade information.
- Panel repair reports.
- Materials testing.
- Seam test results.
- Warranties.

The SCS CQA monitor was responsible for:

- Reviewing the applicable plans and written material prior to the start of construction.

- Monitoring the essential procedures of the geomembrane installation such as:

    - Geomembrane panel placement.
    - Geomembrane repair.
    - Geomembrane seaming.
    - Seam repair.
    - Non-destructive testing.
    - Destructive and Conformance Sample collection.

- Recording the repair and testing sample locations.

3.2 GEOMEMBRANE INSTALLATION FINAL REPORT

The County purchased HDPE geomembrane directly from the manufacturer, GSE Lining Technology, Inc. Randomly selected samples of the geomembrane were used to verify conformance with the project specifications. Tests were conducted by both the manufacturer and by SCS.

After the earthwork was completed, Universal Engineering Science visited the site and measured the density of the subgrade at five locations. A copy of their report is included in the attachments. All test locations were found to have achieved a minimum of 95% of the standard proctor density.

Prior to deploying the liner, Blackwell and Associates Land Surveyors provided topographic information for the subgrade to document the as-built conditions. A maximum tolerance of 0.30 feet was found to be acceptable to meet the basin design intent.

After the County and SCS had inspected the subgrade for suitable GCL deployment and reviewed the reports from Universal and Blackwell, the subgrade was accepted for liner construction.

The County proceeded to deploy the GCL secondary liner on the north end of the basin on Monday, February 8, 1999. All seams were overlapped, with powdered bentonite placed between the overlapped panels. Comanco commenced deployment of the 60 mil HDPE smooth geomembrane the same day.

TRI/Environmental took conformance samples of the GCL for Bentonite Content, Swell Index, and Permeability testing during the construction of Phase IV of the North Cell, immediately prior to construction of Pond No.2. The same material was then used in the construction of Pond No.2. The test results are found in the Phase IV Certification Report. Manufacturer's Quality Control Certifications for the GCL can be found in Attachment 3.13. GCL Panel Placement Logs can be found in Attachment 3.14

On Wednesday, February 10, 1999, Comanco began installation of the tri-planar geocomposite drainage layer on the north end of the basin. The geocomposite was placed in the leak detection trench, along with the leak detection pipe and the drainage rock., which were placed by the county

SCS Engineers took conformance samples of the Geocomposite and sent them to TRI/Environmental for Peel Strength, Grab tensile Properties, Mass/Unit Area, and Transmissivity testing. The results of these tests and the Manufacturer's Certification Reports for the Gepocomposite are found in the Phase IV Certification Report.

On Thursday, February 11, 1999, The County placed the primary GCL over the drainage layer, and Comancoplaced the primary HDPE liner. On Friday, February 12, 1999, the seam testing was completed.

The panel numbers on the as-built panel layout drawings (Attachment 3.2) indicates progression of the work.

TABLE 3-1 INSTALLED GEOMEMBRANE QUANTITIES
LEACHATE BASIN No. 2, VOLUSIA COUNTY

INSTALLED AS PER DRAWINGS	INSTALLED QUANTITY
60 mil Smooth HDPE Geomembrane	208,425 sf
Total Installed Quantity	208,425 sf

3.3 DAILY FIELD REPORT

During the geomembrane installation, activities were recorded on Daily Report logs contained in Attachment 2.1. The reports were signed and dated at the end of each day by the SCS CQA monitor.

3.4 ON-SITE PERSONNEL

A compilation of the personnel on-site during the project includes:

SCS Engineers

- Lee Powell (Project Manager)
- Dennis Brown (Project Engineer)
- Steven Rosbach (CQA monitor)

Comanco Environmental Corporation

- Clayton Lung (Geomembrane Field Supervisor)
- Sharon Kersten (Construction Quality Control Representative)

Volusia County Department of Solid Waste Services

- B. W. Gilley (Director of Solid Waste Services)
- Gene Palmetier (Site Supervisor)
- Paul Ramias (Supervisor)

3.5 CERTIFICATE OF SUBGRADE ACCEPTANCE

Prior to deploying the GCL, both the County site supervisor (Paul Ramias) and the SCS Project Manager (Lee Powell) observed the subgrade. SCS notified the County as to any deviations from the permit requirements. The permit required the surface to be smooth and free of rocks, sharp stones, sticks, roots, sharp objects, or debris of any kind. The SCS Project Manager verified that the geotechnical and survey information was collected on the subgrade prior to deployment of the GCL. The surface had to provide a firm foundation with no abrupt changes in grade. Upon acceptance of the subgrade by both the County and SCS, signatures on the Certificate of Subgrade Acceptance contained in Attachment 3.3 allowed for the deployment of the GCL.

3.6 GEOMEMBRANE PLACEMENT

Panels were placed one at a time and temporarily secured along the edges with sandbags, when necessary, to prevent uplift by the wind. Adjacent panels were placed and immediately seamed. Upon deployment, individual panels were assigned sequential panel numbers. Panel numbers, with the corresponding geomembrane roll number from which the panel originated, were marked on the panels and recorded on the placement log. The SCS CQA monitor also recorded the following information for each panel:

- Location and length of the panel.
- Date of installation.
- Panel number (identification code).
- Originating geomembrane roll number.

All panel information was later transferred to a corresponding "Geomembrane Placement Log" (Attachment 3.4).

3.7 GEOMEMBRANE SEAMING

The welding equipment to be used was required to pass preliminary pre-weld tests prior to seaming operations. Hot wedge welders and extrusion welders were pre-heated to approximately 700°F to 750°F and 420°F, respectively. A segment of excess geomembrane, approximately 3 feet long, was seamed together by each piece of equipment and seaming crew. The seaming crew adjusted the equipment temperatures to compensate for varying weather conditions. Hot wedge welding speeds were also adjusted for varying seaming conditions, but were generally set between 12 to 16 feet per minute. Results of the equipment start up tests are contained in Attachment 3. 5.

The pre-weld seams were then tested at the site. Two one-inch wide specimens were cut from each welded seam. The pre-weld seams were required to meet or exceed the requirements of 78 pounds per inch (ppi) for double wedge fusion or 70 ppi for extrusion peel strength and 120 ppi for both extrusion and fusion shear strength before being allowed to weld deployed panels.

Adjoining panels were aligned to maintain the specified four-inch overlap. Once the panels were aligned, excess moisture and dirt was removed from the areas to be seamed. As the Comanco seaming crews progressed, wrinkles were worked out. The seams were then air-tested in accordance to the methods described in Section 3.9.

Seams were extended the entire length of the panels and into the anchor trenches. Any portion of the seam that was found to be damaged or inadequate was repaired by patching, cap stripping, or extrusion welding the failed portion of the seam. The methods of repair are described in Section 3.8.

Observation activities carried out by the SCS CQA monitor during field seaming of geomembrane including the following:

- Weather conditions.
- Geomembrane surface to ensure it was free from dirt and moisture.
- Non-destructive testing (air-testing, vacuum box testing).
- Marked and documented on the "Seam Repair and Test Log" the locations of the seam repairs.
- Marked the locations of the destructive testing, approximately every 500 feet of seam, and documented it in writing on the "Seam Destructive Test Log."

The seaming observations are documented in the Seaming Log (Attachment 3.6).

3.8 SEAM AND PANEL REPAIRS

Patching was used for small repairs, such as holes or rips. Patches consisted of excess geomembrane, with the corners rounded to a radius of at least 3 inches, and large enough to cover 6 inches beyond the edges of the repair. The patches were temporarily welded in place using a hot air gun. The edge of the patch was textured using a grinding machine. After the patch edge was cleaned of excess material from the grinding, an extruded weld was used to secure the patch to the panel.

Large lengths of failed seams were repaired by cap stripping a patch over the failed seam.

Wrinkles at the seam overlaps were cut along the ridge of the wrinkle and folded over to achieve a flat seam. The overlapped portion of the wrinkle was then extrusion welded. The portion of the new seam that had an inadequate overlap received a patch.

Repairs were observed by both the Comanco CQC and the SCS CQA monitor. Repair activities were documented in the Panel Repair and Testing Log (Attachment 3.7). The repairs, patches, cap strips, and extrusion welds were repaired and tested in accordance with the project specifications.

3.9 NON-DESTRUCTIVE TESTING

A non-destructive test was conducted on the entire length of each seam. Since this project utilized a double wedge welder, an air channel between the two welds allowed for air pressure tests to verify the integrity of the seam. Air pressure tests were conducted by initially sealing each end of the air channel. The air channel was pressurized to a minimum of 25 pounds per square inch (psi) with an air pump. Once the pressure in the air channel stabilized, the air test was conducted for five minutes, and a drop of 3 psi was permitted for the seam to pass. When 5 minutes had passed, the air channel at the far end of the seam was lanced. A smooth and steady drop in pressure indicated that the entire air channel in the seam had been tested.

Extrusion welds were tested by the vacuum box method. A soap solution was placed over the extruded weld. The vacuum box was then placed over the weld and a vacuum of 3 psi was held for 15 seconds. Any leaks in the weld could be detected by bubbles escaping through the weld.

All non-destructive tests were carefully observed and documented in the "Non-Destructive Test Log " by the SCS CQA monitor. Documentation of these tests is contained in Attachment 3.8.

Any non-destructive test failures were marked, repaired in accordance with Section 3.8, and retested until the seam passed non-destructive testing.

3.10 DESTRUCTIVE SAMPLE TESTING

Destructive test seam samples were cut at an approximate frequency of one test for every 500 feet of seam. A total of 21 seam samples were cut and tested by SCS. Sample locations were located by the SCS CQA monitor and cut by the Comanco CQC supervisors. The samples were then numbered, dated and sent to the SCS laboratory (via an overnight courier service) for testing. Holes in the geomembrane resulting from the destructive sample were immediately repaired in accordance with Section 3.8.

The size of the destructive sample was approximately 12 inches by 38 inches, with the seam centered lengthwise. A 12-inch by 12-inch field sample was cut and tested for shear and peel strength by Comanco. When the sample passed, a 12-inch by 14-inch sample was forwarded to TRI/Environmental for testing. Locations of each destructive sample are shown in the as-built panel layout drawing. Results from the destructive tests as conducted by SCS are contained in Attachment 3.9.

3.11 GEOMEMBRANE MANUFACTURER TESTING

The geomembrane manufacturer was required to perform conformance tests on the geomembrane prior to delivery. The conformance tests were conducted by GSE at the factory at a frequency of one test per every 40,000 square feet of geomembrane. The quality control certificates that contain the roll test data reports are contained in

Attachment 3.12. In addition, Attachment 3.10 contains the Certificate of Analysis provided by the manufacturer for the resin used to fabricate the rolls of HDPE.

3.12 GEOMEMBRANE WARRANTY

As required in the project specifications, GSE supplied a 20-year materials/fabrication warranty, as contained in Attachment 3.11. In addition, Comanco supplied the County with a one year workmanship/installation warranty, as contained in Attachment 3.12. These documents warrant the integrity of the installed product against faulty workmanship and geomembrane failure on a prorated basis.

3.13 AS-BUILT PANEL LAYOUT DRAWING

Attachment 3.2 contains the drawing that shows the as-built condition of the primary and secondary geomembrane. The position and dimensions for each panel of geomembrane was documented by SCS and Comanco, and are contained in the as-built panel layout drawing.

3.14 AS-BUILT SURVEY

Attachment 3.15 contains the final survey taken by Blackwell and Associates.

ATTACHMENT 3.1

SUBGRADE TESTING REPORT

UNIVERSAL
ENGINEERING SCIENCES
Consultants In: Geotechnical Engineering • Environmental Sciences •
Construction Materials Testing • Threshold Inspection

911 Beville Road, Suite 3 • South Daytona, Florida 32119 • (904) 756-1105 • Fax (904) 760-4067

UES Project No. 41011-116-01
UES Report No. 67855
Date: 02/08/99

Report of IN-PLACE DENSITY TESTS

Client: **Volusia County**
123 W. Indiana Avenue
DeLand, Florida 32720

Attention: Nathan Hunter

Project: **Tomoka Landfill Leach Pit**

Course: Subgrade Fill/Native

Type of Test: Field: ASTM D-2937
Laboratory: ASTM D-1557

Date of Test: 02/05/99

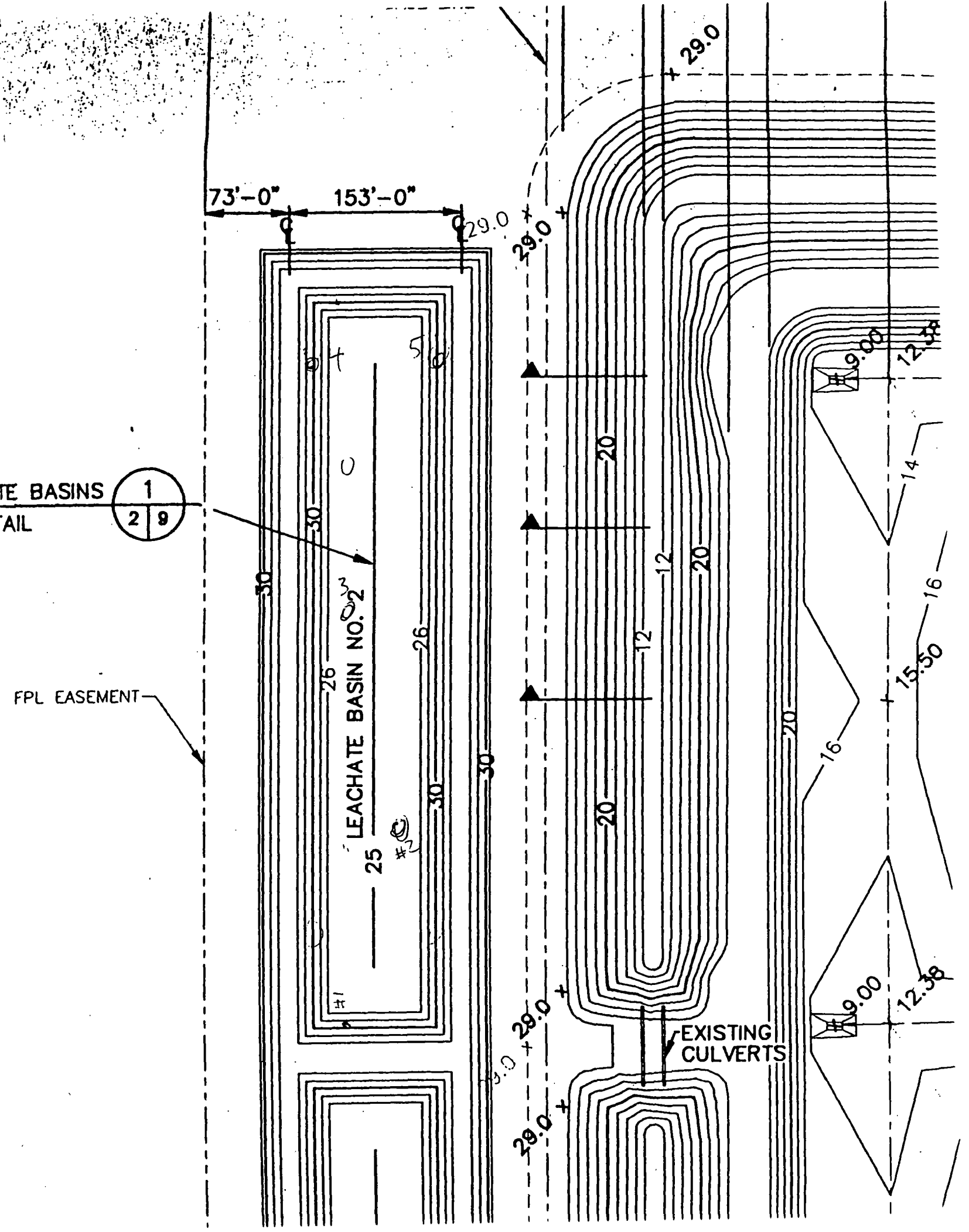
Requirements: **95%** compaction of maximum density.

Reference: 0 = Top of Existing Grade

Location of Test	Depth of Test*	Laboratory Test Results: Maximum Density Dry Lbs/CuFt	Laboratory Test Results: Optimum Moisture Percent	Field Test Results: Density Dry Lbs/CuFt	Field Test Results: Field Moisture Percent	Field Test Results: Maximum Density Percent	Field Test Results: Test Pass or Fail
1. Station Location #1	0-12"	108.5	13.1	106.9	13.4	98.5	PASS
2. Station Location #2	0-12"	108.5	13.1	111.6	15.5	102.9	PASS
3. Station Location #3	0-12"	108.5	13.1	106.8	16.8	97.9	PASS
4. Station Location #4	0-12"	108.5	13.1	106.6	11.9	98.2	PASS
5. Station Location #5	0-12"	108.5	13.1	105.4	10.4	97.1	PASS

Technician: R. Fought

Sheila M. Smith, P.E. 2/10/99
P.E. No. 51512
UNIVERSAL ENGINEERING SCIENCES


73'-0"
153'-0"
29.0
LEACHATE BASIN NO. 2
25
26
30
20
12
16
15.50
14
9.00
12.38
EXISTING CULVERTS
FPL EASEMENT
TE BASINS
AIL
1
2
9

ATTACHMENT 3.2

GEOMEMBRANE AS-BUILT PANEL LAYOUT DRAWING

ATTACHMENT 3.3

CERTIFICATE OF SUBGRADE ACCEPTANCE

SHEET 1 OF 1

PROJECT NAME: Tomoka Landfill Expansion
PROJECT NUMBER: 0995039.~~26~~.27
PROJ. LOCATION: Pond #2
CONTRACTOR: Volusia County

SUBGRADE APPROVAL FORM

Volusia County has inspected the subgrade in the area indicated below for conformance with permit and project requirements. The County hereby certifies that the subgrade in the area indicated below meets the project requirements and is adequate for liner construction.

Yes	Subgrade rolled to a smooth surface
Yes	All required geotechnical testing completed
Yes	All compaction tests passed
Yes	As-built survey complete
Yes	No protrusions, sticks, or objects greater than 1/4" on surface
	Other comments as noted — For Entire Phase's Subgrade.

(SKETCH OR DESCRIBE)

If deviations from the requirements listed above are observed, liner installation will be halted in the designated area and repairs will be made prior to liner installation.

Paul Ramia — NAME
Supervisor — TITLE
Paul Ramia — SIGNATURE
5/10/99 — DATE

CERTIFICATION RECEIVED BY SCS

Lee Powell — NAME
Project Manager — TITLE
Lee Powell — SIGNATURE
10 May 99 — DATE

ATTACHMENT 3.4

GEOMEMBRANE PLACEMENT LOG

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 1 - 5 of
PROJECT TITLE: Temoka Farms Rd LF - Leachate Basin #2
PROJECT NO. 0995039.27
DATE: 2/8/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-1	AK8693	158'	23'	60	E-W	11:10	3634 ft²
S-2		40'	23'		E-W	11:20	920 ft²
S-3		15'	23'		E-W	11:30	345 ft²
S-4		15'	23'		N-S	11:35	345 ft²
S-5		41.5'	23'		N-S	11:40	954.5 ft²
S-6		53'	19'		N-S	11:50	1007 ft²
S-7	↓	52.5'	23'		N-S	11:55	1207.5 ft²
S-8	AK8694	48.5'	23'		N-S	12:55	1115.5 ft²
S-9	↓	34'	23'		N-S	13:00	782 ft²
S-10	AK8693	21'	23'		E-W	13:03	483 ft²
S-11	AK8694	29.5'	21'		E-W	13:05	619.5 ft²
S-12		158.5'	23'		E-W	13:20	3645.5 ft²
S-13	↓	158'	23'			13:35	3634 ft²
S-14	AK8683	158'	23'			13:55	3634 ft²
S-15		158'	23'			14:15	3634 ft²
S-16	↓	157.5'	23'			14:30	3622.5 ft²
S-17	AK8689	157'	23'			14:40	3611 ft²
S-18		157'	23'			14:50	3611 ft²
S-19	↓	157'	23'			15:05	3611 ft²
S-20	AK8691	157'	23'	↓	↓	15:15	3611 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 2-5 of
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Basin #2
PROJECT NO. 09950327
DATE: 2/8/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-21	AK8691	157'	23'	60	E-W	15:25	3611 ft²
S-22	↓	157'	23'	↓	E-W	15:30	3611 ft²
S-23	AK8679	157.5'	23'		E-W	15:40	3622.5 ft²
S-24	↓	158'	23'		E-W	15:50	3634 ft²
S-25	↓	157.5'	23'		E-W	16:00	3622.5 ft²
S-26	AK8699	157'	23'		E-W	16:20	3611 ft²
S-27	↓	156.5'	23'		E-W	16:30	3599.5 ft²
S-28	↓	157'	23'	↓	E-W	16:40	3611 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: [signature]

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 3 - S of
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Basin #2
PROJECT NO. 0995039.27
DATE: 2/9/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-29	AK8685	158'	23'	60	E-W		
S-30	↓	157.5'	23'	↓	↓	↓	↓
S-31	↓	157'	23'	↓	↓	↓	↓
S-32	AK8692	157'	23'	↓	↓	↓	↓
S-33	↓	157'	23'	↓	↓	↓	↓
S-34	↓	156.5'	23'	↓	↓	↓	↓
S-35	AK8678	156'	23'	↓	↓	↓	↓
S-36	↓	30.5'	23'	↓	↓	↓	↓
S-37	↓	10'	16'	↓	↓	↓	↓
S-38	AK8693	10'	16'	↓	N-S	↓	↓
S-39	AK8678	31'	25'	↓	↓	↓	↓
S-40	↓	42.5'	23'	↓	↓	↓	↓
S-41	↓	42.5'	22'	↓	↓	↓	↓
S-42	↓	41.5'	23'	↓	↓	↓	↓
S-43	↓	28.5'	23'	↓	↓	↓	↓
S-44	↓	8'	16'	↓	↓	↓	↓
S-45	↓	31'	23'	↓	E-W	↓	↓
S-46	↓	10'	19'	↓	↓	↓	↓

PRINT NAME: Steven Rogloski
SIGNATURE: Steven Rogloski

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 1-P of
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Basin #2
PROJECT NO. 0995039.27
DATE: 2/11/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-1	AK8680	156'	23'	60	E-W	8:40	3588 ft2
P-2	↓	↓	↓	↓	↓	8:50	3588 ft2
P-3	↓	↓	↓	↓	↓	8:57	↓
P-4	AK8690	↓	↓	↓	↓	9:08	↓
P-5	↓	↓	↓	↓	↓	9:12	↓
P-6	↓	30'	↓	↓	↓	9:20	690 ft2
P-7	↓	20'	19'	↓	↓	9:24	380 ft2
P-8	↓	21'	21'	↓	N-S	9:27	441 ft2
P-9	↓	32.5'	23'	↓	↓	9:30	747.5 ft2
P-10	↓	44'	↓	↓	↓	9:33	1012 ft2
P-11	↓	17'	18'	↓	↓	9:38	306 ft2
P-12	AK8688	44'	23'	↓	E-W	9:45	1012 ft2
P-13	↓	43.5'	↓	↓	↓	9:48	1000.5 ft2
P-14	↓	30.5'	↓	↓	↓	9:51	701.5 ft2
P-15	↓	28.5'	↓	↓	↓	9:55	655.5 ft2
P-16	↓	156'	↓	↓	↓	10:25	3588 ft2
P-17	AK8687	↓	↓	↓	↓	10:35	↓
P-18	↓	↓	↓	↓	↓	10:55	↓
P-19	↓	↓	↓	↓	↓	11:00	↓
P-20	AK8696	↓	↓	↓	↓	11:10	↓

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 2 - P of
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Basin #2
PROJECT NO. 0995039.27
DATE: 2/11/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-21	AK8696	156'	23'	60	E-W	11:20	3588 ft²
P-22	↓	↓	↓	↓	↓	11:50	↓
P-23	AK8695					12:40	
P-24	↓					12:50	
P-25	↓					13:00	
P-26	AK8691					13:10	
P-27	↓					13:15	
P-28	↓					13:25	
P-29	AK8686					13:40	
P-30	↓					13:50	
P-31	↓					14:00	
P-32	AK8681					14:10	
P-33	↓					14:15	
P-34	↓					14:20	
P-35	AK8684	↓				14:35	↓
P-36	↓	37.5'				14:55	862.5 ft²
P-37	↓	26'			↓	14:58	598 ft²
P-38	↓	35.5'			N-S	15:00	816.5 ft²
P-39	↓	48'			↓	15:05	1104 ft²
P-40	↓	↓	↓	↓	↓	15:10	↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 3 - P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 2/11/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-41	AK8684	43'	23'	60	N-S	15:15	
P-42	↓	22'	21'	↓	↓	15:20	
P-43	AK8688	33'	23'	↓	E-W	15:30	
P-44	↓	22'	23'	↓	↓	15:40	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

ATTACHMENT 3.5

SEAMING EQUIPMENT START UP TEST RESULTS

HOT WEDGE START-UP TESTS

COMANCO ENVIRONMENTAL CORPORATION

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME : VOLUSIA COUNTY LEACHATE POND 2 **PAGE: 1**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 2/8/99			PEEL		
TIME: 9:50			OUT	IN	SHEAR
AMBIENT TEMP: 70			136.5	132.6	149.8
WEATHER: CLEAR			138.8	133.3	158.9
MACHINE			129.1	131.2	151.9
NO.	TEMP.	SPEED	137.4	129.5	157.2
75-17	765	60	134.9	129.8	147.4
COMMENTS: 60 MIL S-S					RESULT: PASS
TECHNICIAN: G. SOWERS					

DATE: 2/8/98			PEEL		
TIME: 10:10			OUT	IN	SHEAR
AMBIENT TEMP: 70			137.1	140.0	152.4
WEATHER: CLEAR			134.4	134.5	154.6
MACHINE			135.4	129.6	145.6
NO.	TEMP.	SPEED	133.1	125.6	159.5
75-17	765	60	137.3	127.6	159.6
COMMENTS: 60 MIL S-S					RESULT: PASS
TECHNICIAN: G. SOWERS					

DATE: 2/8/99			PEEL		
TIME: 2:55			OUT	IN	SHEAR
AMBIENT TEMP: 82			124.3	117.9	132.3
WEATHER: CLEAR			120.6	118.1	142.6
MACHINE			121.7	122.3	134.2
NO.	TEMP.	SPEED	125.8	122.4	138.8
75	765	60	120.5	115.5	136.5
COMMENTS: 60 MIL S-S					RESULT: PASS
TECHNICIAN: G. SOWERS					

DATE: 2/8/99			PEEL		
TIME: 3:10			OUT	IN	SHEAR
AMBIENT TEMP: 82			121.4	113.8	140.5
WEATHER: CLEAR			123.7	118.2	141.8
MACHINE			119.0	126.1	136.8
NO.	TEMP.	SPEED	129.1	124.5	139.8
75-12	760	60	126.5	115.7	137.9
COMMENTS: 60 MIL S-S					RESULT: PASS
TECHNICIAN: C. ADAMS					

DATE: 2/9/99			PEEL		
TIME: 7:10			OUT	IN	SHEAR
AMBIENT TEMP: 65			142.7	143.5	153.8
WEATHER: CLEAR			143.6	137.9	161.2
MACHINE			136.0	143.6	151.9
NO.	TEMP.	SPEED	139.7	140.1	154.9
75-17	765	55	142.8	133.2	144.0
COMMENTS: 60 MIL S-S					RESULT: PASS
TECHNICIAN: G. SOWERS					

DATE: 2/11/99			PEEL		
TIME: 8:45			OUT	IN	SHEAR
AMBIENT TEMP: 70			138.6	136.7	149.0
WEATHER: CLOUDY			140.2	141.0	148.9
MACHINE			138.0	137.8	149.8
NO.	TEMP.	SPEED	142.8	137.2	148.7
75-17	765	55	138.2	138.3	150.2
COMMENTS: 60 MIL S-S					RESULT: PASS
TECHNICIAN: G. SOWERS					

DATE: 2/11/99			PEEL		
TIME: 9:00			OUT	IN	SHEAR
AMBIENT TEMP: 70			137.3	140.9	155.8
WEATHER: CLOUDY			137.2	134.1	151.4
MACHINE			139.2	141.8	154.9
NO.	TEMP.	SPEED	141.0	134.4	156.2
75-12	765	58	130.5	136.5	156.7
COMMENTS: 60 MIL S-S					RESULT: PASS
TECHNICIAN: C. ADAMS					

DATE: 2/11/99			PEEL		
TIME: 12:30			OUT	IN	SHEAR
AMBIENT TEMP: 80			126.8	125.2	147.1
WEATHER: CLEAR			123.2	117.5	148.2
MACHINE			121.0	118.0	135.7
NO.	TEMP.	SPEED	127.2	121.3	145.5
75-12	765	58	120.1	119.7	140.1
COMMENTS: 60 MIL S-S					RESULT: PASS
TECHNICIAN: C. ADAMS					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME : VOLUSIA COUNTY LEACHATE POND 2 **PAGE: 2**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 2/8/99			PEEL		
TIME: 1:00			OUT	IN	SHEAR
AMBIENT TEMP: 72			129.5	131.7	142.2
WEATHER: CLEAR			128.4	129.4	143.0
MACHINE			127.6	122.9	136.9
NO.	TEMP.	SPEED	126.3	126.2	152.1
75-17	765	55	122.2	129.6	137.8
COMMENTS: 60 MIL S-S				RESULT: PASS	
TECHNICIAN: G. SOWERS					

DATE:			PEEL		
TIME:			OUT	IN	SHEAR
AMBIENT TEMP:					
WEATHER:					
MACHINE					
NO.	TEMP.	SPEED			
COMMENTS:				RESULT:	
TECHNICIAN:					

DATE:			PEEL		
TIME:			OUT	IN	SHEAR
AMBIENT TEMP:					
WEATHER:					
MACHINE					
NO.	TEMP.	SPEED			
COMMENTS:				RESULT:	
TECHNICIAN:					

DATE:			PEEL		
TIME:			OUT	IN	SHEAR
AMBIENT TEMP:					
WEATHER:					
MACHINE					
NO.	TEMP.	SPEED			
COMMENTS:				RESULT:	
TECHNICIAN:					

DATE:			PEEL		
TIME:			OUT	IN	SHEAR
AMBIENT TEMP:					
WEATHER:					
MACHINE					
NO.	TEMP.	SPEED			
COMMENTS:				RESULT:	
TECHNICIAN:					

DATE:			PEEL		
TIME:			OUT	IN	SHEAR
AMBIENT TEMP:					
WEATHER:					
MACHINE					
NO.	TEMP.	SPEED			
COMMENTS:				RESULT:	
TECHNICIAN:					

DATE:			PEEL		
TIME:			OUT	IN	SHEAR
AMBIENT TEMP:					
WEATHER:					
MACHINE					
NO.	TEMP.	SPEED			
COMMENTS:				RESULT:	
TECHNICIAN:					

DATE:			PEEL		
TIME:			OUT	IN	SHEAR
AMBIENT TEMP:					
WEATHER:					
MACHINE					
NO.	TEMP.	SPEED			
COMMENTS:				RESULT:	
TECHNICIAN:					

EXTRUDER START-UP TESTS

COMANCO ENVIRONMENTAL CORPORATION

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY LEACHATE POND 2 **PAGE: 1**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 2/9/99				
TIME: 8:00			PEEL	SHEAR
AMBIENT TEMP: 65			131.2	162.6
WEATHER: HAZY			135.1	160.4
MACHINE			134.8	171.1
NO.	TEMP.	PREHEAT	132.2	165.6
75-15	455	435	132.8	164.9
COMMENTS: 60 MIL S-S			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 2/9/99				
TIME: 12:35			PEEL	SHEAR
AMBIENT TEMP: 80			129.2	134.7
WEATHER: CLEAR			128.5	143.7
MACHINE			125.6	147.0
NO.	TEMP.	PREHEAT	126.8	142.5
75-15	455	425	132.6	147.1
COMMENTS: 60 MIL S-S			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 2/9/99				
TIME: 1:00			PEEL	SHEAR
AMBIENT TEMP: 80			100.6	130.5
WEATHER: CLEAR			100.5	138.6
MACHINE			112.9	139.3
NO.	TEMP.	PREHEAT	108.8	138.1
75-12	450	400	104.5	147.2
COMMENTS: 60 MIL S-S			RESULT: PASS	
TECHNICIAN: J. MOUNTAIN				

DATE: 2/11/99				
TIME: 10:00			PEEL	SHEAR
AMBIENT TEMP: 69			122.0	143.9
WEATHER: FOGGY			114.6	149.0
MACHINE			118.5	140.5
NO.	TEMP.	PREHEAT	121.3	141.3
75-12	450	400	121.6	143.8
COMMENTS: 60 MIL S-S			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 2/11/99				
TIME: 1:30			PEEL	SHEAR
AMBIENT TEMP: 76			132.5	141.8
WEATHER: CLEAR			132.8	143.0
MACHINE			132.3	147.1
NO.	TEMP.	PREHEAT	131.1	144.3
75-12	450	395	134.0	146.5
COMMENTS: 60 MIL S-S			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 2/11/99				
TIME: 4:10			PEEL	SHEAR
AMBIENT TEMP: 70			123.0	146.5
WEATHER: CLEAR			122.4	139.9
MACHINE			124.4	143.2
NO.	TEMP.	PREHEAT	132.8	137.6
75-15	455	410	127.9	139.2
COMMENTS: 60 MIL S-S			RESULT: PASS	
TECHNICIAN: C. ADAMS				

DATE: 2/12/99				
TIME: 8:00			PEEL	SHEAR
AMBIENT TEMP: 80			127.5	150.1
WEATHER: CLEAR			130.0	159.1
MACHINE			131.2	144.9
NO.	TEMP.	PREHEAT	137.1	146.1
75-15	450	400	130.5	142.1
COMMENTS: 60 MIL S-S			RESULT: PASS	
TECHNICIAN: J. MOUNTAIN				

DATE:				
TIME:			PEEL	SHEAR
AMBIENT TEMP:				
WEATHER:				
MACHINE				
NO.	TEMP.	PREHEAT		
COMMENTS:			RESULT:	
TECHNICIAN:				

ATTACHMENT 3.6

SEAMING LOG

SCS ENG. ERS

GEOMEMBRANE SEAMING LOG

SHEET 1-5 of
PROJECT TITLE: Tomoka Farms Rd LF – Leachate Pond #2
PROJECT NO: 09950039.27
DATE: 2/8/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S1/S2	51'	GS	7517	F	60	16:56	75°	765°	
S2/S3	29'	↓	↓	↓	55	11:45	76°	↓	
S3/S4	39'	↓	↓	↓	↓	12:00	75°	↓	
S4/S5	30'	↓	↓	↓	↓	11:50	76°	↓	
S2/S5	32'	↓	↓	↓	↓	12:04	75°	↓	
S2/S4	1'	↓	↓	↓	↓	12:03	75°	↓	
S5/S6	53'	CA	7512	↓	↓	12:10	74°	760°	
S6/S7	53'	GS	7517	↓	↓	12:10	74°	765°	
S7/S8	52'	CA	7512	↓	↓	13:00	77°	↓	
S8/S9	45'	GS	7517	↓	↓	13:05	77°	↓	
S9/S10	23'	CA	7512	↓	↓	13:10	77°	↓	
S10/S11	21'	GS	7517	↓	↓	13:15	77°	↓	
S1/S5	2'	↓	↓	↓	60	17:00	74°	↓	
S1/S6	19'	↓	↓	↓	↓	17:03	↓	↓	
S1/S7	24'	↓	↓	↓	↓	17:06	↓	↓	
S1/S8	23'	↓	↓	↓	↓	17:09	↓	↓	
S1/S11	38'	↓	↓	↓	↓	17:15	↓	↓	
S9/S11	21'	CA	7512	↓	55	13:20	77°	↓	
S1/S12	159'	GS	7517	↓	60	13:40	79°	↓	
S12/S13	158'	CA	7512	↓	↓	13:45	↓	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

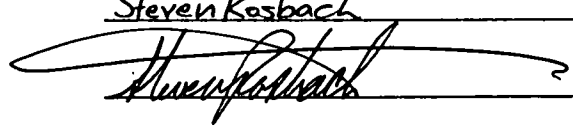
SCS ENGINEERS

GEOMEMBRANE SEAMING LOG

SHEET 2-5 of
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 09950039.27
DATE: 2/8/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S13/S14	158'	GS	7517	F	60	14:10	80°	765°	
S14/S15	158'	CA	7512	F		14:30	↓		
S15/S16	158'	GS	7517	F		14:50	81°		
S16/S17	157'	CA	7512			14:50			
S17/S18	157'	↓	↓			15:10			
S18/S19	157'	GS	7517			15:10	↓		
S19/S20	157'	CA	7512			15:25	82°		
S20/S21	157'	GS	7517			15:30	↓		
S21/S22	157'	CA	7512			15:50	81°		
S22/S23	157'	GS	7517			15:50	↓		
S23/S24	158'	↓	↓			16:10	80°	↓	
S24/S25	158'	CA	7512			16:15	79°	760°	
S25/S26	157'	GS	7517			16:40	76°	765°	
S26/S27	157'	CA	7512			16:40	↓	760°	
S27/S28	156'	↓	↓		↓	16:55	75°		
S8/S11	6'	↓	↓	↓	55	13:25	77°	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: 

SCS ENGINEERS

GEOMEMBRANE SEAMING LOG

SHEET 3-5 of
PROJECT TITLE: Temoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/9/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S28/S29	158'	GS	75-17	F	55	8:20	68°	765°	
S29/S30	↓	↓	↓	↓	↓	8:45	↓	↓	
S30/S31	157'					9:00			
S31/S32	↓					9:25	69°		
S32/S33						9:45	↓		
S33/S34	↓					10:00	70°		
S34/S35	156'					10:20	72°		
S35/S36	41'					13:33	80°		
S36/S37	20'					10:52	74°		
S37/S38	24'					11:10	76°		
S38/S39	20'					10:57	74°		
S36/S39	31'					11:15	76°		
S39/S40	42'					11:22	↓		
S40/S41	43'					11:27			
S41/S42	42'					11:33			
S42/S43	41'					11:42	77°		
S43/S44	16'					12:05	78°		
S44/S46	23'					12:22	↓		
S45/S46	20'					12:15			
S35/S45	42'	↓	↓	↓	↓	13:15	80°	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENG. ERS

GEOMEMBRANE SEAMING LOG

SHEET 4-5 of
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 09950039.27
DATE: 2/9/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
535/539	3'	GS	75-17	F	55	13:30	80°	765°	
535/540	23'	↓	↓	↓	↓	13:27	↓	↓	
535/541	22'	↓	↓	↓	↓	13:24	↓	↓	
535/542	23'	↓	↓	↓	↓	13:21	↓	↓	
535/543	2'	↓	↓	↓	↓	13:20	↓	↓	
543/545	30'	↓	↓	↓	↓	12:25	78°	↓	
543/546	4'	↓	↓	↓	↓	12:24	↓	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE SEAMING LOG

SHEET 1-P of
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 09950039.27
DATE: 2/11/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P1/P2	156'	CA	75-12	F	55	10:05	73°	765°	
P2/P3	↓	GS	75-17	↓	60	9:23	70°	↓	
P3/P4	↓	CA	75-12	↓	55	9:50	72°	↓	
P4/P5	↓	↓	↓	↓	↓	9:20	70°	↓	
P1/P6	40'	GS	75-17	↓	↓	11:29	77°	↓	
P6/P7	20'	↓	↓	↓	↓	10:08	73°	↓	
P7/P8	27'	↓	↓	↓	↓	10:18	75°	↓	
P8/P9	21'	↓	↓	↓	↓	10:04	73°	↓	
P9/P10	44'	↓	↓	↓	↓	10:22	75°	↓	
P10/P12	↓	↓	↓	↓	↓	10:26	↓	↓	
P12/P13	↓	CA	75-12	↓	↓	10:28	↓	↓	
P13/P14	43'	↓	↓	↓	↓	10:25	↓	↓	
P11/P14	18'	GS	75-17	↓	↓	10:48	77°	↓	
P11/P15	17'	↓	↓	↓	↓	10:42	↓	↓	
P1/P15	40'	↓	↓	↓	↓	11:15	↓	↓	
P6/P9	30'	↓	↓	↓	↓	10:15	75°	↓	
P14/P15	33'	↓	↓	↓	↓	11:10	77°	↓	
P5/P16	156'	CA	75-12	↓	↓	10:45	↓	↓	
P16/P17	↓	↓	↓	↓	↓	11:00	↓	↓	
P17/P18	↓	↓	↓	↓	↓	11:20	↓	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENG. ERS

GEOMEMBRANE SEAMING LOG

SHEET 2-P of
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/11/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P18/P19	156'	GS	75-17	F	55	11:45	77°	765°	
P19/P20	↓	↓	↓	↓	↓	11:53	↓	↓	
P20/P21						11:50			
P21/P22		↓	↓			12:10			
P22/P23		CA	75-12			12:55			
P23/P24		GS	75-17			13:05			
P24/P25	↓	CA	75-12			13:20			
P1/P13	24'	GS	75-17			11:19			
P1/P12	23'	↓	↓			11:22			
P1/P10	↓					11:25			
P1/P9	4'					11:28			
P25/P26	156'	↓	↓			13:20			
P26/P27	↓	CA	75-12			13:30			
P27/P28		GS	75-17			13:40			
P28/P29		CA	75-12			13:55			
P29/P30		GS	75-17			13:55	↓		
P30/P31		↓	↓			14:20	78°		
P31/P32		CA	75-12			14:15	↓		
P32/P33		GS	75-17			14:45	77°		
P33/P34	↓	CA	75-12	↓	↓	14:40	↓	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENG.. ..ERS

GEOMEMBRANE SEAMING LOG

SHEET 3-P of
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/11/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P34/P35	156'	CA	75-12	F	55	15:10	76°	765°	
P35/P36	49'	GS	75-17			16:45	74°		
P36/P37	26'					15:08	76°		
P37/P38	23'					15:15	77°		
P36/P38	33'					15:20	↓		
P38/P39	48'	CA	75-12			15:30	76°		
P39/P40	↓	↓	↓			15:35			
P40/P41	↓	GS	75-17			15:40			
P41/P44	36'					15:45			
P44/P45	8'					15:55			
P42/P45	9'					16:10	↓		
P42/P44	19'					16:12	75°		
P43/P44	17'					16:14			
P41/P43	15'					16:16			
P42/P43	22'					16:05	↓		
P35/P43	44'					16:58	74°		
P35/P41	14'					16:56			
P35/P40	23'					16:53			
P35/P39	23'					16:50			
P35/P38	2'	↓	↓	↓	↓	16:49	↓	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

ATTACHMENT 3.7

PANEL REPAIR AND TESTING LOG

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 1-5
PROJECT TITLE: Temoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/9/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
2/9/99	SR1	S3/S4	—	Anchor Trench	~~BO (2"×4")~~ AD	2'×4'	TL	74-15	2/9/99	SK	
↓	SR2	S2/S3/S4/S5	—	Junction	T	3'×6'	↓	↓	↓	↓	
	SR3	S5/S6	—	Anchor Trench	BO	2'×5'					
	SR4	S2/S5/S1	—	Junction	T	2'×3'					
	SR5	S1/S5/S6	—	Junction	~~BO (2")~~ T	2' Ext. Weld					
	SR6	S1/S6/S7	—	Junction	T	2' Ext. Weld					
	SR7	S6/S7	—	37' NOSEOS	BO	2'×3'					
	SR8	S1/S7/S8	—	CAPOVER S1/S7	FS/DS	2'×25'					DS3
	SR9	S1/S8	—	4' EOWEOS	FS	2'×7'					
	SR10	S1/S8/S11	—	Junction	T/WR	2'×10'					
	SR11	S1/S8/S9	—	Junction	T	2'×3'					
	SR12	S1/S10/S11	—	Junction	T	2'×3'					
↓	SR13	S1/S2	—	92' EOWEOS	DS	2'×6'	↓	↓	↓	↓	DS1

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Roshach
SIGNATURE: Steven Roshach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 2-5
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/9/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
2/9/99	SR14	S15/S16	—	136'EOWEOS	DS	2'x6'	TL	74-15	2/9/99	SK	DS2
↓	SR15	S19/S20	—	52'EOWEOS	DS	↓	↓	↓	↓	↓	DS4
	SR16	S21/S22	—	14'EOWEOS	DS						DS5
	SR17	S23/S24	—	100'EOWEOS	DS						DS6
	SR18	S26/S27	—	18'EOWEOS	DS	↓					DS7
	SR19	S12/S13	—	75'EOWEOS	BO	2'x4'					
	SR20	S16/S17	—	81'EOWEOS	IO	2'x4'					
	SR21	S19/S20	—	153'EOWEOS	FD	3'x3'					Conformance Sample
	SR22	—	S20	153'EOWEOP	FD	3'x3'					Conformance Sample
	SR23	S20/S21	—	153'EOWEOS	FD	3'x3'					Conformance Sample
	SR24	S24/S25	—	144'EOWEOS	IO	2'x5'	↓	↓			
	SR25	S28/S29	—	74'EOWEOS	IO	2'x4'	JM	74-12			
↓	SR26	S28/S29	—	88'EOWEOS	BO	2'x5'	↓	↓	↓	↓	

DEFECT CODE

AD = ANIMAL RELATED DAMAGE	DS = DESTRUCTIVE SAMPLE	IO = INSUFFICIENT OVERLAP	SS = START STOP
B = UNDISPERSED RESID BEAD	EE = EARTHWK EQUIP DAMAGE	LB = LEISTER BURN	SSI = SOIL SURFACE IRREGULARITY
BO = BURN OUT	EXT = EXTENSION	MOT = MACHINE OFF TRACK	T = THREE PANEL INTERSECTION
BS = BOOT SKIRT	FB = FUSION WELDER BURN	N = NODULE	VL = VACUUM TEST LEAK
C = COUPON	FD = FACTORY DAMAGE	PTC = PRESSURE TEST CUT	WC = WRINKLE CUT
CO = CHANGE OF OVERLAP	FM = FISH MOUTH	SI = SUBGRADE IRREGULARITY	WR = WRINKLE
CR = CREASE	FS = FAILED SEAM	SL = SLAG ON TEXTURED SHEET	WS = WELDER RESTART
D = INSTALLATION DAMAGE	HT = HEAT TACK BURN	SO = SHARP OBJECT	OTHER

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 3-5
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 09950039.27
DATE: 2/9/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
2/9/99	SR27	S28/S29	—	96'EOWEOS	DS	2'×6'	JM	74-12	2/9/99	SK	DS8
	SR28	S32/S33	—	86'EOWEOS	DS	2'×5'	↓	↓	↓	↓	DS9
	SR29	S35/S40	—	9'EOWEOS	DS	2'×6'	↓	↓	↓	↓	DS10
	SR30	—	S14	3'SONEOP 151'EOWEOP	SO	3'×3'	TL	74-15	↓	↓	
	SR31	S35/S36/S39	—	Junction	T	2'×3'	JM	74-12	↓	↓	
	SR32	S35/S39/S40	—	Junction	T	2'×3'	↓	↓	↓	↓	
	SR33	S35/S40/S41	—	Junction	T	2'Ext. Weld	↓	↓	↓	↓	
	SR34	S35/S41	—	74'EOWEOS	WR	2'×10'	↓	↓	↓	↓	
	SR35	S35/S41/S42	—	Junction	T	2'Ext. Weld	↓	↓	↓	↓	
	SR36	S35/S42/S43	—	Junction	T	2'Ext. Weld	↓	↓	↓	↓	
	SR37	S35/S43/S45	—	Junction	T	2'Ext. Weld	↓	↓	↓	↓	
	SR38	S45/S46	—	Anchor Trench	BO	2'×3'	↓	↓	↓	↓	
↓	SR39	S43/S44/S45/S46	—	Junction	T	3'×5'	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 4-5
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 09950359.27
DATE: 2/9/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
2/9/99	SR40	——	541	41' NOSEOP	SO	3'x4'	JM	74-12	2/9/99	SK	
↓	SR41	536/537/538/539	——	(3) Junction	T	3'x4'	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach
SIGNATURE: Steven Rasbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET: 1-P
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/12/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
2/11/99	PR1	P1/P15	—	5'WOEEOS	PTC	2'×5'	TL	74-12	2/12/99	SK	
	PR2	P1/P13/P14/P15	—	Junction	T	2'×6'					
	PR3	P11/P14/P15	—	Junction	T	2'×5'					
	PR4	P1/P12/P13	—	Junction	T	2'×5'					
	PR5	P1/P10/P12	—	Junction	T	2'Ext. Weld					
	PR6	P1/P9/P10	—	Junction	T	2'Ext. Weld					
	PR7	P1/P6/P9	—	Junction	T	2'×4'					
	PR8	P6/P7/P8/P9	—	Junction	T	2'×5'					
	PR9	P8/P17	—	10'SONEOS	DS	2'×6'	↓	↓			DP1
2/12/99	PR10	—	P12	12'EOWEOP 2'SONEOP	BS	3'×3'	JM	74-15			(Pipe) HDPE liner welded directly to pipe.
	PR11	P12/P13	—	2'SONEOS	BO	2'×3'	↓	↓			
2/11/99	PR12	P1/P2	—	72'EOWEOS	DS	2'×5'	TL	74-12			DP2
↓	PR13	P5/P16	—	25'EOWEOS	DS	3'×6'	↓	↓	↓	↓	DP3

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 2-P
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/12/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
2/11/99	PR14	P19/P20	—	119'EOWEOS	DS	2'×6'	TL	74-12	2/12/99	SK	DP4
↓	PR15	P22/P23	—	50'EOWEOS	DS	2'×5'	↓	↓	↓	↓	DP5
↓	PR16	P25/P26	—	140'EOWEOS	DS	2'×6'	↓	↓	↓	↓	DP6
2/12/99	PR17	P27/P28	—	11'WOEEOS	IO	2'×4'	JM	74-15	↓	↓	
2/11/99	PR18	P29/P30	—	30'EOWEOS	DS	2'×6'	TL	74-12	↓	↓	DP7
↓	PR19	P31/P32	—	50'EOWEOS	DS	3'×6'	↓	↓	↓	↓	DP8
2/12/99	PR20	P34/P35	—	88'EOWEOS	DS	2'×6'	JM	74-15	↓	↓	DP9
↓	PR21	P34/P35	—	97'EOWEOS	PTC	2'×3'	↓	↓	↓	↓	
↓	PR22	P34/P35	—	113'EOWEOS	PTC	2'×4'	↓	↓	↓	↓	
↓	PR23	P42/P43/P44	—	Junction	T	2'×5'	↓	↓	↓	↓	
↓	PR24	P42/P44/P45	—	Junction	T	2'Ext. Weld	↓	↓	↓	↓	
↓	PR25	P41/P43/P44	—	Junction	T	2'Ext. Weld	↓	↓	↓	↓	
↓	PR26	P35/P41/P43	—	Junction	T	2'Ext. Weld	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE:

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 3-P
PROJECT TITLE: Tomoka Farms RDLF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/12/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
2/12/99	PR27	P35/P41	—	52'NDEEOS	WR	2'x10'	JM	74-15	2/12/99	SK	
↓	PR28	P35/P40/P41	—	Junction	T	2' Ext. Weld ~~(2'x4')~~	↓	↓	↓	↓	
	PR29	P35/P39/P40	—	Junction	T	2' Ext Weld ~~(2'x5')~~					
	PR30	P35/P38/P39	—	Junction	T	2' Ext. Weld					
	PR31	P35/P36/P38	—	Junction	T	2'x5'					
	PR32	P35/P36	—	Anchor Trench	BO	2'x4'					
	PR33	P36/P37/P38	—	Junction	T	2'x4'					
	PR34	P39/P40	—	Anchor Trench	BO	2'x5'					
	PR35	—	P40	Anchor Trench	BS	3'x3'					HDPE liner welded directly to pipe
↓	PR36	P40/P41	—	42'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP10

DEFECT CODE

AD = ANIMAL RELATED DAMAGE	DS = DESTRUCTIVE SAMPLE	IO = INSUFFICIENT OVERLAP	SS = START STOP
B = UNDISPERSED RESID BEAD	EE = EARTHWK EQUIP DAMAGE	LB = LEISTER BURN	SSI = SOIL SURFACE IRREGULARITY
BO = BURN OUT	EXT = EXTENSION	MOT = MACHINE OFF TRACK	T = THREE PANEL INTERSECTION
BS = BOOT SKIRT	FB = FUSION WELDER BURN	N = NODULE	VL = VACUUM TEST LEAK
C = COUPON	FD = FACTORY DAMAGE	PTC = PRESSURE TEST CUT	WC = WRINKLE CUT
CO = CHANGE OF OVERLAP	FM = FISH MOUTH	SI = SUBGRADE IRREGULARITY	WR = WRINKLE
CR = CREASE	FS = FAILED SEAM	SL = SLAG ON TEXTURED SHEET	WS = WELDER RESTART
D = INSTALLATION DAMAGE	HT = HEAT TACK BURN	SO = SHARP OBJECT	OTHER

PRINT NAME: ~~Steven Rosbach~~
SIGNATURE: ~~Steven Rosbach~~

ATTACHMENT 3.8

NON-DESTRUCTIVE TEST LOG

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 1-5 of
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/8/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
S2/S3	SK	30	28	2	14:25	14:30	5	P	—	
S3/S4	↓	30	29	1	↓	↓	↓	↓	—	
S4/S5	↓	30	28	2	↓	↓	↓	↓	—	
S2/S5	↓	—	—	—	—	—	—	—	DROP	
S5/S6	↓	30	28	2	13:10	13:15	5	P	—	
S6/S7	↓	30	28	2	14:15	14:20	5	P	—	0-35' SONEOS
S6/S7	↓	30	29	1	13:10	13:15	5	P	—	45' SONEOS - SEOS
S6/S7	↓	—	—	—	—	—	—	—	P	35-45' SONEOS
S7/S8	↓	30	28	2	13:17	13:22	5	P	—	
S8/S9	↓	30	29	1	13:25	13:30	5	P	—	
S9/S10	↓	30	28	2	13:50	13:55	5	P	—	
S10/S11	↓	30	30	—	13:25	13:30	5	P	—	
S9/S11	↓	30	30	—	13:55	14:00	5	P	—	
S1/S12	↓	30	29	1	15:48	15:53	5	P	—	
S12/S13	↓	30	29	1	15:45	15:50	5	P	—	0-75' EOWEOS
S12/S13	↓	30	28	2	15:45	15:50	5	P	—	75' EOWEOS - EEOS

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 2-5 of

PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2

PROJECT NO: 09950327

DATE: 2/8/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S13/S14	SK	30	29	1	15:50	15:55	5	P	—	
S14/S15		30	28	2	15:53	15:58	5	P	—	
S15/S16		30	28	2	16:05	16:10	5	P	—	
S16/S17		30	28	2	16:25	16:30	5	P	—	0'-83' EOWEOS
S16/S17		—	—	—	—	—	—	—	P	83'-86' EOWEOS
S16/S17		30	28	2	16:25	16:30	5	P	—	86' EOWEOS - EEOS
S17/S18		30	28	2	16:07	16:12	5	P	—	
S18/S19		30	28	2	16:10	16:15	5	P	—	
S19/S20		30	28	2	16:53	16:58	5	P	—	
S20/S21		30	30	—	16:54	16:59	5	P	—	
S21/S22		30	28	2	16:55	17:00	5	P	—	
S22/S23		30	29	1	16:57	17:02	5	P	—	
S23/S24		30	29	1	16:59	17:04	5	P	—	
S24/S25		30	29	1	17:10	17:15	5	P	—	0-144' EOWEOS
S24/S25		—	—	—	—	—	—	—	P	144' EOWEOS - EEOS
S25/S26	↓	30	28	2	17:00	17:05	5	P	—	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 3-5 of

PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2

PROJECT NO: 0995039.27

DATE: 2/8/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S26/S27	SK	30	28	2	17:23	17:28	5	P		
S27/S28	↓	30	28	2	17:24	17:29	5	P		
S8/S11	↓	30	29	1	13:55	14:00	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 4-S of

PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2

PROJECT NO: 0995039.27

DATE: 2/8/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S1/S2	SK	30	30	—	7:55	8:00	5	P	—	
S1/S5	↓	↓	↓	—	↓	↓	↓	↓	—	
S1/S6				—					—	
S1/S7				—					—	
S1/S8				—					—	
S1/S11		↓	↓	—	↓	↓	↓	↓	—	
S28/S29		30	29	+	10:45	10:50	5	P	—	
S29/S30		30	30	—	10:48	10:53	5	P	—	
S30/S31		30	28	2	↓	↓	↓	↓	—	
S31/S32		30	29	1	10:50	10:55	5	P	—	
S32/S33		30	29	1	11:02	11:07	5	P	—	
S33/S34		30	29	1	10:51	10:56	5	P	—	
S34/S35		30	30	—	10:52	10:57	5	P	—	
S35/S36		30	30	—	13:55	14:00	5	P	—	
S36/S37		30	29	1	11:25	11:30	5	P	—	
S37/S38	↓	30	28	2	11:30	11:35	5	P	—	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 5 of 5
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/9/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
S38/S39	SK	30	29	1	11:26	11:31	5	P	—	
S36/S39		30	29	1	11:27	11:32	5	P	—	
S39/S40		30	28	2	11:27	11:32	5	P	—	
S40/S41		30	29	1	11:34	11:39	5	P	—	
S41/S42		30	29	1	11:40	11:45	5	P	—	
S42/S43		30	29	1	11:48	11:53	5	P	—	
S43/S44		30	29	1	12:50	12:55	5	P	—	
S44/S46		30	29	1	12:51	12:56	5	P	—	
S45/S46		30	30	—	12:55	13:00	5	P	—	
S35/S45		30	28	2	13:30	13:35	5	P	—	
S35/S39		30	30	—	13:52	13:57	5	P	—	
S35/S40		30	30	—	13:52	13:57	5	P	—	
S35/S41		30	28	2	13:30	13:35	5	P	—	
S35/S42		↓	↓	↓	↓	↓	↓	↓	—	
S35/S43									—	
S43/S45		↓	↓	↓	↓	↓	↓	↓	—	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 68-S of

PROJECT TITLE: Temoka Farms Rd LF - Leachate Pond #2

PROJECT NO: 0995039.27

DATE: 2/9/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S43/S46	SK	—	—	—	—	—	—	—	P	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 1-P of

PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2

PROJECT NO: 0995039.27

DATE: 2/11/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P1/P2	SK	30	30	—	11:15	11:20	5	P	—	
P2/P3		30	28	2	11:25	11:30	5	P	—	
P3/P4		30	28	2	11:19	11:24	5	P	—	
P4/P5		30	29	1	11:21	11:26	5	P	—	
P1/P6		30	30	—	11:50	11:55	5	P	—	
P6/P7		30	30	—	10:25	10:30	5	P	—	
P7/P8		30	30	—	10:25	10:30	5	P	—	
P8/P9		30	28	2	10:25	10:30	5	P	—	
P9/P10		30	30	—	10:39	10:44	5	P	—	
P10/P12		30	28	2	10:40	10:45	5	P	—	
P12/P13		30	29	1	10:43	10:48	5	P	—	
P13/P14		30	28	2	10:44	10:49	5	P	—	
P11/P14		30	30	—	11:03	11:08	5	P	—	
P11/P15		30	29	1	11:03	11:08	5	P	—	
P1/P15		30	28	2	11:45	11:50	5	P	—	
P6/P9	↓	30	29	1	10:25	10:30	5	P	—	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 2-P of
PROJECT TITLE: Tomoka Farms Rd. LF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/11/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	TIME P/F	VAC. BOX P/F	COMMENTS
P14/P15	SK	30	30	—	11:05	11:10	5	P	—	
P5/P16	↓	30	28	2	13:30	13:35	5	P	—	
P16/P17		30	29	1	13:30	13:35	5	P	—	
P17/P18		30	30	—	13:55	14:00	5	P	—	
P18/P19		30	28	2	14:03	14:08	5	P	—	
P19/P20		30	28	2	14:08	14:13	5	P	—	
P20/P21		30	29	1	14:20	14:25	5	P	—	
P21/P22		30	28	2	14:25	14:30	5	P	—	
P22/P23		30	29	1	14:26	14:31	5	P	—	
P23/P24		30	29	1	14:29	14:34	5	P	—	
P24/P25		30	28	2	14:30	14:35	5	P	—	
P1/P13		30	29	1	11:45	11:50	5	P	—	
P1/P12		30	29	1	11:45	11:50	5	P	—	
P1/P10		30	29	1	11:45	11:50	5	P	—	
P1/P9		30	29	1	11:45	11:50	5	P	—	
P25/P26		30	30	—	14:32	14:37	5	P	—	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 3-P of
PROJECT TITLE: Tomoka Farms Rd LF - Leachate Pond #2
PROJECT NO: 0995039.27
DATE: 2/11/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
P26/P27	SK	30	28	2	14:55	15:00	5	P	—	
P27/P28		30	28	2	15:00	15:05	5	P	—	0-147' EOWEOS
P27/P28		30	29	1	15:00	15:05	5	P	—	147' EOWEOS - EEOS
P28/P29		30	29	1	15:00	15:05	5	P	—	
P29/P30		30	29	1	15:03	15:08	5	P	—	
P30/P31		30	28	2	15:05	15:10	5	P	—	
P31/P32		30	29	1	15:17	15:22	5	P	—	
P32/P33		30	28	2	15:20	15:25	5	P	—	
P33/P34		30	30	—	15:27	15:32	5	P	—	
P34/P35		30	30	—	16:55	17:00	5	P	—	0'-96' EOWEOS
P34/P35		30	29	1	17:00	17:05	5	P	—	96' EOWEOS - EEOS
P35/P36		30	29	1	17:12	17:17	5	P	—	
P36/P37		30	28	2	16:24	16:29	5	P	—	
P37/P38		30	29	1	16:18	16:23	5	P	—	
P36/P38		30	29	1	16:17	16:22	5	P	—	
P38/P39	↓	30	28	2	16:18	16:23	5	P	—	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 4-P of

PROJECT TITLE: Tonoka Farms Rd LF - Leachate Pond #2

PROJECT NO: 0995039.27

DATE: 2/11/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P39/P40	SK	30	29	1	16:19	16:24	5	P	—	
P40/P41		30	28	2	16:20	16:25	5	P	—	
P41/P44		30	28	2	16:20	16:25	5	P	—	
P44/P45		30	30	—	16:20	16:25	5	P	—	
P42/P45		30	30	—	16:25	16:30	5	P	—	
P42/P44		30	30	—	16:25	16:30	5	P	—	
P43/P44		30	30	—	16:25	16:30	5	P	—	
P41/P43		30	30	—	16:25	16:30	5	P	—	
P42/P43		30	29	1	16:47	16:52	5	P	—	
P35/P43		30	29	1	17:12	17:17	5	P	—	
P35/P41		30	29	1	17:12	17:17	5	P	—	0'-5' EOWEOS
P35/P41		30	30	—	17:12	17:17	5	P	—	5' EOWEOS - EEOS
P35/P40		30	30	—	17:12	17:17	5	P	—	
P35/P39		30	30	—	17:12	17:17	5	P	—	
P35/P38		30	30	—	17:12	17:17	5	P	—	

PRINT NAME: Steven Roskach

SIGNATURE: Steven Roskach

ATTACHMENT 3.9

DESTRUCTIVE TEST LOG AND RESULTS

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

RECEIVED

SCS ENGINEERS
TAMPA

February 10, 1999

Mr. Karl Schmidt
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757
fax: 904-947-2955 (Attn: Steven Rosbach)

Dear Mr. Schmidt:

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

TRI Job Reference Number:	E2112-69-10
Date Received:	02-10-99
Material(s) Tested:	10 HDPE heat fusion weld seams DS-1 thru DS-10
Test(s) Requested:	Peel and Shear (ASTM D 4437)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, POND 2
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 10-Feb-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-69-10
DATE TESTED: 10-Feb-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 10-Feb-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-1	1A	142	< 10	SE	FTB	NA	150	> 50	FTB	NA
	2A	143	< 10	SE	FTB					
	3A	147	< 10	SE	FTB		148	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		147	> 50	FTB	
	MEAN:	**143**								
	1B	125	< 10	SE	FTB		147	> 50	FTB	
	2B	127	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		149	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	**132**				**MEAN:**	**148**			
DS-2	1A	128	< 10	SE	FTB	NA	149	> 50	FTB	NA
	2A	128	< 10	SE	FTB					
	3A	125	< 10	SE	FTB		146	> 50	FTB	
	4A	128	< 10	SE	FTB					
	5A	127	< 10	SE	FTB		146	> 50	FTB	
	MEAN:	**127**								
	1B	137	< 10	SE	FTB		149	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		149	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**148**			

NA Not Available

The testing reported herein is based upon industry practice as well as the test method listed
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, POND 2
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 10-Feb-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-69-10
DATE TESTED: 10-Feb-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 10-Feb-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-3	1A	142	< 10	SE	FTB	NA	150	> 50	FTB	NA
	2A	133	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		147	> 50	FTB	
	4A	129	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		148	> 50	FTB	
	MEAN:	**135**								
	1B	145	< 10	SE	FTB		153	> 50	FTB	
	2B	142	< 10	SE	FTB					
	3B	142	< 10	SE	FTB		152	> 50	FTB	
	4B	142	< 10	SE	FTB					
	5B	142	< 10	SE	FTB					
	MEAN	**143**				**MEAN:**	**150**			
DS-4	1A	138	< 10	SE	FTB	NA	148	> 50	FTB	NA
	2A	142	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		144	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	140	< 10	SE	FTB		145	> 50	FTB	
	MEAN:	**140**								
	1B	136	< 10	SE	FTB		147	> 50	FTB	
	2B	124	< 10	SE	FTB					
	3B	130	< 10	SE	FTB		147	> 50	FTB	
	4B	126	< 10	SE	FTB					
	5B	127	< 10	SE	FTB					
	MEAN	**129**				**MEAN:**	**146**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, POND 2
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 10-Feb-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-69-10
DATE TESTED: 10-Feb-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 10-Feb-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-5	1A	138	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		145	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	137	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	**136**								
	1B	134	< 10	SE	FTB		150	> 50	FTB	
	2B	129	< 10	SE	FTB					
	3B	127	< 10	SE	FTB		146	> 50	FTB	
	4B	132	< 10	SE	FTB					
	5B	128	< 10	SE	FTB					
	MEAN	**130**				**MEAN:**	**146**			
DS-6	1A	138	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		145	> 50	FTB	
	4A	137	< 10	SE	FTB					
	5A	136	< 10	SE	FTB		145	> 50	FTB	
	MEAN:	**137**								
	1B	136	< 10	SE	FTB		149	> 50	FTB	
	2B	131	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		148	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	144	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**147**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, POND 2
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 10-Feb-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-69-10
DATE TESTED: 10-Feb-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 10-Feb-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-7	1A	132	< 10	SE	FTB	NA	148	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	128	< 10	SE	FTB		145	> 50	FTB	
	4A	137	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**134**								
	1B	135	< 10	SE	FTB		144	> 50	FTB	
	2B	142	< 10	SE	FTB					
	3B	140	< 10	SE	FTB		146	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	144	< 10	SE	FTB					
	MEAN	**140**				**MEAN:**	**145**			
DS-8	1A	139	< 10	SE	FTB	NA	149	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	131	< 10	SE	FTB		146	> 50	FTB	
	4A	138	< 10	SE	FTB					
	5A	142	< 10	SE	FTB		147	> 50	FTB	
	MEAN:	**138**								
	1B	131	< 10	SE	FTB		151	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	130	< 10	SE	FTB		150	> 50	FTB	
	4B	140	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**135**				**MEAN:**	**149**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD
LANDFILL, POND 2
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 10-Feb-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-69-10
DATE TESTED: 10-Feb-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 10-Feb-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-9	1A	138	< 10	SE	FTB	NA	149	> 50	FTB	NA
	2A	128	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		145	> 50	FTB	
	4A	127	< 10	SE	FTB					
	5A	137	< 10	SE	FTB		146	> 50	FTB	
	MEAN:	**134**								
	1B	134	< 10	SE	FTB		150	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	132	< 10	SE	FTB		146	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	134	< 10	SE	FTB					
	MEAN	**135**				**MEAN:**	**147**			
DS-10	1A	132	< 10	SE	FTB	NA	149	> 50	FTB	NA
	2A	129	< 10	SE	FTB					
	3A	131	< 10	SE	FTB		147	> 50	FTB	
	4A	123	< 10	SE	FTB					
	5A	124	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	**128**								
	1B	126	< 10	SE	FTB		146	> 50	FTB	
	2B	125	< 10	SE	FTB					
	3B	129	< 10	SE	FTB		145	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	133	< 10	SE	FTB					
	MEAN	**129**				**MEAN:**	**146**			

NA Not Available

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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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TRI GEOSYNTHETICS TESTING SERVICES
QUALITY ASSURANCE SEAM TEST REPORT LEGEND

Seam Failure Modes (as per NSF 54, Appendix A)

FTB:	Film Tearing Bond
BLF:	Brittle Liner Failure
NON FTB:	Non Film Tearing Bond

Locus/Break Codes: Dielectric/Solvent Welds

CL:	Break in sheeting at clamp edge.
BRK:	Break in sheeting.
SE:	Break at seam edge.
AD-BRK:	Break in sheeting after some adhesion failure between sheets.
AD:	Failure in adhesion between sheets.

Locus/Break Codes: Fillet Weld Seams

AD1:	Failure in adhesion. Specimens delaminate under bead and break through the extruded material in outer region.
AD2:	Failure in adhesion.
AD-WL:	Break through fillet weld.
SE:	Break at seam edge.
AD-BRK:	Break in bottom sheeting after some adhesion failure between the fillet and the bottom sheet (applicable to peel only).
HT:	Break at the edge of the hot tack for specimens which could not be delaminated in the hot tack.

Locus/Break Codes: Fabric Reinforced Liner

AD:	Adhesion failure resulting in delamination in the plane of the bond.
DEL:	Delamination in the plane of the scrim (peel only).
AD-DEL:	Delamination in the plane of the scrim after some delamination in the plane of the bond (peel only).
BRK:	Break in sheet through both the fabric and the piles of the polymer.
FP:	Fabric pullout. Pullout of threads parallel to the direction of test followed by break in polymeric sheeting.

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TRI/ENVIRONMENTAL, INC.
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GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil smooth HDPE geomembrane
Roll #: AK 8690
TRI Log #: E2112-13-01

SRA 4·23·18
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.53	2.55									2.54	0.01	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	1	1	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (ASTM D 1505)													
(g/cm3)	0.940	0.941	0.941								0.941	0.000	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	141	141	142	142	142						142	0	N/A
TD Yield Strength (ppi)	139	141	139	139	138						139	1	N/A
MD Break Strength (ppi)	371	313	359	346	361						350	20	N/A
TD Break Strength (ppi)	334	360	340	330	314						336	15	N/A
MD Yield Elongation (%)	20	20	20	20	20						20	0	N/A
TD Yield Elongation (%)	20	20	20	20	20						20	0	N/A
MD Break Elongation (%)	1035	856	1005	965	1033						979	66	N/A
TD Break Elongation (%)	971	1044	984	938	898						967	49	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	63	63	63	63	63	63	63	63	63	63	63	0	N/A
											63	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

9063 Bee Caves Road • Austin, TX 78733-6201 • (512) 263-2101 • FAX (512) 263-2558

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil smooth HDPE geomembrane
Roll #: AK 8680
TRI Log #: E2112-13-01

SRA 11·23·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.49	2.49									2.49	0.00	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	1	1	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (ASTM D 1505)													
(g/cm3)	0.939	0.939	0.940								0.939	0.000	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	159	157	155	156	156						157	1	N/A
TD Yield Strength (ppi)	140	142	140	142	142						141	1	N/A
MD Break Strength (ppi)	349	354	354	355	345						351	4	N/A
TD Break Strength (ppi)	357	337	330	350	339						343	10	N/A
MD Yield Elongation (%)	24	24	24	24	24						24	0	N/A
TD Yield Elongation (%)	23	23	23	23	23						23	0	N/A
MD Break Elongation (%)	938	976	976	975	945						962	17	N/A
TD Break Elongation (%)	995	946	928	1006	969						969	29	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	60	60	60	60	61	61	60	60	60	60	60	0	N/A
											60	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available

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neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil smooth HDPE geomembrane
Roll #: AK 8698
TRI Log #: E2112-13-01

SRA 11·23·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.56	2.57									2.57	0.00	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	1	1	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (ASTM D 1505)													
(g/cm3)	0.940	0.940	0.940								0.940	0.000	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	145	145	143	149	144						145	2	N/A
TD Yield Strength (ppi)	139	139	141	137	144						140	2	N/A
MD Break Strength (ppi)	349	291	354	332	333						332	22	N/A
TD Break Strength (ppi)	353	358	352	342	341						349	7	N/A
MD Yield Elongation (%)	21	21	21	21	21						21	0	N/A
TD Yield Elongation (%)	20	20	20	20	20						20	0	N/A
MD Break Elongation (%)	975	794	991	910	916						917	69	N/A
TD Break Elongation (%)	1031	1049	1028	1010	973						1018	26	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	62	60	58	59	59	59	61	62	59	59	60	1	N/A
											58	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available

The testing herein is based upon accepted industry practice as well as the test method listed.
' neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

RECEIVED

SCS ENGINEERS
TAMPA

February 15, 1999

Mr. Karl Schmidt
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757
fax: 904-947-2955 (Attn: Steven Rosbach)

Dear Mr. Schmidt:

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

TRI Job Reference Number:	E2112-72-02
Date Received:	02-15-99
Material(s) Tested:	10 HDPE heat fusion weld seams DP-1 thru DP-10
Test(s) Requested:	Peel and Shear (ASTM D 4437)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

9063 Bee Caves Road • Austin, TX 78733-6201 • (512) 263-2101 • FAX (512) 263-2558

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, POND 2
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 15-Feb-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-72-02
DATE TESTED: 15-Feb-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 15-Feb-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-1	1A	132	< 10	SE	FTB	NA	148	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		144	> 50	FTB	
	4A	131	< 10	SE	FTB					
	5A	132	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	**133**								
	1B	134	< 10	SE	FTB		143	> 50	FTB	
	2B	137	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		142	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**144**			
DP-2	1A	134	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	134	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		141	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	136	< 10	SE	FTB		139	> 50	FTB	
	MEAN:	**135**								
	1B	143	< 10	SE	FTB		140	> 50	FTB	
	2B	135	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		139	> 50	FTB	
	4B	133	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**141**			

NA Not Available

The testing reported herein is based upon industry practice as well as the test method listed
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, POND 2
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 15-Feb-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-72-02
DATE TESTED: 15-Feb-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 15-Feb-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-3	1A	141	< 10	SE	FTB	NA	149	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		143	> 50	FTB	
	4A	138	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**138**								
	1B	134	< 10	SE	FTB		143	> 50	FTB	
	2B	140	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		143	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**144**			
DP-4	1A	130	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	129	< 10	SE	FTB					
	3A	129	< 10	SE	FTB		142	> 50	FTB	
	4A	129	< 10	SE	FTB					
	5A	129	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	**129**								
	1B	142	< 10	SE	FTB		143	> 50	FTB	
	2B	143	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		142	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	**140**				**MEAN:**	**143**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, POND 2
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 15-Feb-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-72-02
DATE TESTED: 15-Feb-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 15-Feb-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-5	1A	133	< 10	SE	FTB	NA	148	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		143	> 50	FTB	
	4A	138	< 10	SE	FTB					
	5A	126	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**135**								
	1B	132	< 10	SE	FTB		143	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	130	< 10	SE	FTB		144	> 50	FTB	
	4B	131	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	**132**				**MEAN:**	**144**			
DP-6	1A	121	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	136	< 10	SE	FTB					
	3A	133	< 10	SE	FTB		140	> 50	FTB	
	4A	128	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		138	> 50	FTB	
	MEAN:	**131**								
	1B	139	< 10	SE	FTB		141	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		141	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**141**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, POND 2
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 15-Feb-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-72-02
DATE TESTED: 15-Feb-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SEA
REPORT DATE: 15-Feb-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-7	1A	137	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	132	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		142	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	136	< 10	SE	FTB		148	> 50	FTB	
	MEAN:	**135**								
	1B	143	< 10	SE	FTB		141	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		141	> 50	FTB	
	4B	141	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**140**				**MEAN:**	**143**			
DP-8	1A	128	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	130	< 10	SE	FTB		140	> 50	FTB	
	4A	132	< 10	SE	FTB					
	5A	140	< 10	SE	FTB		139	> 50	FTB	
	MEAN:	**133**								
	1B	137	< 10	SE	FTB		140	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	125	< 10	SE	FTB		140	> 50	FTB	
	4B	124	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**131**				**MEAN:**	**141**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, POND 2
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 15-Feb-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-72-02
DATE TESTED: 15-Feb-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW:
REPORT DATE: 15-Feb-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-9	1A	134	< 10	SE	FTB	NA	142	> 50	FTB	NA
	2A	134	< 10	SE	FTB					
	3A	128	< 10	SE	FTB		139	> 50	FTB	
	4A	137	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	**133**								
	1B	144	< 10	SE	FTB		138	> 50	FTB	
	2B	135	< 10	SE	FTB					
	3B	129	< 10	SE	FTB		138	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	130	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**139**			
DP-10	1A	132	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	132	< 10	SE	FTB					
	3A	132	< 10	SE	FTB		143	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	**133**								
	1B	132	< 10	SE	FTB		146	> 50	FTB	
	2B	140	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		145	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**144**			

NA Not Available

The testing reported herein is based upon industry practice as well as the test method listed
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

9063 Bee Caves Road • Austin, Texas 78733-6201 • (512)263-2101 • FAX (512)263-2558

ATTACHMENT 3.10

ROLL TEST DATA REPORTS

COPY

COMANCO

ENVIRONMENTAL CORPORATION

December 8, 1998

Mr. Bill Gilley
Director
SOLID WASTE SERVICES GROUP
County of Volusia, Florida
3151 E. New York Avenue
De Land, FL 32724

RE: **TOMOKA FARMS ROAD LANDFILL**
GEO-SYNTHETIC INSTALLATION
BI-PLANNER FABRA-NET
60 MIL TEXTURED
ALTERNATE PHASE III & IV
GSE MATERIAL QC/QA CERTIFICATES
CEC JOB #98-528

Dear Mr. Gilley:

Please find attached, QA/QC Certificates from GSE Lining Technologies, Inc. for the above referenced project.

Any questions, please telephone.

Sincerely,

COMANCO ENVIRONMENTAL CORPORATION

Mark A. Topp
President

Attachments

MAT/dkw
(A:64/98-528 /Gilley-QA/QC Certificates)

CC: Lee Powell

Shipping Order - Packing List - Original - Not Negotiable

SHIPPERS NO. H 07350

GSE® GSE Lining Technology, Inc. at HOUSTON, TEXAS From GSE LINING TECHNOLOGY, INC.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

...ton, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which said ...rier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all ... over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is GSE ... as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties. ...oted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, If this is a rail-water shipment, or (2) in the applicable ...rrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...amage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...ct to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...y agreed and accepted for himself and his assigns.

...rnal Ref. COMANCO ENVIRONMENTAL
MARK TIPP

...signed to C/O VOLUSIA COUNTY SOLID WASTE
...tination DAYTONA BEACH

Date Shipped NOVEMBER 25, 1990

Customer P.O. # VERBAL

State FL 32114

...ments from M.R.
PO 01910008 CONTACT: MARK TIPP @ 813/960-8829

...lo. ...kages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK8676	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,406
2	AK8679	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,403
3	AK8681	475	060 HYPERFLEX,060MIL,AVG,BLK,24	3,400
4	AK8682	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,406
5	AK8683	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,401
6	AK8684	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,407
	AK8685	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,405
	AK8692	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,403
9	AK8693	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,406
10	AK8694	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,404
11	AK8695	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,400
12	AK8697	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,400
13	AK8699	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,397

Internal Ref.

Material Req. # 7399-05

Job # D90226

Shippers # 007350

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification

SIGNED

X

Truck/Container # 2157

Seal #

Square Ft.	165,471	Total Weight	44,238

VUL020001

...r Ref.

CARRIER NAME: Rusty Smith
CARRIER SIGNATURE: Kathy Sargent
DATE: 11-25-90

Truckers P.O. # 86127170

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

...Here For Shipper
...er: Joel Gunter
...ss: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____
(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)
LAB.

GSE

Roll Test Data Report

ROLL NO. AK-8678

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8678	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3406	pounds
	1545	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	150	lb/in	27	kg/cm
MD -		130		24		144		26	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
EAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	347	lb/in	62	kg/cm
MD -		243		44		339		60	
EAK ELONGATION	D638								
CD -		560	%			788	%		
MD -		560				793			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		55		25	
VCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	101	lb	46	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.4	%		
MD -		+/-2.00				0.4			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.28	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
:R	D1693-B	1500	hours			Start 11/06/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-5-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS

DATE SHIPPED

20061115

GSE

Roll Test Data Report

ROLL NO. AK-8681

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8681	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3400	pounds
	1542	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	151	lb/in	27	kg/cm
MD -		130		24		142		25	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	336	lb/in	60	kg/cm
MD -		243		44		339		61	
EAK ELONGATION	D638								
CD -		560	%			761	%		
MD -		560				854			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		55		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	103	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.5			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.34	%		
)MEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
:R	D1693-B	1500	hours			Start 11/06/98			
'CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		57		1.45	
AVG. THICKNESS						61		1.54	

NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-5-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS 20082115

DATE SHIPPED

GSI GSE

Roll Test Data Report

ROLL NO. AK-8683

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8683	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3401	pounds
	1543	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	149 lb/in	27 kg/cm
MD -		130	24	142	25
YIELD ELONGATION	D638				
CD -		13 %		22 %	
MD -		13		21	
BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	326 lb/in	58 kg/cm
MD -		243	44	340	61
BREAK ELONGATION	D638				
CD -		560 %		748 %	
MD -		560		868	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	54 lb	24 kg
MD -		45	20	54	25
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	103 lb	47 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.6	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.35 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.942 g/cc
OCR	D1693-B	1500 hours		Start 11/06/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				61	1.54

NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-5-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
ORDER NO. 7399
COMMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8693

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8693	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3406	pounds
	1545	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	140	lb/in	25	kg/cm
MD -		130		24		136		24	
'ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
'REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	331	lb/in	59	kg/cm
MD -		243		44		334		60	
EAK ELONGATION	D638								
CD -		560	%			762	%		
MD -		560				789			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		54		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	103	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.34	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ER	D1693-B	1500	hours			Start 11/06/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.46	
AVG. THICKNESS						60		1.53	

NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-5-98 QA

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8695

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8695	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3400	pounds
	1542	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	140 lb/in	25 kg/cm
MD -		130	24	135	24
ELD ELONGATION	D638				
CD -		13 %		21 %	
MD -		13		21	
REAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	338 lb/in	60 kg/cm
MD -		243	44	333	59
EAK ELONGATION	D638				
CD -		560 %		785 %	
MD -		560		779	
TIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	53 lb	24 kg
MD -		45	20	54	25
ICTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	102 lb	46 kg
INKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.3 %	
MD -		+/-2.00		0.3	
BON BLACK DISPERSION	D3015	A2		A2	
BON BLACK CONTENT	D1603	2.00 %		2.41 %	
MEMBRANE DENSITY	D1505		0.940 g/cc		0.943 g/cc
R	D1693-B	1500 hours		Start 11/06/98	
CKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.47
AVG. THICKNESS				61	1.54

NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
-ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-5-98 QA

OMER: VOLUSIA COUNTY WASTE
IO. 7399
MENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8699

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8699	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3397	pounds
	1541	kilograms

RESIN LOT INFORMATION

LOT NUMBER	Z-61680
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	138	lb/in	25	kg/cm
MD -		130		24		138		25	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	328	lb/in	59	kg/cm
MD -		243		44		329		59	
REAK ELONGATION	D638								
CD -		560	%			750	%		
MD -		560				749			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	24	kg
MD -		45		20		54		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.35	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 11/06/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-5-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

SHIPPERS NO. H 07342

GSE® GSE Lining Technology, Inc. at HOUSTON, TEXAS

From GSE LINING TECHNOLOGY, INC.

...ved at Houston, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which said ...r the ... "Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all ...rty, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is GSE ... as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties. ...ted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier ... subje... the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable ...rrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...amage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...ect to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...by agreed and accepted for himself and his assigns.

...ernal Ref. COMANCO ENVIRONMENTAL
MARK TOPP

...signed to C/O VOLUSIA COUNTY SOLID WASTE
...stination DAYTONA BEACH

Date Shipped NOVEMBER 25, 1998

Customer P.O. # VERBAL

State FL 32114

...nments from M.R.
FL 01910000 CONTACT: MARK TOPP @ 813/988-8829

No. ...kages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK8680	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,405
2	AK8686	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,405
3	AK8687	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,401
4	AK8688	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,405
5	AK8689	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,400
6	AK8690	475	060 HYPERFLEX,060MIL,AVG,BLK,24	3,403
7	AK8691	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,400
	AK8696	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,404
	AK8698	475	060 HYPERFLEX,060MIL,AVG,BLK,24'	3,402
10	AK8807FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,536
11	AK8833FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,563
12	AK8834FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,548

Internal Ref.

Material Req. # 7399-05

Job # DS5226

Shippers # 007342

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification

SIGNED

X

Truck/Container # 2160

Seal #

Square Ft.	135,204	Total Weight	41,272

VOL020001

...er Ref.

CARRIER NAME: TRAVIS bridge

CARRIER SIGNATURE:

DATE: [signature] 11/25/98 11/25/98

Truckers P.O. # 86117750

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

...Here For Shipper

...er: [signature]

...ss: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____

(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)
LAB.

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61678	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053222		
Quantity Shipped	195,200 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042690		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSE

Roll Test Data Report

ROLL NO. AK-8686

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8686	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3405	pounds
	1544	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
NSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	146 lb/in	26 kg/cm
MD -		130	24	143	25
ELD ELONGATION	D638				
CD -		13 %		23 %	
MD -		13		20	
NSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	303 lb/in	54 kg/cm
MD -		243	44	339	61
EAK ELONGATION	D638				
CD -		560 %		697 %	
MD -		560		847	
TIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	52 lb	24 kg
MD -		45	20	54	25
VCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	104 lb	47 kg
UNKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.4	
BON BLACK DISPERSION	D3015	A2		A2	
BON BLACK CONTENT	D1603	2.00 %		2.34 %	
MEMBRANE DENSITY	D1505		0.940 g/cc		0.942 g/cc
R	D1693-B	1500 hours		Start 11/06/98	
CKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-5-98 QA

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8688

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8688	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3405	pounds
	1544	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	147	lb/in	26	kg/cm
MD -		130		24		143		26	
ELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				20			
NSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	316	lb/in	56	kg/cm
MD -		243		44		339		61	
EAK ELONGATION	D638								
CD -		560	%			735	%		
MD -		560				827			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	23	kg
MD -		45		20		55		25	
ICTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
INKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.5			
BON BLACK DISPERSION	D3015	A2				A2			
BON BLACK CONTENT	D1603	2.00	%			2.29	%		
MEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
R	D1693-B	1500	hours			Start 11/06/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.46	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-5-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
PO NO. 7399
COMMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8690

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8690	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3403	pounds
	1544	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	145	lb/in	26	kg/cm
MD -		130		24		141		25	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
NSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	327	lb/in	58	kg/cm
MD -		243		44		337		60	
EAK ELONGATION	D638								
CD -		560	%			760	%		
MD -		560				814			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	24	kg
MD -		45		20		55		25	
VCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.4			
BON BLACK DISPERSION	D3015	A2				A2			
BON BLACK CONTENT	D1603	2.00	%			2.24	%		
MEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
R	D1693-B	1500	hours			Start 11/06/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		57		1.46	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-5-98 QA

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8696

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8696	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3404	pounds
	1544	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	140 lb/in	25 kg/cm
MD -		130	24	136	24
ELD ELONGATION	D638				
CD -		13 %		22 %	
MD -		13		21	
ENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	342 lb/in	61 kg/cm
MD -		243	44	336	60
EAK ELONGATION	D638				
CD -		560 %		797 %	
MD -		560		784	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	52 lb	24 kg
MD -		45	20	54	24
NCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	101 lb	46 kg
RINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.3 %	
MD -		+/-2.00		0.3	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.40 %	
MEMBRANE DENSITY	D1505		0.940 g/cc		0.943 g/cc
R	D1693-B	1500 hours		Start 11/06/98	
CKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.47
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
-ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-5-98 QA

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS

DATE SHIPPED

ATTACHMENT 3.11

MANUFACTURER'S WARRANTY

PRO-RATA LIMITED WARRANTY
FOR GSE LINING TECHNOLOGY, INC.
(GEOSYNTHETIC MANUFACTURED MATERIALS)
(U.S.A.)

Date:	September 9, 1998	Warranty No.:	DS5226
Purchaser Name:	Volusia County, Florida	Project No.:	DS5226 MR#7399
Address:	3151 E. New York Avenue	Effective Date:	July 20, 1998
City, State:	De land, Florida 32724	Project Name:	Volusia County Landfill Alternate Phase II
Product Type/Description:	GSE HD Textured 60 mil	Project Address:	Daytona Beach, Florida

GSE Lining Technology, Inc. ("GSE") warrants each GSE product described above to be free from material manufacturing defects (as described by the contract's material specifications) and to be able to withstand normal weathering for a period of twenty (20) years from the above effective date for "normal use" in approved applications. This limited warranty does not include damages or defects in the GSE product resulting from acts of God, casualty or catastrophe, including but not limited to: earthquakes, floods, piercing hail, tornadoes or force majeure. The term "normal use" does not include, among other things, the exposure of GSE's product to harmful chemicals, abuse by machinery, equipment or people; improper site preparation or placement of cover materials; excessive pressures or stresses from any source. This warranty is intended for commercial use only and is not in effect for the consumer as defined in the Magnuson-Moss Warranty Act.

Should defects or premature loss of use within the scope of this warranty occur, GSE will, at its option, repair or replace the GSE product on a pro-rata basis at the current price in such manner as to charge the Purchaser only for that portion of the warranted life which has elapsed since the purchase of the product. GSE shall have the right to inspect and determine the cause of the alleged defect in the product and to take appropriate steps to repair or replace the product if a defect exists that is covered under this warranty. This limited warranty only extends to the geosynthetic portion of this product manufactured by GSE and does not apply to any third-party manufactured materials attached to GSE's product. The third-party portion of the product will carry the original manufacturer's warranty that will be passed through to the Purchaser.

Any claim for any alleged breach of this warranty must be made in writing, by certified mail or courier, to the President of GSE, within ten (10) days of Purchaser becoming aware of the alleged defect. Should the required notice not be given, the defect and all warranties are waived by the Purchaser, and Purchaser shall not have rights under this warranty. GSE shall not be obligated to perform any inspection or obligated to perform any repair or replacement under this warranty until the area is made available free from all obstructions, water, dirt, sludge, residuals and liquids of any kind. If after inspection it is determined that there is no claim under this warranty, Purchaser shall reimburse GSE for its costs associated with the site inspection.

In the event the exclusive remedy provided herein fails in its essential purpose, and in that event only, the Purchaser shall be entitled to a return of the purchase price for so much of the product as GSE determines to have violated the warranty provided herein. GSE shall not be liable for direct, indirect, special, consequential or incidental damages resulting from a breach of this warranty including, but not limited to: damages for loss of production, lost profits, personal injury or property damage. GSE shall not be obligated to reimburse Purchaser for any repairs, replacement, modifications or alterations made by Purchaser to GSE's product, unless GSE specifically authorized, in writing, said repairs, replacements, modifications or alterations in advance. GSE liability under this warranty shall in no event exceed the replacement cost of the product sold to the Purchaser for the particular installation in which it failed.

GSE neither assumes nor authorizes any person other than an officer of GSE to assume for it any other or additional liability in connection with the GSE product made on the basis of the Limited Warranty. **GSE MAKES NO WARRANTY OF ANY KIND OTHER THAN THAT GIVEN HEREIN AND HEREBY DISCLAIMS ALL WARRANTIES, INCLUDING BOTH EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, AND BY ACCEPTING DELIVERY OF THE PRODUCT, PURCHASER WAIVES ALL OTHER POSSIBLE WARRANTIES. GSE's WARRANTY BECOMES AN OBLIGATION OF GSE TO PERFORM UNDER THE WARRANTY ONLY UPON RECEIPT OF FINAL PAYMENT**

This warranty is extended to the Purchaser and is non-transferable and non-assignable, i.e. there are no third-party beneficiaries to this warranty.

GSE LINING TECHNOLOGY, INC.

BY: Carolyn Gregor
Authorized Representative

ATTACHMENT 3.12

INSTALLER'S WARRANTY

COMANCO

ENVIRONMENTAL CORPORATION

LIMITED WARRANTY

PROJECT:	TOMOKA FARMS ROAD LANDFILL PHASE IV AND LEACHATE POND NO. 2
OWNER:	VOLUSIA COUNTY BOARD OF COUNTY COMMISSIONERS
CONTRACT AMOUNT:	$588,164.30

COMANCO ENVIRONMENTAL CORPORATION ("COMANCO"), subject to the terms and conditions set forth below, warrants the above referenced installation shall be installed free from defects in workmanship for a period of one (1) year from the date the installation is completed. This Limited Warranty extends only to the proper installation of the lining system and does not include damages or defects in the installation caused by entities other than COMANCO or resulting from Acts of God or casualty or catastrophe, including but not limited to, earthquakes, fire, floods, hail, tornados, hurricanes, tropical storms, gale force winds, other events of force majeure or vandalism. Further, this Limited Warranty does not include damages or defects in the installation resulting from exposure to harmful chemicals, abuse by machinery, equipment or people, excessive pressures or stresses from any source, subsurface or overburdened soil conditions, total or differential soil settlements, or any other cause not within COMANCO's control.

The extent of COMANCO's liability for breach of this Limited Warranty shall be limited to repairing or replacing the defective installation workmanship that will result in providing the Owner with the pro-rated performance remaining under the original period of this Limited Warranty. COMANCO shall have the right to inspect and determine the cause of any alleged defect in the installation and to take the appropriate steps to repair or replace the installation workmanship if a defect exists and is within the terms of this Limited Warranty.

This Limited Warranty will not be effective unless COMANCO receives written notice, by certified mail, to the President of COMANCO within thirty (30) days after the alleged defect is first discovered or should have been discovered by the Owner. Should the required notice not be given, the defect and all warranties shall be deemed to have been waived by Owner and Owner shall have no right of recovery against COMANCO. In the event repairs or replacement are to be effected, said repairs and/or replacements shall not become due until the area subject to repair or replacement is made available to COMANCO in a clean, dry, unencumbered condition. This includes, but is not limited to, the repair or replacement area being free from all water, dirt, sludge, waste, residuals, liquids, or overlying material of any kind. In no event will COMANCO be liable for any costs expended by any person or entity other than COMANCO on any defective work with respect to the installation. Any repairs, replacements or alterations which affect COMANCO's original installation work will void this Limited Warranty.

7911 PROFESSIONAL PLACE • TAMPA, FLORIDA 33637 • (813) 988-8829 • FAX (813) 988-8779

Notwithstandinganything herein to the contrary, COMANCO's liability under this Limited Warranty shall in no event exceed the Contract Amount above stated. Further, under no circumstances, shall COMANCO be liable for any special, direct, indirect or consequential damages arising from loss of production or product, or any other losses, including losses due to personal injuries and product liability owing to the failure of the material or installation. Owner shall be deemed to have waived its rights under this Limited Warranty with respect to any repairs, replacements or alterations made by Owner without the express written consent of COMANCO. COMANCO neither assumes nor authorizes any person other than an officer of COMANCO to assume for it any other or additional liability in connection with the installation. This Limited Warranty is extended to Owner only is non-transferable and non-assignable. No rights against COMANCO will survive an attempted transfer or assignment.

THE LIMITED WARRANTY HEREIN IS GIVEN IN LIEU OF ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE, OR OTHER WARRANTIES OR REPRESENTATIVES, EXPRESS OR IMPLIED . BY ACCEPTING THE INSTALLATION, OWNER WAIVES ALL OTHER SUCH POSSIBLE WARRANTIES OR REPRESENTATIONS, EXCEPT THOSE SPECIFICALLY GIVEN HEREIN. CORRECTION OF NONCONFORMITIES, IN THE MANNER AND FOR THE PERIOD OF TIME PROVIDED ABOVE, SHALL CONSTITUTE FULFILLMENT OF ALL LIABILITIES OF COMANCO TO OWNER, WHETHER BASED ON CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE WITH RESPECT TO OR ARISING OUT OF THE INSTALLATION OF THE LINING SYSTEM. THE PARTIES HERETO EXPRESSLY AGREE THAT THE SALE HEREUNDER IS FOR COMMERCIAL OR INDUSTRIAL USE ONLY. WARRANTIES, IF ANY, CONCERNING THE MATERIALS INCORPORATED INTO THE LINING SYSTEM ARE COVERED, IF AT ALL, BY SEPARATE WARRANTIES FROM THE MANUFACTURERS OR SUPPLIERS OF SUCH MATERIALS AND ARE EXPRESSLY EXCLUDED FROM THE SCOPE OF THIS LIMITED WARRANTY AND OWNER ACKNOWLEDGES AND AGREES THAT COMANCO HAS MADE NO WARRANTIES OR REPRESENTATIONS TO IT CONCERNING EITHER THE AVAILABILITY OR SUFFICIENCY OF ANY SUCH WARRANTIES OR REPRESENTATIONS FROM MANUFACTURERS OR SUPPLIERS.

EXCEPT AS EXPRESSLY STATED ABOVE, COMANCO MAKES NO WARRANTY OF ANY KIND AND HEREBY DISCLAIMS ALL WARRANTIES WITH RESPECT TO THE INSTALLATION OF THE LINING SYSTEM , BOTH EXPRESSED AND IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

No terms or conditions other than those stated herein and no agreement or understanding, oral or written and no course of conduct or performance in any way purporting to modify this Limited Warranty or to waive COMANCO's rights hereunder shall be binding on COMANCO unless the same shall be clearly described in writing that refers to this Limited Warranty and is signed by an officer of COMANCO. Additional liabilities created by other documents shall have no force or effect upon this Limited Warranty or the installation performed by COMANCO. The laws of the State of Florida will govern the rights and duties of the parties under this Warranty. Venue for all proceedings involving this Limited Warranty or any other matter contained herein shall be in Hillsborough County, Florida.

COMANCO ENVIRONMENTAL CORPORATION

BY: _____ **TITLE:** Executive Vice President **DATE:** May 11,1999

COMANCO

ATTACHMENT 3.13

GCL MANUFACTURER'S QUALITY CONTROL CERTIFICATIONS

CETCO

GEOSYNTHETIC CLAY LINER

MANUFACTURING QA/QC DATA PACKAGE

PROJECT NAME: Tomoka Farms LF

PREPARED FOR:
Mr. Lee Powell
SCS Engineer
555 W. Granada Blvd.
Suite E4
Ormond Beach, FL 32174

PREPARED BY:
Cynthia Willix
CETCO
P. O. Box 88
234 Gordon Street
Fairmount, GA 30139
Telephone # (706) 337-5316
Fax # (706) 337-2215

CETCO

GEOSYNTHETIC CLAY LINER

DAILY MANUFACTURING QA/QC DATA

FOR ALL GCL MANUFACTURED ON:

TOMOKA FARMS LF
DAYTONA BEACH, FL
CUSTOMER PO# PA74051
ORDER# 100909-100913

CONTENTS:

1. **DAILY GCL PRODUCTION CERTIFICATION**
2. **GCL MANUFACTURING CERTIFICATON AND TEST RESULTS**
3. **GCL MQA TRACKING FORM**

Printed on recycled paper

CETCO

DAILY GEOSYNTHETIC CLAY LINER PRODUCTION CERTIFICATION

CETCO

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

CETCO JOB:	**TOMOKA FARMS LF**
DATE:	**FEBRUARY 8-9, 1999**
ORDER#(S):	**100909-100913**
PRODUCT:	**BENTOMAT ST**

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the Geosynthetic Clay Liner (GCL) manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheets.

Cynthia Willix

Cynthia Willix
Quality Assurance Coordinator
CETCO

Subscribed and sworn to before me this 10 **day of** Feb., **19** 99.

Judy Hall

Notary Public

Notary Public, Georgia
GORDON COUNTY
My Commission Expires
Jan. 7, 2002

Printed on recycled paper

CETCO

BENTOMAT ST
MANUFACTURING CERTIFICATION

TO: Mr. Lee Powell
SCS Engineer
555 W. Granada Blvd.
Suite E4
Ormond Beach, FL 32174

PROJECT: Tomoka Farms LF

ORDER #: 100909-100913

CETCO hereby affirms and certifies that Bentomat ST material supplied to this project will meet the physical criteria listed below:

PROPERTY	TEST METHOD	MINIMUM VALUE
Finished Product		
Bentonite Mass/Area	ASTM D 5993*	0.75 lb/sq.ft. min.
Grab Strength	ASTM D 4632	90 lbs. MARV
Grab Elongation	ASTM D 4632	10% typical
Index Flux	ASTM D 5887	1 x 10(-8) m3/m2/sec (max.)
Peel Strength	ASTM D 4632(modified)	15 lbs. min.
Permeabilty	ASTM D 5084	max. 5 x 10(-9) cm/sec

* Reported at 0% moisture content.

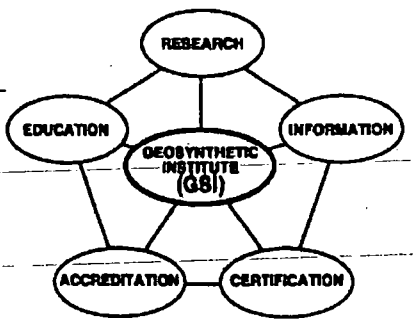
GAI Lab Accredited Test Methods were followed during confromance testing for :
ASTM D 5993 - Bentonite Mass/Area
ASTM D 4632 - Grab Strength and Grab Elongation

Cynthia Willis
Colloid Environmental Technologies Co. (CETCO)

Subscribed and sworn to before me this 10 day of Jan. 19 99

Judy Hall
Notary Public

OFFICIAL SEAL
JUDY HALL
Notary Public, Georgia
GORDON COUNTY
My Commission Expires
Jan. 7, 2002



IND HB

STRAIGHT BILL OF LADING—ORIGINAL—NOT NEGOTIABLE PAGE 1

CARRIER NAME: NATIONWIDE / Riddle

CONSIGNED TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL 32114
PHONE: (904) 947 2952

DELIVERING CARRIER:
DEL DATE: 2/10/99
SHIPPER'S NO: 00010090
SHIP DATE: 2/8/99
SHIPPER: Colloid Environmental
1350 West Shure Drive
Arlington Heights IL 60004

SOLDTO: 607 **SHIPTO:** 01
CONSIGNED P.O.#: PA74051
CAR/VEHICLE#:

SHIPPING PLANT: FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

ROUTING/CONTRACT:

Site # 904 947 2952

CUSTOMER COMMENTS ALL BAGGED SHIPMENTS LOADED ON FLATBED OR OPEN TOP TRAILERS MUST BE COVERED WITH ADEQUATE TARPAULIN PRIOR TO HIGHWAY MOVEMENT. CARRIER WILL BE HELD FULLY RESPONSIBLE FOR LOSS OR DAMAGE OCCURRING TO UNPROTECTED LOADS.

QUANTITY	HM	DESCRIPTION OF ARTICLES PROD DESCRIPTION	WEIGHT (SUBJECT TO CORRECTION)
2-9250 Rolls-150'		BENTOMAT ST CLOTH, SYNTHETIC FIBRE, NOT WOVEN, KNITTED NOR STITCHED CUSTOMER COMMENTS additional 20 b/l's per alisa	40278
60 Bags		CG-50 SEAMING CLAY (10902/024) CLAY-BENTONITE-GROUND (CLASS 50) 3295232	3000

GROSS: (one pallet, load from side) .00 TARE: .00 NET: 43278

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

COLLOID ENVIRONMENTAL TEC
(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "Prepaid."
PREPAID

Shipper liable for line haul charges only.
COD charges to be paid by: Consignee

1:15

*MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIALS AS DEFINED IN TITLE 49 OF THE CODE OF FEDERAL REGULATIONS

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown) marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CARRIER:

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Per _____

PLACARDS REQUIRED ☐ YES ☐ NO—FURNISHED BY CARRIER

PLACARDS SUPPLIED DRIVERS SIGNATURE:

P A C K I N G L I S T

COLLOID ENVIRONMENTAL TECH CO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000100909
ORDER DATE: 1/19/0019
SHIP DATE:. 2/0999

SOLD TO: 607
VOLUSIA COUNTY
SOLID WASTE MANAGEMENT
123 W. INDIANA AVE.,2ND FLOOR

DELAND FL 32720-4262

SHIP FROM:. FAIRMOUNT,GA
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. NATIONWIDE

SHIP TO: 01
COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.

DAYTONA BEACH FL 32114

PO: PA74051

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGH
030-BENTOMAT ST		SFT	SF 199906030	00000846	150.0	15.0	2250.0	3104
030-BENTOMAT ST		SFT	SF 199906030	00000847	150.0	15.0	2250.0	3113
030-BENTOMAT ST		SFT	SF 199906030	00000857	150.0	15.0	2250.0	3075
030-BENTOMAT ST		SFT	SF 199906030	00000869	150.0	15.0	2250.0	3031
030-BENTOMAT ST		SFT	SF 199906030	00001040	150.0	15.0	2250.0	3212
030-BENTOMAT ST		SFT	SF 199906030	00001048	150.0	15.0	2250.0	3148
030-BENTOMAT ST		SFT	SF 199906030	00001057	150.0	15.0	2250.0	3146
030-BENTOMAT ST		SFT	SF 199906030	00001062	150.0	15.0	2250.0	3044
030-BENTOMAT ST		SFT	SF 199906030	00001064	150.0	15.0	2250.0	3078
030-BENTOMAT ST		SFT	SF 199906030	00001077	150.0	15.0	2250.0	3212
030-BENTOMAT ST		SFT	SF 199906030	00001104	150.0	15.0	2250.0	3044
030-BENTOMAT ST		SFT	SF 199906030	00001105	150.0	15.0	2250.0	3025
030-BENTOMAT ST		SFT	SF 199907030	00001190	150.0	15.0	2250.0	3046

ORDER TOTALS.....	29250.0	40278.
TOTAL ITEMS..... 13		

60 Bags

IWO 110 STRAIGHT BILL OF LADING—ORIGINAL—NOT NEGOTIABLE PAGE 1 (

CARRIER NAME: NATIONWIDE / Whiteline DELIVERING CARRIER:

CONSIGNED TO: COUNTY OF VOLUSIA 2/1/99 SHIPPER'S NO: 000100910

1990 TOMOKA FARMS RD. DEL DATE: [redacted] SHIP DATE:

SHIPPER: Colloid Environmental 2E1X

1350 West Shure Drive

DAYTONA BEACH FL 32114 Arlington Heights IL 60004

PHONE: (904) 947 2952

SOLDTO: 607 SHIPTO: 01

CONSIGNED P.O.#: PA74051 SHIPPING PLANT: FAIRMOUNT,GA

CAR/VEHICLE#: P.O. BOX 88

FAIRMOUNT GA 30139

ROUTING/CONTRACT:

Site# 904 947 2952

CUSTOMER COMMENTS ALL BAGGED SHIPMENTS LOADED ON FLATBED OR OPEN TOP TRAILERS MUST BE COVERED WITH ADEQUATE TARPAULIN PRIOR TO HIGHWAY MOVEMENT. CARRIER WILL BE HELD FULLY RESPONSIBLE FOR LOSS OR DAMAGE OCCURRING TO UNPROTECTED LOADS.

QUANTITY	HM	DESCRIPTION OF ARTICLES PROD DESCRIPTION	WEIGHT (SUBJECT TO CORRECTION)
33750 [redacted]		BENTOMAT ST	[redacted]
15 Rolls-150'		CLOTH, SYNTHETIC FIBRE, NOT WOVEN, KNITTED NOR STITCHED	
		CUSTOMER COMMENTS additional 20 b/l's per alisa	
[redacted]		[redacted]	[redacted]

GROSS: .00 TARE: .00 NET: 45607

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

COLLOID ENVIRONMENTAL TEC

(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "Prepaid."

PREPAID

Shipper liable for line haul charges only.

COD charges to be paid by: Consignee

3:00

*MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIALS AS DEFINED IN TITLE 49 OF THE CODE OF FEDERAL REGULATIONS

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown) marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CARRIER: Albert Jackson

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Per _____

PLACARDS REQUIRED ☐ YES ☐ NO—FURNISHED BY CARRIER

PLACARDS SUPPLIED DRIVERS SIGNATURE:

ORIGINAL

P A C K I N G L I S T

COLLOID ENVIRONMENTAL TECH CO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000100910
ORDER DATE: 1/19/0019
SHIP DATE:. 2/0899

SOLD TO: 607
VOLUSIA COUNTY
SOLID WASTE MANAGEMENT
123 W. INDIANA AVE.,2ND FLOOR

DELAND FL 32720-4262

SHIP FROM:. FAIRMOUNT,GA
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. NATIONWIDE

SHIP TO: 01
COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.

DAYTONA BEACH FL 32114

PO: PA74051

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGH
030-BENTOMAT ST		SFT	SF 199906030	00000660	150.0	15.0	2250.0	2909
030-BENTOMAT ST		SFT	SF 199906030	00000661	150.0	15.0	2250.0	2911
030-BENTOMAT ST		SFT	SF 199906030	00000666	150.0	15.0	2250.0	2864
030-BENTOMAT ST		SFT	SF 199906030	00001063	150.0	15.0	2250.0	3045
030-BENTOMAT ST		SFT	SF 199906030	00001069	150.0	15.0	2250.0	3037
030-BENTOMAT ST		SFT	SF 199906030	00001102	150.0	15.0	2250.0	3050
030-BENTOMAT ST		SFT	SF 199907030	00001187	150.0	15.0	2250.0	3068
030-BENTOMAT ST		SFT	SF 199907030	00001188	150.0	15.0	2250.0	3011
030-BENTOMAT ST		SFT	SF 199907030	00001189	150.0	15.0	2250.0	3090
030-BENTOMAT ST		SFT	SF 199907030	00001193	150.0	15.0	2250.0	3173
030-BENTOMAT ST		SFT	SF 199907030	00001194	150.0	15.0	2250.0	3085
030-BENTOMAT ST		SFT	SF 199907030	00001195	150.0	15.0	2250.0	3074
030-BENTOMAT ST		SFT	SF 199907030	00001197	150.0	15.0	2250.0	3097
030-BENTOMAT ST		SFT	SF 199907030	00001199	150.0	15.0	2250.0	3121
030-BENTOMAT ST		SFT	SF 199907030	00001200	150.0	15.0	2250.0	3072
							========	=======
ORDER TOTALS.....							33750.0	45607.

TOTAL ITEMS..... 15

NO HD

STRAIGHT BILL OF LADING—ORIGINAL—NOT NEGOTIABLE PAGE 1 C

CARRIER NAME: NATIONWIDE / FEI

DELIVERING CARRIER:

CONSIGNED TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL 32114
PHONE: (904) 947 2952

2/9/99 **SHIPPER'S NO:** 000100911
DEL DATE: [redacted] **SHIP DATE:** [redacted]
SHIPPER: Colloid Environmental
1350 West Shure Drive
Arlington Heights IL 60004
2/5/99

SOLDTO: 607 **SHIPTO:** 01
CONSIGNED P.O.#: PA74051
CAR/VEHICLE#:

SHIPPING PLANT: FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

ROUTING/CONTRACT: Site#904 947 2952

CUSTOMER COMMENTS ALL BAGGED SHIPMENTS LOADED ON FLATBED OR OPEN TOP TRAILERS MUST BE COVERED WITH ADEQUATE TARPAULIN PRIOR TO HIGHWAY MOVEMENT. CARRIER WILL BE HELD FULLY RESPONSIBLE FOR LOSS OR DAMAGE OCCURRING TO UNPROTECTED LOADS.

QUANTITY	HM	DESCRIPTION OF ARTICLES PROD DESCRIPTION	WEIGHT (SUBJECT TO CORRECTION)
33750		[redacted]	[redacted]
225 Rolls-150'		BENTOMAT ST CLOTH, SYNTHETIC FIBRE, NOT WOVEN, KNITTED NOR STITCHED	

CUSTOMER COMMENTS additional 20 b/l's per alisa

[redacted]

GROSS: .00 TARE: .00 NET: 46216

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

COLLOID ENVIRONMENTAL TEC
(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "Prepaid."

PREPAID

Shipper liable for line haul charges only.
COD charges to be paid by: Consignee

4:20

*MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIALS AS DEFINED IN TITLE 49 OF THE CODE OF FEDERAL REGULATIONS

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown) marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CARRIER: James Clark

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Per _____

PLACARDS REQUIRED **PLACARDS SUPPLIED** ☐ YES ☐ NO—FURNISHED BY CARRIER
DRIVERS SIGNATURE:

ORIGINAL

P A C K I N G L I S T

COLLOID ENVIRONMENTAL TECH CO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000100911
ORDER DATE: 1/19/0019
SHIP DATE:. 2/0899

SOLD TO: 607
VOLUSIA COUNTY
SOLID WASTE MANAGEMENT
123 W. INDIANA AVE.,2ND FLOOR
DELAND FL 32720-4262

SHIP FROM:. FAIRMOUNT,GA
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. NATIONWIDE

SHIP TO: 01
COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL 32114

PO: PA74051

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGH
030-BENTOMAT ST		SFT	SF 199906030	00000662	150.0	15.0	2250.0	2951
030-BENTOMAT ST		SFT	SF 199906030	00000665	150.0	15.0	2250.0	3047
030-BENTOMAT ST		SFT	SF 199906030	00000669	150.0	15.0	2250.0	2878
030-BENTOMAT ST		SFT	SF 199906030	00000850	150.0	15.0	2250.0	3095
030-BENTOMAT ST		SFT	SF 199906030	00000851	150.0	15.0	2250.0	3112
030-BENTOMAT ST		SFT	SF 199906030	00000854	150.0	15.0	2250.0	3103
030-BENTOMAT ST		SFT	SF 199906030	00000855	150.0	15.0	2250.0	3164
030-BENTOMAT ST		SFT	SF 199906030	00000856	150.0	15.0	2250.0	3112
030-BENTOMAT ST		SFT	SF 199906030	00000879	150.0	15.0	2250.0	3091
030-BENTOMAT ST		SFT	SF 199906030	00000961	150.0	15.0	2250.0	3166
030-BENTOMAT ST		SFT	SF 199906030	00000964	150.0	15.0	2250.0	3131
030-BENTOMAT ST		SFT	SF 199906030	00000974	150.0	15.0	2250.0	3058
030-BENTOMAT ST		SFT	SF 199906030	00000976	150.0	15.0	2250.0	3097
030-BENTOMAT ST		SFT	SF 199906030	00001068	150.0	15.0	2250.0	3115
030-BENTOMAT ST		SFT	SF 199906030	00001070	150.0	15.0	2250.0	3096
ORDER TOTALS.....							33750.0	46216.

TOTAL ITEMS..... 15

NW HD

STRAIGHT BILL OF LADING—ORIGINAL—NOT NEGOTIABLE PAGE 1

CARRIER NAME: NATIONWIDE **DELIVERING CARRIER:**

CONSIGNED TO: COUNTY OF VOLUSIA **SHIPPER'S NO:** 000100912

1990 TOMOKA FARMS RD. **DEL DATE:** [redacted] **SHIP DATE:**

SHIPPER: Colloid Environmental

1350 West Shure Drive

DAYTONA BEACH FL 32114 Arlington Heights IL 60004

PHONE: (904) 947 2952

SOLDTO: 607 **SHIPTO:** 01

CONSIGNED P.O.#: PA74051 **SHIPPING PLANT:** FAIRMOUNT,GA

CAR/VEHICLE#: P.O. BOX 88

FAIRMOUNT GA 30139

ROUTING/CONTRACT: Site # 904 947 2952

CUSTOMER COMMENTS ALL BAGGED SHIPMENTS LOADED ON FLATBED OR OPEN TOP TRAILERS MUST BE COVERED WITH ADEQUATE TARPAULIN PRIOR TO HIGHWAY MOVEMENT. CARRIER WILL BE HELD FULLY RESPONSIBLE FOR LOSS OR DAMAGE OCCURRING TO UNPROTECTED LOADS.

QUANTITY	HM	DESCRIPTION OF ARTICLES PROD DESCRIPTION	WEIGHT (SUBJECT TO CORRECTION)
33750 [redacted] 9 Rolls - 150'		BENTOMAT ST CLOTH, SYNTHETIC FIBRE, NOT WOVEN, KNITTED NOR STITCHED	[redacted]

CUSTOMER COMMENTS additional 20 b/l's per alisa

[redacted]

GROSS: .00 TARE: .00 NET: 45596

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

COLLOID ENVIRONMENTAL TEC

(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "Prepaid."

PREPAID

Shipper liable for line haul charges only.
COD charges to be paid by: Consignee

14:00

*MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIALS AS DEFINED IN TITLE 49 OF THE CODE OF FEDERAL REGULATIONS

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown) marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CARRIER:

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Per _____

PLACARDS REQUIRED ☐ YES ☐ NO

PLACARDS SUPPLIED ☐ YES ☐ NO FURNISHED BY CARRIER

DRIVERS SIGNATURE:

ORIGINAL

P A C K I N G L I S T

COLLOID ENVIRONMENTAL TECH CO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000100912
ORDER DATE: 1/19/0019
SHIP DATE:. 2/0899

SOLD TO: 607
VOLUSIA COUNTY
SOLID WASTE MANAGEMENT
123 W. INDIANA AVE.,2ND FLOOR

DELAND FL 32720-4262

SHIP FROM:. FAIRMOUNT,GA
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. NATIONWIDE

SHIP TO: 01
COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.

DAYTONA BEACH FL 32114

PO: PA74051

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGH
030-BENTOMAT ST		SFT	SF 199906030	00000971	150.0	15.0	2250.0	3081
030-BENTOMAT ST		SFT	SF 199907030	00001196	150.0	15.0	2250.0	3172
030-BENTOMAT ST		SFT	SF 199907030	00001198	150.0	15.0	2250.0	3134
030-BENTOMAT ST		SFT	SF 199907030	00001201	150.0	15.0	2250.0	3140
030-BENTOMAT ST		SFT	SF 199907030	00001202	150.0	15.0	2250.0	3170
030-BENTOMAT ST		SFT	SF 199907030	00001203	150.0	15.0	2250.0	3112
030-BENTOMAT ST		SFT	SF 199907030	00001204	150.0	15.0	2250.0	3035
030-BENTOMAT ST		SFT	SF 199907030	00001208	150.0	15.0	2250.0	2972
030-BENTOMAT ST		SFT	SF 199907030	00001211	150.0	15.0	2250.0	2969
030-BENTOMAT ST		SFT	SF 199907030	00001213	150.0	15.0	2250.0	2967
030-BENTOMAT ST		SFT	SF 199907030	00001215	150.0	15.0	2250.0	2977
030-BENTOMAT ST		SFT	SF 199907030	00001216	150.0	15.0	2250.0	2968
030-BENTOMAT ST		SFT	SF 199907030	00001217	150.0	15.0	2250.0	2963
030-BENTOMAT ST		SFT	SF 199907030	00001218	150.0	15.0	2250.0	2954
030-BENTOMAT ST		SFT	SF 199907030	00001219	150.0	15.0	2250.0	2982
							========	=======
ORDER TOTALS.....							33750.0	45596.

TOTAL ITEMS..... 15

No HB

STRAIGHT BILL OF LADING—ORIGINAL—NOT NEGOTIABLE

CARRIER NAME: NATIONWIDE

CONSIGNED TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.

DAYTONA BEACH FL 32114
PHONE: (904) 947 2952

SOLDTO: 607 SHIPTO: 01

CONSIGNED P.O.#: PA74051

CAR/VEHICLE#:

DELIVERING CARRIER: 2/10/99

SHIPPER'S NO: 0001009

DEL DATE: [redacted] SHIP DATE: [redacted]

SHIPPER: Colloid Environmental
1350 West Shure Drive
Arlington Heights IL 60004

SHIPPING PLANT: FAIRMOUNT, GA
P.O. BOX 88
FAIRMOUNT GA 30139

ROUTING/CONTRACT: Site #904 947 2952

CUSTOMER COMMENTS ALL BAGGED SHIPMENTS LOADED ON FLATBED OR OPEN TOP TRAILERS MUST BE COVERED WITH ADEQUATE TARPAULIN PRIOR TO HIGHWAY MOVEMENT. CARRIER WILL BE HELD FULLY RESPONSIBLE FOR LOSS OR DAMAGE OCCURRING TO UNPROTECTED LOADS.

QUANTITY	HM	DESCRIPTION OF ARTICLES PROD DESCRIPTION	WEIGHT (SUBJECT TO CORRECTION)
33750		BENTOMAT ST	[redacted]
Rolls 150'		CLOTH, SYNTHETIC FIBRE, NOT WOVEN, KNITTED NOR STITCHED	

CUSTOMER COMMENTS additional 20 b/l's per alisa

[redacted]

GROSS: .00 TARE: .00 NET: 46265 [redacted]

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.	If charges are to be prepaid, write or stamp here, "Prepaid."
COLLOID ENVIRONMENTAL TEC	PREPAID
(Signature of Consignor)	Shipper liable for line haul charges only. COD charges to be paid by: Consignee

11:30

*MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIALS AS DEFINED IN TITLE 49 OF THE CODE OF FEDERAL REGULATIONS

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown) marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tarrif if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tarrif which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CARRIER: [signature] 3/11

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Per _____

PLACARDS REQUIRED

PLACARDS SUPPLIED

☐ YES ☐ NO—FURNISHED BY CARRIER

DRIVERS SIGNATURE:

P A C K I N G L I S T

COLLOID ENVIRONMENTAL TECH CO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000100913
ORDER DATE: 1/19/0019
SHIP DATE:. 2/0999

SOLD TO: 607
VOLUSIA COUNTY
SOLID WASTE MANAGEMENT
123 W. INDIANA AVE.,2ND FLOOR

DELAND FL 32720-4262

SHIP FROM:. FAIRMOUNT,GA
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. NATIONWIDE

SHIP TO: 01
COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.

DAYTONA BEACH FL 32114

PO: PA74051

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGH
030-BENTOMAT ST		SFT	SF 199906030	00000858	150.0	15.0	2250.0	3057
030-BENTOMAT ST		SFT	SF 199906030	00000859	150.0	15.0	2250.0	3074
030-BENTOMAT ST		SFT	SF 199906030	00000868	150.0	15.0	2250.0	3090
030-BENTOMAT ST		SFT	SF 199906030	00000965	150.0	15.0	2250.0	3276
030-BENTOMAT ST		SFT	SF 199906030	00000967	150.0	15.0	2250.0	3207
030-BENTOMAT ST		SFT	SF 199906030	00000973	150.0	15.0	2250.0	3115
030-BENTOMAT ST		SFT	SF 199906030	00001055	150.0	15.0	2250.0	3099
030-BENTOMAT ST		SFT	SF 199906030	00001056	150.0	15.0	2250.0	3075
030-BENTOMAT ST		SFT	SF 199906030	00001059	150.0	15.0	2250.0	3148
030-BENTOMAT ST		SFT	SF 199906030	00001060	150.0	15.0	2250.0	2958
030-BENTOMAT ST		SFT	SF 199906030	00001061	150.0	15.0	2250.0	3054
030-BENTOMAT ST		SFT	SF 199906030	00001066	150.0	15.0	2250.0	3101
030-BENTOMAT ST		SFT	SF 199906030	00001067	150.0	15.0	2250.0	3088
030-BENTOMAT ST		SFT	SF 199907030	00001185	150.0	15.0	2250.0	2841
030-BENTOMAT ST		SFT	SF 199907030	00001191	150.0	15.0	2250.0	3082
							========	=======
ORDER TOTALS.....							33750.0	46265.
TOTAL ITEMS.....			15					

CETCO

GEOSYNTHETIC CLAY LINER QUALITY TEST RESULTS

Printed on recycled paper

QCG#FT2 QCT#FT2 COLLOID ENVIRONMENTAL TECH CO PAGE: 1
2/10/99 7:06:10

GCL QUALITY DATA

FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

O R D E R # 000100909

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 0.75 lb/sqft ASTM D 5993	GRAB ELONGATION 10% Typical ASTM D 4632	GRAB STRENGTH 90 lbs ASTM D 4632	PEEL STRENGTH 15 lbs ASTM D 4632
030-BENTOMAT ST	199907030	00001190	1.03	19.20	133.50	24.30
030-BENTOMAT ST	199906030	00001105	1.08	14.80	118.00	35.20
030-BENTOMAT ST	199906030	00001104	1.08	14.80	118.00	35.20
030-BENTOMAT ST	199906030	00001077	1.01	16.80	143.00	38.90
030-BENTOMAT ST	199906030	00001064	1.01	16.80	143.00	19.70
030-BENTOMAT ST	199906030	00001062	1.01	16.80	143.00	19.70
030-BENTOMAT ST	199906030	00001057	1.03	16.80	143.00	22.10
030-BENTOMAT ST	199906030	00001048	1.03	16.80	143.00	26.50
030-BENTOMAT ST	199906030	00001040	1.03*	16.80*	143.00*	26.50*
030-BENTOMAT ST	199906030	00000869	1.06	17.60	124.40	26.60
030-BENTOMAT ST	199906030	00000857	1.06	17.60	124.40	31.80
030-BENTOMAT ST	199906030	00000847	1.00	17.60	124.40	34.80*
030-BENTOMAT ST	199906030	00000846	1.00	17.60	124.40	31.70

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Mass Area and Moisture content are tested a minimum of every 40,000sf.
Grab Strength is tested a minimum of every 200,000sf.
Bentonite Mass/Area is reported at 0% moisture cont ent.
Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

GCL QUALITY DATA

FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

O R D E R # 000100910

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 0.75 lb/sqft ASTM D 5993	GRAB ELONGATION 10% Typical ASTM D 4632	GRAB STRENGTH 90 lbs ASTM D 4632	PEEL STRENGTH 15 lbs ASTM D 4632
030-BENTOMAT ST	199907030	00001200	1.07	15.20	99.80	27.50*
030-BENTOMAT ST	199907030	00001199	1.07	15.20	99.80	43.90
030-BENTOMAT ST	199907030	00001197	1.07	15.20	99.80	43.90
030-BENTOMAT ST	199907030	00001195	1.07	15.20	99.80	43.90
030-BENTOMAT ST	199907030	00001194	1.07	15.20	99.80	43.90
030-BENTOMAT ST	199907030	00001193	1.07	15.20	99.80	43.90
030-BENTOMAT ST	199907030	00001189	1.03	19.20	133.50	24.30
030-BENTOMAT ST	199907030	00001188	1.03	19.20	133.50	24.30
030-BENTOMAT ST	199907030	00001187	1.03	19.20	133.50	24.30
030-BENTOMAT ST	199906030	00001102	1.08	14.80	118.00	35.20
030-BENTOMAT ST	199906030	00001069	1.01	16.80	143.00	38.90
030-BENTOMAT ST	199906030	00001063	1.01	16.80	143.00	19.70
030-BENTOMAT ST	199906030	00000666	1.00	20.80	136.10	17.80
030-BENTOMAT ST	199906030	00000661	1.02	20.80	136.10	19.70
030-BENTOMAT ST	199906030	00000660	1.02	20.80	136.10	19.70

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Mass Area and Moisture content are tested a minimum of every 40,000sf.
Grab Strength is tested a minimum of every 200,000sf.
Bentonite Mass/Area is reported at 0% moisture cont ent.
Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

QCG#FT2 QCT#FT2
2/10/99 7:06:25

COLLOID ENVIRONMENTAL TECH CO

PAGE: 1

GCL QUALITY DATA

FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

O R D E R # 000100911

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 0.75 lb/sqft ASTM D 5993	GRAB ELONGATION 10% Typical ASTM D 4632	GRAB STRENGTH 90 lbs ASTM D 4632	PEEL STRENGTH 15 lbs ASTM D 4632
030-BENTOMAT ST	199906030	00001070	1.01	16.80	143.00	38.90
030-BENTOMAT ST	199906030	00001068	1.01	16.80	143.00	38.90
030-BENTOMAT ST	199906030	00000976	1.06	13.60	108.80	20.70
030-BENTOMAT ST	199906030	00000974	1.06	13.60	108.80	20.70
030-BENTOMAT ST	199906030	00000964	1.00	13.60	108.80	19.70
030-BENTOMAT ST	199906030	00000961	1.00	13.60	108.80	19.70
030-BENTOMAT ST	199906030	00000879	1.03	17.60	124.40	20.30
030-BENTOMAT ST	199906030	00000856	1.06	17.60	124.40	31.80
030-BENTOMAT ST	199906030	00000855	1.06*	17.60	124.40	31.80*
030-BENTOMAT ST	199906030	00000854	1.00	17.60	124.40	34.80
030-BENTOMAT ST	199906030	00000851	1.00	17.60	124.40	34.80
030-BENTOMAT ST	199906030	00000850	1.00	17.60	124.40	34.80
030-BENTOMAT ST	199906030	00000669	1.00	20.80	136.10	17.80
030-BENTOMAT ST	199906030	00000665	1.00*	20.80	136.10	17.80*
030-BENTOMAT ST	199906030	00000662	1.02	20.80	136.10	19.70

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Mass Area and Moisture content are tested a minimum of every 40,000sf.
Grab Strength is tested a minimum of every 200,000sf.
Bentonite Mass/Area is reported at 0% moisture cont ent.
Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

QCG#FT2 QCT#FT2
2/10/99 7:06:34

COLLOID ENVIRONMENTAL TECH CO

PAGE: 1

GCL QUALITY DATA

FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

O R D E R # 000100912

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 0.75 lb/sqft ASTM D 5993	GRAB ELONGATION 10% Typical ASTM D 4632	GRAB STRENGTH 90 lbs ASTM D 4632	PEEL STRENGTH 15 lbs ASTM D 4632
030-BENTOMAT ST	199307030	00001219	.99	15.20	99.80	25.80
030-BENTOMAT ST	199307030	00001218	.99	15.20	99.80	25.80
030-BENTOMAT ST	199307030	00001217	.99	15.20	99.80	25.80
030-BENTOMAT ST	199307030	00001216	.99	15.20	99.80	25.80
030-BENTOMAT ST	199307030	00001215	.99	15.20	99.80	25.80
030-BENTOMAT ST	199307030	00001213	.99	15.20	99.80	25.80
030-BENTOMAT ST	199307030	00001211	.99*	15.20	99.80	25.80*
030-BENTOMAT ST	199307030	00001208	1.07	15.20	99.80	27.50
030-BENTOMAT ST	199307030	00001204	1.07	15.20	99.80	27.50
030-BENTOMAT ST	199307030	00001203	1.07	15.20	99.80	27.50
030-BENTOMAT ST	199307030	00001202	1.07	15.20	99.80	27.50
030-BENTOMAT ST	199307030	00001201	1.07	15.20	99.80	27.50
030-BENTOMAT ST	199307030	00001198	1.07	15.20	99.80	43.90
030-BENTOMAT ST	199307030	00001196	1.07	15.20	99.80	43.90
030-BENTOMAT ST	199306030	00000971	1.06	13.60	108.80	20.70

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Mass Area and Moisture content are tested a minimum of every 40,000sf.
Grab Strength is tested a minimum of every 200,000sf.
Bentonite Mass/Area is reported at 0% moisture cont ent.
Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

QCG#FT2 QCT#FT2
2/10/99 7:06:41

COLLOID ENVIRONMENTAL TECH CO

GCL QUALITY DATA

FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

O R D E R # 000100913

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 0.75 lb/sqft ASTM D 5993	GRAB ELONGATION 10% Typical ASTM D 4632	GRAB STRENGTH 90 lbs ASTM D 4632	PEEL STRENGTH 15 lbs ASTM D 4632
03G-BENTOMAT ST	199907030	00001191	1.03	19.20	133.50	24.30
03G-BENTOMAT ST	199907030	00001185	1.03	19.20	133.50	24.30
03G-BENTOMAT ST	199906030	00001067	1.01	16.80	143.00	38.90
03G-BENTOMAT ST	199906030	00001066	1.01	16.80	143.00	38.90*
03G-BENTOMAT ST	199906030	00001061	1.01	16.80	143.00	19.70
03G-BENTOMAT ST	199906030	00001060	1.01	16.80	143.00	19.70
03G-BENTOMAT ST	199906030	00001059	1.01	16.80	143.00	19.70
03G-BENTOMAT ST	199906030	00001056	1.03	16.80	143.00	22.10
03G-BENTOMAT ST	199906030	00001055	1.03	16.80	143.00	22.10
03G-BENTOMAT ST	199906030	00000973	1.06	13.60	108.80	20.70
03G-BENTOMAT ST	199906030	00000967	1.06	13.60	108.80	20.70
03G-BENTOMAT ST	199906030	00000965	1.06*	13.60	108.80	20.70*
03G-BENTOMAT ST	199906030	00000868	1.06	17.60	124.40	26.60
03G-BENTOMAT ST	199906030	00000859	1.06	17.60	124.40	31.80
03G-BENTOMAT ST	199906030	00000858	1.06	17.60	124.40	31.80

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Mass Area and Moisture content are tested a minimum of every 40,000sf.
Grab Strength is tested a minimum of every 200,000sf.
Bentonite Mass/Area is reported at 0% moisture cont ent.
Grab Elongation is tested a minimum of every 200,000sf.

*** End of Report ***

QCG#TF3 QCT#TF3
2/10/99 7:06:10

COLLOID ENVIRONMENTAL TECH CO
GEOTEXTILE QC DATA

FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

O R D E R # 000100909

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632	GRAB ELONGATION 150% marv ASTM D 4632
030-NON-WOVEN	199903010	00000067	6.6	20.3	115.3
030-NON-WOVEN	199903010	00000085	6.6	20.3	115.3
030-NON-WOVEN	199903010	00000091	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000107	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000115	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000126	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000129	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000140	6.6	20.3	115.3
030-NON-WOVEN	5164287A		6.6	20.3	115.3
030-NON-WOVEN	5164375A		6.6	20.3	115.3

TOTAL PAGES 1

QCG#TF3 QCT#TF3 COLLOID ENVIRONMENTAL TECH CO PAGE:
2/10/99 7:06:18 GEOTEXTILE QC DATA

FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

O R D E R # 000100910

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632	GRAB ELONGATION 150% marv ASTM D 4632
030-NON-WOVEN	199903010	00000067	6.6	20.3	115.3
030-NON-WOVEN	199903010	00000085	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000107	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000128	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000140	6.6	20.3	115.3
030-NON-WOVEN	5164387A		6.6	20.3	115.3
030-NON-WOVEN	5164444A		6.6	20.3	115.3

TOTAL PAGES 1

QCG#TF3 QCT#TF3
2/10/99 7:06:26

COLLOID ENVIRONMENTAL TECH CO
GEOTEXTILE QC DATA

FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

O R D E R # 000100911

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632	GRAB ELONGATION 150% marv ASTM D 4632
030-NON-WOVEN	199902010	00000023	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000113	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000133	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000140	6.6	20.3	115.3
030-NON-WOVEN	5164287A		6.6	20.3	115.3
030-NON-WOVEN	5164375A		6.6	20.3	115.3
030-NON-WOVEN	5164387A		6.6	20.3	115.3
030-NON-WOVEN	5164443A		6.6	20.3	115.3
030-NON-WOVEN	5164444A		6.6	20.3	115.3

TOTAL PAGES 1

QCG#TF3 | QCT#TF3 | COLLOID ENVIRONMENTAL TECH CO | PAGE:
2/10/99 | 7:06:34 | GEOTEXTILE QC DATA

FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

O R D E R # 000100912

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632	GRAB ELONGATION 150% marv ASTM D 4632
030-NON-WOVEN	199904010	00000111	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000128	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000133	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000146	6.6	20.3	115.3

TOTAL PAGES 1

QCG#TF3 QCT#TF3
2/10/99 7:06:41

COLLOID ENVIRONMENTAL TECH CO
GEOTEXTILE QC DATA

FAIRMOUNT,GA
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

O R D E R # 000100913

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632	GRAB ELONGATION 150% marv ASTM D 4632
030-NON-WOVEN	199903010	00000067	6.6	20.3	115.3
030-NON-WOVEN	199903010	00000091	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000107	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000113	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000126	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000133	6.6	20.3	115.3
030-NON-WOVEN	199904010	00000140	6.6	20.3	115.3
030-NON-WOVEN	5164287A		6.6	20.3	115.3

TOTAL PAGES 1

SYNTHETIC INDUSTRIES
Geosynthetic Products Division

ISO 9002 CERTIFIED
World Class Quality

January 28, 1999

American Coloid-Fairmont, GA
P.O. Box 88
234 Gordon Street
Fairmont, Ga. 30139

RE: Bill Of Lading #182725
PO# O-DH1-24074

This is to certify that Style 82 Tex, a woven polyppylene fabric produced by Synthetic Industries, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS	S.I. UNITS
MASS PER UNIT AREA	ASTM D-5261	3.2 oz/yd^2	105 g/m^2
THICKNESS	ASTM D-5199	16 mils	0.4 mm
TENSILE STRENGTH	ASTM D-4632	135 X 135 LBS	600 X 600 N
ELONGATION	ASTM D-4632	15 X 15 %	
WIDE WIDTH TENSILE STRENGTH	ASTM D-4595	70 X 70 LBS/IN	12 X 12 kN/M
PUNCTURE STRENGTH	ASTM D-4833	70 LBS	310 N
MULLEN BURST	ASTM D-3786	265 PSI	1820 kPa
TRAPEZOIDAL TEAR	ASTM D-4533	45 X 45 LBS	200 X 200 N
A.O.S.	ASTM D-4751	40 US STD SIEVE	0.425 mm
PERMITTIVITY	ASTM D-4491	0.08 SEC^{-1}	
PERMEABILITY	ASTM D-4491	0.004 cm/sec	
UV RESISTANCE	ASTM D-4355	90 %	

(Strength Retained After 150 Hours Xenon Arc Weatherometer)

Sincerely,

Warren Sickler
Technical Manager, Woven Geotextile Products

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 04/19/96.

SYNTHETIC INDUSTRIES

Geosynthetic Products Division

BOL:182725

Style: 82-TEX

ROLL #	ASTM D-4632 GRAB TENSILE (LBS) W x F	ASTM D-4632 ELONGATION (%) W x F	ASTM D-3786 MULLEN BURST PSI	ASTM D-5261 MASS/UNIT AREA OZ/SQ YARD
7547968	158 x 139	21 x 20	328	3.3
7580571	152 x 146	21 x 22	324	3.4
7580572	157 x 142	21 x 23	350	3.4
7582700	154 x 150	21 x 22	318	3.3
7582701	151 x 158	22 x 24	329	3.5
7582702	156 x 160	21 x 20	329	3.6
7588253	144 x 161	21 x 22	327	3.5
7588254	149 x 151	21 x 20	339	3.6
7588255	155 x 150	22 x 22	306	3.4
7588256	145 x 149	20 x 24	318	3.3
7588257	149 x 160	20 x 26	282	3.4
7588258	159 x 157	22 x 25	306	3.5
7589318	152 x 153	20 x 23	318	3.5
7589319	146 x 155	21 x 22	325	3.5
7589321	147 x 137	20 x 20	309	3.2
7589323	156 x 156	21 x 23	313	3.4
7589323	153 x 141	21 x 24	296	3.2
7603125	154 x 141	22 x 22	310	3.4
7605244	151 x 146	20 x 21	311	3.4
7605245	154 x 150	22 x 22	296	3.4
7605246	159 x 163	23 x 26	317	3.5
7605247	158 x 154	22 x 24	322	3.4
7605248	151 x 159	21 x 26	304	3.5
7605249	151 x 164	21 x 24	344	3.4
7605250	147 x 160	21 x 27	304	3.5
7605253	157 x 146	23 x 20	278	3.2
7605610	148 x 152	21 x 23	298	3.3
7605611	146 x 148	20 x 25	295	3.4
7605613	152 x 146	21 x 22	331	3.5
7613115	141 x 142	22 x 23	315	3.4
7613116	166 x 155	23 x 23	321	3.5
7615533	158 x 159	21 x 25	302	3.4
7615534	145 x 135	21 x 22	306	3.2
7615535	152 x 160	22 x 23	324	3.6
7615536	163 x 146	24 x 25	296	3.5

Synthetic Industries, Inc.
4019 Industry Drive • Post Office Box 22788 • Chattanooga, Tennessee • 37422 • USA
Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444

SYNTHETIC INDUSTRIES
Geosynthetic Products Division

February 3, 1999

American Coloid-Fairmont, GA
P.O. Box 88
234 Gordon Street
Fairmont, Ga. 30139

RE: Bill Of Lading #183047
PO# O-OCW-24175

This is to certify that Style 82 Tex, a woven polyppylene fabric produced by Synthetic Industries, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS	S.I. UNITS
MASS PER UNIT AREA	ASTM D-5261	3.2 oz/yd^2	105 g/m^2
THICKNESS	ASTM D-5199	16 mils	0.4 mm
TENSILE STRENGTH	ASTM D-4632	135 X 135 LBS	600 X 600 N
ELONGATION	ASTM D-4632	15 X 15 %	
WIDE WIDTH TENSILE STRENGTH	ASTM D-4595	70 X 70 LBS/IN	12 X 12 kN/M
PUNCTURE STRENGTH	ASTM D-4833	70 LBS	310 N
MULLEN BURST	ASTM D-3786	265 PSI	1820 kPa
TRAPEZOIDAL TEAR	ASTM D-4533	45 X 45 LBS	200 X 200 N
A.O.S.	ASTM D-4751	40 US STD SIEVE	0.425 mm
PERMITTIVITY	ASTM D-4491	0.08 SEC^{-1}	
PERMEABILITY	ASTM D-4491	0.004 cm/sec	
UV RESISTANCE	ASTM D-4355	90 %	

(Strength Retained After 150 Hours Xenon Arc Weatherometer)

Sincerely,

Warren Sickler
Technical Manager, Woven Geotextile Products

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

SYNTHETIC INDUSTRIES

Geosynthetic Products Division

BOL:183047

Style: 82-TEX

ROLL #	ASTM D-4632 GRAB TENSILE (LBS) W x F	ASTM D-4632 ELONGATION (%) W x F	ASTM D-3786 MULLEN BURST PSI	ASTM D-5261 MASS/UNIT AREA OZ/SQ YARD
7532887	158 x 162	21 x 22	328	3.5
7545679	153 x 155	21 x 35	310	3.4
7550557	147 x 150	23 x 21	304	3.6
7552536	158 x 157	22 x 20	311	3.5
7554710	152 x 138	23 x 26	344	3.4
7554910	161 x 148	23 x 21	299	3.4
7560314	157 x 135	22 x 22	305	3.3
7560318	152 x 135	21 x 21	307	3.4
7561216	156 x 136	22 x 20	312	3.3
7562283	160 x 168	22 x 23	331	3.4
7562318	155 x 145	23 x 21	316	3.2
7562320	158 x 152	23 x 20	327	3.4
7562323	150 x 142	21 x 20	305	3.4
7562482	160 x 137	20 x 20	319	3.2
7563353	157 x 153	19 x 20	318	3.4
7563651	160 x 150	21 x 21	328	3.4
7568526	157 x 138	21 x 21	336	3.3
7588073	145 x 145	20 x 22	302	3.3
7603131	157 x 155	22 x 21	312	3.4
7605618	154 x 158	21 x 23	311	3.4
7605619	153 x 147	21 x 22	305	3.4
7613885	149 x 161	21 x 24	293	3.4
7613892	154 x 161	22 x 23	321	3.4
7624066	160 x 156	21 x 23	331	3.4
7624067	149 x 145	21 x 24	308	3.4
7624070	141 x 150	19 x 23	322	3.4
7625152	170 x 165	24 x 21	331	3.5
7625154	151 x 156	21 x 24	310	3.5
7625155	149 x 153	21 x 21	346	3.5
7625597	169 x 150	22 x 24	334	3.6
7625598	173 x 149	21 x 23	324	3.5
7625599	174 x 146	22 x 21	346	3.5
7625602	166 x 144	21 x 21	340	3.4
7626437	155 x 159	20 x 23	290	3.4
7626430	140 x 150	20 x 23	340	3.4
7629814	140 x 144	19 x 21	321	3.5
7632585	163 x 152	22 x 22	321	3.4

Synthetic Industries, Inc.
4019 Industry Drive • Post Office Box 22788 • Chattanooga, Tennessee • 37422 • USA
Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444

SYNTHETIC INDUSTRIES

Geosynthetic Products Division

February 4, 1999

American Coloid-Fairmont, GA
P.O. Box 88
234 Gordon Street
Fairmont, Ga. 30139

RE: Bill Of Lading #183103
PO# O-OCW-24175

This is to certify that Style 82 Tex, a woven polyppylene fabric produced by Synthetic Industries, will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS	S.I. UNITS
MASS PER UNIT AREA	ASTM D-5261	3.2 oz/yd^2	105 g/m^2
THICKNESS	ASTM D-5199	16 mils	0.4 mm
TENSILE STRENGTH	ASTM D 4632	135 X 135 LBS	600 X 600 N
ELONGATION	ASTM D-4632	15 X 15 %	
WIDE WIDTH TENSILE STRENGTH	ASTM D-4595	70 X 70 LBS/IN	12 X 12 kN/M
PUNCTURE STRENGTH	ASTM D-4833	70 LBS	310 N
MULLEN BURST	ASTM D-3786	265 PSI	1820 kPa
TRAPEZOIDAL TEAR	ASTM D-4533	45 X 45 LBS	200 X 200 N
A.O.S.	ASTM D-4751	40 US STD SIEVE	0.425 mm
PERMITTIVITY	ASTM D-4491	0.08 SEC^{-1}	
PERMEABILITY	ASTM D-4491	0.004 cm/sec	
UV RESISTANCE	ASTM D-4355	90 %	

(Strength Retained After 150 Hours Xenon Arc Weatherometer)

Sincerely,

Warren Sickler
Technical Manager, Woven Geotextile Products

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 04/19/94.

SYNTHETIC INDUSTRIES

Geosynthetic Products Division

BOL:183103

Style: 82-TEX

ROLL #	ASTM D-4632 GRAB TENSILE (LBS) W x F	ASTM D-4632 ELONGATION (%) W x F	ASTM D-3786 MULLEN BURST PSI	ASTM D-5261 MASS/UNIT AREA OZ/SQ YARD
7532889	162 x 155	21 x 22	320	3.6
7543101	151 x 137	21 x 23	301	3.4
7545681	161 x 158	25 x 27	321	3.5
7547964	148 x 139	20 x 20	310	3.4
7552535	161 x 153	26 x 22	331	3.4
7552767	149 x 149	22 x 22	297	3.5
7561213	149 x 138	22 x 21	328	3.4
7561214	155 x 139	22 x 19	330	3.3
7562863	159 x 149	20 x 23	306	3.4
7563653	157 x 145	20 x 21	321	3.4
7563888	154 x 150	23 x 22	335	3.4
7568522	159 x 141	21 x 19	320	3.5
7570291	146 x 146	21 x 23	312	3.4
7570296	151 x 146	22 x 22	307	3.4
7570484	156 x 143	21 x 21	299	3.5
7570485	151 x 152	20 x 23	309	3.5
7582379	156 x 142	21 x 24	304	3.4

Synthetic Industries, Inc.
4019 Industry Drive • Post Office Box 22788 • Chattanooga, Tennessee • 37422 • USA
Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444

SYNTHETIC INDUSTRIES

Geosynthetic Products Division

February 3, 1999

Cetco / Fairmount
Cynthia Willix
PO Box 88
Fairmount GA 30139
Bol; 626352 PO 0-DH1-24056

This is to certify that Product GEOTEX™ 650, a nonwoven polypropylene geotextile produced by Synthetic Industries will meet the following certifiable minimum average roll values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS
Weight	ASTM D-5261	6.0 oz/yd^2
Thickness	ASTM D-5199	120 mils
Tensile Strength	ASTM D-4632	45 lbs
Elongation	ASTM D-4632	90 %
Trapezoidal Tear	ASTM D-4533	25 lbs
Mullen Burst	ASTM D-3786	190 psi
Puncture Strength	ASTM D-4833	50 lbs

Sincerely,

Sid Weiser

Sid Weiser
Technical Manager
Performance Nonwovens Division

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 02/1997

Synthetic Industries, Inc.
4019 Industry Drive • Post Office Box 22788 • Chattanooga, Tennessee • 37422 • USA
Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444

Synthetic Industries

Individual Roll Data
Bill of Lading 626352

Roll #	Style	Batch	Weight Osy D5261	Thick mils D5199	Tensile lbs D4632	Tensile lbs D4632	Elongation % D4632	Elongation % D4632	T.Tear lbs D4533	T.Tear lbs D4533	Burst psi D3786	Punct lbs D4833
5164455A	650	50982	6.9	135	110	168	103	117	41	45	247	85
5164461A	650	50982	6.6	131	87	155	101	116	40	49	233	87
5164465A	650	50982	6.6	120	164	95	110	96	53	42	266	70

Sid Wann

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchasers responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.
Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include date from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.

mm

FEB-03 99 14:36 FROM:TECHNICAL DEPT. PND 7069655981 TO:7063372215 PAGE:05/05

SYNTHETIC INDUSTRIES

Geosynthetic Products Division

February 10, 1999

Cetco / Fairmount
Cynthia Willix
PO Box 88
Fairmount GA 30139
BoL; 626388 PO 0-0CW-24227

This is to certify that Product GEOTEX™ 650, a nonwoven polypropylene geotextile produced by Synthetic Industries will meet the following certifiable minimum average roll values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS
Weight	ASTM D-5261	6.0 oz/yd^2
Thickness	ASTM D-5199	120 mils
Tensile Strength	ASTM D 4632	45 lbs
Elongation	ASTM D-4632	90 %
Trapezoidal Tear	ASTM D-4533	25 lbs
Mullen Burst	ASTM D-3786	190 psi
Puncture Strength	ASTM D-4833	50 lbs

Sincerely,

Sid Weiser

Sid Weiser
Technical Manager
Performance Nonwovens Division

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 02/1997

Synthetic Industries, Inc.
4019 Industry Drive • Post Office Box 22788 • Chattanooga, Tennessee • 37422 • USA
Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444

Synthetic Industries

Individual Roll Data
Bill of Lading 626388

Roll #	Style	Batch	Weight	Thick	Tensile		Elongation		T.Tear		Burst	Punct
			Osy	mils	lbs	lbs	%	%	lbs	lbs	psi	lbs
			D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4833
K901967A	650	90032	6.8	140	93	144	111	146	43	45	236	77
K901970A	650	90031	7.2	140	82	124	109	110	45	45	241	71
K902000A	650	90031	6.8	149	95	148	105	126	49	50	216	59

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frecuencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.
Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.

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FEB-10 99 09:17 FROM:TECHNICAL DEPT. PND 7069655981 TO:7063372215 PAGE:02/02

SYNTHETIC INDUSTRIES

Geosynthetic Products Division

February 3, 1999

Cetco / Fairmount
Cynthia Willix
PO Box 88
Fairmount GA 30139
Bol: 626355 PO 0-OCW-24120

This is to certify that Product GEOTEX™ 650, a nonwoven polypropylene geotextile produced by Synthetic Industries will meet the following certifiable minimum average roll values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS
Weight	ASTM D-5261	6.0 oz/yd^2
Thickness	ASTM D-5199	120 mils
Tensile Strength	ASTM D-4632	45 lbs
Elongation	ASTM D-4632	90 %
Trapezoidal Tear	ASTM D-4533	25 lbs
Mullen Burst	ASTM D-3786	190 psi
Puncture Strength	ASTM D-4833	50 lbs

Sincerely,

Sid Weiser

Sid Weiser
Technical Manager
Performance Nonwovens Division

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries' current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 02/1/97.

Synthetic Industries, Inc.
4019 Industry Drive • Post Office Box 22788 • Chattanooga, Tennessee • 37422 • USA
Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444

Synthetic Industries

Individual Roll Data
Bill of Lading 626355

Roll #	Style	Batch	Weight	Thick	Tensile		Elongation		T.Tear		Burst	Punct
			Osy	mils	lbs	lbs	%	%	lbs	lbs	psi	lbs
			D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4833
5164357A	650	509E1	7.3	146	83	182	108	126	49	56	274	78
5164363A	650	509E1	6.9	135	88		109		42		251	70
5164375A	650	509E1	6.4	129	64		100		43		241	66
5164387A	650	509E1	7.6	139	89		105		53		243	72
5164443A	650	509E2	6.6	122	109	165	101	118	50	52	253	87

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elorgation trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.
Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.

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FEB-03 99 14:38 FROM:TECHNICAL DEPT. PND 7069655981 TO:7063372215 PAGE:07/07

BENTONITE
CERTIFICATE OF ANALYSIS

CETCO
92 HWY 37
LOVELL, WYO. 82431

DATE: 25-Jan-99

TO: **CETCO - CLAYMAX CORP.**
P.O. BOX 88

FAIRMOUNT, GA. 30139

ATTN: **CYNTHIA WILLIX**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **19-Jan-99**
in **BN 446148**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.3
MOISTURE	ASTM D 2216	12.0% MAX.	7.6
FREE SWELL	ASTM D 5890	24 MIN.	25
FLUID LOSS	ASTM D 5891	18.0 MAX.	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **D.M.**

Approved By: **MOSES BRISENO**

CETCO

In any correspondence regarding this shipment, please refer to our
Order Number **308939**

BENTONITE
CERTIFICATE OF ANALYSIS

CETCO
92 HWY 37
LOVELL, WYO. 82431

DATE: 20-Jan-99

TO: **CETCO - CLAYMAX CORP.**
P.O. BOX 88

FAIRMOUNT, GA. 30139

ATTN: **CYNTHIA WILLIX**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **18-Jan-99**
in **BN 454702**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	8
FREE SWELL	ASTM D 5890	24 MIN.	24
FLUID LOSS	ASTM D 5891	18.0 MAX.	14

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **C.L.**

Approved By: **MOSES BRISENO**

CETCO

In any correspondence regarding this shipment, please refer to our
Order Number **308938**

BENTONITE
CERTIFICATE OF ANALYSIS

CETCO
92 HWY 37
LOVELL, WYO. 82431

DATE: 20-Jan-99

TO: **CETCO - CLAYMAX CORP.**
P.O. BOX 88

FAIRMOUNT, GA. 30139

ATTN: **CYNTHIA WILLIX**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **17-Jan-99**
in **BN 453644**
as requested on your order no. **VERBAL** .

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.4
MOISTURE	ASTM D 2216	12.0% MAX.	7.6
FREE SWELL	ASTM D 5890	24 MIN.	24
FLUID LOSS	ASTM D 5891	18.0 MAX.	14

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **C.C.**

Approved By: **MOSES BRISENO**

CETCO

In any correspondence regarding this shipment, please refer to our
Order Number **308936**

BENTONITE
CERTIFICATE OF ANALYSIS

CETCO
92 HWY 37
LOVELL, WYO. 82431

DATE: 18-Jan-99

TO: **CETCO - CLAYMAX CORP.**
P.O. BOX 88

FAIRMOUNT, GA. 30139

ATTN: **CYNTHIA WILLIX**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **13-Jan-99**
in **BN 446193**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.3
MOISTURE	ASTM D 2216	12.0% MAX.	8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	14.2

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **C.L.**

Approved By: **MOSES BRISENO**

CETCO

In any correspondence regarding this shipment, please refer to our Order Number **308931**

BENTONITE
CERTIFICATE OF ANALYSIS

CETCO
92 HWY 37
LOVELL, WYO. 82431

DATE: 11-Jan-99

TO: **CETCO - CLAYMAX CORP.**
P.O. BOX 88

FAIRMOUNT, GA. 30139

ATTN: **CYNTHIA WILLIX**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **11-Jan-99**
in **BN 453136**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.6
MOISTURE	ASTM D 2216	12.0% MAX.	9.6
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	13.6

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **D.M.**

Approved By: **MOSES BRISENO**

CETCO

In any correspondence regarding this shipment, please refer to our
Order Number **308928**

BENTONITE
CERTIFICATE OF ANALYSIS

CETCO
92 HWY 37
LOVELL, WYO. 82431

DATE: 20-Jan-99

TO: **CETCO - CLAYMAX CORP.**
P.O. BOX 88

FAIRMOUNT, GA. 30139

ATTN: **CYNTHIA WILLIX**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **14-Jan-99**
in **BN 447058**
as requested on your order no. **VERBAL** .

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.3
MOISTURE	ASTM D 2216	12.0% MAX.	7.6
FREE SWELL	ASTM D 5890	24 MIN.	24
FLUID LOSS	ASTM D 5891	18.0 MAX.	14

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **C.C.**

Approved By: **MOSES BRISENO**

CETCO

In any correspondence regarding this shipment, please refer to our Order Number **308937**

BENTONITE
CERTIFICATE OF ANALYSIS

CETCO
92 HWY 37
LOVELL, WYO. 82431

DATE: 18-Jan-99

TO: **CETCO - CLAYMAX CORP.**
P.O. BOX 88

FAIRMOUNT, GA. 30139

ATTN: **CYNTHIA WILLIX**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **12-Jan-99**
in **BN 425358**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 10 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.3
MOISTURE	ASTM D 2216	12.0% MAX.	8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **C.L.**

Approved By: **MOSES BRISENO**

CETCO

In any correspondence regarding this shipment, please refer to our Order Number **308929**

CETCO

GEOSYNTHETIC CLAY LINER MQA TRACKING FORMS

Printed on recycled paper

QCG#TF1 | QCT#TF1
2/10/99 | 7:06:10

COLLOID ENVIRONMENTAL TECH CO
GCL MQA/MQC TRACKING FORM

CETCO FAIRMOUNT PLANT
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

ORDER NUMBER 000100909

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOSYNTHETIC TOP LOT#	GEOSYNTHETIC TOP ROLL#	GEOSYNTHETIC BOTTOM LOT#	GEOSYNTHETIC BOTTOM ROLL#	CLAY LOT#
LOT# 199906030									
00000846	030-BENTOMAT ST	150	2250	3104	7626438		5164375A		446193
00000847	030-BENTOMAT ST	150	2250	3113	7626438		5164375A		446193
00000857	030-BENTOMAT ST	150	2250	3075	7626438		5164287A		446193
00000869	030-BENTOMAT ST	150	2250	3031	7632585		199903010	00000091	446193
00001040	030-BENTOMAT ST	150	2250	3212	7568522		K901945A		447058
00001048	030-BENTOMAT ST	150	2250	3148	7545681		199904010	00000107	447058
00001057	030-BENTOMAT ST	150	2250	3146	7545681		199904010	00000126	447058
00001062	030-BENTOMAT ST	150	2250	3044	7545681		199904010	00000107	447058
00001064	030-BENTOMAT ST	150	2250	3078	7545681		199904010	00000140	447058
00001077	030-BENTOMAT ST	150	2250	3212	7563653		199904010	00000129	446148
00001104	030-BENTOMAT ST	150	2250	3044	7570485		199903010	00000085	446148
00001105	030-BENTOMAT ST	150	2250	3025	7570485		199904010	00000115	453644
LOT# 199907030									
00001190	030-BENTOMAT ST	150	2250	3046	7560314		199903010	00000067	454702

TOTAL SQUARE FEET..... 29.250

TOTAL PAGES 1

COLLOID ENVIRONMENTAL TECH CO
GCL MQA/MQC TRACKING FORM

CETCO FAIRMOUNT PLANT
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

ORDER NUMBER 000100910

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOSYNTHETIC TOP LOT#	GEOSYNTHETIC TOP ROLL#	GEOSYNTHETIC BOTTOM LOT#	GEOSYNTHETIC BOTTOM ROLL#	CLAY LOT#
LOT# 199906030									
00000660	030-BENTOMAT ST	150	2250	2909	7582700		5164444A		425358
00000661	030-BENTOMAT ST	150	2250	2911	7582700		5164444A		425358
00000666	030-BENTOMAT ST	150	2250	2864	7582700		5164387A		425358
00001063	030-BENTOMAT ST	150	2250	3045	7545681		199904010	00000107	447058
00001069	030-BENTOMAT ST	150	2250	3037	7545681		199904010	00000140	447058
00001102	030-BENTOMAT ST	150	2250	3050	7570485		199903010	00000085	446148
LOT# 199907030									
00001187	030-BENTOMAT ST	150	2250	3068	7560314		199903010	00000067	454702
00001188	030-BENTOMAT ST	150	2250	3011	7560314		199903010	00000067	454702
00001189	030-BENTOMAT ST	150	2250	3090	7560314		199903010	00000067	454702
00001193	030-BENTOMAT ST	150	2250	3173	7560314		199903010	00000067	454702
00001194	030-BENTOMAT ST	150	2250	3085	7560314		199904010	00000128	454702
00001195	030-BENTOMAT ST	150	2250	3074	7560314		199904010	00000128	454702
00001197	030-BENTOMAT ST	150	2250	3097	7560314		199904010	00000128	454702
00001199	030-BENTOMAT ST	150	2250	3121	7560314		199904010	00000128	454702
00001200	030-BENTOMAT ST	150	2250	3072	7560314		199904010	00000128	454702

TOTAL SQUARE FEET..... 33.750

QCG#TF1 QCT#TF1
2/10/99 7:06:25

COLLOID ENVIRONMENTAL TECH CO
GCL MQA/MQC TRACKING FORM

CETCO FAIRMOUNT PLANT
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

ORDER NUMBER 000100911

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOSYNTHETIC TOP LOT#	GEOSYNTHETIC TOP ROLL#	GEOSYNTHETIC BOTTOM LOT#	GEOSYNTHETIC BOTTOM ROLL#	CLAY LOT#
LOT# 199906030									
00000662	030-BENTOMAT ST	150	2250	2951	7582700		5164444A		425358
00000665	030-BENTOMAT ST	150	2250	3047	7582700		5164387A		425358
00000669	030-BENTOMAT ST	150	2250	2878	7589321		5164443A		425358
00000850	030-BENTOMAT ST	150	2250	3095	7626438		5164375A		446193
00000851	030-BENTOMAT ST	150	2250	3112	7626438		5164375A		446193
00000854	030-BENTOMAT ST	150	2250	3103	7626438		5164375A		446193
00000855	030-BENTOMAT ST	150	2250	3164	7626438		5164287A		446193
00000856	030-BENTOMAT ST	150	2250	3112	7626438		5164287A		446193
00000879	030-BENTOMAT ST	150	2250	3091	7632585		199902010	00000023	446193
00000961	030-BENTOMAT ST	150	2250	3166	7570291		199904010	00000113	453136
00000964	030-BENTOMAT ST	150	2250	3131	7570291		199904010	00000113	453136
00000974	030-BENTOMAT ST	150	2250	3058	7570296		199904010	00000133	453136
00000976	030-BENTOMAT ST	150	2250	3097	7570296		K901972A		453136
00001068	030-BENTOMAT ST	150	2250	3115	7545681		199904010	00000140	447058
00001070	030-BENTOMAT ST	150	2250	3096	7545681		199904010	00000140	447058

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

COLLOID ENVIRONMENTAL TECH CO
GCL MQA/MQC TRACKING FORM

CETCO FAIRMOUNT PLANT
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

ORDER NUMBER 000100912

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOSYNTHETIC TOP LOT#	GEOSYNTHETIC TOP ROLL#	GEOSYNTHETIC BOTTOM LOT#	GEOSYNTHETIC BOTTOM ROLL#	CLAY LOT#
LOT# 199906030									
00000971	030-BENTOMAT ST	150	2250	3081	7570291		199904010	00000133	453136
LOT# 199907030									
00001196	030-BENTOMAT ST	150	2250	3172	7560314		199904010	00000128	454702
00001198	030-BENTOMAT ST	150	2250	3134	7560314		199904010	00000128	454702
00001201	030-BENTOMAT ST	150	2250	3140	7560314		199904010	00000128	454702
00001202	030-BENTOMAT ST	150	2250	3170	7560314		199904010	00000128	454702
00001203	030-BENTOMAT ST	150	2250	3112	7560314		199904010	00000128	454702
00001204	030-BENTOMAT ST	150	2250	3035	7560314		199904010	00000111	454702
00001208	030-BENTOMAT ST	150	2250	2972	7560314		199904010	00000111	454702
00001211	030-BENTOMAT ST	150	2250	2969	7552535		199904010	00000111	454702
00001213	030-BENTOMAT ST	150	2250	2967	7552535		199904010	00000111	454702
00001215	030-BENTOMAT ST	150	2250	2977	7552535		199904010	00000146	454702
00001216	030-BENTOMAT ST	150	2250	2968	7552535		199904010	00000146	454702
00001217	030-BENTOMAT ST	150	2250	2963	7552535		199904010	00000146	454702
00001218	030-BENTOMAT ST	150	2250	2954	7552535		199904010	00000146	454702
00001219	030-BENTOMAT ST	150	2250	2982	7552535		199904010	00000146	454702

TOTAL SQUARE FEET..... 33.750

QCG#TF1 | QCT#TF1
2/10/99 | 7:06:41

COLLOID ENVIRONMENTAL TECH CO
GCL MQA/MQC TRACKING FORM

CETCO FAIRMOUNT PLANT
P.O. BOX 88
FAIRMOUNT GA 30139

SHIP TO: COUNTY OF VOLUSIA
1990 TOMOKA FARMS RD.
DAYTONA BEACH FL

ORDER NUMBER 000100913

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOSYNTHETIC TOP LOT#	GEOSYNTHETIC TOP ROLL#	GEOSYNTHETIC BOTTOM LOT#	GEOSYNTHETIC BOTTOM ROLL#	CLAY LOT#
LOT# 199906030									
00000858	030-BENTOMAT ST	150	2250	3057	7626438		5164287A		446193
00000859	030-BENTOMAT ST	150	2250	3074	7626438		5164287A		446193
00000868	030-BENTOMAT ST	150	2250	3090	7626438		199903010	00000091	446193
00000965	030-BENTOMAT ST	150	2250	3276	7570291		199904010	00000113	453136
00000967	030-BENTOMAT ST	150	2250	3207	7570291		199904010	00000133	453136
00000973	030-BENTOMAT ST	150	2250	3115	7570291		199904010	00000133	453136
00001055	030-BENTOMAT ST	150	2250	3099	7545681		199904010	00000107	447058
00001056	030-BENTOMAT ST	150	2250	3075	7545681		199904010	00000126	447058
00001059	030-BENTOMAT ST	150	2250	3148	7545681		199904010	00000107	447058
00001060	030-BENTOMAT ST	150	2250	2958	7545681		199904010	00000107	447058
00001061	030-BENTOMAT ST	150	2250	3054	7545681		199904010	00000107	447058
00001066	030-BENTOMAT ST	150	2250	3101	7545681		199904010	00000140	447058
00001067	030-BENTOMAT ST	150	2250	3088	7545681		199904010	00000140	447058
LOT# 199907030									
00001185	030-BENTOMAT ST	150	2250	2841	7560314		199903010	00000067	454702
00001191	030-BENTOMAT ST	150	2250	3082	7560314		199903010	00000067	454702

TOTAL SQUARE FEET..... 33.750

ATTACHMENT 3.14

GCL PANEL PLACEMENT LOGS

SCS ENGINEERS

SHEET 1 OF 1

CLIENT	PROJECT	JOB NO.
SUBJECT Bentomat Placement Log	BY	DATE
	CHECKED	DATE

2/8/99	103	1211	1063	16252	15688	
36	50	78	666	15518	16245	
38	81	41	1189	36242	16258	
105	47	1215	1069	16226	16256	
18922	18916	26	661	15707	15517	
94	85	35	660	15723		
100	79	19534	1187	15695		
31	55	51	1188	15743		
95	44	1040		16045		
18920	34	1077	2/11/99	16214		
30	91	1062	16254	16215		
86	83	869	16151	16060		
45	82	1048	16255	16232		
18921	43	1057	16217	16218		
101	66	967	16216	16249		
92	19129	1064	16058	16223		
84	53	1191	4137	15726		
96	90	1067	15673	16216		
28	93	65	16257	16128		
42	18915	1060	15675	16087		
19130	29		15696	16111		
80	1197	2/10/99	15512	16133		
37	1102	858	15728	16108		
39	1199	859	15702	16124		
48	1193	1066	15708	16115		
104	1195	973	16259	16155		
74	99	1185	15719	16152		
18846	102	868	15740	16154		
49	18939	1059	16212	4132		
75	19131	1202	15705	16153		
18917	1070	1194	15658	16150		
19523	855	1200	15706	16139		
40	964	1208	15619	16051		
33	1198	1203	16057	16227		
32	961	1204	36215	4141		
52	856	1216	16059	16231		

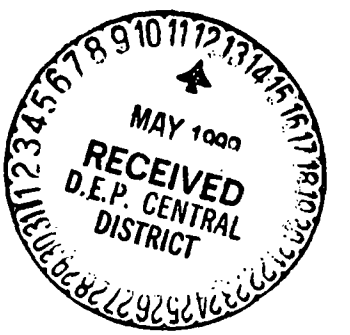
ATTACHMENT 3.15

AS-BUILT SURVEY

SECTION 4

CONSTRUCTION PHOTOGRAPHS

Construction photographs were taken as the work progressed. Items which are representative of the activities performed on-site during the construction activities were photographed by SCS. Photographs found to be representative of the work are contained in the Phase I and V report.


MAY 1999
RECEIVED
D.E.P. CENTRAL
DISTRICT

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9-1 CQA Representative Daily Field Reports
9-2 Piping System As-Built Drawing

ATTACHMENT 6-3

TENAX TRI-PLANAR MQC CERTIFICATES

QUALITY CONTROL SUMMARY

Product: TNT 507076

Prepared for : Comanco

Date : June 1, 1998

Cell # 3:Lot 1

Project: County of Volusia, Florida

Submitted to: Brenda Thompson
County of Volusia, Florida
Deland, FL 32724

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SECTION 1

TENAX® Corporation
4800 East Monument Street
Baltimore, Maryland 21205
Office: 410-522-7000 Order Line: (800) 356-8495
Fax: 410-522-7015 Waste Mgt: (800) US-GRIDS

June 1,1998

Brenda Thompson
County of Volusia, Florida
21215 East State Road
Deland, FL 32724

RE: County of Volusia Project
TENAX TNT 507076

Dear Ms. Thompson:

Tenax Corporation certifies that the following 42 rolls of TENAX TNT 507076 shipped to the above referenced project on May 29, 1998, are in accordance with the attached Tenax specifications and were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

TENAX XXX (6.7' x 200')
Rolls: 1-42

Respectfully submitted,

Tiffany Smolinski

Tiffany Smolinski
Quality Lab Manager

TNT 507076

DOUBLE-SIDED GEOCOMPOSITE
GEOTEXTILE + GEONET + GEOTEXTILE

Typical applications:
- leachate collection/detection systems in landfills - landfill cap drainage layer - gas venting media

PROPERTIES	TEST METHOD	UNIT	VALUE	Note
GEONET				
POLYMER DENSITY	ASTM D1505	g/cm^3	0.94	a
GEONET DENSITY	ASTM D792	g/cm^3	0.94	a
MELT FLOW INDEX	ASTM D1238	g/10 min	1	e
TRANSMISSIVITY	ASTM D4716	m^2/sec	1.0×10^{-3}	a,e
CARBON BLACK CONTENT	ASTM D4218	%	2-3	d
THICKNESS	ASTM D5199	mils	250	a
UNIT WEIGHT	ASTM D3776	$lb/1000\ ft^2$	245	a
TENSILE STRENGTH	ASTM D4595	lb/in	70	a
COMPRESSION @ 15,000 psf	ASTM D5199	%	70	b
GEOTEXTILE				
WEIGHT	ASTM D3776	oz/yd^2	7.1	c
GRAB TENSILE STRENGTH	ASTM D4632	lbs	210	c
GRAB TENSILE ELONGATION	ASTM D4632	%	60	c
MULLEN BURST	ASTM D3786	psi	360	c
PUNCTURE	ASTM D4833	lbs	95	c
TRAPEZOIDAL TEAR	ASTM D4533	lbs	75	c
THICKNESS	ASTM D1777	mils	95	c
APPARENT OPENING SIZE (AOS)	ASTM D4751	US Sieve	70	c
PERMITTIVITY	ASTM D4491	sec^{-1}	1.47	c
FLOW RATE	ASTM D4491	$gal/min/ft^2$	110	c
GEOCOMPOSITE				
PLY ADHESION	ASTM D413	lb/in	1.0	c
ROLL WIDTH	-	ft	6.7	a
ROLL LENGTH	-	ft	200	a
ROLL AREA	-	ft^2	1340	a

NOTES:

a) Minimum value

b) Typical value

c) Minimum Average Roll Value

d) Value Range

e) Transmissivity tested at a normal compressive stress of 15,000 psf and a gradient of 0.02, water temperature at 20°C, and configuration of Plate/Soil/Geotextile/Geonet/Geotextile/geomembrane seating period of one hour

Tenax Corporation
4800 East Monument Street
Baltimore, Maryland 21205
tel (410) 522-7000
fax (410) 522-3977

TNT507076 950910 kk COMANCO

SECTION 2

MASS POLYMERS CORPORATION

198 WEST HIGH STREET
SOMERVILLE, NJ 08876

(908) 725-3133
FAX (908) 725-9677

December 16, 1997

Ms. Christine Babcock
Tenax Corporation
4800 E Monument Street
Baltimore, MD 21206

ORDER CONFIRMATION

Customer P.O. Number	1207
Product Type	HDPE
Manufacturer/Grade Number	Lyondell 5045OG
Lot Number	797257
Railcar Number	ALAX 36318
Manufacturer Date	10/3/97
Delivery Date	12/12/97
Product Weight	136,200 LBS

PROPERTY	RESULTS	ASTM TEST METHOD
Melt Index (190/2.16)	0.59 g/10 min	D - 1238
Density	0.949 g/cm^3	D - 1505

Sincerely,

Stephen Dazzo

MASS POLYMERS CORPORATION

198 WEST HIGH STREET
SOMERVILLE, NJ 08876

(908) 725-3133
FAX (908) 725-9677

April 15, 1998

Tenax Corporation
4800 E Monument Street
Baltimore, MD 21206

ORDER CONFIRMATION

Customer P.O. Number	383
Product Type	HDPE
Manufacturer/Grade Number	Equistar L5440 OG
Lot Number	75664
Railcar Number	NA
Manufacturer Date	03/21/98
Delivery Date	04/15/98
Product Weight	47,700 lbs

PROPERTY	RESULTS	ASTM TEST METHOD
Melt Index (190/2.16)	0.25 g/10 min	D – 1238
Density	0.954 g/cm^3	D – 1505

Sincerely,

Stephen Dazzo

SECTION 3

MQC/MQA TEST RESULTS

Product : TNT 507076
Roll size : 6.7'X200'
Job : Volusia

Roll #	Thickness ASTM D5199 (mils)	Unit Weight ASTM D3776 (g/m^2)	Density ASTM D792 (g/cm^3)	Carbon Black ASTM D4218 %	Tensile Strength ASTM D4595 (lb/ft)	Crush Strength ASTM D1621 15,000(psf)
9800020	320	1848	0.94	2.17	1308	87.9%
9800061	287.3	1486	0.94	2.07	1219.5	81.9%
9800088	301	1788	0.951	3.66	1275.6	88.9%
9701478	283.1	1417	0.952	2.31	1289.3	82.1%
AVG	297.9	1635	0.946	2.55	1273.1	85.2%
STDEV	17	215	0	1	38	0
SPEC	**250 min.**	**1195 min.**	**0.94 min.**	**2 min.**	**70 min.**	**70% min.**

Reviewed by: Tiffany Smolinski Date: 6/1/98

SECTION 4

TNS
ADVANCED TECHNOLOGIES

681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 087-5101

May 26, 1998
REF: TNS E071
Qty. Shipped: 54 rolls
BOL#: 20247

Tenax Corp.
4800 East Monument Street
Baltimore, Md 21205

Dear Sir/Madam:

This is to certify that TNS E071 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E071 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E071 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	7.1
Thickness	ASTM D 1777	mils	90
Grab Tensile	ASTM D 4632	lbs	200
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs	75
Puncture	ASTM D 4833	lbs	115
Mullen Burst	ASTM D 3786	psi	400
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permitivity	ASTM D 4491	1/sec	1.41
Water Flow	ASTM D 4491	gpm/sq.ft.	110
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.32

Sincerely,

J. Melissa Keller
TNS Advanced Technologies

Roll #	Styl	Wdt	Lng	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm obl	Perm ity	AOS
996401	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	112	.34	1.8	80
996402	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	112	.32	1.6	80
996404	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996408	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996413	E071	090	A00	7.2	92	214	237	74	96	121	141	128	403	122	.38	1.8	80
996415	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996416	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996417	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996418	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996419	E071	090	A00	7.3	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996421	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996424	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996425	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996430	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996431	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996434	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996435	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996436	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996437	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996438	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996440	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996444	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996458	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996463	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996464	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996466	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996457	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	122	.36	1.8	80
996458	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	112	.34	1.8	80
996459	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.34	1.8	80
996460	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.34	1.8	80
996461	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996462	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996463	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996464	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996465	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996466	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996467	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996468	E071	090	A00	7.4	98	217	263	79	95	105	124	126	405	122	.36	1.8	80
996469	E071	090	A00	7.4	98	217	263	79	95	105	124	126	405	112	.36	1.8	80

B.O.L. #: 20247

Roll #	Style	Wdth	Lne	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm abl	Pore Ity	AOS
996472	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996473	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996474	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996478	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996481	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996482	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996484	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996486	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996495	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996497	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.33	1.6	80
996498	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.34	1.8	80
996499	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.34	1.8	80
996502	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996510	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	118	.36	1.9	80

SECTION 5

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT :	TNT 507076	W/O:	2-028-7
JOB:	Volusia	NET TYPE:	TD 5
LOT #:	1:Cell 3	TEXTILE 1:	TNS E071
DATE:	5/29/98	TEXTILE 2:	TNS E071

TEXTILE #	NET #	TEXTILE #	COMPOSITE #
996453	56	996472	1
996453	65	996472	2
996450	89	996472	3
996450	24	996472	4
996472	100	996472	5
996453	22	996437	6
996453	84	996437	7
996453	73	996437	8
996465	1497	996437	9
996465	67	996461	10
996450	63	996461	11
996465	64	996461	12
996450	1490	996461	13
996450	52	996461	14
996465	35	996460	15
996402	66	996460	16
996402	1492	996460	17
996402	39	996460	18
996464	23	996460	19
99464	34	996415	20
996464	12	996415	21
996464	85	996415	22
996464	48	996415	23
996434	54	996415	24
996434	33	996405	25
996434	1496	996405	26
996434	44	996405	27
996434	46	996405	28
996402	32	996486	29
996402	1491	996486	30
996466	1487	996468	31
996466	43	996468	32
996466	55	996468	33
996466	71	996469	34
996486	49	996469	35
996486	60	99469	36
996468	88	996469	37
996468	90	996469	38
996466	61	996444	39
996486	51	996444	40
996444	1495	996444	41
996444	50	996493	42

TRANSMISSIVITY TEST DATA
ASTM D-4716

TEST CONFIGURATION
PLATE
SOIL
GEOCOMPOSITE
GEOMEMBRANE
PLATE

Date : 6/1/98
Roll No. : 19
Roll Size: 6.7'x200'
Job : Volusia
Specimen Size : 12"X14"
Geonet Specimen Thickness : 320 mils
Geonet Specimen Unit Weight : 1768

Load (psf)	Seating	Temp (oC)	Gradient	Q_1 (l/min)	Q_2 (l/min)	Q_{avg} (l/min)	θ (m^2/s)	**Spec.**
15,000	60 Min.	20.0	0.02	1.10	1.08	1.09	2.98E-03	1.00E-03

CHECKED BY : Tiffany Smolinski

Product: TNS E070

Job: Velusia

Specimen Size:2"x10"

Required bond: 1Pound Per Inch

Crosshead Speed:2"/min

Roll #	Pass #	Pounds Per Inch Per Test Strip 1	2	3	4	5	Avg Bond Strength
1	1	.80	.90	1.1	1.0	1.3	1.0
	2	.90	1.1	1.0	1.1	1.3	1.1
30	1	1.1	.90	1.3	1.2	1.6	1.2
	2	1.1	1.1	.80	1.0	1.3	1.1

Test Conducted By:
Jason Cheperuk

Jason Cheperuk 5/29/98

Date

QUALITY CONTROL SUMMARY

Product: TNT 507076

Prepared for : Comanco

Date : June 4, 1998

Cell # 3:Lot 2

Project: County of Volusia, Florida

Submitted to: Brenda Thompson
County of Volusia, Florida
Solid Waste Services
123 W. Indiana Avenue
Rm. 301 Purchasing Dept.
Deland, FL 32720-4608

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SECTION 1

TENAX® Corporation
4800 East Monument Street
Baltimore, Maryland 21205
Office: 410-522-7000 Order Line: (800) 356-8495
Fax: 410-522-7015 Waste Mgt: (800) US-GRIDS

June 4, 1998

Brenda Thompson
County of Volusia, Florida
Solid Waste Services
123 W. Indiana Ave.
Rm. 301 Purchasing Dept.
Deland, FL 32720-4608

RE: County of Volusia Project
TENAX TNT 507076

Dear Ms. Thompson:

Tenax Corporation certifies that the following 53 rolls of TENAX TNT 507076 shipped to the above referenced project on June 3, 1998, are in accordance with the attached Tenax specifications and were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

TENAX XXX (6.7' x 200')
Rolls: 9800001-4, 6-11, 13-22, 24-48, 50, 51, 55, 57-60, 62

Respectfully submitted,

Tiffany Smolinski

Tiffany Smolinski
Quality Lab Manager

TNT 507076

DOUBLE-SIDED GEOCOMPOSITE
GEOTEXTILE + GEONET + GEOTEXTILE

Typical applications:
- leachate collection/detection systems in landfills - landfill cap drainage layer - gas venting media

PROPERTIES	TEST METHOD	UNIT	VALUE	Note
GEONET				
POLYMER DENSITY	ASTM D1505	g/cm^3	0.94	a
GEONET DENSITY	ASTM D792	g/cm^3	0.94	a
MELT FLOW INDEX	ASTM D1238	g/10 min	1	e
TRANSMISSIVITY	ASTM D4716	m^2/sec	1.0×10^{-3}	a,e
CARBON BLACK CONTENT	ASTM D4218	%	2-3	d
THICKNESS	ASTM D5199	mils	250	a
UNIT WEIGHT	ASTM D3776	$lb/1000\ ft^2$	245	a
TENSILE STRENGTH	ASTM D4595	lb/in	70	a
COMPRESSION @ 15,000 psf	ASTM D5199	%	70	b
GEOTEXTILE				
WEIGHT	ASTM D3776	oz/yc^2	7.1	c
GRAB TENSILE STRENGTH	ASTM D4632	lbs	210	c
GRAB TENSILE ELONGATION	ASTM D4632	%	60	c
MULLEN BURST	ASTM D3786	psi	360	c
PUNCTURE	ASTM D4833	lbs	95	c
TRAPEZOIDAL TEAR	ASTM D4533	lbs	75	c
THICKNESS	ASTM D1777	mils	95	c
APPARENT OPENING SIZE (AOS)	ASTM D4751	US Sieve	70	c
PERMITTIVITY	ASTM D4491	sec^{-1}	1.47	c
FLOW RATE	ASTM D4491	$gal/min/ft^2$	110	c
GEOCOMPOSITE				
PLY ADHESION	ASTM D413	lb/in	1.0	c
ROLL WIDTH	-	ft	6.7	a
ROLL LENGTH	-	ft	200	a
ROLL AREA	-	ft^2	1340	a

NOTES:

a) Minimum value

b) Typical value

c) Minimum Average Roll Value

d) Value Range

e) Transmissivity tested at a normal compressive stress of 15,000 psf and a gradient of 0.02, water temperature at 20°C, and configuration of Plate/Soil/Geotextile/Geonet/Geotextile/geomembrane seating period of one hour

Tenax Corporation
4800 East Monument Street
Baltimore, Maryland 21205
tel (410) 522-7000
fax (410) 522-3977

TNT507076 950910 kk COMANCO

SECTION 2

MASS POLYMERS CORPORATION

198 WEST HIGH STREET
SOMERVILLE, NJ 08676

(908) 725-3133
FAX (908) 725-9677

May 18, 1998

Tenax Corporation
4800 E Monument Street
Baltimore, MD 21206

ORDER CONFIRMATION

Customer P.O. Number	475
Product Type	HDPE
Manufacturer/Grade Number	Fina 7194 OG
Lot Number	80752
Railcar Number	ACFX 40726
Manufacturer Date	04/02/98
Delivery Date	05/15/98
Product Weight	192,100 lbs

PROPERTY	RESULTS	ASTM TEST METHOD
Melt Index (190/2.16)	0.55 g/10 min	D – 1238
Density	0.945 g/cm^3	D – 1505

Sincerely,

Stephen Dazzo

SECTION 3

MQC/MQA TEST RESULTS

Product : TNT 507076
Roll size : 6.7'X200'
Job : Volusia

Jumbo Roll #	Thickness ASTM D5199 (mils)	Unit Weight ASTM D3776 (g/m^2)	Density ASTM D792 (g/cm^3)	Carbon Black ASTM D4218 %	Tensile Strength ASTM D4595 (lb/ft)	Crush Strength ASTM D1621 15,000(psf)
9800001	291.1	1350	0.941	2.01	1126.3	86.3%
9800006	284.8	1388	0.946	2.06	1127	87.9%
AVG	288.0	1369	0.944	2.04	1126.7	87.1%
STDEV	4	27	0.004	0.04	0.49	0.01
SPEC	**250 min.**	**1195 min.**	**0.94 min.**	**2 min.**	**70 min.**	**70% min.**

Reviewed by: Tiffany Smolinski Date: 6/4/98

SECTION 4

TNS
ADVANCED TECHNOLOGIES

681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 867-5101

May 26, 1998
REF: TNS E071
Qty. Shipped: 54 rolls
BOL#: 20246

Tenax Corp.
4800 East Monument Street
Baltimore, Md 21205

Dear Sir/Madam:

This is to certify that TNS E071 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E071 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E071 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	7.1
Thickness	ASTM D 1777	mils	90
Grab Tensile	ASTM D 4632	lbs	200
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs	75
Puncture	ASTM D 4833	lbs	115
Mullen Burst	ASTM D 3786	psi	400
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permitivity	ASTM D 4491	1/sec	1.41
Water Flow	ASTM D 4491	gpm/sq.ft.	110
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.32

Sincerely,

J. Melissa Keller
TNS Advanced Technologies

B.O.L. #: 20246

Roll #	Styl	Wdt	Lne	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm obl	Perm ltv	AOS
996403	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996406	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996407	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996409	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996410	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996411	E071	090	A00	7.2	92	214	237	74	96	121	141	128	403	122	.38	1.8	80
996412	E071	090	A00	7.2	92	214	237	74	96	121	141	128	403	122	.38	1.8	80
996414	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	118	.38	1.6	80
996420	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996422	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996423	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996426	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996427	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996428	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996429	E071	090	A00	7.6	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996437	E071	090	A00	7.5	96	217	230	69	81	117	135	118	414	122	.36	1.8	80
996438	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996439	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996441	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996442	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996443	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996445	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996446	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996447	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996448	E071	090	A00	7.3	92	223	242	75	85	123	136	121	426	122	.38	1.8	80
996449	E071	090	A00	7.3	92	223	242	75	85	123	136	121	426	122	.38	1.8	80
996451	E071	090	A00	7.3	92	223	242	75	86	123	136	121	426	122	.38	1.8	80
996452	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996455	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996470	E071	090	A00	7.4	98	217	253	79	95	105	124	126	405	122	.36	1.8	80
996471	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996476	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996479	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.34	1.6	80
996480	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996483	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996485	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996487	E071	090	A00	9.8	98	229	284	77	95	90	114	134	443	133	.36	1.8	80
996488	E071	090	A00	9.8	98	229	284	77	95	90	114	134	443	133	.36	1.8	80
996489	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80

B.O.L. #: 20246

Roll #	Styl	Wgt	Ing	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm -abl	Perm -ity	AOS
996490	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996491	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996492	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996494	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996495	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996496	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996500	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996501	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996503	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996504	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996505	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996506	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	119	.36	1.9	80
996507	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	119	.36	1.9	80
996508	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	119	.36	1.9	80
996509	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	119	.36	1.9	80

TNS
ADVANCED TECHNOLOGIES

681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 887-5101

May 26, 1998
REF: TNS E071
Qty. Shipped: 54 rolls
BOL#: 20247

Tenax Corp.
4800 East Monument Street
Baltimore, Md 21205

Dear Sir/Madam:

This is to certify that TNS E071 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E071 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E071 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	7.1
Thickness	ASTM D 1777	mils	90
Grab Tensile	ASTM D 4632	lbs	200
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs	75
Puncture	ASTM D 4833	lbs	115
Mullen Burst	ASTM D 3786	psi	400
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permitivity	ASTM D 4491	1/sec	1.41
Water Flow	ASTM D 4491	gpm/sq.ft.	110
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.32

Sincerely,

J. Melissa Keller
TNS Advanced Technologies

B.O.L. #: 20247

Roll #	Styl	Wdt	Lng	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Root	Brst Strg	Flow Rate	Perm obl	Perm ltv	AOS
996401	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	112	.34	1.8	80
996402	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	112	.32	1.6	80
996404	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996408	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996413	E071	090	A00	7.2	92	214	237	74	96	121	141	128	403	122	.38	1.8	80
996415	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996416	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996417	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996418	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996419	E071	090	A00	7.3	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996421	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996424	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996425	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996430	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996431	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996434	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996435	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996436	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996437	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996438	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996440	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996441	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996450	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996463	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996464	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996456	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996457	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	122	.36	1.8	80
996458	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	112	.34	1.8	80
996459	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.34	1.8	80
996460	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	112	.34	1.8	80
996461	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996462	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996463	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996464	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996465	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996466	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996467	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996468	E071	090	A00	7.4	98	217	263	79	95	105	124	126	405	122	.36	1.8	80
996469	E071	090	A00	7.4	98	217	263	79	95	105	124	126	405	112	.36	1.8	80

B.O.L. #: 20247

Roll #	Style	Way	Lne	Fabc Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm abl	Pore ifv	AOS
996472	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996473	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996474	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996478	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996481	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996482	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996484	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996486	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996493	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996497	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.33	1.6	80
996498	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.34	1.8	80
996499	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.34	1.8	80
996502	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996510	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	118	.36	1.9	80

SECTION 5

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT :	TNT 507076	B/L #:	2609
JOB:	Volusia	NET TYPE:	TD 5
LOT #:	2:Cell 3	TEXTILE 1:	TNS E071
DATE:	6/4/98	TEXTILE 2:	TNS E071

JUMBO ROLL #	TEXTILE #	TEXTILE #	COMPOSITE #
9800001	996483	996423	9800001
	996483	996423	9800002
	996483	996423	9800003
9800005	996483	996423	9800004
	996410	996403	9800006
	996410	996403	9800007
	996410	996403	9800008
	996410	996403	9800009
	996504	996455	9800010
9800002	996504	996455	9800011
	996504	996455	9800013
	996504	996455	9800014
	996489	996480	9800015
	996489	996480	9800016
	996489	996480	9800017
	996489	996480	9800018
	996489	996480	9800019
9800006	996490	996489	9800020
	996490	996492	9800021
	996490	996492	9800022
9800004	996439	996495	9800024
	996439	996495	9800025
	996439	996495	9800026
	996439	996427	9800027
	996439	996427	9800028
	996420	996427	9800029
	996420	996427	9800030
	996420	996427	9800031
9800003	996420	996451	9800032
	996494	996451	9800033
	996494	996451	9800034
	996494	996451	9800035
	996494	996451	9800036
	996494	996452	9800037
	996429	996452	9800038
	996429	996452	9800039
	996429	996452	9800040
	996429	996452	9800041
9800007	996429	996426	9800042
	996422	996426	9800043

	996422	996426	9800044
	996422	996426	9800045
	996422	996406	9800046
	996422	996406	9800047
	996432	996406	9800048
	996432	996406	9800050
	996432	996406	9800051
9800008	996449	996507	9800055
	996449	996487	9800057
	996449	996487	9800058
	996479	996487	9800059
	996479	996487	9800060
9800011	996479	996470	9800062

TRANSMISSIVITY TEST DATA
ASTM D-4716

TEST CONFIGURATION
PLATE
SOIL
GEOCOMPOSITE
GEOMEMBRANE
PLATE

Date : 6/4/98
Roll No. : 1
Roll Size: 6.7'x200'
Job : Volusia
Specimen Size : 12"X14"
Geonet Specimen Thickness : 254 mils
Geonet Specimen Unit Weight : 1331

Load (psf)	Seating	Temp (oC)	Gradient	Q_1 (l/min)	Q_2 (l/min)	Q_{avg} (l/min)	θ (m^2/s)	Spec.
15,000	60 Min.	20.0	0.02	0.50	0.45	0.48	1.30E-03	1.00E-03

CHECKED BY : Tiffany Sinclair

MQC/MQA TEST RESULTS

Product : TNT 507076
Lot # : 2
Roll size : 6.7' x 200'
Job : Volusia

Roll No.	Ply Adhesion ASTM D413 (lb/in) Side1	Side2
9800001	1.18	1.47
	0.83	1.10
	1.13	0.81
	1.80	1.09
	0.79	0.90
AVG	1.15	1.07
STDEV	0.41	0.26
SPEC	**1 lb/in min.**	

Reviewed by: Tiffany Smolinski

Date: 6/4/08

QUALITY CONTROL SUMMARY

Product: TNT 507076

Prepared for : Comanco

Date : June 8, 1998

Cell # 3:Lot 3

Project: County of Volusia, Florida

Submitted to: Brenda Thompson
County of Volusia, Florida
Solid Waste Services
123 W. Indiana Avenue
Rm. 301 Purchasing Dept.
Deland, FL 32720-4608

Table of Contents

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SECTION 1

TENAX® Corporation
4800 East Monument Street
Baltimore, Maryland 21205
Office: 410-522-7000 Order Line: (800) 356-8495
Fax: 410-522-7015 Waste Mgt: (800) US-GRIDS

June 8, 1998

Brenda Thompson
County of Volusia, Florida
Solid Waste Services
123 W. Indiana Ave.
Rm. 301 Purchasing Dept.
Deland, FL 32720-4608

RE: County of Volusia Project
TENAX TNT 507076

Dear Ms. Thompson:

Tenax Corporation certifies that the following 52 rolls of TENAX TNT 507076 shipped to the above referenced project on June 5, 1998, are in accordance with the attached Tenax specifications and were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

TENAX XXX (6.7' x 200')
Rolls: 9800052-54, 56, 63-95, 101, 103, 105-117

Respectfully submitted,

Tiffany Smolinski

Tiffany Smolinski
Quality Lab Manager

TNT 507076

DOUBLE-SIDED GEOCOMPOSITE
GEOTEXTILE + GEONET + GEOTEXTILE

Typical applications:
- leachate collection/detection systems in landfills - landfill cap drainage layer - gas venting media

PROPERTIES	TEST METHOD	UNIT	VALUE	Note
GEONET				
POLYMER DENSITY	ASTM D1505	g/cm^3	0.94	a
GEONET DENSITY	ASTM D792	g/cm^3	0.94	a
MELT FLOW INDEX	ASTM D1238	g/10 min	1	e
TRANSMISSIVITY	ASTM D4716	m^2/sec	1.0×10^{-3}	a,e
CARBON BLACK CONTENT	ASTM D4218	%	2-3	d
THICKNESS	ASTM D5199	mils	250	a
UNIT WEIGHT	ASTM D3776	$lb/1000\ ft^2$	245	a
TENSILE STRENGTH	ASTM D4595	lb/in	70	a
COMPRESSION @ 15,000 psf	ASTM D5199	%	70	b
GEOTEXTILE				
WEIGHT	ASTM D3776	oz/yd^2	7.1	c
GRAB TENSILE STRENGTH	ASTM D4632	lbs	210	c
GRAB TENSILE ELONGATION	ASTM D4632	%	60	c
MULLEN BURST	ASTM D3786	psi	360	c
PUNCTURE	ASTM D4833	lbs	95	c
TRAPEZOIDAL TEAR	ASTM D4533	lbs	75	c
THICKNESS	ASTM D1777	mils	95	c
APPARENT OPENING SIZE (AOS)	ASTM D4751	US Sieve	70	c
PERMITTIVITY	ASTM D4491	sec^{-1}	1.47	c
FLOW RATE	ASTM D4491	$gal/min/ft^2$	110	c
GEOCOMPOSITE				
PLY ADHESION	ASTM D413	lb/in	1.0	c
ROLL WIDTH	-	ft	6.7	a
ROLL LENGTH	-	ft	200	a
ROLL AREA	-	ft^2	1340	a

NOTES:

a) Minimum value

b) Typical value

c) Minimum Average Roll Value

d) Value Range

e) Transmissivity tested at a normal compressive stress of 15,000 psf and a gradient of 0.02, water temperature at 20°C, and configuration of Plate/Soil/Geotextile/Geonet/Geotextile/geomembrane seating period of one hour

Tenax Corporation
4800 East Monument Street
Baltimore, Maryland 21205
tel (410) 522-7000
fax (410) 522-3977

TNT507076 950910 kk COMANCO

SECTION 2

MASS POLYMERS CORPORATION

198 WEST HIGH STREET
SOMERVILLE, NJ 08876

(908) 725-3133
FAX (908) 725-9677

May 18, 1998

Tenax Corporation
4800 E Monument Street
Baltimore, MD 21206

ORDER CONFIRMATION

Customer P.O. Number	475
Product Type	HDPE
Manufacturer/Grade Number	Fina 7194 OG
Lot Number	80752
Railcar Number	ACFX 40726
Manufacturer Date	04/02/98
Delivery Date	05/15/98
Product Weight	192,100 lbs

PROPERTY	RESULTS	ASTM TEST METHOD
Melt Index (190/2.16)	0.55 g/10 min	D – 1238
Density	0.945 g/cm^3	D – 1505

Sincerely,

Stephen Dazzo

MASS POLYMERS CORPORATION

198 WEST HIGH STREET
SOMERVILLE, NJ 08876

(908) 725-3133
FAX (908) 725-9677

May 28, 1998

Tenax Corporation
4800 E Monument Street
Baltimore, MD 21206

ORDER CONFIRMATION

Customer P.O. Number	529
Product Type	HDPE
Manufacturer/Grade Number	Fina 7194 OG
Lot Number	80851
Railcar Number	ACFX 99955
Manufacturer Date	05/02/98
Delivery Date	05/29/98
Product Weight	192.750 lbs.

PROPERTY	RESULTS	ASTM TEST METHOD
Melt Index (190/2.16)	0.55 g/10 min	D – 1238
Density	0.945 g/cm^3	D – 1505

Sincerely,

Stephen Dazzo

SECTION 3

MQC/MQA TEST RESULTS

Product : TNT 507076
Roll size : 6.7'X200'
Job : Volusia

Jumbo Roll #	Thickness ASTM D5199 (mils)	Unit Weight ASTM D3776 (g/m^2)	Density ASTM D792 (g/cm^3)	Carbon Black ASTM D4218 %	Tensile Strength ASTM D4595 (lb/ft)	Crush Strength ASTM D1621 15,000(psf)
9800001	291.1	1350	0.941	2.01	1126.3	86.3%
9800006	284.8	1388	0.946	2.06	1127	87.9%
9800010	291.1	1363	0.944	2.05	1060.5	87.6%
9800016	292.6	1373	0.943	2.19	1097	88.4%
AVG	289.9	1369	0.944	2.08	1102.7	87.6%
STDEV	3	16	0.002	0.08	31.42	0.01
SPEC	**250 min.**	**1195 min.**	**0.94 min.**	**2 min.**	**840 min.**	**70% min.**

Reviewed by: Tiffany Smolinski **Date:** 6/8/98

SECTION 4

TNS
ADVANCED TECHNOLOGIES

681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 867-5181

May 26, 1998
REF: TNS E071
Qty. Shipped: 54 rolls
BOL#: 20246

Tenax Corp.
4800 East Monument Street
Baltimore, Md 21205

Dear Sir/Madam:

This is to certify that TNS E071 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E071 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E071 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	7.1
Thickness	ASTM D 1777	mils	90
Grab Tensile	ASTM D 4632	lbs	200
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs	75
Puncture	ASTM D 4833	lbs	115
Mullen Burst	ASTM D 3786	psi	400
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permitivity	ASTM D 4491	1/sec	1.41
Water Flow	ASTM D 4491	gpm/sq.ft.	110
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.32

Sincerely,

J. Melissa Keller
TNS Advanced Technologies

B.O.L. #: 20246

Roll #	Styl Wdt Lng	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm obl	Perm ltv	AOS
996403	E071 090 A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996406	E071 090 A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996407	E071 090 A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996409	E071 090 A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996410	E071 090 A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996411	E071 090 A00	7.2	92	214	237	74	96	121	141	128	403	122	.38	1.8	80
996412	E071 090 A00	7.2	92	214	237	74	96	121	141	128	403	122	.38	1.8	80
996414	E071 090 A00	7.2	92	214	237	74	96	121	141	128	412	118	.38	1.8	80
996420	E071 090 A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996422	E071 090 A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996423	E071 090 A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996426	E071 090 A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996427	E071 090 A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996428	E071 090 A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996429	E071 090 A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996432	E071 090 A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996433	E071 090 A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996439	E071 090 A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996441	E071 090 A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996442	E071 090 A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996443	E071 090 A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996446	E071 090 A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996447	E071 090 A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996448	E071 090 A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996449	E071 090 A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996451	E071 090 A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996452	E071 090 A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996455	E071 090 A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996470	E071 090 A00	7.4	98	217	253	79	95	105	124	126	405	122	.36	1.8	80
996471	E071 090 A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996475	E071 090 A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996479	E071 090 A00	7.4	96	216	232	72	94	84	109	120	400	112	.34	1.8	80
996480	E071 090 A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996483	E071 090 A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996485	E071 090 A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996487	E071 090 A00	9.8	98	229	284	77	95	90	114	134	443	133	.36	1.8	80
996488	E071 090 A00	9.8	98	229	284	77	95	90	114	134	443	133	.36	1.8	80
996489	E071 090 A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80

B.O.L. #: 20246

Roll #	Styl	Wdt	Lng	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm -abl	Perm -ity	AOS
996490	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996491	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996492	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996493	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996494	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996495	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996500	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996501	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996503	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996504	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996505	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996506	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	119	.36	1.9	80
996507	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	119	.36	1.9	80
996508	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	119	.36	1.9	80
996509	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	119	.36	1.9	80

TNS
ADVANCED TECHNOLOGIES

681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 887-5101

May 26, 1998
REF: TNS E071
Qty. Shipped: 54 rolls
BOL#: 20247

Tenax Corp.
4800 East Monument Street
Baltimore, Md 21205

Dear Sir/Madam:

This is to certify that TNS E071 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E071 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E071 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	7.1
Thickness	ASTM D 1777	mils	90
Grab Tensile	ASTM D 4632	lbs	200
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs	75
Puncture	ASTM D 4833	lbs	115
Mullen Burst	ASTM D 3786	psi	400
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permitivity	ASTM D 4491	1/sec	1.41
Water Flow	ASTM D 4491	gpm/sq.ft.	110
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.32

Sincerely,

J. Melissa Keller
TNS Advanced Technologies

B.O.L. #: 20247

Roll #	Styl	Wdt	Lng	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm obl	Perm ity	AOS
996401	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	112	.34	1.8	80
996402	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	112	.32	1.6	80
996404	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996408	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996413	E071	090	A00	7.2	92	214	237	74	96	121	141	128	403	122	.38	1.8	80
996415	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996416	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996417	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996418	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996419	E071	090	A00	7.3	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996421	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996424	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996425	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996430	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996431	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996434	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996435	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996436	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996437	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996438	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996444	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996449	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996450	E071	090	A00	7.3	92	223	242	75	86	123	136	121	425	122	.38	1.8	80
996453	E071	090	A00	7.3	92	223	242	75	86	123	136	121	426	122	.38	1.8	80
996454	E071	090	A00	7.3	92	223	242	75	86	123	136	121	425	122	.38	1.8	80
996456	E071	090	A00	7.3	92	223	242	75	86	123	136	121	425	122	.38	1.8	80
996457	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	122	.36	1.8	80
996458	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	112	.34	1.8	80
996459	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	112	.34	1.8	80
996460	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	112	.34	1.8	80
996461	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996462	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996463	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996464	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996465	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	112	.36	1.8	80
996466	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996467	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996468	E071	090	A00	7.4	98	217	263	79	95	105	124	126	405	122	.36	1.8	80
996469	E071	090	A00	7.4	98	217	263	79	95	105	124	126	405	112	.36	1.8	80

B.O.L. #: 20247

Roll #	Style	Wgt	Inc	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm -ebl	Perm -ity	AOS
996472	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996473	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996474	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996478	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996481	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996482	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996484	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996486	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996495	E071	090	A00	9.8	99	238	244	77	95	90	114	134	413	112	.36	1.8	80
996497	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.34	1.8	80
996498	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.34	1.8	80
996499	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.34	1.8	80
996502	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996510	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	118	.36	1.9	80

TNS
ADVANCED TECHNOLOGIES

681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 867-5181

June 5, 1998
REF: TNS E071
Qty. Shipped: 28 rolls
BOL#: 11871

Tenax Corp.
4800 East Monument Street
Baltimore, Md 21205

Dear Sir/Madam:

This is to certify that TNS E071 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E071 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E071 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	7.1
Thickness	ASTM D 1777	mils	90
Grab Tensile	ASTM D 4632	lbs	200
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs	75
Puncture	ASTM D 4833	lbs	115
Mullen Burst	ASTM D 3786	psi	400
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permitivity	ASTM D 4491	1/sec	1.41
Water Flow	ASTM D 4491	gpm/sq.ft.	110
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.32

Sincerely,

J. Melissa Keller
TNS Advanced Technologies

B.O.L. #: 11871

Roll #	Styl	Wdt	Lng	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm -abl	Perm -ity	AOS
998313	E071	090	A00	8.0	119	227	266	86	92	89	141	132	413	122	.36	1.8	80
998325	E071	090	A00	8.0	119	227	266	86	92	89	141	132	413	122	.36	1.8	80
998337	E071	090	A00	7.7	120	229	228	72	84	77	75	118	409	122	.36	1.8	80

TNS
ADVANCED TECHNOLOGIES

681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 867-5181

June 5, 1998
REF: TNS E071
Qty. Shipped: 54 rolls
BOL#: 20247

Tenax Corp.
4800 East Monument Street
Baltimore, Md 21205

Dear Sir/Madam:

This is to certify that TNS E071 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E071 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E071 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	7.1
Thickness	ASTM D 1777	mils	90
Grab Tensile	ASTM D 4632	lbs	200
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs	75
Puncture	ASTM D 4833	lbs	115
Mullen Burst	ASTM D 3786	psi	400
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permitivity	ASTM D 4491	1/sec	1.41
Water Flow	ASTM D 4491	gpm/sq.ft.	110
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.32

Sincerely,

J. Melissa Keller
TNS Advanced Technologies

O.O.L. #: 20247

Roll #	Styl	Wdt	Lng	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm abl	Perm ltv	AOS
996419	E071	090	A00	7.3	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996430	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996435	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996453	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996486	E071	090	A00	7.4	96	216	232	72	94	84	109	120	408	112	.36	1.8	80
996493	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80

SECTION 5

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT :	TNT 507076	B/L #:	2648
JOB:	Volusia	NET TYPE:	TD 5
LOT #:	3:Cell 3	TEXTILE 1:	TNS E071
DATE:	6/8/98	TEXTILE 2:	TNS E071

JUMBO ROLL #	TEXTILE #	TEXTILE #	COMPOSITE #
9800008	996432	996507	9800052
	996432	996507	9800053
	996449	996507	9800054
	996449	996507	9800056
9800011	996475	996470	9800063
	996475	996470	9800064
	996475	996470	9800065
	996475	996470	9800066
	996475	996509	9800067
	996496	996509	9800068
	996496	996509	9800069
9800012	996496	996509	9800070
	996496	996508	9800071
	996496	996508	9800072
	996442	996508	9800073
	996442	996508	9800074
	996442	996508	9800075
	996442	996443	9800076
	996442	996443	9800077
	996503	996443	9800078
9800010	996503	996443	9800079
	996503	996443	9800080
	996503	996409	9800081
	996488	996409	9800082
	996488	996409	9800083
	996488	996409	9800084
	996488	996409	9800085
	996488	996428	9800086
9800014	998030	996428	9800087
	998030	996428	9800088
	998030	996428	9800089
	998030	996428	9800090
	998030	998032	9800091
	998008	998032	9800092
	998008	998032	9800093
	998008	998032	9800094
	998008	998330	9800095
9800016	998328	998335	9800101
	998326	998335	9800103
9800009	998326	998336	9800105

	998326	998336	9800106
	998331	998336	9800107
	998331	998336	9800108
	998331	998336	9800109
	998331	998316	9800110
	998331	998316	9800111
	998322	998316	9800112
	998322	998316	9800113
9800018	998322	998316	9800114
	998322	998332	9800115
	998325	998332	9800116
	998325	998332	9800117

TRANSMISSIVITY TEST DATA
ASTM D-4716

TEST CONFIGURATION
PLATE
SOIL
GEOCOMPOSITE
GEOMEMBRANE
PLATE

Date : 6/8/98
Roll No. : 116
Roll Size: 6.7'x200'
Job : Volusia
Specimen Size : 12"X14"
Geonet Specimen Thickness : 293 mils
Geonet Specimen Unit Weight : 1631

Load (psf)	Seating	Temp (oC)	Gradient	Q_1 (l/min)	Q_2 (l/min)	Q_{avg} (l/min)	θ (m^2/s)	Spec.
15,000	60 Min.	20.0	0.02	1.32	1.34	1.33	3.64E-03	1.00E-03

CHECKED BY : Tiffany Smolinski

MQC/MQA TEST RESULTS

Product : TNT 507076
Lot # : 3
Roll size : 6.7' x 200'
Job : Volusia

Roll No.	Ply Adhesion ASTM D413 (lb/in) Side1	Side2
9800115	1.03	2.60
	1.20	2.10
	1.31	2.54
	1.34	1.49
	1.68	2.07
AVG	1.31	2.16
STDEV	0.24	0.45
SPEC	**1 lb/in min.**	

Reviewed by: Tiffany Smolinski

Date: 6/8/98

QUALITY CONTROL SUMMARY

Product: TNT 507076

Prepared for : Comanco

Date : June 11, 1998

Cell # 3:Lot 4

Project: County of Volusia, Florida

Submitted to: Brenda Thompson
County of Volusia, Florida
Solid Waste Services
123 W. Indiana Avenue
Rm. 301 Purchasing Dept.
Deland, FL 32720-4608

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SECTION 1

TENAX® Corporation
4800 East Monument Street
Baltimore, Maryland 21205
Office: 410-522-7000 Order Line: (800) 356-8495
Fax: 410-522-7015 Waste Mgt: (800) US-GRIDS

June 11, 1998

Brenda Thompson
County of Volusia, Florida
Solid Waste Services
123 W. Indiana Ave.
Rm. 301 Purchasing Dept.
Deland, FL 32720-4608

RE: County of Volusia Project
TENAX TNT 507076

Dear Ms. Thompson:

Tenax Corporation certifies that the following 51 rolls of TENAX TNT 507076 shipped to the above referenced project on June 10, 1998, are in accordance with the attached Tenax specifications and were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

TENAX XXX (6.7' x 200')
Rolls: 9800049, 61, 96-100, 102, 118-147, 149, 152, 154-158, 161, 162

(6.7' x 145')	(6.7' x 183')	(6.7' x 187')	(6.7' x 190')
151	104	23	12

Respectfully submitted,

Tiffany Smolinski

Tiffany Smolinski
Quality Lab Manager

TNT 507076

DOUBLE-SIDED GEOCOMPOSITE
GEOTEXTILE + GEONET + GEOTEXTILE

Typical applications:
- leachate collection/detection systems in landfills - landfill cap drainage layer - gas venting media

PROPERTIES	TEST METHOD	UNIT	VALUE	Note
GEONET				
POLYMER DENSITY	ASTM D1505	g/cm^3	0.94	a
GEONET DENSITY	ASTM D792	g/cm^3	0.94	a
MELT FLOW INDEX	ASTM D1238	g/10 min	1	e
TRANSMISSIVITY	ASTM D4716	m^2/sec	1.0×10^{-3}	a,e
CARBON BLACK CONTENT	ASTM D4218	%	2-3	d
THICKNESS	ASTM D5199	mils	250	a
UNIT WEIGHT	ASTM D3776	$lb/1000\ ft^2$	.245	a
TENSILE STRENGTH	ASTM D4595	lb/in	70	a
COMPRESSION @ 15,000 psf	ASTM D5199	%	70	b
GEOTEXTILE				
WEIGHT	ASTM D3776	oz/yc^2	7.1	c
GRAB TENSILE STRENGTH	ASTM D4632	lbs	210	c
GRAB TENSILE ELONGATION	ASTM D4632	%	60	c
MULLEN BURST	ASTM D3786	psi	360	c
PUNCTURE	ASTM D4833	lbs	95	c
TRAPEZOIDAL TEAR	ASTM D4533	lbs	75	c
THICKNESS	ASTM D1777	mils	95	c
APPARENT OPENING SIZE (AOS)	ASTM D4751	US Sieve	70	c
PERMITTIVITY	ASTM D4491	sec^{-1}	1.47	c
FLOW RATE	ASTM D4491	$gal/min/ft^2$	110	c
GEOCOMPOSITE				
PLY ADHESION	ASTM D413	lb/in	1.0	c
ROLL WIDTH	-	ft	6.7	a
ROLL LENGTH	-	ft	200	a
ROLL AREA	-	ft^2	1340	a

NOTES:

a) Minimum value

b) Typical value

c) Minimum Average Roll Value

d) Value Range

e) Transmissivity tested at a normal compressive stress of 15,000 psf and a gradient of 0.02, water temperature at 20°C, and configuration of Plate/Soil/Geotextile/Geonet/Geotextile/geomembrane seating period of one hour

Tenax Corporation
4800 East Monument Street
Baltimore, Maryland 21205
tel (410) 522-7000
fax (410) 522-3977

TNT507076 950910 kk COMANCO

SECTION 2

MASS POLYMERS CORPORATION

198 WEST HIGH STREET
SOMERVILLE, NJ 08876

(908) 725-3133
FAX (908) 725-9677

May 18, 1998

Tenax Corporation
4800 E Monument Street
Baltimore, MD 21206

ORDER CONFIRMATION

Customer P.O. Number	475
Product Type	HDPE
Manufacturer/Grade Number	Fina 7194 OG
Lot Number	80752
Railcar Number	ACFX 40726
Manufacturer Date	04/02/98
Delivery Date	05/15/98
Product Weight	192,100 lbs

PROPERTY	RESULTS	ASTM TEST METHOD
Melt Index (190/2.16)	0.55 g/10 min	D – 1238
Density	0.945 g/cm^3	D – 1505

Sincerely,

Stephen Dazzo

MASS POLYMERS CORPORATION

198 WEST HIGH STREET
SOMERVILLE, NJ 08876

(908) 725-3133
FAX (908) 725-9677

May 28, 1998

Tenax Corporation
4800 E Monument Street
Baltimore, MD 21206

ORDER CONFIRMATION

Customer P.O. Number	529
Product Type	HDPE
Manufacturer/Grade Number	Fina 7194 OG
Lot Number	80851
Railcar Number	ACFX 99955
Manufacturer Date	05/02/98
Delivery Date	05/29/98
Product Weight	192.750 lbs.

PROPERTY	RESULTS	ASTM TEST METHOD
Melt Index (190/2.16)	0.55 g/10 min	D - 1238
Density	0.945 g/cm^3	D - 1505

Sincerely,

Stephen Dazzo

SECTION 3

MQC/MQA TEST RESULTS

Product : TNT 507076
Roll size : 6.7'X200'
Job : Volusia

Jumbo Roll #	Thickness ASTM D5199 (mils)	Unit Weight ASTM D3776 (g/m^2)	Density ASTM D792 (g/cm^3)	Carbon Black ASTM D4218 %	Tensile Strength ASTM D4595 (lb/ft)	Crush Strength ASTM D1621 15,000(psf)
9800001	291.1	1350	0.941	2.01	1126.3	86.3%
9800006	284.8	1388	0.946	2.06	1127	87.9%
9800010	291.1	1363	0.944	2.05	1060.5	87.6%
9800013	295.1	1326	0.943	2.11	1190.7	88.3%
9800016	292.6	1373	0.943	2.19	1097	88.4%
9800019	300.8	1442	0.946	2.41	1136.9	91.4%
AVG	292.6	1374	0.944	2.14	1123.1	88.3%
STDEV	5	40	0.002	0.15	43.33	0.02
SPEC	**250 min.**	**1195 min.**	**0.94 min.**	**2 min.**	**840 min.**	**70% min.**

Reviewed by: Tiffany Smolinski Date: 6/11/98

SECTION 4

TNS
ADVANCED TECHNOLOGIES

681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 867-5101

May 26, 1998
REF: TNS E071
Qty. Shipped: 54 rolls
BOL#: 20246

Tenax Corp.
4800 East Monument Street
Baltimore, Md 21205

Dear Sir/Madam:

This is to certify that TNS E071 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E071 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E071 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	7.1
Thickness	ASTM D 1777	mils	90
Grab Tensile	ASTM D 4632	lbs	200
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs	75
Puncture	ASTM D 4833	lbs	115
Mullen Burst	ASTM D 3786	psi	400
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permitivity	ASTM D 4491	1/sec	1.41
Water Flow	ASTM D 4491	gpm/sq.ft.	110
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.32

Sincerely,

J. Melissa Keller
TNS Advanced Technologies

B.O.L. #: 20246

Roll #	Style	Wdt	Lng	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm -ebl	Perm -ltv	AOS
996403	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996406	E071	090	A00	7.2	97	222	232	78	90	127	143	127	408	122	.38	1.8	80
996407	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996409	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996410	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996411	E071	090	A00	7.2	92	214	237	74	96	121	141	128	403	122	.38	1.8	80
996412	E071	090	A00	7.2	92	214	237	74	96	121	141	128	403	122	.38	1.8	80
996414	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	118	.38	1.6	80
996420	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996422	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996425	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996426	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996427	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996428	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996429	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996432	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996433	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996439	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996441	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996442	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996443	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996446	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996448	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996447	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996448	E071	090	A00	7.3	92	223	242	75	85	123	136	121	426	122	.38	1.8	80
996449	E071	090	A00	7.3	92	223	242	75	85	123	136	121	426	122	.38	1.8	80
996451	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996452	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996455	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996470	E071	090	A00	7.4	98	217	253	79	95	105	124	126	405	122	.36	1.8	80
996471	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996476	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996479	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.34	1.6	80
996480	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996483	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996485	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996487	E071	090	A00	9.8	98	229	284	77	95	90	114	134	443	133	.36	1.8	80
996488	E071	090	A00	9.8	98	229	284	77	95	90	114	134	443	133	.36	1.8	80
996489	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80

B.O.L. #: 20246

Roll #	Styl	Wgt	Eng	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm -abl	Perm -ity	AOS
996490	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996491	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996492	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996493	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996494	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996495	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996496	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80
996500	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996501	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996502	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996504	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996505	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996506	E071	090	A00	7.4	102	229	256	63	88	92	103	122	434	119	.36	1.9	80
996507	E071	090	A00	7.4	102	229	256	63	88	92	103	122	434	119	.36	1.9	80
996508	E071	090	A00	7.4	102	229	256	63	88	92	103	122	434	119	.36	1.9	80
996509	E071	090	A00	7.4	102	229	256	63	88	92	103	122	434	119	.36	1.9	80

B.O.L. #: 20247

Roll #	Styl	Wdv	Ino	Fabc Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm abl	Poro ity	AOS
996472	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996473	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996474	E071	090	A00	7.6	112	229	248	67	72	88	92	133	438	136	.38	1.8	80
996478	E071	090	A00	7.4	96	216	232	72	94	84	109	129	400	112	.36	1.8	80
996481	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996482	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996484	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996486	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996495	E071	090	A00	9.8	99	238	244	77	95	80	114	134	419	112	.36	1.8	80
996497	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.33	1.6	80
996498	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.34	1.8	80
996499	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	112	.34	1.8	80
996502	E071	090	A00	7.2	98	217	232	73	96	90	117	129	423	122	.36	1.8	80
996510	E071	090	A00	7.4	102	229	255	63	88	92	103	122	434	118	.36	1.9	80

TNS
ADVANCED TECHNOLOGIES

681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 867-5181

June 5, 1998
REF: TNS E071
Qty. Shipped: 28 rolls
BOL#: 11871

Tenax Corp.
4800 East Monument Street
Baltimore, Md 21205

Dear Sir/Madam:

This is to certify that TNS E071 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E071 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E071 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	7.1
Thickness	ASTM D 1777	mils	90
Grab Tensile	ASTM D 4632	lbs	200
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs	75
Puncture	ASTM D 4833	lbs	115
Mullen Burst	ASTM D 3786	psi	400
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permitivity	ASTM D 4491	1/sec	1.41
Water Flow	ASTM D 4491	gpm/sq.ft.	110
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.32

Sincerely,

J. Melissa Keller
TNS Advanced Technologies

B.O.L. #: 11871

Roll #	Styl	Wgt	Ing	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm -abl	Perm -itv	AOS
998313	E071	090	A00	8.0	119	227	266	86	92	89	141	132	413	122	.36	1.8	80
998325	E071	090	A00	8.0	119	227	266	86	92	89	141	132	413	122	.36	1.8	80
998337	E071	090	A00	7.7	120	229	228	72	84	77	76	118	409	122	.36	1.8	80

SECTION 5

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT :	TNT 507076	B/L #:	2732
JOB:	Volusia	NET TYPE:	TD 5
LOT #:	4	TEXTILE 1:	TNS E071
DATE:	6/11/98	TEXTILE 2:	TNS E071

JUMBO ROLL #	TEXTILE #	TEXTILE #	COMPOSITE #
9800002	996504	996455	9800012
9800006	996490	996492	9800023
9800007	996432	996406	9800049
9800011	996479	996487	9800061
9800016	998008	998330	9800096
	998328	998330	9800097
	998328	998330	9800098
	998328	998330	9800099
	998328	998335	9800100
	998326	998335	9800102
9800009	998326	998335	9800104
9800018	998325	998332	9800118
	998325	998332	9800119
	998325	998323	9800120
	998324	998323	9800121
	998324	998323	9800122
9800019	998324	998323	9800123
	998324	998323	9800124
	998324	998337	9800125
	998319	998337	9800126
	998319	998337	9800127
	998319	998337	9800128
	998319	998312	9800129
9800020	998317	998312	9800130
	998317	998312	9800131
	998317	998312	9800132
	998317	998312	9800133
	998317	998311	9800134
	998318	998311	9800135
	998318	998311	9800136
	998318	998311	9800137
	998318	998311	9800138
	998318	998329	9800139
9800013	998333	998329	9800140
	998333	998329	9800141
	998333	998329	9800142
	998333	998329	9800143
	998333	998313	9800144
	998320	998313	9800145
	998320	998313	9800146

	998320	998313	9800147
	998320	998313	9800148
9800015	998320	998315	9800149
	998310	998315	9800151
	998310	998315	9800152
	998310	998334	9800154
	998321	998334	9800155
	998321	998334	9800156
	998321	998334	9800157
9800017	998321	998315	9800158
	998327	996500	9800161
	998327	996500	9800162

TRANSMISSIVITY TEST DATA
ASTM D-4716

TEST CONFIGURATION
PLATE
SOIL
GEOCOMPOSITE
GEOMEMBRANE
PLATE

Date : 6/11/98
Roll No. : 146
Roll Size: 6.7'x200'
Job : Volusia
Specimen Size : 12"X14"
Geonet Specimen Thickness : 278 mils
Geonet Specimen Unit Weight : 1472

Load (psf)	Seating	Temp (oC)	Gradient	Q_1 (l/min)	Q_2 (l/min)	Q_{avg} (l/min)	θ (m^2/s)	Spec.
15,000	60 Min.	20.0	0.02	0.84	0.86	0.85	2.32E-03	1.00E-03

CHECKED BY : Tiffany Smolinski

MQC/MQA TEST RESULTS

Product : TNT 507076
Lot # : 4
Roll size : 6.7' x 200'
Job : Volusia

Roll No.	Ply Adhesion ASTM D413 (lb/in) Side1	Side2
9800146	2.32	1.73
	1.34	1.49
	1.87	1.67
	1.40	1.12
	0.83	1.05
AVG	1.55	1.41
STDEV	0.56	0.31
SPEC	**1 lb/in min.**	

Reviewed by: Tiffany Smolinski

Date: 6/11/98

QUALITY CONTROL SUMMARY

Product: TNT 507076

Prepared for : Comanco

Date : June 11, 1998

Cell # 3:Lot 5

Project: County of Volusia, Florida

Submitted to: Brenda Thompson
County of Volusia, Florida
Solid Waste Services
123 W. Indiana Avenue
Rm. 301 Purchasing Dept.
Deland, FL 32720-4608

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SECTION 1

TENAX® Corporation
4800 East Monument Street
Baltimore, Maryland 21205
Office: 410-522-7000 Order Line: (800) 356-8495
Fax: 410-522-7015 Waste Mgt: (800) US-GRIDS

June 11, 1998

Brenda Thompson
County of Volusia, Florida
Solid Waste Services
123 W. Indiana Ave.
Rm. 301 Purchasing Dept.
Deland, FL 32720-4608

RE: County of Volusia Project
TENAX TNT 507076

Dear Ms. Thompson:

Tenax Corporation certifies that the following 42 rolls of TENAX TNT 507076 shipped to the above referenced project on June 10, 1998, are in accordance with the attached Tenax specifications and were manufactured in accordance with the Tenax Manufacturing Quality Control / Quality Assurance Plan.

TENAX XXX (6.7' x 200')
Rolls: 43-85

Respectfully submitted,

Tiffany Smolinski

Tiffany Smolinski
Quality Lab Manager

TNT 507076

DOUBLE-SIDED GEOCOMPOSITE
GEOTEXTILE + GEONET + GEOTEXTILE

Typical applications:

- leachate collection/detection systems in landfills - landfill cap drainage layer - gas venting media

PROPERTIES	TEST METHOD	UNIT	VALUE	Note
GEONET				
POLYMER DENSITY	ASTM D1505	g/cm^3	0.94	a
GEONET DENSITY	ASTM D792	g/cm^3	0.94	a
MELT FLOW INDEX	ASTM D1238	g/10 min	1	e
TRANSMISSIVITY	ASTM D4716	m^2/sec	1.0×10^{-3}	a,e
CARBON BLACK CONTENT	ASTM D4218	%	2-3	d
THICKNESS	ASTM D5199	mils	250	a
UNIT WEIGHT	ASTM D3776	$lb/1000\ ft^2$	245	a
TENSILE STRENGTH	ASTM D4595	lb/in	70	a
COMPRESSION @ 15,000 psf	ASTM D5199	%	70	b
GEOTEXTILE				
WEIGHT	ASTM D3776	oz/yd^2	7.1	c
GRAB TENSILE STRENGTH	ASTM D4632	lbs	210	c
GRAB TENSILE ELONGATION	ASTM D4632	%	60	c
MULLEN BURST	ASTM D3786	psi	360	c
PUNCTURE	ASTM D4833	lbs	95	c
TRAPEZOIDAL TEAR	ASTM D4533	lbs	75	c
THICKNESS	ASTM D1777	mils	95	c
APPARENT OPENING SIZE (AOS)	ASTM D4751	US Sieve	70	c
PERMITTIVITY	ASTM D4491	sec^{-1}	1.47	c
FLOW RATE	ASTM D4491	$gal/min/ft^2$	110	c
GEOCOMPOSITE				
PLY ADHESION	ASTM D413	lb/in	1.0	c
ROLL WIDTH	-	ft	6.7	a
ROLL LENGTH	-	ft	200	a
ROLL AREA	-	ft^2	1340	a

NOTES:

a) Minimum value

b) Typical value

c) Minimum Average Roll Value

d) Value Range

e) Transmissivity tested at a normal compressive stress of 15,000 psf and a gradient of 0.02, water temperature at 20°C, and configuration of Plate/Soil/Geotextile/Geonet/Geotextile/geomembrane seating period of one hour

Tenax Corporation
4800 East Monument Street
Baltimore, Maryland 21205
tel (410) 522-7000
fax (410) 522-3977

TNT507076 950910 kk COMANCO

SECTION 2

MASS POLYMERS CORPORATION

198 WEST HIGH STREET
SOMERVILLE, NJ 08876

(908) 725-3133
FAX (908) 725-9677

December 16, 1997

Ms. Christine Babcock
Tenax Corporation
4800 E Monument Street
Baltimore, MD 21206

ORDER CONFIRMATION

Customer P.O. Number	1207
Product Type	HDPE
Manufacturer/Grade Number	Lyondell 5045OG
Lot Number	797257
Railcar Number	ALAX 36318
Manufacturer Date	10/3/97
Delivery Date	12/12/97
Product Weight	136,200 LBS

PROPERTY	RESULTS	ASTM TEST METHOD
Melt Index (190/2.16)	0.59 g/10 min	D - 1238
Density	0.949 g/cm^3	D - 1505

Sincerely,

Stephen Dazzo

MASS POLYMERS CORPORATION

198 WEST HIGH STREET
SOMERVILLE, NJ 08876

(908) 725-3133
FAX (908) 725-9677

April 15, 1998

Tenax Corporation
4800 E Monument Street
Baltimore, MD 21206

ORDER CONFIRMATION

Customer P.O. Number	383
Product Type	HDPE
Manufacturer/Grade Number	Equistar L5440 OG
Lot Number	75664
Railcar Number	NA
Manufacturer Date	03/21/98
Delivery Date	04/15/98
Product Weight	47,700 lbs

PROPERTY	RESULTS	ASTM TEST METHOD
Melt Index (190/2.16)	0.25 g/10 min	D – 1238
Density	0.954 g/cm^3	D – 1505

Sincerely,

Stephen Dazzo

SECTION 3

MQC/MQA TEST RESULTS

Product : TNT 507076
Roll size : 6.7'X200'
Job : Volusia

Roll #	Thickness ASTM D5199 (mils)	Unit Weight ASTM D3776 (g/m^2)	Density ASTM D792 (g/cm^3)	Carbon Black ASTM D4218 %	Tensile Strength ASTM D4595 (lb/ft)	Crush Strength ASTM D1621 15,000(psf)
9800020	320	1848	0.94	2.17	1308	87.9%
9800061	287.3	1486	0.94	2.07	1219.5	81.9%
9800088	301	1788	0.951	3.66	1275.6	88.9%
9701478	283.1	1417	0.952	2.31	1289.3	82.1%
AVG	297.9	1635	0.946	2.55	1273.1	85.2%
STDEV	17	215	0	1	38	0
SPEC	**250 min.**	**1195 min.**	**0.94 min.**	**2 min.**	**70 min.**	**70% min.**

Reviewed by: Tiffany Smolinski Date: 6/11/98

SECTION 4

TNS
ADVANCED TECHNOLOGIES

681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 887-5101

May 26, 1998
REF: TNS E071
Qty. Shipped: 54 rolls
BOL#: 20247

Tenax Corp.
4800 East Monument Street
Baltimore, Md 21205

Dear Sir/Madam:

This is to certify that TNS E071 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E071 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E071 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	7.1
Thickness	ASTM D 1777	mils	90
Grab Tensile	ASTM D 4632	lbs	200
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs	75
Puncture	ASTM D 4833	lbs	115
Mullen Burst	ASTM D 3786	psi	400
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permitivity	ASTM D 4491	1/sec	1.41
Water Flow	ASTM D 4491	gpm/sq.ft.	110
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.32

Sincerely,

J. Melissa Keller
TNS Advanced Technologies

B.O.L. #: 20247

Roll #	Styl	Wdt	Lng	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rsst	Brst Strg	Flow Rate	Perm cbl	Perm ltw	AOS
996401	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	112	.34	1.8	80
996402	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	112	.32	1.6	80
996404	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996408	E071	090	A00	7.2	97	222	232	78	90	127	143	127	409	129	.36	1.8	80
996413	E071	090	A00	7.2	92	214	237	74	96	121	141	128	403	122	.38	1.8	80
996415	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996416	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996417	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996418	E071	090	A00	7.2	92	214	237	74	96	121	141	128	412	119	.38	1.6	80
996419	E071	090	A00	7.3	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996421	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996424	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996425	E071	090	A00	7.4	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996430	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996431	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996434	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996435	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996436	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996437	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996438	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996440	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996444	E071	090	A00	8.0	98	227	232	69	83	129	144	121	426	112	.36	1.8	80
996450	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996453	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996464	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996456	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996457	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	122	.36	1.8	80
996458	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	112	.34	1.8	80
996459	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	112	.34	1.8	80
996460	E071	090	A00	7.5	96	219	231	70	84	113	124	119	407	112	.34	1.8	80
996461	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996462	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996463	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	119	.36	1.8	80
996464	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996465	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996466	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996467	E071	090	A00	7.5	95	219	231	70	84	113	124	119	407	112	.36	1.8	80
996468	E071	090	A00	7.4	98	217	263	79	95	105	124	126	405	122	.36	1.8	80
996469	E071	090	A00	7.4	98	217	263	79	95	105	124	126	405	112	.36	1.8	80

TNS
ADVANCED TECHNOLOGIES

681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 867-5181

June 5, 1998
REF: TNS E071
Qty. Shipped: 54 rolls
BOL#: 20247

Tenax Corp.
4800 East Monument Street
Baltimore, Md 21205

Dear Sir/Madam:

This is to certify that TNS E071 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E071 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E071 conforms to the physical properties listed in the following table:

FABRIC PROPERTY	TEST METHOD	UNITS	M.A.R.V
Weight	ASTM D 5261	oz/sy	7.1
Thickness	ASTM D 1777	mils	90
Grab Tensile	ASTM D 4632	lbs	200
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs	75
Puncture	ASTM D 4833	lbs	115
Mullen Burst	ASTM D 3786	psi	400
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permitivity	ASTM D 4491	1/sec	1.41
Water Flow	ASTM D 4491	gpm/sq.ft.	110
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.32

Sincerely,

J. Melissa Keller
TNS Advanced Technologies

S.O.L. #: 20247

Roll #	Styl	Wdt	Lng	Fabr Wght	Thck	Strg MD	Strg XMD	Elng MD	Elng XMD	Trap MD	Trap XMD	Punc Rest	Brst Strg	Flow Rate	Perm abl	Perm ltv	ADS
996419	E071	090	A00	7.3	92	224	212	78	92	112	128	119	408	127	.47	1.8	80
996430	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996438	E071	090	A00	7.5	96	217	230	69	81	117	134	118	414	122	.36	1.8	80
996463	E071	090	A00	7.3	92	223	242	75	85	123	136	121	425	122	.38	1.8	80
996486	E071	090	A00	7.4	96	216	232	72	94	84	109	120	400	112	.36	1.8	80
996493	E071	090	A00	9.8	99	238	244	77	95	90	114	134	443	112	.36	1.8	80

SECTION 5

TENAX CORPORATION

GEOCOMPOSITE REPORT

PRODUCT :	TNT 507076	W/O:	5-278-1
JOB:	Volusia	NET TYPE:	TD 5
LOT #:	5:Cell 3	TEXTILE 1:	TNS E071
DATE:	6/11/98	TEXTILE 2:	TNS E071

TEXTILE #	NET #	TEXTILE #	COMPOSITE #
996421	57	996474	43
996421	78	996474	44
996416	70	996474	45
996416	91	996474	46
996474	81	996413	47
996421	58	996413	48
996416	21	996413	49
996416	69	996413	50
996499	42	996413	51
996499	74	996463	52
996499	77	996463	53
996499	45	996463	54
996499	1489	996463	55
996499	82	996463	56
996510	86	996458	57
996510	1500	996458	58
996510	27	996458	59
996510	1494	996458	60
996493	17	996458	61
996493	16	996457	62
996493	40	996457	63
996427	79	996457	64
996421	92	996457	65
996401	1441	996478	66
996401	96	996478	67
996401	112	996478	68
996459	97	996478	69
996401	105	996478	70
996401	20	996502	71
996459	1488	996502	72
996549	1499	996502	73
996459	3	996502	74
996459	95	996502	75
996482	80	996417	76
996482	93	996417	77
996430	75	996417	78
996430	30	996417	79
996430	15	996417	80
996457	29	996484	81
996482	72	996484	82
996430	37	996484	83
996482	83	996484	84
996482	76	996484	85

TRANSMISSIVITY TEST DATA
ASTM D-4716

TEST CONFIGURATION
PLATE
SOIL
GEOCOMPOSITE
GEOMEMBRANE
PLATE

Date : 6/11/98
Roll No. : 44
Roll Size: 6.7'x200'
Job : Volusia
Specimen Size : 12"X14"
Geonet Specimen Thickness : 291 mils
Geonet Specimen Unit Weight : 1579

Load (psf)	Seating	Temp (oC)	Gradient	Q_1 (l/min)	Q_2 (l/min)	Q_{avg} (l/min)	θ (m^2/s)	Spec.
15,000	60 Min.	20.0	0.02	1.30	1.32	1.31	3.58E-03	1.00E-03

CHECKED BY : Tiffany Smolinski

Product: TNS E070

Job: Velusia **Specimen Size: 2"x10"**

Required bond: 1Pound Per Inch **Crosshead Speed: 2"/min**

Roll #	Pass #	Pounds Per Inch Per Test Strip 1	2	3	4	5	Avg Bond Strength
1	1	.80	.90	1.1	1.0	1.3	1.0
	2	.90	1.1	1.0	1.1	1.3	1.1
30	1	1.1	.90	1.3	1.2	1.6	1.2
	2	1.1	1.1	.80	1.0	1.3	1.1
60	1	2.1	1.2	.50	2.1	.61	1.3
	2	.80	1.2	.92	1.6	1.9	1.3

Test Conducted By:
Jason Cheperuk

Jason Cheperuk 6/9/98

Date

ATTACHMENT 6-4

GEOCOMPOSITE BI-PLANAR AS-BUILT DRAWING

ATTACHMENT 6-5

GEOCOMPOSITE TRI-PLANAR AS-BUILT DRAWINGS

ATTACHMENT 6-6

TRI QUALITY ASSURANCE TEST RESULTS

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

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SCS ENGINEERS
TAMPA

October 22, 1998

Mr. Joe O'Neill
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757
fax: 904-947-2955 (attn: Mr. Paul Siriboury)

Dear Mr. O'Neill:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms Landfill project.

TRI Job Reference Number:	E2109-80-07
Date Received:	10-21-98
Material(s) Tested:	2 GSE double sided geocomposites
Sample ID(s):	Roll #s 11015754 and 11015710
Test(s) Requested:	Grab Tensile Properties (ASTM D 4632) Mass/Unit Area (ASTM D 5261) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE double sided geocomposite
Roll #: 11015754
TRI Log #: E2109-80-07

SB 10·22·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD	PROJECT SPEC.
Peel Strength (ASTM F 904)	1	2	3	4	5			
Top - MD Minimum peel strength (ppi)	1.3	1.1	0.6	1.1	1.1	1.0	0.2	
Top - MD Minimum peel strength (g/in)	590	499	272	499	499	472	106	NA
Top - TD Minimum peel strength (ppi)	1.8	0.6	0.9	0.7	0.7	0.9	0.4	
Top - TD Minimum peel strength (g/in)	817	272	409	318	318	427	200	NA
Bottom - MD Minimum peel strength (ppi)	0.7	0.6	0.7	1.1	0.7	0.8	0.2	
Bottom - MD Minimum peel strength (g/in)	318	272	318	499	318	345	79	NA
Bottom - TD Minimum peel strength (ppi)	0.6	0.9	0.5	1.7	0.9	0.9	0.4	
Bottom - TD Minimum peel strength (g/in)	272	409	227	772	409	418	191	NA
·p - MD Average peel strength (ppi)	1.9	1.5	1.0	1.7	2.1	1.6	0.4	
ɹp - MD Average peel strength (g/in)	863	681	454	772	953	745	171	NA
Top - TD Average peel strength (ppi)	2.7	1.2	1.3	1.2	1.4	1.6	0.6	
Top - TD Average peel strength (g/in)	1226	545	590	545	636	708	261	NA
Bottom - MD Average peel strength (ppi)	1.3	1.1	1.4	1.1	1.3	1.2	0.1	
Bottom - MD Average peel strength (g/in)	590	499	636	499	590	563	54	NA
Bottom - TD Average peel strength (ppi)	1.1	2.0	1.4	2.3	1.4	1.6	0.4	
Bottom - TD Average peel strength (g/in)	499	908	636	1044	636	745	200	NA

MD Machine Direction
TD Transverse Direction
NA Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE double sided geocomposite
Roll #: 11015710
TRI Log #: E2109-80-07

~~SRA~~ 10.22.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD	PROJECT SPEC.
Peel Strength (ASTM F 904)	1	2	3	4	5			
Top - MD Minimum peel strength (ppi)	1.7	1.1	0.4	0.6	0.3	0.8	0.5	
Top - MD Minimum peel strength (g/in)	772	499	182	272	136	372	236	NA
Top - TD Minimum peel strength (ppi)	1.4	0.7	1.7	1.0	1.4	1.2	0.3	
Top - TD Minimum peel strength (g/in)	636	318	772	454	636	563	159	NA
Bottom - MD Minimum peel strength (ppi)	0.5	0.7	0.8	1.0	1.4	0.9	0.3	
Bottom - MD Minimum peel strength (g/in)	227	318	363	454	636	400	139	NA
Bottom - TD Minimum peel strength (ppi)	1.0	1.1	0.8	1.5	1.1	1.1	0.2	
Bottom - TD Minimum peel strength (g/in)	454	499	363	681	499	499	104	NA
Top - MD Average peel strength (ppi)	2.2	2.0	0.8	1.2	0.8	1.4	0.6	
Top - MD Average peel strength (g/in)	999	908	363	545	363	636	269	NA
Top - TD Average peel strength (ppi)	1.9	1.1	2.5	1.4	2.6	1.9	0.6	
Top - TD Average peel strength (g/in)	863	499	1135	636	1180	863	268	NA
Bottom - MD Average peel strength (ppi)	1.0	1.1	1.7	2.0	2.0	1.6	0.4	
Bottom - MD Average peel strength (g/in)	454	499	772	908	908	708	196	NA
Bottom - TD Average peel strength (ppi)	1.0	1.5	1.4	2.0	1.4	1.5	0.3	
Bottom - TD Average peel strength (g/in)	454	681	636	908	636	663	145	NA

MD Machine Direction
TD Transverse Direction
NA Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOTEXTILE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE double sided geocomposite - geotextile component
Roll #: 11015754 top
TRI Log #: E2109-80-07

SRA 10·22·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.	PROJECT SPEC.
Grab Tensile Properties (ASTM D 5035)	1	2	3	4	5	6	7	8	9	10				
MD - Tensile Strength (lbs)	239	168	189	202	198						199	23		N/A
TD - Tensile Strength (lbs)	171	185	190	171	171						178	8		N/A
MD - Elongation @ Max. Load (%)	47	61	61	73	64						61	8		N/A
TD - Elongation @ Max. Load (%)	106	97	91	97	90						96	6		N/A
Mass/Unit Area (ASTM D 5261)														
5" diameter mass (grams)	3.20	3.07	3.22	3.46	3.58	2.85	3.26	3.06	3.56	3.25				
Mass/unit area (oz/sq.yd)	7.44	7.14	7.49	8.05	8.33	6.63	7.58	7.12	8.28	7.56	7.56	0.51		N/A

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOTEXTILE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE double sided geocomposite - geotextile component
Roll #: 11015754 bottom
TRI Log #: E2109-80-07

SRA 10.22.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.	PROJECT SPEC.
Grab Tensile Properties (ASTM D 5035)	1	2	3	4	5	6	7	8	9	10				
MD - Tensile Strength (lbs)	201	266	208	289	181						229	41		N/A
TD - Tensile Strength (lbs)	150	146	165	162	160						157	7		N/A
MD - Elongation @ Max. Load (%)	61	56	69	49	61						59	7		N/A
TD - Elongation @ Max. Load (%)	99	99	107	109	100						103	4		N/A
Mass/Unit Area (ASTM D 5261)														
5" diameter mass (grams)	3.10	3.14	3.12	2.95	2.94	3.03	2.82	3.05	3.06	2.74				
Mass/unit area (oz/sq.yd)	7.21	7.30	7.26	6.86	6.84	7.05	6.56	7.09	7.12	6.37	6.97	0.29		N/A

D Machine Direction
D Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOTEXTILE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE double sided geocomposite - geotextile component
Roll #: 11015710 top
TRI Log #: E2109-80-07

SRA 10.22.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.	PROJECT SPEC.
Grab Tensile Properties (ASTM D 5035)	1	2	3	4	5	6	7	8	9	10				
MD - Tensile Strength (lbs)	202	257	258	177	211						221	32		N/A
TD - Tensile Strength (lbs)	183	172	172	173	163						173	6		N/A
MD - Elongation @ Max. Load (%)	71	69	67	64	66						67	2		N/A
TD - Elongation @ Max. Load (%)	106	105	99	103	98						102	3		N/A
Mass/Unit Area (ASTM D 5261)														
5" diameter mass (grams)	3.42	3.10	3.53	3.27	3.73	3.08	3.49	3.33	3.36	3.18				
Mass/unit area (oz/sq.yd)	7.95	7.21	8.21	7.61	8.68	7.16	8.12	7.75	7.82	7.40	7.79	0.45		N/A

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOTEXTILE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE double sided geocomposite - geotextile component
Roll #: 11015710 bottom
TRI Log #: E2109-80-07

SRA 10-22-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.	PROJECT SPEC.
Grab Tensile Properties (ASTM D 5035)	1	2	3	4	5	6	7	8	9	10				
MD - Tensile Strength (lbs)	222	266	266	278	279						262	21		N/A
TD - Tensile Strength (lbs)	162	167	175	171	141						163	12		N/A
MD - Elongation @ Max. Load (%)	65	69	61	63	57						63	4		N/A
TD - Elongation @ Max. Load (%)	103	114	112	105	70						101	16		N/A
Mass/Unit Area (ASTM D 5261)														
5" diameter mass (grams)	3.21	3.42	3.36	3.25	3.14	3.43	3.86	3.41	4.06	3.45				
Mass/unit area (oz/sq.yd)	7.47	7.95	7.82	7.56	7.30	7.98	8.98	7.93	9.44	8.02	8.05	0.63		N/A

Machine Direction
Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TAMPA

November 11, 1998

Mr. Ray Lotito or Mr. Ray Dever
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757

Dear Gentlemen:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms - Phase 2 Landfill project.

TRI Job Reference Number:	E2112-01-04
Date Received:	11-06-98
Material(s) Tested:	1 GSE double sided geocomposite
Sample ID(s):	11016462, 11016489
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016462
TRI Log #: E2112-01-04

SRA 11-11-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.5	0.5	1.9	0.6	1.7	1.0	0.6
A - MD Minimum peel strength (g/in)	227	227	863	272	772	472	284
A - TD Minimum peel strength (ppi)	1.6	1.3	1.1	1.2	0.5	1.1	0.4
A - TD Minimum peel strength (g/in)	726	590	499	545	227	518	164
B - MD Minimum peel strength (ppi)	0.3	1.0	0.4	0.3	0.9	0.6	0.3
B - MD Minimum peel strength (g/in)	136	454	182	136	409	263	139
B - TD Minimum peel strength (ppi)	0.1	1.0	1.8	1.6	0.4	1.0	0.7
B - TD Minimum peel strength (g/in)	45	454	817	726	182	445	299
A - MD Average peel strength (ppi)	0.7	0.7	2.8	1.4	2.7	1.7	0.9
A - MD Average peel strength (g/in)	318	318	1271	636	1226	754	421
A - TD Average peel strength (ppi)	2.0	2.0	1.7	1.9	1.1	1.7	0.3
A - TD Average peel strength (g/in)	908	908	772	863	499	790	154
B - MD Average peel strength (ppi)	0.5	1.6	0.9	0.8	1.3	1.0	0.4
B - MD Average peel strength (g/in)	227	726	409	363	590	463	176
B - TD Average peel strength (ppi)	0.9	1.8	3.6	3.0	0.8	2.0	1.1
B - TD Average peel strength (g/in)	409	817	1634	1362	363	917	508

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016489
TRI Log #: E2112-01-04

SRA 11.11.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	1.1	3.7	2.8	2.3	2.0	2.4	0.9
A - MD Minimum peel strength (g/in)	499	1680	1271	1044	908	1081	391
A - TD Minimum peel strength (ppi)	0.2	2.4	0.1	0.1	2.1	1.0	1.0
A - TD Minimum peel strength (g/in)	91	1090	45	45	953	445	473
B - MD Minimum peel strength (ppi)	0.3	2.4	3.4	3.2	1.3	2.1	1.2
B - MD Minimum peel strength (g/in)	136	1090	1544	1453	590	962	532
B - TD Minimum peel strength (ppi)	2.2	0.10	2.2	1.6	0.2	1.3	0.9
B - TD Minimum peel strength (g/in)	999	45	999	726	91	572	424
A - MD Average peel strength (ppi)	2.1	5.3	3.4	2.5	2.1	3.1	1.2
A - MD Average peel strength (g/in)	953	2406	1544	1135	953	1398	548
A - TD Average peel strength (ppi)	0.3	3.2	0.2	0.2	2.4	1.3	1.3
A - TD Average peel strength (g/in)	136	1453	91	91	1090	572	583
B - MD Average peel strength (ppi)	0.3	2.4	3.9	3.8	1.7	2.4	1.3
B - MD Average peel strength (g/in)	136	1090	1771	1725	772	1099	613
B - TD Average peel strength (ppi)	2.7	0.2	3.0	2.5	0.2	1.7	1.3
B - TD Average peel strength (g/in)	1226	91	1362	1135	91	781	568

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016462
TRI Log #: E2112-01-04

SRA 11.11.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 5035)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	169	151	222	239	139						184	40	
TD - Tensile Strength (lbs)	174	170	159	168	195						173	12	
MD - Elongation @ Max. Load (%)	68	59	49	69	58						61	7	
TD - Elongation @ Max. Load (%)	83	81	75	76	85						80	4	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.73	3.20	2.79	3.12	2.78	2.68	2.82	3.48	2.82	2.65			
Mass/Unit Area (oz./sq.yd)	6.35	7.44	6.49	7.26	6.47	6.23	6.56	8.09	6.56	6.16	6.76	0.59	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016462
TRI Log #: E2112-01-04

SRA 11·11·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 5035)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	184	207	287	209	168						211	41	
TD - Tensile Strength (lbs)	150	156	176	172	161						163	10	
MD - Elongation @ Max. Load (%)	63	67	63	65	61						64	2	
TD - Elongation @ Max. Load (%)	80	90	112	84	85						90	11	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.63	3.22	3.51	2.98	2.70	3.05	3.21	3.69	3.11	2.83			
Mass/Unit Area (oz./sq.yd)	6.12	7.49	8.16	6.93	6.28	7.09	7.47	8.58	7.23	6.58	7.19	0.74	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016489
TRI Log #: E2112-01-04

SRA 11-11-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 5035)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	166	183	273	180	134						187	46	
TD - Tensile Strength (lbs)	173	147	135	164	185						161	18	
MD - Elongation @ Max. Load (%)	63	69	63	61	58						63	4	
TD - Elongation @ Max. Load (%)	85	85	118	91	91						94	12	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.11	3.22	3.76	3.29	3.04	2.99	2.87	3.07	3.98	2.80			
Mass/Unit Area (oz./sq.yd)	7.23	7.49	8.75	7.65	7.07	6.95	6.68	7.14	9.26	6.51	7.47	0.84	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016489
TRI Log #: E2112-01-04

SRA 11·11·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 5035)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	164	177	163	137	131						154	17	
TD - Tensile Strength (lbs)	162	150	176	183	158						166	12	
MD - Elongation @ Max. Load (%)	67	61	67	60	67						64	3	
TD - Elongation @ Max. Load (%)	70	75	89	82	75						78	7	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.86	2.89	2.73	2.58	2.66	2.83	2.82	3.16	2.74	2.58			
Mass/Unit Area (oz./sq.yd)	6.65	6.72	6.35	6.00	6.19	6.58	6.56	7.35	6.37	6.00	6.48	0.38	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

October 29, 1998

Mr. Joe O'Neill
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757

Dear Mr. O'Neill:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Volusia Landfill project.

TRI Job Reference Number:	E2109-89-07
Date Received:	10-28-98
Material(s) Tested:	1 Tenax TNT double sided geocomposite
Sample ID(s):	9800306
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Volusia Landfill

Material: Tenax TNT 507076 double sided geocomposite - geotextile component
Geocomposite Roll #: 9800306 **Geotextile Roll #: 15018928**
TRI Log #: E2109-87-07

SRA 10.29.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	200	199	207	194	193	245	188	252	197	232	211	22	
TD - Tensile Strength (lbs)	242	271	216	227	203	218	221	238	256	266	236	22	
MD - Elongation @ Max. Load (%)	60	77	63	60	63	70	60	67	60	60	64	5	
TD - Elongation @ Max. Load (%)	100	100	100	113	110	110	110	97	117	97	105	7	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	3.53	3.51	3.99	3.93	3.27	3.64	3.46	4.07	3.44	3.73			
Mass/Unit Area (oz./sq.yd)	8.21	8.16	9.28	9.14	7.61	8.47	8.05	9.47	8.00	8.68	8.51	0.59	

.D Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Volusia Landfill

Material: Tenax TNT 507076 double sided geocomposite - geotextile component
Geocomposite Roll #: 9800306 **Geotextile Roll #: 15018898**
TRI Log #: E2109-87-07

SR4 10·29·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	282	25	261	230	283	264	248	269	213	242	232	72	
TD - Tensile Strength (lbs)	240	250	267	254	288	270	249	256	263	283	262	15	
MD - Elongation @ Max. Load (%)	77	73	80	70	83	73	80	73	80	73	76	4	
TD - Elongation @ Max. Load (%)	97	100	133	97	120	103	123	93	100	103	107	13	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	3.87	3.71	3.99	3.82	3.69	3.70	3.79	3.62	3.28	3.25			
Mass/Unit Area (oz./sq.yd)	9.00	8.63	9.28	8.89	8.58	8.61	8.82	8.42	7.63	7.56	8.54	0.53	

) Machine Direction
Transverse Direction
...A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Volusia Landfill

Material: Tenax TNT 507076 double sided geocomposite
Roll #: 9800306
TRI Log #: E2109-87-07

SRA 10·29·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.2	0.4	0.2	0.2	0.2	0.2	0.1
A - MD Minimum peel strength (g/in)	91	182	91	91	91	109	36
A - TD Minimum peel strength (ppi)	0.3	0.4	0.3	0.1	0.4	0.3	0.1
A - TD Minimum peel strength (g/in)	136	182	136	45	182	136	50
B - MD Minimum peel strength (ppi)	0.2	0.2	0.2	0.5	0.3	0.3	0.1
B - MD Minimum peel strength (g/in)	91	91	91	227	136	127	53
B - TD Minimum peel strength (ppi)	0.4	0.40	0.4	0.1	0.3	0.3	0.1
B - TD Minimum peel strength (g/in)	182	182	182	45	136	145	53
A - MD Average peel strength (ppi)	0.3	0.5	0.3	0.4	0.4	0.4	0.1
A - MD Average peel strength (g/in)	136	227	136	182	182	173	34
A - TD Average peel strength (ppi)	0.5	0.8	0.5	0.3	0.8	0.6	0.2
A - TD Average peel strength (g/in)	227	363	227	136	363	263	88
B - MD Average peel strength (ppi)	0.4	0.5	0.4	0.6	0.5	0.5	0.1
B - MD Average peel strength (g/in)	182	227	182	272	227	218	34
B - TD Average peel strength (ppi)	0.6	0.6	0.6	0.3	0.5	0.5	0.1
B - TD Average peel strength (g/in)	272	272	272	136	227	236	53

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TAMPA

October 30, 1998

Mr. Joe O'Neill
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757

Dear Mr. O'Neill:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Volusia Landfill project.

TRI Job Reference Number:	E2109-86-08
Date Received:	10-27-98
Material(s) Tested:	1 Tenax TNT double sided geocomposite
Sample ID(s):	9800200
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Volusia Landfill

Material: Tenax TNT 507076 double sided geocomposite - geotextile component
Geocomposite Roll #: 9800200 Geotextile Roll #: Top
TRI Log #: E2109-86-08

SRA 10·24·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	221	271	206	211	236	263	270	220	241	247	239	23	
TD - Tensile Strength (lbs)	267	212	217	149	229	195	261	160	272	202	216	40	
MD - Elongation @ Max. Load (%)	67	70	63	63	67	73	67	63	63	67	66	3	
TD - Elongation @ Max. Load (%)	107	103	117	97	107	113	97	103	100	100	104	6	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	3.37	3.23	3.22	3.35	3.76	3.57	3.99	3.67	3.53	3.58			
Mass/Unit Area (oz./sq.yd)	7.84	7.51	7.49	7.79	8.75	8.30	9.28	8.54	8.21	8.33	8.20	0.54	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Volusia Landfill

Material: Tenax TNT 507076 double sided geocomposite - geotextile component
Geocomposite Roll #: 9800200 **Geotextile Roll #: Bottom**
TRI Log #: E2109-86-08

SRA 10·21·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	208	222	210	272	183	147	245	179	123	187	198	42	
TD - Tensile Strength (lbs)	173	209	100	181	126	152	202	249	213	184	179	42	
MD - Elongation @ Max. Load (%)	67	60	67	83	80	73	83	80	83	70	75	8	
TD - Elongation @ Max. Load (%)	130	127	113	107	107	103	130	103	110	90	112	13	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	3.68	3.52	3.99	3.46	3.84	3.47	3.86	3.24	3.80	3.36			
Mass/Unit Area (oz./sq.yd)	8.56	8.19	9.28	8.05	8.93	8.07	8.98	7.54	8.84	7.82	8.42	0.54	

MD Machine Direction
TD Transverse Direction
NA Not Available

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Volusia Landfill

Material: Tenax TNT 507076 double sided geocomposite
Roll #: 9800200
TRI Log #: E2109-86-08

SRA 10.29.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.3	0.3	0.3	0.4	0.3	0.3	0.0
A - MD Minimum peel strength (g/in)	136	136	136	182	136	145	18
A - TD Minimum peel strength (ppi)	0.2	0.3	0.4	0.4	0.5	0.4	0.1
A - TD Minimum peel strength (g/in)	91	136	182	182	227	163	46
B - MD Minimum peel strength (ppi)	0.3	0.3	0.5	0.5	1.0	0.5	0.3
B - MD Minimum peel strength (g/in)	136	136	227	227	454	236	116
B - TD Minimum peel strength (ppi)	0.3	0.20	0.2	0.3	0.2	0.2	0.0
B - TD Minimum peel strength (g/in)	136	91	91	136	91	109	22
A - MD Average peel strength (ppi)	0.3	0.4	0.8	1.0	0.6	0.6	0.3
A - MD Average peel strength (g/in)	136	182	363	454	272	281	116
A - TD Average peel strength (ppi)	0.5	0.7	0.9	0.9	0.8	0.8	0.1
A - TD Average peel strength (g/in)	227	318	409	409	363	345	68
B - MD Average peel strength (ppi)	0.4	0.5	0.6	0.7	1.3	0.7	0.3
B - MD Average peel strength (g/in)	182	227	272	318	590	318	144
B - TD Average peel strength (ppi)	0.8	0.6	0.4	0.5	0.5	0.6	0.1
B - TD Average peel strength (g/in)	363	272	182	227	227	254	62

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

9063 Bee Caves Road • Austin, TX 78733-6201 • (512) 263-2101 • FAX (512) 263-2558

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

November 5, 1998

Mr. Joe O'Neill
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757
fax: 904-947-2955 (attn: Steve Rosbach)

Dear Mr. O'Neill:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms - Phase 2 Landfill project.

TRI Job Reference Number:	E2109-94-05
Date Received:	11-03-98
Material(s) Tested:	2 Tenax TNT double sided geocomposites
Sample ID(s):	9800458, 9800533
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: Tenax TNT 507076 double sided geocomposite
Roll #: 9800458
TRI Log #: E2109-94-05

SRA 11-05-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.3	0.6	0.5	0.3	0.3	0.4	0.1
A - MD Minimum peel strength (g/in)	136	272	227	136	136	182	57
A - TD Minimum peel strength (ppi)	0.2	0.3	0.2	0.4	0.2	0.3	0.1
A - TD Minimum peel strength (g/in)	91	136	91	182	91	118	36
B - MD Minimum peel strength (ppi)	0.5	0.6	0.5	0.3	0.3	0.4	0.1
B - MD Minimum peel strength (g/in)	227	272	227	136	136	200	54
B - TD Minimum peel strength (ppi)	0.2	0.20	0.3	0.4	0.2	0.3	0.1
B - TD Minimum peel strength (g/in)	91	91	136	182	91	118	36
A - MD Average peel strength (ppi)	0.7	1.0	0.9	0.6	0.4	0.7	0.2
A - MD Average peel strength (g/in)	318	454	409	272	182	327	97
A - TD Average peel strength (ppi)	0.4	1.0	0.6	0.9	0.6	0.7	0.2
A - TD Average peel strength (g/in)	182	454	272	409	272	318	99
B - MD Average peel strength (ppi)	1.0	0.9	0.8	0.3	0.6	0.7	0.2
B - MD Average peel strength (g/in)	454	409	363	136	272	327	113
B - TD Average peel strength (ppi)	0.5	0.7	0.7	1.0	0.5	0.7	0.2
B - TD Average peel strength (g/in)	227	318	318	454	227	309	83

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: Tenax TNT 507076 double sided geocomposite
Roll #: 9800533
TRI Log #: E2109-94-05

SRA 11-05-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.3	0.3	0.7	0.8	0.8	0.6	0.2
A - MD Minimum peel strength (g/in)	136	136	318	363	363	263	105
A - TD Minimum peel strength (ppi)	0.5	0.8	0.7	0.3	0.5	0.6	0.2
A - TD Minimum peel strength (g/in)	227	363	318	136	227	254	79
B - MD Minimum peel strength (ppi)	0.8	0.8	0.6	0.7	0.8	0.7	0.1
B - MD Minimum peel strength (g/in)	363	363	272	318	363	336	36
B - TD Minimum peel strength (ppi)	0.7	0.40	0.1	0.2	0.4	0.4	0.2
B - TD Minimum peel strength (g/in)	318	182	45	91	182	163	93
A - MD Average peel strength (ppi)	0.6	0.5	1.6	1.0	0.7	0.9	0.4
A - MD Average peel strength (g/in)	272	227	726	454	318	400	180
A - TD Average peel strength (ppi)	0.9	1.8	1.2	0.5	1.6	1.2	0.5
A - TD Average peel strength (g/in)	409	817	545	227	726	545	213
B - MD Average peel strength (ppi)	1.4	1.3	0.9	1.6	1.2	1.3	0.2
B - MD Average peel strength (g/in)	636	590	409	726	545	581	105
B - TD Average peel strength (ppi)	1.7	1.0	0.2	0.5	1.2	0.9	0.5
B - TD Average peel strength (g/in)	772	454	91	227	545	418	239

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: Tenax TNT 507076 double sided geocomposite - geotextile component
Geocomposite Roll #: 9800458 **Geotextile Roll #: 15018820**
TRI Log #: E2109-94-05

SRA 11-05-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	277	221	310	259	318	258	227	270	252	244	264	30	
TD - Tensile Strength (lbs)	228	235	183	202	228	208	204	205	186	199	208	17	
MD - Elongation @ Max. Load (%)	67	67	70	73	80	70	67	73	63	70	70	4	
TD - Elongation @ Max. Load (%)	93	103	100	93	110	93	110	93	110	90	100	8	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	4.27	4.14	4.02	3.95	3.74	3.71	3.93	3.82	3.69	3.92			
Mass/Unit Area (oz./sq.yd)	9.93	9.63	9.35	9.19	8.70	8.63	9.14	8.89	8.58	9.12	9.12	0.42	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: Tenax TNT 507076 double sided geocomposite - geotextile component
Geocomposite Roll #: 9800458 **Geotextile Roll #: 15018836**
TRI Log #: E2109-94-05

SRA 11-05-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	135	161	136	170	169	151	222	163	156	198	166	25	
TD - Tensile Strength (lbs)	178	242	210	185	212	219	199	185	184	191	201	19	
MD - Elongation @ Max. Load (%)	87	93	73	77	83	87	83	73	97	93	85	8	
TD - Elongation @ Max. Load (%)	133	117	110	93	123	100	123	93	113	110	112	13	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	3.86	3.76	3.60	3.68	3.83	3.60	3.60	3.39	3.48	3.66			
Mass/Unit Area (oz./sq.yd)	8.98	8.75	8.37	8.56	8.91	8.37	8.37	7.89	8.09	8.51	8.48	0.32	

MD Machine Direction
TD Transverse Direction
/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: Tenax TNT 507076 double sided geocomposite - geotextile component
Geocomposite Roll #: 9800533 **Geotextile Roll #: 15019074**
TRI Log #: E2109-94-05

SRA 11-05-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	269	289	268	295	263	263	223	214	210	231	253	29	
TD - Tensile Strength (lbs)	256	267	249	237	240	246	221	205	227	246	239	17	
MD - Elongation @ Max. Load (%)	70	80	73	73	70	73	73	67	63	67	71	4	
TD - Elongation @ Max. Load (%)	90	90	100	97	93	97	93	87	100	100	95	5	
Mass/Unit Area (ASTM D 5261)												0	
5" diameter circle mass (grams)	4.25	3.62	3.68	3.76	3.81	3.99	3.50	3.70	3.79	3.88			
Mass/Unit Area (oz./sq.yd)	9.89	8.42	8.56	8.75	8.86	9.28	8.14	8.61	8.82	9.02	8.83	0.46	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Volusia Landfill

Material: Tenax TNT 507076 double sided geocomposite - geotextile component
Geocomposite Roll #: 9800533 **Geotextile Roll #: 15019095**
TRI Log #: E2109-94-05

SRA 11-05-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	250	259	263	220	234	231	220	206	226	201	231	20	
TD - Tensile Strength (lbs)	180	192	238	236	185	209	188	214	212	244	210	22	
MD - Elongation @ Max. Load (%)	60	70	73	63	60	70	70	67	67	63	66	4	
TD - Elongation @ Max. Load (%)	97	90	93	87	80	93	83	90	97	93	90	5	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	3.49	3.41	3.33	3.40	3.48	3.30	3.58	3.60	3.53	3.42			
Mass/Unit Area (oz./sq.yd)	8.12	7.93	7.75	7.91	8.09	7.68	8.33	8.37	8.21	7.95	8.03	0.22	

MD Machine Direction
TD Transverse Direction
'/A Not Available
.he testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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November 6, 1998

Mr. Joe O'Neill
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757
fax: 904-947-2955 (attn: Steve Rosbach)

Dear Mr. O'Neill:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms - Phase 2 Landfill project.

TRI Job Reference Number:	E2109-97-10
Date Received:	11-05-98
Material(s) Tested:	1 Tenax TNT double sided geocomposite
Sample ID(s):	9800608
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: Tenax TNT 507076 double sided geocomposite
Roll #: 9800608
TRI Log #: E2109-97-10

SZ 11-06-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	1.4	1.7	0.5	1.5	0.2	1.1	0.6
A - MD Minimum peel strength (g/in)	636	772	227	681	91	481	270
A - TD Minimum peel strength (ppi)	0.2	1.1	1.1	1.0	0.2	0.7	0.4
A - TD Minimum peel strength (g/in)	91	499	499	454	91	327	193
B - MD Minimum peel strength (ppi)	0.6	0.3	0.5	1.3	1.2	0.8	0.4
B - MD Minimum peel strength (g/in)	272	136	227	590	545	354	180
B - TD Minimum peel strength (ppi)	1.2	0.10	0.2	1.1	0.2	0.6	0.5
- TD Minimum peel strength (g/in)	545	45	91	499	91	254	220
A - MD Average peel strength (ppi)	2.1	2.5	0.8	2.0	0.2	1.5	0.9
A - MD Average peel strength (g/in)	953	1135	363	908	91	690	395
A - TD Average peel strength (ppi)	0.4	1.6	2.0	2.2	0.7	1.4	0.7
A - TD Average peel strength (g/in)	182	726	908	999	318	627	323
B - MD Average peel strength (ppi)	0.8	0.4	0.6	2.0	1.7	1.1	0.6
B - MD Average peel strength (g/in)	363	182	272	908	772	499	287
B - TD Average peel strength (ppi)	1.8	0.3	0.6	2.1	0.7	1.1	0.7
B - TD Average peel strength (g/in)	817	136	272	953	318	499	324

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: Tenax TNT 507076 double sided geocomposite - geotextile component
Geocomposite Roll #: 9800608 **Geotextile Roll #: 15019126**
TRI Log #: E2109-97-10

SRA 11-06-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	276	308	273	284	276	294	294	243	300	279	283	17	
TD - Tensile Strength (lbs)	248	248	291	303	298	217	229	239	249	244	257	28	
MD - Elongation @ Max. Load (%)	63	67	70	70	67	80	127	63	73	73	75	18	
TD - Elongation @ Max. Load (%)	103	120	127	127	130	110	110	107	137	113	118	11	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	4.02	3.92	4.62	4.46	4.46	4.58	4.07	4.21	4.04	4.23			
Mass/Unit Area (oz./sq.yd)	9.35	9.12	10.75	10.37	10.37	10.65	9.47	9.79	9.40	9.84	9.91	0.56	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: Tenax TNT 507076 double sided geocomposite - geotextile component
Geocomposite Roll #: 9800608 **Geotextile Roll #: 15019118**
TRI Log #: E2109-97-10

SRA 11-06-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	233	239	215	223	250	268	255	251	274	217	243	20	
TD - Tensile Strength (lbs)	183	192	205	211	190	209	221	195	168	196	197	14	
MD - Elongation @ Max. Load (%)	60	70	60	60	67	70	73	67	80	63	67	6	
TD - Elongation @ Max. Load (%)	100	100	107	110	107	103	103	97	93	107	103	5	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	3.33	3.57	3.60	3.62	3.71	3.78	3.64	3.71	3.58	3.75			
Mass/Unit Area (oz./sq.yd)	7.75	8.30	8.37	8.42	8.63	8.79	8.47	8.63	8.33	8.72	8.44	0.28	

MD Machine Direction
TD Transverse Direction
/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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November 14, 1998

Mr. Lee Powell
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 904-947-2955

Dear Mr. Powell:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms - Phase 2 Landfill project.

TRI Job Reference Number:	E2112-07-04
Date Received:	11-13-98
Material(s) Tested:	1 Tenax double sided geocomposite
Sample ID(s):	0298
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: SCS Proj #: C996021.05

Material: Tenax double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 0298
TRI Log #: E2112-01-04

SRA 11.14.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	133	116	150	137	100	82	115	122	143	128	123	19	
TD - Tensile Strength (lbs)	249	249	222	228	183	184	194	170	173	193	205	29	
MD - Elongation @ Max. Load (%)	110	110	100	87	90	77	83	67	100	87	91	13	
TD - Elongation @ Max. Load (%)	100	130	117	113	110	80	83	77	83	83	98	18	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	2.72	2.78	2.85	2.80	2.82	2.84	3.23	3.39	3.38	3.12			
Mass/Unit Area (oz./sq.yd)	6.33	6.47	6.63	6.51	6.56	6.61	7.51	7.89	7.86	7.26	6.96	0.57	

) Machine Direction
) Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: SCS Proj #: C996021.05

Material: Tenax double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 0298
TRI Log #: E2112-07-04

SBA 11-14-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	155	106	117	131	124	106	137	126	126	108	124	15	
TD - Tensile Strength (lbs)	170	204	201	235	189	129	166	168	168	151	178	28	
MD - Elongation @ Max. Load (%)	73	73	80	73	80	77	77	83	70	73	76	4	
TD - Elongation @ Max. Load (%)	97	77	97	97	80	70	80	83	70	80	83	10	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	2.57	2.22	2.34	2.46	2.30	2.73	2.58	2.48	2.25	2.31			
Mass/Unit Area (oz./sq.yd)	5.98	5.16	5.44	5.72	5.35	6.35	6.00	5.77	5.23	5.37	5.64	0.37	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: Tenax double sided geocomposite
Roll #: 0298
TRI Log #: E2112-07-04

SRA 11·14·28
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	1.7	2.0	1.4	1.2	0.6	1.4	0.5
A - MD Minimum peel strength (g/in)	772	908	636	545	272	627	216
A - TD Minimum peel strength (ppi)	0.6	0.8	1.3	1.6	1.0	1.1	0.4
A - TD Minimum peel strength (g/in)	272	363	590	726	454	481	161
B - MD Minimum peel strength (ppi)	1.6	1.6	0.8	1.2	0.6	1.2	0.4
B - MD Minimum peel strength (g/in)	726	726	363	545	272	527	185
- TD Minimum peel strength (ppi)	1.5	1.5	0.6	0.9	0.6	1.0	0.4
TD Minimum peel strength (g/in)	681	681	272	409	272	463	185
A - MD Average peel strength (ppi)	2.2	1.0	1.8	1.3	1.6	1.6	0.4
A - MD Average peel strength (g/in)	999	454	817	590	726	717	187
A - TD Average peel strength (ppi)	1.4	1.6	2.0	2.7	2.1	2.0	0.4
A - TD Average peel strength (g/in)	636	726	908	1226	953	890	204
B - MD Average peel strength (ppi)	2.2	2.9	1.8	1.8	1.0	1.9	0.6
B - MD Average peel strength (g/in)	999	1317	817	817	454	881	281
B - TD Average peel strength (ppi)	2.0	2.8	1.6	1.8	1.1	1.9	0.6
B - TD Average peel strength (g/in)	908	1271	726	817	499	844	253

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TAMPA

December 1, 1998

Mr. Lee Powell
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 904-947-2955

Dear Mr. Powell:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms - Phase 2 Landfill project.

TRI Job Reference Number:	E2112-22-07
Date Received:	11-30-98
Material(s) Tested:	1 Tenax double sided geocomposite
Sample ID(s):	9800934
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: Tenax double sided geocomposite
Roll #: 9800934
TRI Log #: E2112-22-07

SRA 12.01.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	2.1	0.6	1.9	1.1	0.4	1.2	0.7
A - MD Minimum peel strength (g/in)	953	272	863	499	182	554	308
A - TD Minimum peel strength (ppi)	0.1	0.5	0.6	0.3	1.2	0.5	0.4
A - TD Minimum peel strength (g/in)	45	227	272	136	545	245	169
B - MD Minimum peel strength (ppi)	1.0	2.1	1.4	1.9	1.9	1.7	0.4
B - MD Minimum peel strength (g/in)	454	953	636	863	863	754	183
B - TD Minimum peel strength (ppi)	1.2	0.5	0.8	1.0	0.4	0.8	0.3
B - TD Minimum peel strength (g/in)	545	227	363	454	182	354	136
A - MD Average peel strength (ppi)	2.7	1.0	2.2	1.3	0.5	1.5	0.8
A - MD Average peel strength (g/in)	1226	454	999	590	227	699	364
A - TD Average peel strength (ppi)	0.5	1.4	1.5	0.8	2.2	1.3	0.6
A - TD Average peel strength (g/in)	227	636	681	363	999	581	268
B - MD Average peel strength (ppi)	1.3	3.1	1.8	2.4	2.9	2.3	0.7
B - MD Average peel strength (g/in)	590	1407	817	1090	1317	1044	305
B - TD Average peel strength (ppi)	2.3	1.5	1.3	1.9	0.8	1.6	0.5
B - TD Average peel strength (g/in)	1044	681	590	863	363	708	233

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: SCS Proj #: C996021.05

Material: Tenax double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 9800934 Geotextile Roll #: 15019107
TRI Log #: E2112-22-07

SRA 12-01-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	248	324	301	253	237	202	204	199	220	269	246	40	
TD - Tensile Strength (lbs)	304	288	292	275	269	231	281	251	265	224	268	25	
MD - Elongation @ Max. Load (%)	53	80	73	67	90	70	80	67	93	70	74	11	
TD - Elongation @ Max. Load (%)	97	110	113	113	110	103	93	103	107	103	105	6	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	4.36	4.17	4.10	4.19	4.04	4.14	4.13	4.16	3.89	3.89			
Mass/Unit Area (oz./sq.yd)	10.14	9.70	9.54	9.75	9.40	9.63	9.61	9.68	9.05	9.05	9.55	0.31	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: SCS Proj #: C996021.05

Material: Tenax double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 9800934 Geotextile Roll #: 15019151
TRI Log #: E2112-22-07

SRA 12-01-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	228	214	176	201	222	201	202	200	242	202	209	17	
TD - Tensile Strength (lbs)	183	172	177	208	206	196	218	143	210	195	191	21	
MD - Elongation @ Max. Load (%)	63	67	53	60	67	70	70	53	63	60	63	6	
TD - Elongation @ Max. Load (%)	130	100	100	110	103	103	90	90	100	103	103	11	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	3.32	3.49	3.64	3.52	3.64	3.44	3.76	3.77	3.85	3.69			
Mass/Unit Area (oz./sq.yd)	7.72	8.12	8.47	8.19	8.47	8.00	8.75	8.77	8.96	8.58	8.40	0.37	

MD Machine Direction
TD Transverse Direction
I/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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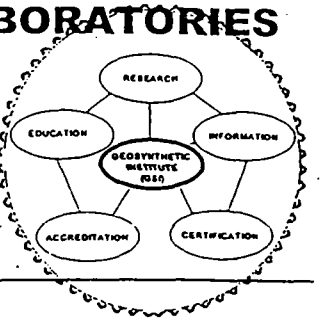
TRI - ACCREDITED GEOSYNTHETICS LABORATORIES

facsimile TRANSMITTAL



to: Mr. Lee Powell - SCS Engineers

fax #: 1-904-947

date: 12-01-98

pages: 5 , including this cover sheet.

TRI believes that the MD direction was mis-marked on the submitted sample.

Sam

From the desk of...

Sam R. Allen
Vice President and Division Manager
TRI/Environmental, Inc.
9063 Bee Caves Rd., Austin, Texas 78733
e-mail: TRISamA@aol.com

(512) 263 2101 or (800) 880 TEST
Fax: (512) 263 2558

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

December 8, 1998

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SCS ENGINEERS
TAMPA

Mr. Lee Powell
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 904-947-2955

Dear Mr. Powell:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms - Phase 2 Landfill project.

TRI Job Reference Number:	E2112-28-03
Date Received:	12-07-98
Material(s) Tested:	1 Tenax double sided geocomposite
Sample ID(s):	9801009
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Jarrett A. Nelson
Laboratory Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: Tenax double sided geocomposite
Roll #: 9801009
TRI Log #: E2112-28-03

JAN 12-3-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	1.5	0.6	0.9	0.6	1.0	0.9	0.3
A - MD Minimum peel strength (g/in)	681	272	409	272	454	418	150
A - TD Minimum peel strength (ppi)	0.7	0.3	0.9	0.4	0.3	0.5	0.2
A - TD Minimum peel strength (g/in)	318	136	409	182	136	236	109
B - MD Minimum peel strength (ppi)	0.4	0.8	0.5	0.5	0.7	0.6	0.1
B - MD Minimum peel strength (g/in)	182	363	227	227	318	263	67
B - TD Minimum peel strength (ppi)	0.5	0.7	0.5	0.7	0.4	0.6	0.1
B - TD Minimum peel strength (g/in)	227	318	227	318	182	254	54
A - MD Average peel strength (ppi)	2.0	1.1	1.5	1.2	1.3	1.4	0.3
A - MD Average peel strength (g/in)	908	499	681	545	590	645	145
A - TD Average peel strength (ppi)	1.1	0.8	1.4	0.9	0.9	1.0	0.2
A - TD Average peel strength (g/in)	499	363	636	409	409	463	97
B - MD Average peel strength (ppi)	0.7	1.1	1.0	0.8	1.4	1.0	0.2
B - MD Average peel strength (g/in)	318	499	454	363	636	454	111
B - TD Average peel strength (ppi)	1.4	1.3	1.4	1.1	1.2	1.3	0.1
B - TD Average peel strength (g/in)	636	590	636	499	545	581	53

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: SCS Proj #: C996021.05

Material: Tenax double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 9801009 Geotextile Roll #: 15018978
TRI Log #: E2112-28-03

JAN 12-9-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	197	200	196	204	232	205	210	253	238	215	215	18	
TD - Tensile Strength (lbs)	207	215	185	199	195	172	179	194	218	218	198	15	
MD - Elongation @ Max. Load (%)	143	100	100	83	90	93	87	87	87	93	96	16	
TD - Elongation @ Max. Load (%)	80	73	73	80	80	63	70	77	83	73	75	6	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	3.53	3.08	3.30	3.02	3.59	3.24	3.64	3.31	3.49	3.31			
Mass/Unit Area (oz./sq.yd)	8.21	7.16	7.68	7.02	8.35	7.54	8.47	7.70	8.12	7.70	7.79	0.46	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: SCS Proj #: C996021.05

Material: Tenax double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 9801009 Geotextile Roll #: 15019003
TRI Log #: E2112-28-03

JAN 12-8-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	218	242	232	187	246	228	200	255	212	240	226	20	
TD - Tensile Strength (lbs)	177	187	180	160	190	169	203	221	190	201	188	17	
MD - Elongation @ Max. Load (%)	57	63	63	53	67	63	57	57	60	57	60	4	
TD - Elongation @ Max. Load (%)	73	77	77	77	80	77	80	90	77	83	79	4	
Mass/Unit Area (ASTM D 5261)													
5" diameter circle mass (grams)	3.78	3.89	3.77	3.95	3.57	3.54	3.88	3.63	4.18	3.95			
Mass/Unit Area (oz./sq.yd)	8.79	9.05	8.77	9.19	8.30	8.23	9.02	8.44	9.72	9.19	8.87	0.44	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

December 14, 1998

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SCS ENGINEERS
TAMPA

Mr. Ray Lotito or Mr. Ray Dever
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757

Dear Gentlemen:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms - Phase 2 Landfill project.

TRI Job Reference Number:	E2112-33-03
Date Received:	12-11-98
Material(s) Tested:	1 TNT 507076 double sided geocomposites
Sample ID(s):	9801084
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: TNT 507076 double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 9801084
TRI Log #: E2112-33-03

SBA 12.14.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	172	145	138	126	176	190	196	165	191	170	167	23	
TD - Tensile Strength (lbs)	217	237	200	197	165	178	158	172	190	160	187	25	
MD - Elongation @ Max. Load (%)	100	110	113	113	103	100	113	120	110	107	109	6	
TD - Elongation @ Max. Load (%)	53	63	70	70	73	67	70	70	67	63	67	5	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.39	3.20	3.09	3.20	3.65	3.17	3.29	2.98	3.27	3.50			
Mass/Unit Area (oz./sq.yd)	7.89	7.44	7.19	7.44	8.49	7.37	7.65	6.93	7.61	8.14	7.62	0.43	

D Machine Direction
D Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: TNT 507076 double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 9801084
TRI Log #: E2112-33-03

SRA 12-14-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	201	206	199	236	189	205	188	214	213	217	207	13	
TD - Tensile Strength (lbs)	239	215	207	229	216	242	183	241	184	205	216	21	
MD - Elongation @ Max. Load (%)	60	60	67	67	60	57	63	60	53	60	61	4	
TD - Elongation @ Max. Load (%)	80	113	107	97	120	87	83	87	83	87	94	13	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.54	3.70	3.52	3.42	3.61	3.67	3.59	3.50	3.32	3.23			
Mass/Unit Area (oz./sq.yd)	8.23	8.61	8.19	7.95	8.40	8.54	8.35	8.14	7.72	7.51	8.16	0.33	

D Machine Direction
J Transverse Direction
A Not Available

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: TNT 507076 double sided geocomposite
Roll #: 9801084
TRI Log #: E2112-33-03

SRA 12·14·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.6	1.4	0.6	1.2	0.9	0.9	0.3
A - MD Minimum peel strength (g/in)	272	636	272	545	409	427	145
A - TD Minimum peel strength (ppi)	0.4	1.0	0.5	0.3	1.4	0.7	0.4
A - TD Minimum peel strength (g/in)	182	454	227	136	636	327	189
B - MD Minimum peel strength (ppi)	0.8	1.5	1.6	1.7	0.4	1.2	0.5
B - MD Minimum peel strength (g/in)	363	681	726	772	182	545	231
B - TD Minimum peel strength (ppi)	1.7	0.4	1.1	0.9	0.1	0.8	0.6
B - TD Minimum peel strength (g/in)	772	182	499	409	45	381	253
A - MD Average peel strength (ppi)	0.9	1.7	0.9	1.0	1.8	1.3	0.4
A - MD Average peel strength (g/in)	409	772	409	454	817	572	183
A - TD Average peel strength (ppi)	0.7	1.6	0.8	0.6	1.7	1.1	0.5
A - TD Average peel strength (g/in)	318	726	363	272	772	490	214
B - MD Average peel strength (ppi)	1.3	1.8	1.9	1.9	0.6	1.5	0.5
B - MD Average peel strength (g/in)	590	817	863	863	272	681	228
B - TD Average peel strength (ppi)	1.9	0.5	1.6	1.5	0.3	1.2	0.6
B - TD Average peel strength (g/in)	863	227	726	681	136	527	289

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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SCS ENGINEERS
TAMPA

December 17, 1998

Mr. Ray Lotito or Mr. Ray Dever
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757

Dear Gentlemen:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms - Phase 2 Landfill project.

TRI Job Reference Number:	E2112-37-05
Date Received:	12-16-98
Material(s) Tested:	1 TNT 507076 double sided geocomposite
Sample ID(s):	9801409
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: TNT 507076 double sided geocomposite
Roll #: 9801409
TRI Log #: E2112-37-05

SRA 12.17.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.3	0.2	0.4	0.1	0.6	0.3	0.2
A - MD Minimum peel strength (g/in)	136	91	182	45	272	145	78
A - TD Minimum peel strength (ppi)	0.2	0.6	0.4	0.1	0.1	0.3	0.2
A - TD Minimum peel strength (g/in)	91	272	182	45	45	127	88
B - MD Minimum peel strength (ppi)	0.6	0.3	0.3	0.5	0.2	0.4	0.1
B - MD Minimum peel strength (g/in)	272	136	136	227	91	173	67
B - TD Minimum peel strength (ppi)	0.3	0.1	0.1	0.4	0.3	0.2	0.1
B - TD Minimum peel strength (g/in)	136	45	45	182	136	109	54
A - MD Average peel strength (ppi)	0.8	0.7	1.0	0.5	1.2	0.8	0.2
A - MD Average peel strength (g/in)	363	318	454	227	545	381	110
A - TD Average peel strength (ppi)	0.5	1.1	0.8	0.1	0.4	0.6	0.3
A - TD Average peel strength (g/in)	227	499	363	45	182	263	156
B - MD Average peel strength (ppi)	1.0	0.8	0.7	0.9	0.7	0.8	0.1
B - MD Average peel strength (g/in)	454	363	318	409	318	372	53
B - TD Average peel strength (ppi)	0.7	0.2	0.4	0.8	0.7	0.6	0.2
B - TD Average peel strength (g/in)	318	91	182	363	318	254	102

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: TNT 507076 double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 9801409 Geotextile Roll #: 15019166
TRI Log #: E2112-37-05

SRA 12-17-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	214	171	212	212	172	210	184	180	195	227	198	19	
TD - Tensile Strength (lbs)	210	231	229	253	225	238	219	224	242	206	228	14	
MD - Elongation @ Max. Load (%)	60	50	57	60	53	60	53	53	60	63	57	4	
TD - Elongation @ Max. Load (%)	70	70	67	77	70	77	70	70	73	63	71	4	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.42	3.44	3.49	3.33	3.45	3.42	3.30	3.44	3.44	3.47			
Mass/Unit Area (oz./sq.yd)	7.95	8.00	8.12	7.75	8.02	7.95	7.68	8.00	8.00	8.07	7.95	0.13	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: TNT 507076 double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 9801409 Geotextile Roll #: 15019051
TRI Log #: E2112-37-05

SR4 12-17-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	181	172	206	210	195	195	199	231	195	183	197	16	
TD - Tensile Strength (lbs)	190	174	176	182	174	193	192	180	174	187	182	7	
MD - Elongation @ Max. Load (%)	57	60	63	60	60	60	57	60	67	53	60	4	
TD - Elongation @ Max. Load (%)	87	87	87	93	93	100	100	93	103	93	94	5	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.09	3.23	3.04	3.11	3.13	3.05	2.88	3.16	3.10	3.12			
Mass/Unit Area (oz./sq.yd)	7.19	7.51	7.07	7.23	7.28	7.09	6.70	7.35	7.21	7.26	7.19	0.20	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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JAN 0 4 1999
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TAMPA

December 29, 1998

Mr. Lee Powell
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757

Dear Mr. Powell:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms - Phase 2 Landfill project.

TRI Job Reference Number:	E2112-41-03
Date Received:	12-29-98
Material(s) Tested:	1 TNT 507076 double sided geocomposite
Sample ID(s):	9801573
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Jarrett A. Nelson
Laboratory Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: TNT 507076 double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 9801573 Geotextile Roll #: 15018845
TRI Log #: E2112-41-03

JAN 12-29-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	214	191	189	195	197	229	203	199	173	177	197	16	
TD - Tensile Strength (lbs)	177	182	200	189	200	178	178	186	212	181	188	11	
MD - Elongation @ Max. Load (%)	57	50	67	50	53	60	57	53	67	57	57	6	
TD - Elongation @ Max. Load (%)	87	80	90	100	117	97	103	117	130	97	102	15	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.07	2.76	2.86	3.07	3.15	2.96	3.18	2.99	2.78	2.90			
Mass/Unit Area (oz./sq.yd)	7.14	6.42	6.65	7.14	7.33	6.88	7.40	6.95	6.47	6.75	6.91	0.32	

) Machine Direction
ل Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: TNT 507076 double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 9801573 Geotextile Roll #: 15019029
TRI Log #: E2112-41-03

JAN 12-24-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	207	151	177	205	185	176	174	206	181	213	188	19	
TD - Tensile Strength (lbs)	180	214	185	216	192	205	198	187	173	212	196	14	
MD - Elongation @ Max. Load (%)	57	50	53	57	57	57	50	63	60	60	56	4	
TD - Elongation @ Max. Load (%)	70	73	73	80	73	70	70	70	70	77	73	3	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.99	2.86	2.75	2.92	2.73	2.82	2.91	2.87	2.94	2.89			
Mass/Unit Area (oz./sq.yd)	6.95	6.65	6.40	6.79	6.35	6.56	6.77	6.68	6.84	6.72	6.67	0.18	

) Machine Direction
. Transverse Direction
A Not Available
. ne testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: TNT 507076 double sided geocomposite
Roll #: 9801573
TRI Log #: E2112-41-03

JAN 12-29-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.3	0.3	0.2	0.6	0.3	0.3	0.1
A - MD Minimum peel strength (g/in)	136	136	91	272	136	154	62
A - TD Minimum peel strength (ppi)	0.2	0.3	0.2	0.3	0.2	0.2	0.0
A - TD Minimum peel strength (g/in)	91	136	91	136	91	109	22
B - MD Minimum peel strength (ppi)	0.4	0.4	0.9	0.3	0.2	0.4	0.2
B - MD Minimum peel strength (g/in)	182	182	409	136	91	200	110
- TD Minimum peel strength (ppi)	0.2	0.3	0.1	0.1	0.1	0.2	0.1
- TD Minimum peel strength (g/in)	91	136	45	45	45	73	36
A - MD Average peel strength (ppi)	0.4	0.5	0.3	0.6	0.4	0.4	0.1
A - MD Average peel strength (g/in)	182	227	136	272	182	200	46
A - TD Average peel strength (ppi)	0.4	0.6	0.3	0.5	0.3	0.4	0.1
A - TD Average peel strength (g/in)	182	272	136	227	136	191	53
B - MD Average peel strength (ppi)	0.6	0.7	1.0	0.4	0.5	0.6	0.2
B - MD Average peel strength (g/in)	272	318	454	182	227	291	93
B - TD Average peel strength (ppi)	0.1	0.3	0.2	0.3	0.1	0.2	0.1
B - TD Average peel strength (g/in)	45	136	91	136	45	91	41

MD Machine Direction
TD Transverse Direction

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SCS ENGINEERS
TAMPA

November 20, 1998

Mr. Ray Lotito or Mr. Ray Dever
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757

Dear Gentlemen:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms - Phase 2 Landfill project.

TRI Job Reference Number:	E2112-10-03
Date Received:	11-16-98
Material(s) Tested:	6 GSE double sided geocomposites
Sample ID(s):	11016603, 11016638, 11016557, 11016716, 11016507, 11016752
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016603
TRI Log #: E2112-10-03

SRA 11.2048
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.3	0.5	0.1	0.1	0.3	0.3	0.1
A - MD Minimum peel strength (g/in)	136	227	45	45	136	118	68
A - TD Minimum peel strength (ppi)	1.4	0.3	0.8	1.0	0.3	0.8	0.4
A - TD Minimum peel strength (g/in)	636	136	363	454	136	345	192
B - MD Minimum peel strength (ppi)	0.4	0.5	0.3	0.4	0.7	0.5	0.1
B - MD Minimum peel strength (g/in)	182	227	136	182	318	209	62
B - TD Minimum peel strength (ppi)	0.5	0.2	0.5	2.8	0.4	0.9	1.0
B - TD Minimum peel strength (g/in)	227	91	227	1271	182	400	439
A - MD Average peel strength (ppi)	0.6	0.8	0.2	0.2	0.4	0.4	0.2
A - MD Average peel strength (g/in)	272	363	91	91	182	200	106
A - TD Average peel strength (ppi)	1.8	0.4	1.6	2.2	0.6	1.3	0.7
A - TD Average peel strength (g/in)	817	182	726	999	272	599	318
B - MD Average peel strength (ppi)	1.0	1.0	0.8	1.0	1.3	1.0	0.2
B - MD Average peel strength (g/in)	454	454	363	454	590	463	73
B - TD Average peel strength (ppi)	0.9	0.4	1.6	3.7	0.8	1.5	1.2
B - TD Average peel strength (g/in)	409	182	726	1680	363	672	534

MD Machine Direction
TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016638
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	1.2	0.7	0.6	0.4	1.8	0.9	0.5
A - MD Minimum peel strength (g/in)	545	318	272	182	817	427	229
A - TD Minimum peel strength (ppi)	0.7	1.0	0.5	0.8	0.6	0.7	0.2
A - TD Minimum peel strength (g/in)	318	454	227	363	272	327	78
B - MD Minimum peel strength (ppi)	0.5	0.7	0.5	0.9	0.4	0.6	0.2
B - MD Minimum peel strength (g/in)	227	318	227	409	182	272	81
- TD Minimum peel strength (ppi)	1.9	0.3	1.4	0.4	2.6	1.3	0.9
B - TD Minimum peel strength (g/in)	863	136	636	182	1180	599	399
A - MD Average peel strength (ppi)	1.9	0.7	1.2	0.9	2.0	1.3	0.5
A - MD Average peel strength (g/in)	863	318	545	409	908	608	238
A - TD Average peel strength (ppi)	1.0	1.3	0.8	0.9	0.9	1.0	0.2
A - TD Average peel strength (g/in)	454	590	363	409	409	445	78
B - MD Average peel strength (ppi)	0.6	0.7	0.7	1.6	0.9	0.9	0.4
B - MD Average peel strength (g/in)	272	318	318	726	409	409	165
B - TD Average peel strength (ppi)	2.5	0.5	2.4	0.7	3.7	2.0	1.2
B - TD Average peel strength (g/in)	1135	227	1090	318	1680	890	546

MD Machine Direction
TD Transverse Direction

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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016557
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.5	0.6	0.6	0.8	0.9	0.7	0.1
A - MD Minimum peel strength (g/in)	227	272	272	363	409	309	67
A - TD Minimum peel strength (ppi)	0.8	0.9	1.3	0.3	1.8	1.0	0.5
A - TD Minimum peel strength (g/in)	363	409	590	136	817	463	229
B - MD Minimum peel strength (ppi)	0.6	1.2	0.6	0.3	0.5	0.6	0.3
B - MD Minimum peel strength (g/in)	272	545	272	136	227	291	137
B - TD Minimum peel strength (ppi)	1.3	0.9	2.6	0.5	1.1	1.3	0.7
B - TD Minimum peel strength (g/in)	590	409	1180	227	499	581	323
A - MD Average peel strength (ppi)	0.8	0.8	0.8	1.0	1.5	1.0	0.3
A - MD Average peel strength (g/in)	363	363	363	454	681	445	123
A - TD Average peel strength (ppi)	1.0	1.5	1.8	0.7	2.4	1.5	0.6
A - TD Average peel strength (g/in)	454	681	817	318	1090	672	271
B - MD Average peel strength (ppi)	0.6	1.5	0.8	0.8	1.1	1.0	0.3
B - MD Average peel strength (g/in)	272	681	363	363	499	436	142
B - TD Average peel strength (ppi)	1.6	1.2	3.4	1.3	1.5	1.8	0.8
B - TD Average peel strength (g/in)	726	545	1544	590	681	817	369

MD Machine Direction
TD Transverse Direction

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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016716
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	1.2	0.7	0.3	0.5	0.5	0.6	0.3
A - MD Minimum peel strength (g/in)	545	318	136	227	227	291	139
A - TD Minimum peel strength (ppi)	1.0	0.1	0.9	1.2	0.7	0.8	0.4
A - TD Minimum peel strength (g/in)	454	45	409	545	318	354	171
B - MD Minimum peel strength (ppi)	0.9	0.5	0.3	0.4	0.7	0.6	0.2
B - MD Minimum peel strength (g/in)	409	227	136	182	318	254	98
- TD Minimum peel strength (ppi)	0.7	0.1	0.1	1.8	0.6	0.7	0.6
- TD Minimum peel strength (g/in)	318	45	45	817	272	300	282
A - MD Average peel strength (ppi)	1.9	0.8	0.8	0.8	1.0	1.1	0.4
A - MD Average peel strength (g/in)	863	363	363	363	454	481	194
A - TD Average peel strength (ppi)	1.6	0.4	1.7	1.2	1.1	1.2	0.5
A - TD Average peel strength (g/in)	726	182	772	545	499	545	209
B - MD Average peel strength (ppi)	1.4	1.4	0.4	0.7	1.0	1.0	0.4
B - MD Average peel strength (g/in)	636	636	182	318	454	445	178
B - TD Average peel strength (ppi)	1.2	0.2	0.4	1.9	0.9	0.9	0.6
B - TD Average peel strength (g/in)	545	91	182	863	409	418	275

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016507
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.5	0.7	0.9	0.3	1.0	0.7	0.3
A - MD Minimum peel strength (g/in)	227	318	409	136	454	309	116
A - TD Minimum peel strength (ppi)	0.1	0.2	0.04	1.3	0.04	0.3	0.5
A - TD Minimum peel strength (g/in)	45	91	18	590	18	153	220
B - MD Minimum peel strength (ppi)	0.4	0.6	0.2	0.1	0.8	0.4	0.3
B - MD Minimum peel strength (g/in)	182	272	91	45	363	191	116
B - TD Minimum peel strength (ppi)	0.03	1.3	0.3	1.1	0.01	0.5	0.5
B - TD Minimum peel strength (g/in)	14	590	136	499	5	249	248
A - MD Average peel strength (ppi)	0.8	1.0	1.4	0.6	1.3	1.0	0.3
A - MD Average peel strength (g/in)	363	454	636	272	590	463	136
A - TD Average peel strength (ppi)	0.0	0.5	0.1	2.0	0.1	0.5	0.7
A - TD Average peel strength (g/in)	0	227	45	908	45	245	340
B - MD Average peel strength (ppi)	0.8	1.0	0.5	0.2	1.2	0.7	0.4
B - MD Average peel strength (g/in)	363	454	227	91	545	336	161
B - TD Average peel strength (ppi)	0.5	1.8	0.7	2.1	0.1	1.0	0.8
B - TD Average peel strength (g/in)	227	817	318	953	45	472	351

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016752
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	1.0	1.2	0.8	0.5	1.2	0.9	0.3
A - MD Minimum peel strength (g/in)	454	545	363	227	545	427	120
A - TD Minimum peel strength (ppi)	0.3	0.1	2.3	2.9	1.6	1.4	1.1
A - TD Minimum peel strength (g/in)	136	45	1044	1317	726	654	497
B - MD Minimum peel strength (ppi)	0.5	0.9	0.5	1.2	0.8	0.8	0.3
B - MD Minimum peel strength (g/in)	227	409	227	545	363	354	120
- TD Minimum peel strength (ppi)	0.2	0.4	1.8	0.4	0.7	0.7	0.6
B - TD Minimum peel strength (g/in)	91	182	817	182	318	318	260
A - MD Average peel strength (ppi)	1.1	2.3	1.4	0.8	2.0	1.5	0.6
A - MD Average peel strength (g/in)	499	1044	636	363	908	690	253
A - TD Average peel strength (ppi)	1.2	0.8	2.8	3.2	2.0	2.0	0.9
A - TD Average peel strength (g/in)	545	363	1271	1453	908	908	414
B - MD Average peel strength (ppi)	1.0	1.4	0.9	1.8	0.7	1.2	0.4
B - MD Average peel strength (g/in)	454	636	409	817	318	527	178
B - TD Average peel strength (ppi)	1.3	0.7	2.2	1.0	0.7	1.2	0.6
B - TD Average peel strength (g/in)	590	318	999	454	318	536	253

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016603
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	188	204	170	196	311	206	188	172	193	237	207	39	
TD - Tensile Strength (lbs)	221	220	217	233	197	192	210	208	207	186	209	14	
MD - Elongation @ Max. Load (%)	70	67	67	67	67	63	63	70	70	77	68	4	
TD - Elongation @ Max. Load (%)	83	83	77	90	97	90	83	73	77	80	83	7	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.18	3.11	2.82	3.05	3.49	3.01	2.83	2.90	2.92	3.24			
Mass/Unit Area (oz./sq.yd)	7.40	7.23	6.56	7.09	8.12	7.00	6.58	6.75	6.79	7.54	7.11	0.46	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016603
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	190	210	179	213	238	329	229	178	226	235	223	41	
TD - Tensile Strength (lbs)	204	207	254	245	245	244	210	212	235	267	232	21	
MD - Elongation @ Max. Load (%)	67	60	63	70	67	63	63	60	73	77	66	5	
TD - Elongation @ Max. Load (%)	77	83	83	80	80	90	93	103	97	87	87	8	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.94	2.89	3.13	3.27	3.71	3.40	3.19	3.00	3.03	3.37			
Mass/Unit Area (oz./sq.yd)	6.84	6.72	7.28	7.61	8.63	7.91	7.42	6.98	7.05	7.84	7.43	0.56	

) Machine Direction
, D Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016638
TRI Log #: E2112-10-03

SRA 11-20-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	268	222	205	185	177	302	228	230	164	176	216	42	
TD - Tensile Strength (lbs)	252	232	221	223	238	218	209	214	217	210	223	13	
MD - Elongation @ Max. Load (%)	63	70	73	83	67	63	73	73	70	63	70	6	
TD - Elongation @ Max. Load (%)	110	97	90	80	87	80	83	83	90	97	90	9	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.50	3.29	2.82	2.96	2.83	2.80	3.44	3.41	2.90	2.83			
Mass/Unit Area (oz./sq.yd)	8.14	7.65	6.56	6.88	6.58	6.51	8.00	7.93	6.75	6.58	7.16	0.65	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016638
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	294	235	219	186	147	259	239	186	191	189	215	41	
TD - Tensile Strength (lbs)	223	211	208	169	200	221	232	203	204	206	208	16	
MD - Elongation @ Max. Load (%)	70	70	70	70	63	73	67	67	67	67	68	3	
TD - Elongation @ Max. Load (%)	103	90	80	67	73	100	93	87	80	83	86	11	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.99	3.17	2.96	2.80	2.43	4.14	3.20	2.95	2.91	2.65			
Mass/Unit Area (oz./sq.yd)	9.28	7.37	6.88	6.51	5.65	9.63	7.44	6.86	6.77	6.16	7.26	1.21	

) Machine Direction
(D Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016557
TRI Log #: E2112-10-03

SRA 11-20-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	233	208	197	195	214	180	236	278	198	181	212	28	
TD - Tensile Strength (lbs)	187	186	184	194	188	197	206	209	213	202	197	10	
MD - Elongation @ Max. Load (%)	73	67	67	67	77	63	67	60	63	70	67	5	
TD - Elongation @ Max. Load (%)	77	83	87	80	103	103	83	83	77	83	86	9	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.79	2.98	2.80	2.99	3.52	3.97	3.28	2.98	2.84	3.00			
Mass/Unit Area (oz./sq.yd)	6.49	6.93	6.51	6.95	8.19	9.23	7.63	6.93	6.61	6.98	7.25	0.83	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016557
TRI Log #: E2112-10-03

SRA 11·20 98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	188	212	223	207	199	178	221	254	225	199	211	21	
TD - Tensile Strength (lbs)	191	254	261	262	244	204	235	246	216	220	233	23	
MD - Elongation @ Max. Load (%)	77	73	60	77	67	63	73	70	77	70	71	6	
TD - Elongation @ Max. Load (%)	73	60	70	57	67	77	77	80	53	60	67	9	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.79	2.62	3.01	2.70	2.79	2.79	2.64	3.02	2.68	2.99			
Mass/Unit Area (oz./sq.yd)	6.49	6.09	7.00	6.28	6.49	6.49	6.14	7.02	6.23	6.95	6.52	0.34	

) Machine Direction
, D Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016716
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	174	157	206	208	230	199	190	218	203	240	203	23	
TD - Tensile Strength (lbs)	242	179	212	203	280	266	196	191	199	187	216	33	
MD - Elongation @ Max. Load (%)	77	67	79	70	63	77	77	80	70	70	73	5	
TD - Elongation @ Max. Load (%)	73	73	60	97	50	100	80	90	93	97	81	16	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.87	2.98	3.06	3.13	3.82	2.75	2.75	2.92	3.10	3.87			
Mass/Unit Area (oz./sq.yd)	6.68	6.93	7.12	7.28	8.89	6.40	6.40	6.79	7.21	9.00	7.27	0.89	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016716
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	254	217	180	170	200	157	221	200	229	273	210	35	
TD - Tensile Strength (lbs)	202	205	213	197	198	185	196	180	204	212	199	10	
MD - Elongation @ Max. Load (%)	67	77	73	73	83	67	83	70	83	60	74	7	
TD - Elongation @ Max. Load (%)	107	110	97	83	90	100	93	90	90	80	94	9	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.30	3.19	2.83	2.84	3.00	3.08	3.11	2.80	2.93	2.96			
Mass/Unit Area (oz./sq.yd)	7.68	7.42	6.58	6.61	6.98	7.16	7.23	6.51	6.82	6.88	6.99	0.36	

) Machine Direction
) Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016507
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	234	199	206	231	237	222	207	226	189	243	219	17	
TD - Tensile Strength (lbs)	236	201	239	225	252	263	237	189	201	221	226	23	
MD - Elongation @ Max. Load (%)	73	67	73	77	80	73	73	73	73	73	74	3	
TD - Elongation @ Max. Load (%)	87	80	73	83	90	90	83	73	80	90	83	6	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.97	2.89	2.90	2.73	2.75	2.94	2.68	2.68	2.72	2.80			
Mass/Unit Area (oz./sq.yd)	6.91	6.72	6.75	6.35	6.40	6.84	6.23	6.23	6.33	6.51	6.53	0.24	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016507
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	197	209	204	157	170	178	217	177	177	155	184	20	
TD - Tensile Strength (lbs)	223	190	192	181	165	193	200	197	208	161	191	18	
MD - Elongation @ Max. Load (%)	83	73	67	60	67	67	70	67	73	73	70	6	
TD - Elongation @ Max. Load (%)	67	94	82	84	77	80	93	77	94	77	83	8	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.90	2.84	2.87	2.76	2.60	2.45	2.63	2.83	2.83	2.92			
Mass/Unit Area (oz./sq.yd)	6.75	6.61	6.68	6.42	6.05	5.70	6.12	6.58	6.58	6.79	6.43	0.34	

) Machine Direction
(D Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016752
TRI Log #: E2112-10-03

SRA 11-20-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	154	237	311	199	151	172	246	283	173	182	211	53	
TD - Tensile Strength (lbs)	187	186	197	198	178	211	200	203	216	219	200	13	
MD - Elongation @ Max. Load (%)	63	73	60	70	60	87	77	63	63	67	68	8	
TD - Elongation @ Max. Load (%)	87	90	110	97	87	93	97	107	87	93	95	8	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.94	3.19	3.61	2.83	2.85	3.16	3.38	3.67	2.89	3.15			
Mass/Unit Area (oz./sq.yd)	6.84	7.42	8.40	6.58	6.63	7.35	7.86	8.54	6.72	7.33	7.37	0.67	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016752
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	156	185	232	191	208	146	207	211	161	152	185	28	
TD - Tensile Strength (lbs)	209	195	217	201	191	195	200	179	197	189	197	10	
MD - Elongation @ Max. Load (%)	87	73	73	87	70	60	70	67	80	67	73	8	
TD - Elongation @ Max. Load (%)	77	83	93	87	83	77	93	97	83	77	85	7	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.50	2.45	3.06	2.65	2.72	2.38	2.41	2.98	2.69	2.34			
Mass/Unit Area (oz./sq.yd)	5.82	5.70	7.12	6.16	6.33	5.54	5.61	6.93	6.26	5.44	6.09	0.55	

) Machine Direction
, D Transverse Direction
N/A Not Available
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November 20, 1998

Mr. Ray Lotito or Mr. Ray Dever
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757

Dear Gentlemen:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms - Phase 2 Landfill project.

TRI Job Reference Number:	E2112-10-03
Date Received:	11-16-98
Material(s) Tested:	6 GSE double sided geocomposites
Sample ID(s):	11016603, 11016638, 11016557, 11016716, 11016507, 11016752
Test(s) Requested:	Mass/Unit Area (ASTM D 5261) Grab Tensile Properties (ASTM D 4632) Peel Strength (ASTM F 904)

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

Sincerely,

Sam R. Allen

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016603
TRI Log #: E2112-10-03

SRA 11.2098
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.3	0.5	0.1	0.1	0.3	0.3	0.1
A - MD Minimum peel strength (g/in)	136	227	45	45	136	118	68
A - TD Minimum peel strength (ppi)	1.4	0.3	0.8	1.0	0.3	0.8	0.4
A - TD Minimum peel strength (g/in)	636	136	363	454	136	345	192
B - MD Minimum peel strength (ppi)	0.4	0.5	0.3	0.4	0.7	0.5	0.1
B - MD Minimum peel strength (g/in)	182	227	136	182	318	209	62
B - TD Minimum peel strength (ppi)	0.5	0.2	0.5	2.8	0.4	0.9	1.0
B - TD Minimum peel strength (g/in)	227	91	227	1271	182	400	439
A - MD Average peel strength (ppi)	0.6	0.8	0.2	0.2	0.4	0.4	0.2
A - MD Average peel strength (g/in)	272	363	91	91	182	200	106
A - TD Average peel strength (ppi)	1.8	0.4	1.6	2.2	0.6	1.3	0.7
A - TD Average peel strength (g/in)	817	182	726	999	272	599	318
B - MD Average peel strength (ppi)	1.0	1.0	0.8	1.0	1.3	1.0	0.2
B - MD Average peel strength (g/in)	454	454	363	454	590	463	73
B - TD Average peel strength (ppi)	0.9	0.4	1.6	3.7	0.8	1.5	1.2
B - TD Average peel strength (g/in)	409	182	726	1680	363	672	534

MD Machine Direction
TD Transverse Direction

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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016638
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	1.2	0.7	0.6	0.4	1.8	0.9	0.5
A - MD Minimum peel strength (g/in)	545	318	272	182	817	427	229
A - TD Minimum peel strength (ppi)	0.7	1.0	0.5	0.8	0.6	0.7	0.2
A - TD Minimum peel strength (g/in)	318	454	227	363	272	327	78
B - MD Minimum peel strength (ppi)	0.5	0.7	0.5	0.9	0.4	0.6	0.2
B - MD Minimum peel strength (g/in)	227	318	227	409	182	272	81
B - TD Minimum peel strength (ppi)	1.9	0.3	1.4	0.4	2.6	1.3	0.9
B - TD Minimum peel strength (g/in)	863	136	636	182	1180	599	399
A - MD Average peel strength (ppi)	1.9	0.7	1.2	0.9	2.0	1.3	0.5
A - MD Average peel strength (g/in)	863	318	545	409	908	608	238
A - TD Average peel strength (ppi)	1.0	1.3	0.8	0.9	0.9	1.0	0.2
A - TD Average peel strength (g/in)	454	590	363	409	409	445	78
B - MD Average peel strength (ppi)	0.6	0.7	0.7	1.6	0.9	0.9	0.4
B - MD Average peel strength (g/in)	272	318	318	726	409	409	165
B - TD Average peel strength (ppi)	2.5	0.5	2.4	0.7	3.7	2.0	1.2
B - TD Average peel strength (g/in)	1135	227	1090	318	1680	890	546

MD Machine Direction
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

TRI/ENVIRONMENTAL, INC.
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016557
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.5	0.6	0.6	0.8	0.9	0.7	0.1
A - MD Minimum peel strength (g/in)	227	272	272	363	409	309	67
A - TD Minimum peel strength (ppi)	0.8	0.9	1.3	0.3	1.8	1.0	0.5
A - TD Minimum peel strength (g/in)	363	409	590	136	817	463	229
B - MD Minimum peel strength (ppi)	0.6	1.2	0.6	0.3	0.5	0.6	0.3
B - MD Minimum peel strength (g/in)	272	545	272	136	227	291	137
3 - TD Minimum peel strength (ppi)	1.3	0.9	2.6	0.5	1.1	1.3	0.7
B - TD Minimum peel strength (g/in)	590	409	1180	227	499	581	323
A - MD Average peel strength (ppi)	0.8	0.8	0.8	1.0	1.5	1.0	0.3
A - MD Average peel strength (g/in)	363	363	363	454	681	445	123
A - TD Average peel strength (ppi)	1.0	1.5	1.8	0.7	2.4	1.5	0.6
A - TD Average peel strength (g/in)	454	681	817	318	1090	672	271
B - MD Average peel strength (ppi)	0.6	1.5	0.8	0.8	1.1	1.0	0.3
B - MD Average peel strength (g/in)	272	681	363	363	499	436	142
B - TD Average peel strength (ppi)	1.6	1.2	3.4	1.3	1.5	1.8	0.8
B - TD Average peel strength (g/in)	726	545	1544	590	681	817	369

MD Machine Direction
TD Transverse Direction

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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016716
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	1.2	0.7	0.3	0.5	0.5	0.6	0.3
A - MD Minimum peel strength (g/in)	545	318	136	227	227	291	139
A - TD Minimum peel strength (ppi)	1.0	0.1	0.9	1.2	0.7	0.8	0.4
A - TD Minimum peel strength (g/in)	454	45	409	545	318	354	171
B - MD Minimum peel strength (ppi)	0.9	0.5	0.3	0.4	0.7	0.6	0.2
B - MD Minimum peel strength (g/in)	409	227	136	182	318	254	98
B - TD Minimum peel strength (ppi)	0.7	0.1	0.1	1.8	0.6	0.7	0.6
B - TD Minimum peel strength (g/in)	318	45	45	817	272	300	282
A - MD Average peel strength (ppi)	1.9	0.8	0.8	0.8	1.0	1.1	0.4
A - MD Average peel strength (g/in)	863	363	363	363	454	481	194
A - TD Average peel strength (ppi)	1.6	0.4	1.7	1.2	1.1	1.2	0.5
A - TD Average peel strength (g/in)	726	182	772	545	499	545	209
B - MD Average peel strength (ppi)	1.4	1.4	0.4	0.7	1.0	1.0	0.4
B - MD Average peel strength (g/in)	636	636	182	318	454	445	178
B - TD Average peel strength (ppi)	1.2	0.2	0.4	1.9	0.9	0.9	0.6
B - TD Average peel strength (g/in)	545	91	182	863	409	418	275

MD Machine Direction
TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016507
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	0.5	0.7	0.9	0.3	1.0	0.7	0.3
A - MD Minimum peel strength (g/in)	227	318	409	136	454	309	116
A - TD Minimum peel strength (ppi)	0.1	0.2	0.04	1.3	0.04	0.3	0.5
A - TD Minimum peel strength (g/in)	45	91	18	590	18	153	220
B - MD Minimum peel strength (ppi)	0.4	0.6	0.2	0.1	0.8	0.4	0.3
B - MD Minimum peel strength (g/in)	182	272	91	45	363	191	116
) - TD Minimum peel strength (ppi)	0.03	1.3	0.3	1.1	0.01	0.5	0.5
B - TD Minimum peel strength (g/in)	14	590	136	499	5	249	248
A - MD Average peel strength (ppi)	0.8	1.0	1.4	0.6	1.3	1.0	0.3
A - MD Average peel strength (g/in)	363	454	636	272	590	463	136
A - TD Average peel strength (ppi)	0.0	0.5	0.1	2.0	0.1	0.5	0.7
A - TD Average peel strength (g/in)	0	227	45	908	45	245	340
B - MD Average peel strength (ppi)	0.8	1.0	0.5	0.2	1.2	0.7	0.4
B - MD Average peel strength (g/in)	363	454	227	91	545	336	161
B - TD Average peel strength (ppi)	0.5	1.8	0.7	2.1	0.1	1.0	0.8
B - TD Average peel strength (g/in)	227	817	318	953	45	472	351

MD Machine Direction
TD Transverse Direction

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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite
Roll #: 11016752
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER					MEAN	STD
Peel Strength (ASTM F 904)	1	2	3	4	5		
A - MD Minimum peel strength (ppi)	1.0	1.2	0.8	0.5	1.2	0.9	0.3
A - MD Minimum peel strength (g/in)	454	545	363	227	545	427	120
A - TD Minimum peel strength (ppi)	0.3	0.1	2.3	2.9	1.6	1.4	1.1
A - TD Minimum peel strength (g/in)	136	45	1044	1317	726	654	497
B - MD Minimum peel strength (ppi)	0.5	0.9	0.5	1.2	0.8	0.8	0.3
B - MD Minimum peel strength (g/in)	227	409	227	545	363	354	120
B - TD Minimum peel strength (ppi)	0.2	0.4	1.8	0.4	0.7	0.7	0.6
B - TD Minimum peel strength (g/in)	91	182	817	182	318	318	260
A - MD Average peel strength (ppi)	1.1	2.3	1.4	0.8	2.0	1.5	0.6
A - MD Average peel strength (g/in)	499	1044	636	363	908	690	253
A - TD Average peel strength (ppi)	1.2	0.8	2.8	3.2	2.0	2.0	0.9
A - TD Average peel strength (g/in)	545	363	1271	1453	908	908	414
B - MD Average peel strength (ppi)	1.0	1.4	0.9	1.8	0.7	1.2	0.4
B - MD Average peel strength (g/in)	454	636	409	817	318	527	178
B - TD Average peel strength (ppi)	1.3	0.7	2.2	1.0	0.7	1.2	0.6
B - TD Average peel strength (g/in)	590	318	999	454	318	536	253

MD Machine Direction
TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016603
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	188	204	170	196	311	206	188	172	193	237	207	39	
TD - Tensile Strength (lbs)	221	220	217	233	197	192	210	208	207	186	209	14	
MD - Elongation @ Max. Load (%)	70	67	67	67	67	63	63	70	70	77	68	4	
TD - Elongation @ Max. Load (%)	83	83	77	90	97	90	83	73	77	80	83	7	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.18	3.11	2.82	3.05	3.49	3.01	2.83	2.90	2.92	3.24			
Mass/Unit Area (oz./sq.yd)	7.40	7.23	6.56	7.09	8.12	7.00	6.58	6.75	6.79	7.54	7.11	0.46	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016603
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	190	210	179	213	238	329	229	178	226	235	223	41	
TD - Tensile Strength (lbs)	204	207	254	245	245	244	210	212	235	267	232	21	
MD - Elongation @ Max. Load (%)	67	60	63	70	67	63	63	60	73	77	66	5	
TD - Elongation @ Max. Load (%)	77	83	83	80	80	90	93	103	97	87	87	8	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.94	2.89	3.13	3.27	3.71	3.40	3.19	3.00	3.03	3.37			
Mass/Unit Area (oz./sq.yd)	6.84	6.72	7.28	7.61	8.63	7.91	7.42	6.98	7.05	7.84	7.43	0.56	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016638
TRI Log #: E2112-10-03

SRA 11-20-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	268	222	205	185	177	302	228	230	164	176	216	42	
TD - Tensile Strength (lbs)	252	232	221	223	238	218	209	214	217	210	223	13	
MD - Elongation @ Max. Load (%)	63	70	73	83	67	63	73	73	70	63	70	6	
TD - Elongation @ Max. Load (%)	110	97	90	80	87	80	83	83	90	97	90	9	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.50	3.29	2.82	2.96	2.83	2.80	3.44	3.41	2.90	2.83			
Mass/Unit Area (oz./sq.yd)	8.14	7.65	6.56	6.88	6.58	6.51	8.00	7.93	6.75	6.58	7.16	0.65	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016638
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	294	235	219	186	147	259	239	186	191	189	215	41	
TD - Tensile Strength (lbs)	223	211	208	169	200	221	232	203	204	206	208	16	
MD - Elongation @ Max. Load (%)	70	70	70	70	63	73	67	67	67	67	68	3	
TD - Elongation @ Max. Load (%)	103	90	80	67	73	100	93	87	80	83	86	11	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.99	3.17	2.96	2.80	2.43	4.14	3.20	2.95	2.91	2.65			
Mass/Unit Area (oz./sq.yd)	9.28	7.37	6.88	6.51	5.65	9.63	7.44	6.86	6.77	6.16	7.26	1.21	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016557
TRI Log #: E2112-10-03

SRA 11-20-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	233	208	197	195	214	180	236	278	198	181	212	28	
TD - Tensile Strength (lbs)	187	186	184	194	188	197	206	209	213	202	197	10	
MD - Elongation @ Max. Load (%)	73	67	67	67	77	63	67	60	63	70	67	5	
TD - Elongation @ Max. Load (%)	77	83	87	80	103	103	83	83	77	83	86	9	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.79	2.98	2.80	2.99	3.52	3.97	3.28	2.98	2.84	3.00			
Mass/Unit Area (oz./sq.yd)	6.49	6.93	6.51	6.95	8.19	9.23	7.63	6.93	6.61	6.98	7.25	0.83	

ID Machine Direction
TD Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016557
TRI Log #: E2112-10-03

SRA 11·20 98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	188	212	223	207	199	178	221	254	225	199	211	21	
TD - Tensile Strength (lbs)	191	254	261	262	244	204	235	246	216	220	233	23	
MD - Elongation @ Max. Load (%)	77	73	60	77	67	63	73	70	77	70	71	6	
TD - Elongation @ Max. Load (%)	73	60	70	57	67	77	77	80	53	60	67	9	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.79	2.62	3.01	2.70	2.79	2.79	2.64	3.02	2.68	2.99			
Mass/Unit Area (oz./sq.yd)	6.49	6.09	7.00	6.28	6.49	6.49	6.14	7.02	6.23	6.95	6.52	0.34	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016716
TRI Log #: E2112-10-03

SRA 11-20-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	174	157	206	208	230	199	190	218	203	240	203	23	
TD - Tensile Strength (lbs)	242	179	212	203	280	266	196	191	199	187	216	33	
MD - Elongation @ Max. Load (%)	77	67	79	70	63	77	77	80	70	70	73	5	
TD - Elongation @ Max. Load (%)	73	73	60	97	50	100	80	90	93	97	81	16	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.87	2.98	3.06	3.13	3.82	2.75	2.75	2.92	3.10	3.87			
Mass/Unit Area (oz./sq.yd)	6.68	6.93	7.12	7.28	8.89	6.40	6.40	6.79	7.21	9.00	7.27	0.89	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016716
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	254	217	180	170	200	157	221	200	229	273	210	35	
TD - Tensile Strength (lbs)	202	205	213	197	198	185	196	180	204	212	199	10	
MD - Elongation @ Max. Load (%)	67	77	73	73	83	67	83	70	83	60	74	7	
TD - Elongation @ Max. Load (%)	107	110	97	83	90	100	93	90	90	80	94	9	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	3.30	3.19	2.83	2.84	3.00	3.08	3.11	2.80	2.93	2.96			
Mass/Unit Area (oz./sq.yd)	7.68	7.42	6.58	6.61	6.98	7.16	7.23	6.51	6.82	6.88	6.99	0.36	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016507
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	234	199	206	231	237	222	207	226	189	243	219	17	
TD - Tensile Strength (lbs)	236	201	239	225	252	263	237	189	201	221	226	23	
MD - Elongation @ Max. Load (%)	73	67	73	77	80	73	73	73	73	73	74	3	
TD - Elongation @ Max. Load (%)	87	80	73	83	90	90	83	73	80	90	83	6	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.97	2.89	2.90	2.73	2.75	2.94	2.68	2.68	2.72	2.80			
Mass/Unit Area (oz./sq.yd)	6.91	6.72	6.75	6.35	6.40	6.84	6.23	6.23	6.33	6.51	6.53	0.24	

MD Machine Direction
TD Transverse Direction
N/A Not Available
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GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016507
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	197	209	204	157	170	178	217	177	177	155	184	20	
TD - Tensile Strength (lbs)	223	190	192	181	165	193	200	197	208	161	191	18	
MD - Elongation @ Max. Load (%)	83	73	67	60	67	67	70	67	73	73	70	6	
TD - Elongation @ Max. Load (%)	67	94	82	84	77	80	93	77	94	77	83	8	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.90	2.84	2.87	2.76	2.60	2.45	2.63	2.83	2.83	2.92			
Mass/Unit Area (oz./sq.yd)	6.75	6.61	6.68	6.42	6.05	5.70	6.12	6.58	6.58	6.79	6.43	0.34	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (top)
Geocomposite Roll #: 11016752
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	154	237	311	199	151	172	246	283	173	182	211	53	
TD - Tensile Strength (lbs)	187	186	197	198	178	211	200	203	216	219	200	13	
MD - Elongation @ Max. Load (%)	63	73	60	70	60	87	77	63	63	67	68	8	
TD - Elongation @ Max. Load (%)	87	90	110	97	87	93	97	107	87	93	95	8	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.94	3.19	3.61	2.83	2.85	3.16	3.38	3.67	2.89	3.15			
Mass/Unit Area (oz./sq.yd)	6.84	7.42	8.40	6.58	6.63	7.35	7.86	8.54	6.72	7.33	7.37	0.67	

/D Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOCOMPOSITE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill - Phase 2

Material: GSE double sided geocomposite - geotextile component (bottom)
Geocomposite Roll #: 11016752
TRI Log #: E2112-10-03

SRA 11·20·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.
Grab Tensile Properties (ASTM D 4632)	1	2	3	4	5	6	7	8	9	10			
MD - Tensile Strength (lbs)	156	185	232	191	208	146	207	211	161	152	185	28	
TD - Tensile Strength (lbs)	209	195	217	201	191	195	200	179	197	189	197	10	
MD - Elongation @ Max. Load (%)	87	73	73	87	70	60	70	67	80	67	73	8	
TD - Elongation @ Max. Load (%)	77	83	93	87	83	77	93	97	83	77	85	7	
Mass/Unit Area (ASTM D 3776)													
5" diameter circle mass (grams)	2.50	2.45	3.06	2.65	2.72	2.38	2.41	2.98	2.69	2.34			
Mass/Unit Area (oz./sq.yd)	5.82	5.70	7.12	6.16	6.33	5.54	5.61	6.93	6.26	5.44	6.09	0.55	

MD Machine Direction
TD Transverse Direction
N/A Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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SECTION 7
GEOSYNTHETIC INSTALLATION REPORT

7.1 REQUIREMENTS AND SPECIFICATIONS

This section compiles the daily construction activities related to the installation of the secondary and primary geomembrane components of the liner system for the North Cell, Class I, Phase IV Expansion at the Tomoka Farms Road Landfill, Volusia County, Florida.

The primary and secondary geomembrane components of the bottom liner system were comprised of 60 mil textured, high density polyethylene (HDPE) geomembrane. GSE Lining Corporation (GSE) manufactured the HDPE geomembrane.

As part of the SCS Engineers (SCS) construction services contract with Volusia County (County), the installation of the geosynthetic components were inspected and documented to certify that the project was completed in accordance with the Florida Department of Environmental Protection (FDEP) permit.

To monitor the geomembrane installation, a full-time on-site geomembrane Construction Quality Assurance (CQA) program was conducted by SCS during installation. The CQA monitor documented weather, construction and installation techniques, nondestructive and destructive geomembrane testing, and geomembrane repairs. In addition, materials conformance testing was performed to assure compliance with the project specifications.

Field activities were recorded in daily logs. As required by the contract specifications, in addition to the daily logs, panel repair reports, material testing logs, and seam test results were also used to document the installation of the geomembrane.

The SCS CQA monitor was responsible for:

- Reviewing the applicable plans and written material prior to the start of construction.

- Monitoring the essential procedures of the geomembrane installation such as:

    1. Geomembrane panel placement.
    2. Geomembrane repair.
    3. Geomembrane seaming.
    4. Seam repair.
    5. Non-destructive testing.
    6. Destructive test sampling.
    7. Conformance sample collection.

- Recording the repairs and destructive sample test locations.

7.2 INSTALLATION SUMMARY

Volusia County was responsible for preparing the low permeability component of the bottom liner system, the secondary GCL layer, which serves as the subgrade to the secondary geomembrane. Upon acceptance of the low permeability subgrade, Comanco installed the geosynthetic.

Comanco began deployment of the secondary geomembrane on November 2, 1998. Geomembrane panels were deployed and numbered sequentially as placed. The progression of the work can be determined from the as-built panel layout drawing (Refer to Attachment 7-1 of this section).

It is the professional opinion of SCS that the double liner system was installed in substantial accordance with the project specifications and meets or exceeds the design

requirements. Table 7-1 is a tabulated summary of the installation for the geosynthetics for the bottom liner system for the North Cell, Class I, Phase IV expansion.

TABLE 7-1 INSTALLATION SUMMARY FOR NORTH CELL, CLASS I, PHASE IV TOMOKA FARMS ROAD LANDFILL, VOLUSIA COUNTY, FLORIDA

Bottom Liner System Description	Installed Square Footage [1,2]	Start Date	Completion Date
Secondary			
Geomembrane	805,997	11/02/98	01/08/99
Primary			
Geomembrane	810,333.5	12/01/98	01/20/99

Notes: 1) Installed square footage based upon SCS Engineers panel placement logs.
2) Differences in quantities within ± 3 percent; difference caused by temperature effects, final deployment length after trimming, additional underlying materials in the headers and laterals to prevent moisture build-up, etc.

7.3 DAILY FIELD REPORT

During the geomembrane installation, activities were recorded, specifically regarding the geosynthetic installation, on Daily Field Reports that are contained in Attachment 7-2 of this section. The reports were signed and dated at the end of each day by the SCS CQA monitor. The reports also contained general information such as weather conditions, modifications to the plans, and potential conflicts pertinent to the installation.

7.4 GEOMEMBRANE PLACEMENT (PRIMARY AND SECONDARY)

Geomembrane panels were placed one at a time and temporarily secured along the edges with sand bags to prevent uplift by the wind. Adjacent panels were deployed and adjusted prior to seaming. Upon deployment, individual panels were assigned sequential panel numbers. Panel numbers, with the corresponding manufacturer's geomembrane roll numbers, were marked on the panels and recorded on the placement log. Refer to Attachment 7-3 of this section for both the primary and secondary geomembrane systems. The SCS CQA monitor recorded on the "Geomembrane Placement Log" the following information for each panel:•

Location, orientation, and length of the panel.

- Date of installation.
- Panel number (identification code) with alpha prefix (S, secondary or P, primary)
- Originating manufacturer's geomembrane roll number.

7.5 TRIAL WELDS

As required by the contract specifications, the equipment used to fusion and extrusion weld the geomembrane seams each day was pre-heated and tested prior to use on the liner system. Each seaming crew was required to produce trial welds on a segment of excess geomembrane, approximately 3 feet long. The seaming crew adjusted equipment temperatures to compensate for varying weather and seaming conditions. Hot wedge welding machines were generally set at speeds of 35 to 60 feet per minute and temperature from 700 to 730 degrees Fahrenheit. Extrusion welders were generally set from 430 to 500 degrees Fahrenheit.

The trial welds were tested for compliance with the project specifications at the site using Comanco's field tensiometer. Two one-inch wide specimens were cut from each welded seam. The trial welded seams were required to meet or exceed the requirements of minimum 90% of Film Tear Bond before being allowed to weld the deployed panels. Results of field trial weld tests are contained in Attachment 7-4 of this section.

7.6 GEOMEMBRANE SEAMING (PRIMARY AND SECONDARY)

Adjoining panels were aligned to maintain the specified minimum six-inch overlap. Once the panels were aligned, excess moisture and dirt were removed from the edges to be seamed. As the Comanco seaming crews progressed, wrinkles were removed from the geomembrane. Upon completion of the seaming operation, the seams were then pressure-tested with compressed air in accordance with the methods described in Section 7-8 and destructive samples were taken in accordance with Section 7-9

Fusion and extrusion seams continued the entire length of the panels to include the seam that extends into the anchor trench. Any portion of the seam that was damaged or inadequate was repaired by patching, cap stripping, or extrusion welding the defective portion of the seam. The methods of repair are described in Section 7-7.

Observation activities carried out by the SCS CQA monitor during seaming operations are documented in the Seaming Log (refer to Attachment 7-5 of this section) and the Seam Repair Log (Refer to Attachment 7-6 of this section). Observations include:

- Seam Numbers.
- Welder's name and machine number.
- Welding machine speed and temperature.
- Marked and documented locations of seam repairs.

7.7 SEAM AND PANEL REPAIRS

Patching was used for small repairs, such as holes or rips. Patches consisted of excess geomembrane, with the corners rounded to a radius of at least 3 inches, and large enough to cover 6 inches beyond the edges of the damage. The patches were temporarily fastened in place using a hot air gun. The edge of the patch was then textured using a grinding machine to allow bonding of the geomembrane to the extrudate. After the patch edge was cleaned of the grinding debris, an extruded weld

was used to secure the patch to the panel. The extruded weld was tested for leaks with use of a vacuum box assembly and soapy solution.

Large lengths of seams inaccessible to the fusion welder were repaired by cap stripping. A patch cut to cover the length and extend 6 inches beyond the edges was heat sealed, and extrusion welded as noted previously. The cap strip method and extrusion welds were tested in accordance with Section 7-8.

Wrinkles at seam overlaps were cut along the ridge of the wrinkle and folded over to achieve a flat seam. The overlapped portion of the wrinkle was then trimmed, cleaned, and extrusion welded. Any portion of a new seam that had an inadequate overlap received a cap strip.

Repairs were inspected by both the Comanco CQC monitor and the SCS CQA monitor. Repair activities were documented in the Geomembrane Repair Log (Attachment 7-6 of this section).

7.8 NON-DESTRUCTIVE TESTING (PRIMARY AND SECONDARY)

A non-destructive test was conducted on the entire length of each seam. This project utilized a split wedge, fusion welder. The split wedge welder formed an air channel between the two welds, which allowed for non-destructive air pressure tests to verify the integrity of the seam. Air pressure tests were conducted by initially sealing each end of the air channel. The air channel was pressurized to a minimum of 30 pounds per square inch (psi) with an air pump. Once the pressure in the air channel stabilized, the time was noted. The test was conducted for five minutes, and a drop of 3 psi was permitted for the seam to pass. When five minutes had passed, the air channel at the far end of the seam was lanced. A smooth and steady drop in pressure indicated that the entire air channel in the seam had been tested.

Extrusion welds were tested by the vacuum box method. A soapy solution was applied to the extruded weld. The vacuum box was placed over the wetted area and a vacuum

of 3 psi was held for 15 seconds. Any leaks in the weld were detected by air bubbles escaping from the weld and were subsequently repaired and retested.

All non-destructive tests were observed and documented in the "Non-Destructive Test Log" by the SCS CQA monitor. The Non-Destructive Test Logs are included as Attachment 7-7 of this section.

7.9 DESTRUCTIVE SAMPLE TESTING

Destructive test samples were cut at a frequency of one test per approximately 500 lineal feet of seam. A total of 153 seam samples were cut and tested by SCS, 77 on primary geomembrane seams and 76 on secondary geomembrane seams. Sample locations were chosen and marked by the SCS CQA monitor and cut by Comanco's CQC representative. The samples were marked for identification. The description included: confirmation as to primary or secondary liner, a sequential number, cut location, panels included in the sample, date seamed, seamer's initials and machine number, and SCS CQA monitor initials. The top outside track was indicated on the samples for proper orientation in the testing equipment. The SCS sample was sent to the SCS laboratory via a courier for testing. Comanco's sample was tested on site by the Comanco CQC representative. Defects in the geomembrane seam indicated by the destructive test sampling were immediately repaired in accordance with Section 7-7. Test results were transmitted to the SCS Field Office on site for relay to the Contractor.

The size of the destructive sample was approximately 12 inches by 36 inches, with the seam centered lengthwise. A 12-inch by 12-inch field sample was cut and tested for shear and peel strength by the Comanco CQC representative. If the sample passed, a 12-inch by 14-inch sample was forwarded to the SCS lab for testing. A 12 inch by 12 inch sample was also cut for the County's archives. Locations of each destructive sample are shown in the as-built panel layout drawing. The results of the destructive samples are discussed in Section 7-11.

7.10 LABORATORY TESTING PROCEDURES

Destructive seam samples were sent to TRI Environmental testing laboratory Austin, Texas. TRI performed shear tests to measure strength, and peel tests to measure adhesion. Testing was conducted in accordance to ASTM D 4437 (1.0 inch wide, crosshead rate of 2 inches per minute) Five specimens from each destructive sample taken were tested for conformance. SCS requires four out of five specimens on each test to meet the minimum acceptable project specifications.

7.11 TEST SAMPLE RESULTS

The results of the destructive seam tests are contained in Attachment 7-8 of this section.

7.12 GEOMEMBRANE MANUFACTURER QUALITY ASSURANCE

As part of the project specifications the manufacturer, GSE Lining Technology, Inc. (GSE), was required to perform initial conformance tests on the geomembrane prior to delivery. The conformance tests were conducted by GSE at the factory at a minimum frequency of one test per every 40,000 square feet of geomembrane. The results were recorded in certificates for each roll of geomembrane, and are contained in Attachment 7-9. Please note that GSE reports a single number, the averaged test results for the machine and cross directions, for tensile properties. SCS was informed by GSE that the geomembrane roll properties must meet the minimum property in both directions to pass in-plant quality control. GSE's minimum standard exceeded project specifications.

7.13 CONFORMANCE TESTING

The geomembrane delivered for installation was randomly sampled to verify conformance with the project specifications. Samples were taken across the entire width of the geomembrane roll. The machine direction from the manufacturing process

of the geomembrane was indicated on the samples for proper orientation of the testing equipment. The samples were then sent to an independent laboratory, TRI/Environmental Incorporated, located in Austin, Texas, for conformance testing.

The geomembrane rolls were divided into groups of material produced from similar railcar loads of resin or production dates. Conformance samples were selected so as to be representative of the installed materials. A total of 12 conformance samples were removed from the geomembrane rolls prior to installation. The samples were required to meet or exceed the specifications. The test results as noted in Table 7-2 indicate that the samples were in conformance with the specified properties.

TABLE 7-2

COMPARISON OF GEOMEMBRANE PROPERTIES FOR TOMOKA FARMS ROAD LANDFILL NORTH CELL CLASS I PHASE IV

Parameter	Specification	MQC Test Results[1]	MQA Test Results[2]
Thickness, mils	60, ±10%	57 - 61	60 – 72
Carbon Content, %	2.0-3.0	2.11 – 2.56	2.09 - 2.77
Density, g/cm^3	0.940	0.940 – 0.946	0.938 - 0.944
Break Elongation, %			
Machine Direction	100	568 - 889	710 – 849
Transverse Direction	100	560 - 808	726 – 924
Break Strength, ppiw			
Machine Direction	90	264 - 353	255 – 322
Transverse Direction	90	247 - 356	234 – 326
Yield Elongation, %			
Machine Direction	12	19 - 24	17 – 26
Transverse Direction	12	19 - 25	18 – 21
Yield Strength, ppiw			
Machine Direction	126	134 – 185	137 – 158
Transverse Direction	126	138 - 177	139 – 159

Notes:

1. Range of factory test results from Manufacturer's Certificates (GSE).
2. Range of average values from independent testing laboratory (TRI/Environmental).

Geomembrane conformance samples were tested for thickness, carbon black content and dispersion, sheet density, tensile properties, at yield and break, in both the machine and cross direction of the sheet.

As shown in Table 7-2, the manufacturer and independent conformance tests indicate that the geomembrane meets or exceeds the project specifications.

The results of the conformance tests are contained in Attachment 7-10 of this section.

7.14 DIRECT SHEAR TEST

For slope stability the critical interface friction angle between the various geosynthetic materials was computed to be 10 degrees. The interface with the lowest interface friction angle is the 60-mil smooth geomembrane and the non-woven geotextile.

To confirm the project materials would meet this criteria, the Contractor conducted an interface direct shear test, in accordance with ASTM D 5397. To simulate field conditions, the normal loads covered the range of stresses during final buildout of North Cell Class I Phase IV and the interface was tested in a saturated condition. As shown in the Phase I and V report, the test resulted in an interface friction angle of 10 degrees.

ATTACHMENT 7-1

COMANCO'S AS-BUILT PANEL LAYOUT DRAWINGS
(PRIMARY AND SECONDARY)

PRIMARY

SECONDARY

ATTACHMENT 7-2

SCS ENGINEER'S CQA MONITOR DAILY FIELD REPORTS

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill (SR ~~Phase IV~~) North Cell, Class I, Phase II Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco

Date: 11/2/98 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather

Temperature: (AM) 68° (PM) 81° Rain: — Duration of rain: —

Description of weather: Partly cloudy, warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)		
1 Volvo A350 Dumptruck (A)		
3 Caterpillar 544G Frontloaders (A)		
1 Caterpillar D4 Bulldozer (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

8:00 Arrived on-site. Volusia County had excavated the header and lateral trenches on the east side of Phase IV using the Linkbelt 3400 Trackhoe, loading the excavated soil into the Volvo A350 Dumptruck and hauling it out of the cell. The trenches were dry and did not appear to have groundwater in them. Paul Ramias of Volusia County Lee Powell of SCS Engineers discussed the dewatering pipe called for in the drawings and decided not to install it under the header trench at this time.

10:50 Volusia County also smoothed out the subgrade by backdragging the blade of the Caterpillar D4 Bulldozer over it. They then deployed Bentomat over it using the a Caterpillar 544G Frontloader.

10:50 Comanco commenced geomembrane deployment.
SCS marked destructive samples DS-1 through DS-4 on today's seaming.

17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	36,052.5 ft²	36,052.5 ft²

Field Representative Steven Rothert Date 11/2/98

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill (SP) ~~Phase II~~ North Cell, Class I, Phase IV Expansion
Project number: 09950327

Owner: Volusia County
Contractor: Comanco Environmental

Date: 11/3/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 68° (PM) 78° Rain: — Duration of rain: —

Description of weather: Partly cloudy, warm, breezy
List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)		
1 Volvo A35D Dumptruck (A)		
3 Caterpillar 544G Frontloaders (A)		
1 Caterpillar D4 Bulldozer (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	~~X~~ (SP) 6	

Description of Construction Activity

7:00 Arrived on-site. Comanco constructed a skid sheet out of geonet. The sheet was then placed over the bentomat that had been placed ~~Comanco~~ (SP) by Volusia County laborers. Comanco then deployed textured 60 mil HDPE geomembrane over the skid sheet. Once the panel was in place, the skid sheet was pulled out from under it and placed for deployment of the next panel.
Volusia County laborers continued placement of bentomat over the subgrade of Phase IV, starting at the easternmost lateral trench and (SP) moving west, ending at the second lateral trench.
Comanco placed a total of 76,118.5 square feet of geomembrane today.
SCS marked destructive samples DS-5 through DS-12 on today's seams.
17:30 Departed site.
Note: Received results on DS-1 through 4, all of which passed.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	76,118.5 ft²	112,171 ft²

Field Representative [signature] Date 11/3/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
(SP) ~~(Phase IV)~~ North Cell, Class I,
Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/4/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 65° (PM) 75° Rain: Yes Duration of rain: 14:30 — end of day

Description of weather: Overcast, Rainy, Warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)		
1 Volvo A350 Dumptruck (A)		
3 Caterpillar 544G Frontloaders (A)		
1 Caterpillar D4 Bulldozer (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Comanco filled sandbags and constructed repairs. Volusia County pumped water out of the header trench, which was flooded with run-off from the previous phase of construction. Water had run over the exposed bentomat in the trench. SCS examined the bentomat once the water had been pumped out of the trench and observed that the bentonite in it was not saturated. (Water had run over the surface but had not puddled on the surface of the bentomat.)

10:00 Comanco commenced deployment of geomembrane. A total of 32,303.5 square feet of geomembrane was deployed today, for a total of 144,474.5 square feet installed to date. SCS marked destructive samples DS-13 through DS-15 on today's seams.

14:30 Comanco shut down operations due to rain. Comanco departed site at 15:00.

17:30 Departed site.

Note: Received results for DS-5 through DS-8, all of which passed.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	32,303.5 ft²	(SP) ~~(144)~~ 144,474.5 ft²

Field Representative [signature] Date 11/4/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion — Project number: 09P5039.27

Owner: Volusia County — Contractor: Comanco Environmental

Date: 11/5/98 — Contract Day: N/A — Contract Duration: N/A — Days Remaining: N/A

Weather
Temperature: (AM) 65° (PM) 70° Rain: Yes Duration of rain: All day

Description of weather: Overcast, Rainy, Warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (1)	1 Caterpillar 950F Frontloader (1)	
1 Volvo A350 Dumptruck (1)	1 Caterpillar 966 F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (1)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco commenced deployment of TENAX tri-planar geocomposite over the secondary geomembrane.
8:30 Comanco departed site due to rain.
12:00 Comanco returned on-site and continued deployment of TENAX tri-planar geocomposite.
14:30 Rain started up again and Comanco departed site.
15:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	144,474.5 ft²
Tri-planar Geocomposite	13440 ~~(2080)~~ ft² (SR)	13440 ~~(2080)~~ ft² (SR)

Field Representative [signature] Date 11/5/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill (Phase ~~IV~~) North Cell, Class I, Phase IV Expansion
Project number: 09P5039.27

Owner: Volusia County
Contractor: Comanco Environmental

Date: 11/6/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 63° (PM) 69° Rain: — Duration of rain: —

Description of weather: Overcast, warm
List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (1)		
1 Volvo A350 Dumptruck (1)		
3 Caterpillar 544G Frontloaders (1)		
1 Caterpillar D4 Bulldozer (1)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity
7:00 Arrived on-site. Comanco placed TENAX tri-planar geocomposite and ~~constructed~~ (SP) constructed repairs.
14:30 Comanco departed site.
15:00 Departed site.
Note: Comanco also welded a section of tie-in seam and SCS marked destructive sample DS-16.
Also received results for DS-9 through DS-12, all of which passed.

List of Subcontractors
N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	144,474.5 ft²
Tri-planar Geocomposite	2,274 ~~(24,766)~~ ft² (SP)	42,714 ~~(27,046)~~ ft² (SP)

Field Representative Steven Gothard Date 11/6/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill (90) ~~Phase IV~~ North Cell, Class I, ~~Phase IV~~ Expansion
Project number: 09950327

Owner: Volusia County
Contractor: Comanco Environmental

Date: 11/9/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 71° (PM) 80° Rain: — Duration of rain: —

Description of weather: Overcast, Warm.
List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)		
1 Volvo A350 Dumptruck (A)		
3 Caterpillar 544G Frontloaders (A)		
1 Caterpillar D4 Bulldozer (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:30 Arrived on-site. Comanco placed TENAX tri-planar geocomposite and constructed repairs. Volusia county continued digging the header trench and dug the 3rd lateral trench from the east side of the cell.
11:00 Comanco commenced deployment of geomembrane. A total of 64,377 square feet of geomembrane was deployed today, for a total of 208,851.5 square feet installed to date. SCS marked destructive samples DS-17 through DS-22.
18:00 Departed site.
Note: Received results for DS-13 through DS-15, all of which passed.

List of Subcontractors
N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	64,377 ft2	208,851.5 ft2
Tri-planar Geocomposite	11,700 (11,490) ft2 (90)	54,414 (38,536) ft2 (90)

Field Representative [signature] Date 11/9/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill (SB) ~~Phase IV~~, North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/10/98 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather
Temperature: (AM) 71° (PM) 80° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)		
1 Volvo A35D Dumptruck (A)		
3 Caterpillar 544G Frontloaders (A)		
1 Caterpillar D4 Bulldozer (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

6:30 Arrived on-site. SCS observed that the header trench from the leading edge of the geomembrane to the intersection of the 4th lateral trench from the east side had saturated subgrade surface. County laborers pumped standing water (run-off from the previous phase of construction) out of the trench and poured bags of dry Portland Cement over the surface of the bottom of the trench. SCS observed that the surface was dry but still very soft in some locations. Volusia county laborers commenced bentomat deployment at 6:45.

7:00 Comanco commenced deployment of 60(~~ten~~ (SB) mil textured HDPE geomembrane.

10:30 Lee Powell of SCS Engineers arrived on-site and looked over the soft surface in the header trench. After walking over it he stated that the subgrade does not appear to be a problem. Also stated that saturated GCL in the trench was not a problem, as it will become saturated after installment regardless. (There was some saturated GCL in the trench this morning.)

12:30 Comanco informed SCS that fusion welder #75-06 appeared to malfunction during the construction of seam S41/S42. They discontinued the use of this machine.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	75,198.5 ft²	284,050 ft²
Tri-planar Geocomposite	Ø	54,414 ft²

Field Representative Steven Pritchard Date 11/10/98

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Phase IV

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/10/98 (Continued) Contract Day: N/A

Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 71° (PM) 80° Rain: — Duration of rain: —

Description of weather:

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1		

Description of Construction Activity

Comanco then pulled some test sections from the seam and tested them in the field. SCS observed that the seam did not peel. SCS also observed that the air pressure test passed without any problems, and was satisfied that the seam was good.

SCS marked destructive samples DS-23 through DS-29, including DS-25 on seam S41/S42.

17:30 Departed site.

Note: Comanco used up all geomembrane on-site today and does not expect to receive any more on-site until 11/14/98.

Volusia county excavated the 4th lateral trench from the east side and deployed bentomat today.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative Steven Rostack

Date 11/10/98

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill (~~Phase IV~~) North Cell, Class I, Phase IV Expansion
Project number: 09P5039.27
Owner: Volusia County
Contractor: Comanco Environmental

Date: 11/11/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 68° (PM) 78° Rain: —— Duration of rain: ——

Description of weather: Partly cloudy & warm.
List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (1)	1 Caterpillar 950F Frontloader (1)	
1 Volvo A35D Dumptruck (1)	1 Caterpillar 966 F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco constructed repairs and deployed geocomposite. SCS received results for DS-16, (~~DS-15~~) and DS-18 through DS-22. DS-16, on seam S33/Tie-in, failed. SCS informed Comanco of the failing result. Comanco pulled sample DS-16A off of seam S31/Tie-in and tested it in the field; the sample failed. Comanco decided then to cap all seams produced by machine #75-05 on 11/6/98, namely seams S31/Tie-in, S32/Tie-in, and S33/Tie-in. Comanco also sent machine #75-05 offsite. SCS reviewed results of destructive samples pulled off of seams produced by that machine, specifically DS-14 from seam S31/S32 on 11/4/98, and saw that the sample passed. (This was the only other seam produced by this machine on the entire project.)
16:30 Departed site.

List of Subcontractors
N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	284,050 ft²
Tri-planar Geocomposite	38,802 ft²	93,216 ft²

Field Representative Steven Forshaw Date 11/11/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
(#) ~~(Phase IV)~~ North Cell, Class I, ~~Phase IV~~ Expansion
Project number: 09950039.27

Owner: Volusia County
Contractor: Comanco Environmental

Date: 11/12/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 70° (PM) 81° Rain: — Duration of rain: —

Description of weather: Sunny and Warm.
List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966F Frontloader (A)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco constructed repairs and deployed geocomposite. SCS received results for DS-17 and DS-23 through DS-29, all of which passed except for DS-23. SCS marked samples DS-23A on seam 534/Tie-in and DS-23B on seam 536/Tie-in.
10:30 A shipment of 12 rolls of geomembrane arrived on-site. (#) County laborers started deploying bentomat.
13:30 Comanco commenced deployment of 60 mil textured HDPE geomembrane.
17:00 Departed site.
Note: SCS marked DS-30 through DS-32 on today's seams.

List of Subcontractors
N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	31,170.5 ft²	315,220.5 ft²
Tri-planar Geocomposite	31,068 ft²	124,284 ft²

Field Representative Steven Pothast Date 11/12/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill ~~Phase IV~~ North Cell, Class I, Phase IV Expansion

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/13/98 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather
Temperature: (AM) 72° (PM) 82° Rain: — Duration of rain: —

Description of weather: —

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966F Frontloader (A)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

6:45 Arrived on-site. County laborers were deploying bentomat west of leading edge of deployed geomembrane. County also excavating 5th lateral trench west of east side of cell with the Linkbelt 3400 Trackhoe, placing the excavated soil in the Volvo A350 Dumptruck and hauling it out of the cell. County also smoothed out subgrade by backdragging it with the blade of the Caterpillar D4 Bulldozer.

7:00 Comanco commenced deployment of geomembrane. A total of 96,738 square feet of geomembrane was deployed today, for a cumulative total of 411,958.5 square feet of geomembrane deployed to date.
SCS marked destructive samples DS-33 through DS-41 on today's seams.
Comanco also deployed tri-planar geocomposite today.

17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	96,738 ft²	411,958.5 ft²
Tri-planar Geocomposite	2394 ft²	126,678 ft²

Field Representative [signature] Date 11/13/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill (~~Phase III~~) North Cell, Class I, Phase IV Expansion
Project number: 09950339.27

Owner: Volusia County
Contractor: Comanco Environmental

Date: 11/14/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 70° (PM) 82° Rain: — Duration of rain: —

Description of weather: Sunny and Warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966F Frontloader (A)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

6:00 Comanco deployed geocomposite and constructed repairs. Comanco also cleaned the geomembrane at the tie-in seams from panel 546 west to panel 58, using a pressure cleaner to remove all the silt and clay from the geomembrane Comanco then let the ~~(illegible)~~ SP geomembrane sit out in the sun to dry thoroughly. At 12:30, once the geomembrane was dry, Comanco welded the tie-in seam. SCS then marked destructive sample DS-42 on seam 555/Tie-in.
13:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	411,958.5 ft²
Triplanar Geocomposite	32,184 ft²	158,862 ft²

Field Representative [signature] Date 11/14/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill (Phase IV) North Cell, Class I, Phase IV Expansion Project number: 0995039.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 11/16/98 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather
Temperature: (AM) 72° (PM) 80° Rain: — Duration of rain: —

Description of weather:

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

8:00 Arrived on-site. Comanco deployed geocomposite and constructed repairs. County excavated the western-most lateral trench with the Linkbelt 3400 Trackhoe, placing the excavated soil in the Volvo A350 Dumptruck and depositing it in the northeast corner of the cell to be used later as subgrade material.
13:00 County deployed bentomat from the leading edge of the geomembrane moving west.
15:00 Comanco commenced geomembrane deployment. A total of 21,608.5 square feet of geomembrane was deployed today, for a cumulative total of 433,567 square feet of geomembrane deployed to date.
16:00 The surface of the header trench became saturated with run-off from the previous phase. The county pumped the water out of the trench.
17:30 Depart site.
Note: SCS marked samples DS-43 and DS-44 on today's seams. SCS also received results for DS-30 through DS-36, all of which passed.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	21,608.5 ft²	433,567 ft²
Triplanar Geocomposite	28,614 ft²	187,476 ft²

Field Representative [signature] Date 11/16/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
(SP) ~~(Phase IV)~~ NorthCell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/17/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 78° (PM) 86° Rain: — Duration of rain: —

Description of weather: Partly cloudy, warm.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966F Frontloader (A)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Observed that header trench was flooded with run-off water from the previous phase. County laborers pumped the water out of the trench and filled the bottom of the trench with dry cement. They then deployed enough bentomat for 1 panel of geomembrane, and Comanco deployed panel S-61 at 8:00. Comanco then welded a 60-mil HDPE geomembrane to the bottom of the panel, running the rubsheet down the header trench to the east edge of the sump. The county then deployed bentomat over the rubsheet, the rubsheet providing it a dry surface and keeping it from getting saturated.

11:00 Comanco continued deploying geomembrane. A total of 64,687.5 square feet was deployed today, for a total of 498,254.5 square feet deployed to date. SCS marked destructive samples DS-45 through DS-49. SCS also received results for DS-37 through DS-42, all of which passed.
County excavated the center sump on the west side of the cell using the Linkbelt 3400 Trackhoe. They then installed 6" slotted PVC pipe across the bottom to serve as the dewatering pipe. White rock was placed around and over the pipe, and geotextile

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	64,687.5 ft²	498,254.5 ft²
Tri-planar Geocomposite	3606 ft²	191,082 ft²

Field Representative [signature] Date 11/17/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/17/98 (Continued) Contract Day: N/A Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 78° (PM) 86° Rain: — Duration of rain: —

Description of weather:

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

was wrapped over it. The county then filled in the header trench up the west slope around the dewatering pipe, using subgrade soil.

17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative _____ Date 11/17/98

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill (~~Phase III~~) North Cell, Class I, Phase IV Expansion
Project number: 0995039.27

Owner: Volusia County
Contractor: Comanco Environmental

Date: 11/18/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 74° (PM) 80° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F FrontLoader (A)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966F FrontLoader (A)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G FrontLoader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Sump area was flooded with run-off from the previous phase of construction. SCS observed that the water had not backed up under the geomembrane in the header trench. Comanco placed geocomposite and constructed repairs as the county pumped the water out of the sump.

13:00 Comanco commenced geomembrane deployment, deploying over the entire sump area and part of the west slope. A total of 40,526 square feet of geomembrane was deployed today, for a total of 538,780.5 square feet of geomembrane deployed to date. SCS marked destructive samples DS-50 through DS-52 on today's seams (for VP)

Note: The county excavated and graded the sump area after pumping the water out of it. The county also deployed bentomat today.
SCS received results for DS-43 and DS-44, both of which passed.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	40,526 ft²	538,780.5 ft²
Triplanar Geomembrane	30,936 ft²	222,018 ft²

Field Representative Steven Kosharek Date 11/18/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase III Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/19/98 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather
Temperature: (AM) 80° (PM) 88° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (1)	1 Caterpillar 950E Frontloader (1)	
1 Volvo A350 Dumptruck (1)	1 Caterpillar 966F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. The County pumped the groundwater out from below the sump and the run-off water out from on top of the geomembrane in the sump. Comanco cleaned the geomembrane at the tie-in area in preparation for welding the tie-in seam.

8:10 Comanco commenced geomembrane deployment. A total of 18,204.5 square feet of geomembrane was deployed today, for a total of 556,985 square feet to date.

10:45 Comanco started welding the remaining tie-in seam after the geomembrane had dried completely.

SCS marked destructive samples DS-53 and DS-54 on today's seams.

16:30 Depart site.

Note: SCS received results for DS-45 through DS-49, all of which passed.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	18,204.5 ft2	556,985 ft2
Tri-planar Geocomposite	16,722 ft2	238,740 ft2

Field Representative Steven Pritchard Date 11/19/98

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/20/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 73° (PM) 81° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (1)	1 Caterpillar 950E Frontloader (1)	
1 Volvo A350 Dumptruck (1)	1 Caterpillar 966F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:30 Arrived on-site. Comanco constructed repairs and deployed TENAX tri-planar geocomposite. Comanco also constructed seam S65/Tie in today. SCS observed that the adjoining rolls of geocomposite deployed were attached together with cable ties every 5 feet along the ~~edge~~ sides and every 2 feet along the ends. A total of 51,204 square feet of geocomposite was deployed today.

14:30 Departed site.

Note: SCS received results for DS-50 through DS-52, all of which passed.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	556,985 ft²
Tri-planar Geocomposite	51,204 ft²	289,944 ft²

Field Representative [signature] Date 11/20/98

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/23/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 70° (PM) 81° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco constructed repairs and deployed TENAX tri-planar geocomposite. SCS observed that the adjoining rolls of geocomposite deployed were attached together with cable ties every 5 feet along the sides and every 2 feet along the ends. SCS also observed that the geonet was overlapped 4 inches along the sides and 2 feet at the ends. SCS also observed that the geotextile overlap was at least 4" inches and was sewn together with one continuous seam along the sides and ends.
16:00 Departed site.
Note: SCS received results for DS-53 and DS-54, both of which passed.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	556,985 ft2
Triplanar Geocomposite	71,124 ft2	361,068 ft2

Field Representative Steven Marshall Date 11/23/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/24/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 68° (PM) 79° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco constructed repairs and deployed TENAX tri-planar geocomposite. SCS observed that the geonet was overlapped at least 4 inches along the sides and 2 feet along the ends, and tied together every 5 feet along the sides and 2 feet along the ends with cable ties. The geocomposite was also overlapped at least 4 inches and ~~tied together~~ sewn together in one seam along the sides and ends.

16:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	556,985 ft²
Tri-planar Geocomposite	93,078 ft²	454,146 ft²

Field Representative [signature] Date 11/24/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/25/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 69° (PM) 80° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (1)	1 Caterpillar 950F Frontloader (1)	
1 Volvo A350 Dumptruck (1)	1 Caterpillar 966F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco deployed TENAX triplanar geocomposite. SCS observed that the geonet was overlapped at least 4 inches along the sides and 2 feet along the ends, and tied together every 5 feet along the sides and 2 feet along the ends, with cable ties. The geocomposite was also overlapped at least 4 inches and sewn together in one seam along the sides and ends.

16:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	556,985 ft²
Tri-planar Geocomposite	25,296 ft²	479,442 ft²

Field Representative [signature] Date 11/25/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/30/98 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather
Temperature: (AM) 68° (PM) 80° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

8:00 Arrived on-site. Comanco continued deploying geocomposite.
SCS observed that there was water present under the secondary geomembrane, in the bottom of the sump area. Comanco cut a hole in the geomembrane and GCL in the bottom of the sump, and the county started up the pump to the dewatering pipe under the sump. SCS observed that the water under the geomembrane drained completely into the dewatering pipe. Comanco then repaired the underlying GCL and geomembrane, welding and vaccuum-box testing a patch over the hole.
The water under the liner appeared to be runoff from the previous phase of construction that had accumulated in the header trench and flowed down into the sump area. SCS observed that there was no further accumulation of water in the sump area after this occasion.
11:00 Volusia County laborers placed the primary GCL over the secondary geocomposite, using a swamp trencher with a spreader bar attached to lay it in place. SCS observed that each panel of GCL was overlapped at least 1 foot

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	556,985 ft²
Tri-planar Geocomposite	16,926 ft²	496,368 ft²

Field Representative [signature] Date 11/30/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 11/30/98 (Continued) Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 68° (PM) 80° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

over the adjacent panel, and dry bentonite was placed along the edges of the panels prior to overlapping. The County also placed the leak detection pipe and rock packing in the header trench, starting at the east end and moving west. SCS observed that it was placed as outlined in the job specifications and project drawings.

14:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 11/30/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/1/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 67° (PM) 80° Rain: — Duration of rain: —

Description of weather: Sunny and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

8:00 Arrived on-site. Comanco commenced Primary geomembrane deployment on the east slope, deploying panels P-1 through P-22 for a total of 56,453.5 square feet deployed today.
Volusia County laborers continued placing the leak detection pipe and deploying the ~~bentomat~~ HSD primary bentomat. The pipe was placed to the halfway point in the header trench.
SCS marked destructive samples DP-1 through DP-4 on today's seams.
17:30 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	556,985 ft²
Tri-planar Geocomposite	0	496,368 ft²
Primary HDPE	56,453.5 ft²	56,453.5 ft²

Field Representative Steven Forbach Date 12/1/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/2/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 68° (PM) 81° Rain: — Duration of rain: —

Description of weather: ~~Sunny and warm~~ SD Partly cloudy and warm.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. SCS observed that the County had placed Claymax last night, starting 260' West of the east anchor trench and moving west. A slight drizzle had fallen overnight, but was light enough to only dampen the surface of the Claymax. The Claymax dried out over the course of the day and was completely dry by the time Comanco deployed geomembrane over it. (The claymax was placed from the tie-in area 150' N towards the north anchor trench, at least 350' of the North anchor trench.) (Claymax did not swell up.)

7:10 Comanco commenced Primary geomembrane deployment; panels P-23 through P-35 were placed today for a total of 139,460.5 square feet of geomembrane. SCS marked destructive samples DP-5 through DP-16 on today's seams.
The County worked on the subgrade in the Northeast corner of the cell, using the Caterpillar D-4 to ~~finish~~ SD fill in the berm in 1 foot lifts. The Volvo A350 Dumptruck would haul in soil from the on-site borrow area, then deposit it in the cell. The D-4 dozer would then push the soil into the gap in the berm and track over it to compact it. This was done in 1 foot lifts.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	556,985 ft²
Tri-planar Geocomposite	Ø	496,368 ft²
Primary HDPE	139,460.5 ft²	195,914 ft²

Field Representative [signature] Date 12/2/98.
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/2/98 (Continued) Contract Day: N/A

Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) _____ (PM) _____ Rain: _____ Duration of rain: _____

Description of weather: _____

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

The County placed no GCL today.
12:30 The County continued placing the leak detection pipe in the header trench.
17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative _____ Date 12/2/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/3/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 65° (PM) 82° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Volusia County laborers continued placing ~~clay~~ (2) primary claymax and bentomat. Comanco deployed secondary geocomposite, constructed repairs, and constructed the tie-in seam tying the new primary geomembrane to the previous phase. SCS marked destructive sample DP-17.

17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary Geomembrane	Ø	556,985 ft²
Tri-planar Geocomposite	24,168 ft²	520,536 ft²
Primary Geomembrane	Ø	195,914 ft²

Field Representative [signature] Date 12/3/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion Project number: 0995039.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 12/4/98 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather
Temperature: (AM) 66° (PM) 80° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco commenced deployment of ~~Geomembrane~~ primary geomembrane, deploying panels P-36 through P-42 for a total of ___ square feet of geomembrane today. SCS marked destructive samples DP-18 through DP-22.
10:00 Volusia County laborers continued placing the leak detection pipe, starting 200 feet east of the west slope, moving west.
15:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary Geomembrane	0	556,985 ft²
Tri-planar Geocomposite	9120 ft²	529,656 ft²
Primary Geomembrane	75,003 ft²	270,917 ft²

Field Representative Steven Kosinski Date 12/4/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/7/98 Contract Day: N/A Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 65° (PM) 79° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

8:00 Arrived on-site. Volusia County laborers continued placing the primary GCL. Comanco placed secondary geonet on the west slope, constructed and tested repairs, and constructed 161 feet of tie-in seam. SCS marked destructive sample DP-23 on today's seams.

10:00 Volusia County finished placing claymax upon reaching 260* feet east of the west anchor trench. They continued placing bentomat.

17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary Geomembrane	Ø	556,985 ft²
Tri-planar Geocomposite	13,704 ft²	543,360 ft²
Primary Geomembrane	Ø	270,917 ft²

Field Representative [signature] Date 12/7/98

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/8/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 67° (PM) 81° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Volusia County finished placing the leak detection pipe in the sump area and the remainder of the header trench. They also continued placing bentomat.
7:15 Comanco commenced placing Primary geomembrane. They placed panels P-43 through P-56 for a total of 150,132.5 square feet today. SCS marked samples for destructive samples DP-24 through DP-36 on today's seams.
SCS also notified Comanco that DP-17 and DP-19 had failed laboratory testing.
17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	556,985 ft²
Tri-planar Geocomposite	Ø	543,360 ft²
Primary HDPE	150,132.5	421,049.5 ft²

Field Representative [signature] Date 12/8/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/9/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 66° (PM) 79° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A35D Dumptruck (I)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Volusia County laborers deployed primary bentomat on the west slope.
7:20 Comanco commenced deploying geomembrane. They placed panels P-57 through P-86 for a total of 133,353.5 square feet of geomembrane deployed today. SCS marked destructive samples DP-37 through DP-48, as well as DP-17A and DP-17B and DP-19A and DP-19B to track samples DP-17 and DP-19 which failed yesterday.
17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	556,985 ft2
Tri-planar Geocomposite	Ø	543,360 ft2
Primary HDPE	133,353.5 ft2	(R) ~~(283,486 ft2)~~ 554,403 ft2

Field Representative [signature] Date 12/9/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/10/98 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather
Temperature: (AM) 68° (PM) 79° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (1)	1 Caterpillar 950F Frontloader (1)	
1 Volvo A350 Dumptruck (1)	1 Caterpillar 966F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco constructed 517' feet of tie-in seam, constructed repairs, and deployed primary geocomposite. SCS marked DP-49 on today's seams. 17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	556,985 ft²
Tri-planar Geocomposite	0	543,360 ft²
Primary HDPE	0	~~283,406 ft²~~ 554,403 ft²
Bi-planar Geocomposite	70,956	70,956 ft²

Field Representative [signature] Date 12/10/98

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/11/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 67° (PM) 83° Rain: — Duration of rain: —

Description of weather:

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (1)	1 Caterpillar 950F Frontloader (1)	
1 Volvo A35D Dumptruck (1)	1 Caterpillar 966 F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco deployed primary geocomposite and constructed and tested repairs.
15:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	556,985 ft2
Tri-planar Geocomposite	0	543,360 ft2
Primary HDPE	0	~~283,486 ft2~~ 554,403 ft2
Bi-planar Geocomposite	72,225 ft2	143,181 ft2

Field Representative [signature] Date 12/11/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/14/98 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather
Temperature: (AM) 57° (PM) 62° Rain: — Duration of rain: —

Description of weather: Overcast and cool

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

8:00 Arrived on-site. Volusia county worked on the subgrade in the Northeast corner of the cell. The Volvo A350 Dumptruck hauled in soil from the borrow area and deposited the soil in the Northeast corner of the cell. The Caterpillar D-4 bulldozer then spread out the soil and fine graded it to its final grade, as the surveyors checked it to assure that it was at final grade. The Caterpillar D-4 bulldozer then tracked over it to compact it in place.
SCS observed that the sump area was flooded both over and under the primary geomembrane. Water had run under liner in areas near the tie-in seam on the west side of the cell where seams and repairs had not been constructed. (The water was from rainfall that had occurred on 12/13/98 and the early morning of 12/14/98). Comanco and the county placed a pump over and under the liner to remove the water.
SCS informed Comanco that DP-37 on seam P56/P57 had failed laboratory testing. Comanco constructed a cap over seam P37/P38 as part of the corrective measures for failed destructive sample DP-19. SCS marked destructive

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	556,985 ft²
Tri-planar Geocomposite	0	543,360 ft²
Primary HDPE	0	(#) ~~(283,486 ft²)~~ 554,403 ft²
Bi-planar Geocomposite	88,695 ft²	231,876 ft²

Field Representative [signature] Date 12/14/98

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/14/98 (Continued) Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 57° (PM) 62° Rain: — Duration of rain: —

Description of weather: Overcast and Cool

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

samples DP-50 and DP-51 on the seams connecting the cap to panels P37 and P-38, as well as samples DP-37A and DP-37B, pulled from seam P56/P57, 12' from either end of failed destructive sample DP-37. Comanco also deployed geocomposite today.
17:00 Departed site.

List of Subcontractors
N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative Steven Forshaw Date 12/14/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/15/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 50° (PM) 58° Rain: AM Duration of rain: ½ hour, light drizzle

Description of weather: Overcast, some AM drizzle, cool

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Volusia County worked on the subgrade in the Northeast corner of the cell. The Volvo A350 Dumptruck hauled in soil from the borrow area and deposited the soil in the Northeast corner of the cell. The Caterpillar D-4 bulldozer then spread out the soil and graded it to its final grade, as the surveyors checked it to assure that it was at final grade. The Caterpillar D-4 bulldozer then tracked over it to compact it in place. Comanco deployed geocomposite and constructed repairs.

10:30 Lee Powell of SCS Engineers arrived on-site and met w/ Universal Engineering for compaction testing. Subgrade compaction tests passed from the east side of the cell to the third lateral trench from the east side. (North end of cell.) Comanco continued deploying geocomposite, constructing repairs, and pumped water out of the header trench and the sump. The water under the liner in the sump area was completely pumped out yesterday. Lee Powell departed site at 11:30

15:00 Ray Latito and Dennis Brown arrived on-site and looked over the project. They departed site at 15:30.

17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	556,985 ft²
Tri-planar Geocomposite	0	543,360 ft²
Primary HDPE	0	554,403 ft²
Bi-planar Geocomposite	57,051 ft²	288,927 ft²

Field Representative [signature] Date 12/15/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/16/98 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather
Temperature: (AM) 49° (PM) 64° Rain: — Duration of rain: —

Description of weather: Sunny and cool

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco constructed repairs and deployed geocomposite throughout the day.

15:00 SCS observed that there is saturated claymax present under the liner under panels 51, 52, 53, and the east half of 54, from approximately 10' North of the south end of the panels to the header trench, comprising ~~and~~ an area of approximately 80' long east to west by approximately 20' wide north to south. SCS also observed saturated claymax in the header trench, although due to water in the trench the limits of the saturated area in the trench could not be determined. SCS informed Comanco that the area would likely need to be fixed.

17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	556,985 ft2
Tri-planar Geocomposite	Ø	543,360 ft2
Primary HDPE	Ø	554,403 ft2
Bi-planar Geocomposite	43,889 ft2	332,816 ft2

Field Representative [signature] Date 12/16/98

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/17/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 48° (PM) 66° Rain: — Duration of rain: —

Description of weather: Sunny and cool.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco constructed repairs and deployed ~~geomembrane~~ geocomposite. Volusia County worked on the subgrade in the North end of the cell, using the Caterpillar D-4 to grade and compact the floor of the cell as the surveyors checked the final grade. Volusia County also used the Linkbelt Trackhoe to remove the ramp in the northwest corner of the cell.

9:30 Lee Powell of SCS Engineers arrived on-site. He walked over the area of saturated claymax under panels 51, 52, 53, and 54 ~~Entire~~ at the south ends of these panels and observed that the claymax was extremely soft and swollen. Paul Ramias and Gene Palmetier of Volusia County were also ~~on-site~~ present and they observed that there were many repairs still not constructed in the area, leaving open holes in the liner.

10:00 Spoke with Dennis Brown of SCS Engineers and faxed him a sketch of the area of saturated bentomat.

10:45 Lee Powell departed site.

11:45 Spoke with Lee Powell and Dennis Brown of SCS Engineers, who recommended

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	556,985 ft²
Tri-planar Geocomposite	Ø	543,360 ft²
Primary HDPE	Ø	554,403 ft²
Bi-planar Geocomposite	57,308 ft²	390,124 ft²

Field Representative [signature] Date 12/17/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Project number: 09P5039.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 12/17/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 48° (PM) 66° Rain: — Duration of rain: —

Description of weather: _____

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

removing the saturated claymax. SCS then informed Gene Palmetier of the decision.

17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative Steven Forbush Date 12/17/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/18/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 49° (PM) 68° Rain: _____ Duration of rain: _____

Description of weather: _____

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (A)	1 Volvo D350E Dumptruck (A)	
1 Caterpillar 544G Frontloader (A)	1 Volvo D350E Dumptruck (A)	

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco constructed repairs and deployed geocomposite. The County graded the northwest corner of the cell using the Caterpillar D-4 bulldozer while the surveyors checked the final grade. The Caterpillar 966F loader loaded soil from the ramp in the northwest corner taken down yesterday into 2 Volvo D350E and 1 Volvo A350C Dumptrucks, which hauled the soil out of the cell.
15:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	556,985 ft²
Tri-planar Geocomposite	0	543,360 ft²
Primary HDPE	0	554,403 ft²
Bi-planar Geocomposite	48,735 ft	438,859 ft²

Field Representative _____ Date 12/18/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/21/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 68° (PM) 80° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

8:00 Arrived on-site. Comanco deployed geocomposite in the tie-in area on the west side of the cell.
The County excavated the anchor trench from the Northeast corner of the cell halfway across the north end. County also excavated the 2 eastern-most lateral trenches, and the northern-most header trench from the east end to the 2nd lateral from the east side. The surveyors checked the final depths as the excavation continued. The excavation was done using the Linkbelt 3400 Trackhoe, and the soil was hauled out of the cell using the Volvo A350 Dumptruck.
17:30 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	556,985 ft²
Tri-planar Geocomposite	Ø	543,360 ft²
Primary HDPE	Ø	554,403 ft²
Bi-planar Geocomposite	74,588 ft²	513,447 ft²

Field Representative [signature] Date 12/21/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase III Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/22/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 67° (PM) 79° Rain: — Duration of rain: —

Description of weather:

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County continued excavating the anchor trench from half-way across the north end of the cell to the Northwest corner. The County also continued placing secondary bentomat.
8:15 Comanco commenced deployment of secondary geomembrane.
18:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	(R) ~~39,474 ft²~~ 64,210.5 ft²	(R) ~~596,459 ft²~~ 621,195.5 ft²
Tri-planar Geocomposite	Ø	543,360 ft²
Primary HDPE	Ø	554,403 ft²
Bi-planar Geocomposite	19,980 ft²	533,427 ft²

Field Representative [signature] Date 12/22/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase II Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/23/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 65° (PM) 78° Rain: — Duration of rain: —

Description of weather: _____

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (1)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (1)	1 Caterpillar 966 F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (1)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. (K)(E)(P) Comanco deployed primary geocomposite on the west slope and constructed repairs in the Northeast corner of the cell, on the secondary liner (P).
17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary Geomembrane	Ø	621,195.5 ft²
Tri-planar Geocomposite	Ø	543,360 ft²
Primary Geomembrane	Ø	554,403 ft²
Bi-planar Geocomposite	10,179 ft²	543,606 ft²

Field Representative _____ Date 12/23/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase II Expansion

Project number: 09950 39.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/28/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 60° (PM) 65° Rain: Yes Duration of rain: All Afternoon

Description of weather:

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Comanco cut away the south ends of panels P-51, P-52, P-53, and P-54, from 5' North of the center header trench to 10' North of the south end of the panels, and then folded back the geomembrane to expose the saturated ~~(bentomat underneath,)~~ claymax underneath. Comanco and the county then cut out and removed the claymax; they rolled up the claymax and tied straps around it, then lifted it out with the Linkbelt 3400 Trackhoe, with laborers holding up the edges to keep the saturated bentonite from coming out. The county then replaced the claymax with bentomat. Comanco folded the geomembrane back into place and constructed repairs over all the cut areas.
13:00 Comanco deployed primary geocomposite on the west slope.
15:30 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	621,195.5 ft²
Tri-planar Geocomposite	Ø	543,360 ft²
Primary HDPE	Ø	554,403 ft²
Bi-planar Geocomposite	Ø	543,606 ft²

Field Representative [signature] Date 12/28/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/29/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 40° (PM) 58° Rain: Yes Duration of rain: After 14:00

Description of weather: Overcast / Rainy

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The county deployed bentomat and excavated (SP) continued excavating the northernmost header trench and the 3rd lateral trench from the east side. The surveyors checked the final depths as the excavation progressed.
Comanco constructed repairs on the primary (SP) geomembrane in the Northeast corner of the cell.
13:30 Comanco commenced geomembrane deployment.
14:00 Rain commenced; Comanco stopped geomembrane deployment after covering all exposed bentomat. Comanco then sandbagged the edges of the geomembrane deployed and departed site.
15:30 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	5037 ft²	626,232.5 ft²
Tri-planar Geocomposite	Ø	543,360 ft²
Primary HDPE	Ø	554403 ft²
Bi-planar Geocomposite	2552 ft²	546,158 ft²

Field Representative [signature] Date 12/29/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/30/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 57° (PM) 65° Rain: — Duration of rain: —

Description of weather: Partly cloudy, warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Comanco and the County folded back the geomembrane in the northernmost header trench approximately 40 feet and removed the bentomat. (It had become saturated and swollen due to flooding in the trench over the last evening of rain.) The County poured dry Portland cement onto the bottom of the trench to create a dry, firm subgrade. The County then deployed new bentomat in the trench and folded back the geomembrane. (back in place) The County then continued bentomat deployment. The County also excavated the 4th lateral trench from the east side and continued excavating the northernmost header trench to the 4th lateral trench.
10:00 Comanco deployed geomembrane ~~deployment~~ (SC) and constructed repairs.
17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	39,870.5 ft²	666,103 ft²
Tri-planar Geocomposite	Ø	543,360 ft²
Primary HDPE	Ø	554,403 ft²
Bi-planar Geocomposite	Ø	546,158 ft²

Field Representative [signature] Date 12/30/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 12/31/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 50° (PM) 68° Rain: — Duration of rain: —

Description of weather: Partly cloudy.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

6:00 Arrived on-site. Comanco deployed geomembrane and constructed repairs. The County did not work today.
12:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	19,998.5 ft²	686,101.5 ft²
Tri-planar Geocomposite	Ø	543,360 ft²
Primary HDPE	Ø	554,403 ft²
Bi-planar Geocomposite	Ø	546,158 ft²

Field Representative Steven Pollack Date 12/31/98
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/4/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 50° (PM) 65° Rain: — Duration of rain: —

Description of weather: Mostly cloudy, warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

8:00 Arrived on-site.
The northwest corner of the cell is flooded from rain that fell over the weekend. Water had gone under geomembrane in northernmost header trench, in approximately 60 feet from the west edge of the geomembrane. Comanco and the county pumped the water out of the header trench.
Comanco also constructed repairs on the secondary geomembrane today.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	686,101.5 ft²
Tri-planar Geocomposite	Ø	543,360 ft²
Primary HDPE	Ø	554,403 ft²
Bi-planar Geocomposite	Ø	546,158 ft²

Field Representative [signature] Date 1/4/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/5/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 50° (PM) 66° Rain: — Duration of rain: —

Description of weather: Mostly cloudy, warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Comanco cut the secondary geomembrane from the west edge (SP) in approximately 92', the entire cut running parallel to the northernmost header trench, about 5 feet south of the header trench. They and the county then folded back the geomembrane on both sides of the header trench. The County cut out and removed all the saturated bentomat on the bottom of the trench. They then excavated the soft saturated soil on the bottom of the trench, about 2 to 4 inches worth, and refilled the bottom of the trench with dry soil and dry portland cement, bringing it back up to (SP) final grade. The surveyors checked the final grade to assure it was correct. The County then (replaced) (SP) ~~(bentomat)~~ (SP) placed dry bentomat on the bottom of the trench, each ~~(piece)~~ (SP) piece coming up out of the trench approximately 10 feet on either side. Comanco then folded the geomembrane back into place and constructed repairs on the cut. Comanco also placed geocomposite today.
17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	686,101.5 ft²
Tri-planar Geocomposite.	25,980 ft²	569,340 ft²
Primary HDPE	Ø	554,403 ft²
Biplanar Geocomposite	Ø	546,158 ft²

Field Representative [signature] Date 1/5/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/6/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 52° (PM) 61° Rain: — Duration of rain: —

Description of weather: Partly cloudy, warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site.
Comanco deployed tri-planar geocomposite and constructed repairs on the secondary geomembrane.
The County deployed bentomat and excavated the 5th, 6th, and final lateral trenches from the east side of the cell, using the Linkbelt 3400 Trackhoe.
10:30 Comanco commenced deployment of secondary geomembrane.
17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	63,744.5 ft²	749,846 ft²
Tri-planar Geomembrane	10,320 ft²	579,660 ft²
Primary HDPE	Ø	554,403 ft²
Bi-planar Geocomposite	Ø	546,158 ft²

Field Representative [signature] Date 1/6/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/7/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 58° (PM) 70° Rain: — Duration of rain: —

Description of weather: Partly cloudy, warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site.
Comanco deployed geomembrane and constructed repairs on the secondary geomembrane.
The County excavated the sump area in the NW Corner of the cell. Once the sump was completely excavated, the county installed the dewatering pipe in the sump as they had done in the center sump on 11/17/98.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Seaondary HDPE	48,369 ft2	798,215 ft2
Tri-planar Geocomposite	14,286 ft2	593,946 ft2
Primary HDPE	Ø	554,403 ft2
Bi-planar Geocomposite	Ø	546,158 ft2

Field Representative [signature] Date 1/7/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/8/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 61° (PM) 73° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. A small amount of water was present in the sump in the NW Corner of the cell. The county inserted a hose into the dewatering pipe and pumped out the water.
The County then deployed bentomat to finish the secondary GCL in the Northwest corner of the cell.
Comanco deployed tri-planar geocomposite and constructed repairs on the secondary geomembrane.
9:20 Comanco deployed geomembrane, finishing the secondary geomembrane
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	7,782 ft²	805,997 ft²
Tri-planar Geocomposite	12,768 ft²	606,714 ft²
Primary HDPE	0	554,403 ft²
Bi-planar Geocomposite	0	546,158 ft²

Field Representative [signature] Date 1/8/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/11/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 57° (PM) 68° Rain: — Duration of rain: —

Description of weather: Sunny and Warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

8:00 Arrived on-site.
The County installed the leak detection pipe in the northernmost header trench, starting at the east side of the cell and progressing to about 50 feet west of the easternmost lateral trench.
Comanco installed tri-planar geocomposite and constructed repairs on the secondary geomembrane.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	805,997 ft2
Tri-planar Geocomposite	59,634 ft2	666,348 ft2
Primary HDPE	Ø	554,403 ft2
Biplanar Geocomposite	Ø	546,158 ft2

Field Representative [signature] Date 1/11/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/12/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 58° (PM) 70° Rain: — Duration of rain: —

Description of weather: Partly cloudy, warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (1)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site.
Comanco deployed tri-planar geocomposite throughout the day. The County deployed primary bentomat in the northeast corner of the cell. The County also continued installing the ~~leachate~~ leak detection pipe, progressing to the 4th lateral trench west of the east side of the cell.
17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	805,997 ft²
Tri-planar Geocomposite	70,023 ft²	736,371 ft²
Primary HDPE	0	554,403 ft²
Bi-planar Geocomposite	0	546,158 ft²

Field Representative [signature] Date 1/12/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/13/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 60° (PM) 77° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966F Frontloader	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site.
Comanco deployed primary geomembrane and constructed repairs throughout the day. The County deployed bentomat.
12:30 The County continued installing the leak detection pipe, from the 4th to the 6th lateral trench west of the east side of the cell.
The County also installed the leachate collection pipe in the center header trench, starting at the east side of the cell, progressing to the first lateral trench west of the east side of the cell.
17:00 Departed site.
Note: Leachate collection pipe was a 12 inch HDPE corrugated perforated pipe. It was installed in the trench and surrounded and covered with 1 inch rock packing. It was than covered with geotextile.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	805,997 ft²
Tri-planar Geocomposite	36,642 ft²	773,013 ft²
Primary HDPE	85,112 ft²	639,515 ft²
Bi-planar Geocomposite	Ø	546,158 ft²

Field Representative [signature] Date 1/13/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/14/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 65° (PM) 78° Rain: — Duration of rain: —

Description of weather: Mostly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site.
Comanco continued deployment of primary geomembrane, stopping at 8:25 in the morning. They then continued deployment of ~~Tri-Planar~~ geocomposite and construction of repairs.
The County installed the leak detection pipe from the 6th lateral trench west of the east side of the trench to the edge of the sump in the northwest corner of the cell.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	805,997 ft²
Tri-planar Geocomposite	17070 ft²	790083 ft²
Primary HDPE	24,943.5 ft²	664,458.5 ft²
Bi-planar Geocomposite	0	546,158 ft²

Field Representative Steven Maynard Date 1/14/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/15/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 61° (PM) 75° Rain: — Duration of rain: —

Description of weather: Mostly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Comanco installed tri-planar geocomposite and constructed repairs.
The County installed the leak detection pipe in the sump in the northwest corner of the cell.
13:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary Geomembrane	0	805,997 ft²
Tri-planar Geocomposite	10,581 ft²	800,664 ft²
Primary Geomembrane	0	664,458.5 ft²
Bi-planar Geocomposite	0	546,158 ft²

Field Representative [signature] Date 1/15/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/18/99 Contract Day: N/A Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 65° (PM) 80° Rain: Yes Duration of rain: From 15:30 to end of day.

Description of weather: Mostly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

8:30 Arrived on-site. The County did not work today.
Comanco constructed repairs and deployed geocomposite throughout the day.
Note: The County had placed some sand cover over the weekend, in the form of 3 roads alongside the 1st, 3rd, and 5th lateral trenches west of the east side of the cell.
15:30 Rain commenced and Comanco departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	805,997 ft²
Tri-planar Geocomposite	2766 ft²	803,430 ft²
Primary HDPE	0	664,458.5 ft²
Bi-planar Geocomposite	7020 ft²	553,178 ft²

Field Representative [signature] Date 1/18/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/19/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 66° (PM) 79° Rain: — Duration of rain: —

Description of weather: Scattered Clouds, warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site.
Comanco deployed geocomposite and the County deployed the Primary bentomat.
10:30 Comanco deployed primary geomembrane throughout the rest of the day.
17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	805,997 ft2
Tri-planar Geocomposite	Ø	803,430 ft2
Primary HDPE	79,476.5 ft2	743,835 ft2
Bi-planar Geocomposite	50,760 ft2	603,938 ft2

Field Representative [signature] Date 1/19/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/20/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 64° (PM) 80° Rain: — Duration of rain: —

Description of weather: Partly cloudy and Warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site.
Comanco deployed geomembrane and constructed repairs on the primary geomembrane throughout the day; the last of the primary geomembrane was deployed today.
The County deployed primary bentomat throughout the day.
17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	805,997 ft²
Tri-planar Geocomposite	0	803,430 ft²
Primary HDPE	66,398.5 ft²	810,333.5 ft²
Bi-planar Geocomposite	0	603,938 ft²

Field Representative [signature] Date 1/20/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase II Expansion

Project number: 09950 39.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/21/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 65° (PM) 81° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Comanco deployed bi-planar geocomposite and constructed primary geomembrane repairs throughout the day.
The County continued placing the Leachate collection pipe; the pipe was installed in the 2 easternmost lateral trenches from Phases II & III to the center header trench, and in the center header trench to about 10 feet west of the 2nd lateral trench from the east side.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	805,997 ft²
Tri-planar Geocomposite	0	803,430 ft²
Primary HDPE	0	810,333.5 ft²
Bi-planar Geocomposite	106,434	710,372 ft²

Field Representative [signature] Date 1/21/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/22/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 64° (PM) 80° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Comanco deployed bi-planar geocomposite and constructed primary geomembrane repairs throughout the day.
The County continued placing the leachate collection pipe; the pipe was placed in the 3rd lateral trench from the east side, from the north edge of Phases II and III to the center header trench. It was also placed in the 1st, 2nd, and 3rd lateral trenches from the east side, from the center header trench to about 50 feet south of the northernmost header trench. It was also placed in the center header trench to the 3rd lateral trench.
15:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	805,997 ft²
Tri-planar Geocomposite	0	803,430 ft²
Primary HDPE	0	810,333.5 ft²
Bi-planar Geocomposite	0	710,372 ft²

Field Representative [signature] Date 1/22/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/25/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 62° (PM) 75° Rain: — Duration of rain: —

Description of weather: Sunny and Warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (1)	1 Caterpillar 950F Frontloader (1)	
1 Volvo A350 Dumptruck (1)	1 Caterpillar 966 F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (1)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	3 (6 SP)	

Description of Construction Activity

7:00 Arrived on-site.
The cell was flooded from rainfall over the weekend. Comanco pumped the water out of the cell.
The rain had gone under the Primary and Secondary liners at the north end of the ~~trench~~ (SP) westernmost lateral trench, washing out the subgrade from the crest of the north slope to the northernmost header trench, and filling the trenches where they intersect with subgrade soil. No corrective measures were taken today.
15:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	805,997 ft²
Tri-planar Geocomposite	Ø	803,430 ft²
Primary HDPE	Ø	810,333.5 ft²
Bi-planar Geocomposite	Ø	710,372 ft²

Field Representative [signature] Date 1/25/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/26/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 67° (PM) 80° Rain: — Duration of rain: —

Description of weather: Sunny and Warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (A)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

1	3	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. Comanco continued pumping water out of the cell. The water level was significantly lower than at the beginning of the day yesterday.

12:00 Comanco and the county cut open the primary and secondary bentomat, geomembrane, and geocomposite at the washed-out section of the westernmost lateral trench described in yesterday's report. The county then reconstructed the trench using the Linkbelt 3400 Trackhoe. SCS observed that the bentomat on either side of the trench was not wet. The County then replaced the bentomat in trench and Comanco folded back and repaired the geomembrane. Once the repairs were tested, the County replaced the primary bentomat and Comanco folded back, repaired, and tested the primary geomembrane. (Comanco repaired the tri-planar geocomposite prior to replacing the primary bentomat and geomembrane.)

17:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	805,997 ft²
Tri-planar Geocomposite	0	803,430 ft²
Primary HDPE	0	810,333.5 ft²
Bi-planar Geocomposite	0	710,372 ft²

Field Representative Steven Rashash Date 1/26/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/27/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 63° (PM) 80° Rain: — Duration of rain: —

Description of weather: Fog in the morning, then sunny and warm.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco deployed geocomposite throughout the day. Comanco also took corrective measures in response to failed destructive sample DS-68. All seams constructed prior to the failed DS by that machine on that day were capped. DS-68A was pulled off of seam P137/P138 and the seam was capped up to that point. SCS also pulled DS-77 off of the cap over seam P136/P137.

Comanco also cut open the liner in the center and northwest sump areas, from the sumps up to the west crest of the slope. The county then removed the 6 inch leachate detection pipe up the slope and replaced it with 12 inch Corrugated HDPE pipe, down to the middle of the sump as shown in the drawing. Once it was done, Comanco repaired the geomembrane and the County replaced the bentomat.

17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	∅	805,997 ft²
Tri-planar Geocomposite	∅	803,430 ft²
Primary HDPE	∅	810,333.5 ft²
Bi-planar Geocomposite	41,202 ft²	714,474 ft²

Field Representative [signature] Date 1/27/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/28/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 61° (PM) 78° Rain: — Duration of rain: —

Description of weather: P. Cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (I)	1 Caterpillar 966 F Frontloader (A)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	6	

Description of Construction Activity

7:00 Arrived on-site. Comanco deployed primary geocomposite throughout the day. The County installed the leachate collection pipe in the center header trench, going all the way to the sump area. They then changed from 12 inch to 24 inch corrugated HDPE pipe at the center of the sump and ran the 24 inch pipe to the crest of the west slope.
17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	Ø	805,997 ft²
Tri-planar Geocomposite	Ø	803,430 ft²
Primary HDPE	Ø	810,333.5 ft²
Bi-planar Geocomposite	63,855 ft²	815,429 ft²

Field Representative Steven Goldrach Date 1/28/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 1/29/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 61° (PM) 77° Rain: — Duration of rain: —

Description of weather: P. Cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (I)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

1	6	
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Departed site. County installed the leachate collection pipe in the 4th and 5th lateral trenches from the east side, from the north edge of Phases II and III to approximately 50 feet north of the center header trench.
Comanco finished deployment of the primary geocomposite and departed site.
17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	805,997 ft²
Primary HDPE	0	810,333.5 ft²

Field Representative _____ Date 1/29/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/1/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 58° (PM) 74° Rain: Yes Duration of rain: off and on all day

Description of weather: Overcast/Rainy

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

8:00 Arrived on-site. County started sand placement just south of the center header trench on the east side of the cell. Sand was hauled in using the Volvo A350 Dumptruck and deposited on top of the sand cover. It was then pushed over the primary geocomposite using the Caterpillar D4 Bulldozer.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
Secondary HDPE	0	805,997 ft²
Primary HDPE	0	810,333.5 ft²

Field Representative [signature] Date 2/1/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/2/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 57° (PM) 76° Rain: Yes Duration of rain: 2 hours, A.M.

Description of weather: Overcast and Rainy in the morning; Sunny and warm in the afternoon

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (1)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (1)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed the leachate collection pipes in the 4th and 5th lateral trenches from the east side from about 150 feet north of the center trench to about 30 feet south of the northernmost header trench.

17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 2/2/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/3/99 Contract Day: N/A Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 63° (PM) 79° Rain: — Duration of rain: —

Description of weather: Partly Cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County continued sand placement on the east side of the cell, east of the easternmost lateral trench.
The County also placed the leachate collection pipe in the 6th and 7th lateral trenches from the east side, from the north edge of Phases II and III to about 30 feet south of the northernmost header trench.
17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 2/3/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/4/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 61° (PM) 77° Rain: — Duration of rain: —

Description of weather: _____

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

The County continued sand placement on the east side of the cell, east of the easternmost lateral trench, up to the northeast corner of the cell.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative Steven Forbach Date 2/4/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/15/99 Contract Day: N/A Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 58° (PM) 76° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptrucks (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand in the west anchor trench up to the northernmost header trench, using the Volvo A350 Dumptruck to haul in soil from the stockpile north of the soil, and using the Caterpillar D4 Bulldozer to push it into the soil.

17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 2/15/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion Project number: 09950339.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 2/16/99 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather
Temperature: (AM) 61° (PM) 77° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand on the east side of the cell, ~~from the~~ up to the easternmost lateral trench, stopping about 50 feet south of the northernmost header trench. The Volvo A350 Dumptruck hauled in the sand from the stockpile and deposited it on the sand, then the Caterpillar D4 Bulldozer pushed the sand into place over the primary geocomposite.
17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 2/16/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/17/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 63° (PM) 75° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
7 Volvo A350 Dumptrucks (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand from the 1st lateral to the 2nd lateral trench west of the east side of the cell, stopping about 40' feet south of the northernmost header trench. The sand was hauled into the cell from the stockpile using 7 Volvo Dumptrucks, and was pushed into place with the Caterpillar D4 Bulldozer.

17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 2/17/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase IV Expansion

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/18/99 Contract Day: N/A Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 57° (PM) 74° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
6 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand from the 2nd to the 3rd lateral trenches west of the east side of the cell, stopping about 40 feet south of the northernmost header trench. The sand was hauled into the cell from the stockpile using 6 Volvo Dumptrucks, and was pushed into place with the Caterpillar D4 Bulldozer.

17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 2/18/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/19/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 54° (PM) 73° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (I)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand between the 3rd and 4th lateral trenches west of the east side of the cell, stopping about 250 south of the northernmost header trench. The sand was hauled into the cell with a Volvo Dumptruck and pushed into place with the Caterpillar D4 Bulldozer.

15:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 2/19/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill North Cell, Class I, Phase II Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/22/99 Contract Day: N/A Contract Duration: N/A Days Remaining: N/A

Weather
Temperature: (AM) 45° (PM) 65° Rain: — Duration of rain: —

Description of weather: Partly Cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

8:00 Arrived on-site. County placed the header pipe in the northernmost header trench from the east side to the easternmost lateral trench. They also placed the remainder of the lateral pipe in the easternmost lateral trench. The County also placed sand between the 3rd and 4th lateral trenches up to about 150 feet south of the northernmost header trench. The sand was hauled in using a Volvo Dumptruck and pushed into place using a Caterpillar D4 Bulldozer.

17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 2/22/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/23/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 48° (PM) 65° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed the ~~leak detection~~ leachate collection pipe in the northernmost ~~lateral~~ header trench from the 1st to the 3rd lateral trench west of the east side of the cell. The county also placed sand between the 3rd and 4th lateral trenches to about 30 feet south of the northernmost header trench.

17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative _____ Date 2/23/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/24/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 54° (PM) 67° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm.

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (1)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966 F Frontloader (1)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (1)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed the ~~leach~~ ~~SP~~ leachate collection pipe in the northernmost header trench to the 4th lateral trench west of the east side of the cell. The County also placed sand between the 4th and 5th lateral trenches to about 250 feet south of the northernmost header trench. The sand was hauled into the cell from the stockpile with a Volvo Dumptruck and was pushed into place with the Caterpillar D4 Bulldozer.

17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 2/24/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/25/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 55° (PM) 70° Rain: —— Duration of rain: ——

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed the leachate collection pipe in the northernmost header trench to the 5th lateral trench west of the east side of the cell. The County also placed sand between the 4th and 5th lateral trenches, to about 150' south of the northernmost header trench. The sand was hauled into the cell from the stockpile with a Volvo Dumptruck and was pushed into place with the Caterpillar D4 Bulldozer.
17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative Steven Cathcart Date 2/25/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Temoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950 39.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 2/26/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 58° (PM) 72° Rain: — Duration of rain: —

Description of weather: _____

List of Equipment on site: (A) for active (I) for idle

Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950 F Frontloader (1)	
1 Volvo A350 Dumptruck (1)	1 Caterpillar 966 F Frontloader (1)	
1 Caterpillar D4 Bulldozer (1)		
1 Caterpillar 544G Frontloader (1)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The county placed the leachate collection pipe in the northernmost header trench to the west side of the trench. The 12 inch pipe was changed to a 24 inch pipe in the sump and up the west slope.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative _____ Date 2/26/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/1/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 60° (PM) 75° Rain: — Duration of rain: —

Description of weather: Sunny and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand between the 4th and 5th lateral trenches west of the east side of the cell to about 30 feet south of the northernmost header trench. The sand was hauled into the cell from the stockpile with a Volvo Dumptruck and was pushed into place with the Caterpillar D4 Bulldozer.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 3/1/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/2/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 62° (PM) 77° Rain: — Duration of rain: —

Description of weather: Partly Cloudy and Warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand between the 5th and 6th lateral trenches west of the east side of the cell to about 200 feet south of the northernmost header trench. The sand was hauled into the cell from the stockpile with a Volvo Dumptruck and was pushed into place with the Caterpillar D4 Bulldozer.

17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 3/2/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/3/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 51° (PM) 65° Rain: — Duration of rain: —

Description of weather: Overcast and cool

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand at the north end of the cell, from the ~~north~~ northernmost header trench to the ~~no~~ toe of the north slope, and from the east side of the cell to the 5th lateral trench west of the east side of the cell.

17:00 Depart site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 3/3/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Commerco Environmental

Date: 3/4/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 50° (PM) 67° Rain: — Duration of rain: —

Description of weather: Sunny and Cool

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966 F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand on the access road around the perimeter of the cell, from the northwest corner moving west to the 5th lateral trench west of the east side of the cell, building up the road approximately 2 feet. The soil was hauled to the road from the on-site borrow pit in the Volvo Dumptruck, and pushed into place and graded with the Caterpillar D4 bulldozer.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 3/4/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/5/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 54° (PM) 71° Rain: — Duration of rain: —

Description of weather: Sunny and Warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand on the access road around the perimeter of the cell, ~~from 5th lateral trench~~ on the north side of the cell, from the 5th lateral trench west of the east side of the cell moving ~~east~~ east to the 3rd lateral trench, building up the road approximately 2 feet. The soil was hauled to the road from the on-site borrow pit in the Volvo Dumptruck, and pushed into place and graded with the Caterpillar D4 Bulldozer.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 3/5/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/8/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 50° (PM) 70° Rain: — Duration of rain: —

Description of weather: Partly cloudy and windy

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe	(A)	1 Caterpillar 950F Frontloader	(I)		
1 Volvo A35D Dumptruck	(A)	1 Caterpillar 966F Frontloader	(I)		
1 Caterpillar D4 Bulldozer	(A)				
1 Caterpillar 544G Frontloader	(I)				

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

8:00 Arrived on-site. The County placed sand on the access road around the perimeter of the cell, on the north side of the cell, from the 3rd lateral trench west of the east side of the cell moving ~~west~~ east to the 1st lateral trench, building up the road approximately 2 feet. The soil was hauled to the road from the on-site borrow pit in the Volvo Dumptruck, and pushed into place and graded with the Caterpillar D4 Bulldozer.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative Steven Pritchard Date 3/8/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill North Cell, Class I, Phase II Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Camanco Environmental

Date: 3/9/99 Contract Day: N/A Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 61° (PM) 73° Rain: — Duration of rain: —

Description of weather: Overcast and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand on the access road from the center of the east side of the cell moving north to about 150 feet north of the center of the east side, building up the road approximately 2 feet. The soil was hauled to the road from the on-site borrow pit, in the Volvo Dumptruck, and pushed into place and graded with the Caterpillar D4 Bulldozer.

17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative _____ Date 3/9/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/10/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 63° (PM) 82° Rain: — Duration of rain: —

Description of weather: Clear and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand on the access road from ~~the center of the east~~ 150 feet north of the center of the east side of the cell to 100 South of the northeast corner of the cell, building up the road approximately 2 feet. The soil was hauled to the road from the on-site borrowpit in the Volvo Dumptruck, and pushed into place and graded with the Caterpillar D4 Bulldozer.

17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 3/10/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/11/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 61° (PM) 75° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A350 Dumptruck (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand on the access road around the perimeter of the cell, on the north side of the cell, from the 1st lateral trench west of the east side of the cell, moving east to the northeast corner of the cell, building up the road approximately 2 feet. The soil was hauled to the road from the on-site borrow pit in the Volvo Dumptruck, and pushed into place and graded with the Caterpillar D4 Bulldozer

17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 3/11/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/15/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 45° (PM) 65° Rain: — Duration of rain: —

Description of weather: Overcast and Cool

List of Equipment on site: (A) for active (I) for idle

1 Linkbelt 3400 Trackhoe (A)	1 Caterpillar 950F Frontloader (I)	
1 Volvo A35D Dumptruck (A)	1 Caterpillar 966F Frontloader (I)	
1 Caterpillar D4 Bulldozer (A)		
1 Caterpillar 544G Frontloader (I)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The County placed sand between the 6th and 7th lateral trenches west of the east side of the cell to about 250 feet south of the northernmost header trench. The sand was hauled into the cell from the stockpile with the Volvo Dumptruck and was pushed into place with the Caterpillar D4 Bulldozer.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 3/15/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd Landfill North Cell, Class I, Phase IV Expansion Project number: 09950039.27

Owner: Volusia County Contractor: Comanco

Date: 4/19/98 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 65° (PM) 85° Rain: — Duration of rain: —

Description of weather: P. Cloudy and Warm

List of Equipment on site: (A) for active (I) for idle

Volvo Dumptrucks (2) (A)		
Caterpillar D4 Dozer (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site.
The County placed the last of the 2' sand cover in the north cell, hauling the soil into the cell from the stockpile in the Volvo dumptrucks, and pushed it into place in the Caterpillar D-4 Bulldozer.
17:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 4/19/98
(see reverse side for documentation of quantities)

ATTACHMENT 7-3

GEOMEMBRANE PLACEMENT LOG
(PRIMARY AND SECONDARY)

PRIMARY

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 1 — P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 12/1/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-1	AK8219FF	76.5'	23'	60	E-W	8:00	1759.5 ft²
P-2	"	76.5'	↓	↓	↓	8:05	↓
P-3	AJ4618FF	↓	↓	↓	↓	8:15	↓
P-4	"	↓	↓	↓	↓	8:20	↓
P-5	AK8806FF	75.5'	↓	↓	↓	8:30	1736.5 ft²
P-6	↓	75'	↓	↓	↓	8:35	1725 ft²
P-7	↓	↓	↓	↓	↓	8:40	↓
P-8	↓	↓	↓	↓	↓	8:45	↓
P-9	↓	↓	↓	↓	↓	8:50	↓
P-10	↓	↓	↓	↓	↓	8:55	↓
P-11	AK8711FF	↓	↓	↓	↓	9:10	↓
P-12	↓	↓	↓	↓	↓	9:15	↓
P-13	↓	75.5'	↓	↓	↓	9:25	1736.5 ft²
P-14	↓	↓	↓	↓	↓	9:35	↓
P-15	↓	75'	↓	↓	↓	9:45	1725 ft²
P-16	↓	↓	↓	↓	↓	9:50	↓
P-17	AK8843FF	↓	↓	↓	↓	10:05	↓
P-18	↓	75.5'	↓	↓	↓	10:10	1736.5 ft²
P-19	↓	↓	↓	↓	↓	10:20	↓
P-20	↓	75.5'	↓	↓	↓	10:25	1736.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 2 – P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 12/1/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-21	AK8797FF	473'	23'	60	N-S	14:00	10,879 ft²
P-22	AK8808FF	472.5'	↓	↓	↓	15:00	10,867.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 3 – P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 12/2/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-23	AK8834FF	471.5'	23'	60	N-S	7:00	10,844.5 ft²
P-24	AK8734FF	470.5'	↓	↓	↓	7:30	10,821.5 ft²
P-25	AK8807FF	468.5'				8:15	10,775.5 ft²
P-26	AK8833FF	468'				8:50	10,764 ft²
P-27	AK8735FF	468.5'				9:30	10,775.5 ft²
P-28	AK8853FF	467.5'				10:30	10,752.5 ft²
P-29	AK8783FF	464.5'				11:15	10,683.5 ft²
P-30	AK8852FF	463'				12:45	10,649 ft²
P-31	AK8792FF	463.5'				13:45	10,660.5 ft²
P-32	AK8845FF	464'				14:15	10,672 ft²
P-33	AK8846FF	465'				14:40	10,695 ft²
P-34	AK8802FF	464.5'				15:15	10,683.5 ft²
P-35	AK8805FF	464.5'				15:45	10,683.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 4 – P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 12/4/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-36	AK8727FF	467'	23'	60	N-S	7:10	10,741 ft²
P-37	AK8837FF	468.5'	↓	↓	↓	7:30	10,775.5 ft²
P-38	AK8764FF	465.5'				8:10	10,706.5 ft²
P-39	AK8790FF	463.5'				9:00	10,660.5 ft²
P-40	AK8841FF	465'				9:45	10,695 ft²
P-41	AK8838FF	465'				10:45	10,695 ft²
P-42	AK8801FF	466.5'				11:30	10,729.5 ft²

PRINT NAME: Steven Rosback
SIGNATURE: Steven Rosback

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 5 – P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 12/8/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-43	AK8726FF	467'	23'	60	N-S	7:15	10,741 ft²
P-44	AK8842FF	465'				8:00	10,695 ft²
P-45	AK8238FF	465.5'				8:30	10,706.5 ft²
P-46	AK8256FF	465.5'				8:50	10,706.5 ft²
P-47	AK8267FF	463.5'				9:20	10,660.5 ft²
P-48	AK8239FF	461'				10:00	10,603 ft²
P-49	AK8202FF	460'				10:25	10,580 ft²
P-50	AK8253FF	461.5'				11:00	10,614.5 ft²
P-51	AK8217FF	463.5'				12:45	10,660.5 ft²
P-52	AK8207FF	466'				14:00	10,718 ft²
P-53	AK8266FF	468.5'				14:20	10,775.5 ft²
P-54	AK8205FF	471.5'				15:00	10,844.5 ft²
P-55	AK8223FF	474'				15:50	10,902 ft²
P-56	AK8252FF	475'				16:25	10,925 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 6 – P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 12/9/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-57	No #	473.5'	23'	60	N-S	7:20	10,890.5 ft²
P-58	AK8247FF	472'				8:00	10,856 ft²
P-59	AK8218FF	471.5'				8:30	10,844.5 ft²
P-60	AK8208FF	471'				9:00	10,833 ft²
P-61	AK8246FF	470.5'				9:30	10,821.5 ft²
P-62	AK8209FF	467.5'				10:00	10,752.5 ft²
P-63	AK8201FF	464.5'				10:30	10,683.5 ft²
P-64	AK8206FF	462'				11:10	10,626 ft²
P-65	AK8220FF	462.5'				12:45	10,637 ft²
P-66	AK8212FF	464'			↓	13:30	10,672 ft²
P-67	AK8843FF	57'			E-W	14:15	1311 ft²
P-68	AK8843FF	57'				14:20	
P-69	AK8257FF	57'				14:35	
P-70		57'				14:40	
P-71		57'				14:45	
P-72		57'				14:50	↓
P-73		56.5'				14:55	1299.5 ft²
P-74		56'				15:00	1288 ft²
P-75		56'				15:05	↓
P-76	↓	55.5'	↓	↓	↓	15:10	1276.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 7 — P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 12/9/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-77	AK8200FF	55'	23'	60	E-W	15:17	1265 ft²
P-78		55'				15:21	
P-79		55'				15:24	
P-80		55'				15:28	
P-81		55'				15:30	
P-82		55.5'				15:35	1276.5 ft²
P-83		55.5'				15:40	
P-84		55'				15:43	1265 ft²
P-85	AK8211FF	55'				15:55	
P-86		57'				15:58	1311 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 8 - P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 1/13/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-87	AK8844FF	76'	23'	60	E-W	6:25	1748 ft²
P-88	↓	76'	23'	↓	↓	6:35	↓
P-89	↓	76'	23'	↓	↓	6:45	↓
P-90	↓	76.5'	23'	↓	↓	6:50	1759.5 ft²
P-91	↓	76.5'	23'	↓	↓	7:00	↓
P-92	↓	76'	23'	↓	↓	7:05	1748 ft²
P-93	AK8793FF	76'	17'	↓	↓	7:10	↓
P-94	↓	76'	23'	↓	↓	7:30	↓
P-95	↓	36.5'	23'	↓	↓	7:40	839.5 ft²
P-96	↓	22'	16'	↓	N-S	7:45	352 ft²
P-97	↓	25'	23'	↓	↓	8:00	575 ft²
P-98	↓	37.5'	23'	↓	↓	8:05	862.5 ft²
P-99	↓	41.5'	7'	↓	↓	8:20	290.5 ft²
P-100	AK8731FF	212.5'	23'	↓	↓	8:40	4887.5 ft²
P-101	↓	213'	20'	↓	↓	9:30	4260 ft²
P-102	AK8724FF	213'	22'	↓	↓	10:30	4686 ft²
P-103	↓	213.5'	23'	↓	↓	10:50	4910.5 ft²
P-104	AK8851FF	214.5'	23'	↓	↓	11:15	4933.5 ft²
P-105	↓	214.5'	23'	↓	↓	11:35	↓
P-106	AK8791FF	215.5'	23'	↓	↓	12:45	4956.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 9 - P of
PROJECT TITLE: Tamoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 1/13/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-107	AK8791FF	216.5'	23'	60	N-S	13:00	4979.5
P-108	AK8777FF	215.5'	22'	↓	↓	13:40	4741
P-109	↓	130.5'	23'			14:30	3001.5
P-110	AK8193FF	216'	23'			14:45	4968
P-111	AK8793FF	84.5'	23'			15:15	1943.5
P-112	AK8193FF	217'	23'			15:45	4991
P-113	AK8268FF	217'	23'			16:10	4991
P-114	↓	217.5'	23'	↓	↓	16:30	5002.5

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 10 -P of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 1/14/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-115	AK8795FF	217.5'	23'	60	N-S	7:00	5002.5 ft²
P-116	↓	217'	23'	↓	↓	7:20	4991 ft²
P-117	AK7831FF	216.5'	23'	↓	↓	7:45	4979.5 ft²
P-118	↓	216.5'	23'	↓	↓	8:00	↓
P-119	AK8664FF	217'	23'	↓	↓	8:25	4991 ft²

PRINT NAME: Steven Rasbach
SIGNATURE: Steven Rasbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 11 - P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 1/19/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-120	AK8664FF	217'	23'	60	N-S	10:30	4991 ft²
P-121	AK8804FF	217'	23'	↓	↓	11:10	↓
P-122	↓	218'	23'	↓	↓	11:20	5014 ft²
P-123	AK8194FF	218'	23'	↓	↓	11:35	↓
P-124	↓	216.5'	23'	↓	↓	12:35	4979.5 ft²
P-125	AK8799FF	216'	23'	↓	↓	13:10	4968 ft²
P-126	↓	216.5'	23'	↓	↓	13:25	4979.5 ft²
P-127	AK8789FF	217'	23'	↓	↓	13:45	4991 ft²
P-128	↓	217.5'	23'	↓	↓	14:00	5002.5 ft²
P-129	AK8269FF	217.5'	23'	↓	↓	14:20	5002.5 ft²
P-130	↓	215'	23'	↓	↓	14:45	4945 ft²
P-131	AK8192FF	213'	23'	↓	↓	15:15	4899 ft²
P-132	↓	214'	23'	↓	↓	15:30	4922 ft²
P-133	AK7964FF	215'	23'	↓	↓	15:55	4945 ft²
P-134	↓	214'	23'	↓	↓	16:05	4922 ft²
P-135	AK7963FF	213.5'	23'	↓	↓	16:30	4910.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 12 - P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 1/20/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-136	AK7963FF	214.5'	23'	60	N-S	7:50	4933.5 ft²
P-137	AK8794FF	214.5'	23'	↓	↓	8:05	↓
P-138	↓	214'	23'	↓	↓	8:10	4922 ft²
P-139	AK8196FF	214'	23'	↓	↓	8:20	↓
P-140	↓	214.5'	23'	↓	↓	8:45	4933.5 ft²
P-141	AK8798FF	214'	23'	↓	↓	9:15	4922 ft²
P-142	↓	214'	23'	↓	↓	9:30	↓
P-143	AK8810FF	216'	23'	↓	↓	10:00	4968 ft²
P-144	↓	216.5'	23'	↓	↓	10:30	4979.5 ft²
P-145	AK8763FF	216'	23'	↓	↓	12:30	4968 ft²
P-146	↓	216'	23'	↓	↓	13:00	↓
P-147	AK8854FF	59'	23'	↓	E-W	13:36	1357 ft²
P-148	↓	58.5'	23'	↓	↓	13:43	1345.5 ft²
P-149	↓	58'	23'	↓	↓	13:49	1334 ft²
P-150	↓	57.5'	23'	↓	↓	13:53	1322.5 ft²
P-151	↓	57.5'	23'	↓	↓	13:58	↓
P-152	↓	58.5'	23'	↓	↓	14:08	1345.5 ft²
P-153	↓	59.5'	23'	↓	↓	14:14	1368.5 ft²
P-154	↓	34'	23'	↓	N-S	14:23	782 ft²
P-155	AK8840FF	44'	23'	↓	↓	14:50	1012 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 13 -P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 1/20/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
P-156	AK8840FF	27'	31'	60	N-S	15:00	837 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SECONDARY

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 1 - 5 of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 11/2/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-1	AJ6871FF	78'	23'	60	E-W	10:52	1794 ft²
S-2		77'				11:01	1771 ft²
S-3		76'				11:27	1748 ft²
S-4		76'				11:35	
S-5		76'				11:43	
S-6		76'				11:50	
S-7	AJ4967FF	77'				13:00	1771 ft²
S-8		77'				13:07	
S-9		77'				13:13	
S-10		76'				13:22	1748 ft²
S-11		76'				13:31	
S-12		76'				13:37	
S-13	AJ4852FF	76'				13:49	
S-14		76'				13:59	
S-15		76'				14:01	
S-16		76'				14:07	
S-17		76'				14:14	
S-18		77'				14:21	1771 ft²
S-19	AJ4618FF	77'				14:38	
S-20		77'				14:43	

PRINT NAME: Steven Roshachy
SIGNATURE: Steven Roshachy

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 2 – 3 of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 11/2/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-21	AJ4618FF	76'	11.5	60	E-W	14:50	885.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 3 – 5 of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 11/3/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-22	AK 7999	475′	23′	60	N-S	8:33	10,925 ft²
S-23	AK 7968	463.5′	↓	↓	↓	9:45	10,660.5 ft²
S-24	AJ 4618	10.5′	↓	↓	↓	11:15	241.5 ft²
S-25	AK 7987	473.5′	↓	↓	↓	11:25	10,890.5 ft²
S-26	AK 7833	472′	↓	↓	↓	12:44	10,856 ft²
S-27	AK 7982	473.5′	↓	↓	↓	13:50	10,890.5 ft²
S-28	AK 7974FF	464.5′	↓	↓	↓	15:00	10,683.5 ft²
S-29	AJ 4618	11′	↓	↓	↓	15:10	253 ft²
S-30	AK 7994	466′	↓	↓	↓	16:13	10,718 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 4 - S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 11/4/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-31	AK 7995	467.5'	23'	60	N-S	10:00	10,752.5 ft²
S-32	AK 7973	469'	↓	↓	↓	10:45	10,787 ft²
S-33	AK 7862	468'	↓	↓	↓	13:05	10,764 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 5 - 5 of
PROJECT TITLE: Temoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 11/9/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-34	AK 7990 FF	466'	23'	60	N-S	11:00	10,718 ft²
S-35	AK 7991 FF	465'	↓	↓	↓	13:05	10,695 ft²
S-36	AK 7821 FF	465.5'	↓	↓	↓	14:00	10,706.5 ft²
S-37	AK 7983 FF	467'	↓	↓	↓	15:15	10,741 ft²
S-38	AK 7985 FF	467.5'	↓	↓	↓	16:00	10,752.5 ft²
S-39	AK 7969 FF	468	↓	↓	↓	16:45	10,764 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 6 - S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 11/10/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-40	AK 7838 FF	468.5'	23'	60	N-S	7:00	10,775.5 ft²
S-41	AK 7972 FF	469'	↓	↓	↓	8:00	10,787 ft²
S-42	AK 7996 FF	469'				9:45	10,787 ft²
S-43	AK 7975 FF	468'				10:30	10,764 ft²
S-44	AK 7984 FF	465.5'				11:45	10,706.5 ft²
S-45	AK 7861 FF	465'				13:30	10,695 ft²
S-46	AK 7997 FF	464.5'				14:20	10,683.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 7 - S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 11/12/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-47	AK7822FF	463'	21'	60	N-S	13:30	9723 ft²
S-48	AK8213FF	464'	23'	↓	↓	14:10	10,672 ft²
S-49	AK8260FF	468.5'	↓	↓	↓	15:20	10,775.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 8 – S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 11/13/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-50	AK8233FF	471.5'	23'	60	N-S	7:00	10,844.5 ft²
S-51	AK8263FF	468'	↓	↓	↓	7:45	10,764 ft²
S-52	AK8226FF	466'	↓	↓	↓	8:30	10,718 ft²
S-53	AK8232FF	466'	↓	↓	↓	11:00	10,718 ft²
S-54	AK8262FF	465.5'	↓	↓	↓	13:15	10,706.5 ft²
S-55	AK8255FF	466.5'	↓	↓	↓	13:50	10,729.5 ft²
S-56	AK8261FF	468'	↓	↓	↓	14:30	10,764 ft²
S-57	AK8214FF	468'	↓	↓	↓	15:15	10,764 ft²
S-58	AK8210FF	466.5'	↓	↓	↓	15:55	10,729.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 9 - S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 11/16/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-59	AK8254FF	468'	23'	60	N-S	15:00	10,764 ft²
S-60	AK8235FF	471.5'	↓	↓	↓	15:45	10,844.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 10 - S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 11/17/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-61	AK8244FF	473'	23'	60	N-S	8:00	10,879 ft²
S-62	AK8259FF	471'	↓	↓	↓	11:00	10,833 ft²
S-63	AK8258FF	469'				11:40	10,787 ft²
S-64	AK8250FF	467'				13:10	10,741 ft²
S-65	AK8236FF	465.5'				13:50	10,706.5 ft²
S-66	AK8203FF	467'				15:45	10,741 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 11 - S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 11/18/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-67	AK8228FF	468.5'	23'	60	N-S	13:00	10,775.5 ft²
S-68	AK8204FF	469'	↓	↓	↓	14:25	10,787 ft²
S-69	AK8245FF	469'	↓	↓	↓	15:05	10,787 ft²
S-70	AK8227FF	61'	↓	↓	E-W	16:00	1403 ft²
S-71	AK8227FF	60'	↓	↓	↓	16:10	1380 ft²
S-72	AK8227FF	59'	↓	↓	↓	16:30	1357 ft²
S-73	AK8227FF	59'	↓	↓	↓	16:45	1357 ft²
S-74	AK8227FF	58.5'	↓	↓	↓	16:55	1345.5 ft²
S-75	AK8227FF	58'	↓	↓	↓	17:00	1334 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 12 – S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 11/19/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-76	AK8227FF	57.5′	23′	60	E-W	8:10	1322.5 ft²
S-77	AK8251FF	57′	↓	↓	↓	8:30	1311 ft²
S-78	↓	57′	↓	↓	↓	8:35	1311 ft²
S-79	↓	56.5′	↓	↓	↓	9:00	1299.5 ft²
S-80	↓	56′	↓	↓	↓	9:10	1288 ft²
S-81	↓	55.5′	↓	↓	↓	9:20	1276.5 ft²
S-82	↓	55.5′	↓	↓	↓	9:25	1276.5 ft²
S-83	↓	56′	↓	↓	↓	9:50	1288 ft²
S-84	↓	56′	↓	↓	↓	9:55	1288 ft²
S-85	AK8219FF	56′	↓	↓	↓	10:05	1288 ft²
S-86	↓	56.5′	↓	↓	↓	10:15	1299.5 ft²
S-87	↓	57′	↓	↓	↓	10:20	1311 ft²
S-88	↓	57′	↓	↓	↓	10:25	1311 ft²
S-89	↓	58′	↓	↓	↓	10:30	1334 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 13 - S of
PROJECT TITLE: Tanoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 12/22/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-90	AK8211FF	77′	22′	60	E-W	8:15	1694 ft²
S-91	↓	↓	23′	↓	↓	8:30	1771 ft²
S-92	↓	↓	↓	↓	↓	8:45	↓
S-93	AK8231FF	↓	↓	↓	↓	9:00	↓
S-94	↓	↓	↓	↓	↓	9:05	↓
S-95	↓	↓	↓	↓	↓	9:10	↓
S-96	↓	↓	↓	↓	↓	9:25	↓
S-97	↓	33′	↓	↓	↓	9:35	759 ft²
S-98	↓	20′	8′	↓	↓	9:40	160 ft²
S-99	AK8211FF	23′	9′	↓	N-S	9:50	207 ft²
S-100	AK8231FF	34′	23′	↓	↓	9:55	782 ft²
S-101	↓	45′	↓	↓	↓	10:05	1035 ft²
S-102	↓	30′	8′	↓	↓	10:10	240 ft²
S-103	↓	15′	↓	↓	↓	10:15	120 ft²
S-104	AK8237FF	207′	23′	↓	↓	10:50	4761 ft²
S-105	↓	↓	↓	↓	↓	11:10	↓
S-106	AK8265FF	208′	↓	↓	↓	13:20	4784 ft²
S-107	↓	↓	↓	↓	↓	13:50	↓
S-108	↓	55′	↓	↓	↓	14:00	1265 ft²
S-109	AK8225FF	152′	↓	↓	↓	14:25	3496 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 14-S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 12/22/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-110	AK8225FF	207'	23'	60	N-S	14:50	4761 ft²
S-111	↓	123'	↓	↓	↓	15:15	2829 ft²
S-112	AK8216FF	94.5'	↓	↓	↓	15:30	2173.5 ft²
S-113	↓	217'	↓	↓	↓	15:45	4991 ft²
S-114	AK8241FF	216'	↓	↓	↓	16:15	4968 ft²
S-115	↓	218'	↓	↓	↓	17:05	5014 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: [signature]

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 15-S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 12/29/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-116	AK8240FF	86.5'	23'	60	N-S	13:30	1989.5 ft²
S-117	↓	132.5'	↓	↓	↓	13:45	3047.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 16-S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 12/30/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-118	AK8240FF	218'	23'	60	N-S	10:00	5014 ft²
S-119	AK8221FF	217.5'	↓	↓	↓	10:45	5002.5 ft²
S-120	↓	216.5'				11:30	4979.5 ft²
S-121	↓	40.5'				13:00	931.5 ft²
S-122	AK8241FF	156'				13:15	3588 ft²
S-123	AK8237FF	20'				13:30	460 ft²
S-124	AK8234FF	216'				14:15	4968 ft²
S-125	↓	215.5'				15:20	4956.5 ft²
S-126	AK8264FF	216.5'				15:45	4979.5 ft²
S-127	↓	217'				16:10	4991
S-128	AK8224FF	217'	↓	↓	↓	16:55	4991

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 17 - S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 12/31/98

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-129	AK8224FF	217.5'	23'	60	N-S	7:00	5002.5 ft²
S-130	AK8222FF	218'	↓	↓	↓	7:40	5014 ft²
S-131	↓	217.5'	↓	↓	↓	8:15	5002.5 ft²
S-132	AK8229FF	216.5'	↓	↓	↓	9:00	4979.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 18-S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO. 0995039.27
DATE: 1/6/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-133	AK8229FF	215'	23'	60	N-S	10:30	4945 ft²
S-134	AK8370FF	214'	↓	↓	↓	10:50	4922 ft²
S-135	↓	↓	↓	↓	↓	11:10	↓
S-136	AK8199FF	213.5'	↓	↓	↓	11:30	4910.5 ft²
S-137	↓	213'	↓	↓	↓	11:45	4899 ft²
S-138	AK8230FF	213.5'	↓	↓	↓	13:00	4910.5 ft²
S-139	↓	214'	↓	↓	↓	13:35	4922 ft²
S-140	AK8162FF	↓	↓	↓	↓	14:00	↓
S-141	↓	213.5'	↓	↓	↓	14:30	4910.5 ft²
S-142	AK8732FF	212'	↓	↓	↓	14:45	4876 ft²
S-143	↓	211.5'	↓	↓	↓	15:05	4864.5 ft²
S-144	AK8729FF	212'	↓	↓	↓	15:25	4876 ft²
S-145	↓	211.5'	↓	↓	↓	15:45	4864.5 ft²

PRINT NAME: Steven Rasbach
SIGNATURE: Steven Rasbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 19-S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 1/7/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-146	AK8839FF	211.5'	23'	60	N-S	7:10	4864.5 ft²
S-147	↓	212.5'	↓	↓	↓	7:30	4887.5 ft²
S-148	AK8803FF	213'				8:15	4899 ft²
S-149	↓	213.5'				11:30	4910.5 ft²
S-150	AK7979FF	↓				11:45	↓
S-151	↓	211.5'				12:45	4864.5 ft²
S-152	AK8809FF	211'				14:20	4853 ft²
S-153	↓	211.5'				15:00	4864.5 ft²
S-154	AK8668FF	113'			↓	15:30	2599 ft²
S-155	↓	59'			E-W	16:00	1357 ft²
S-156		58.5'			↓	16:05	1345.5 ft²
S-157		58'				16:13	1334 ft²
S-158		↓				16:18	↓
S-159	↓	58.5'	↓	↓	↓	16:23	1345.5 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE PLACEMENT LOG

SHEET 20-S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO. 0995039.27
DATE: 1/8/99

PANEL NO.	ROLL NO.	LENGTH (ft)	WIDTH (ft)	THICKNESS (mil)	ORIENTATION	TIME	COMMENTS
S-160	AK8728FF	98'	23'	60	N-S	9:20	2254 ft²
S-161	↓	39'	↓	↓	↓	9:45	897 ft²
S-162	↓	58'	16.5'	↓	E-W	9:55	957 ft²
S-163	↓	59'	20'	↓	↓	10:15	1180 ft²
S-164	↓	48'	23'	↓	↓	11:10	1104 ft²
S-165	↓	27'	↓	↓	↓	11:25	621 ft²
S-166	↓	15'	16'	↓	↓	11:30	240 ft²
S-167	↓	23'	23'	↓	N-S	11:35	529 ft²

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

ATTACHMENT 7-4

TRIAL WELD LOGS (COMANCO)

HOT WEDGE START-UP TESTS

COMANCO ENVIRONMENTAL CORPORATION

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 1**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

ATE: 11/2/98			PEEL		
ME: 9:00			OUT	IN	SHEAR
MBIENT TEMP: 84			124.0	129.1	143.8
/EATHER: CLEAR			136.5	128.2	143.0
MACHINE			129.2	130.3	144.9
NO.	TEMP.	SPEED	131.8	123.7	143.7
75-09	755	55	126.5	126.0	141.0
OMMENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: L. ESPINAL					

DATE: 11/2/98			PEEL		
TIME: 9:30			OUT	IN	SHEAR
AMBIENT TEMP: 86			124.0	122.7	141.7
WEATHER: CLEAR			129.3	117.2	143.3
MACHINE			125.9	121.3	138.4
NO.	TEMP.	SPEED	125.3	122.6	138.3
75-14	765	55	123.3	123.0	144.0
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

ATE: 11/2/98			PEEL		
IME: 1:00			OUT	IN	SHEAR
MBIENT TEMP: 90			136.2	133.3	144.5
/EATHER: CLOUDY			134.5	135.8	145.1
MACHINE			126.2	127.8	149.1
NO.	TEMP.	SPEED	133.6	131.9	140.1
.4	765	55	141.0	136.2	143.2
OMMENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: G. SOWERS					

DATE: 11/2/98			PEEL		
TIME: 1:15			OUT	IN	SHEAR
AMBIENT TEMP: 80			134.0	126.8	146.8
WEATHER: CLOUDY			135.2	130.6	146.3
MACHINE			135.5	135.9	146.2
NO.	TEMP.	SPEED	128.4	126.8	147.1
75-09	765	55	131.5	131.5	145.3
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

ATE: 11/3/98			PEEL		
ME: 8:55			OUT	IN	SHEAR
MBIENT TEMP: 80			146.4	138.3	163.1
/EATHER: CLOUDY			128.7	132.0	166.4
MACHINE			120.3	140.6	167.7
NO.	TEMP.	SPEED	117.9	132.6	168.7
75-14	760	55	138.3	141.7	161.4
OMMENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: G. SOWERS					

DATE: 11/3/98			PEEL		
TIME: 9:10			OUT	IN	SHEAR
AMBIENT TEMP: 80			130.8	124.2	152.3
WEATHER: CLOUDY			134.4	131.0	148.3
MACHINE			127.5	132.5	171.8
NO.	TEMP.	SPEED	131.7	120.0	151.3
75-09	765	45	134.1	117.9	152.3
COMMENTS: 60 MIL S/T			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

ATE: 11/3/98			PEEL		
ME: 11:53			OUT	IN	SHEAR
MBIENT TEMP: 84			124.4	121.1	136.6
/EATHER: CLOUDY			129.3	124.7	127.2
MACHINE			115.1	129.4	142.4
NO.	TEMP.	SPEED	133.3	138.0	132.6
75-09	765	55	131.2	132.3	140.2
IENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: L. ESPINAL					

DATE: 11/3/98			PEEL		
TIME: 12:45			OUT	IN	SHEAR
AMBIENT TEMP: 84			137.2	135.5	153.1
WEATHER: CLOUDY			134.6	137.4	142.3
MACHINE			137.9	133.5	127.2
NO.	TEMP.	SPEED	134.0	134.0	155.6
75-14	760	55	124.1	127.1	149.6
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

ROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 2**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

ATE: 11/4/98			PEEL		
ME: 8:10			OUT	IN	SHEAR
MBIENT TEMP: 80			129.4	131.7	150.5
EATHER: CLOUDY			138.4	136.9	154.1
MACHINE			137.4	136.9	152.9
NO.	TEMP.	SPEED	137.2	142.1	154.7
75-09	765	50	137.1	135.0	154.1
OMMENTS: 60 MIL S/S					RESULT: PASS
ECHNICIAN: E. GRIFFIN					

DATE: 11/4/98			PEEL		
TIME: 8:00			OUT	IN	SHEAR
AMBIENT TEMP: 80			130.6	141.2	154.4
WEATHER: CLOUDY			119.1	138.9	153.4
MACHINE			136.5	130.1	154.9
NO.	TEMP.	SPEED	140.5	128.0	155.9
75-05	760	50	142.7	133.1	152.7
COMMENTS: 60 MIL S/S					RESULT: PASS
TECHNICIAN: G. SOWERS					

ATE: 11/4/98			PEEL		
ME: 12:20			OUT	IN	SHEAR
MBIENT TEMP: 78			129.2	130.4	135.7
EATHER: CLOUDY, RAIN			131.8	130.7	136.0
CHINE			131.0	130.2	136.5
N	TEMP.	SPEED	132.4	129.7	137.5
	765	50	127.6	130.5	135.7
OMMENTS: 60 MIL S/S					RESULT: PASS
ECHNICIAN: E. GRIFFIN					

DATE: 11/4/98			PEEL		
TIME: 12:40			OUT	IN	SHEAR
AMBIENT TEMP: 78			119.6	127.9	140.2
WEATHER: CLOUDY, RAIN			123.7	130.5	146.4
MACHINE			119.7	127.0	138.7
NO.	TEMP.	SPEED	120.3	126.7	141.9
75-05	760	50	118.7	121.2	140.2
COMMENTS: 60 MIL S/S					RESULT: PASS
TECHNICIAN: G. SOWERS					

ATE: 11/6/98			PEEL		
ME: 6:40			OUT	IN	SHEAR
MBIENT TEMP: 59			143.0	149.9	178.5
EATHER: CLEAR			146.5	145.9	177.0
MACHINE			155.9	157.9	176.3
NO.	TEMP.	SPEED	159.6	144.9	181.2
75-05	765	40	159.2	155.2	175.0
OMMENTS: 60 MIL T/T					RESULT: PASS
ECHNICIAN: L. ESPINAL					

DATE: 11/6/98			PEEL		
TIME: 10:45			OUT	IN	SHEAR
AMBIENT TEMP: 70			133.7	137.0	166.7
WEATHER: CLEAR			134.7	140.0	154.4
MACHINE			137.9	143.5	163.0
NO.	TEMP.	SPEED	140.8	144.2	165.0
75-09	765	40	140.0	148.2	161.1
COMMENTS: 60 MIL T/T					RESULT: PASS
TECHNICIAN: L. ESPINAL					

ATE: 11/9/98			PEEL		
ME: 10:45			OUT	IN	SHEAR
MBIENT TEMP: 75			130.7	124.3	130.6
EATHER: CLEAR			125.0	121.2	134.1
MACHINE			124.2	124.0	129.7
NO.	TEMP.	SPEED	116.0	122.0	136.5
75-0	765	60	126.8	123.0	133.0
NTS: 60 MIL S/S					RESULT: PASS
CHNICIAN: G. SOWERS					

DATE: 11/9/98			PEEL		
TIME: 2:05			OUT	IN	SHEAR
AMBIENT TEMP: 80			115.0	121.7	139.9
WEATHER: CLEAR			112.2	118.2	136.7
MACHINE			115.6	123.3	135.4
NO.	TEMP.	SPEED	105.3	117.8	139.2
75-14	760	50	115.2	121.0	134.6
COMMENTS: 60 MIL S/S					RESULT: PASS
TECHNICIAN: E. GRIFFIN					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 3**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

ATE: 11/10/98			PEEL		
ME: 7:00			OUT	IN	SHEAR
MBIENT TEMP: 75			135.7	132.1	156.9
EATHER: CLEAR			129.5	132.5	156.1
MACHINE			137.1	132.8	156.8
NO.	TEMP.	SPEED	135.6	130.6	158.1
75-04	760	55	140.5	136.9	158.3
OMMENTS: 60 MIL S/S					RESULT: PASS
ECHNICIAN: G. SOWERS					

DATE: 11/10/98			PEEL		
TIME: 7:10			OUT	IN	SHEAR
AMBIENT TEMP: 75			129.8	131.4	159.4
WEATHER: CLEAR			133.8	140.0	157.3
MACHINE			148.0	132.3	155.3
NO.	TEMP.	SPEED	140.1	128.9	157.8
75-07	765	45	152.9	136.7	159.0
COMMENTS: 60 MIL T/T					RESULT: PASS
TECHNICIAN: L. ESPINAL					

ATE: 11/10/98			PEEL		
IME: 1:20			OUT	IN	SHEAR
MBIENT TEMP: 80			120.6	125.0	138.1
EATHER: CLEAR			121.6	124.4	133.1
MACHINE			128.6	132.7	136.8
NO.	TEMP.	SPEED	116.2	120.1	134.8
6	760	50	129.8	123.6	134.5
OMMENTS: 60 MIL S/S					RESULT: PASS
ECHNICIAN: E. GRIFFIN					

DATE: 11/10/98			PEEL		
TIME: 1:52			OUT	IN	SHEAR
AMBIENT TEMP: 80			122.5	121.1	133.2
WEATHER: CLEAR			108.1	126.6	131.0
MACHINE			112.9	125.0	127.2
NO.	TEMP.	SPEED	110.1	126.3	130.1
75-07	765	60	110.8	125.8	133.1
COMMENTS: 60 MIL S/S					RESULT: PASS
TECHNICIAN: L. ESPINAL					

ATE: 11/10/99			PEEL		
IME: 1:13			OUT	IN	SHEAR
MBIENT TEMP: 80			122.8	122.2	131.8
EATHER: CLEAR			123.1	120.7	132.1
MACHINE			125.2	122.1	130.7
NO.	TEMP.	SPEED	122.7	124.5	130.1
75-04	760	55	123.2	121.4	131.2
OMMENTS: 60 MIL S/S					RESULT: PASS
ECHNICIAN: G. SOWERS					

DATE: 11/10/98			PEEL		
TIME: 3:08			OUT	IN	SHEAR
AMBIENT TEMP: 82			126.1	123.4	132.1
WEATHER: CLEAR			123.7	117.0	129.1
MACHINE			125.7	118.6	133.1
NO.	TEMP.	SPEED	124.7	119.4	131.9
75-09	765	55	130.5	128.3	134.1
COMMENTS: 60 MIL S/S					RESULT: PASS
TECHNICIAN: L. ESPINAL					

ATE: 11/12/98			PEEL		
ME: 12:40			OUT	IN	SHEAR
MBIENT TEMP: 85			120.5	120.1	141.9
EATHER: PT. CLOUDY			127.3	123.0	136.7
MACHINE			118.8	117.2	130.1
NO.	TEMP.	SPEED	126.7	122.7	141.6
75-14	760	50	128.6	121.3	130.0
MENTS: 60 MIL S/S					RESULT: PASS
NICIAN: E. GRIFFIN					

DATE: 11/12/99			PEEL		
TIME: 1:20			OUT	IN	SHEAR
AMBIENT TEMP: 85			110.7	117.3	127.8
WEATHER: PT. CLOUDY			116.2	118.3	126.2
MACHINE			115.7	116.7	130.6
NO.	TEMP.	SPEED	117.8	117.4	127.4
75-07	765	60	117.6	113.5	135.5
COMMENTS: 60 MIL S/S					RESULT: PASS
TECHNICIAN: L. ESPINAL					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

ROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 4**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

ATE: 11/13/98			PEEL		
ME: 7:05			OUT	IN	SHEAR
MBIENT TEMP: 70			128.4	134.3	148.1
EATHER: CLEAR			130.6	129.0	155.2
MACHINE			128.4	137.9	149.3
NO.	TEMP.	SPEED	133.0	134.2	135.1
75-14	760	50	130.5	136.1	136.2
OMMENTS: 60 MIL S/S					RESULT: PASS
ECHNICIAN: E. GRIFFIN					

DATE: 11/13/98			PEEL		
TIME: 7:15			OUT	IN	SHEAR
AMBIENT TEMP: 70			121.3	130.3	146.6
WEATHER: CLEAR			121.1	132.8	147.5
MACHINE			124.1	130.9	145.9
NO.	TEMP.	SPEED	129.9	135.7	145.8
75-07	765	60	130.4	129.8	125.9
COMMENTS: 60 MIL S/S					RESULT: PASS
TECHNICIAN: T. STORY					

ATE: 11/13/98			PEEL		
ME: 9:50			OUT	IN	SHEAR
MBIENT TEMP: 76			129.3	126.2	150.1
EATHER: PT. CLOUDY			126.9	128.7	149.3
[illegible]ACHINE			121.5	127.0	147.2
NO	TEMP.	SPEED	128.9	126.2	148.6
	765	60	123.1	126.9	151.4
OMMENTS: 60 MIL S/S					RESULT: PASS
ECHNICIAN: T. STORY					

DATE: 11/13/98			PEEL		
TIME: 12:00			OUT	IN	SHEAR
AMBIENT TEMP: 80			124.1	121.8	140.6
WEATHER: PT. CLOUDY			122.6	121.4	134.7
MACHINE			128.9	110.9	132.2
NO.	TEMP.	SPEED	120.2	113.7	139.8
75-07	765	60	127.2	117.6	137.3
COMMENTS: 60 MIL S/S					RESULT: PASS
TECHNICIAN: E. GRIFFIN					

ATE: 11/14/98			PEEL		
ME: 12:10			OUT	IN	SHEAR
MBIENT TEMP: 80			119.8	118.7	143.1
EATHER: CLEAR			122.8	121.7	139.6
MACHINE			118.0	121.8	132.8
NO.	TEMP.	SPEED	117.7	121.1	130.9
74-14	760	45	120.4	117.6	143.4
OMMENTS: 60 MIL T/T					RESULT: PASS
ECHNICIAN: E. GRIFFIN					

DATE: 11/16/98			PEEL		
TIME: 1:10			OUT	IN	SHEAR
AMBIENT TEMP: 85			112.5	113.1	123.0
WEATHER: PT. CLOUDY			115.9	115.1	132.3
MACHINE			116.6	111.8	124.5
NO.	TEMP.	SPEED	115.9	112.5	128.5
75-14	765	55	117.6	115.3	125.6
COMMENTS: 60 MIL T/T					RESULT: PASS
TECHNICIAN: L. ESPINAL					

ATE: 11/16/98			PEEL		
ME: 1:30			OUT	IN	SHEAR
MBIENT TEMP: 85			119.1	116.4	120.4
EATHER: PT. CLOUDY			109.4	118.7	129.0
MACHINE			108.7	116.4	125.9
NO.	TEMP.	SPEED	116.1	117.1	132.1
75-0	760	55	112.4	116.8	125.3
NTS: 60 MIL T/T					RESULT: PASS
INICIAN: G. SOWERS					

DATE: 11/17/98			PEEL		
TIME: 7:30			OUT	IN	SHEAR
AMBIENT TEMP: 70			133.2	130.1	159.8
WEATHER: CLEAR			136.1	127.8	156.5
MACHINE			131.9	127.8	146.3
NO.	TEMP.	SPEED	134.9	138.0	142.8
75-14	765	55	134.2	130.9	154.4
COMMENTS: 60 MIL S/S					RESULT: PASS
TECHNICIAN: L. ESPINAL					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 5**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 11/17/98			PEEL		
TIME: 8:10			OUT	IN	SHEAR
AMBIENT TEMP: 75			120.5	123.5	
WEATHER: CLEAR			PEEL	125.2	
MACHINE			131.5	125.3	
NO.	TEMP.	SPEED	124.1	130.8	
75-04	760	55			
COMMENTS: 60 MIL S/S			RESULT: FAIL		
TECHNICIAN: G. SOWERS					

DATE: 11/17/98			PEEL		
TIME: 8:25			OUT	IN	SHEAR
AMBIENT TEMP: 75			110.4	116.9	134.7
WEATHER: CLEAR			119.9	126.9	141.1
MACHINE			115.5	115.3	140.7
NO.	TEMP.	SPEED	122.2	118.4	144.9
75-04	760	50	119.8	121.2	145.2
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 11/17/98			PEEL		
TIME: 12:45			OUT	IN	SHEAR
AMBIENT TEMP: 85			122.6	124.1	139.2
WEATHER: CLEAR			121.7	119.1	137.7
MACHINE			121.7	121.3	131.0
NO.	TEMP.	SPEED	121.1	123.5	135.6
4	765	55	124.5	124.3	132.1
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

DATE: 11/17/98			PEEL		
TIME: 1:15			OUT	IN	SHEAR
AMBIENT TEMP: 85			117.2	114.7	133.4
WEATHER: CLEAR			118.0	119.4	129.2
MACHINE			104.9	119.3	129.6
NO.	TEMP.	SPEED	106.1	121.8	130.2
75-04	760	50	115.2	117.4	134.0
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 11/18/98			PEEL		
TIME: 1:00			OUT	IN	SHEAR
AMBIENT TEMP: 87			114.2	119.2	142.5
WEATHER: PT. CLOUDY			117.0	118.9	141.2
MACHINE			125.6	101.9	139.2
NO.	TEMP.	SPEED	118.8	119.7	140.2
75-14	765	55	123.4	118.2	139.7
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

DATE: 11/18/98			PEEL		
TIME: 1:15			OUT	IN	SHEAR
AMBIENT TEMP: 87			119.5	117.6	137.1
WEATHER: PT. CLOUDY			114.3	121.3	134.3
MACHINE			117.1	118.1	139.4
NO.	TEMP.	SPEED	121.3	120.9	139.0
75-15	760	60	122.0	122.1	129.3
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 11/19/98			PEEL		
TIME: 6:50			OUT	IN	SHEAR
AMBIENT TEMP: 65			126.2	128.4	141.3
WEATHER: PT. CLOUDY			125.4	130.7	143.1
MACHINE			123.1	131.1	146.9
NO.	TEMP.	SPEED	126.3	129.6	147.0
75-15	760	60	124.6	129.2	155.4
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 11/19/98			PEEL		
TIME: 11:30			OUT	IN	SHEAR
AMBIENT TEMP: 79			124.9	128.5	134.9
WEATHER: CLOUDY			121.3	123.8	135.6
MACHINE			125.6	124.2	138.7
NO.	TEMP.	SPEED	123.9	127.8	138.1
75-14	765	45	128.9	127.3	135.8
COMMENTS: 60 MIL T/T			RESUL		
TECHNICIAN: L. ESPINAL					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 6**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

ATE: 11/18/98			PEEL		
ME: 12:45			OUT	IN	SHEAR
MBIENT TEMP: 87			117.0	112.0	130.5
EATHER: PT. CLOUDY			117.4	120.5	127.1
MACHINE			117.8	120.8	126.9
NO.	TEMP.	SPEED	105.7	117.1	131.5
75-15	760	55	115.7	118.4	130.3
OMMENTS: 60 MIL T/S			RESULT: PASS		
ECHNICIAN: G. SOWERS					

DATE: 12/1/98			PEEL		
TIME: 8:00			OUT	IN	SHEAR
AMBIENT TEMP: 72			137.4	136.6	169.3
WEATHER: CLEAR			138.2	139.0	168.4
MACHINE			135.4	137.4	167.2
NO.	TEMP.	SPEED	135.8	138.0	166.1
75-15	760	60	139.0	142.8	173.8
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

ATE: 12/1/98			PEEL		
ME: 1:00			OUT	IN	SHEAR
MBIENT TEMP: 80			117.9	119.9	141.8
EATHER: CLEAR			122.5	122.1	139.1
MACHINE			127.5	123.5	139.8
NO.	TEMP.	SPEED	125.3	123.7	146.1
	760	60	128.1	123.6	141.4
OMMENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: L. ESPINAL					

DATE: 12/1/98			PEEL		
TIME: 1:20			OUT	IN	SHEAR
AMBIENT TEMP: 80			121.0	122.8	137.7
WEATHER: CLEAR			123.9	119.8	141.8
MACHINE			121.6	129.2	146.0
NO.	TEMP.	SPEED	123.6	124.7	139.6
75-15	760	55	123.8	125.8	138.2
COMMENTS: 60 MIL T/S			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

ATE: 12/2/98			PEEL		
ME: 6:40			OUT	IN	SHEAR
MBIENT TEMP: 70			127.9	129.4	157.4
EATHER: CLEAR			116.2	128.6	154.8
MACHINE			138.3	136.1	157.1
NO.	TEMP.	SPEED	132.3	138.1	157.4
75-15	760	55	133.4	135.6	156.1
OMMENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: L. ESPINAL					

DATE: 12/2/98			PEEL		
TIME: 7:40			OUT	IN	SHEAR
AMBIENT TEMP: 75			126.8	132.5	155.5
WEATHER: CLEAR			131.5	134.3	159.1
MACHINE			130.3	132.5	153.1
NO.	TEMP.	SPEED	133.8	135.7	160.2
75-14	760	55	134.3	137.5	158.2
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

ATE: 12/2/98			PEEL		
ME: 12:00			OUT	IN	SHEAR
MBIENT TEMP: 80			123.9	124.2	144.4
EATHER: PT. CLOUDY			124.7	124.3	139.7
MACHINE			125.7	123.9	131.7
NO.	TEMP.	SPEED	127.7	122.6	140.9
75-1	760	55	126.6	120.7	144.7
NTS: 60 MIL S/S			RESULT: PASS		
INICIAN: G. SOWERS					

DATE: 12/2/98			PEEL		
TIME: 1:50			OUT	IN	SHEAR
AMBIENT TEMP: 80			127.4	123.8	141.5
WEATHER: PT. CLOUDY			124.2	130.8	148.1
MACHINE			128.0	126.7	143.3
NO.	TEMP.	SPEED	125.3	130.5	148.9
75-14	760	60	125.7	128.5	150.3
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 7**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 12/03/98			PEEL		
TIME: 10:00			OUT	IN	SHEAR
AMBIENT TEMP: 80			131.2	136.6	144.9
WEATHER: CLEAR			134.0	135.9	148.1
MACHINE			132.7	140.2	149.0
NO.	TEMP.	SPEED	140.6	135.9	148.2
75-14	760	45	138.7	137.3	153.6
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

DATE: 12/04/98			PEEL		
TIME: 7:00			OUT	IN	SHEAR
AMBIENT TEMP: 75			129.8	132.4	150.3
WEATHER: CLEAR			128.8	130.4	155.2
MACHINE			131.0	125.9	147.1
NO.	TEMP.	SPEED	133.3	137.0	145.5
75-15	760	60	137.7	132.6	156.4
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

DATE: 12/04/98			PEEL		
TIME: 7:05			OUT	IN	SHEAR
AMBIENT TEMP: 75			140.8	140.9	152.3
WEATHER: CLEAR			135.1	133.1	162.1
MACHINE			134.7	130.2	148.7
NO.	TEMP.	SPEED	138.1	137.4	150.3
-14	760	55	139.1	140.7	158.2
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/7/98			PEEL		
TIME: 11:35			OUT	IN	SHEAR
AMBIENT TEMP: 85			119.6	121.0	150.2
WEATHER: CLEAR			119.6	122.6	139.1
MACHINE			127.8	123.9	144.1
NO.	TEMP.	SPEED	125.4	124.1	147.1
75-14	765	40	125.8	123.1	144.8
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

DATE: 12/8/98			PEEL		
TIME: 7:22			OUT	IN	SHEAR
AMBIENT TEMP: 68			137.9	141.9	163.2
WEATHER: CLEAR			135.7	144.1	158.9
MACHINE			140.6	143.1	158.5
NO.	TEMP.	SPEED	140.1	142.1	159.4
75-14	760	55	138.7	138.4	160.1
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/8/98			PEEL		
TIME: 7:30			OUT	IN	SHEAR
AMBIENT TEMP: 72			144.1	139.3	158.0
WEATHER: CLEAR			143.0	132.0	157.3
MACHINE			147.4	141.1	161.6
NO.	TEMP.	SPEED	142.8	143.5	159.8
75-15	760	55	146.6	144.4	158.1
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

DATE: 12/8/98			PEEL		
TIME: 12:45			OUT	IN	SHEAR
AMBIENT TEMP: 85			120.4	118.1	133.7
WEATHER: CLEAR			121.1	124.4	145.4
MACHINE			123.5	122.3	132.2
NO.	TEMP.	SPEED	124.4	123.7	138.6
75-14	760	55	125.7	119.8	136.7
MENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/18/98			PEEL		
TIME: 1:15			OUT	IN	SHEAR
AMBIENT TEMP: 85			123.9	119.2	148.1
WEATHER: CLEAR			125.0	135.2	149.6
MACHINE			125.3	124.3	144.0
NO.	TEMP.	SPEED	125.7	124.7	149.1
75-15	760	55	125.9	124.6	148.3
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 8**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

ATE: 12/9/98			PEEL		
ME: 6:50			OUT	IN	SHEAR
MBIENT TEMP: 65			123.5	141.0	150.8
EATHER: CLEAR			128.2	139.5	158.2
MACHINE			129.6	137.5	148.8
NO.	TEMP.	SPEED	134.6	132.8	149.5
75-15	760	55	129.5	135.3	149.6
OMMENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: L. ESPINAL					

DATE: 12/9/98			PEEL		
TIME: 7:00			OUT	IN	SHEAR
AMBIENT TEMP: 65			138.5	136.1	157.9
WEATHER: CLEAR			146.7	133.9	150.3
MACHINE			140.1	137.9	152.6
NO.	TEMP.	SPEED	139.4	136.5	157.1
75-14	765	55	140.7	136.2	148.9
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

ATE: 12/9/98			PEEL		
ME: 12:45			OUT	IN	SHEAR
MBIENT TEMP: 85			122.9	123.6	149.4
EATHER: CLEAR			126.3	124.6	129.0
[illegible]ACHINE			127.0	121.5	148.0
NO	TEMP.	SPEED	124.7	123.7	131.4
	760	55	128.2	120.9	139.2
OMMENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: L. ESPINAL					

DATE: 12/9/98			PEEL		
TIME: 1:00			OUT	IN	SHEAR
AMBIENT TEMP: 85			120.2	127.2	125.2
WEATHER: CLEAR			126.6	120.9	128.6
MACHINE			121.2	125.3	126.8
NO.	TEMP.	SPEED	124.4	121.8	125.4
75-14	765	55	126.1	120.2	129.4
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

ATE: 12/9/98			PEEL		
ME: 4:30			OUT	IN	SHEAR
MBIENT TEMP: 85			120.1	119.2	124.2
EATHER: CLEAR			120.6	121.3	125.6
MACHINE			119.8	122.6	129.8
NO.	TEMP.	SPEED	118.3	119.8	130.2
75-14	765	50	119.6	117.6	131.6
OMMENTS: 60 MIL T/S			RESULT: PASS		
ECHNICIAN: G. SOWERS					

DATE: 12/10/98			PEEL		
TIME: 2:30			OUT	IN	SHEAR
AMBIENT TEMP: 85			117.4	108.7	143.8
WEATHER: CLEAR			113.5	116.2	139.9
MACHINE			119.0	111.8	141.8
NO.	TEMP.	SPEED	105.1	111.4	135.5
75-14	765	40	104.6	110.2	133.3
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

ATE: 12/14/98			PEEL		
ME: 9:17			OUT	IN	SHEAR
MBIENT TEMP: 63			144.2	153.2	165.0
EATHER: CLOUDY			149.8	144.6	164.3
MACHINE			148.6	147.4	162.7
NO.	TEMP.	SPEED	154.4	149.3	163.7
75-1	765	45	151.2	145.2	162.4
NTS: 60 MIL T/T			RESULT: PASS		
INICIAN: G. SOWERS					

DATE: 12/15/98			PEEL		
TIME: 1:30			OUT	IN	SHEAR
AMBIENT TEMP: 50			144.5	147.0	162.7
WEATHER: CLOUDY			141.3	147.3	164.1
MACHINE			141.8	151.0	162.5
NO.	TEMP.	SPEED	142.6	151.2	165.7
75-14	765	40	145.2	148.5	167.3
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: G. SOWERS					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 9**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 12/16/98			PEEL		
TIME: 1:20			OUT	IN	SHEAR
AMBIENT TEMP: 55			140.3	149.7	161.2
WEATHER: CLEAR			139.3	141.2	159.5
MACHINE			143.0	148.2	159.1
NO.	TEMP.	SPEED	147.2	149.5	158.7
75-14	765	45	143.5	150.2	158.4
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/16/98			PEEL		
TIME: 3:20			OUT	IN	SHEAR
AMBIENT TEMP: 62			130.3	134.6	130.4
WEATHER: CLEAR			125.0	135.7	129.3
MACHINE			125.2	126.3	136.1
NO.	TEMP.	SPEED	132.9	121.9	140.6
75-04	765	40	125.8	121.8	134.4
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/17/98			PEEL		
TIME: 9:00			OUT	IN	SHEAR
AMBIENT TEMP: 65			141.1	153.7	174.2
WEATHER: CLEAR			141.1	140.8	179.8
MACHINE			152.1	143.8	174.0
NO.	TEMP.	SPEED	146.5	151.2	177.0
14	765	42	149.2	143.2	176.5
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/18/98			PEEL		
TIME: 8:25			OUT	IN	SHEAR
AMBIENT TEMP: 44			148.5	153.9	167.8
WEATHER: CLEAR			147.3	146.6	187.4
MACHINE			145.8	144.8	173.4
NO.	TEMP.	SPEED	151.7	154.9	182.0
75-14	760	45	152.0	148.6	187.4
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/18/98			PEEL		
TIME: 10:00			OUT	IN	SHEAR
AMBIENT TEMP: 60			143.1	135.5	161.4
WEATHER: CLEAR			140.9	132.0	163.8
MACHINE			140.7	134.2	159.1
NO.	TEMP.	SPEED	144.9	137.0	173.2
75-04	765	40	150.3	145.8	166.5
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/22/98			PEEL		
TIME: 9:30			OUT	IN	SHEAR
AMBIENT TEMP: 78			130.1	133.4	
WEATHER: CLOUDY					
MACHINE					
NO.	TEMP.	SPEED			
75-15	760	55			
COMMENTS: 60 MIL S/S			RESULT: FAIL		
TECHNICIAN: G. SOWERS					

DATE: 12/22/98			PEEL		
TIME: 9:40			OUT	IN	SHEAR
AMBIENT TEMP: 80			131.3	132.1	148.7
WEATHER: CLOUDY			131.3	128.7	148.6
MACHINE			130.2	134.3	157.8
NO.	TEMP.	SPEED	132.0	131.3	158.7
75-15	760	52	133.2	130.9	154.0
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/22/98			PEEL		
TIME: 9:50			OUT	IN	SHEAR
AMBIENT TEMP: 80			124.5	125.0	145.1
WEATHER: CLOUDY			123.1	131.5	152.2
MACHINE			134.8	131.2	150.5
NO.	TEMP.	SPEED	138.1	126.0	145.8
75-04	765	55	127.1	127.2	147.8
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 10**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

ATE: 12/22/98			PEEL		
ME: 11:30			OUT	IN	SHEAR
MBIENT TEMP: 82			125.1	134.5	139.5
EATHER: CLOUDY			123.8	134.4	137.4
MACHINE			131.7	131.4	139.7
NO.	TEMP.	SPEED	123.3	128.9	137.0
75-15	760	50	125.3	126.3	135.8
OMMENTS: 60 MIL S/T			RESULT: PASS		
ECHNICIAN: G. SOWERS					

DATE: 12/22/98			PEEL		
TIME: 12:45			OUT	IN	SHEAR
AMBIENT TEMP: 78			122.7	127.0	138.3
WEATHER: CLEAR			120.5	123.8	137.3
MACHINE			112.5	122.9	140.9
NO.	TEMP.	SPEED	111.6	120.4	136.9
75-04	765	55	122.0	121.4	138.9
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

ATE: 12/22/98			PEEL		
ME: 1:25			OUT	IN	SHEAR
MBIENT TEMP: 85			122.5	122.7	135.2
EATHER: PT. CLOUDY			118.3	126.8	131.2
CHINE			125.7	128.0	130.1
	TEMP.	SPEED	123.1	123.9	134.6
15	765	55	117.6	123.3	135.6
OMMENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: G. SOWERS					

DATE: 12/23/98			PEEL		
TIME: 11:55			OUT	IN	SHEAR
AMBIENT TEMP: 85			124.9	125.7	133.0
WEATHER: CLEAR			118.0	123.2	138.0
MACHINE			124.5	126.0	137.3
NO.	TEMP.	SPEED	123.1	127.0	143.4
75-15	765	50	120.5	122.9	140.9
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

ATE: 12/28/98			PEEL		
ME: 11:45			OUT	IN	SHEAR
MBIENT TEMP: 75			137.9	137.7	150.8
EATHER: CLOUDY			140.9	136.8	148.5
MACHINE			139.6	137.2	147.6
NO.	TEMP.	SPEED	140.2	135.7	146.8
75-15	765	50	137.3	141.9	154.6
OMMENTS: 60 MIL T/T			RESULT: PASS		
ECHNICIAN: G. SOWERS					

DATE: 12/29/98			PEEL		
TIME: 7:40			OUT	IN	SHEAR
AMBIENT TEMP: 60			134.7	97.0	
WEATHER: CLOUDY					
MACHINE					
NO.	TEMP.	SPEED			
75-06	755	50			
COMMENTS: 60 MIL T/T			RESULT: FAIL		
TECHNICIAN: G. SOWERS					

ATE: 12/29/98			PEEL		
ME: 8:00			OUT	IN	SHEAR
MBIENT TEMP: 60			137.2	148.3	169.7
EATHER: CLOUDY			132.8	143.2	181.1
MACHINE			144.1	141.1	166.3
NO.	TEMP.	SPEED	150.7	139.1	155.1
75	760	40	146.1	147.3	171.8
NTS: 60 MIL T/T			RESULT: PASS		
CHNICIAN: G. SOWERS					

DATE: 12/29/98			PEEL		
TIME: 1:30			OUT	IN	SHEAR
AMBIENT TEMP: 70			135.4	136.1	124.6
WEATHER: CLOUDY			128.9	137.5	160.4
MACHINE			124.2	131.2	161.7
NO.	TEMP.	SPEED	134.7	132.4	139.8
75-17	760	55	128.6	140.1	148.8
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 11**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 12/30/98			PEEL		
TIME: 8:30			OUT	IN	SHEAR
AMBIENT TEMP: 60			159.5	153.8	172.0
WEATHER: PT. CLOUDY			155.2	147.1	171.6
MACHINE			153.5	160.0	174.8
NO.	TEMP.	SPEED	150.4	149.0	173.1
75-17	765	48	151.2	153.5	175.2
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/30/98			PEEL		
TIME: 11:00			OUT	IN	SHEAR
AMBIENT TEMP: 68			151.6	139.9	170.1
WEATHER: CLEAR			146.8	146.8	178.6
MACHINE			147.1	150.1	159.7
NO.	TEMP.	SPEED	144.2	147.8	177.3
75-07	765	55	153.4	146.7	171.5
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

DATE: 12/30/98			PEEL		
TIME: 12:30			OUT	IN	SHEAR
AMBIENT TEMP: 65			137.3	146.3	163.7
WEATHER: CLEAR			138.7	130.7	152.4
MACHINE			131.8	136.4	153.1
NO.	TEMP.	SPEED	142.0	142.9	160.5
15	765	50	132.1	137.1	156.2
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/31/98			PEEL		
TIME: 6:45			OUT	IN	SHEAR
AMBIENT TEMP: 55			136.8	143.9	179.0
WEATHER: CLEAR			147.6	138.0	186.8
MACHINE			149.5	140.2	174.5
NO.	TEMP.	SPEED	153.3	149.3	177.1
75-15	765	50	156.3	148.7	162.4
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 12/31/98			PEEL		
TIME: 10:35			OUT	IN	SHEAR
AMBIENT TEMP: 75			136.9	142.7	170.8
WEATHER: CLEAR			136.0	140.1	171.2
MACHINE			139.0	140.9	169.7
NO.	TEMP.	SPEED	145.9	143.9	165.3
75-15	765	48	145.0	144.5	170.1
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 1/6/99			PEEL		
TIME: 10:15			OUT	IN	SHEAR
AMBIENT TEMP: 45			156.7	163.7	187.0
WEATHER: CLEAR			161.1	150.9	144.6
MACHINE			160.1	164.8	177.3
NO.	TEMP.	SPEED	158.6	158.5	180.0
75-14	765	50	153.6	152.0	177.3
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

DATE: 1/6/99			PEEL		
TIME: 10:50			OUT	IN	SHEAR
AMBIENT TEMP: 45			147.8	149.8	173.5
WEATHER: CLEAR			143.3	154.6	179.4
MACHINE			150.1	148.6	183.4
NO.	TEMP.	SPEED	147.1	139.7	174.2
75-07	765	50	153.3	155.1	175.7
MENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: L. ESPINAL					

DATE: 1/6/99			PEEL		
TIME: 2:00			OUT	IN	SHEAR
AMBIENT TEMP: 50			126.1	136.3	134.6
WEATHER: CLEAR			125.3	132.3	155.0
MACHINE			139.5	139.6	156.1
NO.	TEMP.	SPEED	131.8	127.6	159.6
75-14	765	50	135.7	140.2	154.6
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

ROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 12**

A/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

TE: 1/6/99			PEEL		
ME: 4:30			OUT	IN	SHEAR
MBIENT TEMP: 45			133.3	138.2	150.5
EATHER: CLEAR			126.9	130.7	156.7
MACHINE			131.6	126.0	153.0
NO.	TEMP.	SPEED	134.1	132.9	155.1
75-03	765	45	136.8	127.8	160.4
OMMENTS: 60 MIL S/S				RESULT: PASS	
CHNICIAN: G. SOWERS					

DATE: 1/7/99			PEEL		
TIME: 9:15			OUT	IN	SHEAR
AMBIENT TEMP: 50			153.2	147.5	167.8
WEATHER: CLEAR			146.3	146.2	182.1
MACHINE			146.6	146.8	169.7
NO.	TEMP.	SPEED	146.2	149.2	183.5
75-04	765	50	154.2	154.0	163.1
COMMENTS: 60 MIL S/S				RESULT: PASS	
TECHNICIAN: G. SOWERS					

TE: 1/7/99			PEEL		
ME: 11:45			OUT	IN	SHEAR
MBIENT TEMP: 65			132.7	128.7	164.9
EATHER: CLEAR			137.2	141.8	160.1
CHINE			133.3	135.4	146.1
NO	TEMP.	SPEED	131.8	135.0	161.6
	765	50	131.2	132.9	158.4
OMMENTS: 60 MIL T/T				RESULT: PASS	
CHNICIAN: G. SOWERS					

DATE: 1/7/99			PEEL		
TIME: 12:30			OUT	IN	SHEAR
AMBIENT TEMP: 65			121.1	127.2	145.6
WEATHER: CLEAR			121.1	129.0	145.6
MACHINE			126.2	128.0	148.4
NO.	TEMP.	SPEED	113.8	123.2	147.6
75-04	765	50	127.1	127.0	146.2
COMMENTS: 60 MIL S/S				RESULT: PASS	
TECHNICIAN: G. SOWERS					

TE: 1/8/99			PEEL		
ME: 1:00			OUT	IN	SHEAR
BIENT TEMP: 70			133.0	135.6	167.1
EATHER: CLOUDY			140.6	142.9	173.4
MACHINE			146.9	137.1	174.1
NO.	TEMP.	SPEED	147.6	146.6	179.1
75-07	765	50	150.4	137.7	171.5
OMMENTS: 60 MIL S/S				RESULT: PASS	
CHNICIAN: G. SOWERS					

DATE: 1/8/99			PEEL		
TIME: 10:10			OUT	IN	SHEAR
AMBIENT TEMP: 65			134.1	132.3	154.0
WEATHER: CLEAR			127.1	128.4	153.0
MACHINE			135.4	129.6	140.7
NO.	TEMP.	SPEED	132.2	128.4	156.9
75-07	765	50	131.0	134.7	163.2
COMMENTS: 60 MIL T/T				RESULT: PASS	
TECHNICIAN: L. ESPINAL					

TE: 1/8/99			PEEL		
ME: 1:00			OUT	IN	SHEAR
BIENT TEMP: 70			127.2	121.3	153.0
EATHER: CLOUDY			127.8	127.1	149.8
MACHINE			123.8	124.5	153.7
NO.	TEMP.	SPEED	129.5	131.2	147.4
75-07	765	50	128.5	131.0	158.2
NTS: 60 MIL T/T				RESULT: PASS	
NICIAN: G. SOWERS					

DATE: 1/13/99			PEEL		
TIME: 7:15			OUT	IN	SHEAR
AMBIENT TEMP: 60			139.3	146.7	167.0
WEATHER: CLEAR			136.9	146.6	170.7
MACHINE			144.4	139.2	178.5
NO.	TEMP.	SPEED	141.5	140.3	170.9
75-07	765	55	140.2	141.6	146.4
COMMENTS: 60 MIL S/S				RESULT: PASS	
TECHNICIAN: L. ESPINAL					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 13**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 1/13/99			PEEL		
TIME: 8:20			OUT	IN	SHEAR
AMBIENT TEMP: 60			137.8	142.5	165.0
WEATHER: CLEAR			133.2	137.9	172.7
MACHINE			143.1	139.5	171.7
NO.	TEMP.	SPEED	139.3	137.9	174.2
75-17	765	55	145.4	148.1	164.5
COMMENTS: 60 MIL S/S				RESULT: PASS	
TECHNICIAN: G. SOWERS					

DATE: 1/13/99			PEEL		
TIME: 12:45			OUT	IN	SHEAR
AMBIENT TEMP: 75			130.1	131.3	149.3
WEATHER: CLOUDY			128.9	125.6	145.7
MACHINE			122.1	127.6	145.4
NO.	TEMP.	SPEED	127.6	129.1	137.2
75-17	765	55	122.9	127.3	144.6
COMMENTS: 60 MIL S/S				RESULT: PASS	
TECHNICIAN: G. SOWERS					

DATE: 1/13/99			PEEL		
TIME: 1:00			OUT	IN	SHEAR
AMBIENT TEMP: 75			130.8	126.5	139.7
WEATHER: CLOUDY			129.1	124.4	144.0
MACHINE			131.1	126.2	145.4
NO.	TEMP.	SPEED	128.3	129.1	149.5
07	765	55	129.6	126.7	145.2
COMMENTS: 60 MIL S/S				RESULT: PASS	
TECHNICIAN: L. ESPINAL					

DATE: 1/14/99			PEEL		
TIME: 6:45			OUT	IN	SHEAR
AMBIENT TEMP: 60			139.6	140.2	153.3
WEATHER: PT. CLOUDY			137.4	136.1	151.3
MACHINE			136.6	131.4	147.8
NO.	TEMP.	SPEED	139.1	137.7	149.9
75-17	765	52	132.9	140.3	151.2
COMMENTS: 60 MIL S/S				RESULT: PASS	
TECHNICIAN: G. SOWERS					

DATE: 1/14/99			PEEL		
TIME: 6:55			OUT	IN	SHEAR
AMBIENT TEMP: 60			143.0	137.2	165.0
WEATHER: PT. CLOUDY			146.4	146.9	168.8
MACHINE			146.1	137.5	167.1
NO.	TEMP.	SPEED	144.2	136.1	156.1
75-06	760	55	149.6	151.1	159.1
COMMENTS: 60 MIL S/S				RESULT: PASS	
TECHNICIAN: L. ESPINAL					

DATE: 1/14/99			PEEL		
TIME: 7:30			OUT	IN	SHEAR
AMBIENT TEMP: 60			148.4	143.3	
WEATHER: PT. CLOUDY			143.7	145.2	
MACHINE			153.8	140.9	
NO.	TEMP.	SPEED	147.7	136.2	
75-06	760	50	PEEL	141.2	
COMMENTS: 60 MIL T/T				RESULT: FAIL	
TECHNICIAN: L. ESPINAL					

DATE: 1/14/99			PEEL		
TIME: 11:30			OUT	IN	SHEAR
AMBIENT TEMP: 70			131.0	130.2	158.2
WEATHER: CLEAR			128.6	126.0	154.4
MACHINE			127.6	125.2	161.4
NO.	TEMP.	SPEED	126.0	128.4	152.8
75-17	765	50	129.2	124.4	157.8
COMMENTS: 60 MIL T/T				RESULT: PASS	
TECHNICIAN: G. SOWERS					

DATE: 1/19/99			PEEL		
TIME: 10:25			OUT	IN	SHEAR
AMBIENT TEMP: 80			133.2	134.7	138.9
WEATHER: CLEAR			136.3	138.1	165.9
MACHINE			135.7	136.1	162.5
NO.	TEMP.	SPEED	133.3	135.4	159.7
75-17	765	55	135.7	138.4	160.7
COMMENTS: 60 MIL S/S				RESULT: PASS	
TECHNICIAN: G. SOWERS					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 14**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

ATE: 1/19/99			PEEL		
IME: 11:00			OUT	IN	SHEAR
MBIENT TEMP: 73			124.1	133.1	164.8
/EATHER: CLEAR			125.1	133.7	152.3
MACHINE			124.6	130.7	166.9
NO.	TEMP.	SPEED	134.0	141.3	147.1
75-06	760	55	133.3	134.7	152.7
OMMENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: L. ESPINAL					

DATE: 1/19/99			PEEL		
TIME: 1:30			OUT	IN	SHEAR
AMBIENT TEMP: 80			116.4	123.3	123.8
WEATHER: CLEAR			124.2	128.0	120.7
MACHINE			124.2	124.3	124.6
NO.	TEMP.	SPEED	113.8	121.4	125.3
75-17	765	55	124.2	123.8	127.2
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

ATE: 1/19/99			PEEL		
IME: 2:00			OUT	IN	SHEAR
MBIENT TEMP: 80			122.4	122.4	132.7
/EATHER: CLEAR			119.5	122.3	133.6
[illegible]ACHINE			114.8	114.2	131.0
NO.	TEMP.	SPEED	122.9	116.3	134.6
	760	55	114.3	112.2	131.0
OMMENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: L. ESPINAL					

DATE: 1/20/99			PEEL		
TIME: 7:35			OUT	IN	SHEAR
AMBIENT TEMP: 60			139.5	149.8	164.0
WEATHER: CLEAR			143.7	149.5	170.9
MACHINE			143.3	149.6	166.0
NO.	TEMP.	SPEED	143.5	145.3	167.1
75-17	765	55	142.0	142.2	170.2
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

ATE: 1/20/99			PEEL		
IME: 8:05			OUT	IN	SHEAR
MBIENT TEMP: 60			141.1	138.2	148.7
/EATHER: CLEAR			144.1	140.3	156.7
MACHINE			144.7	144.7	154.2
NO.	TEMP.	SPEED	133.4	136.9	163.7
75-06	760	55	143.7	150.6	171.1
OMMENTS: 60 MIL S/S			RESULT: PASS		
ECHNICIAN: L. ESPINAL					

DATE: 1/20/99			PEEL		
TIME: 12:51			OUT	IN	SHEAR
AMBIENT TEMP: 80			117.8	117.0	142.4
WEATHER: CLEAR			119.5	120.2	135.5
MACHINE			123.2	121.0	137.1
NO.	TEMP.	SPEED	124.1	121.8	134.4
75-17	765	55	117.5	118.0	142.0
COMMENTS: 60 MIL S/S			RESULT: PASS		
TECHNICIAN: G. SOWERS					

ATE: 1/20/99			PEEL		
IME: 12:51			OUT	IN	SHEAR
MBIENT TEMP: 80			126.2	120.2	147.9
/EATHER: CLEAR			122.4	124.0	145.6
MACHINE			121.5	122.4	146.7
NO.	TEMP.	SPEED	121.9	122.3	146.1
75-[illegible]	765	55	122.3	121.9	136.5
C[illegible]ENTS: 60 MIL T/T			RESULT: PASS		
[illegible]ANICIAN: G. SOWERS					

DATE: 1/20/99			PEEL		
TIME: 12:50			OUT	IN	SHEAR
AMBIENT TEMP: 80			126.7	130.3	146.3
WEATHER: CLEAR			121.3	126.0	144.5
MACHINE			106.8	121.5	149.5
NO.	TEMP.	SPEED	116.1	129.1	154.8
75-06	765	50	119.2	131.2	153.1
COMMENTS: 60 MIL T/T			RESULT: PASS		
TECHNICIAN: L. ESPINAL					

HOT WEDGE START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 15**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

ATE: 1/28/99			PEEL		
ME: 11:30			OUT	IN	SHEAR
MBIENT TEMP: 80			128.4	128.5	150.4
EATHER: CLEAR			125.1	125.6	153.7
MACHINE			126.1	127.1	153.5
NO.	TEMP.	SPEED	129.5	126.7	153.1
75-17	765	50	122.4	127.6	156.4
OMMENTS: 60 MIL T/T			RESULT: PASS		
ECHNICIAN: G. SOWERS					

DATE:			PEEL		
TIME:			OUT	IN	SHEAR
AMBIENT TEMP:					
WEATHER:					
MACHINE					
NO.	TEMP.	SPEED			
COMMENTS:			RESULT:		
TECHNICIAN:					

ATE:			PEEL		
IME:			OUT	IN	SHEAR
MBIENT TEMP:					
EATHER:					
MACHINE					
NO.	TEMP.	SPEED			
OMMENTS:			RESULT:		
ECHNICIAN:					

DATE:			PEEL		
TIME:			OUT	IN	SHEAR
AMBIENT TEMP:					
WEATHER:					
MACHINE					
NO.	TEMP.	SPEED			
COMMENTS:			RESULT:		
TECHNICIAN:					

ATE:			PEEL		
IME:			OUT	IN	SHEAR
MBIENT TEMP:					
EATHER:					
MACHINE					
NO.	TEMP.	SPEED			
OMMENTS:			RESULT:		
ECHNICIAN:					

DATE:			PEEL		
TIME:			OUT	IN	SHEAR
AMBIENT TEMP:					
WEATHER:					
MACHINE					
NO.	TEMP.	SPEED			
COMMENTS:			RESULT:		
TECHNICIAN:					

ATE:			PEEL		
ME:			OUT	IN	SHEAR
MBIENT TEMP:					
EATHER:					
MACHINE					
NO.	TEMP.	SPEED			
MENTS:			RESULT:		
NICIAN:					

DATE:			PEEL		
TIME:			OUT	IN	SHEAR
AMBIENT TEMP:					
WEATHER:					
MACHINE					
NO.	TEMP.	SPEED			
COMMENTS:			RESULT:		
TECHNICIAN:					

EXTRUDER START-UP TESTS

COMANCO ENVIRONMENTAL CORPORATION

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 1**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 11/2/98			PEEL	SHEAR
TIME: 12:55				
AMBIENT TEMP: 84			109.0	147.6
WEATHER: CLOUDY			116.2	146.2
MACHINE			109.4	145.1
NO.	TEMP.	PREHEAT	119.3	145.1
74-12	450	400	120.7	151.7
COMMENTS: 60 MIL T/T				RESULT: PASS
TECHNICIAN: T. LIMAURO				

DATE: 11/4/98			PEEL	SHEAR
TIME: 7:45				
AMBIENT TEMP: 80			85.3	
WEATHER: CLOUDY			127.7	
MACHINE			118.2	
NO.	TEMP.	PREHEAT	PEEL	
74-09	475	4		
COMMENTS: 60 MIL T/T				RESULT: FAIL
TECHNICIAN: T. STORY				

DATE: 11/4/98			PEEL	SHEAR
TIME: 7:50				
AMBIENT TEMP: 80			112.5	
WEATHER: CLOUDY			111.8	
MACHINE			PEEL	
NO.	TEMP.	PREHEAT	111.9	
74-12	450	400		
JMMENTS: 60 MIL T/T				RESULT: FAIL
TECHNICIAN: L. ESPINAL				

DATE: 11/4/98			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 80			124.0	145.2
WEATHER: CLOUDY			104.0	135.1
MACHINE			110.5	143.4
NO.	TEMP.	PREHEAT	121.1	144.8
74-09	475	5	128.7	144.3
COMMENTS: 60 MIL T/T				RESULT: PASS
TECHNICIAN: T. STORY				

DATE: 11/4/98			PEEL	SHEAR
TIME: 8:45				
AMBIENT TEMP: 80			108.8	149.5
WEATHER: CLOUDY			95.7	148.2
MACHINE			106.3	151.1
NO.	TEMP.	PREHEAT	116.0	149.3
74-12	450	400	114.7	136.7
COMMENTS: 60 MIL T/T				RESULT: PASS
TECHNICIAN: L. ESPINAL				

DATE: 11/4/98			PEEL	SHEAR
TIME: 12:00				
AMBIENT TEMP: 78			109.2	
WEATHER: CLOUDY, RAIN			116.6	
MACHINE			125.1	
NO.	TEMP.	PREHEAT	91.1	
75-09	475	5	93.8	
COMMENTS: 60 MIL T/T				RESULT: FAIL
TECHNICIAN: T. STORY				

DATE: 11/6/98			PEEL	SHEAR
TIME: 7:00				
AMBIENT TEMP: 59			143.6	168.6
WEATHER: CLEAR			146.2	171.1
MACHINE			142.6	174.2
NO.	TEMP.	PREHEAT	136.6	175.0
74-09	475	4	140.7	169.8
COMMENTS: 60 MIL T/T				RESULT: PASS
CHNICIAN: T. STORY				

DATE: 11/9/98			PEEL	SHEAR
TIME: 7:30				
AMBIENT TEMP: 65			132.3	
WEATHER: CLEAR			132.7	
MACHINE			126.6	
NO.	TEMP.	PREHEAT	54.3	
74-13	450	400	PEEL	
COMMENTS: 60 MIL T/T				RESULT: FAIL
TECHNICIAN: L. ESPINAL				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL PAGE: 2

QA/QC TECHNICIAN: S. KERSTEN PROJECT NO: 98-528

DATE: 11/9/98			PEEL	SHEAR
TIME: 7:40				
AMBIENT TEMP: 75			131.5	
WEATHER: CLEAR			119.1	
MACHINE			78.1	
NO.	TEMP.	PREHEAT	93.3	
74-09	475	3	PEEL	
COMMENTS: 60 MIL T/T				RESULT: FAIL
TECHNICIAN: T. STORY				

DATE: 11/9/98			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 70			101.8	160.4
WEATHER: CLEAR			113.8	161.9
MACHINE			123.3	155.3
NO.	TEMP.	PREHEAT	121.6	166.2
74-12	450	400	125.1	164.5
COMMENTS: 60 MIL T/T				RESULT: PASS
TECHNICIAN: L. ESPINAL				

DATE: 11/9/98			PEEL	SHEAR
TIME: 8:10				
AMBIENT TEMP: 70			131.7	145.8
WEATHER: CLEAR			131.6	159.1
MACHINE			130.1	145.3
I	TEMP.	PREHEAT	123.7	130.6
09	475	3	120.8	154.0
MMENTS: 60 MIL T/T				RESULT: PASS
TECHNICIAN: T. STORY				

DATE: 11/9/98			PEEL	SHEAR
TIME: 12:00				
AMBIENT TEMP: 80			107.7	150.2
WEATHER: CLEAR			110.0	124.0
MACHINE			120.7	141.9
NO.	TEMP.	PREHEAT	119.5	148.2
74-09	475	3	115.8	137.3
COMMENTS: 60 MIL T/T				RESULT: PASS
TECHNICIAN: T. STORY				

DATE: 11/9/98			PEEL	SHEAR
TIME: 12:30				
AMBIENT TEMP: 80			129.2	133.8
WEATHER: CLEAR			99.7	131.2
MACHINE			128.9	132.2
NO.	TEMP.	PREHEAT	131.1	145.8
74-12	450	400	128.2	146.2
COMMENTS: 60 MIL T/T				RESULT: PASS
TECHNICIAN: L. ESPINAL				

DATE: 11/10/98			PEEL	SHEAR
TIME: 6:40				
AMBIENT TEMP: 72			127.0	162.4
WEATHER: CLEAR			126.7	156.9
MACHINE			127.6	162.7
NO.	TEMP.	PREHEAT	124.7	161.2
74-12	450	400	139.1	160.8
COMMENTS: 60 MIL T/T				RESULT: PASS
TECHNICIAN: T. LIMAURO				

DATE: 11/10/98			PEEL	SHEAR
TIME: 1:06				
AMBIENT TEMP: 80			126.9	127.1
WEATHER: CLEAR			119.7	125.4
MACHINE			123.8	127.9
NO.	TEMP.	PREHEAT	113.4	128.1
74	450	400	127.4	126.5
CO NTS: 60 MIL T/T				RESULT: PASS
NICIAN: T. LIMAURO				

DATE: 11/11/98			PEEL	SHEAR
TIME: 6:54				
AMBIENT TEMP: 75			118.8	147.7
WEATHER: CLEAR			112.0	159.2
MACHINE			113.0	156.0
NO.	TEMP.	PREHEAT	120.2	156.9
74-12	450	400	132.7	155.8
COMMENTS: 60 MIL T/T				RESULT: PASS
TECHNICIAN: L. ESPINAL				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 3**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 11/11/98			PEEL	SHEAR
TIME: 11:53				
AMBIENT TEMP: 82			128.1	138.2
WEATHER: CLEAR			134.2	145.3
MACHINE			131.6	142.4
NO.	TEMP.	PREHEAT	124.8	138.3
74-12	450	400	127.9	141.8
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 11/12/98			PEEL	SHEAR
TIME: 6:50				
AMBIENT TEMP: 76			113.0	154.8
WEATHER: CLEAR			119.5	156.1
MACHINE			129.0	153.5
NO.	TEMP.	PREHEAT	120.0	163.2
74-12	450	400	122.9	131.9
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 11/13/98			PEEL	SHEAR
TIME: 7:00				
AMBIENT TEMP: 70			119.2	159.5
WEATHER: CLEAR			129.2	164.9
MACHINE			130.5	166.5
NO.	TEMP.	PREHEAT	120.4	169.0
74-12	450	400	120.1	167.2
JMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 11/13/98			PEEL	SHEAR
TIME: 11:50				
AMBIENT TEMP: 80			117.8	145.1
WEATHER: CLEAR			118.5	142.8
MACHINE			126.3	144.6
NO.	TEMP.	PREHEAT	109.1	145.6
74-12	450	400	122.6	144.5
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 11/14/98			PEEL	SHEAR
TIME: 7:00				
AMBIENT TEMP: 75			105.9	151.2
WEATHER: PT. CLOUDY			111.4	156.8
MACHINE			111.7	153.1
NO.	TEMP.	PREHEAT	112.3	163.2
74-12	450	400	121.8	163.0
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 11/16/98			PEEL	SHEAR
TIME: 9:15				
AMBIENT TEMP: 80			102.9	147.4
WEATHER: CLEAR			105.3	151.3
MACHINE			89.9	138.2
NO.	TEMP.	PREHEAT	99.1	149.4
75-10	450	6	105.3	151.9
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 11/16/98			PEEL	SHEAR
TIME: 12:45				
AMBIENT TEMP: 85			116.7	136.2
WEATHER: CLEAR			117.2	143.5
MACHINE			120.3	134.4
NO.	TEMP.	PREHEAT	119.2	137.8
75-10	450	6	121.7	144.0
COMMENTS: 60 MIL T/T			RESULT: PASS	
CHNICIAN: T. LIMAURO				

DATE: 11/10/98			PEEL	SHEAR
TIME: 7:55				
AMBIENT TEMP: 80			106.6	147.8
WEATHER: CLEAR			104.2	159.1
MACHINE			118.3	142.5
NO.	TEMP.	PREHEAT	116.7	152.0
74-12	450	400	118.3	158.4
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 4**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 11/17/98			PEEL	SHEAR
TIME: 1:00				
AMBIENT TEMP: 85			111.1	135.2
WEATHER: CLEAR			116.2	136.0
MACHINE			122.7	140.8
NO.	TEMP.	PREHEAT	119.3	145.1
74-12	450	400	119.0	146.2
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 11/18/98			PEEL	SHEAR
TIME: 7:45				
AMBIENT TEMP: 72			121.9	150.6
WEATHER: CLEAR			129.4	157.7
MACHINE			129.1	158.2
NO.	TEMP.	PREHEAT	133.1	157.0
74-12	450	400	119.9	156.8
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 11/18/98			PEEL	SHEAR
TIME: 12:45				
AMBIENT TEMP: 87			125.8	146.3
WEATHER: PT. CLOUDY			123.6	144.6
MACHINE			125.7	156.0
[illegible]	TEMP.	PREHEAT	127.6	131.4
[illegible]	450	400	132.6	148.2
[illegible]MENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 11/19/98			PEEL	SHEAR
TIME: 6:40				
AMBIENT TEMP: 65			96.6	159.0
WEATHER: PT. CLOUDY			112.2	170.3
MACHINE			125.8	154.9
NO.	TEMP.	PREHEAT	125.4	165.4
75-12	450	400	124.1	164.2
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 11/19/98			PEEL	SHEAR
TIME: 12:30				
AMBIENT TEMP: 86			113.4	141.0
WEATHER: CLOUDY			112.1	134.9
MACHINE			109.9	137.2
NO.	TEMP.	PREHEAT	119.1	132.0
74-12	450	400	101.3	131.5
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 11/19/98			PEEL	SHEAR
TIME: 6:55				
AMBIENT TEMP: 75			99.4	151.0
WEATHER: CLOUDY			106.2	154.7
MACHINE			106.7	154.6
NO.	TEMP.	PREHEAT	112.4	158.5
74-12	450	400	114.4	158.7
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 11/19/98			PEEL	SHEAR
TIME: 7:10				
AMBIENT TEMP: 75			107.2	140.6
WEATHER: CLOUDY			74.6	
MACHINE			124.2	
NO.	TEMP.	PREHEAT	112.5	
74-15	450	400	PEEL	
CO[illegible]NTS: 60 MIL T/T			RESULT: FAIL	
[illegible]NICIAN: L. ESPINAL				

DATE: 11/19/98			PEEL	SHEAR
TIME: 7:30				
AMBIENT TEMP: 75			122.2	146.4
WEATHER: CLOUDY			128.6	147.8
MACHINE			132.9	152.7
NO.	TEMP.	PREHEAT	131.2	156.9
74-15	450	400	129.3	156.5
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL PAGE: 5

QA/QC TECHNICIAN: S. KERSTEN PROJECT NO: 98-528

DATE: 11/20/98			PEEL	SHEAR
TIME: 8:10				
AMBIENT TEMP: 75			131.6	160.4
WEATHER: PT. CLOUDY			126.2	162.2
MACHINE			123.8	161.1
NO.	TEMP.	PREHEAT	134.8	165.7
75-12	450	400	129.0	169.0
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/03/98			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 70			105.0	150.0
WEATHER: CLEAR			131.0	149.0
MACHINE			107.0	152.0
NO.	TEMP.	PREHEAT	122.0	150.0
75-12	450	400	127.0	145.0
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: J. MOUNTAIN				

DATE: 12/03/98			PEEL	SHEAR
TIME: 1:00				
AMBIENT TEMP: 85			113.4	141.7
WEATHER: CLEAR			115.7	146.1
MACHINE			123.1	138.5
NO.	TEMP.	PREHEAT	122.6	140.5
75-12	450	400	120.3	141.9
MMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: J. MOUNTAIN				

DATE: 12/03/98			PEEL	SHEAR
TIME: 1:30				
AMBIENT TEMP: 85			126.8	144.1
WEATHER: CLEAR			126.8	148.3
MACHINE			126.2	146.3
NO.	TEMP.	PREHEAT	126.4	151.7
74-14	485	400	130.3	141.4
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/04/98			PEEL	SHEAR
TIME: 11:00				
AMBIENT TEMP: 87			133.3	152.3
WEATHER: CLEAR			134.2	157.5
MACHINE			144.5	155.7
NO.	TEMP.	PREHEAT	134.0	152.8
75-12	450	400	134.9	157.1
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/07/98			PEEL	SHEAR
TIME: 7:40				
AMBIENT TEMP: 75			88.9	
WEATHER: CLEAR			116.5	
MACHINE			103.6	
NO.	TEMP.	PREHEAT	80.4	
75-12	450	400	123.2	
COMMENTS: 60 MIL T/T			RESULT: FAIL	
TECHNICIAN: J. MOUNTAIN				

DATE: 12/07/98			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 75			119.8	165.7
WEATHER: CLEAR			115.7	170.6
MACHINE			128.2	177.9
NO.	TEMP.	PREHEAT	125.1	175.1
75-12	450	400	125.9	170.8
COMMENTS: 60 MIL T/T			RESULT: PASS	
CHNICIAN: J. MOUNTAIN				

DATE: 12/7/98			PEEL	SHEAR
TIME: 1:30				
AMBIENT TEMP: 85			120.0	154.1
WEATHER: CLEAR			125.4	149.7
MACHINE			134.9	149.6
NO.	TEMP.	PREHEAT	133.2	150.6
74-12	460	400	123.8	156.0
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: J. MOUNTAIN				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL PAGE: 6

QA/QC TECHNICIAN: S. KERSTEN PROJECT NO: 98-528

DATE: 12/7/98			PEEL	SHEAR
TIME: 2:30			114.5	148.1
AMBIENT TEMP: 87			126.5	145.1
WEATHER: CLEAR			129.3	138.5
MACHINE			134.7	142.2
NO.	TEMP.	PREHEAT	129.3	146.7
74-15	485	400		
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/9/98			PEEL	SHEAR
TIME: 7:15			100.0	152.4
AMBIENT TEMP: 65			111.8	150.1
WEATHER: CLEAR			120.9	151.2
MACHINE			115.8	150.8
NO.	TEMP.	PREHEAT	99.8	151.4
74-12	450	400		
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: C. PONCE				

DATE: 12/10/98			PEEL	SHEAR
TIME: 9:30			107.3	135.3
AMBIENT TEMP: 88			116.2	155.5
WEATHER: CLEAR			85.2	150.1
MACHINE			106.4	145.8
NO.	TEMP.	PREHEAT	112.5	150.8
74-15	450	400		
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: J. MOUNTAIN				

DATE: 12/11/98			PEEL	SHEAR
TIME: 7:30			141.6	161.1
AMBIENT TEMP: 70			140.9	159.3
WEATHER: PT. CLOUDY			134.4	161.5
MACHINE			123.0	139.6
NO.	TEMP.	PREHEAT	141.5	161.0
74-15	450	400		
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: J. MOUNTAIN				

DATE: 12/11/98			PEEL	SHEAR
TIME: 8:00			140.0	161.7
AMBIENT TEMP: 70			137.7	154.2
WEATHER: PT. CLOUDY			138.1	145.0
MACHINE			140.1	164.7
NO.	TEMP.	PREHEAT	137.3	148.8
74-12	450	400		
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/14/98			PEEL	SHEAR
TIME: 7:30			126.3	151.6
AMBIENT TEMP: 65			107.5	158.3
WEATHER: CLOUDY			98.2	161.6
MACHINE			105.6	160.8
NO.	TEMP.	PREHEAT	104.4	157.2
74-15	450	400		
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/14/98			PEEL	SHEAR
TIME: 12:50			137.2	157.1
AMBIENT TEMP: 65			125.6	155.8
WEATHER: CLOUDY			134.1	155.4
MACHINE			131.7	158.1
NO.	TEMP.	PREHEAT	129.4	157.0
74-15	485	400		
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/15/98			PEEL	SHEAR
TIME: 7:35			109.0	169.6
AMBIENT TEMP: 55			118.9	169.0
WEATHER: CLOUDY			122.1	168.2
MACHINE			136.4	169.3
NO.	TEMP.	PREHEAT	135.1	167.3
74-15	485	420		
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 7**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 12/15/98			PEEL	SHEAR
TIME: 1:00				
AMBIENT TEMP: 50			147.4	169.3
WEATHER: CLOUDY			138.3	164.8
MACHINE			141.0	174.0
NO.	TEMP.	PREHEAT	143.1	164.4
74-15	485	420	141.0	167.2
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/16/98			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 48			129.9	184.2
WEATHER: CLEAR			123.4	178.3
MACHINE			126.4	185.4
NO.	TEMP.	PREHEAT	127.8	196.1
74-15	485	420	137.8	191.3
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/16/98			PEEL	SHEAR
TIME: 1:50				
AMBIENT TEMP: 60			130.6	148.0
WEATHER: CLEAR			109.3	151.3
MACHINE			129.0	153.9
NO.	TEMP.	PREHEAT	133.0	151.0
74-15	485	420	128.0	151.6
OMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/17/98			PEEL	SHEAR
TIME: 7:30				
AMBIENT TEMP: 55			126.1	176.8
WEATHER: CLEAR			91.1	174.1
MACHINE			118.2	182.4
NO.	TEMP.	PREHEAT	114.5	183.5
74-15	485	420	138.3	182.2
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/17/98			PEEL	SHEAR
TIME: 1:00				
AMBIENT TEMP: 65			122.9	150.6
WEATHER: CLEAR			119.9	141.2
MACHINE			122.2	138.1
NO.	TEMP.	PREHEAT	122.7	154.5
74-15	485	420	124.2	142.0
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/18/98			PEEL	SHEAR
TIME: 7:30				
AMBIENT TEMP: 55			132.1	175.1
WEATHER: CLEAR			130.8	172.9
MACHINE			135.1	175.8
NO.	TEMP.	PREHEAT	135.0	175.3
74-15	485	420	138.8	170.9
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/21/98			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 66			122.8	165.1
WEATHER: CLOUDY			125.7	164.3
MACHINE			121.3	164.0
NO.	TEMP.	PREHEAT	121.0	168.1
74-15	485	400	127.8	164.1
COMMENTS: 60 MIL T/T			RESULT: PASS	
CHNICIAN: L. ESPINAL				

DATE: 12/17/98			PEEL	SHEAR
TIME: 1:00				
AMBIENT TEMP: 65			122.9	150.6
WEATHER: CLEAR			119.9	141.2
MACHINE			122.2	138.1
NO.	TEMP.	PREHEAT	122.7	154.5
74-15	485	420	124.2	142.0
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 8**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 12/22/99			PEEL	SHEAR
TIME: 2:45			113.5	133.5
AMBIENT TEMP: 85			113.1	128.1
MACHINE			105.0	132.3
NO.	TEMP.	PREHEAT	113.7	135.2
75-12	485	400	107.4	130.0
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: G. SOWERS				

DATE: 12/23/98			PEEL	SHEAR
TIME: 5:30			125.2	151.7
AMBIENT TEMP: 70			123.7	158.3
MACHINE			121.8	160.1
NO.	TEMP.	PREHEAT	120.9	154.3
74-12	485	400	123.5	155.8
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: G. SOWERS				

DATE: 12/23/98			PEEL	SHEAR
TIME: 9:00			122.0	137.3
AMBIENT TEMP: 80			88.8	120.0
MACHINE			116.7	144.5
	TEMP.	PREHEAT	119.0	137.1
-15	450	400	135.0	143.1
MMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: J. MOUNTAIN				

DATE: 12/29/98			PEEL	SHEAR
TIME: 8:10			124.5	165.7
AMBIENT TEMP: 60			130.4	163.2
WEATHER: CLOUDY			126.6	166.1
MACHINE			128.2	165.2
NO.	TEMP.	PREHEAT	133.1	175.2
74-15	450	400	RESULT: PASS	
COMMENTS: 60 MIL T/T				
TECHNICIAN: L. ESPINAL				

DATE: 12/28/98			PEEL	SHEAR
TIME: 8:00			105.7	158.4
AMBIENT TEMP: 75			125.7	160.3
WEATHER: FOGGY			108.5	157.1
MACHINE			132.1	158.3
NO.	TEMP.	PREHEAT	114.0	159.7
74-12	450	400	RESULT: PASS	
COMMENTS: 60 MIL T/T				
TECHNICIAN: J. MOUNTAIN				

DATE: 12/29/98			PEEL	SHEAR
TIME: 8:20			117.9	
AMBIENT TEMP: 62			124.5	
WEATHER: CLOUDY			103.8	
MACHINE			58.0	
NO.	TEMP.	PREHEAT		
74-12	450	400	RESULT: FAIL	
COMMENTS: 60 MIL T/T				
TECHNICIAN: J. MOUNTAIN				

DATE: 12/29/98			PEEL	SHEAR
TIME: 9:10			137.7	167.6
AMBIENT TEMP: 62			135.2	167.2
WEATHER: CLOUDY			136.2	168.5
MACHINE			135.7	169.4
NO.	TEMP.	PREHEAT	145.8	166.5
74-12	450	425	RESULT: PASS	
CO ENTS: 60 MIL T/T				
HNICIAN: T. LIMAURO				

DATE: 12/29/98			PEEL	SHEAR
TIME: 1:00			130.8	165.7
AMBIENT TEMP: 70			125.1	160.8
WEATHER: CLOUDY			125.8	160.4
MACHINE			121.0	161.7
NO.	TEMP.	PREHEAT	140.2	169.7
74-15	450	400	RESULT: PASS	
COMMENTS: 60 MIL T/T				
TECHNICIAN: L. ESPINAL				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 9**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 12/29/98			PEEL	SHEAR
TIME: 1:45				
AMBIENT TEMP: 75			113.6	153.2
WEATHER: CLOUDY			109.9	161.0
MACHINE			119.1	165.6
NO.	TEMP.	PREHEAT	135.7	158.3
75-12	450	425	125.0	157.8
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 12/30/98			PEEL	SHEAR
TIME: 7:30				
AMBIENT TEMP: 50			120.3	180.5
WEATHER: CLOUDY			118.9	178.7
MACHINE			118.7	182.0
NO.	TEMP.	PREHEAT	135.3	180.9
74-15	485	420	125.8	179.3
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 12/30/98			PEEL	SHEAR
TIME: 1:00				
AMBIENT TEMP: 65			140.1	157.9
WEATHER: CLEAR			127.1	151.6
MACHINE			121.9	162.8
NO.	TEMP.	PREHEAT	133.5	171.0
74-15	485	400	134.1	157.8
OMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 12/31/98			PEEL	SHEAR
TIME: 10:30				
AMBIENT TEMP: 75			141.4	169.3
WEATHER: CLEAR			143.1	165.1
MACHINE			137.3	169.1
NO.	TEMP.	PREHEAT	137.0	168.2
74-15	450	415	137.8	167.3
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 1/4/99			PEEL	SHEAR
TIME: 8:10				
AMBIENT TEMP: 39			150.1	190.0
WEATHER: CLEAR			145.3	188.3
MACHINE			145.7	190.0
NO.	TEMP.	PREHEAT	150.1	187.7
74-12	480	425	139.2	184.1
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 1/4/99			PEEL	SHEAR
TIME: 9:00				
AMBIENT TEMP: 39			135.4	192.1
WEATHER: CLEAR			124.2	192.7
MACHINE			140.5	191.6
NO.	TEMP.	PREHEAT	136.7	189.6
74-15	400	450	121.4	192.5
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: J. MOUNTAIN				

DATE: 1/4/99			PEEL	SHEAR
TIME: 12:42				
AMBIENT TEMP: 46			142.1	160.4
WEATHER: CLEAR			146.1	152.8
MACHINE			147.8	160.2
NO.	TEMP.	PREHEAT	147.7	169.1
74-15	400	450	146.1	163.3
COMMENTS: 60 MIL T/T			RESULT: PASS	
CHNICIAN: J. MOUNTAIN				

DATE: 1/4/99			PEEL	SHEAR
TIME: 1:05				
AMBIENT TEMP: 46			115.5	167.9
WEATHER: CLEAR			125.9	169.1
MACHINE			125.4	168.7
NO.	TEMP.	PREHEAT	116.0	168.2
74-12	450	425	126.4	171.2
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 10**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 1/5/99			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 40			151.2	165.0
WEATHER: CLOUDY			147.3	167.5
MACHINE			146.2	170.2
NO.	TEMP.	PREHEAT	149.5	168.8
74-12	465	430	148.1	165.0
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: G. SOWERS				

DATE: 1/5/99			PEEL	SHEAR
TIME: 8:45				
AMBIENT TEMP: 40			142.6	176.3
WEATHER: CLOUDY			137.9	188.1
MACHINE			135.6	181.3
NO.	TEMP.	PREHEAT	140.4	179.8
74-12	465	430	131.5	182.3
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 1/5/99			PEEL	SHEAR
TIME: 12:50				
AMBIENT TEMP: 60			149.7	174.7
WEATHER: CLEAR			162.2	171.6
MACHINE			157.6	175.5
[illegible]	TEMP.	PREHEAT	157.5	173.2
[illegible]2	465	430	143.2	171.0
[illegible]MENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 1/6/99			PEEL	SHEAR
TIME: 7:50				
AMBIENT TEMP: 32			144.2	202.1
WEATHER: CLEAR			154.5	204.4
MACHINE			161.1	204.2
NO.	TEMP.	PREHEAT	162.6	193.6
74-12	465	440	153.3	196.8
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 1/6/99			PEEL	SHEAR
TIME: 1:00				
AMBIENT TEMP: 50			124.7	150.8
WEATHER: CLEAR			120.9	163.1
MACHINE			122.4	168.2
NO.	TEMP.	PREHEAT	117.7	165.1
74-12	465	415	128.8	160.1
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 1/7/99			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 45			114.2	175.8
WEATHER: CLEAR			125.5	169.7
MACHINE			112.2	182.7
NO.	TEMP.	PREHEAT	139.1	182.9
74-12	465	420	131.2	189.4
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 1/7/99			PEEL	SHEAR
TIME: 12:00				
AMBIENT TEMP: 65			132.5	164.9
WEATHER: CLEAR			123.1	157.6
MACHINE			105.1	154.9
NO.	TEMP.	PREHEAT	130.7	157.0
74-12	450	400	128.5	148.1
CO[illegible]NTS: 60 MIL T/T			RESULT: PASS	
[illegible]NICIAN: T. LIMAURO				

DATE: 1/8/99			PEEL	SHEAR
TIME: 7:50				
AMBIENT TEMP: 55			111.6	165.7
WEATHER: CLEAR			138.2	169.1
MACHINE			128.6	178.2
NO.	TEMP.	PREHEAT	125.0	171.3
74-12	450	400	125.1	168.8
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

. ROJECT NAME: VOLUSIA COUNTY PHASE III CELL PAGE: 11

QA/QC TECHNICIAN: S. KERSTEN PROJECT NO: 98-528

DATE: 1/8/99			PEEL	SHEAR
TIME: 12:30				
AMBIENT TEMP: 65			136.1	142.6
WEATHER: CLOUDY			142.7	152.5
MACHINE			133.2	148.5
NO.	TEMP.	PREHEAT	134.5	149.1
74-12	445	390	133.7	143.2
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 1/8/99			PEEL	SHEAR
TIME: 12:35				
AMBIENT TEMP: 65			107.3	143.6
WEATHER: CLOUDY			135.2	147.4
MACHINE			137.5	157.9
NO.	TEMP.	PREHEAT	130.1	156.3
74-15	450	400	133.5	151.8
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 1/9/99			PEEL	SHEAR
TIME: 7:30				
AMBIENT TEMP: 68			125.6	166.0
WEATHER: CLEAR			119.2	165.1
MACHINE			114.8	163.4
NO.	TEMP.	PREHEAT	133.9	165.8
75-12	445	390	126.6	170.3
OMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 1/11/99			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 50			119.4	180.3
WEATHER: CLEAR			152.1	173.3
MACHINE			134.5	177.7
NO.	TEMP.	PREHEAT	144.6	172.0
74-12	465	425	156.6	177.9
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: G. SOWERS				

DATE: 1/11/99			PEEL	SHEAR
TIME: 12:45				
AMBIENT TEMP: 60			137.7	150.1
WEATHER: CLEAR			126.0	146.1
MACHINE			132.4	151.7
NO.	TEMP.	PREHEAT	131.6	151.8
74-12	450	420	125.8	150.6
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: C. ADAMS				

DATE: 1/12/99			PEEL	SHEAR
TIME: 7:45				
AMBIENT TEMP: 51			138.1	179.3
WEATHER: CLEAR			135.7	183.0
MACHINE			138.0	183.2
NO.	TEMP.	PREHEAT	144.3	180.0
74-12	450	420	152.8	175.9
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 1/13/99			PEEL	SHEAR
TIME: 2:10				
AMBIENT TEMP: 78			119.2	141.9
WEATHER: CLOUDY			112.3	141.7
MACHINE			118.5	147.9
NO.	TEMP.	PREHEAT	121.6	143.5
74-15	450	400	116.3	147.7
COMMENTS: 60 MIL T/T			RESULT: PASS	
CHNICIAN: T. LIMAURO				

DATE: 1/14/99			PEEL	SHEAR
TIME: 7:54				
AMBIENT TEMP: 51			141.7	163.0
WEATHER: CLEAR			138.1	170.3
MACHINE			131.8	165.7
NO.	TEMP.	PREHEAT	135.7	170.8
75-14	450	400	127.8	171.4
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL PAGE: 12

QA/QC TECHNICIAN: S. KERSTEN PROJECT NO: 98-528

DATE: 1/14/99			PEEL	SHEAR
TIME: 12:00				
AMBIENT TEMP: 75			127.9	157.5
WEATHER: CLEAR			126.5	158.1
MACHINE			134.6	160.1
NO.	TEMP.	PREHEAT	129.2	157.1
74-14	450	395	132.8	152.4
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 1/15/99			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 65			143.3	146.7
WEATHER: CLOUDY			137.5	144.3
MACHINE			148.0	145.7
NO.	TEMP.	PREHEAT	132.7	146.8
74-12	460	410	143.1	149.5
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: G. SOWERS				

DATE: 1/18/99			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 75			132.3	164.1
WEATHER: CLEAR			136.4	165.2
MACHINE			141.0	166.0
[illegible]	TEMP.	PREHEAT	144.2	163.9
[illegible]	450	400	142.1	164.2
[illegible]MENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: G. SOWERS				

DATE: 1/18/99			PEEL	SHEAR
TIME: 8:20				
AMBIENT TEMP: 75			151.1	166.5
WEATHER: CLEAR			149.0	165.9
MACHINE			147.6	163.8
NO.	TEMP.	PREHEAT	146.8	163.0
74-15	450	400	147.6	174.3
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: J. MOUNTAIN				

DATE: 1/19/99			PEEL	SHEAR
TIME: 1:30				
AMBIENT TEMP: 80			115.1	131.6
WEATHER: CLEAR			104.5	129.4
MACHINE			107.6	135.2
NO.	TEMP.	PREHEAT	111.0	130.9
74-12	450	430	115.0	143.5
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 1/20/99			PEEL	SHEAR
TIME: 8:00				
AMBIENT TEMP: 60			124.4	172.0
WEATHER: CLEAR			128.6	176.6
MACHINE			115.5	176.8
NO.	TEMP.	PREHEAT	114.3	175.3
74-12	450	350	135.2	173.4
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 1/20/99			PEEL	SHEAR
TIME: 1:10				
AMBIENT TEMP: 80			117.8	154.2
WEATHER: CLEAR			111.4	147.1
MACHINE			119.0	150.8
NO.	TEMP.	PREHEAT	114.7	134.4
74-12	450	350	121.4	144.1
CO[illegible]NTS: 60 MIL T/T			RESULT: PASS	
[illegible]NICIAN: T. LIMAURO				

DATE: 1/21/99			PEEL	SHEAR
TIME: 8:10				
AMBIENT TEMP: 65			122.1	177.8
WEATHER: FOGGY			138.9	169.5
MACHINE			137.3	164.7
NO.	TEMP.	PREHEAT	126.1	163.8
74-12	450	400	125.6	173.3
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 13**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 1/21/99			PEEL	SHEAR
TIME: 8:10				
AMBIENT TEMP: 65			135.5	174.2
WEATHER: FOGGY			129.8	179.5
MACHINE			108.8	168.8
NO.	TEMP.	PREHEAT	104.5	157.0
74-15	450	400	128.0	158.6
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: T. LIMAURO				

DATE: 1/21/99			PEEL	SHEAR
TIME: 8:45				
AMBIENT TEMP: 65			139.4	178.3
WEATHER: FOGGY			142.3	175.1
MACHINE			142.2	175.2
NO.	TEMP.	PREHEAT	141.6	177.5
74-15	450	400	136.0	180.0
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: C. ADAMS				

DATE: 1/21/99			PEEL	SHEAR
TIME: 12:30				
AMBIENT TEMP: 75			123.4	148.9
WEATHER: CLEAR			127.1	148.8
MACHINE			117.6	148.8
NO.	TEMP.	PREHEAT	114.9	152.9
74-12	450	400	130.8	147.3
MMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 1/22/99			PEEL	SHEAR
TIME: 8:05				
AMBIENT TEMP: 75			127.2	
WEATHER: CLEAR			125.3	
MACHINE			127.7	
NO.	TEMP.	PREHEAT	80.3	
74-12	450	400	125.1	
COMMENTS: 60 MIL T/T			RESULT: FAIL	
TECHNICIAN: L. ESPINAL				

DATE: 1/22/99			PEEL	SHEAR
TIME: 8:35				
AMBIENT TEMP: 75			137.9	154.3
WEATHER: CLEAR			134.9	163./3
MACHINE			135.3	167.7
NO.	TEMP.	PREHEAT	132.5	153.6
74-12	450	400	138.6	172.2
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

DATE: 1/26/99			PEEL	SHEAR
TIME: 2:30				
AMBIENT TEMP: 80			132.3	155.1
WEATHER: CLEAR			136.9	160.3
MACHINE			138.2	161.2
NO.	TEMP.	PREHEAT	138.3	158.5
74-12	470	410	134.5	155.2
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: C. ADAMS				

DATE: 1/27/99			PEEL	SHEAR
TIME: 9:30				
AMBIENT TEMP: 60			116.9	158.7
WEATHER: PT. CLOUDY			119.0	155.0
MACHINE			122.0	162.5
NO.	TEMP.	PREHEAT	117.6	155.8
74-12	450	400	117.0	158.0
COMMENTS: 60 MIL T/T			RESULT: PASS	
CHNICIAN: L. ESPINAL				

DATE: 1/27/99			PEEL	SHEAR
TIME: 12:30				
AMBIENT TEMP: 75			126.9	148.8
WEATHER: PT. CLOUDY			120.2	152.8
MACHINE			126.9	142.7
NO.	TEMP.	PREHEAT	130.7	149.1
74-12	450	400	125.1	146.2
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: L. ESPINAL				

EXTRUDER START-UP TEST

COMANCO ENVIRONMENTAL CORPORATION

PROJECT NAME: VOLUSIA COUNTY PHASE III CELL **PAGE: 14**

QA/QC TECHNICIAN: S. KERSTEN **PROJECT NO: 98-528**

DATE: 1/28/98			PEEL	SHEAR
TIME: 1:00				
AMBIENT TEMP: 82			126.6	145.2
WEATHER: CLEAR			127.1	151.2
MACHINE			123.2	144.6
NO.	TEMP.	PREHEAT	116.9	145.2
74-12	460	410	122.2	149.8
COMMENTS: 60 MIL T/T			RESULT: PASS	
TECHNICIAN: C. ADAMS				

DATE:			PEEL	SHEAR
TIME:				
AMBIENT TEMP:				
WEATHER:				
MACHINE				
NO.	TEMP.	PREHEAT		
COMMENTS:			RESULT:	
TECHNICIAN:				

DATE:			PEEL	SHEAR
TIME:				
AMBIENT TEMP:				
WEATHER:				
MACHINE				
NO.	TEMP.	PREHEAT		
COMMENTS:			RESULT:	
TECHNICIAN:				

DATE:			PEEL	SHEAR
TIME:				
AMBIENT TEMP:				
WEATHER:				
MACHINE				
NO.	TEMP.	PREHEAT		
COMMENTS:			RESULT:	
TECHNICIAN:				

DATE:			PEEL	SHEAR
TIME:				
AMBIENT TEMP:				
WEATHER:				
MACHINE				
NO.	TEMP.	PREHEAT		
COMMENTS:			RESULT:	
TECHNICIAN:				

DATE:			PEEL	SHEAR
TIME:				
AMBIENT TEMP:				
WEATHER:				
MACHINE				
NO.	TEMP.	PREHEAT		
COMMENTS:			RESULT:	
TECHNICIAN:				

DATE:			PEEL	SHEAR
TIME:				
AMBIENT TEMP:				
WEATHER:				
MACHINE				
NO.	TEMP.	PREHEAT		
COMMENTS:			RESULT:	
TECHNICIAN:				

DATE:			PEEL	SHEAR
TIME:				
AMBIENT TEMP:				
WEATHER:				
MACHINE				
NO.	TEMP.	PREHEAT		
COMMENTS:			RESULT:	
TECHNICIAN:				

ATTACHMENT 7-5

GEOMEMBRANE SEAMING LOG
(PRIMARY AND SECONDARY)

SECONDARY

SCS EN S

GEOMEMBRANE SEAMING LOG

SHEET 1 - 5 of
PROJECT TITLE: Tomoka Farms Road Landfill Phase II - Secondary Liner
PROJECT NO: 09950029.23
DATE: 11/2/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S-1/Tie-in	78'	LE	75-09	F	55	11:21	80°	765	
S-1/S-2	79'	↓	↓	↓	↓	11:05	↓	↓	DS-4 @ 40' West of the east end of the seam
S-2/S-3	75'	↓	↓	↓	↓	11:40	↓	↓	
S-3/S-4	77'	↓	↓	↓	↓	11:53	↓	↓	
S-4/S-5	76'	GS	75-14	F	55	11:50	↓	765°	
S-5/S-6	76'	↓	↓	↓	↓	12:01	81°	↓	DS-1 @ 70' West of the east end of the seam
S-6/S-7	76'	LE	75-09	F	55	13:30	83°	765°	
S-7/S-8	77'	↓	↓	↓	↓	13:40	↓	↓	
S-8/S-9	77'	GS	75-14	F	55	13:21	↓	765°	
S-9/S-10	77'	↓	↓	↓	↓	13:35	↓	↓	
S-10/S-11	76'	↓	↓	↓	↓	13:48	↓	↓	
S-11/S-12	76'	↓	↓	↓	↓	14:00	↓	↓	DS-2 @ 48' West of the east end of the seam
S-12/S-13	76'	LE	75-09	F	55	14:00	↓	765°	
S-13/S-14	76'	↓	↓	↓	↓	14:10	↓	↓	
S-14/S-15	76'	GS	75-14	F	55	14:15	↓	765°	
S-15/S-16	76'	LE	75-09	F	55	14:23	↓	765°	
S-16/S-17	76'	GS	75-14	F	55	14:27	↓	765°	
S-17/S-18	76'	LE	75-09	F	55	14:35	84°	765°	
S-18/S-19	77'	GS	75-14	F	55	14:49	↓	765°	DS-3 @ 14' West of the east end of the seam.
S-19/S-20	77'	LE	75-09	F	55	14:51	↓	765°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 2 - 5 of

PROJECT TITLE: Tomoka Farms Rd. Landfill Phase IV - Secondary Liner

PROJECT NO: 01995029.23

DATE: 11/2/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S-20/S-21	77'	GS	75-14	F	55	15:00	84°	765°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 3 - S of
PROJECT TITLE: Tomoka Farms Road Landfill - Secondary Liner
PROJECT NO: 0995029.23
DATE: 11/3/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S-22/Tie-in	23'	LE	75-09	F	45	15:00	75°	765°	
S-1/S-22						9:50	73°		
S-2/S-22						9:51			
S-3/S-22						9:53			
S-4/S-22						9:55			
S-5/S-22	24'					9:58			
S-6/S-22	23'					10:01			
S-7/S-22						10:04			
S-8/S-22	24'					10:07			
S-9/S-22	23'					10:10			
S-10/S-22	24'					10:13			
S-11/S-22	23'					10:16			DS-5@ 12' North of the south end of the seam
S-12/S-22	24'					10:18			
S-13/S-22	23'					10:21			
S-14/S-22						10:24			
S-15/S-22						10:27			
S-16/S-22						10:30			
S-17/S-22	24'					10:33			
S-18/S-22	23'					10:36			
S-19/S-22						10:39			

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 4 - 5 of
PROJECT TITLE: Tomoka Farms Road Landfill - Secondary Liner
PROJECT NO: 09P5029.23
DATE: 11/3/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S-20/S-22	23'	LE	75-09	F	45	10:42	73°	765°	
S-21/S-22	11'	↓	↓	↓	↓	10:45	↓	↓	
S-23/Tie-in	23'	↓	↓	↓	↓	15:04	75°	↓	
S-22/S-23	463'	GS	75-14	F	50	10:25	73°	760°	DS-6@ 440' North of the south end of the seam
S-23/S-24	23'	LE	75-09	F	45	11:20	73°	765°	
S-22/S-24	10'	↓	↓	↓	↓	11:25	↓	↓	
S-23/S-25	464'	↓	↓	↓	55	12:37	75°	↓	DS-7@ 250' North of the south end of the seam
S-24/S-25	11'	↓	↓	↓	↓	12:35	↓	↓	
S-25/Tie-in	23'	↓	↓	↓	45	15:10	↓	↓	
S-25/S-26	472'	GS	75-14	F	55	12:58	75°	760°	DS-8@ 100' North of the south end of the seam
S-26/Tie-in	23'	LE	75-09	F	45	15:15	75°	760°	DS-10@ 7' East of the west end of the seam
S-26/S-27	472'	GS	75-14	F	55	13:55	75°	760°	DS-9@ 450' North of the south end of the seam
S-27/Tie-in	23'	LE	75-09	F	55	17:20	71°	760°	
S-27/S-28	464'	GS	75-14	F	55	15:33	75°	760°	DS-11@ 150' North of the south end of the seam
S-28/Tie-in	23'	LE	75-09	F	55	17:24	71°	760°	
S-28/S-29	23'	GS	75-14	F	55	15:21	75°	760°	
S-27/S-29	11'	↓	↓	↓	↓	15:30	↓	↓	
S-28/S-30	465'	LE	75-09	F	65	16:00	74°	765°	DS-12@ 350' North of the south end of the seam
S-30/Tie-in	23'	↓	↓	↓	55	17:28	71°	760°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 5 - 5 of
PROJECT TITLE: Tomoka Farms Road Landfill - Secondary Liner
PROJECT NO: 09950029.23
DATE: 11/4/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S-30/S-31	467'	EG	75-09	F	50	10:05	74°	765°	DS-13 @ 400' North of the south end of the seam.
S-31/S-32	468'	GS	75-05	↓	↓	11:00	↓	760°	DS-14 @ 287' North of the south end of the seam.
S-32/S-33	470'	EG	75-09	↓	↓	13:15	73°	765°	DS-15 @ 150' North of the south end of the seam.

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 6 - 5 of
PROJECT TITLE: Tomoka Farms Road Land Fill - Secondary Liner
PROJECT NO: 09950029.23
DATE: 11/6/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S-33/Tie-in	23'	LE	75-05	F	40	8:45	63°	765°	DS-16 @ 12' West of the east end of the seam
S-32/Tie-in	23'	LE	75-05	F	40	9:40	64°	765°	
S-31/Tie-in	23'	LE	75-05	F	40	9:45	64°	765°	DS-16A @ 8' E. of W. end of seam
SR1/Tie-in	10'	LE	75-09	F	40	11:55	69°	765°	
SR2/Tie-in	25'	LE	75-09	F	40	11:57	69°	765°	
SR3/Tie-in	25'	LE	75-09	F	40	12:00	69°	765°	
SR11/Tie-in	18'	LE	75-09	F	40	12:03	69°	765°	
S-1/SR11	18'	LE	75-09	F	40	12:30	69°	765°	
S-1/SR3	25'	LE	75-09	F	40	12:33	69°	765°	
S-1/SR2	25'	LE	75-09	F	40	12:36	69°	765°	
S-1/SR1	10'	LE	75-09	F	40	12:39	69°	765°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 7 - S of
PROJECT TITLE: Tomoka Farms Road Landfill - Secondary Liner
PROJECT NO: 0995029.23
DATE: 11/9/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S-33/S-34	~~466~~ 11'	GS	7504	F	60	11:50	75°	765°	DS-17@ 325'N. of S. end of seam
S34/S35	466'	GS	7504	F	60	13:40	79°	765°	DS-18@ 300'N. of S. end of seam
S35/S36	464'	EG	75-14	F	50	14:30	80°	760°	DS-19@ 450'N. of S. end of seam
S36/S37	467'	GS	75-04	F	55	15:30	80°	765°	DS-20@ 250'N. of S. end of seam
S-37/S-38	467'	EG	75-14	F	50	16:50	76°	765°	DS-21@ 50'N. of S. end of seam
S-38/S-39	468'	GS	75-04	F	50	17:10	74°	755°	DS-22@ 410'N. of S. end of seam

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GEOMEMBRANE SEAMING LOG

SHEET 8 - 5 of
PROJECT TITLE: Temoka Farms Road Landfill - Secondary Liner
PROJECT NO: ~~09750829.23~~
DATE: 11/10/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S39/S-40	468'	GS	75-04	F	55	7:50	71°	760°	
S-40/S-41	469'	GS	75-04	F	55	9:25	75°	760°	DS-24@ 350'N. of S. end of seam
S-37/Tie-in	23'	LE	75-07	F	45	9:30	75°	765°	
S-36/Tie-in	23'	LE	75-07	F	45	9:34	75°	765°	DS-23B@ 7'W. of E. end of seam
S-35/Tie-in	23'	LE	75-07	F	45	9:38	75°	765°	DS-23@ 12'W. of E. end of seam
S-34/Tie-in	23'	LE	75-07	F	45	9:42	75°	765°	DS-23A@ 5'E. of W. end of seam
S-39/Tie-in	23'	LE	75-07	F	45	10:00	76°	765°	
S-38/Tie-in	23'	LE	75-07	F	45	10:04	76°	765°	
S-41/S-42	469'	EG	75-06	F	50	10:05	76°	765°	DS-25@ 305'N. of S. end of seam
S-42/S-43	469'	GS	75-04	F	55	11:15	78°	765°	DS-26@ 20'N. of S. end of seam
S-43/S-44	467'	LE	75-07	F	60	13:10	80°	765°	DS-27@ 400'N. of S. end of seam
S-44/S-45	464'	GS	75-04	F	55	14:10	78°	760°	DS-28@ 100'N. of S. end of seam
S-45/S-46	466'	GS	75-04	F	55	15:40	75°	760°	DS-29@ 265'N. of S. end of seam
S-45/Tie-in	23'	LE	75-07	F	55	16:50	73°	765°	
S-44/Tie-in	23'	LE	75-07	F	55	16:54	73°	765°	
S-43/Tie-in	23'	LE	75-07	F	55	16:58	73°	765°	
S-42/Tie-in	23'	LE	75-07	F	55	17:02	73°	765°	
S-41/Tie-in	23'	LE	75-07	F	55	17:06	73°	765°	
S-40/Tie-in	23'	LE	75-07	F	55	17:10	73°	765°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 9 - S of
PROJECT TITLE: Tomoka Farms Rd. Landfill - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/11/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S33/S34	295'	LE	7412	E	—	17:00	71°	450°	Reconstructed seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE SEAMING LOG

SHEET 10 - S of
PROJECT TITLE: Tomoka Farms Rd. Landfill - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/12/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S46/S47	463'	LE	75-07	F	60	14:15	81°	765°	DS-30@ 13'N. of S. end of seam
S47/S48	463'	EG	75-14	F	50	15:00	80°	760°	DS-31@ 305'N. of S. end of seam
S48/S49	465'	LE	75-07	F	60	15:30	79°	765°	DS-32@ 95'N. of S. end of seam

PRINT NAME: Steven Rasbach

SIGNATURE: Steven Rasbach

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GEOMEMBRANE SEAMING LOG

SHEET 11 - S of
PROJECT TITLE: Tomoka Farms Rd. Landfill - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/13/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S49/S50	38'	TS	75-07	F	60	7:30	74°	765°	
S49/S50	~~472'~~ 434'	EG	75-14	F	50	7:45	75°	760°	DS-34@ 200'N. of S. end of seam
S50/S51	471'	EG	75-14	F	50	8:45	76°	760°	DS-33@ 400'N. of S. end of seam
S51/S52	465'	EG	75-14	F	50	9:50	78°	760°	DS-35@ 20'N.O.S.E.O.S.
S52/S53	467'	TS	75-07	F	60	11:05	81°	765°	DS-36@ 371'NOSEOS
S53/S54	465'	EG	75-14	F	50	13:30	78°	760°	DS-37@ 435'NOSEOS
S54/S55	466'	TS	75-07	F	60	14:10	76°	765°	DS-38@ 292'NOSEOS
S55/S56	467'	EG	75-14	F	50	15:00	75°	760°	DS-39@ 442'NOSEOS
S56/S57	469'	TS	75-07	F	60	15:20	74°	765°	DS-40@ 334'NOSEOS
S57/S58	467'	EG	75-14	F	50	16:05	72°	760°	DS-41@ 299'NOSEOS

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 12 - 5 of
PROJECT TITLE: Tomoka Farms Rd. Landfill - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/14/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S47/Tie-in	23'	EG	75-14	F	45	13:07	80°	760°	
S48/Tie-in	23'	EG	75-14	F	45	13:04	80°	760°	
S49/Tie-in	23'	EG	75-14	F	45	13:01	80°	760°	
S50/Tie-in	23'	EG	75-14	F	45	12:58	80°	760°	
S51/Tie-in	23'	EG	75-14	F	45	12:55	80°	760°	
S53/Tie-in	23'	EG	75-14	F	45	12:45	80°	760°	
S54/Tie-in	23'	EG	75-14	F	45	12:39	80°	760°	
S55/Tie-in	23'	EG	75-14	F	45	12:36	80°	760°	DS-42 @ 5.W. of E. end of seam
S56/Tie-in	23'	EG	75-14	F	45	12:33	80°	760°	
S57/Tie-in	23'	EG	75-14	F	45	12:30	80°	760°	

PRINT NAME: Steven Rosbach

SIGNATURE:

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GEOMEMBRANE SEAMING LOG

SHEET 13 - 5 of
PROJECT TITLE: Tomoka Farms Rd. Landfill - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/16/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S58/S59	466'	LE	75-14	F	55	15:25	78°	765°	DS-43@ 48' N. of S. end of seam
S59/S60	470'	AS	75-04	F	55	16:10	75°	760°	DS-44@ 410' N. of S. end of seam
S52/Tiein	23'	TL	74-10	E	—	16:30	75°	450°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 14 - S of
PROJECT TITLE: Tomoka Farms Rd. Landfill-Secondary Liner
PROJECT NO: 09950239.27
DATE: 11/17/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S60/S61	473'	GS	75-04	F	50	8:40	80°	760°	DS-45 @ 361' N. of S. end of seam
S61/S62	473'	LE	75-14	F	55	11:00	83°	760°	DS-46 @ 125' NOSEOS
S62/S63	469'	GS	75-04	F	50	11:45	84°	760°	
S63/S64	469'	LE	75-14	F	55	13:05	85°	765°	DS-47 @ 200' NOSEOS
S64/S65	465'	GS	75-04	F	50	14:05	82°	760°	DS-48 @ 356' NOSEOS
S65/S66	466'	LE	75-14	F	55	16:00	78°	765°	DS-49 @ 453' NOSEOS

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SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 15 - S of
PROJECT TITLE: Tomoka Farms Rd. Landfill - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/18/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S66/S67	468'	LE	75-14	F	55	13:30	79°	765°	
S67/S68	469'	LE	75-14	F	55	14:40	80°	765°	DS-50@13'N. of S. end of seam
S68/S69	469'	LE	75-14	F	55	15:20	80°	765°	DS-51@400'NOSEQS
S69/S70	23'	LE	75-14	F	55	17:40	74°	765°	
S70/S71	61'	LE	75-14	F	55	16:20	77°	765°	
S69/S71	24'	LE	75-14	F	55	17:37	74°	765°	
S71/S72	59'	LE	75-14	F	55	16:40	76°	765°	
S69/S72	23'	LE	75-14	F	55	17:34	74°	765°	
S72/S73	59'	LE	75-14	F	55	16:45	76°	765°	
S69/S73	23'	LE	75-14	F	55	17:31	74°	765°	
S73/S74	59'	LE	75-14	F	55	16:59	75°	765°	
S69/S74	24'	LE	75-14	F	55	17:28	74°	765°	DS-52@12'NOSEQS
S74/S75	58'	LE	75-14	F	55	17:04	75°	765°	
S69/S75	23'	LE	75-14	F	55	17:25	74°	765°	
S46/Tie-in	23'	TL	74-10	E	—	8:45	71°	450°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 16 - S of
PROJECT TITLE: Tomoka Farms Rd. Landfill - Secondary Liner
PROJECT NO: 09950039.27
DATE: 11/19/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S75/S76	58'	GS	75-15	F	60	8:30	80°	760°	
S76/S77	57'	GS	75-15	F	60	8:40	80°	760°	
S77/S78	57'	GS	75-15	F	60	8:55	80°	760°	
S78/S79	57'	GS	75-15	F	60	9:09	81°	760°	
S79/S80	56'	GS	75-15	F	60	9:19	81°	760°	
S80/S81	56'	GS	75-15	F	60	9:34	81°	760°	
S81/S82	55'	GS	75-15	F	60	9:45	82°	760°	
S82/S83	56'	GS	75-15	F	60	9:56	82°	760°	
S83/S84	56'	GS	75-15	F	60	10:07	82°	760°	
S84/S85	56'	GS	75-15	F	60	10:17	83°	760°	
S85/S86	56'	GS	75-15	F	60	10:30	83°	760°	
S86/S87	57'	GS	75-15	F	60	10:45	84°	760°	
S70/Tie-in	61'	LE	75-14	F	45	10:47	84°	765°	
S87/S88	57'	GS	75-15	F	60	10:50	84°	760°	
S88/S89	57'	GS	75-15	F	60	11:00	84°	760°	DS-53 @ 50'EOWEOS
S69/S89	23'	GS	75-15	F	55	14:00	86°	760°	
S64/Tie-in	23'	LE	75-14	F	40	14:00	86°	765°	
S63/Tie-in	23'	LE	75-14	F	40	14:03	86°	765°	
S62/Tie-in	23'	LE	75-14	F	40	14:06	86°	765°	DS-54 @ 10'WOEEOS
S61/Tie-in	23'	LE	75-14	F	40	14:09	86°	765°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 17 - 5 of
PROJECT TITLE: Tomoka Farms Rd. Landfill-Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/19/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S69/S88	23'	GS	75-15	F	55	14:03	86°	760°	
S69/S87	24'	GS	75-15	F	55	14:06	86°	760°	
S69/S86	23'	GS	75-15	F	55	14:09	86°	760°	
S69/S85	23'	GS	75-15	F	55	14:12	86°	760°	
S69/S84	24'	GS	75-15	F	55	14:15	86°	760°	
S60/Tie-in	13'	LE	75-14	F	40	14:15	86°	765°	
S59/Tie-in	23'	LE	75-14	F	40	14:17	86°	765°	
S69/S83	23'	GS	75-15	F	60	14:18	86°	760°	
S69/S82	23'	GS	75-15	F	60	14:21	86°	760°	
S69/S81	23'	GS	75-15	F	55	14:24	86°	760°	
S69/S80	23'	GS	75-15	F	55	14:27	86°	760°	
S69/S79	24'	GS	75-15	F	55	14:30	86°	760°	
S69/Tie-in	23'	LE	75-14	F	45	14:30	86°	765°	
S69/S78	23'	GS	75-15	F	60	14:33	86°	760°	
S68/Tie-in	23'	LE	75-14	F	45	14:35	86°	765°	
S69/S77	24'	GS	75-15	F	60	14:36	86°	760°	
S67/Tie-in	23'	LE	75-14	F	45	14:38	86°	765°	
S69/S76	23'	GS	75-15	F	55	14:39	86°	760°	
S66/Tie-in	23'	LE	75-14	F	45	14:41	86°	765°	
S60/Tie-in	10'	TL	74-12	E	—	17:05	84°	450°	

PRINT NAME: Steven Rosback

SIGNATURE: Steven Rosback

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GEOMEMBRANE SEAMING LOG

SHEET 18 - S of
PROJECT TITLE: Tomoka Farms Rd. Landfill - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/19/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S58/Tie-in	23'	TL	74-12	E	—	17:00	84°	450°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 19 - S of

PROJECT TITLE: Tomoka Farms Rd. Landfill - Secondary Liner

PROJECT NO: 0995039.27

DATE: 11/20/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S65/Tie-in	23'	LE	7415	E	—	8:00	75°	450°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 20 - S of
PROJECT TITLE: Temoka Farms Rd. LF - Secondary Liner
PROJECT NO: 09950 39.27
DATE: 12/22/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S90/S91	77'	GS	75-15	F	52	10:10	75°	760°	
S91/S92	77'				50	10:25			
S92/S93	77'					10:45			
S93/S94	77'					11:00	76°		
S94/S95	77'					11:10			
S95/S96	77'					11:35			
S96/S97	46'					11:50	77°		DS-55 @ 7' E. of W. end of seam
S97/S98	20'	LE	75-04		55	10:30	75°	765°	
S98/S99	25'					10:55			
S99/S100	23'					10:45			
S100/S101	45'					11:10	76°		
S96/S101	23'	GS	75-15		50	11:47	77°	760°	
S97/S100	33'	LE	75-04		55	11:00	76°	765°	
S96/S103	8'	GS	75-15		50	11:45	77°	760°	
S101/S102	26'				55	13:10	79°		
S101/S103	19'					13:05			
S102/S103	11'				50	12:45			
S90/S104	22'					13:43	80°		
S91/S104	24'					13:40			
S92/S104	23'					13:37			

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 21 - S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 09950039.27
DATE: 12/22/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S93/S104	23'	GS	75-15	F	50	13:34	80°	760°	
S94/S104	24'	↓	↓	↓	↓	13:31	↓	↓	
S95/S104	23'	↓	↓	↓	↓	13:28	79°	↓	
S96/S104	23'	↓	↓	↓	↓	13:25	↓	↓	
S103/S104	12'	↓	↓	↓	↓	13:23	↓	↓	
S102/S104	33'	↓	↓	↓	↓	13:20	↓	↓	
S104/S105	207'	LE	75-04	↓	55	11:35	77°	765°	DS-56 @ 150'S. of N. end of seam
S105/S106	207'	↓	↓	↓	↓	14:00	80°	↓	
S106/S107	209'	↓	↓	↓	↓	14:45	81°	↓	
S107/S108	55'	↓	↓	↓	↓	15:11	80°	↓	
S108/S109	23'	GS	75-15	↓	50	14:45	81°	↓	
S107/S109	152'	LE	75-04	↓	55	15:18	80°	↓	DS-57 @ 130'S. of N. end of seam
S109/S110	152'	GS	75-15	↓	50	15:30	↓	↓	
S108/S110	55'	↓	↓	↓	↓	15:00	↓	↓	
S110/S111	113'	LE	75-04	↓	55	15:45	79°	↓	
S111/S112	23'	GS	75-15	↓	50	15:40	↓	↓	
S110/S112	94'	LE	75-04	↓	55	15:55	78°	↓	
S112/S113	95'	↓	↓	↓	↓	16:05	↓	↓	DS-58 @ 82'S. of N. end of seam
S111/S113	123'	↓	↓	↓	↓	16:18	↓	↓	
S113/S114	216'	↓	↓	↓	↓	16:55	76°	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 22 - S of

PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner

PROJECT NO: 0995039.27

DATE: 12/22/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S114/S115	216'	LE	75-15	F	55	17:23	74°	765°	

PRINT NAME: Steven Rasbach

SIGNATURE: Steven Rasbach

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GEOMEMBRANE SEAMING LOG

SHEET 23 - S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 12/23/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S33/S115	23'	LE	75-15	F	50	12:15	78°	765°	
S32/S114	23'	↓	↓	↓	↓	12:18	↓	↓	
S31/S113	23'					12:21			
S30/S111	23'					12:24			DS-59 @ 10' W. of E. end of seam
S29/S110	23'					12:30			
S27/S108	23'					12:33			
S26/S107	23'					12:36			
S25/S106	23'					12:39			
S24/S105	21'					12:42			
S24/S104	2'					12:45			
S22/S104	21'					12:46			
S22/S90	2'					12:48			
S21/S90	75					12:49			

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 24 - S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 09950039.27
DATE: 12/28/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S29/S111	10'	JM	74-12	E	—	11:30	62°	450°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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SHEET 25 - S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 12/30/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S116/S117	23'	GS	75-17	F	45	9:30	57°	765°	
S115/S117	133'	↓	↓	↓	↓	9:35	↓	↓	DS-60 @ 78' S. of N. end of seam
S115/S116	87'	↓	↓	↓	↓	10:00	↓	↓	
S117/S118	132'	↓	↓	↓	↓	10:25	58°	↓	
S116/S118	86'	↓	↓	↓	↓	10:40	↓	↓	
S118/S119	218'	LE	75-07	↓	55	11:30	60°	↓	DS-61 @ 50' SONEOS
S119/S120	217'	↓	↓	↓	↓	12:00	62°	↓	
S120/S121	40'	GS	75-17	↓	50	14:10	65°	↓	
S120/S122	156'	↓	↓	↓	↓	14:18	↓	↓	
S120/S123	20'	↓	↓	↓	↓	14:05	↓	↓	
S121/S122	23'	↓	↓	↓	45	13:50	↓	↓	
S121/S123	23'	↓	↓	↓	↓	14:00	↓	↓	
S123/S124	20'	↓	↓	↓	50	15:02	↓	↓	
S121/S124	41'	↓	↓	↓	↓	14:55	↓	↓	
S122/S124	156'	↓	↓	↓	↓	14:35	↓	↓	
S124/S125	215'	↓	↓	↓	↓	15:40	↓	↓	DS-62 @ 20' SONEOS
S125/S126	216'	↓	↓	↓	↓	16:15	64°	↓	
S126/S127	217'	↓	↓	↓	↓	16:35	↓	↓	
S127/S128	217'	↓	↓	↓	↓	17:05	63°	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 26 - S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 12/31/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S128/S129	217'	GS	75-15	F	50	7:10	50°	765°	DS-63@100'S. of N. end of seam
S129/S130	218'	↓	↓	↓	↓	8:05	55°	↓	
S130/S131	218'	↓	↓	↓	↓	9:00	59°	↓	
S131/S132	217'	↓	↓	↓	↓	9:40	64°	↓	
S46/S131	10'	↓	75-12	↓	48	11:05	68°	↓	
S45/S131	2'	↓	↓	↓	↓	11:06	↓	↓	
S45/S130	21'	↓	↓	↓	↓	11:07	↓	↓	
S44/S130	2'	↓	↓	↓	↓	11:10	↓	↓	
S44/S129	21'	↓	↓	↓	↓	11:11	↓	↓	
S43/S129	2'	↓	↓	↓	↓	11:14	↓	↓	
S43/S128	21'	↓	↓	↓	↓	11:15	↓	↓	
S42/S128	1'	↓	↓	↓	↓	11:18	↓	↓	
S42/S127	22'	↓	↓	↓	↓	11:19	↓	↓	
S41/S127	1'	↓	↓	↓	↓	11:34	↓	↓	
S41/S126	22'	↓	↓	↓	↓	11:35	↓	↓	
S40/S126	2'	↓	↓	↓	↓	11:37	↓	↓	
S40/S125	21'	↓	↓	↓	↓	11:38	↓	↓	
S39/S125	1'	↓	↓	↓	↓	11:40	↓	↓	
S39/S124	22'	↓	↓	↓	↓	11:41	↓	↓	
S38/S124	1'	↓	↓	↓	↓	11:43	↓	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 27 - S of
PROJECT TITLE: Tomoka Farms Rd LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 12/31/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S38/S123	22'	GS	75-12	F	48	11:44	68°	765°	DS-64 @ 9' W. of E. end of seam
S37/S123	1'	↓	↓	↓	↓	11:46	↓	↓	
S37/S120	22'					11:47			
S36/S120	1'					11:49			
S36/S119	22'					11:50			
S35/S119	1'					11:52			
S35/S118	22'					11:53			
S34/S118	1'					11:55			
S34/S117	22'	↓	↓	↓	↓	11:56	↓	↓	

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GEOMEMBRANE SEAMING LOG

SHEET 28 - S of
PROJECT TITLE: Tomoka Farms Rd LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 1/6/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S132/S133	216'	GS	75-14	F	50	10:45	57°	765°	DS-65 @ 198' SONEOS
S133/S134	214'	LE	75-07	↓	↓	11:10	58°	↓	
S134/S135	214'	GS	75-14	↓	↓	11:30	↓	↓	
S135/S136	214'	LE	75-07	↓	55	12:00	59°	↓	
S136/S137	213'	↓	↓	↓	↓	12:50	60°	↓	DS-66 @ 136' SONEOS
S137/S138	213'	GS	75-14	↓	50	13:05	↓	↓	
S138/S139	214'	LE	75-07	↓	↓	14:10	61°	↓	
S139/S140	214'	GS	75-14	↓	↓	14:30	↓	↓	DS-67 @ 145' SONEOS
S140/S141	214'	LE	75-07	↓	↓	15:00	↓	↓	DS-68 @ 150' SONEOS
S141/S142	213'	GS	75-14	↓	↓	15:10	↓	↓	
S142/S143	211'	LE	75-07	↓	↓	15:50	60°	↓	
S143/S144	212'	↓	↓	↓	↓	16:30	↓	↓	
S144/S145	212'	↓	↓	↓	↓	17:00	58°	↓	DS-69 @ 96' SONEOS

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GEOMEMBRANE SEAMING LOG

SHEET 29 - S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 1/7/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S145/S146	211'	GS	75-04	F	50	10:30	65°	765°	
S146/S147	212'	↓	↓	↓	↓	9:45	63°	↓	
S147/S148	213'	↓	↓	↓	↓	10:55	65°	↓	DS-71 @ 156'SONEOS
S148/S149	213'	↓	↓	↓	↓	11:55	67°	↓	
S149/S150	214'	↓	↓	↓	↓	12:50	69°	↓	
S150/S151	213'	↓	↓	↓	↓	13:30	70°	↓	DS-72 @ 197'SONEOS
S151/S152	210'	LE	75-07	↓	↓	15:00	69°	↓	
S60/S145	9'	↓	↓	↓	↓	13:15	70°	↓	
S59/S144	23'	↓	↓	↓	↓	13:16	↓	↓	
SR233/S143	23'	↓	↓	↓	↓	13:19	↓	↓	
S57/S142	23'	↓	↓	↓	↓	13:22	↓	↓	
S56/S141	23'	↓	↓	↓	↓	13:25	↓	↓	
S55/S140	23'	↓	↓	↓	↓	13:28	↓	↓	
S54/S140	1'	↓	↓	↓	↓	13:31	↓	↓	
S54/S139	22'	↓	↓	↓	↓	13:32	↓	↓	DS-70 @ 5'EOWEOS
S53/S139	1'	↓	↓	↓	↓	13:34	↓	↓	
S53/S138	22'	↓	↓	↓	↓	13:35	↓	↓	
S52/S138	1'	↓	↓	↓	↓	13:37	↓	↓	
S52/S137	22'	↓	↓	↓	↓	13:38	↓	↓	
S51/S137	1'	↓	↓	↓	↓	13:40	↓	↓	

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GEOMEMBRANE SEAMING LOG

SHEET 30 - S of

PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner

PROJECT NO: 0995039.27

DATE: 1/7/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S51/S136	22'	LE	75-07	F	50	13:41	70°	765°	
S50/S136	2'	↓	↓	↓	↓	13:43	↓	↓	
S50/S135	21'					13:44			
S49/S135	2'					13:46			
S49/S134	21'					13:47			
S48/S134	2'					13:49			
S48/S133	21'					13:50			
S47/S133	2'					13:52			
S47/S132	21'					13:53	↓		
S152/S153	212'					15:40	68°		
S153/S154	113'					16:25	65°		DS-73@50'SONEOS
S154/S155	20'	↓	↓			17:00	63°		
S155/S156	59'	GS	75-04			16:15	65°		
S154/S156	23'	LE	75-07			17:03	62°		
S156/S157	58'	GS	75-04			16:22	65°		
S154/S157	24'	LE	75-07			17:06	62°		
S157/S158	58'	GS	75-04			16:35	65°		
S154/S158	23'	LE	75-07			17:09	62°		
S158/S159	58'	GS	75-04			16:45	64°		
S154/S159	23'	LE	75-07	↓	↓	17:12	62°	↓	

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GEOMEMBRANE SEAMING LOG

SHEET 31 - S of
PROJECT TITLE: Tomoka Farms Rd LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 1/7/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S89/S155	59'	GS	75.04	F	50	17:10	62°	765°	

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SHEET 32 - S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 1/8/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S153/S160	98'	GS	75-04	F	50	9:40	66°	765°	
S154/S160	23'	↓	↓	↓	↓	11:00	70°	↓	
S160/S161	57'	↓	↓	↓	↓	10:45	69°	↓	
S159/S162	58'	↓	↓	↓	↓	10:00	67°	↓	DS-75 @ 25' EOW EOS
S162/S163	64'	↓	↓	↓	↓	10:15	↓	↓	
S163/S164	59'	↓	↓	↓	↓	11:30	70°	↓	
S164/S165	38'	LE	75-07	↓	↓	11:35	↓	↓	
S165/S166	16'	↓	↓	↓	↓	11:50	↓	↓	
S166/S167	15'	↓	↓	↓	↓	11:55	↓	↓	
S161/S167	31'	↓	↓	↓	↓	11:40	↓	↓	DS-76 @ 15' SONEOS
S160/S163	17'	↓	↓	↓	↓	13:07	71°	↓	
S160/S162	23'	↓	↓	↓	↓	13:09	↓	↓	
S161/S164	32'	↓	↓	↓	↓	13:04	↓	↓	
S161/S165	3'	↓	↓	↓	↓	13:03	↓	↓	
S165/S167	26'	↓	↓	↓	↓	13:00	↓	↓	
S161/S163	2'	↓	↓	↓	↓	13:07	↓	↓	
S69/S155	4'	LE	74-15	E	—	15:25			
S69/S154	21'	LE	75-07	F	55	9:30	66°	765°	
S68/S154	2'	↓	↓	↓	↓	9:32	↓	↓	
S68/S153	21'	↓	↓	↓	↓	9:33	↓	↓	

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GEOMEMBRANE SEAMING LOG

SHEET 33-S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 09950339.27
DATE: 1/8/99 - 1/11/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
S67/S153	2'	LE	75-07	F	55	9:35	66°	765°	
S67/S152	21'	↓	↓	↓	↓	9:36	↓	↓	
S66/S152	2'					9:37			
S66/S151	21'					9:38			DS-74 @ 6' WOEEOS
S65/S151	2'					9:40			
S65/S150	21'					9:41			
S64/S150	1'					9:43			
S64/S149	22'					9:44			
S63/S149	1'					9:46			
S63/S148	22'					9:47			
S62/S148	1'					9:49			
S62/S147	22'					9:50			
S61/S147	1'					9:52			
S61/S146	22'					9:53			
S60/S146	1'		↓		↓	9:55		↓	
S60/S145	13'	↓	74-15	↓	—	15:00	↓	450°	
S46/S131	12'	CA	74-12	E	—	10:05	62°	450°	(1/11/99)

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GEOMEMBRANE SEAMING LOG

SHEET 1-P of 25
PROJECT TITLE: Temoka Farms Road Landfill – Primary Liner
PROJECT NO: 0995039.27
DATE: 12/1/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P1/P2	77'	LE	7515	F	60	8:30	70°	760°	
P2/P3	76'	↓	↓	↓	↓	8:45	↓	↓	
P3/P4	77'	↓	↓	↓	↓	8:50	71°	↓	
P4/P5	76'	↓	↓	↓	↓	9:00	↓	↓	
P5/P6	75'	↓	↓	↓	↓	9:30	72°	↓	
P6/P7	75'	↓	↓	↓	↓	9:45	↓	↓	
P7/P8	75'	↓	↓	↓	↓	10:00	↓	↓	DP-1@ 40'WOEEOS
P8/P9	75'	↓	↓	↓	↓	10:15	73°	↓	
P9/P10	75'	↓	↓	↓	↓	10:30	↓	↓	
P10/P11	75'	↓	↓	↓	↓	10:40	↓	↓	
P11/P12	75'	↓	↓	↓	↓	10:50	74°	↓	
P12/P13	75'	↓	↓	↓	↓	11:00	↓	↓	
P13/P14	76'	↓	↓	↓	↓	11:15	↓	↓	
P14/P15	75'	↓	↓	↓	↓	11:30	75°	↓	DP-2@ 69'WOEEOS
P15/P16	75'	↓	↓	↓	↓	11:45	↓	↓	
P16/P17	75'	↓	↓	↓	↓	12:50	77°	↓	
P17/P18	75'	↓	↓	↓	↓	13:05	↓	↓	
P18/P19	76'	↓	↓	↓	↓	13:25	↓	↓	
P19/P20	75'	↓	↓	↓	↓	13:38	↓	↓	
P1/P21	23'	↓	↓	↓	↓	15:45	75°	↓	

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GEOMEMBRANE SEAMING LOG

SHEET 2 - P of 25
PROJECT TITLE: Tomoka Farms Road Landfill - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/1/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P2/P21	23'	LE	7515	F	55	1548	75°	765°	
P3/P21	24'	↓	↓	↓	↓	1551	↓	↓	
P4/P21	23'	↓	↓	↓	↓	1554	↓	↓	
P5/P21	24'	↓	↓	↓	↓	1557	↓	↓	DP-3@3'SONEOS
P6/P21	23'	↓	↓	↓	↓	1600	↓	↓	
P7/P21	23'	↓	↓	↓	↓	1603	↓	↓	
P8/P21	23'	↓	↓	↓	↓	1606	↓	↓	
P9/P21	24'	↓	↓	↓	↓	1609	↓	↓	
P10/P21	23'	↓	↓	↓	↓	1612	74°	↓	
P11/P21	23'	↓	↓	↓	↓	1615	↓	↓	
P12/P21	23'	↓	↓	↓	↓	1618	↓	↓	
P13/P21	24'	↓	↓	↓	↓	1621	↓	↓	
P14/P21	23'	↓	↓	↓	↓	1624	↓	↓	
P15/P21	23'	↓	↓	↓	↓	1627	↓	↓	
P16/P21	24'	↓	↓	↓	↓	1630	↓	↓	
P17/P21	23'	↓	↓	↓	↓	1633	↓	↓	
P18/P21	23'	↓	↓	↓	↓	1636	↓	↓	
P19/P21	24'	↓	↓	↓	↓	1639	↓	↓	
P20/P21	23'	↓	↓	↓	↓	1642	↓	↓	
P21/P22	473'	↓	↓	↓	↓	1650	73°	↓	DP-4@305'NOSEOS

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SHEET 3 - P of 25
PROJECT TITLE: Tomoka Farms Road Landfill - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/2/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P22/P23	472'	LE	7515	F	55	7:10	68°	765°	DP-5@ 250' NOSEOS
P23/P24	471'	GS	7514	F	55	7:45	69°	760°	DP-6@ 100'
P24/P25	470'	LE	7515	F	55	8:40	71°	765°	DP-7@ 225'
P25/P26	467'	GS	7514	F	55	8:55	71°	760°	DP-8@ 70'
P26/P27	469'	LE	7515	F	55	10:05	76°	760°	DP-9@ 200'
P27/P28	468'	GS	7514	F	55	10:35	76°	760°	DP-10@ 46'
P28/P29	467'	LE	7515	F	55	11:30	77°	765°	DP-11@ 300'
P29/P30	462'	GS	7514	F	55	13:00	79°	760°	DP-12@ 5'
P30/P31	464'	LE	7515	F	60	13:30	79°	760°	DP-13@ 327'
P31/P32	463'	GS	7514	F	55	14:20	79°	760°	
P32/P33	465'	LE	7515	F	60	14:30	79°	760°	DP-14@ 118' NOSEOS
P33/P34	465'	GS	7514	F	55	15:25	78°	760°	DP-15@ 425' NOSEOS
P34/P35	464'	LE	7515	F	60	15:55	77°	760°	DP-16@ 135' NOSEOS

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GEOMEMBRANE SEAMING LOG

SHEET 4 - P of 25
PROJECT TITLE: Tomoka Farms Rd. Landfill - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/3/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P1/Tie-in	76'	LE	7514	F	45	11:08	77°	760°	
P21/Tie-in	23'	↓	↓	↓	↓	11:05	↓	↓	
P22/Tie-in	23'					11:02			
P23/Tie-in	23'					10:58			
P24/Tie-in	23'					10:55			
P25/Tie-in	23'					10:52			
P26/Tie-in	23'					10:49			DP-17A @ 5'WOEEOS/CAPPED to DP17A
P27/Tie-in	23'					10:46			CAPPED
P28/Tie-in	23'					10:43			CAPPED
P29/Tie-in	23'					10:40			CAPPED
P30/Tie-in	23'					10:35			DP-17@ 9'EOWEOS/CAPPED
P31/Tie-in	23'					10:32			CAPPED
P32/Tie-in	23'					10:29			DP-17B@ 4'WOEEOS/CAPPED to DP17B
P33/Tie-in	23'					10:26			
P34/Tie-in	23'					10:23			
P35/Tie-in	23'					10:20			

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SHEET 5 - P of 25
PROJECT TITLE: Tomoka Farms Rd. Landfill - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/4/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P35/P36	465'	LE	7515	F	60	7:15	70°	760°	DP-18 @ 220' NOSEOS / DP-19B (Capped for) @ 450' NOSEOS
P36/P37	469'	GS	7514	↓	55	8:00	72°	↓	
P37/P38	468'	LE	7515		60	8:30	73°		DP-19 @ 125' NOSEOS / Capped, entire seam
P38/P39	463'	GS	7514		55	9:40	75°		DP-20 @ 347' NOSEOS
P39/P40	464'	LE	7515		↓	10:25	77°		DP-21 @ 125' NOSEOS / DP-19A (Capped for) @ 464' NOSEOS
P40/P41	466'	GS	7514			11:10	79°		DP-22 @ 50' NOSEOS
P41/P42	464'	GS	7514	↓	↓	12:00	80°	↓	

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SHEET 6 - P of 25
PROJECT TITLE: Tomoka Farms Rd. Landfill - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/7/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P42/Tie-in	23'	LE	7514	F	40	13:10	80°	765°	
P41/Tie-in	23'	↓	↓	↓	↓	13:13	↓	↓	
P40/Tie-in	23'	↓	↓	↓	↓	13:16	↓	↓	
P39/Tie-in	23'	↓	↓	↓	↓	13:19	↓	↓	DP-23 @ 12' WOEEOS
P38/Tie-in	23'	↓	↓	↓	↓	13:22	↓	↓	
P37/Tie-in	23'	↓	↓	↓	↓	13:25	↓	↓	
P36/Tie-in	23'	↓	↓	↓	↓	13:28	↓	↓	

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GEOMEMBRANE SEAMING LOG

SHEET (8)(9R) 7 - P of 25
PROJECT TITLE: Tomoka Farms Rd. LF - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/8/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P42/P43	469'	GS	7514	F	55	7:30	68°	765°	DP-24@ 370' NOSEOS
P43/P44	465'	LE	7515	↓	↓	8:15	69°	↓	
P44/P45	465'	GS	7514	↓	↓	9:00	70°	↓	DP-25@ 52' NOSEOS
P45/P46	466'	LE	7515	↓	↓	9:30	71°	↓	DP-26@ 438'
P46/P47	465'	GS	7514	↓	↓	9:55	73°	↓	DP-27@ 12'
P47/P48	462'	LE	7515	↓	↓	10:30	75°	↓	DP-28@ 180'
P48/P49	460'	GS	7514	↓	↓	10:50	76°	↓	DP-29@ 268'
P49/P50	460'	LE	7515	↓	↓	11:10	77°	↓	DP-30@ 300'
P51/P52	464'	GS	7514	↓	↓	14:00	80°	↓	DP-32@ 358'
P52/P53	468'	LE	7515	↓	↓	14:45	79°	↓	DP-33@ 50'
P53/P54	469'	GS	7514	↓	↓	15:15	78°	↓	DP-34@ 146'
P54/P55	474'	LE	7515	↓	↓	16:00	76°	760°	DP-35@ 150'
P55/P56	474'	GS	7514	↓	↓	16:38	74°	765°	DP-36@ 248'
P50/P51	463'	LE	7515	↓	↓	13:15	80°	760°	DP-31@ 450'

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GEOMEMBRANE SEAMING LOG

SHEET 8 - P of 25
PROJECT TITLE: Tenaska Farms Rd. Landfill — Primary Liner
PROJECT NO: 09950039.27
DATE: 12/9/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P56/P57	476'	LE	7515	F	55	7:15	(78) 68°	760°	DP-37@ 353' NOSEOS / DP37A@ 340' NOSEOS DP37B@ 365' NOSEOS
P57/P58	471'	GS	7514			8:10	(77) 69°	765°	
P58/P59	473'	LE	7515			8:40	(73) 70°	760°	DP-38@ 50' NOSEOS
P59/P60	470'	GS	7514			9:10	(77) 71°	765°	DP-39@ 450'
P60/P61	472'	LE	7515			9:40	(73) 72°	760°	DP-40@ 25'
P61/P62	469'	GS	7514			10:10	(77) 73°	765°	DP-41@ 350'
P62/P63	466'	LE	7515			10:45	(73) 75°	760°	DP-42@ 125'
P63/P64	463'	GS	7514			11:15	76°	765°	DP-43@ 200'
P64/P65	461'	LE	7515			13:00	77°		DP-44@ 402'
P65/P66	464'	GS	7514			14:00	78°		DP-45@ 350'
P66/P67	23'	GS	7515			16:30	73°		
P67/P68	57'	LE	7514			14:40	77°		
P66/P68	23'	GS	7514			16:33	73°		
P68/P69	57'	LE	7515			15:00	77°		
P66/P69	23'	GS	7514			16:36	73°		
P69/P70	57'	LE	7515			15:10	77°		
P66/P70	24'	GS	7514			16:39	73°		
P70/P71	57'	GS				14:55	77°		
P66/P71	23'	GS				16:42	73°		
P71/P72	57'	GS				15:00	77°	760°	

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GEOMEMBRANE SEAMING LOG

SHEET 9 - P of 25
PROJECT TITLE: Tomoka Farms Rd. Landfill - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/9/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P66/P72	23'	GS	7514	F	55	16:45	73°	765°	
P72/P73	57'	LE	7515			15:15	76°	760°	
P66/P73	24'	GS	7514			16:48	73°	765°	
P73/P74	56'	LE	7515			15:20	76°	760°	
P66/P74	23'	GS	7514			16:51	73°	765°	
P74/P75	56'	LE	7515			15:25	76°	760°	DP-48@ 25' WOEEOS
P66/P75	23'	GS	7514			16:54	73°	765°	
P75/P76	66'	GS	"			15:10	76°	"	
P66/P76	23'	GS	"			16:57	73°	"	
P76/P77	55'	GS	"			15:20	76°	"	
P66/P77	23'	GS	"			17:00	72°	"	
P77/P78	55'	GS	"			15:30	76°	"	
P66/P78	24'	GS	"			17:03	72°	"	DP-46 @ 263' NOSEOS
P78/P79	55'	GS	"			15:37	75°	"	
P66/P79	23'	GS	↓			17:06	72°	↓	
P79/P80	55'	LE	7515			15:30	75°	760°	
P66/P80	23'	GS	7514			17:09	72°	765°	
P80/P81	55'	LE	7515			15:35	75°	760°	
P66/P81	23'	GS	7514			17:12	72°	765°	
P81/P82	55'	LE	7515	↓	↓	15:40	75°	760°	

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GEOMEMBRANE SEAMING LOG

SHEET 10 - P of 25
PROJECT TITLE: Tomoka Farms Rd. Landfill - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/9/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P66/P82	23'	GS	7514	F	55	17:15	72°	760°	
P82/P83	56'	LE	7515	↓	↓	15:45	75°	↓	
P66/P83	24'	GS	7514	↓	↓	17:18	72°	765°	
P83/P84	55'	GS	↓	↓	↓	15:50	75°	↓	
P66/P84	23'	GS	↓	↓	↓	17:21	72°	↓	
P84/P85	55'	GS	↓	↓	↓	15:58	74°	↓	
P66/P85	23'	GS	↓	↓	↓	17:24	72°	↓	
P85/P86	55'	GS	↓	↓	↓	16:05	74°	↓	DP-47 @ 27' WOEEOS
P66/P86	23'	GS	↓	↓	↓	17:27	71°	↓	

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GEOMEMBRANE SEAMING LOG

SHEET 11 - P of 25
PROJECT TITLE: Tomoka Farms Rd. Landfill - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/10/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P43/Tie-in	23'	LE	7514	F	40	15:56	80°	765°	
P44/Tie-in	23'	↓	↓	↓	↓	15:53	↓	↓	
P45/Tie-in	23'	↓	↓	↓	↓	15:50	↓	↓	
P46/Tie-in	23'	↓	↓	↓	↓	15:47	↓	↓	
P47/Tie-in	23'	↓	↓	↓	↓	15:44	↓	↓	
P48/Tie-in	23'	↓	↓	↓	↓	15:41	↓	↓	
P49/Tie-in	23'	↓	↓	↓	↓	15:38	↓	↓	
P50/Tie-in	23'	↓	↓	↓	↓	15:35	↓	↓	
P51/Tie-in	23'	↓	↓	↓	↓	15:32	↓	↓	DP-49 @ 4' EOWEOS
P52/Tie-in	23'	↓	↓	↓	↓	15:29	↓	↓	
P53/Tie-in	23'	↓	↓	↓	↓	15:26	↓	↓	
P54/Tie-in	23'	↓	↓	↓	↓	15:23	↓	↓	
P55/Tie-in	23'	↓	↓	↓	↓	15:20	↓	↓	
P58/Tie-in	23'	↓	↓	↓	↓	15:13	↓	↓	
P59/Tie-in	23'	↓	↓	↓	↓	15:10	↓	↓	
P61/Tie-in	23'	↓	↓	↓	↓	15:06	↓	↓	
P62/Tie-in	23'	↓	↓	↓	↓	15:03	↓	↓	
P63/Tie-in	23'	↓	↓	↓	↓	15:00	↓	↓	
P65/Tie-in	23'	↓	↓	↓	↓	14:48	↓	↓	
P66/Tie-in	23'	↓	↓	↓	↓	14:45	↓	↓	

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SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 12 - P of 25
PROJECT TITLE: Tomoka Farms Rd. Landfill - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/10/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P67/Tie-in	57'	LE	7514	F	40	14:40	80°	765°	

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GEOMEMBRANE SEAMING LOG

SHEET 13-P of 25
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/14/98

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P38/PR168	357'	GS	75-14	F	45	11:25	68°	765°	DP-50 @ 400' NOSEOS
P37/PR168	357'	GS	75-14	F	45	14:20	69°	765°	DP-51 @ 52' NOSEOS
P57/Tie-in	23'	GS	75-14	F	45	15:45	69°	765°	

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GEOMEMBRANE SEAMING LOG

SHEET 14 (28) - P of 25
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/13/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P20/P87	76'	LE	75-07	F	55	7:20	60°	765°	DP-52 @ 35' EOWEOS
P87/P88	76'	↓	↓	↓	↓	7:35		↓	
P88/P89	76'	↓	↓	↓	↓	7:50		↓	
P89/P90	76'	↓	↓	↓	↓	8:25		↓	
P90/P91	77'	↓	↓	↓	↓	8:45		↓	
P91/P92	76'	GS	75-17	F	55	7:30		↓	
P92/P93	76'	↓	↓	↓	↓	7:50		↓	DP-53 @ 32' EOWEOS
P93/P94	76'	↓	↓	↓	↓	8:35		↓	
P94/P95	51'	↓	↓	↓	↓	9:05		↓	
P95/P96	22'	↓	↓	↓	↓	9:15		↓	
P96/P97	16'	↓	↓	↓	↓	8:10		↓	
P97/P98	34'	↓	↓	↓	↓	8:30		↓	
P98/P99	41'	↓	↓	↓	↓	8:25		↓	
P95/P97	28'	↓	↓	↓	↓	9:20		↓	
P95/P98	6'	↓	↓	↓	↓	9:25		↓	
P94/P98	18'	↓	↓	↓	↓	9:27		↓	
P94/P99	7'	↓	↓	↓	↓	9:30		↓	
P99/P100	42'	↓	↓	↓	↓	9:40		↓	
P94/P100	20'	↓	↓	↓	↓	10:05		↓	
P93/P100	17'	↓	↓	↓	↓	10:20		↓	

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SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 15 (29) P of [illegible]
PROJECT TITLE: Tanaka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/13/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P92/P100	23'	GS	75-17	F	55	10:23	71°	765°	
P91/P100	23'	↓	↓	↓	↓	10:26	↓	↓	
P90/P100	23'	↓	↓	↓	↓	10:29	↓	↓	DP-54@ 4' SONEOS
P89/P100	24'	↓	↓	↓	↓	10:32	↓	↓	
P88/P100	23'	↓	↓	↓	↓	10:35	↓	↓	
P87/P100	17'	↓	↓	↓	↓	10:38	↓	↓	
P100/P101	213'	LE	75-07	F	55	9:45	69°	↓	
P101/P102	213'	↓	↓	↓	↓	11:10	74°	↓	DP-56@ 162' SONEOS
P102/P103	213'	GS	75-17	↓	↓	11:15	↓	↓	
P103/P104	214'	↓	↓	↓	↓	11:45	↓	↓	
P104/P105	215'	↓	↓	↓	↓	12:50	75°	↓	DP-55@ 26' SONEOS
P105/P106	214'	LE	75-07	↓	↓	12:45	76°	↓	
P106/P107	217'	↓	↓	↓	↓	13:15	↓	↓	DP-57@ 200' SONEOS
P107/P108	216'	GS	75-17	↓	↓	13:50	77°	↓	
P108/P109	131'	↓	↓	↓	↓	15:05	78°	↓	
P109/P110	130'	LE	75-07	↓	↓	15:30	↓	↓	
P109/P111	23'	GS	75-17	↓	↓	15:30	↓	↓	
P110/P111	85'	LE	75-07	↓	↓	15:40	77°	↓	
P108/P111	84'	GS	75-17	↓	↓	15:35	78°	↓	
P110/P112	217'	LE	75-07	↓	↓	16:00	77°	↓	

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GEOMEMBRANE SEAMING LOG

SHEET 16 (38) - P of 25
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/13/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P112/P113	217'	GS	75-17	F	55	16:15	77°	765°	DP-58 @ 118' SONEDS
P113/P114	217'	↓	↓	↓	↓	16:45	76°	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 17 (30) - P of ~
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/14/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P114/P115	218'	GS	75-17	F	52	7:50	67°	765°	DP-59 @ 40' SONEOS
P115/P116	217'	LE	75-06		55	7:15	64°		
P116/P117	217'	↓	↓		↓	8:15	68°		
P117/P118	216'	↓	↓		↓	8:45	70°		DP-60 @ 157' SONEOS
P118/P119	217'	↓	↓		↓	9:30	72°		
P39/P119	15'	GS	75-17		50	11:35	76°		
P38/P119	1'	↓	↓		↓	11:37	↓	↓	
P38/P118	22'	↓	↓		↓	11:38	↓	↓	
P37/P118	1'	↓	↓		↓	11:39	↓	↓	
P37/P117	22'	↓	↓		↓	11:40	↓	↓	DP-61 @ 6' WOEEOS
P36/P117	1'	↓	↓		↓	11:42	↓	↓	
P36/P116	22'	↓	↓		↓	11:43	↓	↓	
P35/P116	1'	↓	↓		↓	11:45	↓	↓	
P35/P115	22'	↓	↓		↓	11:46	↓	↓	
P34/P114	23'	↓	↓		↓	11:48	↓	↓	
P33/P113	23'	↓	↓		↓	11:51	↓	↓	
P32/P113	1'	↓	↓		↓	11:54	↓	↓	
P32/P112	22'	↓	↓		↓	11:55	↓	↓	
P31/P112	1'	↓	↓		↓	11:57	↓	↓	
P31/P110	22'	↓	↓	↓	↓	11:58	↓	↓	

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GEOMEMBRANE SEAMING LOG

SHEET 18 (91) P of 25
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/4/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P30/P110	1'	GS	7517	F	50	12:00	77°	765°	
P30/P111	22'	↓	↓	↓	↓	12:01	↓	↓	
P29/P108	23'	↓	↓	↓	↓	12:03	↓	↓	
P28/P107	23'	↓	↓	↓	↓	12:06	↓	↓	
P27/P106	23'	↓	↓	↓	↓	12:09	↓	↓	
P26/P105	23'	↓	↓	↓	↓	12:12	↓	↓	
P25/P104	23'	↓	↓	↓	↓	12:15	↓	↓	
P24/P103	23'	↓	↓	↓	↓	12:18	↓	↓	
P23/P102	23'	↓	↓	↓	↓	12:21	↓	↓	
P22/P101	23'	↓	↓	↓	↓	12:24	↓	↓	
P22/P100	1'	↓	↓	↓	↓	12:27	↓	↓	
P21/P100	21'	↓	↓	↓	↓	12:29	78°	↓	
P21/P87	5'	TL	7412	E	—	13:00	79°	450°	

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GEOMEMBRANE SEAMING LOG

SHEET 19 ~~33~~ P of 2

PROJECT TITLE: Tomoka Farms Rd LF

PROJECT NO: 0995039.27

DATE: 1/19/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P119/P120	217'	GS	75-17	F	55	10:45	73°	765°	DP-62 @ 185' SONEOS
P120/P121	217'	LE	75-06	↓	↓	11:20	74°	↓	
P121/P122	217'	GS	75-17	↓	↓	11:25	↓	↓	
P122/P123	219'	LE	75-06	↓	↓	11:45	75°	↓	DP-63 @ 20' SONEOS
P123/P124	217'	↓	↓	↓	↓	13:00	78°	↓	
P124/P125	216'	↓	↓	↓	↓	13:40	79°	↓	DP-64 @ 137' SONEOS
P125/P126	216'	GS	75-17	↓	↓	13:45	↓	↓	
P126/P127	217'	LE	75-06	↓	↓	14:05	↓	↓	
P127/P128	217'	GS	75-17	↓	↓	14:10	↓	↓	DP-65 @ 50' SONEOS
P128/P129	218'	LE	75-06	↓	↓	14:30	↓	↓	
P129/P130	217'	GS	75-17	↓	↓	14:50	↓	↓	
P130/P131	213'	LE	75-06	↓	↓	15:20	78°	↓	DP-66 @ 200' SONEOS
P131/P132	213'	GS	75-17	↓	↓	15:35	↓	↓	
P132/P133	215'	LE	75-06	↓	↓	16:00	76°	↓	
P133/P134	215'	GS	75-17	↓	↓	16:15	↓	↓	DP-67 @ 139' SONEOS
P134/P135	213'	↓	↓	↓	↓	16:50	73°	↓	

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GEOMEMBRANE SEAMING LOG

SHEET 20 ~~(34)~~ - P of 25
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/20/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P135/P136	214'	GS	75-17	F	55	8:20	67°	765°	
P136/P137	215'	LE	75-06			8:30	68°		DP-68@ 193' SONEOS/Entire Seam Capped
P137/P138	214'	↓	↓			9:10	69°		DP-68A@ 190' SONEOS/Capped to DP-68A
P138/P139	214'	GS	75-17			8:45	68°		DP-69@ 33' SONEOS
P139/P140	214'	LE	75-06			9:25	70°		
P140/P141	215'					9:50	71°		DP-70@ 153' SONEOS
P141/P142	213'	↓	↓			10:25	72°		
P142/P143	215'	GS	75-17			10:15	↓		
P143/P144	217'					10:55	75°		
P144/P145	216'					13:20	78°		DP-71@ 100' SONEOS
P145/P146	216'					13:40	79°		
P146/P147	24'					16:18	76°		
P86/P147	59'					16:55	74°		
P147/P148	59'					14:15	80°		
P148/P149	58'					14:25	80°		
P146/P149	23'					16:12	77°		DP-75@ 7' SONEOS
P149/P150	58'					14:35	80°		
P146/P150	23'					16:09	77°		
P150/P151	57'					14:45	80°		
P146/P151	23'	↓	↓	↓	↓	16:06	77°	↓	

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GEOMEMBRANE SEAMING LOG

SHEET 21 (25) - P of [illegible]
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 095039.27
DATE: 1/20/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P146/P148	23'	GS	75-17	F	55	16:15	76°	765°	
P151/P152	58'	↓	↓	↓	↓	14:55	80°	↓	DP-72@ 25' EOWEOS
P146/P152	24'	↓	↓	↓	↓	16:03	78°	↓	
P152/P153	59'	↓	↓	↓	↓	13:05	80°	↓	
P146/P153	24'	↓	↓	↓	↓	16:00	78°	↓	
P153/P155	57'	↓	↓	↓	↓	15:30	79°	↓	
P153/P154	3'	↓	↓	↓	↓	15:29	↓	↓	
P155/P156	31'	↓	↓	↓	↓	15:40	↓	↓	
P154/P156	27'	↓	↓	↓	↓	15:45	↓	↓	DP-74@ 12' SONEOS
P146/P154	51'	↓	↓	↓	↓	15:50	↓	↓	
P154/P155	33'	↓	↓	↓	↓	15:20	80°	↓	
P66/P146	19'	LE	75-06	↓	50	15:35	79°	↓	
P65/P146	4'	↓	↓	↓	↓	15:37	↓	↓	
P65/P145	19'	↓	↓	↓	↓	15:38	↓	↓	
P64/P145	4'	↓	↓	↓	↓	15:40	↓	↓	
P64/P144	19'	↓	↓	↓	↓	15:41	↓	↓	
P63/P144	3'	↓	↓	↓	↓	15:43	↓	↓	
P63/P143	20'	↓	↓	↓	↓	15:44	↓	↓	DP-73@ 6' WOEEOS
P62/P143	4'	↓	↓	↓	↓	15:46	↓	↓	
P62/P142	19'	↓	↓	↓	↓	15:47	↓	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE SEAMING LOG

SHEET 22 of 25
PROJECT TITLE: Tomaka Farms Rd LF
PROJECT NO: 09950339.27
DATE: 1/20/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P61/P142	3'	LE	75-06	F	50	15:49	79°	765°	
P61/P141	20'	↓	↓	↓	↓	15:50	↓	↓	
P60/P141	3'	↓	↓	↓	↓	15:52	↓	↓	
P60/P140	20'	↓	↓	↓	↓	15:53	↓	↓	
P59/P140	3'	↓	↓	↓	↓	15:55	78°	↓	
P59/P139	20'	↓	↓	↓	↓	15:56	↓	↓	
P58/P139	3'	↓	↓	↓	↓	15:58	↓	↓	
P58/P138	20'	↓	↓	↓	↓	15:59	↓	↓	
P57/P138	3'	↓	↓	↓	↓	16:01	↓	↓	
P57/P137	20'	↓	↓	↓	↓	16:02	↓	↓	
P56/P137	2'	↓	↓	↓	↓	16:04	↓	↓	
P56/P136	21'	↓	↓	↓	↓	16:05	77°	↓	
P55/P136	2'	↓	↓	↓	↓	16:07	↓	↓	
P55/P135	21'	↓	↓	↓	↓	16:08	↓	↓	
P54/P135	2'	↓	↓	↓	↓	16:10	↓	↓	
P54/P134	21'	↓	↓	↓	↓	16:11	↓	↓	
P53/P134	2'	↓	↓	↓	↓	16:13	↓	↓	
P53/P133	21'	↓	↓	↓	↓	16:14	↓	↓	
P52/P133	2'	↓	↓	↓	↓	16:16	↓	↓	
P52/P132	21'	↓	↓	↓	↓	16:17	76°	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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GEOMEMBRANE SEAMING LOG

SHEET 23 (37) - P of 25
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950339.27
DATE: 1/20/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P51/P132	2'	LE	75-06	F	50	16:19	76°	765°	
P51/P131	21'	"	"	"	"	16:20	"	"	
P50/P131	1'	"	"	"	"	16:22	"	"	
P50/P130	22'	"	"	"	"	16:23	"	"	
P49/P130	1'	"	"	"	"	16:25	"	"	
P49/P129	22'	"	"	"	"	16:26 (26)	"	"	
P48/P129	1'	"	"	"	"	16:28 (28)	"	"	
P48/P128	22'	"	"	"	"	16:29 (29)	"	"	
P47/P128	1'	"	"	"	"	16:32 (31)	↓	"	
P47/P127	22'	"	"	"	"	16:34 (32)	75°	"	
P46/P127	1'	"	"	"	"	16:35 (34)	"	"	
P46/P126	22'	"	"	"	"	16:37 (35)	"	"	
P45/P126	1'	"	"	"	"	16:38 (37)	"	"	
P45/P125	22'	"	"	"	"	16:40 (38)	"	"	
P44/P125	1'	"	"	"	"	16:41 (40)	"	"	
P44/P124	22'	"	"	"	"	16:42 (41)	"	"	
P43/P124	1'	"	"	"	"	16:43 (42)	"	"	
P43/P123	22'	"	"	"	"	16:45 (43)	↓	"	
P42/P123	2'	"	"	"	"	16:46 (45)	74°	"	
P42/P122	21'	↓	↓	↓	↓	16:48 (46)	↓	↓	DP-76 @ 9' WOEEOS

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE SEAMING LOG

SHEET 24 GB - P of 25
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 09950359.27
DATE: 1/20/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P41/P122	2'	LE	75-06	F	50	16:48	74°	765°	
P41/P121	21'	↓	↓	↓	↓	16:49	↓	↓	
P40/P121	2'	↓	↓	↓	↓	16:51	↓	↓	
P40/P120	21'	↓	↓	↓	↓	16:52	↓	↓	
P39/P120	2'	↓	↓	↓	↓	16:54	↓	↓	
P39/P119	7'	↓	↓	↓	↓	16:55	↓	↓	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE SEAMING LOG

SHEET 25 (88-P) of 25
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/27/99

SEAM NO.	LENGTH OR SIZE	TECH ID	MACHINE NO.	WELD TYPE	SPEED SET	TIME	AIR TEMP (deg. F)	MACHINE TEMP	WEATHER/ CONDITIONS/COMMENTS
P136/PR356	215'	LE	74-12	E	—	14:30	80°	450°	DP-77 @ 50' SONEOS
P137/PR356	215'	↓	↓	↓	—	15:45	80°	450°	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

ATTACHMENT 7-6

GEOMEMBRANE REPAIR LOG
(PRIMARY AND SECONDARY)

SECONDARY

SCS ENGINEERS

SHEET 1 - 3
PROJECT TITLE: Tanaka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 11/98

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/6/98	SR1	S-1/Tie-in	—	Crest of Slope	FS	10'x3'	LE	7505	11/6/98	SK	
11/6/98	SR2	S-1/Tie-in	—	10' WOEEOS	FS	25'x3'	LE	7505	11/6/98	SK	
11/6/98	SR3	S-1/Tie-in	—	35' WOEEOS	FS	25'x3'	LE	7505	11/6/98	SK	
11/4/98	SR4	S-1/S-2	—	41' WOEEOS	DS	3'x7'	TL	7412	11/6/98	BB	DS-4
11/4/98	SR5	S-2/S-3	—	23' WOEEOS	WR	2'x4'	TS	7409	11/6/98	BB	
11/4/98	SR6	S-5/S-6	—	70' WOEEOS	DS	3'x6'	TS	7409	11/6/98	BB	DS-1
11/4/98	SR7	S-11/S-12	—	48' WOEEOS	DS	3'x6'	TS	7409	11/4/98	BB	DS-2
11/4/98	SR8	—	S-7	W. End of Panel	CR	3'x8'	TS	7409	11/4/98	BB	
11/4/98	SR9	S-18/S-19	—	14' WOEEOS	DS	3'x6'	TS	7409	11/4/98	BB	DS-3
11/6/98	SR10	S-6/S-7	—	Crest of Slope	BO	1'x1'	TS	7409	11/6/98	BB	
11/6/98	SR11	S-1/S-22/Tie in	—	T Joint	T/FS	17'x3'	LE	7505	11/6/98	SK	
11/4/98	SR12	S-1/S-2/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/6/98	BB	
11/4/98	SR13	S-2/S-3/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	

DEFECT CODE

AD = ANIMAL RELATED DAMAGE	DS = DESTRUCTIVE SAMPLE	IO = INSUFFICIENT OVERLAP	SS = START STOP
B = UNDISPERSED RESID BEAD	EE = EARTHWK EQUIP DAMAGE	LB = LEISTER BURN	SSI = SOIL SURFACE IRREGULARITY
BO = BURN OUT	EXT = EXTENSION	MOT = MACHINE OFF TRACK	T = THREE PANEL INTERSECTION
BS = BOOT SKIRT	FB = FUSION WELDER BURN	N = NODULE	VL = VACUUM TEST LEAK
C = COUPON	FD = FACTORY DAMAGE	PTC = PRESSURE TEST CUT	WC = WRINKLE CUT
CO = CHANGE OF OVERLAP	FM = FISH MOUTH	SI = SUBGRADE IRREGULARITY	WR = WRINKLE
CR = CREASE	FS = FAILED SEAM	SL = SLAG ON TEXTURED SHEET	WS = WELDER RESTART
D = INSTALLATION DAMAGE	HT = HEAT TACK BURN	SO = SHARP OBJECT	OTHER

PRINT NAME: Steven Losbach

SIGNATURE:

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 2 - S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 11/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/4/98	SR14	S3/S4/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR15	S-4/S-5/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR16	S-5/S-6/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR17	S-6/S-7/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/6/98	SR18	S-7/S-8/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/6/98	BB	
11/4/98	SR19	S-8/S-9/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR20	S-9/S-10/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR21	S-10/S-11/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR22	S-11/S-22	—	12' NOEEOS	DS	3'x6'	TS	7409	11/4/98	BB	DS-5
11/4/98	SR23	S-11/S-12/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR24	S-12/S-13/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR25	S-13/S-14/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR26	S-14/S-15/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach
SIGNATURE: Steven Rasbach

SCS ENGINEERS

SHEET 3 - 5
PROJECT TITLE: Temeka Farms Rd. LF
PROJECT NO: 09950039.27
DATE: 11/98

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/4/98	SR27	S-15/S-16/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR28	S-16/S-17/S-22	—	T Joint	T	1'x1'	TS	7409	11/4/98	BB	
11/4/98	SR29	S-17/S-18/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR30	S-18/S-19/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR31	S-19/S-20/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/4/98	SR32	S-20/S-21/S-22	—	T Joint	T	1.5' Bead	TS	7409	11/4/98	BB	
11/6/98	SR33	S-22/S-23/S-24	—	T Joint	T	1'x1'	TS	7409	11/6/98	BB	
11/4/98	SR34	S-22/S-23	—	440'NOSEOS	DS	3'x6'	TS	7409	11/4/98	BB	DS-6
11/6/98	SR35	S-23/S-25	—	250'NOSEOS	DS	3'x6'	TS	7409	11/9/98	SK	DS-7
11/6/98	SR36	S-25/S-26	—	100'NOSEOS	DS	2'x6'	TS	7409	11/9/98	SK	DS-8
11/4/98	SR37	S-27/S-28	—	28'NOSEOS	BO	3'x4'	LE	7412	11/4/98	SK	
11/4/98	SR38	S-26/S-27	—	27'NOSEOS	BO	3'x4'	LE	7412	11/11/98	SK	
11/4/98	SR39	S-25/S-26	—	29'NOSEOS	BO	2'x4'	LE	7412	11/11/98	SK	

DEFECT CODE

AD = ANIMAL RELATED DAMAGE	DS = DESTRUCTIVE SAMPLE	IO = INSUFFICIENT OVERLAP	SS = START STOP
B = UNDISPERSED RESID BEAD	EE = EARTHWK EQUIP DAMAGE	LB = LEISTER BURN	SSI = SOIL SURFACE IRREGULARITY
BO = BURN OUT	EXT = EXTENSION	MOT = MACHINE OFF TRACK	T = THREE PANEL INTERSECTION
BS = BOOT SKIRT	FB = FUSION WELDER BURN	N = NODULE	VL = VACUUM TEST LEAK
C = COUPON	FD = FACTORY DAMAGE	PTC = PRESSURE TEST CUT	WC = WRINKLE CUT
CO = CHANGE OF OVERLAP	FM = FISH MOUTH	SI = SUBGRADE IRREGULARITY	WR = WRINKLE
CR = CREASE	FS = FAILED SEAM	SL = SLAG ON TEXTURED SHEET	WS = WELDER RESTART
D = INSTALLATION DAMAGE	HT = HEAT TACK BURN	SO = SHARP OBJECT	OTHER

PRINT NAME: Steven Rasbach

SIGNATURE: Steven Rasbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 4 - S
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 11/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/3/98	SR40	S23/S25	—	Header/ Lateral Trenches	WR	8'x8'	TL	7412	11/3/98	SK	
11/6/98	SR41	S23/S24/S25	—	T Joint	T	1'x1'	TS	7409	11/6/98	BB	
11/4/98	SR42	S26/S27	—	950' NOSEOS	DS	3'x6'	TS	7409	11/9/98	SK	DS-9
11/9/98	SR43	S27/S28/S29	—	T Joint	T	1'x2'	TS	7409	11/9/98	SK	
11/9/98	SR44	S27/S28	—	150' NOSEOS	DS	2'x5'	TS	7409	11/11/98	SK	DS-11
11/9/98	SR45	S22/S23/Tie-in	—	T Joint	T	1'x4'	LE	7412	11/10/98	SK	
11/4/98	SR46	S23/Tie-in	—	5' EOWEOS	IO	2'x4'	LE	7412	11/11/98	SK	
11/4/98	SR47	S23/S25/Tie-in	—	T Joint	T	1'x1'	LE	7412	11/9/98	SK	
11/4/98	SR48	S25/S26/Tie-in	—	T Joint	T	1'x4'	LE	7412	11/11/98	SK	
11/4/98	SR49	S26/Tie-in	—	7' EOWEOS	~~DS~~ DS	3'x7'	LE	7412	11/9/98	SK	DS-10
11/4/98	SR50	S27/S28/Tie-in	—	T Joint	T	1'x3'	LE	7412	11/11/98	SK	
11/4/98	SR51	S28/S30/Tie-in	—	T Joint	T	1'x3'	LE	7412	11/11/98	SK	
11/6/98	SR52	S7/S8	—	9' WOEEOS	BO	1'x1'	TS	7409	11/6/98	BB	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach

SIGNATURE:

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 5 - S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 11/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/6/98	SR53	S8/S9	—	Anchor Trench	MOT	1'x1'	TS	7409	11/6/98	BB	
11/6/98	SR54	—	S8	7'EOWEOP	SO	1'x1'	TS	7409	11/6/98	BB	
11/4/98	SR55	—	SP22	275'NOSEOP	CR	1'x1'	TS	7409	11/4/98	BB	
11/4/98	SR56	—	SP22	285'NOSEOP	CR	1'x1'	TS	7409	11/4/98	BB	
11/9/98	SR57	S30/S31	—	30'NOSEOS	SO	1'x1'	TS	7409	11/11/98	SK	
11/9/98	SR58	S30/S31	—	47'NOSEOS	BO	1'x2'	TS	7409	11/11/98	SK	
11/6/98	SR59	—	S23	215'NOSEOP	CR	1'x1'	TS	7409	11/6/98	BB	
11/6/98	SR60	—	S23	190'NOSEOP	SO	1'x1'	TS	7409	11/6/98	BB	
11/9/98	SR61	S30/S31	—	400'NOSEOS	DS	3'x5'	TS	7409	11/11/98	SK	DS-13
11/9/98	SR62	S31/S32	—	289'NOSEOS	DS	3'x5'	TS	7409	11/11/98	SK	DS-14
11/9/98	SR63	S32/S33	—	150'NOSEOS	DS	3'x5'	TS	7409	11/11/98	SK	DS-15
11/4/98	SR64	—	S32	Header/ Lateral Trenches	WR	8'x8'	LE	7412	11/11/98	SK	
11/9/98	SR65	S32/S33	—	40'NOSEOS	WR	1'x4'	TS	7409	11/10/98	SK	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 6 - S
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 11/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/9/98	SR66	S32/S33	—	33'NOSEOS	BO	1'x2'	TS	7409	11/11/98	SK	
11/9/98	SR67	—	S27	469'NOSEOP	SO	1'x2'	TS	7409	11/9/98	SK	
11/9/98	SR68	S23/S25	—	50'NOSEOS	IO	2'x2'	TS (EO) SB	7409	11/10/98	SK	
11/9/98	SR69	S23/S25	—	61'NOSEOS	IO	2'x2'	TS	7409	11/10/98	SK	
11/9/98	SR70	S27/S28	—	335'NOSEOS	IO	SB 4'x2'	TS (EO) SB	7409	11/11/98	SK	
11/9/98	SR71	S33/S34	—	34'NOSEOS	BO	9'x4'	LE	7412	11/11/98	SK	
11/9/98	SR72	S33/S34	—	50'NOSEOS	PTC	2'x5'	TS	7409	11/11/98	SK	
11/12/98	SR73	S33/S34	—	62'NOSEOS	PTC	2'x5'	LE	7412	11/11/98	SK	
11/12/98	SR74	S33/S34	—	197'NOSEOS	PTC	1'x1'	LE	7412	11/12/98	SK	
11/12/98	SR75	S33/S34	—	319'NOSEOS	PTC	1'x4'	LE	7412	11/12/98	SK	
11/12/98	SR76	S33/S34	—	327'NOSEOS	DS	2'x7'	LE	7412	11/12/98	SK	DS-17
11/11/98	SR77	S34/S35	—	369'NOSEOS	PTC	1'x2'	LE	7412	11/11/98	SK	
11/11/98	SR78	S34/S35	—	300'NOSEOS	DS	2'x7'	LE	7412	11/12/98	SK	DS-18

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach

SIGNATURE: Steven Rasbach

SCS ENGINEERS

SHEET 7 - 5
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 11/98

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/9/98	SR79	S34/S35	——	17'NOSEOS	WR	3'x5'	LE	7412	11/11/98	SK	
11/11/98	SR80	S35/S36	——	450'NOSEOS	DS	3'x6'	LE	7412	11/11/98	SK	DS-19
11/10/98	SR81	S36/S37	——	250'NOSEOS	DS	3'x6'	TL	7412	11/11/98	SK	DS-20
11/10/98	SR82	S36/S37	——	50'NOSEOS	WR	3'x3'	TL	7412	11/11/98	SK	
11/11/98	SR83	S37/S38	——	38'NOSEOS	BO	3'x9'	TL	7412	11/11/98	SK	
11/11/98	SR84	S37/S38	——	50'NOSEOS	DS	3'x6'	TL	7412	11/11/98	SK	DS-21
11/11/98	SR85	S37/S38	——	182'NOSEOS	BO	1'x1'	LE	7412	11/11/98	SK	
11/11/98	SR86	S38/S39	——	410'NOSEOS	DS	3'x6'	LE	7412	11/11/98	SK	DS-22
11/10/98	SR87	S38/S39	——	262'NOSEOS	D	1'x1'	TL	7412	11/11/98	SK	
11/11/98	SR88	S38/S39	——	39'NOSEOS	BO	1'x1'	LE	7412	11/11/98	SK	
11/11/98	SR89	——	S39	Header/ Lateral Trenches	WR	10'x8'	TL	7412	11/11/98	SK	
11/11/98	SR90	S39/S40	——	25'NOSEOS	WR	10'x1'	LE	7412	11/11/98	SK	
11/10/98	SR91	S39/S40	——	32'NOSEOS	BO	3'x2'	TL	7412	11/11/98	SK	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach

SIGNATURE: Steven Rasbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 8 - 5
PROJECT TITLE: Tenaska Farms Rd LF
PROJECT NO: 09950039.27
DATE: 11/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/12/98	SR92	S39/S40	—	47'NOSEOS	PTC	2'x7'	LE	7412	11/25/98	SK	
11/12/98	SR93	S39/S40	—	56'NOSEOS	PTC	3'x5'	LE	7412	11/25/98	SK	
11/11/98	SR94	S40/S41	—	350'NOSEOS	DS	3'x6'	LE	7412	11/11/98	SK	DS-24
11/11/98	SR95	S41/S42	—	305'NOSEOS	DS	5'x6'	LE	7412	11/11/98	SK	DS-25
11/11/98	SR96	S41/S42	—	85'NOSEOS	PTC	3'x9'	LE	7412	11/11/98	SK	
11/12/98	SR97	S41/S42	—	54'NOSEOS	BO	3'x4'	LE	7412	11/14/98	SK	
11/12/98	SR98	S42/S43	—	20'NOSEOS	DS	2'x6'	LE	7412	11/14/98	SK	DS-26
11/12/98	SR99	S43/S44	—	38'NOSEOS	BO	2'x3'	LE	7412	11/14/98	SK	
11/11/98	SR100	S44/S45	—	100'NOSEOS	DS	2'x6'	LE	7412	11/11/98	SK	DS-28
11/11/98	SR101	S43/S44	—	400'NOSEOS	DS	3'x6'	LE	7412	11/11/98	SK	DS-27
11/11/98	SR102	S45/S46	—	270'NOSEOS	DS	3'x7'	LE	7412	11/11/98	SK	DS-29
11/11/98	SR103	S45/S46	—	175'NOSEOS	IO	3'x12'	LE	7412	11/11/98	SK	
11/11/98	SR104	S41/S42	—	448'NOSEOS	PTC	2'x8'	LE	7412	11/16/98	SK	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach

SIGNATURE:

SCS ENGINEERS

SHEET 9 - 5
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 11/98

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/14/98	SR105	S46/S47	—	12'NOSEOS	DS	3'x6'	LE	7412	11/14/98	SK	DS-30
11/14/98	SR106	S46/S47	—	37'NOSEOS	WR	3'x6'	LE	7412	11/24/98	SK	
11/14/98	SR107	—	S46	Header/ Lateral Tranches	WR	8'x8'	LE	7412	11/24/98	SK	
11/14/98	SR108	S46/S47	—	44'NOSEOS	PTC	1'x1'	LE	7412	11/24/98	SK	
11/14/98	SR109	S46/S47	—	275'NOSEOS	PTC	1'x1'	LE	7412	11/16/98	SK	
11/14/98	SR110	S47/S48	—	305'NOSEOS	DS	3'x7'	LE	7412	11/16/98	SK	DS-31
11/14/98	SR111	S47/S48	—	30'NOSEOS	BO	4'x5'	LE	7412	11/24/98	SK	
11/14/98	SR112	S48/S49	—	95'NOSEOS	DS	3'x6'	LE	7412	11/16/98	SK	DS-32
11/14/98	SR113	S49/S50	—	200'NOSEOS	DS	3'x6'	LE	7412	11/17/98	SK	DS-34
11/14/98	SR114	S50/S51	—	379'NOSEOS	DS	3'x6'	LE	7412	11/17/98	SK	DS-33
11/14/98	SR115	S49/S50	—	38'NOSEOS	BO	4'x6'	LE	7412	11/24/98	SK	
11/14/98	SR116	S50/S51	—	32'NOSEOS	WR	6'x6'	LE	7412	11/24/98	SK	
11/14/98	SR117	S51/S52	—	25'NOSEOS	DS	2'x6'	LE	7412	11/24/98	SK	DS-35

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 10 - S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 11/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/14/98	SR 118	S52/S53	—	33'NOSEOS	BO	4'x4'	LE	7412	11/24/98	SK	
11/12/98	SR119	S52/S53	—	318'NOSEOS	IO	2'x6'	LE	7412	11/17/98	SK	
11/12/98	SR120	S52/S53	—	370'NOSEOS	DS	3'x6'	LE	7412	11/17/98	SK	DS-36
11/14/98	SR121	S52/S53	—	415'NOSEOS	IO	2'x3'	LE	7412	11/17/98	SK	
11/14/98	SR122	S52/S53	—	430'NOSEOS	IO	2'x12'	LE	7412	11/17/98	SK	
11/14/98	SR123	S53/S54	—	430'NOSEOS	DS	3'x6'	LE	7412	11/17/98	SK	DS-37
11/14/98	SR124	S54/S55	—	292'NOSEOS	DS	3'x6'	LE	7412	11/17/98	SK	DS-38
11/16/98	SR125	S53/S54	—	45'NOSEOS	PTC	3'x6'	TL	7410	11/24/98	SK	
11/16/98	SR126	—	S53	Header/ Lateral Trenches	WR	8'x8'	TL	7410	11/24/98	SK	
11/16/98	SR127	S53/S54	—	10'NOSEOS	IO	3'x20'	TL	7410	11/20/98	SK	
11/14/98	SR128	S54/S55	—	34'NOSEOS	BO	4'x5'	LE	7412	11/24/98	SK	
11/14/98	SR129	S55/S56	—	442'NOSEOS	DS	3'x6'	LE	7412	11/17/98	SK	DS-39
11/14/98	SR130	S56/S57	—	334'NOSEOS	DS	3'x6'	LE	7412	11/17/98	SK	DS-40

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

SHEET 11 - 5
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 11/98

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/14/98	SR131	S56/S57	—	341'NOSEOS	PTC	1'x1'	LE	7412	11/23/98	SK	
11/18/98	SR132	S57/S58	—	300'NOSEOS	DS	3'x6'	LE	7412	11/18/98	SK	DS-41
11/18/98	SR133	S58/S59	—	47'NOSEOS	DS	3'x6'	TL	7412	11/18/98	SK	DS-43
11/18/98	SR134	S58/S59	—	40'NOSEOS	BO	3'x5'	TL	7412	11/24/98	SK	
11/18/98	SR135	S59/S60	—	71'NOSEOS	PTC/IO	3'x35'	TL	7412	11/24/98	SK	
11/11/98	SR136	S30/S31/Tiein	—	T Joint	T	2'x3'	TL	7412	11/14/98	SK	
11/11/98	SR137	S31/Tie-in	—	10'NOEEOS	FS	3'x20'	TL	7412	11/14/98	SK	
11/9/98	SR138	S32/S31/Tie-in	—	T Joint	T/FS	3'x7'	TL	7412	11/14/98	SK	
11/9/98	SR139	S32/Tiein	—	10'EOWEOS	FS	3'x18'	TL	7412	11/14/98	SK	
11/12/98	SR140	S33/Tie-in	—	5'NOEEOS	FS	3'x10'	TL	7412	11/14/98	SK	
11/12/98	SR 141	S33/Tie-in	—	12'NOEEOS	DS/FS	3'x12'	TL	7412	11/14/98	SK	DS-16
11/12/98	SR142	S33/S34/Tie-in	—	T Joint	T	2'x3'	LE	7412	11/23/98	SK	
11/12/98	SR 143	S34/Tie-in	—	5'EOWEOS	DS	3'x6'	LE	7412	11/14/98	SK	DS-23A

DEFECT CODE

AD = ANIMAL RELATED DAMAGE	DS = DESTRUCTIVE SAMPLE	IO = INSUFFICIENT OVERLAP	SS = START STOP
B = UNDISPERSED RESID BEAD	EE = EARTHWK EQUIP DAMAGE	LB = LEISTER BURN	SSI = SOIL SURFACE IRREGULARITY
BO = BURN OUT	EXT = EXTENSION	MOT = MACHINE OFF TRACK	T = THREE PANEL INTERSECTION
BS = BOOT SKIRT	FB = FUSION WELDER BURN	N = NODULE	VL = VACUUM TEST LEAK
C = COUPON	FD = FACTORY DAMAGE	PTC = PRESSURE TEST CUT	WC = WRINKLE CUT
CO = CHANGE OF OVERLAP	FM = FISH MOUTH	SI = SUBGRADE IRREGULARITY	WR = WRINKLE
CR = CREASE	FS = FAILED SEAM	SL = SLAG ON TEXTURED SHEET	WS = WELDER RESTART
D = INSTALLATION DAMAGE	HT = HEAT TACK BURN	SO = SHARP OBJECT	OTHER

PRINT NAME: Steven Rasbach

SIGNATURE: Steven Rasbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET: 12 - S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 11/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/12/98	SR144	S35/Tie-in	—	5'NOEEOS	FS	3'x7'	LE	7412	11/14/98	SK	
11/11/98	SR145	S35/Tie-in	—	12'EOWEOS	DS	3'x6'	LE	7412	11/14/98	SK	DS-23
11/12/98	SR146	S35/Tie-in	—	5'EOWEOS	FS	3'x10'	LE	7412	11/14/98	SK	
11/12/98	SR147	S36/Tie-in	—	5'WOEEOS	DS	3'x6'	LE	7412	11/23/98	SK	DS-23B
11/12/98	SR148	S36/S37/Tie-in	—	T Joint	T	1'x1'	LE	7412	11/14/98	SK	
11/12/98	SR149	S37/S38/Tie-in	—	T Joint	T	2'x3'	LE	7412	11/14/98	SK	
11/12/98	SR150	S38/S39/Tie-in	—	T Joint	T	1'x1'	LE	7412	11/14/98	SK	
11/12/98	SR151	S39/S40/Tie-in	—	T Joint	T	2'x3'	LE	7412	11/14/98	SK	
11/12/98	SR152	S40/S41/Tie-in	—	T Joint	T	1.5' Ext. Bead	LE	7412	11/14/98	SK	
11/12/98	SR153	S41/Tie-in	—	3'WOEEOS	MOT	1'x2'	LE	7412	11/23/98	SK	
11/12/98	SR154	S41/S42/Tie-in	—	T Joint	T	1.5' Ext. Bead	LE	7412	11/14/98	SK	
11/12/98	SR155	S42/S43/Tie-in	—	T Joint	T	1.5' Ext. Bead	LE	7412	11/14/98	SK	
11/12/98	SR156	S43/S44/Tie-in	—	T Joint	T	1.5' Ext. Bead	LE	7412	11/14/98	SK	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

SHEET 13 - 5
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 11/98

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/12/98	SR157	S44/S45/Tie-in	—	T Joint	T	15' Ext. B.	LE	7412	11/14/98	SK	
11/12/98	SR158	S45/Tie-in	—	3'EOWEOS	IO	2'x4'	LE	7412	11/23/98	SK	
11/12/98	SR159	S46/Tie-in	—	T Joint	T	2'x2'	LE	7412	11/20/98	SK	
11/15/98	SR160	S46/S47/Tie-in	—	T Joint	T	2'x3'	TL	7410	11/20/98	SK	
11/15/98	SR161	S47/S48/Tie-in	—	T Joint	T	15' Ext. Bead	TL	7410	11/20/98	SK	
11/15/98	SR162	S48/S49/Tie-in	—	T Joint	T	2'x4'	TL	7410	11/20/98	SK	
11/15/98	SR163	S49/S50/Tie-in	—	T Joint	T	2'x4'	TL	7410	11/20/98	SK	
11/15/98	SR164	S50/S51/Tie-in	—	T Joint	T	2'x4'	TL	7410	11/20/98	SK	
11/15/98	SR165	S51/S52/Tie-in	—	T Joint	T/FS	3'x12'	TL	7410	11/20/98	SK	
11/15/98	SR166	S52/S53/Tie-in	—	T Joint	T/IO	3'x4'	TL	7410	11/20/98	SK	
11/15/98	SR167	S53/S54/Tie-in	—	T Joint	T	3'x4'	TL	7410	11/20/98	SK	
11/20/98	SR168	S54/Tie-in	—	5'EOWEOS	IO	3'x6'	TL	7412	11/20/98	SK	
11/20/98	SR169	S55/Tie-in	—	5'WOEEOS	DS	3'x6'	TL	7412	11/20/98	SK	DS-42

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach

SIGNATURE: Steven Rasbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 14 - S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 11/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/19/98	SR170	S55/S56/Tie-in	—	T Joint	T	1'x1'	TL	7412	11/20/98	SK	
11/19/98	SR171	S56/S57/Tie-in	—	T Joint	T	1'x1'	TL	7412	11/20/98	SK	
11/19/98	SR172	S57/S58/Tie-in	—	T Joint	T	4'x5'	TL	7412	11/20/98	SK	
11/18/98	SR173	S45/S46/Tie-in	—	455'NOSEOS	PTC	1'x2'	TL	7412	11/18/98	SK	
11/18/98	SR174	S47/S48	—	420'NOSEOS	PTC	1'x2'	TL	7412	11/18/98	SK	
11/18/98	SR175	S55/S56	—	465'NOSEOS	IO	2'x10'	TL	7412	11/18/98	SK	
11/18/98	SR176	S70/S71/S69	—	T Joint	T	2'x2'	TL	7412	11/18/98	SK	
11/18/98	SR177	S71/S69	—	3'SONEOS	BO	3'x2'	TL	7412	11/18/98	SK	
11/20/98	SR178	S59/S60	—	410'NOSEOS	DS	3'x6'	TL	7412	11/23/98	SK	DS-44
11/20/98	SR179	S60/S61	—	360'NOSEOS	DS	3'x6'	TL	7412	11/23/98	SK	DS-45
11/20/98	SR180	S61/S62	—	202'NOSEOS	PTC	2'x3'	TL	7412	11/23/98	SK	
11/19/98	SR181	S61/S62	—	130'NOSEOS	DS	3'x6'	TL	7412	11/19/98	SK	DS-46
11/18/98	SR182	S61/S62	—	50'NOSEOS	BO'	2'x3'	TL	7412	11/24/98	SK	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rostock
SIGNATURE: Steven Rostock

SCS ENGINEERS

SHEET 15 - 5
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 11/98

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/18/98	SR183	S60/S61	—	Header/Lateral 30' NOSEOS	BO	8'x8'	TL	7412	11/24/98	SK	
11/18/98	SR 184	S62/S63	—	80'NOSEOS	BO	2'x3'	TL	7412	11/24/98	SK	
11/19/98	SR185	S63/S64	—	80'NOSEOS	BO	1'x3'	TL	7412	11/19/98	SK	
11/19/98	SR186	S63/S64	—	200'NOSEOS	DS	3'x6'	TL	7412	11/23/98	SK	DS-47
11/23/98	SR187	S65/S66	—	455'NOSEOS	DS	3'x7'	TLE	7412	11/23/98	SK	DS-49
11/20/98	SR188	S65/S64	—	360'NOSEOS	DS	3'x6'	TL	7412	11/23/98	SK	DS-48
11/20/98	SR189	S67/S68	—	Header/ Lateral Trenches	WR	8'x8'	TL	7412	11/26/98	SK	
11/20/98	SR190	S67/S68	—	15'NOSEOS	DS	3'x6'	TL	7412	11/20/98	SK	DS-50
11/19/98	SR191	S67/S68	—	40'NOSEOS	BO	2'x3'	TL	7412	11/19/98	SK	
11/23/98	SR192	S68/S69	—	200'NOSEOS	IO	2'x6'	TLE	7412	11/23/98	SK	
11/20/98	SR193	S68/S69	—	400'NOSEOS	DS	3'x6'	TL	7412	11/23/98	SK	DS-51
11/20/98	SR 194	S88/S89	—	49'EOWEOS	DS	3'x6'	TL	7412	11/23/98	SK	DS-53
11/20/98	SR195	S69/S88/S89	—	T Joint	T	15'Ext. Bead	TL	7412	11/23/98	SK	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 16 - S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 11/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/20/98	SR196	S69/S87/S88	—	T Joint	T	1.5' Ext. Bead	TL	7412	11/23/98	SK	
11/20/98	SR197	S69/S87/S88	—	T Joint	T	1.5' Ext. Bead	TL	7412	11/23/98	SK	
11/20/98	SR198	S69/S85/S86	—	T Joint	T	1.5' Ext. Bead	TL	7412	11/23/98	SK	
11/20/98	SR199	S69/S84/S85	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/20/98	SR200	S69/S83/S84	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/20/98	SR201	S69/S82/S83	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/20/98	SR202	S69/S81/S82	—	T Joint	T	3'x4'	TL	74-14	11/23/98	SK	
11/20/98	SR203	S69/S80/S81	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/20/98	SR204	S69/S79/S80	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/20/98	SR205	S69/S78/S79	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/20/98	SR206	S69/S77/S78	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/20/98	SR207	S69/S76/S77	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/23/98	SR208	S69/S75/S76	—	T Joint	T	2'x3'	LE	74-14	11/23/98	SK	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Postoch

SIGNATURE:

SCS ENGINEERS

SHEET 17 - 5
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950339.27
DATE: 11/98

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/18/98	SR209	S69/S74/S75	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/18/98	SR210	S69/S73/S74	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/18/98	SR211	S69/S72/S73	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/18/98	SR212	S69/S71/S72	—	T Joint	T	1.5' Ext. Bead	TL	74-14	11/23/98	SK	
11/23/98	SR213	(SB) S73/S74 4'EOWEOS	—	4'EOWEOS	BO	2'x2'	LE	74-14	11/23/98	SK	
11/20/98	SR214	S70/Tie-in	—	7'WOEEOS	WS	2'x3'	TL	74-12	11/20/98	SK	
11/20/98	SR215	S69/S70/Tiein	—	T Joint	T	~~1.5' Ext. Bead~~ 2'x3' (SB)	TL	74-12	11/20/98	SK	
11/20/98	SR216	S68/S69/Tiein	—	T Joint	T	2'x3'	TL	74-12	11/20/98	SK	
11/20/98	SR217	S68/@Tiein	—	~~T Joint~~ 6'EOWEOS (SB) (T) WS		2'x2'	TL	74-12	11/20/98	SK	
11/20/98	SR218	S67/S68/Tiein	—	T Joint	T	1.5' Ext. Bead	TL	74-12	11/20/98	SK	
11/20/98	SR219	S67/Tiein	—	12'EOWEOS	BO	2'x3'	TL	74-12	11/20/98	SK	
11/19/98	SR220	S66/S67/Tiein	—	T Joint	T	1.5' Ext. Bead	TL	74-12	11/24/98	SK	
11/20/98	SR221	S65/Tiein	—	Entire Seam	FS	3'x23'	LE	74-15	11/20/98	SK	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach

SIGNATURE: Steven Rasbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET: 18 - 5
PROJECT TITLE: Tonoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 11/98 - 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
11/20/98	SR222	S63/S64/Tiein	—	TJoint	T	1.5'Ext.Bead	LE	74-15	11/20/98	SK	
11/20/98	SR223	S62/S63/Tiein	—	TJoint	T	2'x3'	LE	74-15	11/20/98	SK	
11/20/98	SR224	S62/Tiein	—	8'WOEEOS	DS	3'x7'	LE	74-15	11/20/98	SK	DS-54
11/20/98	SR225	S61/S62/Tiein	—	TJoint	T	1.5'Ext.Bead	LE	74-15	11/20/98	SK	
11/20/98	SR226	S60/S61/Tiein	—	TJoint	T	2'x3'	LE	74-15	11/20/98	SK	
11/20/98	SR227	S60/Tiein	—	10'WOEEOS	WS	3'x1'	LE	74-15	11/20/98	SK	
11/20/98	SR228	S59/S60/Tiein	—	TJoint	T	1.5'Ext.Bead	TL	74-12	11/20/98	SK	
11/19/98	SR229	S58/S59/Tiein	—	TJoint	T	2'x3'	TL	74-12	11/20/98	SK	
11/19/98	SR230	S58/Tiein	—	10'WOEEOS	BO	1'x3'	TL	74-12	11/20/98	SK	
11/19/98	SR231	—	S58	3'NOSEOS	WR	3'x5'	TL	74-12	11/20/98	SK	
11/18/98	SR232	S68/S69	—	61'NOSEOS	BO	2'x2'	TL	74-12	11/18/98	SK	
11/23/98	SR233	—	S46	N.EO.Panel	EXT	5'x23'	LE	7412	11/23/98	SK	
1/5/99	SR234	S90/S91	—	Anchor Trench	BO	2'x4'	↓	↓	1/5/99	SK	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 19 - 5
PROJECT TITLE: Temeka Farms Rd LF
PROJECT NO: 09950089.27
DATE: 1/12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/23/98	SR235	S21/S22/S90/S104	—	TJoint	T	2' Ext. Bead	GS	74-12	12/28/98	WS	
	SR236	S90/S91/S104	—	TJoint	T	1.5' Ext. Bead					
	SR237	S91/S92/S104	—	TJoint	T	1.5' Ext. Bead					
	SR238	S92/S93/S104	—	TJoint	T	1.5' Ext. Bead					
	SR239	S93/S94/S104	—	TJoint	T	1'x 2' Patch					
	SR240	S94/S95/S104	—	TJoint	T	1'x2' Patch			↓	↓	
	SR241	S95/S96/S104	—	TJoint	T	4'x10' Patch			1/5/99	SK	
	SR242	S95/S96	—	TJoint	T	10'x35' Patch			↓	↓	
	SR243	S97/S98/S99/S100	—	TJoint	T	2'x5' Patch			↓	↓	
	SR244	S96/S97	—	5'EOWEOS	DS	3'x6' Patch			12/23/98	GS	DS-55
	SR245	S96/S97/S100/S101	—	TJoint	T	1'x3' Patch			↓	↓	
	SR246	S96/S101/S103	—	TJoint	T	1'x1' Patch			↓	↓	
↓	SR247	S96/S103/S104	—	TJoint	T	2'x6'	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rospach
SIGNATURE: Steven Rospach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 20-S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 12/98 - 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/23/98	SR248	S102/S103/S104	—	T Joint	T	1.5' Ext. Bead	GS	74-12	12/23/98	GS	
↓	SR249	S101/S102/S103	—	T Joint	T	2'x3' Patch	↓	↓	12/28/98	WS	
↓	SR250	S104/S105	—	150' SONEOS	DS	2'x5' Patch	↓	↓	↓	↓	DS-56
↓	SR251	S105/S106	—	180' SONEOS	BO	2'x2'	↓	↓	1/5/99	SK	
↓	SR252	S105/S106	—	67' SONEOS	WR	4'x8'	↓	↓	12/29/98	WS	
↓	SR253	S105/S106	—	78' SONEOS	WR	4'x8'	↓	↓	↓	↓	
1/5/99	SR254	—	S105	33' SONEOS	WR	2'x14'	LE	↓	1/5/99	SK	
↓	SR255	S106/S107	—	Anchor Trench	BO	2'x2'	↓	↓	↓	↓	
12/23/98	SR256	S106/S107	—	80' SONEOS	BO	2'x3'	GS	↓	↓	↓	
1/5/99	SR257	S107/S109	—	Anchor Trench	BO	2'x3'	LE	↓	↓	↓	
12/29/98	SR258	S107/S109	—	65' SONEOS	BO	2'x2'	↓	74-15	12/29/98	WS	
1/5/99	SR259	S105/S106	—	Anchor Trench	BO	2'x3'	↓	↓	1/5/99	SK	
12/28/98	SR260	S107/S109	—	130' NOSEOS	DS	2'x6'	JM	74-12	12/28/98	WS	DS-57

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach
SIGNATURE: Steven Rasbach

SCS ENGINEERS

SHEET 21 - S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09S039.27
DATE: 12/98 - 1/99

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/28/98	SR261	S107/S108/S109	—	T Joint	T	2'x3'	JM	74-12	12/28/98	WS	
↓	SR262	S108/S109/S110	—	↓	T	1.5' Ext. Bead	↓	↓	↓		
12/29/98	SR263	S110/S112	—	52' SONEOS	WR	2'x15'	LE	74-15	12/29/98		
	SR264	S110/S111/S112	—	T Joint	T	2'x3'					
	SR265	S111/S112/S113	—	↓	T	2'x4'					
	SR266	—	S113	87' SONEOP	SO	1'x1'					
	SR267	S112/S113	—	81' SONEOS	DS	2'x6'					DS-58
	SR268	S112/S113	—	76' SONEOS	PTC	1'x4'					
↓	SR269	S113/S114	—	68' SONEOS	BO	2'x10'		↓	↓	↓	
1/5/99	SR270	—	S114	50' SONEOP	WR	2'x28'	↓	74-12	1/5/99	SK	
1/4/99	SR271	S114/S115	—	67' SONEOS	WR	5'x10'	JM		12/29/98	WS	
	SR272	S114/S115	—	75' SONEOS	PTC	2'x6'	↓		↓	↓	
↓	SR273	S114/S115	—	103' SONEOS	PTC	2'x5'	TL	↓	1/5/99	SK	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 22 - S
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 09950.39.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/28/98	SR274	S104/S105/S23/S24	—	207'SONEOS	T	1.5' Ext Bead	JM	74-12	12/28/98	WS	
	SR275	S105/S106/S24/S25	—	T Joint	T	2'x7'					
	SR276	—	S106	206'SONEOP	SO	2'x4'					
	SR277	S106/S107/S25/S26	—	T Joint	T	1.5' Ext Bead					
	SR278	S107/S108/S26/S27	—	T Joint	T	2' Ext Bead					
	SR279	S108/S110/S27/S29	—	T Joint	T	2.5' Ext Bead					
	SR280	S29/S110/S111	—	T Joint	T	1.5' Ext Bead					
	SR281	S28/S29/S30/S111	—	T Joint	T	3' Ext Bead					
	SR282	S31/S30/S111/S113	—	T Joint	T	1.5' Ext Bead					
↓	SR283	S31/S32/S113/S114	—	T Joint	T	3' Ext Bead	↓	↓	↓	↓	
12/30/98	SR284	S32/S114	—	8'EOWEOS	FS	2'x10'	TL	74-15	1/4/99	SK	
	SR285	S32/S33/S114/S115	—	T Joint	T	2.5' Ext Bead					
↓	SR286	S33/S115	—	3'EOWEOS	WR	2'x6'	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

SHEET 23 - S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/99

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/4/99	SR287	S33/S34/S115/S117	—	T Joint	T	1.5' Ext.	JM	74-15	1/4/99	SK	
↓	SR288	S34/S117	—	11'EOWEOS	BO	2'x3'	↓	↓	↓	↓	
	SR289	S34/S35/S117/S118	—	T Joint	T	1.5' Ext. Bead					
	SR290	S35/S36/S118/S119	—	↓	T	↓					
	SR291	S36/S37/S119/S120	—		T						
	SR292	S37/S38/S120/S123	—	↓	T	↓					
	SR293	S38/S123	—	8'WOEEOS	DS	3'x6'					DS64
	SR294	S38/S39/S123/S124	—	T Joint	T	1.5' Ext. Bead					
	SR295	S39/S124	—	7'WOEEOS	BO	2'x4'					
	SR296	S39/S124	—	13'WOEEOS	SS	2'x3'					
	SR297	S39/S40/S124/S125	—	T Joint	T	1.5' Ext. Bead			↓		
↓	SR298	S40/S41/S125/S126	—	↓	T	↓	↓	↓	1/5/99		
1/5/99	SR299	S41/S42/S126/S127		↓	T	↓	LE	74-12	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasback

SIGNATURE:

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET: 24 - S
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/5/99	SR300	S42/S43/S127/S128	—	T Joint	T	1.5' Ext. Bead	LE	74-12	1/5/99	SK	
↓	SR301	S43/S44/S128/S129	—	↓	T	25' Ext. Bead	↓	↓	↓	↓	
	SR302	S44/S45/S129/S130	—		T	↓					
	SR303	S45/S46/S130/S131	—	↓	T	↓					
	SR304	S116/S118	—	Anchor Trench	PTC	2'x3'					
↓	SR305	S118/S119	—	↓	PTC	2'x3'	↓				
1/4/99	SR306	S115/S116	—	78' SONEOS	WR	4'x10'	TL				
↓	SR307	S115/S116/S117	—	87' SONEOS	T	2' Ext. Bead	↓	↓	↓		
	SR308	S117/S115	—	165' SONEOS	DS	3'x6'	JM	74-15	1/4/99		DS60
	SR309	S116/S117/S118	—	T Joint	T	1.5' Ext.	TL	74-12	1/5/99		
	SR310	S116/S118	—	67' SONEOS	BO	2'x3'					
	SR311	S118/S119	—	50' SONEOS	DS	2'x6'			↓		DS61
↓	SR312	S119/S120	—	66' SONEOS	WR	3'x9'	↓	↓	1/6/99	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP			SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN			SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK			T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE			VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT			WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY			WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET			WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT			OTHER	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 25 - S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/4/99	SR313	——	S120	57'SONEOP	BO	2'x3'	TL	74-12	1/5/99	SK	
↓	SR314	S120/S122	——	69'SONEOS	BO	2'x4'	↓	↓	↓	↓	
↓	SR315	S120/S121/S122	——	155'SONEOS	T	1.5' Ext. Bead	JM	74-15	1/4/99	↓	
↓	SR316	S120/S121/S123	——	~~196'SONEOS~~ T Joint (A)	T	↓	↓	↓	↓	↓	
↓	SR317	S121/S123/S124	——	T Joint (197'SON) (B)	T	↓	↓	↓	↓	↓	
↓	SR318	S121/S122/S124	——	TJoint	T	↓	↓	↓	↓	↓	
↓	SR319	S124/S125	——	20'SONEOS	DS	3'x6'	TL	74-12	1/5/99	↓	DS62
↓	SR320	S124/S125	——	Header/Lateral Intersection	WR	4'x12'	↓	↓	1/6/99	↓	
↓	SR321	S124/S125	——	Header/Lateral Intersection	WR	4'x12'	↓	↓	↓	↓	
1/5/99	SR322	S127/S128	——	82'SONEOS	BO	3'x4'	LE	↓	1/5/99	↓	
1/6/99	SR323	S128/S129	——	70'SONEOS	FS	2'x20'	↓	↓	1/11/99	↓	
1/7/99	SR324	S129/S130	——	70'SONEOS	FS	2'x20'	TL	↓	↓	↓	
1/5/99	SR325	S128/S129	——	100'SONEOS	DS	3'x6'	LE	↓	1/5/99	↓	DS63

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET: 26 - S
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/11/99	SR326	S130/S131	—	69'SONEOS	WR	2'×25'	CA	74-12	1/11/99	SK	
1/6/99	SR327	S129/S130/S131	—	80'SONEOS	WR	~~25'~~ Ext. Weld	LE				
1/11/99	SR328	S131/S132	—	80'SONEOS	WR	23' Ext. Weld	CA				
	SR329	S131/S132	—	70'SONEOS	WR	2'×23'					
	SR330	S131/S132	—	36'SONEOS	WR	3'×21'					
	SR331	S125/S126/S127	—	65'SONEOS	WR	2'×25'	GS				
1/6/99	SR332	—	S131	64'SONEOP	SO	2'×4'	TL				
1/11/99	SR333	S131/S132/S133	—	80'SONEOS	WR	25' Ext. Weld	CA				
	SR334	S132/S133	—	80'SONEOS	FS	2'×15'					
	SR335	S132/S133	—	200'SONEOS	DS	2'×6'					DS65
	SR336	S133/S134	—	78'SONEOS	BO	2'×3'					
	SR337	S134/S135	—	82'SONEOS	BO	2'×2'					
	SR338	S136/S137	—	136'SONEOS	DS	3'×6'					DS66

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach

SIGNATURE:

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 27 - S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/6/99	SR339	S136/S137	—	67'SONEOS	BO	2'x3'	TL	74-12	1/11/99	SK	
1/11/99	SR340	S138/S139	—	67'SONEOS	WR	4'x11'	CA	↓	↓	↓	
1/6/99	SR341	—	S138	75'SONEOP	WR	4'x10'	TL		1/6/99		
↓	SR342	S138/S139	—	85'SONEOS	PTC	4'x2'	TL		1/11/99		
1/11/99	SR343	S139/S140	—	72'SONEOS	BO	2'x2'	CA				
1/6/99	SR344	S139/S140	—	128'SONEOS	BO	2'x5'	TL				
1/11/99	SR345	S139/S140	—	145'SONEOS	DS	2'x6'	CA				DS67
1/6/99	SR346	S140/S141	—	69'SONEOS	BO	3'x5'	TL				
1/11/99	SR347	S140/S141	—	50'SONEOS	DS	2'x6'	↓				DS68
1/6/99	SR348	S141/S142	—	190'SONEOS	BO	3'x2'					
↓	SR349	S142/S143	—	69'SONEOS	BO	3'x4'					
↓	SR350	S144/S145	—	98'SONEOS	DS	3'x6'					DS69
↓	SR351	—	S145	78'SONEOP	WR	4'x11'	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rastach
SIGNATURE: Steven Rastach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 28 - S
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/6/99	SR352	S144/S145	—	68'SONEOS	WR	4'x12'	TL	74-12	1/11/99	SK	
1/12/99	SR353	S144/S145	—	Anchor Trench	BO	4'x2'	LE	↓	1/12/99	↓	
1/6/99	SR354	S147/S148	—	79'SONEOS	BO	2'x3'	TL	↓	1/11/99	↓	
1/11/99	SR355	S147/S148	—	150'SONEOS	DS	3'x6'	CA	↓	↓	↓	DS71
↓	SR356	S148/S149	—	55'SONEOS	BO	2'x5'	CA	↓	↓	↓	
1/12/99	SR357	S149/S150	—	49'SONEOS	PTC	2'x2'	LE	↓	1/12/99	↓	
1/11/99	SR358	S150/S151	—	149'SONEOS	DS	2'x6'	CA	↓	1/11/99	↓	DS72
1/7/99	SR359	S150/S151	—	Header/ Lateral Intersection	WR	4'x11'	TL	↓	1/12/99	↓	
↓	SR360	S151/S152	—	Header/ Lateral Intersection	↓	3'x12'	↓	↓	1/12/99	↓	
↓	SR361	S152/S153	—	Header/ Lateral Intersection	↓	4'x10'	↓	↓	1/12/99	↓	
1/9/99	SR362	S131/S132	—	1'SONEOS	↓	2'x25'	LE	↓	↓	↓	
↓	SR363	S47/ S131/S132	—	T Joint	T	2'x3'	↓	↓	↓	↓	
1/12/99	SR364	S47/S48/S132/S133	—	T Joint	T	25' Ext. Bead	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach
SIGNATURE: Steven Rasbach

SCS ENGINEERS

SHEET 29 - 5
PROJECT TITLE: Tamoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/99

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/12/99	SR365	S48/S49/S133/S134	—	T Joint	T	2.5' Ext. Bead	LE	74-12	1/12/99	SK	
	SR366	S49/S50/S134/S135	—								
	SR367	S50/S51/S135/S136	—								
	SR368	S51/S52/S136/S137	—								
	SR369	S52/S53/S137/S138	—								
1/9/99	SR370	S53/S138	—	10' WOEGOS	~~SS~~ ~~BO~~ (SS)	3' × 4'					
	SR371	S53/S54/S138/S139	—	T Joint	T	2.5' Ext. Bead					
	SR372	S54/S139	—	8' WOEGOS	DS	3' × 6'					DS70
	SR373	S54/S55/S139/S140	—	T Joint	T	2.5' Ext. Bead					
	SR374	S55/S56/S140/S141	—								
	SR375	S56/S57/S141/S142	—								
	SR376	S57/S142	—	BO		2' × 4'					
	SR377	S57/S58/S142/S143	—	T Joint		2.5' Ext Bead					

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: ~~Steven Rosbach~~ Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 30 - S
PROJECT TITLE: Tameka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/9/99	SR378	S58/S59/S143/S144	—	TJoint	T	25' Ext. Bead	LE	74-12	1/12/99	SK	
↓	SR379	S59/S60/S144/S145	—	↓	↓	↓	↓	↓	↓	↓	
	SR380	S60/S145	—	1'EOWEOS	WR	3'x 6'					
	SR381	S60/S61/S145/S146	—	TJoint	T	2.5' Ext. Bead					
	SR382	S61/S62/S146/S147	—	↓	↓	↓					
	SR383	S62/S63/S147/S148	—								
	SR384	S63/S64/S148/S149	—								
	SR385	S64/S65/S149/S150	—								
	SR386	S65/S66/S150/S151	—	↓	↓	↓					
	SR387	S66/S154	—	10'WOEEOS	DS	2' x 6'					~~DS74~~ SR DS-74
↓	SR388	S66/S67/S151/S152	—	TJoint	T	25' Ext. Bead					
1/5/99	SR389	S67/S152	—	5'WOEEOS	BO	2'x3'	↓		↓		
1/11/99	SR390	S147/S148	—	108'SONEOS	↓	2'x4'	CA	↓	1/11/99	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FO	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 31 - 5
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/9/99	SR391	S67/S68/S152/S153	—	T Joint	T	25' Ext. Bead	LE	74-15	1/12/99	SK	
↓	SR392	S68/S69/S153/S154	—	↓	↓	↓	↓	↓	↓	↓	
1/8/99	SR393	S69/S89/S154/S155	—						↓	↓	
	SR394	S154/S155/S156	—						1/12/99	SK	
	SR395	S154/S156/S157	—								
	SR396	S154/S157/S158	—				↓	↓			
	SR397	S154/S158/S159	—	↓	↓	↓	TL	74-12			
	SR398	S154/S159	—	2' NOSEOS	PTC	2' x 3'					
↓	SR399	S154/S159/S160/S162	—	T Joint	T	25' Ext. Bead	↓				
1/11/99	SR400	S159/S162	—	25' BOWEOS	DS	2' x 6'	CA				DS75
↓	SR401	S153/S154	—	50' SONEOS	DS	3' x 6'	↓				DS73
1/8/99	SR402	S153/S159/S160	—	T Joint	T	2' Ext. Bead	TL		↓		
↓	SR403	S153/S160	—	69' SONEOS	WR	4' x 12'	↓	↓	1/8/99	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 32 - S
PROJECT TITLE: Tamoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/8/99	SR404	S160/S162	—	15' SONEOS	WR	3'×10'	TL	74-12	1/8/99	SK	
↓	SR405	S160/S162/S163	—	T Joint	T	25' Ext. Bead	↓	↓	↓	↓	
↓	SR406	S160/S163	—	67' SONEOS	WR	4'×10'	↓	↓	↓	↓	
↓	SR407	S160/S161/S163/S164	—	T Joint	T	25' Ext. Bead	↓	↓	1/12/99	↓	
↓	SR408	S161/S164/S165/S167	—	↓	↓	↓	↓	↓	↓	↓	
1/12/99	SR409	S165/S166/S167	—	↓	↓	↓	LE	↓	↓	↓	
↓	SR410	S161/S167	—	15' SONEOS	DS	2'×6'	↓	↓	↓	↓	DS76

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosback
SIGNATURE: Steven Rosback

PRIMARY

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 1-P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/7/98	PR1	P19/P20/P21	—	T Joint	T	1.5' Ext. Bead	JM	74-12	12/7/98	BB	
	PR2	P18/P19/P20	—		T						
	PR3	P17/P18/P21	—		T						
	PR4	P16/P17/P21	—		T						
↓	PR5	P15/P16/P21	—		T						
12/3/98	PR6	P14/P15/P21	—	↓	T	↓					
	PR7	P14/P15	—	70' WOEEOS	DS	3'x6'					DP-2
	PR8	P13/P14/P21	—	T Joint	T	1.5' Ext. Bead					
	PR9	P12/P13/P21	—		T						
	PR10	P11/P12/P21	—		T						
	PR11	P10/P11/P21	—		T						
	PR12	P9/P10/P21	—		T						
↓	PR13	P8/P9/P21	—	↓	T	↓	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 2-P
PROJECT TITLE: Tomoka Farms Rd Landfill
PROJECT NO: 0995039.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/3/98	PR14	P7/P8/P21	—	T Joint	T	15' Ext. Bead	JM	74-12	12/7/98	BB	
	PR15	P6/P7/P21	—	↓	T	↓					
	PR16	P5/P6/P21	—	T Joint/P5/P21	DB/T	3'x6'					
	PR17	P4/P5/P21	—	T Joint	T	15' Ext. Bead					
	PR18	P3/P4/P21	—		T	↓					
↓	PR19	P2/P3/P21	—		T/WR	3'x12'					
12/7/98	PR20	P1/P2/P21	—	↓	T	15' Ext. Bead					
12/3/98	PR21	P2/P3	—	18' WOEEOS	FS	2'x15'					
	PR22	P7/P8	—	40' WOEEOS	DS	3'x6'					
	PR23	P10/P11	—	Anchor Trench	PTC	1'x1'					
	PR24	P12/P13	—	↓	PTC	1'x2'					
	PR25	P21/P22	—	304' NOSEOS	DS	3'x6'					
↓	PR26	P22/P23	—	250' NOSEOS	DS	3'x6'	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

SHEET 3-P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 12/98

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/3/98	PR27	P23/P24	—	100'NOSEOS	DS	3'x6'	JM	74-12	12/7/98	BB	DP-6
12/7/98	PR28	P22/P23	—	Header/ Lateral Trenches	WR	4'x11'					
↓	PR29	P22/P23	—	Header/ Lateral Trenches	WR	5'x10'					
12/3/98	PR30	P25/P26	—	70'NOSEOS	DS	3'x6'					DP-8
	PR31	P26/P27	—	200'NOSEOS	DS	3'x7'				↓	DP-9
	PR32	P24/P25	—	225'NOSEOS	DS	3'x6'	(JM) (LE)			SK	DP-7
	PR33	P25/P26	—	430'NOSEOS	IO	1'x2'				SK	
	PR34	P28/P29	—	300'NOSEOS	DS	3'x6'				BB	DP-11
↓	PR35	P27/P28	—	45'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-10
12/15/98	PR36	—	P29	Header/ Lateral Trenches	WR	4'x12'	LE	74-15	12/15/98	BB	
12/3/98	PR37	(JM) (LE) P30/P31	—	325'NOSEOS	DS	3'x6'	JM	74-12	12/7/98	BB	DP-13
12/4/98	PR38	P33/P34	—	462'NOSEOS	IO	2'x4'	↓				
12/4/98	PR39	P33/P34	—	425'NOSEOS	DS	2'x5'	LE	↓	↓	↓	DP-15

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 4 - P
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 09950S9.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/4/98	PR40	P32/P33	—	198'NOSEOS	PTC	2'x8'	LE	74-12	12/7/98	BB	
↓	PR41	P32/P33	—	125'NOSEOS	DS	2'x6'	↓	↓	↓	SK	DP-14
↓	PR42	P35/P36	—	220'NOSEOS	DS	3'x6'	↓	↓	↓	BB	DP-18
↓	PR43	P34/P35	—	135'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-16
↓	PR44	P38/P39	—	347'NOSEOS	DS	3'x6'	↓	↓	↓	↓	DP-20
↓	PR45	P37/P38	—	125'NOSEOS	DS	3'x6'	↓	↓	↓	↓	DP-19
↓	PR46	P39/P40	—	125'NOSEOS	DS	3'x6'	↓	↓	↓	↓	DP-21
↓	PR47	P40/P41	—	50'NOSEOS	DS	3'x6'	↓	↓	↓	↓	DP-22
12/11/98	PR48	P36/P37	—	Header/ Lateral Trenches	WR	2'x12'	LE	74-12	12/15/98	BB	(WR)SD
↓	PR49	P36/P37	—	Header/ Lateral Trenches	WR	3'x12'	LE	74-12	12/15/98	↓	(WR)SD
12/3/98	PR50	P26/P27	—	325'NOSEOS	IO	1'x2'	JM	74-12	12/7/98	BB	
↓	PR51	P21/P22	—	37'NOSEOS	BO	1'x2'	↓	↓	12/15/98	↓	
12/7/98	PR52	P1/Tie-in	—	T Joint	T	1.5'Ext. Bead	↓	↓	12/15/98	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

SHEET 5 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 12/98

GEOMEMBRANE REPAIR LOG

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/7/98	PR53	P1/P21/Tie-in	—	T Joint	T	1'x2'	JM	74-12	12/15/98	SK	
↓	PR54	P21/P22/Tie-in	—	↓	↓	2' Ext. Bead	↓	↓	↓	↓	
	PR55	P22/P23/Tie-in	—	↓	↓	↓					
	PR56	P23/Tie-in	—	6' WOEEOS	BO	2'x2'					
	PR57	P23/P24/Tie-in	—	T Joint	T	25' Ext. Bead					
	PR58	P24/P25/Tie-in	—	↓	↓	↓					
↓	PR59	P25/P26/Tie-in	—	↓	↓	15' Ext. Bead	↓	↓			
12/14/98	PR60	P25/P26/Tie-in	—	↓	↓	2' Ext. Bead	LE	74-15			
↓	PR61	P27/P28/P29/Tie-in	—	Tie-in Seam	FS	2'x45'	↓	↓	↓	↓	
	PR62	P29/P30/Tie-in	—	T Joint	T/DS	3'x6'					DP-12/Junction
	PR63	P30/Tie-in	—	8' EOWEOS	~~DS~~ (DS)	3'x6'					DP-17
	PR64	P30/P31/Tie-in	—	T Joint	~~T~~ (DS)	1.5' Ext. Bead					
↓	PR65	P31/Tie-in	—	10' WOEEOS	T/PTC	2'x6'	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosback

SIGNATURE: Steven Rosback

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET: 6 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/14/98	PR66	P31/P32/Tie-in	—	TJoint	T	1.5' Ext. Bead	LE	74-15	12/15/98	SK	
↓	PR67	P32/Tie-in	—	8' NOEEOS	↓	↓	↓	↓	↓	↓	
↓	PR68	P32/P33/Tie-in	—	TJoint	↓	↓	↓	↓	↓	↓	
↓	PR69	P33/Tie-in	—	7' NOEEOS	↓	↓	↓	↓	↓	↓	
↓	PR70	P33/P34/Tie-in	—	TJoint	↓	2' Ext. Bead	↓	↓	↓	↓	
↓	PR71	P34/P35	—	↓	↓	1.5' Ext. Bead	↓	↓	↓	↓	
12/15/98	PR72	P35/P36/Tie-in	—	↓	↓	4' x 4'	↓	↓	↓	↓	
12/11/98	PR73	P39/P40	—	463' NOSEOS	DS	3' x 6'	JM	74-15	12/11/98	JM	DP-19A
↓	PR74	—	P41	422' NOSEOP	SO	2' x 2'	↓	↓	↓	↓	
↓	PR75	P42/P43	—	370' NOSEOS	DS	2' x 6'	↓	↓	↓	↓	DP-24
↓	PR76	P42/P43	—	125' NOSEOS	MOT	1' x 15'	↓	↓	↓	↓	
12/16/98	PR77	P42/P43	—	27' NOSEOS	PTC	2' x 3'	LE	74-15	12/16/98	JM	
12/11/98	PR78	P43/P44	—	30' NOSEOS	PTC	2' x 3'	JM	74-15	12/11/98	JM	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 7 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE:

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/11/98	PR79	P43/P44	—	48'NOSEOS	WR	4'x6'	JM	74-15	12/11/98	JM	
12/16/98	PR80	—	P43	Header/ Lateral Trenches	WR	4'x8'	LE	74-15	12/16/98	JM	
12/11/98	PR81	P44/P45	—	52'NOSEOS	DS	2'x6'	JM	74-15	12/11/98	CP	DP-25
↓	PR82	P47/P48	—	180'NOSEOS	DS	2'x6'	LE	74-12	↓	↓	DP-28
↓	PR83	P48/P49	—	268'NOSEOS	DS	3'x6'	↓	↓	↓	↓	DP-29
↓	PR84	P49/P50	—	300'NOSEOS	DS	3'x6'	↓	↓	↓	↓	DP-30
12/11/98	PR85	P45/P46	—	440'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-26
12/11/98	PR86	P49/P50	—	389'NOSEOS	PTC	2'x3'	↓	↓	↓	↓	
↓	PR87	P50/P51	—	373'NOSEOS	BO	2'x3'	↓	↓	↓	↓	
↓	PR88	P51/P52	—	358'NOSEOS	DS	3'x6'	↓	↓	↓	↓	DP-32
12/16/98	PR89	P46/P47	—	12'NOSEOS	DS	3'x6'	LE	74-12	12/16/98	SK	DP-27
12/17/98	PR90	P50/P51	—	Header/ Lateral Trenches	WR	3'x6'	↓	74-15	12/17/98	↓	
↓	PR91	P50/P51	—	Header/ Lateral Trenches	WR		↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 8 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/11/98	PR92	P52/P53	—	50'NOSEOS	DS	3'x6'	LE	74-12	12/11/98	CP	DP-33
↓	PR93	P53/P54	—	148'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-34
↓	PR94	~~P54~~/P55	—	150'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-35
↓	PR95	P55/P56	—	247'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-36
↓	PR96	P56/P57	—	355'NOSEOS	DS	3'x6'	↓	↓	↓	↓	DP-37
↓	PR97	P42/P43	—	83'NOSEOS	IO	2'x4'	JM	74-15	↓	↓	
↓	PR98	—	P46	466'NOSEOP	WR	3'x2'	LE	74-12	↓	↓	
↓	PR99	P50/P51	—	450'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-31
↓	PR100	P59/P60	—	450'NOSEOS	DS	2'x6'	JM	74-15	↓	↓	DP-39
↓	PR101	P61/P62	—	350'NOSEOS	DS	2'x6'	↓	↓	↓	JM	DP-41
↓	PR102	P58/P59	—	50'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-38
12/17/98	PR103	P56/P57	—	31'NOSEOS	SS	2'x4'	LE	74-15	12/18/98	SK	
12/18/98	PR104	~~P57~~	P57	Header/Lateral Trenches	WR	4'x12'	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP			SS	= START STOP		
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN			SSI	= SOIL SURFACE IRREGULARITY		
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK			T	= THREE PANEL INTERSECTION		
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE			VL	= VACUUM TEST LEAK		
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT			WC	= WRINKLE CUT		
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY			WR	= WRINKLE		
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET			WS	= WELDER RESTART		
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT			OTHER			

PRINT NAME: Steven Rosbach

SIGNATURE:

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 9 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/18/98	PR105	P60/P61	—	25'NOSEOS	DS	2'x6'	LE	74-15	12/18/98	SK	DP-40
12/11/98	PR106	P62/P63	—	125'NOSEOS	DS	2'x6'	JM	74-15	12/11/98	CP	DP-42
↓	PR107	P63/P64	—	200'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-43
↓	PR108	P64/P65	—	402'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-44
↓	PR109	P65/P66	—	350'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-45
↓	PR110	P85/P86	—	27'NOSEOS	DS	2'x6'	↓	↓	↓	↓	DP-47
↓	PR111	P66/P85/P86	—	T Joint	T	15' Ext. bead	↓	↓	↓	↓	
↓	PR112	P66/P84/P85	—	↓	T	↓	↓	↓	↓	↓	
↓	PR113	P66/P83/P84	—	↓	T	↓	↓	↓	↓	↓	
↓	PR114	P66/P82/P83	—	↓	T	↓	↓	↓	↓	↓	
↓	PR115	P66/P81/P82	—	↓	T	↓	↓	↓	↓	↓	
↓	PR116	P66/P80/P81	—	↓	T	↓	↓	↓	↓	↓	
↓	PR117	P66/P79/P80	—	↓	T	↓	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 10 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/11/98	PR118	P66/P78/P79	—	T Joint	T	1.5' Ext. Bead	JM	74-15	12/11/98	CP	
↓	PR119	P78/P79	~~22'NOEEOS~~	22'WOEEOS	WR	3'x7'	↓	↓	↓	↓	
	PR120	P66/P78	~~7'NOSEOS~~	7'NOSEOS	DS	2'x6'					@4SP DP-46
	PR121	P66/P77/P78	—	T Joint	T	1.5' Ext. Bead					
	PR122	P66/P76/P77	—	↓	↓	↓					
	PR123	P66/P75/P76	—								
	PR124	P66/P74/P75	—	↓	↓	↓					
	PR125	P74/P75	—	25'WOEEOS	DS	2'x6'					DP-48
	PR126	P66/P73/P74	—	T Joint	T	15' Ext. Bead					
	PR127	P66/P72/P73	—	↓	↓	↓					
	PR128	P66/P71/P72	—								
	PR129	P66/P70/P71	←								
↓	PR130	P66/P69/P70	—	↓	↓	↓	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Stevgia Rosbach
SIGNATURE: Stevgia Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 11 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE:

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/11/98	PR131	P66/P68/P69	—	T Joint	T	1.5' Ext. Bead	JM	74-15	12/11/98	CP	
↓	PR132	P66/P67/P68	—	↓	↓	↓	↓	↓	↓	↓	
12/10/98	PR133	P65/P66	—	45' NOSEOS	FS	2' x 10'	↓	↓	12/10/98	SK	
12/18/98	PR134	P64/P65	—	Header/ Lateral Trenches	WR	4' x 10'	LE	↓	12/21/98	↓	
↓	PR135	P64/P65	—	Header/ Lateral Trenches	WR	4' x 12	↓	↓	↓	↓	
12/15/98	PR136	P36/Tie-in	—	12' NOEEOS	SS	2' x 3'	↓	↓	12/15/98	SK	
12/15/98	PR137	P36/P37/Tie-in	—	T Joint	T	1.5' Ext. Bead	LE	7415	12/15/98	SK	
↓	PR138	P37/P38/Tie-in	—	↓	↓	↓	↓	↓	↓	↓	
	PR139	P38/P39/Tie-in	—	↓	↓	↓	↓	↓	↓	↓	
	PR140	P39/Tie-in	—	10' NOEEOS	DS	3' x 6'	↓	↓	↓	↓	DP-23
	PR141	P39/P40/Tie-in	—	T Joint	T	1.5' Ext. Bead	↓	↓	↓	↓	
	PR142	P40/P41/Tie-in	—	↓	↓	↓	↓	↓	↓	↓	
↓	PR143	—	P41	6' NOSEOP	D	3' x 7'	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 12 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/15/98	PR144	P41/Tie-in		6'EOWEOS	T	2' Ext. Bead	LE	74-15	12/15/98	SK	
12/16/98	PR145	P41/P42/Tie-in		T Joint	T	2'x2'			12/16/98	SK	
	PR146	P42/Tie-in		7'EOWEOS	T	1.5' Ext. Bead					
	PR147	P42/P43/Tie-in		Tie-in Seam	FS	2'x16'					
	PR148	P43/Tie-in		6'EOWEOS	T	1.5' Ext. Bead					
	PR149	P43/P44/Tie-in		T Joint	↓	3'x3'					
	PR150	P44/Tie-in		8'EOWEOS	T	1.5' Ext. Bead					
	PR151	P44/P45/Tie-in		T Joint		2'x5'					
	PR152	P45/Tie-in		8'EOWEOS		1.5' Ext. Bead					
	PR153	P45/P46/Tie-in		T Joint		1.5' Ext. Bead					
	PR154	P46/Tie-in		9'EOWEOS		3'x3'					
	PR155	P46/P47/Tie-in		T Joint		1.5' Ext. Bead					
↓	PR156	P47/Tie-in		12'WOEEOS	↓	1.5' Ext. Bead	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 13 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/16/98	PR157	P47/P48/Tie-in	—	T Joint	T	1.5' Ext. Bead	LE	74-15	12/16/98	SK	
	PR158	P48/Tie-in	—	10' WOEEOS							
	PR159	P48/P49/Tie-in	—	T Joint							
	PR160	P49/Tie-in	—	9' WOEEOS							
	PR161	P49/P50/Tie-in	—	T Joint		3' x 5'					
	PR162	P50/Tie-in	—	8' WOEEOS		1' x 1'					
12/17/98	PR163	P50/Tie-in	—	Lateral Trench	FS	2' x 10'					
	PR164	P50/P51/Tie-in	—	T Joint	T	2.5' Ext. Bead					
	PR165	P50/P51	—	6' WOEEOS		2' x 6'					
	PR166	P51/Tie-in	—	5' EOWEOS	T	2' x 6'					
	PR167	P51/Tie-in	—	15' NOSEOS	DS	3' x 7'					DP-49
	PR168	P51/P52/Tie-in	—	T Joint	T	1.5' Ext. Bead					
12/14/98	PR169	P37/P38	—	Entire Seam	FS	3' x 468'	GS	75-14	12/14/98	SK	CAP OVER SEAM

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 14 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/16/98	PR170	PR169/P38	—	400'NOSEOS	DS	3'x6'	LE	74-15	12/16/98	SK	
12/15/98	PR171	P37/PR169	—	53'NOSEOS	DS	3'x6'	↓	↓	12/15/98	↓	
12/16/98	PR172	~~PR170~~ P38/P39	—	28'NOSEOS	T	2'x2'	↓	↓	12/16/98	↓	★ T-Joint @ Add-in Piece; Piece was
↓	PR173	~~PR171~~ P39/P40	—	27'NOSEOS	T	1.5' Ext. Bead	↓	↓	↓	↓	added in to allow liner to lie
↓	PR174	~~PR172~~ P40/P41	—	26'NOSEOS	T	↓	↓	↓	↓	↓	properly on bottom of leader
↓	PR175	~~PR173~~ P41/P42	—	26'NOSEOS	T	↓	↓	↓	↓	↓	trench.
↓	PR176	R36/R35	—	448'NOSEOS	DS/FS	20'x3'	↓	↓	↓	↓	DP-19B
12/17/98	PR177	P29/P30	—	28'NOSEOS	T	2'x2'	↓	↓	12/17/98	↓	T-Joints at same add-in piece
↓	PR178	—	R30	28'NOSEOP	SO	2'x2'	↓	↓	↓	↓	↓
↓	PR179	P30/P31	—	28'NOSEOS	T	1.5' Ext. Bead	↓	↓	↓	↓	↓
↓	PR180	P31/P32	—	28'NOSEOS	T	↓	↓	↓	↓	↓	↓
↓	PR181	P32/P33	—	28'NOSEOS	T	↓	↓	↓	↓	↓	↓
↓	PR182	—	P32	28'NOSEOP	SS/T	↓	↓	↓	↓	↓	↓

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 15 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/17/98	PR183	P33/P34	—	28'NOSEOS	15'Ext.Bead	T	LE	74-15	SK	12/17/98	
↓	PR184	P34/P35	—	28'NOSEOS	↓	T	↓	↓	↓	↓	
	PR185	P35/P36	—	28'NOSEOS	↓	T					
	PR186	—	P36	28'NOSEOS	2'x2'	T					
	PR187	P52/Tie-in	—	T Joint	T	1.5'Ext.Bead					
	PR188	P52/P53/Tie-in	—	↓	↓	↓					
	PR189	P53/Tie-in	—								
	PR190	P53/P54/Tie-in	—			↓					
	PR191	P54/Tie-in	—	↓	(2) (2'x3')	2'x3'					
	PR192	—	P54	10'NOEEOS	BO	2'x2'					
	PR193	P54/P55	—	T Joint	T	15'Ext.Bead					
	PR194	P55/P56/P57/Tie-in	—	Entire Seam	FS	25'x2'				↓	
↓	PR195	P57/P58/Tie-in	—	T Joint	T	15'Ext.Bead	↓	↓	↓	12/18/98	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 16 - P
PROJECT TITLE: Temeka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/98

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/18/98	PR196	P58/P59/Tie-in	—	T Joint	T	15' Ext. Bead	LE	74-15	12/18/98	SK	
	PR197	P59/P60/P61/Tie-in	—	↓							
	PR198	P61/Tie-in	—	4' EOWEOS							
	PR199	P61/P62/Tie-in	—	T Joint							
	PR200	P62/Tie-in	—	6' EOWEOS							
	PR201	P62/P63/Tie-in	—	T Joint		↓					
	PR202	P63/Tie-in	—	7' EOWEOS		2' x 3'					
	PR203	P63/P64/Tie-in	—	T Joint		2' x 2'					
↓	PR204	P64/Tie-in	—	10' WOGEOS		5' x 4'			↓		
12/21/98	PR205	P64/Tie-in	—	8' EOWEOS		2' x 3'			12/21/98		
	PR206	P64/P65/Tie-in	—	T Joint		2' Ext. Bead					
	PR207	P65/Tie-in	—	11' EOWEOS							
↓	PR208	P65/P66/Tie-in	—	T Joint	↓	↓	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 17 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 12/98 — 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
12/21/98	PR209	P66/Tie-in	—	11'EOWEOS	T	1.5'Ext. Bead	LE	74-15	12/21/98	SK	
↓	PR210	P66/P67/Tie-in	—	T Joint	↓	2'x3'	↓	↓	↓	↓	
↓	PR211	—	Tie-in Panel	4'S of PR207	↓	2'x3'	↓	↓	↓	↓	
↓	PR212	P56/P57/Tie-in	—	15'S of PR96 (T Joint)	DS/FS	3'x6'	↓	↓	↓	↓	DP-37A + Cap
↓	PR213	P56/P57	—	15'N of PR96	DS/FS	3'x6'	↓	↓	↓	↓	DP-37B + Cap
12/30/98	PR214	P51/P52	—	50'NOSEOS	T	2'x2'	LE	74-15	12/30/98	SK	T-Joint Patches
↓	PR215	P52/P53	—	50'NOSEOS	↓	↓	↓	↓	↓	↓	at add-in piece by
↓	PR216	P53/P54	—	50'NOSEOS	↓	↓	↓	↓	↓	↓	header trench
1/14/99	PR217	P20/P21/P87/P100	—	Junction	T	3'x4'	TL	74-12	1/18/99		
1/18/99	PR218	P20/P87	—	33'EOWEOS	DS	2'x6'	GS	↓	↓	↓	DP-52
1/14/99	PR219	P87/P88/P100	—	Junction	T	1.5'Ext. Bead	TL	↓	↓	↓	
↓	PR220	P88/P89/P100	—	Junction	↓	↓	↓	↓	↓	↓	
1/16/99	PR221	P89/P90/P100	—	T Joint	T	1.5'Ext.W.	TL	74-12	1/18/99	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach
SIGNATURE: Steven Rasbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 18 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950S9.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/18/99	PR222	P90/P100	—	4'SOWEOS	DS	2'x6'	GS	74-12	1/18/99	SK	DP-54
1/14/99	PR223	P90/P91/P100	—	Junction	T	1.5' Ext. Weld	TL				
↓	PR224	P91/P92/P100	—	↓	↓	↓	↓	↓	↓	↓	
↓	PR225	P92/P93/P100	—	↓	↓	↓	↓	↓	↓	↓	
1/18/99	PR226	P92/P93	—	32'EOWEOS	DS	2'x6'	GS				DP-53
1/14/99	PR227	P93/P100	—	3 SOWEOS (SD)	WR	3'x6'	TL				
↓	PR228	P93/P94/P100	—	Junction	T	1.5' Ext. Weld	↓				
↓	PR229	P93/P94	—	48'EOWEOS	WR	2'x4'	↓				
1/15/99	PR230	P91/P92	—	Anchor Trench	BO	2'x5'	GS				
↓	PR231	—	P93	Anchor Trench	WR	2'x6'	↓				
1/14/99	PR232	P94/P99/P100	—	Junction	T	2'x3'	TL				
↓	PR233	P94/P98/P99	—	Junction	T (SD)	1.5' Ext. Bead	↓				
↓	PR234	P94/P95/P99	—	Junction	T	2'x2'	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rashach
SIGNATURE: Steven Rashach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 19 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE:

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/14/99	PR235	P95/P97/P98	—	Junction	T	1.5' Ext. Weld	TL	74-12	1/18/99	SK	
↓	PR236	P95/P96/P97	—	Junction	↓	2'x3'	↓	↓	↓	↓	
	PR237	P100/P101	—	76' SONEOS	BO	2'x6'					
	PR238	P101/P102	—	165' SONEOS	DS	2'x6'	GS				DP-56
	PR239	P101/P102	—	150' SONEOS	PTC	2'x3'	↓				
	PR240	P101/P102	—	125' SONEOS	PTC	2'x2'					
	PR241	P101/P102	—	75' SONEOS	Header A (R) for WR	4'x12'	TL				
	PR242	P101/P102	—	68' SONEOS	WR	4'x12'					
↓	PR243	—	P101	10' EOWSOP 47' SONEOP	WR	2'x3'					
1/13/99	PR244	P103/P104	—	66' SONEOS	WR	2'x3'					
↓	PR245	P104/P105	—	66' SONEOS	WR	2'x3'	↓				
1/18/99	PR246	P104/P105	—	26' SONEOS	DS	2'x6'	GS	↓			DP-55
↓	PR247	P108/P109/P111	—	Junction	T	2'x3'	JM	74-15	↓	↓	

DEFECT CODE

AD	=	ANIMAL RELATED DAMAGE	DS	=	DESTRUCTIVE SAMPLE	IO	=	INSUFFICIENT OVERLAP	SS	=	START STOP
B	=	UNDISPERSED RESID BEAD	EE	=	EARTHWK EQUIP DAMAGE	LB	=	LEISTER BURN	SSI	=	SOIL SURFACE IRREGULARITY
BO	=	BURN OUT	EXT	=	EXTENSION	MOT	=	MACHINE OFF TRACK	T	=	THREE PANEL INTERSECTION
BS	=	BOOT SKIRT	FB	=	FUSION WELDER BURN	N	=	NODULE	VL	=	VACUUM TEST LEAK
C	=	COUPON	FD	=	FACTORY DAMAGE	PTC	=	PRESSURE TEST CUT	WC	=	WRINKLE CUT
CO	=	CHANGE OF OVERLAP	FM	=	FISH MOUTH	SI	=	SUBGRADE IRREGULARITY	WR	=	WRINKLE
CR	=	CREASE	FS	=	FAILED SEAM	SL	=	SLAG ON TEXTURED SHEET	WS	=	WELDER RESTART
D	=	INSTALLATION DAMAGE	HT	=	HEAT TACK BURN	SO	=	SHARP OBJECT	OTHER		

PRINT NAME: Steven Rosbach
SIGNATURE:

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 20 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/14/99	PR248	P108/P109	—	Header/ Lateral Intersect	WR	4'×12'	TL	74-12	1/18/99	SK	
↓	PR249	P108/P109	—	Header/ Lateral Intersect	WR	4'×10'	↓	↓	↓	↓	
1/15/99	PR250	P109/P110	—	74'SONEOS	BO	2'×4'	↓	↓			
1/18/99	PR251	P109/P110/P111	—	Junction	T	2'×3'	JM	74-15			
↓	PR252	P110/P111	—	157'SONEOS	BO	3'×4'	↓	↓			
1/14/99	PR253	P21/P22/P100/P101	—	Junction	T	2' Ext. Weld	TL	74-12			
↓	PR254	P22/P101	—	13'WOEEOS	SS	2'×3'	↓	↓			
↓	PR255	P22/P23/P101/P102	—	Junction	T	2'×5'	↓	↓			
↓	PR256	P23/P24/P102/P103	—	Junction	T	2'×4'	↓	↓			
1/15/99	PR257	P24/P25/P103/P104	—	Junction	T	25' Ext. Weld	GS	↓			
↓	PR258	P25/P104	—	7'EOWEOS	PTC	3'×5'	↓	↓			
↓	PR259	P25/P26/P104/P105	—	Junction	T	2'×5'	↓	↓			
↓	PR260	P26/P27/P105/P106	—	Junction	T	2' Ext. Weld	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 21 -P
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO: 0995039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/15/99	PR261	P27/P28/P106/P107	—	Junction	T	2' Ext. Weld	GS	74-12	1/18/99	SK	
↓	PR262	P28/P29/P107/P108	—	Junction	T	2' Ext. Weld	↓	↓	↓	↓	
↓	PR263	—	P29	12' EOWSOP 472' NOSEOP	WR	2'x 7'	↓	↓	↓	↓	
↓	PR264	P29/P30/P108/P111	—	Junction	T	2.5' Ext. Weld	↓	↓	↓	↓	
↓	PR265	P30/P31/P110/P111	—	Junction	T	2' Ext. Weld	↓	↓	↓	↓	
1/18/99	PR266	P106/P107	—	200' SONEOS	DS	2'x 6'	↓	↓	↓	↓	DP-57
↓	PR267	—	P102	2' WOESOP 48' SONEOP	SI	3'x 4'	↓	↓	↓	↓	
↓	PR268	P112/P113	—	118' SONEOS	DS	2'x 6'	JM	74-15	↓	↓	DP-58
1/14/99	PR269	P114/P115	—	77' SONEOS	WR	4'x 7'	TL	74-12	1/14/99	↓	
1/18/99	PR270	P114/P115	—	41' SONEOS	DS	2'x 6'	JM	74-15	1/18/99	↓	DP-59
1/14/99	PR271	P115/P116	—	77' SONEOS	WR	3'x 7'	TL	74-12	1/14/99	↓	
↓	PR272	P116/P117	—	Header/ Lateral Intersec.	WR	3'x 12'	↓	↓	↓	↓	
↓	PR273	P116/P117	—	Header/ Lateral Intersec.	WR	4'x 11'	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rasbach
SIGNATURE: Steven Rasbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET: 22-P
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/18/99	PR274	P116/P117	—	210'SONEOS	BO	2'x3'	JM	74-15	1/18/99	SK	
1/15/99	PR275	P117/P118	—	158'SONEOS	DS	2'x6'	GS	74-12	↓	↓	DP-60
↓	PR276	P31/P32/P111/P112	—	Junction	T	2' Ext. Weld	↓	↓	↓	↓	
↓	PR277	P32/P33/P112/P113	—	Junction	T	2' Ext. Weld	↓	↓	↓	↓	
↓	PR278	P33/P34/P113/P114	—	Junction	T	3'x5'	↓	↓	↓	↓	
↓	PR279	P34/P35/P114/P115	—	Junction	T	2'x4'	↓	↓	↓	↓	
↓	PR280	P35/P36/P115/P116	—	Junction	T	2.5' Ext. Weld	↓	↓	↓	↓	
1/18/99	PR281	P36/P37/P116/P117	—	Junction	T	2' Ext. Weld	JM	74-15	↓	↓	
↓	PR282	P37/P117	—	7'WOEEOS	DS	3'x6'	↓	↓	↓	↓	DP-61
↓	PR283	P37/P38/P117/P118	—	Junction	T	2'x5'	↓	↓	↓	↓	
↓	PR284	P38/P39/P118/P119	—	Junction	T	2.5' Ext. Weld	↓	↓	↓	↓	
1/21/99	PR285	P39/P40/P119/P120	—	Junction	T	2'x4'	LE	74-12	1/21/99	↓	
↓	PR286	P40/P41/P120/P121	—	Junction	T	2' Ext. Weld	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Bosbagh

SIGNATURE: Steven Bosbagh

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 23 - P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/21/99	PR287	P41/P42/P121/P122	—	Junction	T	2'Ext.Weld	LE	74-12	1/21/99	SK	
↓	PR288	P42/P122	—	417'SONEOS	DS	2'×6'	↓	↓	↓	↓	DP-76
↓	PR289	P42/P43/P122/P123	—	Junction	T	2.5'Ext Weld	↓	↓	↓	↓	
↓	PR290	P43/P123	—	217'SONEOS	PTC	2'×4'	↓	↓	↓	↓	
↓	PR291	P119/P120	—	190'SONEOS	DS	2'×6'	↓	↓	↓	↓	DP-62
↓	PR292	P122/P123	—	25'SONEOS	DS	3'×6'	TL	74-15	↓	↓	DP-63
1/19/99	PR293	P123/P124	—	69'SONEOS	WR	2'×5'	↓	74-12	1/19/99	↓	
1/21/99	PR294	P123/P124	—	8'SONEOS	PTC	2'×3'	↓	74-15	1/21/99	↓	
1/19/99	PR295	P123/P124	—	47'SONEOS	PTC	2'×3'	↓	74-12	1/19/99	↓	
1/21/99	PR296	P123/P124	—	97'SONEOS	IO	2'×4'	LE	↓	1/21/99	↓	
↓	PR297	P123/P124	—	202'SONEOS	PTC	2'×4'	↓	↓	↓	↓	
↓	PR298	P124/P125	—	142'SONEOS	DS	2'×6'	↓	↓	↓	↓	DP-64
↓	PR299	P127/P128	—	50'SONEOS	DS	3'×6'	TL	74-15	↓	↓	DP-65

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 24-P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/19/99	PR300	P128/P129	—	68'SONEOS	BO	2'x2'	TL	74-12	1/19/99	SK	
↓	PR301	P129/P130	—	67'SONEOS	WR	2'x4'	↓	↓	↓	↓	
↓	PR302	P130/P131	—	70'SONEOS	WR	2'x3'	↓	↓	↓	↓	
1/21/99	PR303	P130/P131	—	200'SONEOS	DS	2'x6'	LE	↓	1/21/99	↓	DP-66
1/20/99	PR304	P131/P132	—	107'SONEOS	IO	2'x3'	TL	↓	1/20/99	↓	
1/22/99	PR305	P133/P134	—	142'SONEOS	DS	2'x6'	↓	↓	1/22/99	↓	DP-67
1/21/99	PR306	P43/P44/P123/P124	—	Junction	T	2'x10'	LE	↓	1/21/99	↓	
↓	PR307	P44/P45/P124/P125	—	Junction	T	2'x4'	↓	↓	↓	↓	
↓	PR308	P45/P46/P125/P126	—	Junction	T	2'x5'	↓	↓	↓	↓	
↓	PR309	P46/P126	—	2'EOWEOS	PTC	2'x2'	↓	↓	↓	↓	
↓	PR310	P46/P47/P126/P127	—	Junction	T	2.5'Ext. Weld	↓	↓	↓	↓	
↓	PR311	P47/P48/P127/P128	—	Junction	T	2'Ext. Weld	↓	↓	↓	↓	
↓	PR312	P48/P49/P128/P129	—	Junction	T	2.5'Ext. Weld	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE: Steven Rosbach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 25-P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/21/99	PR313	P49/P129	—	217'SONEOS	PTC	2'x3'	LE	74-12	1/21/99	SK	
↓	PR314	P49/P50/P129/P130	—	Junction	T	2' Ext. Weld	↓	↓	↓	↓	
↓	PR315	P50/P51/P130/P131	—	Junction	T	2'x5'	↓	↓	↓	↓	
↓	PR316	P51/P52/P131/P132	—	Junction	T	2' Ext. Weld	↓	↓	↓	↓	
↓	PR317	P52/P53/P132/P133	—	Junction	T	↓	↓	↓	1/22/99	↓	
1/22/99	PR318	P53/P54/P133/P134	—	Junction	T	↓	↓	↓	↓	↓	
↓	PR319	P54/P55/P134/P135	—	Junction	T	↓	↓	↓	↓	↓	
↓	PR320	P136/P137	—	195'SONEOS	DS	2'x6'	↓	↓	↓	↓	DP-68
↓	PR321	P136/P137	—	200'SONEOS	FS	2'x15'	↓	↓	↓	↓	
1/20/99	PR322	—	P137	70'SONEOP	WR	2'x10'	TL	↓	1/20/99	↓	
1/22/99	PR323	P137/P138	—	210'SONEOS	FS	2'x8'	LE	↓	1/22/99	↓	
1/21/99	PR324	P137/P138	—	7'SONEOS	PTC	2'x3'	TL	74-15	1/21/99	↓	
1/20/99	PR325	P138/P139	—	35'SONEOS	DS	3'x6'	↓	74-12	1/20/99	↓	DP-69

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rodgach
SIGNATURE: Steven Rodgach

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 26-P
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/21/99	PR326	P139/P140	—	5'SONEOS	PTC	2'x3'	TL	74-15	1/21/99	SK	
1/22/99	PR327	P140/P141	—	153'SONEOS	DS	2'x6'	LE	74-12	1/27/99	″	DP-70
1/20/99	PR328	—	P144	70'SONEOP	WR	2'x6'	TL	″	1/20/99	″	
1/22/99	PR329	P144/P145	—	62'SONEOS	WR	2'x4'	LE	″	1/27/99	″	
″	PR330	P144/P145	—	100'SONEOS	DS	2'x6'	″	″	″	″	DP-71
″	PR331	P55/P56/P135/P136	—	Junction	T	2'Ext.Weld	″	″	″	″	
″	PR332	P57/P137	—	10'WOEEOS	BO	2'x2'	″	″	″	″	
″	PR333	P58/P59/P138/P139	—	Junction	T	2'x4'	″	″	″	″	
″	PR334	P59/P60/P139/P140	—	Junction	T	2'x5'	″	″	″	″	
″	PR335	P60/P61/P140/P141	—	Junction	T	2'x4'	″	″	″	″	
″	PR336	P61/P141	—	12'WOEEOS ~~BTA~~ SR	PTC	2'x3'	″	″	″	″	
″	PR337	P61/P62/P141/P142	—	Junction	T	2'Ext.Weld	″	″	″	″	
↓	PR338	P62/P63/P142/P143	—	Junction	T	2'Ext.Weld	↓	↓	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach
SIGNATURE:

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 27-P
PROJECT TITLE: Temeka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/22/99	PR339	P63/P143	—	7'WOEEOS	DS	2'x6'	LE	74-12	1/27/99	SK	DP-73
	PR340	P63/P64/P143/P144	—	Junction	T	2' Ext. Weld					
	PR341	P64/P65/P144/P145	—	Junction	T	2'x5'					
	PR342	P65/P66/P145/P146	—	Junction	T	2' Ext. Weld					
	PR343	P66/P86/P146/P147	—	Junction	T	2'x5'					
	PR344	P146/P147/P148	—	Junction	T	1.5' Ext. Weld					
	PR345	P146/P148/P149	—	Junction	T	1.5' Ext. Weld					
	PR346	P146/P149	—	7'SONEOS (KA)	DS	2'x6'					DP-75
	PR347	P146/P149/P150	—	Junction	T	15' Ext. Weld					
	PR348	P146/P150/P151	—	Junction	T	15' Ext Weld					
	PR349	P146/P151/P152	—	Junction	T	1.5' Ext Weld					
↓	PR350	P151/P152	—	25'EOWEOS	DS	2'x6'	↓		↓		DP-76
1/20/99	PR351	P146/P152/P153	—	Junction	T	3'x5'	TL	↓	1/20/99	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Rosbach

SIGNATURE:

SCS ENGINEERS

GEOMEMBRANE REPAIR LOG

SHEET 28-P
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/99

DATE REPAIRED	REPAIR #	SEAM ID	PANEL(S)	LOCATION	DEFECT CODE	TYPE/SIZE OF REPAIR	TECH ID	MACHINE #	DATE TESTED	TESTED BY	COMMENTS
1/22/99	PR352	P146/P152/P151/P155	—	Junction	T	2'x5'	LE	74-12	1/27/99	SK	
↓	PR353	P146/P155/P156	—	Junction	T	2'x4'	↓	↓	↓	↓	
↓	PR354	P154/P156	—	12'SONEOS	DS	3'x6'	↓	↓	↓	↓	DP-74
1/27/99	PR355	P143/P144	—	Entire Seam	FS	2'x72'	↓	↓	↓	↓	
↓	PR356	P136/P137	—	45'SONEOS	DS	2'x6'	↓	↓	↓	↓	DP-77
↓	PR357	P136/P137	—	Entire Seam	FS	2'x217'	↓	↓	↓	↓	
↓	PR358	P137/P138	—	190'SONEOS	DS	2'x6'	↓	↓	↓	↓	DP68A
1/28/99	PR359	P152/P153	—	~~Entire Seam 2'x72'~~ SK	FS	2'x72'	GS	75-17	1/28/99	↓	
↓	PR360	P146/P152/P153	—	Junction	T	2'x5'	CA	74-12	↓	↓	
↓	PR361	—	P69	25'EOWEOP	SI	2'x58'	GS	75-17	↓	↓	
↓	PR362	P66/P69	—	56'EOWEOP	SI	2'x4'	CA	74-12	↓	↓	

DEFECT CODE

AD	= ANIMAL RELATED DAMAGE	DS	= DESTRUCTIVE SAMPLE	IO	= INSUFFICIENT OVERLAP	SS	= START STOP
B	= UNDISPERSED RESID BEAD	EE	= EARTHWK EQUIP DAMAGE	LB	= LEISTER BURN	SSI	= SOIL SURFACE IRREGULARITY
BO	= BURN OUT	EXT	= EXTENSION	MOT	= MACHINE OFF TRACK	T	= THREE PANEL INTERSECTION
BS	= BOOT SKIRT	FB	= FUSION WELDER BURN	N	= NODULE	VL	= VACUUM TEST LEAK
C	= COUPON	FD	= FACTORY DAMAGE	PTC	= PRESSURE TEST CUT	WC	= WRINKLE CUT
CO	= CHANGE OF OVERLAP	FM	= FISH MOUTH	SI	= SUBGRADE IRREGULARITY	WR	= WRINKLE
CR	= CREASE	FS	= FAILED SEAM	SL	= SLAG ON TEXTURED SHEET	WS	= WELDER RESTART
D	= INSTALLATION DAMAGE	HT	= HEAT TACK BURN	SO	= SHARP OBJECT	OTHER	

PRINT NAME: Steven Roebuck
SIGNATURE: Steven Roebuck

ATTACHMENT 7-7

NON-DESTRUCTIVE TEST LOG
(PRIMARY AND SECONDARY)

PRIMARY

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 1-P of
PROJECT TITLE: Tomoka Farms Rd. LF – Primary Liner
PROJECT NO: 0995039.27
DATE: 12/1/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
P1/P2	SK	30	30	—	10:21	10:26	5	P		Entire Seam
P2/P3		30	29	1	10:20	10:25	5	P		E. End of Seam – 14' W. of E. End of Seam
P2/P3		—	—	—	—	—	—	—	P	14' W. of E. End of Seam - 22' W. of E. End of Seam
P2/P3		30	29	1	10:20	10:25	5	P		22' W. of E. End of Seam - W. End of Seam
P3/P4		30	28	2	10:22	10:27	5	P		Entire Seam
P4/P5		30	28	2	10:22	10:27	5	P		
P5/P6		30	30	—	10:23	10:28	5	P		
P6/P7		30	30	—	10:24	10:29	5	P		
P7/P8		30	28	2	11:26	11:31	5	P		
P8/P9		30	28	2	11:27	11:32	5	P		
P9/P10		30	30	—	11:28	11:33	5	P		
P10/P11		30	30	—	11:29	11:34	5	P		
P11/P12		30	30	—	11:30	11:35	5	P		
P12/P13		30	29	1	11:33	11:38	5	P		
P13/P14		30	30	—	14:23	14:28	5	P		
P14/P15	↓	30	28	2	13:54	13:59	5	P		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 2 -P of
PROJECT TITLE: Tomoka Farms Rd. LF - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/1/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P15/P16	SK	30	30	—	1410	1415	5	P		Entire Seam
P16/P17		30	29	1	1405	1410	5	P		
P17/P18		30	30	—	14:25	14:30	5	P		
P18/P19		30	30	—	14:25	14:30	5	P		
P19/P20		30	28	2	14:00	14:05	5	P		
P1/P21		30	29	1	16:28	16:33	5	P		
P2/P21		30	29	1	16:28	16:33	5	P		
P3/P21		30	30	—	16:45	16:50	5	P		
P4/P21		30	30	—	16:45	16:50	5	P		
P5/P21		30	30	—	16:45	16:50	5	P		
P6/P21		30	30	—	16:45	16:50	5	P		
P7/P21		30	30	—	16:45	16:50	5	P		
P8/P21		30	30	—	16:45	16:50	5	P		
P9/P21		30	30	—	16:45	16:50	5	P		
P10/P21		30	30	—	16:45	16:50	5	P		
P11/P21	↓	30	30	—	16:45	16:50	5	P		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 3 -P of
PROJECT TITLE: Tomoka Farms Rd. LF - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/1/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P12/P21	SK	30	30	—	16:45	16:50	5	P		Entire Seam
P13/P21	↓	30	30	—	16:45	16:50	5	P		↓
P14/P21		30	30	—	16:45	16:50	5	P		
P15/P21		30	30	—	16:45	16:50	5	P		
P16/P21		30	30	—	16:45	16:50	5	P		
P17/P21		30	30	—	16:45	16:50	5	P		
P18/P21		30	30	—	16:45	16:50	5	P		
P19/P21		30	30	—	16:45	16:50	5	P		
P20/P21		30	30	—	16:45	16:50	5	P		
~~P21/P22~~ SK		~~30~~ SK	~~30~~ SK	—						

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 4 -P of
PROJECT TITLE: Tomoka Farms Rd. LF - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/2/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
P21/P22	SK	30	30	—	8:55	9:00	5	P		Entire Seam
P22/P23	↓	30	29	1	9:25	9:30	5	P		S. End of Seam – 34' N. of S. End of Seam
P22/P23		30	28	2	9:25	9:30	5	P		34' N. of S. End of Seam – 37' N. of S. End of Seam
P22/P23		30	29	1	9:18	9:23	5	P		37' N. of S. End of Seam - N. End of Seam
P23/P24		30	30	—	10:35	10:40	5	P		Entire Seam
P24/P25		30	29	1	10:00	10:05	5	P		↓
P25/P26		30	30	—	9:47	9:52	5	P		S. End of Seam - 415' N. of S. End of Seam
P25/P26		30	29	1	9:47	9:52	5	P		415' N. of S. End of Seam – N. End of Seam
P26/P27		30	29	1	14:15	14:20	5	P		S. End of Seam - 325' N. of S. End of Seam
P26/P27		30	30	—	14:15	14:20	5	P		325' N. of S. End of Seam – N. End of Seam
P27/P28		30	29	1	14:00	14:05	5	P		Entire Seam
P28/P29		30	30	—	14:00	14:05	5	P		↓
P29/P30		30	30	—	14:00	14:05	5	P		↓
P30/P31		30	29	1	15:55	16:00	5	P		S. End of Seam - 45' N. of S. End of Seam
P30/P31		30	29	1	15:55	16:00	5	P		45' N. of S. End of Seam - N. End of Seam
P31/P32	↓	30	30	—	15:50	15:55	5	P		Entire Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 5 -P of
PROJECT TITLE: Tomoka Farms Rd. LF - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/2/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	AIR TEST P/F	VAC. BOX P/F	COMMENTS
P32/P33	SK	30	28	2	15:47	15:52	5	P		Entire Seam
~~(P33/P34)~~ SP		~~(30)~~ SP								

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 6 -P of
PROJECT TITLE: Tomoka Farms Rd. LF - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/3/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	TIME P/F	VAC. BOX P/F	COMMENTS
P33/P34	SK	30	30	—	7:55	8:00	5	P		S. End of Seam - 461' N. of S. End of Seam
P33/P34		30	30	—	7:55	8:00	5	P		461' N. of S. End of Seam - N. End of Seam
P34/P35		30	28	2	8:10	8:15	5	P		Entire Seam
P1/Tie-in		30	30	—	15:10	15:15	5	P		↓
P21/Tie-in		30	30	—	15:15	15:20	5	P		
P22/Tie-in		30	30	—	15:15	15:20	5	P		
P23/Tie-in		30	30	—	15:15	15:20	5	P		E ~~Side~~ End of Seam - 12' W. of E. End of Seam
P23/Tie-in		30	30	—	15:15	15:20	5	P		12' W. of E. End of Seam - W. End of Seam
P24/Tie-in		30	30	—	15:15	15:20	5	P		Entire Seam
P25/Tie-in		30	30	—	15:15	15:20	5	P		↓
P26/Tie-in		30	30	—	15:15	15:20	5	P		
P27/Tie-in		30	30	—	15:15	15:20	5	P		
P28/Tie-in		30	30	—	15:22	15:27	5	P		W. End of Seam - 11' E. of W. End of Seam
P28/Tie-in		30	30	—	15:15	15:20	5	P		11' E. of W. End of Seam - E. End of Seam
P29/Tie-in		30	30	—	15:22	15:27	5	P		Entire Seam
P30/Tie-in	↓	—	—	—	—	—	—	—	P	W. End of Seam - 11' E. of W. End of Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 7 - P of

PROJECT TITLE: Tomoka Farms Rd. LF – Primary Liner

PROJECT NO: 0995039.27

DATE: 12/3/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P30/Tie-in	SK	30	30	—	15:23	15:28	5	P		Entire Seam
P31/Tie-in		30	30	—	15:23	15:28	5	P		W. End of Seam – 11' E. of W. End of Seam
P31/Tie-in		30	30	—	15:23	15:28	5	P		11' E of W. End of Seam – E. End of Seam
P32/Tie-in		30	30	—	15:23	15:28	5	P		Entire Seam
P33/Tie-in		30	30	—	15:23	15:28	5	P		
P34/Tie-in		30	30	—	15:23	15:28	5	P		
P35/Tie-in		30	30	—	15:23	15:28	5	P		

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NON-DESTRUCTIVE TEST LOG

SHEET 8 - P of
PROJECT TITLE: Tomoka Farms Rd. LF - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/4/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	TIME P/F	VAC. BOX P/F	COMMENTS
P35/P36	SK	30	28	2	11:00	11:05	5	P		Entire Seam
P36/P37		30	29	1	11:05	11:10	5	P		S. End of Seam — 37'N. of S. End of Seam
P36/P37		30	30	—	11:05	11:10	5	P		37'N. of S. End of Seam - 42'N. of S. End of Seam
P36/P37		30	30	—	12:07	12:12	5	P		42'N. of S. End of Seam - N. End of Seam
P37/P38		30	29	1	11:50	11:55	5	P		Entire Seam
P38/P39		30	30	—	11:50	11:55	5	P		
P39/P40		30	30	—	11:21	11:26	5	P		
P40/P41		30	30	—	11:21	11:26	5	P		
P41/P42		30	29	—	14:37	14:42	5	P		

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NON-DESTRUCTIVE TEST LOG

SHEET 9 -P of
PROJECT TITLE: Tomoka Farms Rd. LF - Primary Liner
PROJECT NO: 0995039.27
DATE: 12/7/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	TIME P/F	VAC. BOX P/F	COMMENTS
P36/Tie-in	SK	30	30	—	15:52	15:57	5	P		Entire Seam
P37/Tie-in		30	30	—	14:50	14:55	5	P		
P38/Tie-in		30	30	—	14:50	14:55	5	P		
P39/Tie-in		30	30	—	14:50	14:55	5	P		
P40/Tie-in		30	30	—	14:50	14:55	5	P		
P41/Tie-in		30	30	—	14:50	14:55	5	P		
P42/Tie-in		30	30	—	14:50	14:55	5	P		

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NON-DESTRUCTIVE TEST LOG

SHEET 10 -P of
PROJECT TITLE: Tomoka Farms Rd. LF – Primary Liner
PROJECT NO: 0995039.27
DATE: 12/8/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
P42/P43	SK	~~9:27~~ 30	30	—	9:22	9:27	5	P		S. End of Seam - 27'N. of S. End of Seam
P42/P43		—	—	—	—	—	—	—	P	27'N. of S. End of Seam - 38'N. of S. End of Seam
P42/P43		30	29	1	9:06	9:11	5	P		38'N. of S. End of Seam - 113'N. of S. End of Seam
P42/P43		—	—	—	—	—	—	—	P	113'N. of S. End of Seam - 126'N. of S. End of Seam
P42/P43		30	29	1	9:06	9:11	5	P		126'N. of S. End of Seam - N. End of Seam
P45/P46		30	30	—	10:45	10:50	5	P		Entire Seam
P46/P47		30	30	—	10:45	10:50	5	P		↓
P47/P48	↓	30	29	1	11:15	11:20	5	P		
~~P48/P49~~ SK		~~30~~ SK	~~30~~ SK	~~1~~ SK						

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NON-DESTRUCTIVE TEST LOG

SHEET 11 -P of
PROJECT TITLE: Tomoka Farms Rd. Landfill
PROJECT NO: 0995039.27
DATE: 12/9/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
P48/P49	SK	30	30	—	8:49	8:54	5	P		Entire Seam
P49/P50	↓	30	29	1	8:53	8:58	5	P		↓
P50/P51		30	28	2	9:24	9:29	5	P		S. End of Seam - 12'N. of S. End of Seam
P50/P51		30	29	1	9:18	9:23	5	P		12'N. of S. End of Seam - 27'N. of S. End of Seam
P50/P51		30	28	2	9:20	9:25	5	P		27'N. of S. End of Seam - N. End of Seam
P51/P52		30	30	—	9:47	9:52	5	P		Entire Seam
P52/P53		30	29	1	10:12	10:17	5	P		
P53/P54		30	28	2	10:14	10:19	5	P		
P54/P55		30	29	1	10:15	10:20	5	P		
P55/P56		30	30	—	10:16	10:21	5	P		
(P56)/P57/P58		30	29	1	10:54	10:59	5	P		
P58/P59		30	30	—	11:02	11:07	5	P		
P59/P60		30	29	1	11:03	11:08	5	P		
P60/P61		30	29	1	11:04	11:09	5	P		
P61/P62		30	30	—	11:16	11:21	5	P		
P62/P63	↓	30	29	1	11:42	11:47	5	P		↓

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NON-DESTRUCTIVE TEST LOG

SHEET 12 - P of
PROJECT TITLE: Tomoka Farms Rd. Landfill
PROJECT NO: 0995039.27
DATE: 12/9/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
P63/P64	SK	30	28	2	12:38	12:43	5	P		Entire Seam
P64/P65		30	30	—	14:34	14:39	5	P		S. End of Seam - 23'N. of S. End of Seam
P64/P65		30	28	2	14:33	14:38	5	P		23'N. of S. End of Seam - 40'N. of S. End of Seam
P64/P65		30	29	1	14:30	14:35	5	P		40'N. of S. End of Seam - N. End of Seam
P65/P66		30	29	1	14:55	15:00	5	P		S. End of Seam - 41'N. of S. End of Seam
P65/P66		—	—	—	—	—	—	—	P	41'N. of S. End of Seam - 51'N. of S. End of Seam
P65/P66		30	29	1	15:04	15:09	5	P		51'N. of S. End of Seam - N. End of Seam
P67/P68		30	28	2	15:35	15:40	5	P		Entire Seam
P68/P69		30	29	1	15:41	15:46	5	P		
P69/P70		30	30	—	15:38	15:43	5	P		
P70/P71		30	28	2	15:39	15:44	5	P		
P71/P72		30	29	1	15:40	15:45	5	P		
P72/P73		30	29	1	15:50	15:55	5	P		
P73/P74		30	28	2	15:51	15:56	5	P		
P74/P75		30	29	1	15:52	15:57	5	P		
P75/P76		30	30	—	16:00	16:05	5	P		

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NON-DESTRUCTIVE TEST LOG

SHEET 13 -P of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO: 0995039.27
DATE: 12/9/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
P76/P77	SK	30	29	1	16:00	16:05	5	P		Entire Seam
P77/P78	↓	30	29	1	16:01	16:06	5	P		↓
P78/P79		30	29	1	16:04	16:09	5	P		E. End of Seam - 22' W of E. End of Seam
P78/P79		30	29	1	16:04	16:09	5	P		22' W. of E. End of Seam - W. End of Seam
P79/P80		30	29	1	16:10	16:15	5	P		Entire Seam
P80/P81		30	30	—	16:11	16:16	5	P		↓
P81/P82		30	28	2	16:12	16:17	5	P		
P82/P83		30	30	—	16:18	16:23	5	P		
P83/P84		30	30	—	16:32	16:37	5	P		
P84/P85		30	30	—	16:20	16:25	5	P		
P85/P86	↓	30	30	—	16:35	16:40	5	P		↓

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NON-DESTRUCTIVE TEST LOG

SHEET (45) 14 – P of

PROJECT TITLE: Tomoka Farms Rd LF

PROJECT NO: 0995039.27

DATE: 12/10/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	TIME P/F	VAC. BOX P/F	COMMENTS
P66/P67	SK	30	30	—	8:50	8:55	5	P		Entire Seam
P66/P68	↓	30	29	1	8:50	8:55	5	P		↓
P66/P69		30	29	1	7:37	7:42	5	P		
P66/P70		30	29	1	7:37	7:42	5	P		
P66/P71		30	29	1	7:37	7:42	5	P		
P66/P72		30	29	1	7:37	7:42	5	P		
P66/P73		30	29	1	7:37	7:42	5	P		
P66/P74		30	29	1	7:37	7:42	5	P		
P66/P75		30	29	1	7:37	7:42	5	P		
P66/P76		30	29	1	7:37	7:42	5	P		
P66/P77		30	29	1	7:37	7:42	5	P		↓
P66/P78		30	29	1	7:37	7:42	5	P		0-7'E. of W. End of Seam
P66/P78		30	29	1	7:37	7:42	5	P		7'E. of W. End of Seam - E. end of Seam
P66/P79		30	29	1	7:37	7:42	5	P		Entire Seam
P66/P80		30	29	1	7:37	7:42	5	P		↓
P66/P81	↓	30	29	1	7:37	7:42	5	P		↓

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NON-DESTRUCTIVE TEST LOG

SHEET 15 -P of
PROJECT TITLE: Tenoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/10/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
P66/P82	SK	~~7:37~~ 30	~~7:42~~ 29	~~0~~ 1	7:37	7:42	5	P		Entire Seam
P66/P83		30	29	1	7:37	7:42	5	P		
P66/P84		30	29	1	7:37	7:42	5	P		
P66/P85		30	29	1	7:37	7:42	5	P		
P66/P86		30	29	1	7:37	7:42	5	P		
P43/Tie-in		—	—	—	—	—	—	—	P	0-10'W. of E. end of seam
P43/Tie-in		30	29	1	15:00	15:05	5	P		10'W. of E. end of seam - W. end of seam
P44/Tie-in		30	30	—	15:00	15:05	5	P		Entire Seam
P45/Tie-in		30	30	—	16:45	16:50	5	P		
P46/Tie-in		30	30	—	16:45	16:50	5	P		0-12'W. of E. end of seam
P46/Tie-in		30	30	—	16:45	16:50	5	P		12'W. of E. end of seam - W. end of seam
P47/Tie-in		30	30	—	16:45	16:50	5	P		Entire Seam
P-48/Tie-in		30	30	—	16:45	16:50	5	P		
P-49/Tie-in		30	30	—	16:45	16:50	5	P		
P-51/Tie-in		30	30	—	16:25	16:30	5	P		
P-52/Tie-in		30	30	—	16:25	16:30	5	P		

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NON-DESTRUCTIVE TEST LOG

SHEET 16 -P of
PROJECT TITLE: Temeka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/10/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	AIR TEST P/F	VAC. BOX P/F	COMMENTS
P53/Tie-in	SK	30	28	2	1625	1630	5	P		
P54/Tie-in		30	30	—	1625	1630	5	P		
P55/Tie-in		30	30	—	1625	1630	5	P		
P58/Tie-in		30	28	2	1613	1618	5	P		
P59/Tie-in		30	28	2	1613	1618	5	P		
P61/Tie-in		30	30	—	1610	1615	5	P		
P62/Tie-in		30	30	—	1610	1615	5	P		
P63/Tie-in		—	—	—	—	—	—	(F)	P	0-6'E. of W. end of seam
P63/Tie-in		30	30	—	1610	1615	5	P		6'E. of W. end of seam - E. end of seam
P65/Tie-in		~~30~~	29	1	1555	1600	5	P		0-8'E. of W. end of seam
P65/Tie-in		—	—	—	—	—	—	—	P	8'E. of W. end of seam - E. end of seam
P66/Tie-in		30	29	1	1555	1600	5	P		
P67/Tie-in	↓	30	29	1	1555	1600	5	P		

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SHEET 17 - P of

PROJECT TITLE: Tomoka Farms Rd LF

PROJECT NO: 0995039.27

DATE: 12/11/98

NON-DESTRUCTIVE TEST LOG

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P50/Tie-in	SK	30	29	1	8:28	8:33	5	P		

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SIGNATURE: Steven Rosbach

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NON-DESTRUCTIVE TEST LOG

SHEET 18 - P of
PROJECT TITLE: Temoka Farms Rd. LF
PROJECT NO: 0995039.27
DATE: 1/13/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P20/P87	SK	30	30	—	9:54	9:59	5	P		
P87/P88		30	30	—	9:32	9:37	5	P		
P88/P89		30	30	—	9:32	9:37	5	P		
P89/P90		30	29	1	9:31	9:36	5	P		
P90/P91		30	29	1	9:31	9:36	5	P		
P91/P92		30	28	2	9:30	9:35	5	P		
P92/P93		30	29	1	9:30	9:35	5	P		
P93/P94		30	28	2	9:30	9:35	5	P		0'-48' W. of E. end of seam
P93/P94		30	30	—	9:24	9:29	5	P		48' W. of E. end of seam - W. end of seam
P94/P95		30	30	—	9:10	9:15	5	P		
P95/P96		30	28	2	11:38	11:43	5	P		
P96/P97		30	29	1	8:35	8:40	5	P		
P97/P98		30	30	—	8:35	8:40	5	P		
P98/P99		30	28	2	8:35	8:40	5	P		
P95/P97		30	28	2	11:38	11:43	5	P		
P95/P98	↓	30	28	2	11:38	11:43	5	P		

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NON-DESTRUCTIVE TEST LOG

SHEET 19 - P of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO: 0995039.27
DATE: 1/13/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P94/P98	SK	30	28	2	11:40	11:45	5	P		
P94/P99		30	28	2	11:40	11:45	5	P		
P99/P100		30	30	—	10:22	10:27	5	P		
P94/P100		30	30	—	10:30	10:35	5	P		
P93/P100		30	30	—	10:30	10:35	5	P		0-5' E. of W. end of seam
P93/P100		30	28	2	11:02	11:07	5	P		5' E. of W. end of seam - E. end of seam
P92/P100		30	28	2	11:02	11:07	5	P		
P91/P100		30	28	2	11:02	11:07	5	P		
P90/P100		30	28	2	11:02	11:07	5	P		
P89/P100		30	28	2	11:02	11:07	5	P		
P88/P100		30	28	2	11:02	11:07	5	P		
P87/P100		30	28	2	11:02	11:07	5	P		
P100/P101		30	30	—	13:40	13:45	5	P		0-77' S. of N. end of seam
P100/P101		30	30	—	13:40	13:45	5	P		77' S. of N. end of seam - S end of seam
P101/P102		—	—	—	—	—	—	—	P	0-125' S. of N. end of seam
P101/P102	↓	30	30	—	14:25	14:30	5	P		125'-162' S. of N. end of seam

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NON-DESTRUCTIVE TEST LOG

SHEET 20 - P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/13/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P101/P102	SK	30	30	—	15:10	15:15	5	P		162'-180' S. of N. end of seam
P101/P102		—	—	—	—	—	—	—	P	180' S. of N. end of seam - S. end of seam
P102/P103		30	28	2	15:00	15:05	5	P		
P103/P104		30	30	—	15:03	15:08	5	P		0-66' S. of N. end of seam
P103/P104		30	30	—	15:05	15:10	5	P		66' S. of N. end of seam - S. end of seam
P104/P105		30	28	2	15:05	15:10	5	P		0-67' S. of N. end of seam
P104/P105		30	28	2	15:05	15:10	5	P		67' S. of N. end of seam - S. end of seam
P105/P106		30	30	—	15:45	15:50	5	P		
P106/P107		30	30	—	15:48	15:53	5	P		
P107/P108		30	30	—	15:52	15:57	5	P		
P108/P109		30	30	—	16:17	16:22	5	P		0-65' S. of N. end of seam-
P108/P109		30	29	1	16:15	16:20	5	P		65' S. of N. end of seam - S. end of seam
P109/P110		30	30	—	16:25	16:30	5	P		0-70' S. of N. end of seam
P109/P110		30	30	—	16:25	16:30	5	P		70' S. of N. end of seam - S. end of seam
P109/P111		30	28	2	16:45	16:50	5	P		
P110/P111	↓	30	30	—	16:45	16:50	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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NON-DESTRUCTIVE TEST LOG

SHEET 21 - P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/13/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P108/P111	SK	30	30	—	16:45	16:50	5	P		

PRINT NAME: Steven Losbach

SIGNATURE: Steven Losbach

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NON-DESTRUCTIVE TEST LOG

SHEET 22 - P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/14/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
P110/P112	SK	30	30	—	8:05	8:10	5	P		
P112/P113		30	30	—	8:05	8:10	5	P		
P113/P114		30	30	—	8:06	8:11	5	P		
P114/P115		30	30	—	8:48	8:53	5	P		0-77'S. of N. end of seam
P114/P115		30	30	—	8:45	8:50	5	P		77'S. of N. end of seam - S. end of seam
P115/P116		30	30	—	8:50	8:55	5	P		0-80'S. of N. end of seam
P115/P116		30	29	1	8:45	8:50	5	P		80'S. of N. end of seam - S. end of seam
P116/P117		30	28	2	10:05	10:10	5	P		
P117/P118		30	30	—	10:08	10:13	5	P		
P118/P119		30	29	1	10:30	10:35	5	P		
P39/P119		30	30	—	15:25	15:30	5	P		
P38/P119		30	30	—	15:25	15:30	5	P		
P38/P118		30	30	—	15:25	15:30	5	P		
P37/P118		32	30	2	15:20	15:25	5	P		
P37/P118		32	30	2	15:20	15:25	5	P		
P36/P117	↓	32	30	2	15:20	15:25	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 23 - P of
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/14/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P36/P116	SK	32	30	2	15:20	15:25	5	P		
P35/P116		32	30	2	15:20	15:25	5	P		
P35/P115		32	30	2	15:20	15:25	5	P		
P34/P114		32	30	2	15:20	15:25	5	P		
P33/P113		32	30	2	15:20	15:25	5	P		
P32/P113		32	30	2	15:20	15:25	5	P		
P32/P112		32	30	2	15:20	15:25	5	P		
P31/P112		32	30	2	15:20	15:25	5	P		
P31/P110		32	30	2	15:20	15:25	5	P		
P30/P110		32	30	2	15:20	15:25	5	P		
P30/P111		32	30	2	15:20	15:25	5	P		
P29/P108		32	30	2	15:20	15:25	5	P		
P28/P107		32	30	2	15:20	15:25	5	P		
P27/P106		32	30	2	15:20	15:25	5	P		
P26/P105		32	30	2	15:20	15:25	5	P		
P25/P104	↓	30	29	1	14:55	15:00	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 24 - P of
PROJECT TITLE: Tanaka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/14/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P24/P103	SK	30	29	1	14:55	15:00	5	P		
P23/P102	↓	30	30	—	13:01	13:06	5	P		
P22/P101		30	30	—	13:01	13:06	5	P		
P22/P100		30	30	—	13:01	13:06	5	P		
P21/P100		30	30	—	13:01	13:06	5	P		
P21/P87		—	—	—	—	—	—	—	P	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 25 -P of
PROJECT TITLE: Tenoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/19/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
P119/P120	SK	30	29	1	13:01	13:06	5	P		
P120/P121		30	28	2	13:15	13:20	5	P		
P121/P122		30	28	2	13:02	13:07	5	P		
P122/P123		30	30	—	13:10	13:15	5	P		
P123/P124		30	28	2	14:20	14:25	5	P		
P123/P124		30	28	2	14:35	14:40	5	P		
P123/P124		30	30	—	14:35	14:40	5	P		
P124/P125		30	28	2	15:35	15:40	5	P		
P125/P126		30	30	—	15:15	15:20	5	P		
P126/P127		30	29	1	15:35	15:40	5	P		
P127/P128		30	28	2	15:16	15:21	5	P		
P128/P129		30	30	—	15:25	15:30	5	P		0-68's. of N. end of seam
P128/P129		30	28	2	15:30	15:35	5	P		68's. of N. end of seam - S. end of seam
P129/P130		30	28	2	15:53	15:58	5	P		0-65's. of N. end of seam
P129/P130		30	30	—	15:53	15:58	5	P		65's. of N. end of seam - s. end of seam
P130/P131	↓	30	28	2	15:55	16:00	5	P		0-77's. of N. end of seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 26 -P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/19/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P130/P131	SK	30	28	2	15:55	16:00	5	P		77's. of N. end of seam - S. end of seam
P131/P132	↓	30	30	—	16:15	16:20	5	P		0-106's. of N. end of seam
P131/P132	↓	30	30	—	16:15	16:20	5	P		106's. of N. end of seam - S. end of seam
P132/P133	↓	28	26	2	15:23	15:28	5	P		

PRINT NAME: Steven Losbach

SIGNATURE: Steven Losbach

SCS ENGINEERS

SHEET 27 -P of

PROJECT TITLE: Tomoka Farms Rd. LF

PROJECT NO: 0995039.27

DATE: 1/20/99

NON-DESTRUCTIVE TEST LOG

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P133/P134	SK	30	30	—	8:28	8:33	5	P		
P134/P135		30	30	—	8:30	8:35	5	P		
P135/P136		30	30	—	9:00	9:05	5	P		
P136/P137		30	28	2	9:42	9:47	5	P		
P137/P138		—	—	—	—	—	—	—	P	0-8'S. of N. end of seam
P137/P138		30	28	2	9:30	9:35	5	P		8'S. of N. end of seam - S. end of seam
P138/P139		30	30	—	9:27	9:32	5	P		
P139/P140		30	30	—	10:10	10:15	5	P		
P140/P141		30	28	2	10:12	10:17	5	P		
P141/P142		30	28	2	13:55	14:00	5	P		
P142/P143		30	28	2	13:55	14:00	5	P		
P143/P144		30	29	1	14:00	14:05	5	P		
P144/P145		30	28	2	14:00	14:05	5	P		
P145/P146		30	30	—	14:45	14:50	5	P		
P146/P147		30	30	—	16:32	16:37	5	P		
P147/P148	↓	30	28	2	14:55	15:00	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 28 -P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/20/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P146/P148	SK	30	30	—	16:32	16:37	5	P		
P148/P149		30	30	—	14:55	15:00	5	P		
P146/P149		30	30	—	16:32	16:37	5	P		
P149/P150		30	28	2	14:55	15:00	5	P		
P146/P150		30	30	—	16:32	16:37	5	P		
P150/P151		30	28	2	14:58	15:03	5	P		
P146/P151		30	30	—	16:32	16:37	5	P		
P151/P152		30	29	1	15:30	15:35	5	P		
P146/P152		30	30	—	16:32	16:37	5	P		
P152/P153		30	30	—	15:50	15:55	5	P		
P146/P153		30	30	—	16:32	16:37	5	P		
P153/P155		30	30	—	15:50	15:55	5	P		
P153/P154		—	—	—	—	—	—	—	P	
P155/P156		30	29	1	16:04	16:09	5	P		
P154/P156		30	29	1	16:04	16:09	5	P		
P146/P154	↓	30	30	—	16:32	16:37	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

SHEET 29 -P of

PROJECT TITLE: Tenaka Farms Rd LF

PROJECT NO: 0995039.27

DATE: 1/20/99

NON-DESTRUCTIVE TEST LOG

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P154/P155	SK	30	30	—	16:04	16:09	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 30 -P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/21/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
P86/P147	SK	30	30	—	9:45	9:50	5	P		
P66/P146	↓	30	29	1	9:41	9:46	5	P		
P65/P146	↓	↓	↓	↓	↓	↓	↓	P		
P65/P145	↓	↓	↓	↓	↓	↓	↓	P		
P64/P145	↓	↓	↓	↓	↓	↓	↓	P		
P64/P144	↓	30	30	—	9:40	9:45	5	P		
P63/P144	↓	↓	↓	↓	↓	↓	↓	P		
P63/P143	↓	↓	↓	↓	↓	↓	↓	P		
P62/P143	↓	30	30	—	8:55	9:00	5	P		
P62/P142	↓	↓	↓	↓	↓	↓	↓	P		
P61/P142	↓	↓	↓	↓	↓	↓	↓	P		
P61/P141	↓	↓	↓	↓	↓	↓	↓	P		
P60/P141	↓	30	29	1	9:24	9:29	5	P		
P60/P140	↓	↓	↓	↓	↓	↓	↓	P		
P59/P140	↓	30	30	—	9:30	9:35	5	P		
P59/P139	↓	↓	↓	↓	↓	↓	↓	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

SHEET 31 -P of

PROJECT TITLE: Tomoka Farms Rd LF

PROJECT NO: 09950039.27

DATE: 1/21/99

NON-DESTRUCTIVE TEST LOG

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P58/P139	SK	30	28	2	9:30	9:35	5	P		
P58/P138	↓	↓	↓	↓	↓	↓	↓	P		
P57/P138								P		
P57/P137		↓	↓	↓	↓	↓	↓	P		
P56/P137		30	29	1	8:40	8:45	5	P		
P56/P136		↓	↓	↓	↓	↓	↓	P		
P55/P136								P		
P55/P135								P		
P54/P135								P		
P54/P134								P		
P53/P134								P		
P53/P133								P		
P52/P133								P		
P52/P132								P		
P51/P132		↓	↓	↓	↓	↓	↓	P		
P51/P131	↓	30	29	1	8:30	8:35	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 32 - P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/21/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P50/P131	SK	30	29	1	8:30	8:35	5	P		
P50/P130	↓	↓	↓	↓	↓	↓	↓	P		
P49/P130	↓	↓	↓	↓	↓	↓	↓	P		
P49/P129	↓	30	30	—	7:46	7:51	5	P		
P48/P129	↓	↓	↓	↓	↓	↓	↓	P		
P48/P128	↓	↓	↓	↓	↓	↓	↓	P		
P47/P128	↓	↓	↓	↓	↓	↓	↓	P		
P47/P127	↓	↓	↓	↓	↓	↓	↓	P		
P46/P127	↓	↓	↓	↓	↓	↓	↓	P		
P46/P126	↓	↓	↓	↓	↓	↓	↓	P		
P45/P126	↓	30	29	1	7:51	7:56	5	P		
P45/P125	↓	↓	↓	↓	↓	↓	↓	P		
P44/P125	↓	↓	↓	↓	↓	↓	↓	P		
P44/P124	↓	—	—	—	—	—	—	~~P~~ (2R)	P	
P43/P124	↓	—	—	—	—	—	—	~~P~~ (3R)	P	
P43/P123	↓	—	—	—	—	—	—	~~P~~ (1R)	P	

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 33 -P of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/21/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P42/P123	SK	30	30	—	9:01	9:06	5	P		
P42/P122	↓	↓	↓	↓	↓	↓	↓	P		
P41/P122								P		
P41/P121								P		
P40/P121								P		
P40/P120								P		
P39/P120								P		
P39/P119	↓	↓	↓	↓	↓	↓	↓	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 34 - P of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO: 0995039.27
DATE: 1/27/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
P136/PR356	SK	—	—	—	—	—	—	—	P	
P137/PR356	↓	—	—	—	—	—	—	—	P	

PRINT NAME: Steven Rosback

SIGNATURE: Steven Rosback

SECONDARY

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 1 - S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/2/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S1/S2	SK	30	30	—	11:30	11:35	5	P		Entire Seam
S2/S3	SK	30	28	2	11:14	11:19	5	P		
S3/S4	SK	30	30	—	13:25	13:30	5	P		
S4/S5	SK	30	30	—	13:25	13:30	5	P		
S5/S6	SK	30	30	—	13:30	13:35	5	P		
S6/S7	SK	30	28	2	14:03	14:08	5	P		
S7/S8	SK	30	29	1	14:05	14:10	5	P		
S8/S9	SK	30	29	1	13:45	13:50	5	P		
S9/S10	SK	30	28	2	14:10	14:15	5	P		
S10/S11	SK	30	30	—	14:15	14:20	5	P		
S11/S12	SK	30	28	2	14:40	14:45	5	P		
S12/S13	SK	30	28	2	14:45	14:50	5	P		
S13/S14	SK	30	29	1	14:47	14:52	5	P		
S14/S15	SK	30	30	—	14:55	15:00	5	P		
S15/S16	SK	30	28	2	15:15	15:20	5	P		
S16/S17	SK	30	30	—	15:20	15:25	5	P		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 2 - 5 of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/2/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S17/S18	SK	30	28	2	15:24	15:29	5	P		Entire Seam
S18/S19	SK	30	30	—	15:45	15:50	5	P		↓
S19/S20	SK	30	28	2	15:47	15:52	5	P		↓
S20/S21	SK	30	29	1	15:57	16:02	5	P		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 3 - 5 of
PROJECT TITLE: Tomoka Farms Rd. LF-Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/3/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S1/Tie-in	SK	30	30	—	6:40	6:45	5	P		Entire Seam
S1/S22		30	30	—	10:18	10:23	5			
S2/S22		30	30	—	11:45	11:50	5			
S3/S22		30	30	—	11:45	11:50	5			
S4/S22		30	30	—	11:45	11:50	5			
S5/S22		30	30	—	11:55	12:00	5			
S6/S22		30	30	—	11:55	12:00	5			
S7/S22		30	30	—	11:55	12:00	5			
S8/S22		30	30	—	11:55	12:00	5			
S9/S22		30	30	—	11:55	12:00	5			
S10/S22		30	30	—	11:55	12:00	5			
S11/S22		30	30	—	11:55	12:00	5			
S12/S22		30	30	—	11:55	12:00	5			
S13/S22		30	30	—	11:55	12:00	5			
S14/S22		30	30	—	11:55	12:00	5			
S15/S22	↓	30	30	—	11:55	12:00	5	↓		↓

PRINT NAME: Steven Rosloch

SIGNATURE: Steven Rosloch

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 4 - 5 of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/3/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S16/S22	SK	30	30	—	11:55	12:00	5	P		Entire Seam
S17/S22		30	30	—	11:55	12:00	5	P		
S18/S22		30	30	—	11:55	12:00	5	P		
S19/S22		30	30	—	11:55	12:00	5	P		
S20/S22		30	30	—	11:55	12:00	5	P		
S21/S22		30	30	—	11:55	12:00	5	P		
S22/S23		30	30	—	11:37	11:42	5	P		
S23/S25		30	28	2	13:54	13:59	5	P		S. End of Seam — 30' NOSEOS
S23/S25		30	30	—	13:49	13:54	5	P		30' NOSEOS — N. End of Seam
S24/S25		30	30	—	13:49	13:54	5	P		Entire Seam
S25/Tie-in		30	30	—	16:58	17:03	5	P		
S25/S26		30	30	—	16:05	16:10	5	P		S. End of Seam - 29' NOSEOS
S25/S26		30	29	—	16:05	16:10	5	P		29' NOSEOS - N. End of Seam
S26/Tie-in		30	30	—	16:56	17:01	5	P		Entire Seam
S26/S27		30	30	—	16:30	16:35	5	P		S. End of Seam - 27' NOSEOS
S26/S27	↓	30	30	—	16:30	16:35	5	P		27' NOSEOS - N. End of Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 5 - 5 of
PROJECT TITLE: Tomoka Farms Rd. LF-Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/3/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S27/S28	SK	30	30	—	16:45	16:50	5	P		S. End of Seam – 28' NOSEOS
S27/S28	↓	30	29	1	16:54	16:59	5	P		28' NOSEOS - N. End of Seam
S28/S30	↓	30	30	—	17:11	17:16	5	P		Entire Seam
S22/S24	↓	30	30	—	10:35	10:40	5	P		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 6 - 5 of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/4/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S22/Tie-in	SK	30	30	—	8:35	8:40	5	P		Entire Seam
S23/Tie-in		30	30	—	8:45	8:50	5			
S23/S24		30	30	—	10:30	10:35	5			
S27/Tie-in		30	30	—	9:45	9:50	5			
S28/Tie-in		30	30	—	9:58	10:03	5			
S28/S29		30	30	—	10:12	10:17	5			
S27/S29		30	30	—	10:12	10:17	5			
S30/Tie-in		30	30	—	9:56	10:01	5			
S30/S31		30	29	1	11:49	11:54	5			
S31/S32	↓	30	30	—	12:55	13:00	5	↓		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

SHEET 7 - 5 of

PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner

PROJECT NO: 0995039.27

DATE: 11/6/98

NON-DESTRUCTIVE TEST LOG

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S32/S33	SK	30	30	—	6:40	6:45	5	P		S. End of Seam — 33' NOSEOS
S32/S33		30	30	—	6:35	6:40	5			33' NOSEOS — N. End of Seam
S31/Tie-in		30	30	—	10:18	10:23	5			Entire Seam
S32/Tie-in		30	30	—	10:18	10:23	5	↓		E. End of Seam - 10' WOEEOS
S32/Tie-in		—	—	—	—	—	—	—	P	10' WOEEOS - N. End of Seam (Cap)
S33/Tie-in		30	30	—	9:43	9:48	5	P		Entire Seam
S-1/SR11		30	30	—	13:12	13:17	5	P		
S1/SR3		30	30	—	13:30	13:35	5	P		
S1/SR2		30	29	1	13:30	13:35	5	P		
S1/SR1		30	29	1	13:30	13:35	5	P		
SR1/Tie-in		30	30	—	13:16	13:21	5	P		
SR2/Tie-in		30	30	—	13:16	13:21	5	P		
SR3/Tie-in		30	29	1	13:16	13:21	5	P		
SR11/Tie-in	↓	30	30	—	13:12	13:17	5	P		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 8 - 5 of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/9/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S33/S34	SK	30	30	—	14:57	15:02	5	P		S. End of Seam - 38'NOSEOS
S33/S34		30	28	2	14:47	14:52	5	P		38'NOSEOS - 319'NOSEOS
S33/S34		30	30	—	14:47	14:52	5	P		319'NOSEOS - N. End of Seam
S34/S35		30	29	1	16:21	16:26	5	P		S. End of Seam - 18'NOSEOS
S34/S35		30	30	—	16:08	16:13	5	P		18'NOSEOS - 370'NOSEOS
S34/S35		30	30	—	16:08	16:13	5	P		370'NOSEOS - N. End of Seam
S35/S36		30	29	1	16:37	16:42	5	P		Entire Seam
S36/S37		30	30	—	16:45	16:50	5	P		S. End of Seam - 48'NOSEOS
S36/S37		30	30	—	16:45	16:50	5	P		48'NOSEOS - N. End of Seam
S37/S38		30	30	—	17:10	17:15	5	P		S. End of Seam - 38'NOSEOS
S37/S38	↓	30	30	—	17:44	17:49	5	P		38'NOSEOS - N. End of Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 9 - 5 of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/10/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S38/S39	SK	30	30	—	7:00	7:05	5	P		Entire Seam
S39/S40		30	29	1	9:17	9:22	5	P		S. End of Seam - 25' NOSEOS
S39/S40		30	30	—	9:17	9:22	5	P		25' NOSEOS - N. End of Seam
S40/S41		30	30	—	10:27	10:32	5	P		Entire Seam
S41/S42		30	30	—	16:55	17:00	5	P		S. End of Seam - 34' NOSEOS
S41/S42		30	28	2	16:55	17:00	5	P		34' NOSEOS - 85' NOSEOS
S41/S42		30	30	—	16:10	16:15	5	P		85' NOSEOS - N. End of Seam
S42/S43		30	30	—	14:53	14:58	5	P		Entire Seam
S43/S44		30	29	1	15:17	15:22	5	P		S. End of Seam - 38' NOSEOS
S43/S44		30	30	—	15:25	15:30	5	P		38' NOSEOS - N. End of Seam.
S44/S45		30	29	1	15:20	15:25	5	P		Entire Seam
S45/S46		30	29	1	16:40	16:45	5	P		S. End of Seam - 173' NOSEOS
S45/S46	↓	30	29	1	16:55	17:00	5	P		173' NOSEOS - N. End of Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 10 - S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO: 0995039.27
DATE: 11/11/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S33/S34	SK	—	—	—	—	—	—	—	P	Entire Seam (Extrusion Welded)

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET (SD) (AZ) 11 - 5 of

PROJECT TITLE: Tomoka Farms Rd LF - Secondary Liner

PROJECT NO: 0995039.27

DATE: 11/13/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S46/S47	SK	30	30	—	8:35	8:40	5	P		S. End of Seam - 37' NOSEOS
S46/S47		30	30	—	9:50	9:55	5	P		37' NOSEOS - 270' NOSEOS
S46/S47		30	30	—	9:45	9:50	5	P		270' NOSEOS - N. End of Seam
S47/S48		30	30	—	8:25	8:30	5	P		S. End of Seam - 30' NOSEOS
S47/S48		30	30	—	8:25	8:30	5	P		30' NOSEOS - N. End of Seam
S48/S49		30	30	—	8:40	8:45	5	P		Entire Seam
S49/S50		30	28	~~2~~	9:25	9:30	5	P		S. End of Seam - 33' NOSEOS
S49/S50		30	30	—	9:25	9:30	5	P		33' NOSEOS - ~~(N. of)~~ (SD) N. End of Seam
S50/S51		30	30	—	10:21	10:26	5	P		S. End of Seam - 32' NOSEOS
S50/S51		30	29	1	10:28	10:33	5	P		32' NOSEOS - N. End of Seam
S51/S52		30	30	—	11:03	11:08	5	P		Entire Seam
S52/S53		30	29	1	13:07	13:12	5	P		S. End of Seam - 30' NOSEOS
S52/S53		30	30	—	13:07	13:12	5	P		30' NOSEOS - 440' NOSEOS
S52/S53		30	29	1	11:36	11:41	5	P		440' NOSEOS - N. End of Seam
S53/S54		30	30	—	14:30	14:35	5	P		20' NOSEOS - 30' NOSEOS
S53/S54	↓	30	30	—	14:31	14:36	5	P		50' NOSEOS - N. End of Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 12 - S of
PROJECT TITLE: Tamoka Farms Rd. LF-Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/13/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S53/S54	SK	—	—	—	—	—	—	—	P	S. End of Seam - 20' NOSEOS (Cap)
S53/S54	↓	—	—	—	—	—	—	—	P	30' NOSEOS - 50' NOSEOS
S54/S55		30	30	—	15:20	15:25	5	P		S. End of Seam - 35' NOSEOS
S54/S55		30	30	—	15:33	15:38	5	P		35' NOSEOS - N. End of Seam
S55/S56		30	30	—	16:00	16:05	5	P		Entire Seam
S56/S57		30	30	—	16:20	16:25	5	P		S. End of Seam - 341' NOSEOS
S56/S57		30	30	—	16:02	16:07	5	P		341' NOSEOS - N. End of Seam.
S57/S58		30	29	1	7:10	7:15	5	P		S. End of Seam - 30' NOSEOS
S57/S58	↓	30	29	1	7:10	7:15	5	P		30' NOSEOS - N. End of Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET (P) (H) (HZ) 13-S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/14/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	TIME P/F	VAC. BOX P/F	COMMENTS
S40/Tie-in	SK	—	—	—	—	—	—	—	P	Entire Seam
S41/Tie-in		—	—	—	—	—	—	—	P	
S34/Tie-in		—	—	—	—	—	—	—	P	
S35/Tie-in		—	—	—	—	—	—	—	P	
S36/Tie-in		—	—	—	—	—	—	—	P	
S37/Tie-in		—	—	—	—	—	—	—	P	
S38/Tie-in		—	—	—	—	—	—	—	P	
S39/Tie-in		—	—	—	—	—	—	—	P	
S42/Tie-in		—	—	—	—	—	—	—	P	
S43/Tie-in		—	—	—	—	—	—	—	P	
S44/Tie-in		—	—	—	—	—	—	—	P	
S45/Tie-in		—	—	—	—	—	—	—	P	
S47/Tie-in		30	30	—	8:47	8:52	5	P		
S48/Tie-in		30	30	—	8:47	8:52	5	P		
S49/Tie-in		30	30	—	8:32	8:37	5	P		
S50/Tie-in	↓	30	30	—	8:58	9:03	5	P		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 14 - S of

PROJECT TITLE: Tonoka Farms Rd. LF - Secondary Liner

PROJECT NO: 0995039.27

DATE: 11/16/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S51/Tie-in	SK	30	30	—	8:58	9:03	5	P		Entire Seam
S54/Tie-in	↓	30	30	—	8:01	8:06	5	P		↓
S55/Tie-in		30	30	—	7:35	7:40	5	P		
S56/Tie-in		30	30	—	7:44	7:49	5	P		
S57/Tie-in	↓	30	30	—	7:15	7:20	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 15 - 5 of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/17/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	TIME P/F	VAC. BOX P/F	COMMENTS
S58/S59	SK	30	30	—	10:51	10:56	5	P		S. End of Seam - 38' NOSEOS
S58/S59		30	30	—	10:51	10:56	5			38' NOSEOS - N. End of Seam
S59/S60		30	29	1	11:06	11:11	5	↓		S. End of Seam - 58' NOSEOS
S59/S60		—	—	—	—	—	—	—	P	58' NOSEOS - 88' NOSEOS (CAP)
S59/S60		30	29	1	11:29	11:34	5	P		88' NOSEOS - N. End of Seam
S60/S61		30	29	1	11:47	11:52	5	P		S. End of Seam - 30' N. of S. End of Seam
S60/S61		30	28	2	11:50	11:55	5	P		30' NOSEOS - N. End of Seam
S61/S62		30	28	2	13:42	13:47	5	P		S. End of Seam - 50' NOSEOS
~~S62/S~~ S61/S62		30	29	1	13:52	13:57	5	P		50' NOSEOS - N. End of Seam
S62/S63		30	29	1	14:25	14:30	5	P		S. End of Seam - 30' NOSEOS
S62/S63		30	29	1	14:29	14:34	5	P		30' NOSEOS - N. End of Seam
S63/S64		30	30	—	14:44	14:49	5	P		S. End of Seam - 70' NOSEOS
S63/S64		30	30	—	14:43	14:48	5	P		70' NOSEOS - N. End of Seam
S64/S65		30	29	1	15:00	15:05	5	P		Entire Seam
S65/S66	↓	30	28	2	8:02	8:07	5	P		Entire Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 16 - 5 of

PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner

PROJECT NO: 0995039.27

DATE: 11/18/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	TIME P/F	VAC. BOX P/F	COMMENTS
S66/S67	SK	—	—	—	—	—	—	—	P	S. End of Seam - 12' NOSEOS
S66/S67		30	29	1	1506	15:11	5	P		12' NOSEOS - N. End of Seam
S67/S68		30	30	—	15:13	15:18	5	P		S. End of Seam - 22' NOSEOS
S67/S68		30	30	—	15:12	15:17	5	P		22' NOSEOS - 40' NOSEOS
S67/S68		30	30	—	1535	15:40	5	P		40' NOSEOS - N. End of Seam
S68/S69		30	30	—	16:15	16:20	5	P		S. End of Seam - 28' NOSEOS
S68/S69		30	30	—	16:15	16:20	5	P		28' NOSEOS - 61' NOSEOS
S68/S69		30	30	—	16:12	16:17	5	P		61' NOSEOS - N. End of Seam
S69/S70		30	29	1	17:42	17:47	5	P		Entire Seam
S70/S71		30	28	2	16:25	16:30	5	P		
S69/S71		30	28	2	17:40	17:45	5	P		
S69/S71		30	28	2	17:42	17:47	5	P		
S71/S72		30	29	1	16:49	16:54	5	P		
S69/S72		30	28	2	17:40	17:45	5	P		
S72/S73		30	30	—	17:05	17:10	5	P		
S73/S69		30	28	2	17:40	17:45	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 17 - S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/18/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	AIR TEST P/F	VAC. BOX P/F	COMMENTS
S73/S74	SK	30	30	—	17:10	17:15	5	P		Entire Seam
~~S74~~/S69/S74	↓	30	28	2	17:40	17:45	5	↓		↓
S74/S75	↓	30	29	1	17:09	17:14	5	↓		↓
S69/S75	↓	30	28	2	17:40	17:45	5	↓		↓
S46/Tie-in	↓	—	—	—	—	—	—	—	P	↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 18 - S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/19/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S75/S76	SK	30	28	2	1053	10:58	5	P		Entire Seam
S69/S76		30	29	1	14:47	14:52	5	P		
S76/S77		30	28	2	10:55	11:00	5	P		
S69/S77		30	29	1	14:47	14:52	5	P		
S77/S78		30	28	2	10:58	11:03	5	P		
S69/S78		30	29	1	14:47	14:52	5	P		
S78/S79		30	28	2	10:57	11:02	5	P		
S69/S79		30	29	1	14:47	14:52	5	P		
S79/S80		30	30	—	11:00	11:05	5	P		
S69/S80		30	29	1	14:47	14:52	5	P		
S80/S81		30	30	—	11:00	11:05	5	P		
S69/S81		30	29	1	14:47	14:52	5	P		
S81/S82		30	30	—	11:02	11:07	5	P		
S69/S82		30	29	1	14:47	14:52	5	P		
S82/S83		30	29	1	11:10	11:15	5	P		
S69/S83		30	29	1	14:47	14:52	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 19 - 5 of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/19/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S83/S84	SK	30	29	1	11:12	11:17	5	P		Entire Seam
S69/S84		30	29	1	14:47	14:52	5	P		
S84/S85		30	30	—	11:25	11:30	5	P		
S69/S85		30	29	1	14:47	14:52	5	P		
S85/S86		30	29	1	11:29	11:34	5	P		
S69/S86		30	29	1	14:47	14:52	5	P		
S86/S87		30	30	—	11:30	11:35	5	P		
S69/S87		30	29	1	14:50	14:55	5	P		
S87/S88		30	29	1	11:30	11:35	5	P		
S69/S88		30	29	1	14:50	14:55	5	P		
S88/S89		30	30	—	11:30	11:35	5	P		
S69/S89		30	29	1	14:50	14:55	5	P		
S64/Tie-in		30	29	1	15:43	15:48	5	P		
S63/Tie-in		30	29	1	15:43	15:48	5	P		
S62/Tie-in		30	29	1	15:43	15:48	5	P		
S61/Tie-in	↓	30	30	—	15:48	15:53	5	P		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 20 - S of
PROJECT TITLE: Tomoka Farms Rd. LF - Secondary Liner
PROJECT NO: 0995039.27
DATE: 11/19/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	TIME P/F	VAC. BOX P/F	COMMENTS
S60/Tie-in	SK	—	—	—	—	—	—	—	P	0-10' West of East End of Seam.
S60/Tie-in		30	30	—	15:55	16:00	5	P		10'-23' West of East End of Seam.
S59/Tie-in		30	30	—	15:55	16:00	5	P		Entire Seam
S58/Tie-in		—	—	—	—	—	—	—	P	
S70/Tie-in		30	28	2	11:52	11:57	5	P		
S69/Tie-in		30	30	—	15:00	15:05	5	P		
S68/Tie-in		30	30	—	15:00	15:05	5	P		
S67/Tie-in		30	30	—	15:22	15:27	5	P		
S66/Tie-in		30	30	—	15:22	15:27	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 21 - 5 of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO: 0995039.27
DATE: 11/20/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S65/Tie-in	SK	—	—	—	—	—	—	—	P	Entire Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 22 - S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO: 0995039.27
DATE: 12/22/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
S90/S91	SK	30	28	2	11:00	11:05	5	P		Entire Seam
S91/S92		30	30	—	11:25	11:30	5			
S92/S93		30	29	1	11:20	11:25	5			
S93/S94		30	30	—	11:21	11:26	5			
S94/S95		30	28	2	11:35	11:40	5			
S95/S96		30	30	—	11:50	11:55	5			
S96/S97		30	28	2	12:30	12:35	5			
S97/S98		30	30	—	13:10	13:15	5			
S98/S99		30	30	—	13:10	13:15	5			
S99/S100		30	29	1	13:10	13:15	5			
S100/S101		30	28	2	13:20	13:25	5			
S96/S101		30	28	2	12:30	12:35	5			
S97/S101		30	30	—	13:10	13:15	5			
S96/S103		30	28	2	12:30	12:35	5			
S101/S102		30	28	2	13:55	14:00	5			
S101/S103	↓	30	29	1	13:00	13:05	5	↓		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 23 - S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/22/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S102/S103	SK	30	29	1	1250	12:55	5	P		Entire Seam
S90/S104		30	30	—	16:00	16:05	5	P		
S91/S104		30	30	—	16:00	16:05	5	P		
S92/S104		30	30	—	16:00	16:05	5	P		
S93/S104		30	30	—	16:00	16:05	5	P		
S94/S104		30	30	—	16:00	16:05	5	P		
S95/S104		30	28	2	15:20	15:25	5	P		
S96/S104		30	28	2	16:03	16:08	5	P		
S103/S104		30	30	—	16:13	16:18	5	P		
S102/S104		30	30	—	16:13	16:18	5	P		
S104/S105		30	30	—	15:06	15:11	5	P		
S105/S106		30	30	—	15:05	15:10	5	P		0'-67' South of the North end of the seam
S105/S106		30	29	1	15:05	15:10	5	P		67' South of North end of seam — South end of Seam
S106/S107		30	29	1	16:30	16:35	5	P		0-80' South of North end of Seam
S106/S107		30	28	2	16:30	16:35	5	P		80' South of North end of seam - South end of Seam
S108/S109		30	28	2	14:55	15:00	5	P		Entire Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 24 - S of
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/22/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	AIR TEST TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S107/S109	SK	30	30	—	1702	17:07	5	P		0'-65' South of North end of Seam
S107/S109	↓	30	30	—	17:07	17:12	5	P		65' South of North end of Seam - South end of seam
S109/S110	↓	30	28	2	17:10	17:15	5	P		Entire Seam
S108/S110	↓	30	28	2	17:10	17:15	5	P		↓
S110/S112	↓	30	30	—	17:20	17:25	5	P		0'-52' South of North end of Seam
S110/S112	↓	30	28	2	17:20	17:25	5	P		52' South of North end of Seam - South end of Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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NON-DESTRUCTIVE TEST LOG

SHEET 25 - S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO: 0995039.27
DATE: 12/23/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S107/S108	SK	30	30	—	7:19	7:24	5	P		Entire Seam
S110/S111		30	30	—	7:16	7:21	5	P		
S111/S112		30	30	—	7:16	7:21	5	P		
S112/S113		30	30	—	7:23	7:28	5	P		
S111/S113		30	30	—	7:23	7:28	5	P		
S113/S114		30	29	1	7:34	7:39	5	P		0'-63' South of North end of Seam
S113/S114		—	—	—	—	—	—	—	P	63'-68' South of North end of Seam
S113/S114		30	30	—	7:42	7:47	5	P		68' South of North end of seam - South end of seam
S114/S115		30	30	—	7:35	7:40	5	P		0'-67' South of North end of Seam
S114/S115		—	—	—	—	—	—	—	P	67'-79' South of North end of Seam
S114/S115		30	30	—	7:54	7:59	5	P		79' South of North end of Seam - South end of seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 26 - S of
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/28/98

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S33/S115	SK	30	29	1	7:55	8:00	5	P		Entire Seam
S32/S114	↓	↓	↓	↓	↓	↓	↓	↓		↓
S31/S113	↓	↓	↓	↓	↓	↓	↓	↓		↓
S30/S111	↓	↓	↓	↓	↓	↓	↓	↓		↓
S29/S110	↓	30	30	—	8:15	8:20	5	P		↓
S27/S108	↓	↓	↓	↓	↓	↓	↓	↓		↓
S26/S107	↓	30	30	—	8:25	8:30	5	P		↓
S25/S106	↓	↓	↓	↓	↓	↓	↓	↓		↓
S24/S105	↓	↓	↓	↓	↓	↓	↓	↓		↓
S24/S104	↓	↓	↓	↓	↓	↓	↓	↓		↓
S22/S104	↓	↓	↓	↓	↓	↓	↓	↓		↓
S22/S90	↓	↓	↓	↓	↓	↓	↓	↓		↓
S21/S90	↓	↓	↓	↓	↓	↓	↓	↓		↓
S29/S111	JM	—	—	—	—	—	—	—	P	↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 27 - S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/30/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
S116/S117	SK	30	28	2	9:35	9:40	5	P		Entire Seam
S115/S117		30	28	2	10:25	10:30	5	P		
S115/S116		30	30	—	10:25	10:30	5	P		
S117/S118		30	28	2	11:00	11:05	5	P		
S116/S118		30	29	1	11:37	11:42	5	P		0'-67' South of North end of Seam
S116/S118		30	28	2	11:00	11:05	5	P		67' South of North end of Seam - South end of Seam
S118/S119		30	30	—	13:34	13:39	5	P		Entire Seam
S119/S120		30	28	2	13:50	13:55	5	P		0-67' South of North end of Seam
S119/S120		30	30	—	14:37	14:42	5	P		67' South of North end of Seam - South end of Seam
S120/S121		30	30	—	15:13	15:18	5	P		Entire Seam
S120/S122		30	30	—	15:13	15:18	5	P		0-69' South of North end of Seam (~~South end of Seam~~)
S120/S122		30	30	—	15:13	15:18	5	P		69' South of North end of Seam - South end of Seam
S120/S123		30	30	—	15:13	15:18	5	P		Entire Seam
S121/S122		30	29	1	14:00	14:05	5	P		
S121/S123		30	28	2	14:05	14:10	5	P		
S123/S124		30	29	1	15:27	15:32	5	P		

PRINT NAME: Steven Rosbach

SIGNATURE:

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 28 - S of
PROJECT TITLE: Temeka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 12/30/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
S121/S124	SK	30	29	1	15:27	15:32	5	P		Entire Seam
S122/S124	↓	30	29	1	15:27	15:32	5	P		↓
S124/S125		30	30	—	15:57	16:02	5	P		0'-79' South of North end of Seam
S124/S125		30	29	1	16:10	16:15	5	P		79' South of North end of Seam - South end of Seam
S127/S128		30	30	—	17:20	17:25	5	P		0'-74' South of North end of Seam
S127/S128	↓	30	30	—	17:33	17:38	5	P		74' South of North end of Seam - South end of Seam

PRINT NAME: Steven Losbach

NATURE: Steven Losbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 29 - S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 12/31/98

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S125/S126	SK	30	30	—	7:36	7:41	5	P		Entire Seam
S126/S127	↓	30	30	—	7:35	7:40	5	P		↓
S128/S129		30	30	—	8:20	8:25	5	P		0-56'South of North end of Seam
S128/S129		—	—	—	—	—	—	—	P	56'-65'South of North end of Seam
S128/S129		30	28	2	8:20	8:25	5	P		65'-81'South of North end of Seam
S128/S129		30	30	—	7:49	7:54	5	P		81'South of North end of Seam - South end of Seam
S129/S130		30	30	—	9:30	9:35	5	P		0-58'South of North end of Seam
S129/S130		—	—	—	—	—	—	—	P	58'-83'South of North end of Seam
S129/S130		30	30	—	9:17	9:22	5	P		83'South of North end of Seam - South end of Seam
S130/S131		30	30	—	9:55	10:00	5	P		0'-66'South of North end of Seam
S130/S131		30	30	—	9:55	10:00	5	P		66'South of North end of Seam - South end of Seam
S131/S132		30	29	1	10:05	10:10	5	P		0-81'South of North end of Seam
S131/S132	↓	30	30	—	10:05	10:10	5	P		81'South of North end of Seam - South end of Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 30 - S of
PROJECT TITLE: Temoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/4/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S46/S131	SK	30	28	2	8:47	8:52	5	P		Entire Seam
S45/S131	↓	↓	↓	↓	↓	↓	↓	↓		↓
S45/S130										
S44/S130										
S44/S129										
S43/S129										
S43/S128										
S42/S128										
S42/S127		↓	↓	↓	↓	↓	↓	↓		
S41/S127		30	28	2	8:47	8:52	5	P		
S41/S126		30	30	—	8:42	8:47	5	P		
S40/S126		↓	↓	↓	↓	↓	↓	↓		
S40/S125										
S39/S125		↓	↓	↓	↓	↓	↓	↓		
S39/S124		30	30	—	9:00	9:05	5	P		
S38/S124	↓	↓	↓	↓	↓	↓	↓	↓		↓

PRINT NAME: Steven Rosbach

NATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 31 - S of
PROJECT TITLE: Tomoka Farms Rd. LF
PROJECT NO: 0995039.27
DATE: 1/4/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S38/S123	SK	30	30	—	9:00	9:05	5	P		Entire Seam
S37/S123	↓	↓	↓	↓	↓	↓	↓	↓		↓
S37/S120	↓	↓	↓	↓	↓	↓	↓	↓		↓
S36/S120	↓	↓	↓	↓	↓	↓	↓	↓		↓
S36/S119	↓	↓	↓	↓	↓	↓	↓	↓		↓
S35/S119	↓	↓	↓	↓	↓	↓	↓	↓		↓
S35/S118	↓	↓	↓	↓	↓	↓	↓	↓		↓
S34/S118	↓	↓	↓	↓	↓	↓	↓	↓		↓
S34/S117	↓	↓	↓	↓	↓	↓	↓	↓		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 32 - S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/6/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
S132/S133	SK	30	29	1	11:25	11:30	5	P		0'-73' South of North end of seam
S132/S133		30	30	—	11:25	11:30	5	P		73' South of North end of seam - south end of seam
S133/S134		30	30	—	11:40	11:45	5	P		0-77' South of North end of seam
S133/S134		30	30	—	11:55	12:00	5	P		77' South of North end of seam - south end of seam
S134/S135		30	28	2	11:55	12:00	5	P		0-82' South of North end of seam
S134/S135		30	28	2	11:55	12:00	5	P		82' South of North end of seam - South end of seam
S135/S136		30	28	2	13:00	13:05	5	P		Entire Seam
S136/S137		30	30	—	14:03	14:08	5	P		0-67' South of North end of Seam
S136/S137		30	30	—	14:03	14:08	5	P		67' South of North end of seam - South end of seam
S137/S138		30	29	1	13:40	13:45	5	P		Entire Seam
S138/S139		30	29	1	15:10	15:15	5	P		0'-67' South of North end of Seam
S138/S139		30	29	1	15:10	15:15	5	P		67' South of North end of Seam - South end of seam
S139/S140		30	29	1	15:30	15:35	5	P		Entire Seam
S140/S141		30	30	—	16:08	16:13	5	P		0-69' South of North end of Seam
S140/S141		30	29	1	16:08	16:13	5	P		69' South of North end of Seam - South end of Seam
S141/S142	↓	30	30	—	17:15	17:20	5	P		Entire Seam

PRINT NAME: Steven Rosbach

NATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 33 - 5 of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/6/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S142/S143	SK	30	30	—	17:00	17:05	5	P		0-69' South of Northend of Seam
S142/S143		30	30	—	17:05	17:10	5	P		69' South of Northend of Seam - South end of Seam
S143/S144		30	29	1	17:10	17:15	5	P		Entire Seam
S144/S145		30	30	—	17:25	17:30	5	P		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 34 - S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/7/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	END	DROP	AIR TEST TIME START	END	DURATION	P/F	VAC. BOX P/F	COMMENTS
S145/S146	SK	30	29	1	11:00	11:05	5	P		0-67'S. of N. end of seam
S145/S146		30	30	—	11:00	11:05	5	P		67'S. of N. end of seam - S. end of seam
S146/S147		30	30	—	11:01	11:06	5	P		Entire Seam
S147/S148		30	30	—	11:20	11:25	5	P		0-79'S. of N. end of seam
S148/S148		30	29	1	11:20	11:25	5	P		79'S. of N. end of seam - S. end of seam
S148/S149		30	28	2	13:35	13:40	5	P		0-55'S. of N. end of seam
S148/S149		30	30	—	13:35	13:40	5	P		55'S. of N. end of seam - S. end of seam
S149/S150		30	29	1	13:50	13:55	5	P		0'-49'S. of N. end of seam
S149/S150		30	29	1	13:50	13:55	5	P		49'S. of N. end of seam - S. end of seam
S150/S151		30	30	—	14:12	14:17	5	P		0'-68'S. of N. end of seam
S150/S151		30	30	—	14:12	14:17	5	P		68'S. of N. end of seam - S. end of seam
S151/S152		30	30	—	15:50	15:55	5	P		0'-66'S. of N. end of seam
S151/S152		30	30	—	15:45	15:50	5	P		66'S. of N. end of seam - S. end of seam
S152/S153		30	30	—	16:35	16:40	5	P		0-69'S. of N. end of seam
S152/S153		30	28	2	16:19	16:24	5	P		69'-80'S. of N. end of seam
S152/S153	↓	30	30	—	16:19	16:24	5	P		80'S. of N. end of seam - S. end of seam

PRINT NAME: Steven Rosbach

NATURE: Steven Rosbach

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NON-DESTRUCTIVE TEST LOG

SHEET 35 - S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/7/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	P/F	VAC. BOX P/F	COMMENTS
S153/S154	SK	30	30	—	17:16	17:21	5	P		Entire Seam
S154/S155	↓	30	30	—	17:25	17:30	5	P		↓
S155/S156		30	30	—	16:45	16:50	5	P		
S154/S156		30	30	—	17:25	17:30	5	P		
S156/S157		30	30	—	16:40	16:45	5	P		
S154/S157		30	30	—	17:25	17:30	5	P		
S157/S158		30	28	2	17:50	17:55	5	P		
S154/S158		30	30	—	17:25	17:30	5	P		
S158/S159		30	29	1	16:57	17:02	5	P		
S154/S159		30	30	—	17:25	17:30	5	P		
S89/S155	↓	30	28	2	17:20	17:25	5	P		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

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NON-DESTRUCTIVE TEST LOG

SHEET 36 - 5 of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 09950039.27
DATE: 1/8/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S153/S160	SK	30	30	—	10:25	10:30	5	P		Entire Seam
S154/S160		30	30	—	13:40	13:45	5	P		
S160/S161		30	28	2	11:10	11:15	5	P		
S159/S162		30	30	—	13:40	13:45	5	P		
S162/S163		30	29	1	13:40	13:45	5	P		
S163/S164		30	29	1	11:35	11:40	5	P		
S164/S165		30	30	—	11:43	11:48	5	P		
S166/S167		30	30	—	12:00	12:05	5	P		
S161/S167		30	29	1	11:53	11:58	5	P		
S69/S154	↓	30	28	2	10:42	10:47	5	P		↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 37 - S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/11/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S46/S131	SK	—	—	—	—	—	—	—	P	Entire Seam

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 38 - S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/12/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	TIME P/F	VAC. BOX P/F	COMMENTS
S165/S166	SK	—	—	—	—	—	—	—	P	Entire Seam
S160/S163	↓	—	—	—	—	—	—	—	P	↓
S160/S162		—	—	—	—	—	—	—	P	
S161/S164		—	—	—	—	—	—	—	P	
S161/S165		—	—	—	—	—	—	—	P	
S165/S167		—	—	—	—	—	—	—	P	
S161/S163	↓	—	—	—	—	—	—	—	P	↓
~~A~~ SP										

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 39 - 5 of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/13/99

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S60/S145	SK	—	—	—	—	—	—	—	P	Entire Seam
S59/S144	↓	—	—	—	—	—	—	—	P	↓
SR233/S143		—	—	—	—	—	—	—	P	
S57/S142		—	—	—	—	—	—	—	P	
S56/S141		—	—	—	—	—	—	—	P	
S55/S140		—	—	—	—	—	—	—	P	
S54/S140		—	—	—	—	—	—	—	P	
S54/S139		—	—	—	—	—	—	—	P	
S53/S139		—	—	—	—	—	—	—	P	
S53/S138		—	—	—	—	—	—	—	P	
S52/S138	↓	—	—	—	—	—	—	—	P	↓

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 40 - S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE: 1/14/99

SEAM NO.	TECH I.D.	AIR TEST PRESSURE (psi) START	PRESSURE (psi) END	PRESSURE (psi) DROP	TIME START	TIME END	TIME DURATION	TIME P/F	VAC. BOX P/F	COMMENTS
S52/S137	SK	—	—	—	—	—	—	—	P	Entire Seam
S51/S137	↓	—	—	—	—	—	—	—	P	↓
S51/S136		—	—	—	—	—	—	—	P	
S50/S136		—	—	—	—	—	—	—	P	
S50/S135		—	—	—	—	—	—	—	P	
S49/S135		—	—	—	—	—	—	—	P	
S49/S134		—	—	—	—	—	—	—	P	
S48/S134		—	—	—	—	—	—	—	P	
S48/S133		—	—	—	—	—	—	—	P	
S47/S133		—	—	—	—	—	—	—	P	
S47/S132	↓	—	—	—	—	—	—	—	P	↓
S69/S155		—	—	—	—	—	—	—	P	
S68/S154		—	—	—	—	—	—	—	P	
S68/S153		—	—	—	—	—	—	—	P	
S67/S153		—	—	—	—	—	—	—	P	
S67/S152	↓	—	—	—	—	—	—	—	P	↓

PRINT NAME: Steven Rosbach

NATURE: Steven Rosbach

SCS ENGINEERS

NON-DESTRUCTIVE TEST LOG

SHEET 41 - S of
PROJECT TITLE: Tomoka Farms Rd LF
PROJECT NO: 0995039.27
DATE:

SEAM NO.	TECH I.D.	AIR TEST							VAC. BOX P/F	COMMENTS
		PRESSURE (psi)			TIME					
		START	END	DROP	START	END	DURATION	P/F		
S66/S152	SK	—	—	—	—	—	—	—	P	Entire Seam
S66/S151		—	—	—	—	—	—	—	P	
S65/S151		—	—	—	—	—	—	—	P	
S65/S150		—	—	—	—	—	—	—	P	
S64/S150		—	—	—	—	—	—	—	P	
S64/S149		—	—	—	—	—	—	—	P	
S63/S149		—	—	—	—	—	—	—	P	
S63/S148		—	—	—	—	—	—	—	P	
S62/S148		—	—	—	—	—	—	—	P	
S62/S147		—	—	—	—	—	—	—	P	
S61/S147		—	—	—	—	—	—	—	P	
S61/S146		—	—	—	—	—	—	—	P	
S60/S146		—	—	—	—	—	—	—	P	
S60/S145	↓	—	—	—	—	—	—	—	P	↓

PRINT NAME: Steven Rosback

SIGNATURE: Steven Rosback

ATTACHMENT 7-8

DESTRUCTIVE TEST RESULTS
(PRIMARY AND SECONDARY)

SECONDARY

SCS ENGINEERS

DESTRUCTIVE TEST LOG

SHEET 1-5 of 4

PROJECT TITLE: Tomoka Farms Road LF

PROJECT NO: 0995039.27

DATE: 11/2/98 – 11/10/98

SAMPLE NO.	SEAM I.D.	MACHINE NO.	WELD TYPE	DATE SEAMED	DATE SAMPLED	TEST STATUS PASS/FAIL			COMMENTS
						INSTALLER	SCS	ARCH	
DS-1	S5/S6	7514	F	11/2/98	11/2/98	P	P		
DS-2	S11/S12	7514	F	11/2/98	11/2/98	P	P		
DS-3	S18/S19	7514	F	11/2/98	11/2/98	P	P		
DS-4	S1/S2	7509	F	11/2/98	11/2/98	P	P		
DS-5	S11/S22	7509	F	11/3/98	11/3/98	P	P		
DS-6	S22/S23	7514	F	11/3/98	11/3/98	P	P		
DS-7	S23/S25	7509	F	11/3/98	11/3/98	P	P		
DS-8	S25/S26	7514	F	11/3/98	11/3/98	P	P		
DS-9	S26/S27	7514	F	11/3/98	11/3/98	P	P		
DS-10	S26/Tie-in	7509	F	11/3/98	11/3/98	P	P		
DS-11	S27/S28	7514	F	11/3/98	11/3/98	P	P		
DS-12	S28/~~S38~~S30	7509	F	11/3/98	11/3/98	P	P		
DS-13	S30/S31	7509	F	11/4/98	11/4/98	P	P		
DS-14	S31/S32	7505	F	11/4/98	11/4/98	P	P		
DS-15	S32/S33	7509	F	11/4/98	11/4/98	P	P		
DS-16	S33/Tie-in	7505	F	11/6/98	11/6/98	P	F		All seams by this machine capped
DS-17	S33/S34	7504	F	11/9/98	11/9/98	P	P		
DS-18	S34/S35	7504	F	11/9/98	11/9/98	P	P		
DS-19	S35/S36	7514	F	11/9/98	11/9/98	P	P		
DS-20	S36/S37	7504	F	11/9/98	11/9/98	P	P		
DS-21	S37/S38	7514	F	11/9/98	11/9/98	P	P		
DS-22	S38/S39	7504	F	11/9/98	11/9/98	P	P		
DS-23	S35/Tie-in	7507	F	11/10/98	11/10/98	P	F		DS23A + DS23B Pulled, see page 4-5

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

DESTRUCTIVE TEST LOG

SHEET: 2 - 5 of

PROJECT TITLE: Tomoka Farms Rd. LF

PROJECT NO: 0995039.27

DATE: 11/10/98 - 11/17/98

SAMPLE NO.	SEAM I.D.	MACHINE NO.	WELD TYPE	DATE SEAMED	DATE SAMPLED	TEST STATUS PASS/FAIL			COMMENTS
						INSTALLER	SCS	ARCH	
DS-24	S40/S41	7504	(7503) F	11/10/98	11/10/98	P	P		
DS-25	S41/S42	7506	↓	↓	↓	P	P		
DS-26	S42/S43	7504	↓	↓	↓	P	P		
DS-27	S43/S44	7507	↓	↓	↓	P	P		
DS-28	S44/S45	7504	↓	↓	↓	P	P		
DS-29	S45/S46	7504	↓	↓	↓	P	P		
DS-30	S46/S47	7507	F	11/12/98	11/12/98	P	P		
DS-31	S47/S48	7514	↓	↓	↓	P	P		
DS-32	S48/S49	7507	↓	↓	↓	P	P		
DS-33	S50/S51	7514	F	11/13/98	11/13/98	P	P		
DS-34	S49/S50	7514	↓	↓	↓	P	P		
DS-35	S51/S52	7514	↓	↓	↓	P	P		
DS-36	S52/S53	7507	↓	↓	↓	P	P		
DS-37	S53/S54	7514	↓	↓	↓	P	P		
DS-38	S54/S55	7507	↓	↓	↓	P	P		
DS-39	S55/S56	7514	↓	↓	↓	P	P		
DS-40	S56/S57	7507	↓	↓	↓	P	P		
DS-41	S57/S58	7514	↓	↓	↓	P	P		
DS-42	S55/Tie-in	7514	F	11/14/98	11/14/98	P	P		
DS-43	S58/S59	7514	F	11/16/98	11/16/98	P	P		
DS-44	S59/S60	7504	↓	↓	↓	P	P		
DS-45	S60/S61	7504	F	11/17/98	11/17/98	P	P		
DS-46	S61/S62	7514	↓	↓	↓	P	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

DESTRUCTIVE TEST LOG

SHEET 3 - 5 of

PROJECT TITLE: Tomoka Farms Rd. LF

PROJECT NO: 09950339.27

DATE: 11/17/98 – 1/6/99

SAMPLE NO.	SEAM I.D.	MACHINE NO.	WELD TYPE	DATE SEAMED	DATE SAMPLED	TEST STATUS PASS/FAIL			COMMENTS
						INSTALLER	SCS	ARCH	
DS-47	S63/S64	7514	F	11/17/98	11/17/98	P	P		
DS-48	S64/S65	7504	↓	↓	↓	P	P		
DS-49	S65/S66	7514	↓	↓	↓	P	P		
DS-50	S67/S68	↓	F	11/18/98	11/18/98	P	P		
DS-51	S68/S69	↓	↓	↓	↓	P	P		
DS-52	S69/S74	↓	↓	↓	↓	P	P		
DS-53	S88/S89	7515	F	11/19/98	11/19/98	P	P		
DS-54	S62/Tie-in	7514	↓	↓	↓	P	P		
DS-23A	S34/Tie-in	7507	F	11/10/98	11/12/98	P	P		
DS-23B	S36/Tie-in	7507	↓	↓	↓	P	P		
DS-55	S96/S97	7515	F	12/02/98	12/22/98	P	P		
DS-56	S104/S105	7504	↓	↓	↓	P	P		
DS-57	S107/S109	↓	↓	↓	↓	P	P		
DS-58	S112/S113	↓	↓	↓	↓	P	P		
DS-59	S30/S111	7515	F	12/23/98	12/23/98	P	P		
DS-60	S115/S117	7517	F	12/30/98	12/30/98	P	P		
DS-61	S118/S119	7507	↓	↓	↓	P	P		
DS-62	S124/S125	7517	↓	↓	↓	P	P		
DS-63	S128/S129	7515	F	12/31/98	12/31/98	P	P		
DS-64	S38/S123	7512	↓	↓	↓	P	P		
DS-65	S132/S133	7514	F	1/6/99	1/6/99	P	P		
DS-66	S136/S137	7507	↓	↓	↓	P	P		
DS-67	S139/S140	7514	↓	↓	↓	P	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

DESTRUCTIVE TEST LOG

SHEET: 4 - S of

PROJECT TITLE: Tomoka Farms Rd LF

PROJECT NO: 0995039.27

DATE: 1/6/99 - 1/8/99

SAMPLE NO.	SEAM I.D.	MACHINE NO.	WELD TYPE	DATE SEAMED	DATE SAMPLED	TEST STATUS PASS/FAIL			COMMENTS
						INSTALLER	SCS	ARCH	
DS-68	S140/S141	7507	F	1/6/99	1/6/99	P	P		
DS-69	S144/S145	↓	↓	↓	↓	P	P		
DS-70	S54/S139	↓	F	1/7/99	1/7/99	P	P		
DS-71	S147/S148	7504	↓	↓	↓	P	P		
DS-72	S150/S151	↓	↓	↓	↓	P	P		
DS-73	S153/S154	7507	↓	↓	↓	P	P		
DS-74	S66/S134/S135	↓	F	1/8/99	1/8/99	P	P		
DS-75	S159/S162	7504	↓	↓	↓	P	P		
DS-76	S161/S167	7507	↓	↓	↓	P	P		
~~DS-23A~~	~~S34/Tie-in~~	↓	~~F~~	~~11/10/98~~	~~11/12/98~~	~~P~~	~~P~~	P	
~~DS-23B~~	~~S36/Tie-in~~	↓	↓	↓	↓	P	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMAKA RD. FARMS LANDFILL, PHASE II
CONTACT: MR. JOE O'NEILL
DATE REC'D: 03-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2109-94-09
DATE TESTED: 03-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB
REVIEW: ~~SBA~~
REPORT DATE: 03-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	132	< 10	SE	FTB	NA	151	> 50	FTB	NA
	2A	132	< 10	SE	FTB					
	3A	128	< 10	SE	FTB		149	> 50	FTB	
	4A	132	< 10	SE	FTB					
	5A	129	< 10	SE	FTB		144	> 50	FTB	
DS-1	**MEAN:**	**131**								
	1B	138	< 10	SE	FTB		152	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		150	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**149**			
	1A	141	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		146	> 50	FTB	
	4A	138	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		139	> 50	FTB	
DS-2	**MEAN:**	**138**								
	1B	148	< 10	SE	FTB		144	> 50	FTB	
	2B	142	< 10	SE	FTB					
	3B	140	< 10	SE	FTB		145	> 50	FTB	
	4B	143	< 10	SE	FTB					
	5B	142	< 10	SE	FTB					
	MEAN	**143**				**MEAN:**	**144**			

NA Not Available

The testing reported herein is based upon industry practice as well as the test method listed
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

9063 Bee Caves Road • Austin, Texas 78733-6201 • (512)263-2101 • FAX (512)263-2558

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMAKA RD. FARMS LANDFILL, PHASE II
CONTACT: MR. JOE O'NEILL
DATE REC'D: 03-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2109-94-09
DATE TESTED: 03-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB
REVIEW: SRA
REPORT DATE: 03-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-3	1A	141	< 10	SE	FTB	NA	150	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	133	< 10	SE	FTB		144	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	132	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**137**								
	1B	143	< 10	SE	FTB		149	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		150	> 50	FTB	
	4B	142	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**139**				**MEAN:**	**147**			
DS-4	1A	135	< 10	SE	FTB	NA	151	> 50	FTB	NA
	2A	136	< 10	SE	FTB					
	3A	130	< 10	SE	FTB		146	> 50	FTB	
	4A	135	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		146	> 50	FTB	
	MEAN:	**134**								
	1B	142	< 10	SE	FTB		146	> 50	FTB	
	2B	143	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		148	> 50	FTB	
	4B	141	< 10	SE	FTB					
	5B	142	< 10	SE	FTB					
	MEAN	**141**				**MEAN:**	**147**			

NA Not Available

The testing reported herein is based upon industry practice as well as the test method listed
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMAKA RD. FARMS LANDFILL, PHASE II
CONTACT: MR. JOE O'NEILL
DATE REC'D: 03-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2109-94-09
DATE TESTED: 03-Nov-98

ASTM D 4437/413/3083 NSF Modifled
ANALYST: MB
REVIEW: SR4
REPORT DATE: 03-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-5	1A	139	< 10	SE	FTB	NA	150	> 50	FTB	NA
	2A	139	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		148	> 50	FTB	
	4A	139	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	**139**								
	1B	139	< 10	SE	FTB		147	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	139	15	AD-BRK	FTB		145	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**146**			
DS-6	1A	139	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	131	< 10	SE	FTB		146	> 50	FTB	
	4A	138	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		138	> 50	FTB	
	MEAN:	**136**								
	1B	137	< 10	SE	FTB		144	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	130	< 10	SE	FTB		140	> 50	FTB	
	4B	132	< 10	SE	FTB					
	5B	131	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**143**			

NA Not Available

The testing reported herein is based upon industry practice as well as the test method listed
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMAKA RD. FARMS LANDFILL, PHASE II
CONTACT: MR. JOE O'NEILL
DATE REC'D: 03-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2109-94-09
DATE TESTED: 03-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB
REVIEW: SRA
REPORT DATE: 03-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-7	1A	135	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	139	< 10	SE	FTB					
	3A	132	< 10	SE	FTB		148	> 50	FTB	
	4A	133	< 10	SE	FTB					
	5A	140	< 10	SE	FTB		144	> 50	FTB	
	MEAN:	**136**								
	1B	145	< 10	SE	FTB		143	> 50	FTB	
	2B	140	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		146	> 50	FTB	
	4B	141	< 10	SE	FTB					
	5B	145	< 10	SE	FTB					
	MEAN	**142**				**MEAN:**	**146**			
DS-8	1A	150	< 10	SE	FTB	NA	153	> 50	FTB	NA
	2A	151	< 10	SE	FTB					
	3A	143	< 10	SE	FTB		151	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	149	< 10	SE	FTB		144	> 50	FTB	
	MEAN:	**147**								
	1B	150	< 10	SE	FTB		148	> 50	FTB	
	2B	146	< 10	SE	FTB					
	3B	144	< 10	SE	FTB		149	> 50	FTB	
	4B	145	< 10	SE	FTB					
	5B	150	< 10	SE	FTB					
	MEAN	**147**				**MEAN:**	**149**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMAKA RD. FARMS LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 06-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2109-94-09
DATE TESTED: 06-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB
REVIEW: SR4
REPORT DATE: 06-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-9	1A	138	< 10	SE	FTB	NA	140	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		144	> 50	FTB	
	4A	139	< 10	SE	FTB					
	5A	140	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	139								
	1B	138	< 10	SE	FTB		143	> 50	FTB	
	2B	143	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		139	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	131	< 10	SE	FTB					
	MEAN	137				MEAN:	141			
DS-10	1A	142	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	145	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		144	> 50	FTB	
	4A	132	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	140								
	1B	137	< 10	SE	FTB		145	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		147	> 50	FTB	
	4B	130	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	135				MEAN:	145			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMAKA RD. FARMS LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 06-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2109-94-09
DATE TESTED: 06-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB
REVIEW: SRA
REPORT DATE: 06-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-11	1A	135	< 10	SE	FTB	NA	137	> 50	FTB	NA
	2A	133	< 10	SE	FTB					
	3A	133	< 10	SE	FTB		138	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	137	< 10	SE	FTB		139	> 50	FTB	
	MEAN:	**136**								
	1B	130	< 10	SE	FTB		139	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		140	> 50	FTB	
	4B	142	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**139**			
DS-12	1A	140	< 10	SE	FTB	NA	140	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	129	< 10	SE	FTB		142	> 50	FTB	
	4A	133	< 10	SE	FTB					
	5A	131	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	**134**								
	1B	138	< 10	SE	FTB		140	> 50	FTB	
	2B	135	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		142	> 50	FTB	
	4B	132	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**135**				**MEAN:**	**141**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMAKA RD. FARMS LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 09-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2109-99-06
DATE TESTED: 09-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB/DJR
REVIEW: SR4
REPORT DATE: 09-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	133	< 10	SE	FTB	NA	142	> 50	FTB	NA
	2A	125	< 10	SE	FTB					
	3A	127	< 10	SE	FTB		144	> 50	FTB	
	4A	128	< 10	SE	FTB					
	5A	136	< 10	SE	FTB		144	> 50	FTB	
DS-13	MEAN:	130								
	1B	134	< 10	SE	FTB		144	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	132	< 10	SE	FTB		142	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	130	< 10	SE	FTB					
	MEAN	132				MEAN:	143			
	1A	139	< 10	SE	FTB	NA	149	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		146	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		143	> 50	FTB	
DS-14	MEAN:	137								
	1B	140	< 10	SE	FTB		143	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		141	> 50	FTB	
	4B	136	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	138				MEAN:	144			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMAKA RD. FARMS LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 09-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2109-99-06
DATE TESTED: 09-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB/DJR
REVIEW: SR4
REPORT DATE: 09-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-15	1A	133	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	127	< 10	SE	FTB					
	3A	124	< 10	SE	FTB		144	> 50	FTB	
	4A	126	< 10	SE	FTB					
	5A	133	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	**129**								
	1B	134	< 10	SE	FTB		143	> 50	FTB	
	2B	131	< 10	SE	FTB					
	3B	131	< 10	SE	FTB		146	> 50	FTB	
	4B	130	< 10	SE	FTB					
	5B	131	< 10	SE	FTB					
	MEAN	**131**				**MEAN:**	**144**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMAKA RD. FARMS LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 11-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-04-05
DATE TESTED: 11-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB/DJR
REVIEW: SRA
REPORT DATE: 11-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-16	1A	150	< 10	SE	FTB	NA	152	> 50	FTB	NA
	2A	142	< 10	SE	FTB					
	3A	144	< 10	SE	FTB		149	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	144	< 10	SE	FTB		151	> 50	FTB	
	MEAN:	**143**								
	1B	133	< 10	SE	FTB		149	> 50	FTB	
	2B	127	100	AD	NON-FTB					
	3B	53	100	AD	NON-FTB		155	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	33	100	AD	NON-FTB					
	MEAN	**96**				**MEAN:**	**151**			
DS-18	1A	133	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	134	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		139	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		138	> 50	FTB	
	MEAN:	**134**								
	1B	127	< 10	SE	FTB		140	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	125	< 10	SE	FTB		140	> 50	FTB	
	4B	132	< 10	SE	FTB					
	5B	130	< 10	SE	FTB					
	MEAN	**129**				**MEAN:**	**140**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMAKA RD. FARMS LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 11-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-04-05
DATE TESTED: 11-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB/DJR
REVIEW: SRA
REPORT DATE: 11-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	134	< 10	SE	FTB	NA	143	> 50	FTB	NA
	2A	126	< 10	SE	FTB					
	3A	129	< 10	SE	FTB		140	> 50	FTB	
	4A	129	< 10	SE	FTB					
	5A	130	< 10	SE	FTB		137	> 50	FTB	
DS-19	**MEAN:**	**130**								
	1B	141	< 10	SE	FTB		138	> 50	FTB	
	2B	128	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		139	> 50	FTB	
	4B	130	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**139**			
	1A	136	< 10	SE	FTB	NA	141	> 50	FTB	NA
	2A	133	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		137	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	126	< 10	SE	FTB		138	> 50	FTB	
DS-20	**MEAN:**	**133**								
	1B	132	< 10	SE	FTB		136	> 50	FTB	
	2B	135	< 10	SE	FTB					
	3B	131	< 10	SE	FTB		133	> 50	FTB	
	4B	133	< 10	SE	FTB					
	5B	131	< 10	SE	FTB					
	MEAN	**132**				**MEAN:**	**137**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMAKA RD. FARMS LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 11-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-04-05
DATE TESTED: 11-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB/DJR
REVIEW: SRA
REPORT DATE: 11-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-21	1A	141	< 10	SE	FTB	NA	146	> 50	FTB	NA
	2A	131	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		142	> 50	FTB	
	4A	131	< 10	SE	FTB					
	5A	129	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	133								
	1B	130	< 10	SE	FTB		140	> 50	FTB	
	2B	129	< 10	SE	FTB					
	3B	131	< 10	SE	FTB		142	> 50	FTB	
	4B	127	< 10	SE	FTB					
	5B	130	< 10	SE	FTB					
	MEAN	129				MEAN:	142			
DS-22	1A	131	< 10	SE	FTB	NA	141	> 50	FTB	NA
	2A	139	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		140	> 50	FTB	
	4A	127	< 10	SE	FTB					
	5A	137	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	134								
	1B	135	< 10	SE	FTB		140	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	131	< 10	SE	FTB		139	> 50	FTB	
	4B	133	< 10	SE	FTB					
	5B	133	< 10	SE	FTB					
	MEAN	133				MEAN:	139			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 12-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-05-07
DATE TESTED: 12-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB
REVIEW: JAN
REPORT DATE: 12-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-17	1A	143	< 10	SE	FTB	NA	151	> 50	FTB	NA
	2A	143	< 10	SE	FTB					
	3A	146	< 10	SE	FTB		154	> 50	FTB	
	4A	146	< 10	SE	FTB					
	5A	142	< 10	SE	FTB		153	> 50	FTB	
	MEAN:	144								
	1B	144	< 10	SE	FTB		153	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	146	< 10	SE	FTB		147	> 50	FTB	
	4B	143	< 10	SE	FTB					
	5B	144	< 10	SE	FTB					
	MEAN	143				MEAN:	152			
DS-23	1A	123	95	AD-BRK	FTB	NA	157	> 50	FTB	NA
	2A	124	95	AD-BRK	FTB					
	3A	148	< 10	SE	FTB		157	> 50	FTB	
	4A	144	< 10	SE	FTB					
	5A	118	95	AD-BRK	FTB		156	> 50	FTB	
	MEAN:	131								
	1B	152	< 10	SE	FTB		153	> 50	FTB	
	2B	151	< 10	SE	FTB					
	3B	159	< 10	SE	FTB		152	> 50	FTB	
	4B	155	< 10	SE	FTB					
	5B	154	< 10	SE	FTB					
	MEAN	154				MEAN:	155			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 13-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-06-08
DATE TESTED: 13-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 13-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-23A	1A	152	< 10	SE	FTB	NA	154	> 50	FTB	NA
	2A	153	< 10	SE	FTB					
	3A	152	< 10	SE	FTB		152	> 50	FTB	
	4A	151	< 10	SE	FTB					
	5A	157	< 10	SE	FTB		152	> 50	FTB	
	MEAN:	153								
	1B	164	< 10	SE	FTB		149	> 50	FTB	
	2B	144	< 10	SE	FTB					
	3B	142	< 10	SE	FTB		147	> 50	FTB	
	4B	141	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	146				MEAN:	151			
DS-23B	1A	148	< 10	SE	FTB	NA	146	> 50	FTB	NA
	2A	150	< 10	SE	FTB					
	3A	151	< 10	SE	FTB		149	> 50	FTB	
	4A	151	< 10	SE	FTB					
	5A	150	< 10	SE	FTB		144	> 50	FTB	
	MEAN:	150								
	1B	139	< 10	SE	FTB		146	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		147	> 50	FTB	
	4B	140	< 10	SE	FTB					
	5B	144	< 10	SE	FTB					
	MEAN	140				MEAN:	146			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 12-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-05-07
DATE TESTED: 12-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB
REVIEW: JAN
REPORT DATE: 12-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-24	1A	140	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	148	< 10	SE	FTB		148	> 50	FTB	
	4A	138	< 10	SE	FTB					
	5A	145	< 10	SE	FTB		147	> 50	FTB	
	MEAN:	142								
	1B	138	< 10	SE	FTB		144	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	141	< 10	SE	FTB		143	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	138				MEAN:	146			
DS-25	1A	145	< 10	SE	FTB	NA	153	> 50	FTB	NA
	2A	146	< 10	SE	FTB					
	3A	150	< 10	SE	FTB		155	> 50	FTB	
	4A	150	< 10	SE	FTB					
	5A	144	< 10	SE	FTB		152	> 50	FTB	
	MEAN:	147								
	1B	143	< 10	SE	FTB		151	> 50	FTB	
	2B	140	< 10	SE	FTB					
	3B	141	< 10	SE	FTB		149	> 50	FTB	
	4B	140	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	140				MEAN:	152			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 12-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-05-07
DATE TESTED: 12-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB
REVIEW: JAN
REPORT DATE: 12-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	145	< 10	SE	FTB	NA	150	> 50	FTB	NA
	2A	144	< 10	SE	FTB					
	3A	146	< 10	SE	FTB		150	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		149	> 50	FTB	
DS-26	MEAN:	143								
	1B	143	< 10	SE	FTB		145	> 50	FTB	
	2B	144	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		146	> 50	FTB	
	4B	136	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	140				MEAN:	148			
	1A	150	< 10	SE	FTB	NA	146	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		152	> 50	FTB	
	4A	132	< 10	SE	FTB					
	5A	128	< 10	SE	FTB		150	> 50	FTB	
DS-27	MEAN:	137								
	1B	144	< 10	SE	FTB		147	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	142	< 10	SE	FTB		144	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	141				MEAN:	148			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 12-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-05-07
DATE TESTED: 12-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB
REVIEW: JAN
REPORT DATE: 12-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	138	< 10	SE	FTB	NA	150	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	140	< 10	SE	FTB		149	> 50	FTB	
	4A	140	< 10	SE	FTB					
	5A	133	< 10	SE	FTB		146	> 50	FTB	
DS-28	MEAN:	138								
	1B	141	< 10	SE	FTB		145	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	131	< 10	SE	FTB		142	> 50	FTB	
	4B	144	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	139				MEAN:	146			
	1A	145	< 10	SE	FTB	NA	152	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	141	< 10	SE	FTB		149	> 50	FTB	
	4A	145	< 10	SE	FTB					
	5A	136	< 10	SE	FTB		151	> 50	FTB	
DS-29	MEAN:	142								
	1B	144	< 10	SE	FTB		152	> 50	FTB	
	2B	144	< 10	SE	FTB					
	3B	143	< 10	SE	FTB		148	> 50	FTB	
	4B	144	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	143				MEAN:	150			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 16-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-09-02
DATE TESTED: 16-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 16-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-30	1A	132	< 10	SE	FTB	NA	139	> 50	FTB	NA
	2A	130	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		142	> 50	FTB	
	4A	131	< 10	SE	FTB					
	5A	130	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	**132**								
	1B	135	< 10	SE	FTB		138	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		136	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**139**			
DS-31	1A	138	< 10	SE	FTB	NA	136	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		141	> 50	FTB	
	4A	138	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		136	> 50	FTB	
	MEAN:	**139**								
	1B	139	< 10	SE	FTB		139	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		138	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**138**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 16-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-09-02
DATE TESTED: 16-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 16-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-32	1A	127	< 10	SE	FTB	NA	138	> 50	FTB	NA
	2A	129	< 10	SE	FTB					
	3A	124	< 10	SE	FTB		138	> 50	FTB	
	4A	126	< 10	SE	FTB					
	5A	124	< 10	SE	FTB		138	> 50	FTB	
	MEAN:	**126**								
	1B	134	< 10	SE	FTB		142	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		142	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	**135**				**MEAN:**	**140**			
DS-33	1A	135	< 10	SE	FTB	NA	139	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	139	< 10	SE	FTB		134	> 50	FTB	
	4A	140	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		135	> 50	FTB	
	MEAN:	**138**								
	1B	137	< 10	SE	FTB		136	> 50	FTB	
	2B	129	< 10	SE	FTB					
	3B	132	< 10	SE	FTB		134	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	**135**				**MEAN:**	**136**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 16-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-09-02
DATE TESTED: 16-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 16-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-34	1A	134	< 10	SE	FTB	NA	137	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		142	> 50	FTB	
	4A	142	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	**138**								
	1B	131	< 10	SE	FTB		136	> 50	FTB	
	2B	134	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		133	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	133	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**138**			
DS-35	1A	137	< 10	SE	FTB	NA	139	> 50	FTB	NA
	2A	133	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		135	> 50	FTB	
	4A	137	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		135	> 50	FTB	
	MEAN:	**135**								
	1B	139	< 10	SE	FTB		135	> 50	FTB	
	2B	135	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		134	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**136**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 16-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-09-02
DATE TESTED: 16-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 16-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-36	1A	146	< 10	SE	FTB	NA	138	> 50	FTB	NA
	2A	140	< 10	SE	FTB					
	3A	142	< 10	SE	FTB		137	> 50	FTB	
	4A	127	< 10	SE	FTB					
	5A	142	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	**139**								
	1B	138	< 10	SE	FTB		137	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		135	> 50	FTB	
	4B	130	< 10	SE	FTB					
	5B	130	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**137**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 17-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-10-06
DATE TESTED: 17-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: JMN
REPORT DATE: 17-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-37	1A	144	< 10	SE	FTB	NA	146	> 50	FTB	NA
	2A	140	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		145	> 50	FTB	
	4A	130	< 10	SE	FTB					
	5A	144	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	139								
	1B	138	< 10	SE	FTB		142	> 50	FTB	
	2B	137	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		142	> 50	FTB	
	4B	136	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	138				MEAN:	143			
DS-38	1A	136	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	133	< 10	SE	FTB					
	3A	140	< 10	SE	FTB		143	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	143	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	138								
	1B	130	< 10	SE	FTB		146	> 50	FTB	
	2B	135	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		146	> 50	FTB	
	4B	130	< 10	SE	FTB					
	5B	131	< 10	SE	FTB					
	MEAN	132				MEAN:	145			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 17-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-10-06
DATE TESTED: 17-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: JAN
REPORT DATE: 17-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	142	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		145	> 50	FTB	
	4A	135	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		143	> 50	FTB	
DS-39	MEAN:	139								
	1B	134	< 10	SE	FTB		145	> 50	FTB	
	2B	137	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		146	> 50	FTB	
	4B	133	< 10	SE	FTB					
	5B	134	< 10	SE	FTB					
	MEAN	135				MEAN:	145			
	1A	124	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	139	< 10	SE	FTB					
	3A	132	< 10	SE	FTB		144	> 50	FTB	
	4A	139	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		142	> 50	FTB	
DS-40	MEAN:	135								
	1B	142	< 10	SE	FTB		146	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	141	< 10	SE	FTB		145	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	144	< 10	SE	FTB					
	MEAN	141				MEAN:	144			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. CARL SCHMIDT
DATE REC'D: 17-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-10-06
DATE TESTED: 17-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: JAN
REPORT DATE: 17-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-41	1A	140	< 10	SE	FTB	NA	149	> 50	FTB	NA
	2A	136	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		150	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		146	> 50	FTB	
	MEAN:	138								
	1B	139	< 10	SE	FTB		146	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		146	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	134	< 10	SE	FTB					
	MEAN	137				MEAN:	147			
DS-42	1A	145	< 10	SE	FTB	NA	155	> 50	FTB	NA
	2A	144	< 10	SE	FTB					
	3A	144	< 10	SE	FTB		151	> 50	FTB	
	4A	140	< 10	SE	FTB					
	5A	146	< 10	SE	FTB		150	> 50	FTB	
	MEAN:	144								
	1B	137	< 10	SE	FTB		150	> 50	FTB	
	2B	134	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		152	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	136				MEAN:	152			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 19-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 19-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SRL
REPORT DATE: 19-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-43	1A	147	< 10	SE	FTB	NA	138	> 50	FTB	NA
	2A	140	< 10	SE	FTB					
	3A	140	< 10	SE	FTB		140	> 50	FTB	
	4A	140	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	141								
	1B	141	< 10	SE	FTB		137	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		137	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	138				MEAN:	138			
DS-44	1A	147	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	134	< 10	SE	FTB					
	3A	142	< 10	SE	FTB		142	> 50	FTB	
	4A	135	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	139								
	1B	146	< 10	SE	FTB		141	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		139	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	140				MEAN:	142			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 19-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 19-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SRA
REPORT DATE: 19-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-45	1A	141	< 10	SE	FTB	NA	140	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		138	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		136	> 50	FTB	
	MEAN:	138								
	1B	139	< 10	SE	FTB		141	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		137	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	135				MEAN:	138			
DS-46	1A	139	< 10	SE	FTB	NA	135	> 50	FTB	NA
	2A	133	< 10	SE	FTB					
	3A	139	< 10	SE	FTB		134	> 50	FTB	
	4A	133	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	136								
	1B	138	< 10	SE	FTB		138	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	140	< 10	SE	FTB		134	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	139				MEAN:	136			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 19-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 19-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SR4
REPORT DATE: 19-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-47	1A	138	< 10	SE	FTB	NA	138	> 50	FTB	NA
	2A	131	< 10	SE	FTB					
	3A	132	< 10	SE	FTB		135	> 50	FTB	
	4A	133	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		134	> 50	FTB	
	MEAN:	135								
	1B	141	< 10	SE	FTB		137	> 50	FTB	
	2B	142	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		135	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	144	< 10	SE	FTB					
	MEAN	141				MEAN:	136			
DS-48	1A	141	< 10	SE	FTB	NA	138	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	133	< 10	SE	FTB		138	> 50	FTB	
	4A	144	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	138								
	1B	144	< 10	SE	FTB		140	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	131	< 10	SE	FTB		140	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	141	< 10	SE	FTB					
	MEAN	137				MEAN:	139			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 19-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 19-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SR4
REPORT DATE: 19-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-49	1A	145	< 10	SE	FTB	NA	140	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	144	< 10	SE	FTB		140	> 50	FTB	
	4A	139	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	141								
	1B	140	< 10	SE	FTB		142	> 50	FTB	
	2B	134	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		144	> 50	FTB	
	4B	131	< 10	SE	FTB					
	5B	132	< 10	SE	FTB					
	MEAN	135				MEAN:	142			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 20-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 20-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA/DJR
REVIEW: SRH
REPORT DATE: 20-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	128	< 10	SE	FTB	NA	143	> 50	FTB	NA
	2A	134	< 10	SE	FTB					
	3A	133	< 10	SE	FTB		139	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		139	> 50	FTB	
DS-50	MEAN:	134								
	1B	132	< 10	SE	FTB		139	> 50	FTB	
	2B	131	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		138	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	133	< 10	SE	FTB					
	MEAN	133				MEAN:	140			
	1A	134	< 10	SE	FTB	NA	148	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	130	< 10	SE	FTB		143	> 50	FTB	
	4A	132	< 10	SE	FTB					
	5A	132	< 10	SE	FTB		143	> 50	FTB	
DS-51	MEAN:	133								
	1B	142	< 10	SE	FTB		143	> 50	FTB	
	2B	143	< 10	SE	FTB					
	3B	128	< 10	SE	FTB		141	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	138				MEAN:	144			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 20-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 20-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA/DJR
REVIEW: SR4
REPORT DATE: 20-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-52	1A	141	< 10	SE	FTB	NA	148	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	140	< 10	SE	FTB		149	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	**140**								
	1B	139	< 10	SE	FTB		144	> 50	FTB	
	2B	137	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		142	> 50	FTB	
	4B	142	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**145**			
DS-53	1A	135	< 10	SE	FTB	NA	148	> 50	FTB	NA
	2A	133	< 10	SE	FTB					
	3A	127	< 10	SE	FTB		143	> 50	FTB	
	4A	129	< 10	SE	FTB					
	5A	127	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	**130**								
	1B	144	< 10	SE	FTB		141	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		142	> 50	FTB	
	4B	132	< 10	SE	FTB					
	5B	134	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**143**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 20-Nov-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 20-Nov-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA/DJR
REVIEW: ~~SRA~~
REPORT DATE: 20-Nov-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	150	< 10	SE	FTB	NA	151	> 50	FTB	NA
	2A	151	< 10	SE	FTB					
	3A	145	< 10	SE	FTB		147	> 50	FTB	
	4A	144	< 10	SE	FTB					
	5A	146	< 10	SE	FTB		147	> 50	FTB	
DS-54	MEAN:	147								
	1B	139	< 10	SE	FTB		148	> 50	FTB	
	2B	143	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		148	> 50	FTB	
	4B	144	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	140				MEAN:	148			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 30-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-43-06
DATE TESTED: 30-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: JAN
REPORT DATE: 30-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-55	1A	142	< 10	SE	FTB	NA	153	> 50	FTB	NA
	2A	143	< 10	SE	FTB					
	3A	139	< 10	SE	FTB		147	> 50	FTB	
	4A	146	< 10	SE	FTB					
	5A	148	< 10	SE	FTB		145	> 50	FTB	
	MEAN:	**144**								
	1B	146	< 10	SE	FTB		147	> 50	FTB	
	2B	144	< 10	SE	FTB					
	3B	143	< 10	SE	FTB		146	> 50	FTB	
	4B	148	< 10	SE	FTB					
	5B	144	< 10	SE	FTB					
	MEAN	**145**				**MEAN:**	**148**			
DS-56	1A	127	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	123	< 10	SE	FTB					
	3A	124	< 10	SE	FTB		141	> 50	FTB	
	4A	142	< 10	SE	FTB					
	5A	129	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**129**								
	1B	139	< 10	SE	FTB		146	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		144	> 50	FTB	
	4B	141	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**139**				**MEAN:**	**144**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 30-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-43-06
DATE TESTED: 30-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: JRN
REPORT DATE: 30-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-57	1A	138	< 10	SE	FTB	NA	148	> 50	FTB	NA
	2A	131	< 10	SE	FTB					
	3A	131	< 10	SE	FTB		148	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**134**								
	1B	144	< 10	SE	FTB		143	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		144	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**139**				**MEAN:**	**145**			
DS-58	1A	135	< 10	SE	FTB	NA	152	> 50	FTB	NA
	2A	126	< 10	SE	FTB					
	3A	131	< 10	SE	FTB		150	> 50	FTB	
	4A	143	< 10	SE	FTB					
	5A	133	< 10	SE	FTB		147	> 50	FTB	
	MEAN:	**134**								
	1B	136	< 10	SE	FTB		148	> 50	FTB	
	2B	134	< 10	SE	FTB					
	3B	132	< 10	SE	FTB		149	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**135**				**MEAN:**	**149**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD
LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 29-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-42-10
DATE TESTED: 28-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 28-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-59	1A	150	< 10	SE	FTB	NA	152	> 50	FTB	NA
	2A	152	< 10	SE	FTB					
	3A	143	< 10	SE	FTB		149	> 50	FTB	
	4A	147	< 10	SE	FTB					
	5A	145	< 10	SE	FTB		148	> 50	FTB	
	MEAN:	**147**								
	1B	147	< 10	SE	FTB		148	> 50	FTB	
	2B	143	< 10	SE	FTB					
	3B	140	< 10	SE	FTB		150	> 50	FTB	
	4B	142	< 10	SE	FTB					
	5B	146	< 10	SE	FTB					
	MEAN	**144**				**MEAN:**	**149**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 06-Jan-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-44-09
DATE TESTED: 06-Jan-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: JAN
REVIEW: SRA
REPORT DATE: 06-Jan-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-60	1A	125	< 10	SE	FTB	NA	139	> 50	FTB	NA
	2A	128	< 10	SE	FTB					
	3A	127	< 10	SE	FTB		139	> 50	FTB	
	4A	121	< 10	SE	FTB					
	5A	127	< 10	SE	FTB		135	> 50	FTB	
	MEAN:	**126**								
	1B	135	< 10	SE	FTB		140	> 50	FTB	
	2B	135	< 10	SE	FTB					
	3B	132	< 10	SE	FTB		137	> 50	FTB	
	4B	131	< 10	SE	FTB					
	5B	133	< 10	SE	FTB					
	MEAN	**133**				**MEAN:**	**138**			
DS-61	1A	142	< 10	SE	FTB	NA	141	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		139	> 50	FTB	
	4A	137	< 10	SE	FTB					
	5A	142	< 10	SE	FTB		138	> 50	FTB	
	MEAN:	**139**								
	1B	128	< 10	SE	FTB		139	> 50	FTB	
	2B	129	< 10	SE	FTB					
	3B	126	< 10	SE	FTB		139	> 50	FTB	
	4B	128	< 10	SE	FTB					
	5B	129	< 10	SE	FTB					
	MEAN	**128**				**MEAN:**	**139**			

NA Not Available

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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 06-Jan-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-44-09
DATE TESTED: 06-Jan-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: JAN
REVIEW: SR4
REPORT DATE: 06-Jan-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-62	1A	136	< 10	SE	FTB	NA	141	> 50	FTB	NA
	2A	139	< 10	SE	FTB					
	3A	132	< 10	SE	FTB		138	> 50	FTB	
	4A	133	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		138	> 50	FTB	
	MEAN:	**135**								
	1B	140	< 10	SE	FTB		138	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	132	< 10	SE	FTB		139	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**139**			
DS-63	1A	139	< 10	SE	FTB	NA	139	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		136	> 50	FTB	
	4A	137	< 10	SE	FTB					
	5A	136	< 10	SE	FTB		136	> 50	FTB	
	MEAN:	**138**								
	1B	141	< 10	SE	FTB		136	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		137	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**137**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 06-Jan-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-44-09
DATE TESTED: 06-Jan-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: JAN
REVIEW: SRA
REPORT DATE: 06-Jan-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-64	1A	138	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	133	< 10	SE	FTB		142	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	136	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**136**								
	1B	133	< 10	SE	FTB		141	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	130	< 10	SE	FTB		143	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	133	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**143**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 12-Jan-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-45-08
DATE TESTED: 12-Jan-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 12-Jan-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-65	1A	135	< 10	SE	FTB	NA	146	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	130	< 10	SE	FTB		144	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	129	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**133**								
	1B	139	< 10	SE	FTB		145	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		145	> 50	FTB	
	4B	140	< 10	SE	FTB					
	5B	134	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**144**			
DS-66	1A	140	< 10	SE	FTB	NA	143	> 50	FTB	NA
	2A	129	< 10	SE	FTB					
	3A	128	< 10	SE	FTB		141	> 50	FTB	
	4A	140	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	**134**								
	1B	139	< 10	SE	FTB		142	> 50	FTB	
	2B	129	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		142	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**142**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 12-Jan-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-45-08
DATE TESTED: 12-Jan-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 12-Jan-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-67	1A	138	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		147	> 50	FTB	
	4A	137	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		144	> 50	FTB	
	MEAN:	**138**								
	1B	136	< 10	SE	FTB		145	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		147	> 50	FTB	
	4B	132	< 10	SE	FTB					
	5B	131	< 10	SE	FTB					
	MEAN	**133**				**MEAN:**	**146**			
DS-68	1A	133	< 10	SE	FTB	NA	143	> 50	FTB	NA
	2A	133	< 10	SE	FTB					
	3A	130	< 10	SE	FTB		144	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	131	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	**132**								
	1B	138	< 10	SE	FTB		144	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	101	< 10	SE	FTB		141	> 50	FTB	
	4B	136	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**129**				**MEAN:**	**142**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 28-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-62-06
DATE TESTED: 28-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: JAN
REPORT DATE: 28-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-68A	1A	147	< 10	SE	FTB	NA	146	> 50	FTB	NA
	2A	145	< 10	SE	FTB					
	3A	140	< 10	SE	FTB		146	> 50	FTB	
	4A	142	< 10	SE	FTB					
	5A	144	< 10	SE	FTB		147	> 50	FTB	
	MEAN:	**144**								
	1B	136	< 10	SE	FTB		146	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		149	> 50	FTB	
	4B	136	< 10	SE	FTB					
	5B	134	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**147**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 12-Jan-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-45-08
DATE TESTED: 12-Jan-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 12-Jan-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-69	1A	138	< 10	SE	FTB	NA	142	> 50	FTB	NA
	2A	136	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		142	> 50	FTB	
	4A	135	< 10	SE	FTB					
	5A	133	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	**136**								
	1B	136	< 10	SE	FTB		139	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	132	< 10	SE	FTB		142	> 50	FTB	
	4B	136	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**135**				**MEAN:**	**141**			
DS-70	1A	149	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	145	< 10	SE	FTB					
	3A	132	< 10	SE	FTB		147	> 50	FTB	
	4A	131	< 10	SE	FTB					
	5A	142	< 10	SE	FTB		144	> 50	FTB	
	MEAN:	**140**								
	1B	142	< 10	SE	FTB		145	> 50	FTB	
	2B	140	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		147	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**139**				**MEAN:**	**146**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 12-Jan-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-45-08
DATE TESTED: 12-Jan-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 12-Jan-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-71	1A	136	< 10	SE	FTB	NA	143	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		144	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	135								
	1B	129	< 10	SE	FTB		140	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	129	< 10	SE	FTB		144	> 50	FTB	
	4B	136	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	133				MEAN:	142			
DS-72	1A	138	< 10	SE	FTB	NA	142	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	130	< 10	SE	FTB		143	> 50	FTB	
	4A	129	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	135								
	1B	131	< 10	SE	FTB		140	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	130	< 10	SE	FTB		140	> 50	FTB	
	4B	127	< 10	SE	FTB					
	5B	127	< 10	SE	FTB					
	MEAN	129				MEAN:	142			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 12-Jan-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-45-08
DATE TESTED: 12-Jan-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 12-Jan-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-73	1A	132	< 10	SE	FTB	NA	141	> 50	FTB	NA
	2A	122	< 10	SE	FTB					
	3A	128	< 10	SE	FTB		140	> 50	FTB	
	4A	121	< 10	SE	FTB					
	5A	121	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	**125**								
	1B	136	< 10	SE	FTB		142	> 50	FTB	
	2B	128	< 10	SE	FTB					
	3B	128	< 10	SE	FTB		144	> 50	FTB	
	4B	130	< 10	SE	FTB					
	5B	130	< 10	SE	FTB					
	MEAN	**130**				**MEAN:**	**141**			
DS-74	1A	137	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	130	< 10	SE	FTB					
	3A	130	< 10	SE	FTB		147	> 50	FTB	
	4A	133	< 10	SE	FTB					
	5A	132	< 10	SE	FTB		144	> 50	FTB	
	MEAN:	**132**								
	1B	140	< 10	SE	FTB		143	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		147	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**146**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 12-Jan-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-45-08
DATE TESTED: 12-Jan-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 12-Jan-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-75	1A	136	< 10	SE	FTB	NA	142	> 50	FTB	NA
	2A	136	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		143	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		145	> 50	FTB	
	MEAN:	135								
	1B	137	< 10	SE	FTB		145	> 50	FTB	
	2B	137	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		145	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	143	< 10	SE	FTB					
	MEAN	139				MEAN:	144			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 13-Jan-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-46-08
DATE TESTED: 13-Jan-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SRA
REPORT DATE: 13-Jan-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DS-76	1A	140	< 10	SE	FTB	NA	142	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		143	> 50	FTB	
	4A	139	< 10	SE	FTB					
	5A	143	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	139								
	1B	133	< 10	SE	FTB		143	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		146	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	134				MEAN:	143			

NA Not Available

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PRIMARY

SCS ENGINEERS

DESTRUCTIVE TEST LOG

SHEET 1 - P of

PROJECT TITLE: Tomoka Farms Rd. LF

PROJECT NO: 0995039.27

DATE: 12/1/98 - 12/7/98

SAMPLE NO.	SEAM I.D.	MACHINE NO.	WELD TYPE	DATE SEAMED	DATE SAMPLED	TEST STATUS PASS/FAIL			COMMENTS
						INSTALLER	SCS	ARCH	
DP-1	P7/P8	7515	F	12/1/98	12/1/98	P	P		
DP-2	P14/P15	↓	↓	↓	↓	P	P		
DP-3	P5/P21	↓	↓	↓	↓	P	P		
DP-4	P21/P22	↓	↓	↓	↓	P	P		
DP-5	P22/P23	7515	↓	12/2/98	12/2/98	P	P		
DP-6	P23/P24	7514	↓	↓	↓	P	P		
DP-7	P24/P25	7515	↓	↓	↓	P	P		
DP-8	P25/P26	7514	↓	↓	↓	P	P		
DP-9	P26/P27	7515	↓	↓	↓	P	P		
DP-10	P27/P28	7514	↓	↓	↓	P	P		
DP-11	P28/P29	7515	↓	↓	↓	P	P		
DP-12	P29/P30	7514	↓	↓	↓	P	P		
DP-13	P30/P31	7515	↓	↓	↓	P	P		
DP-14	P32/P33	7515	↓	↓	↓	P	P		
DP-15	P33/P34	7514	↓	↓	↓	P	P		
DP-16	P34/P35	7515	↓	↓	↓	P	P		
DP-17	P30/Tie-in	7514	↓	12/3/98	12/3/98	P	F		Pulled DP17A & DP17B; See Page 3-P
DP-18	P35/P36	7515	↓	12/4/98	12/4/98	P	P		
DP-19	P37/P38	7515	↓	↓	↓	P	F		Pulled DP19A & DP19B; See Page 3-P
DP-20	P38/P39	7514	↓	↓	↓	P	P		
DP-21	P39/P40	7515	↓	↓	↓	P	P		
DP-22	P40/P41	7514	↓	↓	↓	P	P		
DP-23	P39/Tie-in	7514	↓	12/7/98	12/7/98	P	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

DESTRUCTIVE TEST LOG

SHEET: 2-P of

PROJECT TITLE: Tomoka Farms Rd. LF

PROJECT NO: 0995039.27

DATE: 12/8/98 - 12/9/98

SAMPLE NO.	SEAM I.D.	MACHINE NO.	WELD TYPE	DATE SEAMED	DATE SAMPLED	TEST STATUS PASS/FAIL			COMMENTS
						INSTALLER	SCS	ARCH	
DP-24	P42/P43	7514	F	12/8/98	12/8/98	P	P		
DP-25	P44/P45	7514	↓	↓	↓	P	P		
DP-26	P45/P46	7515	↓	↓	↓	P	P		
DP-27	P46/P47	7514	↓	↓	↓	P	P		
DP-28	P47/P48	7515	↓	↓	↓	P	P		
DP-29	P48/P49	7514	↓	↓	↓	P	P		
DP-30	P49/P50	7515	↓	↓	↓	P	P		
DP-31	P50/P51	7515	↓	↓	↓	P	P		
DP-32	P51/P52	7514	↓	↓	↓	P	P		
DP-33	P52/P53	7515	↓	↓	↓	P	P		
DP-34	P53/P54	7514	↓	↓	↓	P	P		
DP-35	P54/P55	7515	↓	↓	↓	P	P		
DP-36	P55/P56	7514	↓	↓	↓	P	P		
DP-37	P56/P57	7515	↓	12/9/98	12/9/98	P	F		Pulled DP-37A + DP37B; See Page 3-P
DP-38	P58/P59	7515	↓	↓	↓	P	P		
DP-39	P59/P60	7514	↓	↓	↓	P	P		
DP-40	P60/P61	7515	↓	↓	↓	P	P		
DP-41	P61/P62	7514	↓	↓	↓	P	P		
DP-42	P62/P63	7515	↓	↓	↓	P	P		
DP-43	P63/P64	7514	↓	↓	↓	P	P		
DP-44	P64/P65	7515	↓	↓	↓	P	P		
DP-45	P65/P66	7514	↓	↓	↓	P	P		
DP-46	P66/P78	7514	↓	↓	↓	P	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

DESTRUCTIVE TEST LOG

SHEET 3-P of

PROJECT TITLE: Tomoka Farms Rd. LF

PROJECT NO: 0995039.27

DATE: 12/9/98 - 1/19/99

SAMPLE NO.	SEAM I.D.	MACHINE NO.	WELD TYPE	DATE SEAMED	DATE SAMPLED	TEST STATUS PASS/FAIL			COMMENTS
						INSTALLER	SCS	ARCH	
DP-47	P85/P86	7514	F	12/9/98	12/9/98	P	P		
DP-48	P74/P75	7515		↓	↓	P	P		
DP-49	P51/Tie-in	7514		↓	12/10/98	P	P		
DP-50	P38/PR168	7514		12/14/98	12/14/98	P	P		
DP-17A	P26/Tie-in	7514		12/3/98	12/9/98	P	P		
DP-17B	P32/Tie-in	7514		↓	↓	P	P		
DP-19A	P39/P40	7515		12/4/98	↓	P	P		
DP-19B	P35/P36	7515	↓	↓	↓	P	P		
DP-51	P37/PR168	7514	F	12/9[illegible]/98	12/14/98	P	P		
DP-37A	P56/P57	7515	↓	↓	↓	P	P		
DP-37B	P56/P57	7515	↓	↓	↓	P	P		
DP-52	P20/P87	7507	F	1/13/99	1/13/99	P	P		
DP-53	P92/P93	7517	↓	↓	↓	P	P		
DP-54	P90/P100	↓	↓	↓	↓	P	P		
DP-55	P104/P105	↓	↓	↓	↓	P	P		
DP-56	P101/P102	7507	↓	↓	↓	P	P		
DP-57	P106/P107	↓	↓	↓	↓	P	P		
DP-58	P112/P113	7517	↓	↓	↓	P	P		
DP-59	P114/P115	↓	F	1/14/99	1/14/99	P	P		
DP-60	P117/P118	7506	↓	↓	↓	P	P		
DP-61	P37/P117	7517	↓	↓	↓	P	P		
DP-62	P119/P120	↓	↓	1/19/99	1/19/99	P	P		
DP-63	P122/P123	7506	↓	↓	↓	P	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

SCS ENGINEERS

DESTRUCTIVE TEST LOG

SHEET: 4-P of

PROJECT TITLE: Tomoka Farms Rd LF

PROJECT NO: 0995039.27

DATE: 1/19/99 - 1/27/99

SAMPLE NO.	SEAM I.D.	MACHINE NO.	WELD TYPE	DATE SEAMED	DATE SAMPLED	TEST STATUS PASS/FAIL			COMMENTS
						INSTALLER	SCS	ARCH	
DP-64	P124/P125	7506	F	1/19/99	1/19/99	P	P		
DP-65	P127/P128	7517	↓	↓	↓	P	P		
DP-66	P130/P131	7506	↓	↓	↓	P	P		
DP-67	P133/P134	7517	↓	↓	↓	P	P		
DP-68	P136/P137	7506	F	1/20/99	1/20/99	P	F		* Capped all seams before this sample and pulled DS68A after this sample; it passed
DP-68A	P137/P138	↓	↓	↓	1/27/99	P	P		
DP-69	P138/P139	7517	↓	↓	1/20/99	P	P		
DP-70	P140/P141	7506	↓	↓	↓	P	P		
DP-71	P144/P145	7517	↓	↓	↓	P	P		
DP-72	P151/P152	↓	↓	↓	↓	P	P		
DP-73	P63/P143	7506	↓	↓	↓	P	P		
DP-74	P154/P156	7517	↓	↓	↓	P	P		
DP-75	P146/P149	↓	↓	↓	↓	P	P		
DP-76	P42/P122	7506	↓	↓	↓	P	P		
DP-77	P136/PR356	7412	F	1/27/99	1/27/99	P	P		

PRINT NAME: Steven Rosbach

SIGNATURE: Steven Rosbach

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 04-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 04-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SEA
REPORT DATE: 04-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-1	1A	131	< 10	SE	FTB	NA	149	> 50	FTB	NA
	2A	134	< 10	SE	FTB					
	3A	130	< 10	SE	FTB		145	> 50	FTB	
	4A	132	< 10	SE	FTB					
	5A	133	< 10	SE	FTB		145	> 50	FTB	
	MEAN:	**132**								
	1B	139	< 10	SE	FTB		148	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		147	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**147**			
DP-2	1A	137	< 10	SE	FTB	NA	143	> 50	FTB	NA
	2A	128	< 10	SE	FTB					
	3A	120	< 10	SE	FTB		141	> 50	FTB	
	4A	131	< 10	SE	FTB					
	5A	122	< 10	SE	FTB		139	> 50	FTB	
	MEAN:	**128**								
	1B	138	< 10	SE	FTB		143	> 50	FTB	
	2B	135	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		143	> 50	FTB	
	4B	133	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**142**			

NA Not Available

The testing reported herein is based upon industry practice as well as the test method listed
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 04-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 04-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SR4
REPORT DATE: 04-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-3	1A	141	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	139	< 10	SE	FTB		145	> 50	FTB	
	4A	137	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	**138**								
	1B	142	< 10	SE	FTB		147	> 50	FTB	
	2B	135	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		144	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**145**			
DP-4	1A	130	< 10	SE	FTB	NA	146	> 50	FTB	NA
	2A	131	< 10	SE	FTB					
	3A	133	< 10	SE	FTB		144	> 50	FTB	
	4A	131	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**132**								
	1B	138	< 10	SE	FTB		146	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		145	> 50	FTB	
	4B	133	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**145**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 04-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 04-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SRA
REPORT DATE: 04-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-5	1A	134	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	139	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		142	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	137	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**136**								
	1B	137	< 10	SE	FTB		144	> 50	FTB	
	2B	137	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		144	> 50	FTB	
	4B	136	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**143**			
DP-6	1A	133	< 10	SE	FTB	NA	149	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		146	> 50	FTB	
	4A	139	< 10	SE	FTB					
	5A	140	< 10	SE	FTB		145	> 50	FTB	
	MEAN:	**137**								
	1B	139	< 10	SE	FTB		150	> 50	FTB	
	2B	137	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		149	> 50	FTB	
	4B	136	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**148**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 04-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 04-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SR4
REPORT DATE: 04-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-7	1A	140	< 10	SE	FTB	NA	148	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		144	> 50	FTB	
	4A	131	< 10	SE	FTB					
	5A	132	< 10	SE	FTB		144	> 50	FTB	
	MEAN:	**135**								
	1B	138	< 10	SE	FTB		147	> 50	FTB	
	2B	142	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		147	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**146**			
DP-8	1A	129	< 10	SE	FTB	NA	146	> 50	FTB	NA
	2A	130	< 10	SE	FTB					
	3A	127	< 10	SE	FTB		144	> 50	FTB	
	4A	129	< 10	SE	FTB					
	5A	129	< 10	SE	FTB		147	> 50	FTB	
	MEAN:	**129**								
	1B	139	< 10	SE	FTB		147	> 50	FTB	
	2B	140	< 10	SE	FTB					
	3B	140	< 10	SE	FTB		144	> 50	FTB	
	4B	140	< 10	SE	FTB					
	5B	143	< 10	SE	FTB					
	MEAN	**140**				**MEAN:**	**146**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 04-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 04-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SRA
REPORT DATE: 04-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-9	1A	135	< 10	SE	FTB	NA	146	> 50	FTB	NA
	2A	136	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		143	> 50	FTB	
	4A	135	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**136**								
	1B	139	< 10	SE	FTB		145	> 50	FTB	
	2B	140	< 10	SE	FTB					
	3B	128	< 10	SE	FTB		146	> 50	FTB	
	4B	131	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	**135**				**MEAN:**	**144**			
DP-10	1A	141	< 10	SE	FTB	NA	148	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		144	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	**137**								
	1B	129	< 10	SE	FTB		147	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	127	< 10	SE	FTB		148	> 50	FTB	
	4B	130	< 10	SE	FTB					
	5B	127	< 10	SE	FTB					
	MEAN	**130**				**MEAN:**	**146**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 04-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 04-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SR4
REPORT DATE: 04-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-11	1A	142	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	141	< 10	SE	FTB		142	> 50	FTB	
	4A	138	< 10	SE	FTB					
	5A	144	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	**141**								
	1B	139	< 10	SE	FTB		143	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		143	> 50	FTB	
	4B	141	< 10	SE	FTB					
	5B	144	< 10	SE	FTB					
	MEAN	**140**				**MEAN:**	**143**			
DP-12	1A	141	< 10	SE	FTB	NA	148	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		144	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	137	< 10	SE	FTB		146	> 50	FTB	
	MEAN:	**137**								
	1B	137	< 10	SE	FTB		147	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		143	> 50	FTB	
	4B	131	< 10	SE	FTB					
	5B	134	< 10	SE	FTB					
	MEAN	**135**				**MEAN:**	**146**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 04-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 04-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SRA
REPORT DATE: 04-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-13	1A	130	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	136	< 10	SE	FTB					
	3A	131	< 10	SE	FTB		139	> 50	FTB	
	4A	132	< 10	SE	FTB					
	5A	133	< 10	SE	FTB		139	> 50	FTB	
	MEAN:	**132**								
	1B	138	< 10	SE	FTB		141	> 50	FTB	
	2B	135	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		142	> 50	FTB	
	4B	140	< 10	SE	FTB					
	5B	132	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**141**			
DP-14	1A	141	< 10	SE	FTB	NA	146	> 50	FTB	NA
	2A	132	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		143	> 50	FTB	
	4A	135	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**135**								
	1B	141	< 10	SE	FTB		146	> 50	FTB	
	2B	130	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		145	> 50	FTB	
	4B	131	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	**135**				**MEAN:**	**144**			

NA Not Available

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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 04-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-14-01
DATE TESTED: 04-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: SRA
REPORT DATE: 04-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-15	1A	138	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	144	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		142	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	**137**								
	1B	138	< 10	SE	FTB		145	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		143	> 50	FTB	
	4B	130	< 10	SE	FTB					
	5B	134	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**143**			
DP-16	1A	138	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	139	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		140	> 50	FTB	
	4A	140	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	**138**								
	1B	137	< 10	SE	FTB		142	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		142	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**142**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 07-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-27-08
DATE TESTED: 07-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 07-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-17	1A	147	< 10	SE	FTB	NA	156	> 50	FTB	NA
	2A	109	90	AD-BRK	FTB					
	3A	129	20	AD-BRK	FTB		157	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	113	15	AD-BRK	FTB		154	> 50	FTB	
	MEAN:	**128**								
	1B	140	< 10	SE	FTB		159	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		157	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**157**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-31-04
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB
REVIEW: JAN
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-17A	1A	135	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	124	30	AD-BRK	FTB					
	3A	135	< 10	SE	FTB		149	> 50	FTB	
	4A	143	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		144	> 50	FTB	
	MEAN:	**135**								
	1B	147	< 10	SE	FTB		143	> 50	FTB	
	2B	146	< 10	SE	FTB					
	3B	144	< 10	SE	FTB		146	> 50	FTB	
	4B	140	< 10	SE	FTB					
	5B	146	< 10	SE	FTB					
	MEAN	**145**				**MEAN:**	**145**			
DP-17B	1A	145	< 10	SE	FTB	NA	146	> 50	FTB	NA
	2A	146	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		143	> 50	FTB	
	4A	144	< 10	SE	FTB					
	5A	143	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**143**								
	1B	127	75	AD-BRK	FTB		144	> 50	FTB	
	2B	142	< 10	SE	FTB					
	3B	140	< 10	SE	FTB		148	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**145**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 08-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-28-06
DATE TESTED: 08-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 08-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-18	1A	135	< 10	SE	FTB	NA	137	> 50	FTB	NA
	2A	132	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		137	> 50	FTB	
	4A	132	< 10	SE	FTB					
	5A	131	< 10	SE	FTB		135	> 50	FTB	
	MEAN:	**133**								
	1B	137	< 10	SE	FTB		134	> 50	FTB	
	2B	130	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		136	> 50	FTB	
	4B	130	< 10	SE	FTB					
	5B	131	< 10	SE	FTB					
	MEAN	**133**				**MEAN:**	**136**			
DP-19	1A	121	100	AD	NON-FTB	NA	142	> 50	FTB	NA
	2A	132	75	AD-BRK	FTB					
	3A	136	75	AD-BRK	FTB		137	> 50	FTB	
	4A	123	45	AD-BRK	FTB					
	5A	131	40	AD-BRK	FTB		138	> 50	FTB	
	MEAN:	**129**								
	1B	131	< 10	SE	FTB		141	> 50	FTB	
	2B	125	< 10	SE	FTB					
	3B	132	< 10	SE	FTB		137	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	133	< 10	SE	FTB					
	MEAN	**131**				**MEAN:**	**139**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 08-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-28-06
DATE TESTED: 08-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 08-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-20	1A	141	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		141	> 50	FTB	
	4A	139	< 10	SE	FTB					
	5A	140	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	**139**								
	1B	136	< 10	SE	FTB		140	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		142	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**135**				**MEAN:**	**141**			
DP-21	1A	134	< 10	SE	FTB	NA	142	> 50	FTB	NA
	2A	121	< 10	SE	FTB					
	3A	131	< 10	SE	FTB		140	> 50	FTB	
	4A	139	< 10	SE	FTB					
	5A	132	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	**131**								
	1B	138	< 10	SE	FTB		137	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	132	< 10	SE	FTB		139	> 50	FTB	
	4B	133	< 10	SE	FTB					
	5B	134	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**139**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 08-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-28-06
DATE TESTED: 08-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 08-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-22	1A	126	< 10	SE	FTB	NA	139	> 50	FTB	NA
	2A	126	< 10	SE	FTB					
	3A	127	< 10	SE	FTB		141	> 50	FTB	
	4A	126	< 10	SE	FTB					
	5A	121	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	**125**								
	1B	134	< 10	SE	FTB		138	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		135	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	132	< 10	SE	FTB					
	MEAN	**133**				**MEAN:**	**139**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 09-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-30-03
DATE TESTED: 09-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: JAN
REPORT DATE: 09-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-23	1A	142	< 10	SE	FTB	NA	149	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		147	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		146	> 50	FTB	
	MEAN:	**138**								
	1B	138	< 10	SE	FTB		146	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		150	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**148**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-31-04
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: MB
REVIEW: JAN
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-19A	1A	144	< 10	SE	FTB	NA	138	> 50	FTB	NA
	2A	144	< 10	SE	FTB					
	3A	140	< 10	SE	FTB		137	> 50	FTB	
	4A	137	< 10	SE	FTB					
	5A	143	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	**142**								
	1B	130	< 10	SE	FTB		137	> 50	FTB	
	2B	143	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		137	> 50	FTB	
	4B	133	< 10	SE	FTB					
	5B	141	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**138**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SEA
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-19B	1A	133	< 10	SE	FTB	NA	139	> 50	FTB	NA
	2A	130	< 10	SE	FTB					
	3A	132	< 10	SE	FTB		140	> 50	FTB	
	4A	130	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		136	> 50	FTB	
	MEAN:	**132**								
	1B	134	< 10	SE	FTB		138	> 50	FTB	
	2B	134	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		137	> 50	FTB	
	4B	127	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**133**				**MEAN:**	**138**			
DP-24	1A	143	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	140	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		138	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	**139**								
	1B	145	< 10	SE	FTB		138	> 50	FTB	
	2B	142	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		138	> 50	FTB	
	4B	140	< 10	SE	FTB					
	5B	141	< 10	SE	FTB					
	MEAN	**141**				**MEAN:**	**139**			

NA Not Available

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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SRA
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-25	1A	145	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	142	< 10	SE	FTB		138	> 50	FTB	
	4A	145	< 10	SE	FTB					
	5A	140	< 10	SE	FTB		138	> 50	FTB	
	MEAN:	**143**								
	1B	136	< 10	SE	FTB		138	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	132	< 10	SE	FTB		138	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	144	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**139**			
DP-26	1A	138	< 10	SE	FTB	NA	142	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	139	< 10	SE	FTB		136	> 50	FTB	
	4A	133	< 10	SE	FTB					
	5A	130	< 10	SE	FTB		136	> 50	FTB	
	MEAN:	**135**								
	1B	130	< 10	SE	FTB		136	> 50	FTB	
	2B	131	< 10	SE	FTB					
	3B	131	< 10	SE	FTB		136	> 50	FTB	
	4B	133	< 10	SE	FTB					
	5B	128	< 10	SE	FTB					
	MEAN	**131**				**MEAN:**	**137**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SRA
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-27	1A	143	< 10	SE	FTB	NA	139	> 50	FTB	NA
	2A	133	< 10	SE	FTB					
	3A	132	< 10	SE	FTB		133	> 50	FTB	
	4A	131	< 10	SE	FTB					
	5A	118	< 10	SE	FTB		132	> 50	FTB	
	MEAN:	**131**								
	1B	141	< 10	SE	FTB		133	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		134	> 50	FTB	
	4B	131	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**134**			
DP-28	1A	139	< 10	SE	FTB	NA	143	> 50	FTB	NA
	2A	136	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		136	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		136	> 50	FTB	
	MEAN:	**136**								
	1B	141	< 10	SE	FTB		136	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	131	< 10	SE	FTB		137	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**138**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SRA
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-29	1A	140	< 10	SE	FTB	NA	142	> 50	FTB	NA
	2A	133	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		144	> 50	FTB	
	4A	143	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		139	> 50	FTB	
	MEAN:	**137**								
	1B	144	< 10	SE	FTB		139	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		139	> 50	FTB	
	4B	142	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**140**				**MEAN:**	**141**			
DP-30	1A	142	< 10	SE	FTB	NA	143	> 50	FTB	NA
	2A	140	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		137	> 50	FTB	
	4A	135	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		136	> 50	FTB	
	MEAN:	**138**								
	1B	136	< 10	SE	FTB		136	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	129	< 10	SE	FTB		135	> 50	FTB	
	4B	132	< 10	SE	FTB					
	5B	130	< 10	SE	FTB					
	MEAN	**133**				**MEAN:**	**137**			

NA Not Available

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GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SRA
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-31	1A	142	< 10	SE	FTB	NA	143	> 50	FTB	NA
	2A	144	< 10	SE	FTB					
	3A	145	< 10	SE	FTB		136	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		136	> 50	FTB	
	MEAN:	**143**								
	1B	136	< 10	SE	FTB		136	> 50	FTB	
	2B	137	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		136	> 50	FTB	
	4B	132	< 10	SE	FTB					
	5B	133	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**137**			
DP-32	1A	142	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	143	< 10	SE	FTB					
	3A	146	< 10	SE	FTB		138	> 50	FTB	
	4A	143	< 10	SE	FTB					
	5A	146	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	**144**								
	1B	142	< 10	SE	FTB		138	> 50	FTB	
	2B	142	< 10	SE	FTB					
	3B	142	< 10	SE	FTB		139	> 50	FTB	
	4B	140	< 10	SE	FTB					
	5B	143	< 10	SE	FTB					
	MEAN	**142**				**MEAN:**	**139**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SR4
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-33	1A	127	< 10	SE	FTB	NA	136	> 50	FTB	NA
	2A	133	< 10	SE	FTB					
	3A	122	< 10	SE	FTB		134	> 50	FTB	
	4A	128	< 10	SE	FTB					
	5A	123	< 10	SE	FTB		133	> 50	FTB	
	MEAN:	**127**								
	1B	137	< 10	SE	FTB		134	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		137	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**135**			
DP-34	1A	142	< 10	SE	FTB	NA	138	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		137	> 50	FTB	
	4A	144	< 10	SE	FTB					
	5A	143	< 10	SE	FTB		135	> 50	FTB	
	MEAN:	**142**								
	1B	128	< 10	SE	FTB		135	> 50	FTB	
	2B	127	< 10	SE	FTB					
	3B	124	< 10	SE	FTB		139	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	131	< 10	SE	FTB					
	MEAN	**129**				**MEAN:**	**137**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SR4
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-35	1A	135	< 10	SE	FTB	NA	141	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		136	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	137	< 10	SE	FTB		134	> 50	FTB	
	MEAN:	**137**								
	1B	139	< 10	SE	FTB		136	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		135	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**136**			
DP-36	1A	145	< 10	SE	FTB	NA	141	> 50	FTB	NA
	2A	144	< 10	SE	FTB					
	3A	139	< 10	SE	FTB		135	> 50	FTB	
	4A	139	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		135	> 50	FTB	
	MEAN:	**142**								
	1B	136	< 10	SE	FTB		135	> 50	FTB	
	2B	140	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		135	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**136**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SPH
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-37	1A	140	< 10	SE	FTB	NA	138	> 50	FTB	NA
	2A	143	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		139	> 50	FTB	
	4A	138	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	**139**								
	1B	146	< 10	SE	FTB		138	> 50	FTB	
	2B	133	25	AD-BRK	FTB					
	3B	141	< 10	SE	FTB		141	> 50	FTB	
	4B	132	45	AD-BRK	FTB					
	5B	142	< 10	SE	FTB					
	MEAN	**139**				**MEAN:**	**139**			
DP-38	1A	137	< 10	SE	FTB	NA	137	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		141	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		136	> 50	FTB	
	MEAN:	**138**								
	1B	136	< 10	SE	FTB		140	> 50	FTB	
	2B	140	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		137	> 50	FTB	
	4B	142	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**138**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 15-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-35-01
DATE TESTED: 15-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SRA
REPORT DATE: 15-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-37A	1A	139	< 10	SE	FTB	NA	143	> 50	FTB	NA
	2A	136	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		140	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	136	< 10	SE	FTB		138	> 50	FTB	
	MEAN:	**136**								
	1B	135	< 10	SE	FTB		137	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		140	> 50	FTB	
	4B	133	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**140**			
DP-37B	1A	138	< 10	SE	FTB	NA	141	> 50	FTB	NA
	2A	131	< 10	SE	FTB					
	3A	133	< 10	SE	FTB		138	> 50	FTB	
	4A	133	< 10	SE	FTB					
	5A	132	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	**133**								
	1B	133	< 10	SE	FTB		135	> 50	FTB	
	2B	130	< 10	SE	FTB					
	3B	128	< 10	SE	FTB		138	> 50	FTB	
	4B	132	< 10	SE	FTB					
	5B	131	< 10	SE	FTB					
	MEAN	**131**				**MEAN:**	**138**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SEA
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-39	1A	140	< 10	SE	FTB	NA	132	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	139	< 10	SE	FTB		133	> 50	FTB	
	4A	142	< 10	SE	FTB					
	5A	145	< 10	SE	FTB		132	> 50	FTB	
	MEAN:	**141**								
	1B	139	< 10	SE	FTB		133	> 50	FTB	
	2B	137	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		135	> 50	FTB	
	4B	141	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**133**			
DP-40	1A	138	< 10	SE	FTB	NA	140	> 50	FTB	NA
	2A	144	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		141	> 50	FTB	
	4A	143	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		139	> 50	FTB	
	MEAN:	**139**								
	1B	136	< 10	SE	FTB		140	> 50	FTB	
	2B	143	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		142	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**140**			

NA Not Available

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GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SRA
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-41	1A	137	< 10	SE	FTB	NA	137	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		137	> 50	FTB	
	4A	142	< 10	SE	FTB					
	5A	136	< 10	SE	FTB		135	> 50	FTB	
	MEAN:	**138**								
	1B	133	< 10	SE	FTB		137	> 50	FTB	
	2B	142	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		140	> 50	FTB	
	4B	144	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**137**			
DP-42	1A	138	< 10	SE	FTB	NA	138	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		138	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	142	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	**139**								
	1B	144	< 10	SE	FTB		138	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	140	< 10	SE	FTB		140	> 50	FTB	
	4B	145	< 10	SE	FTB					
	5B	145	< 10	SE	FTB					
	MEAN	**143**				**MEAN:**	**138**			

NA Not Available

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9063 Bee Caves Road • Austin, Texas 7873[illegible]01 • (512)263-2101 • FAX (512)263-2558

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SR4
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-43	1A	136	< 10	SE	FTB	NA	140	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	139	< 10	SE	FTB		139	> 50	FTB	
	4A	142	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		139	> 50	FTB	
	MEAN:	**139**								
	1B	136	< 10	SE	FTB		141	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		142	> 50	FTB	
	4B	142	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**140**			
DP-44	1A	144	< 10	SE	FTB	NA	142	> 50	FTB	NA
	2A	139	< 10	SE	FTB					
	3A	131	< 10	SE	FTB		139	> 50	FTB	
	4A	143	< 10	SE	FTB					
	5A	131	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	**138**								
	1B	142	< 10	SE	FTB		138	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		140	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	134	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**140**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SBA
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-45	1A	137	< 10	SE	FTB	NA	138	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		139	> 50	FTB	
	4A	131	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		137	> 50	FTB	
	MEAN:	**136**								
	1B	142	< 10	SE	FTB		138	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	137	< 10	SE	FTB		140	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	128	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**138**			
DP-46	1A	141	< 10	SE	FTB	NA	138	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		139	> 50	FTB	
	4A	135	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		138	> 50	FTB	
	MEAN:	**138**								
	1B	140	< 10	SE	FTB		137	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		141	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**139**				**MEAN:**	**139**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SR4
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-47	1A	134	< 10	SE	FTB	NA	142	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		144	> 50	FTB	
	4A	138	< 10	SE	FTB					
	5A	137	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**137**								
	1B	136	< 10	SE	FTB		147	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		145	> 50	FTB	
	4B	144	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	**139**				**MEAN:**	**144**			
DP-48	1A	140	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	143	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		146	> 50	FTB	
	4A	145	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		140	> 50	FTB	
	MEAN:	**141**								
	1B	130	< 10	SE	FTB		144	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	128	< 10	SE	FTB		140	> 50	FTB	
	4B	132	< 10	SE	FTB					
	5B	127	< 10	SE	FTB					
	MEAN	**130**				**MEAN:**	**143**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 11-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-32-09
DATE TESTED: 11-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SBA
REPORT DATE: 11-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-49	1A	147	< 10	SE	FTB	NA	153	> 50	FTB	NA
	2A	142	< 10	SE	FTB					
	3A	146	< 10	SE	FTB		154	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	153	< 10	SE	FTB		149	> 50	FTB	
	MEAN:	**144**								
	1B	140	< 10	SE	FTB		150	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		151	> 50	FTB	
	4B	141	< 10	SE	FTB					
	5B	142	< 10	SE	FTB					
	MEAN	**139**				**MEAN:**	**151**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 15-Dec-98

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-35-01
DATE TESTED: 15-Dec-98

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR/MB
REVIEW: SRA
REPORT DATE: 15-Dec-98

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-50	1A	136	< 10	SE	FTB	NA	154	> 50	FTB	NA
	2A	136	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		152	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	137	< 10	SE	FTB		149	> 50	FTB	
	MEAN:	**136**								
	1B	141	< 10	SE	FTB		149	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		151	> 50	FTB	
	4B	137	< 10	SE	FTB					
	5B	135	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**151**			
DP-51	1A	138	< 10	SE	FTB	NA	152	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		148	> 50	FTB	
	4A	137	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		147	> 50	FTB	
	MEAN:	**136**								
	1B	138	< 10	SE	FTB		146	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	134	< 10	SE	FTB		148	> 50	FTB	
	4B	134	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**148**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 20-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-49-07
DATE TESTED: 20-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 20-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-52	1A	141	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	143	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		146	> 50	FTB	
	4A	146	< 10	SE	FTB					
	5A	140	< 10	SE	FTB		142	> 50	FTB	
	MEAN:	**141**								
	1B	138	< 10	SE	FTB		145	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	135	< 10	SE	FTB		147	> 50	FTB	
	4B	140	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**145**			
DP-53	1A	137	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	132	< 10	SE	FTB		144	> 50	FTB	
	4A	135	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		141	> 50	FTB	
	MEAN:	**135**								
	1B	144	< 10	SE	FTB		142	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		146	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	139	< 10	SE	FTB					
	MEAN	**140**				**MEAN:**	**143**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 20-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-49-07
DATE TESTED: 20-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 20-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-54	1A	144	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	145	< 10	SE	FTB		145	> 50	FTB	
	4A	140	< 10	SE	FTB					
	5A	145	< 10	SE	FTB		146	> 50	FTB	
	MEAN:	**142**								
	1B	145	< 10	SE	FTB		143	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		140	> 50	FTB	
	4B	141	< 10	SE	FTB					
	5B	146	< 10	SE	FTB					
	MEAN	**142**				**MEAN:**	**144**			
DP-55	1A	149	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	147	< 10	SE	FTB					
	3A	143	< 10	SE	FTB		144	> 50	FTB	
	4A	149	< 10	SE	FTB					
	5A	145	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	**147**								
	1B	144	< 10	SE	FTB		143	> 50	FTB	
	2B	142	< 10	SE	FTB					
	3B	138	< 10	SE	FTB		146	> 50	FTB	
	4B	144	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**141**				**MEAN:**	**144**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 20-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-49-07
DATE TESTED: 20-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 20-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-56	1A	132	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	145	< 10	SE	FTB					
	3A	131	< 10	SE	FTB		146	> 50	FTB	
	4A	130	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		145	> 50	FTB	
	MEAN:	**135**								
	1B	139	< 10	SE	FTB		144	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	148	< 10	SE	FTB		148	> 50	FTB	
	4B	141	< 10	SE	FTB					
	5B	152	< 10	SE	FTB					
	MEAN	**144**				**MEAN:**	**146**			
DP-57	1A	141	< 10	SE	FTB	NA	143	> 50	FTB	NA
	2A	135	< 10	SE	FTB					
	3A	137	< 10	SE	FTB		144	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	141	< 10	SE	FTB		143	> 50	FTB	
	MEAN:	**138**								
	1B	143	< 10	SE	FTB		143	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		146	> 50	FTB	
	4B	142	< 10	SE	FTB					
	5B	142	< 10	SE	FTB					
	MEAN	**140**				**MEAN:**	**144**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 20-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-49-07
DATE TESTED: 20-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 20-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	142	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	146	< 10	SE	FTB					
	3A	139	< 10	SE	FTB		144	> 50	FTB	
	4A	146	< 10	SE	FTB					
	5A	143	< 10	SE	FTB		143	> 50	FTB	
DP-58	MEAN:	143								
	1B	143	< 10	SE	FTB		142	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	142	< 10	SE	FTB		146	> 50	FTB	
	4B	148	< 10	SE	FTB					
	5B	146	< 10	SE	FTB					
	MEAN	143				MEAN:	144			
	1A	144	< 10	SE	FTB	NA	140	> 50	FTB	NA
	2A	140	< 10	SE	FTB					
	3A	140	< 10	SE	FTB		142	> 50	FTB	
	4A	143	< 10	SE	FTB					
	5A	143	< 10	SE	FTB		140	> 50	FTB	
DP-59	MEAN:	142								
	1B	145	< 10	SE	FTB		141	> 50	FTB	
	2B	141	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		144	> 50	FTB	
	4B	145	< 10	SE	FTB					
	5B	145	< 10	SE	FTB					
	MEAN	143				MEAN:	141			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 20-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-49-07
DATE TESTED: 20-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: DJR
REVIEW: JAN
REPORT DATE: 20-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-60	1A	142	< 10	SE	FTB	NA	145	> 50	FTB	NA
	2A	136	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		146	> 50	FTB	
	4A	139	< 10	SE	FTB					
	5A	143	< 10	SE	FTB		144	> 50	FTB	
	MEAN:	**140**								
	1B	143	< 10	SE	FTB		146	> 50	FTB	
	2B	143	< 10	SE	FTB					
	3B	141	< 10	SE	FTB		148	> 50	FTB	
	4B	136	< 10	SE	FTB					
	5B	143	< 10	SE	FTB					
	MEAN	**141**				**MEAN:**	**146**			
DS-61	1A	150	< 10	SE	FTB	NA	147	> 50	FTB	NA
	2A	146	< 10	SE	FTB					
	3A	146	< 10	SE	FTB		147	> 50	FTB	
	4A	150	< 10	SE	FTB					
	5A	150	< 10	SE	FTB		146	> 50	FTB	
	MEAN:	**148**								
	1B	143	< 10	SE	FTB		148	> 50	FTB	
	2B	140	< 10	SE	FTB					
	3B	140	< 10	SE	FTB		153	> 50	FTB	
	4B	143	< 10	SE	FTB					
	5B	142	< 10	SE	FTB					
	MEAN	**142**				**MEAN:**	**148**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 22-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-50-08
DATE TESTED: 22-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SR4
REPORT DATE: 22-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	144	< 10	SE	FTB	NA	154	> 50	FTB	NA
	2A	140	< 10	SE	FTB					
	3A	140	< 10	SE	FTB		150	> 50	FTB	
	4A	138	< 10	SE	FTB					
	5A	142	< 10	SE	FTB		149	> 50	FTB	
DP-62	**MEAN:**	**141**								
	1B	149	< 10	SE	FTB		151	> 50	FTB	
	2B	147	< 10	SE	FTB					
	3B	145	< 10	SE	FTB		148	> 50	FTB	
	4B	148	< 10	SE	FTB					
	5B	147	< 10	SE	FTB					
	MEAN	**147**				**MEAN:**	**150**			
	1A	135	< 10	SE	FTB	NA	154	> 50	FTB	NA
	2A	130	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		152	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	133	< 10	SE	FTB		150	> 50	FTB	
DP-63	**MEAN:**	**134**								
	1B	132	< 10	SE	FTB		149	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	142	< 10	SE	FTB		150	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	137	< 10	SE	FTB					
	MEAN	**137**				**MEAN:**	**151**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 22-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-50-08
DATE TESTED: 22-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 22-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	137	< 10	SE	FTB	NA	154	> 50	FTB	NA
	2A	130	< 10	SE	FTB					
	3A	138	< 10	SE	FTB		155	> 50	FTB	
	4A	121	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		151	> 50	FTB	
DP-64	**MEAN:**	**133**								
	1B	139	< 10	SE	FTB		151	> 50	FTB	
	2B	135	< 10	SE	FTB					
	3B	141	< 10	SE	FTB		153	> 50	FTB	
	4B	131	< 10	SE	FTB					
	5B	134	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**153**			
	1A	138	< 10	SE	FTB	NA	151	> 50	FTB	NA
	2A	137	< 10	SE	FTB					
	3A	136	< 10	SE	FTB		149	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	138	< 10	SE	FTB		147	> 50	FTB	
DP-65	**MEAN:**	**137**								
	1B	131	< 10	SE	FTB		146	> 50	FTB	
	2B	127	< 10	SE	FTB					
	3B	125	< 10	SE	FTB		150	> 50	FTB	
	4B	125	< 10	SE	FTB					
	5B	132	< 10	SE	FTB					
	MEAN	**128**				**MEAN:**	**149**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 22-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-50-08
DATE TESTED: 22-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SBA
REPORT DATE: 22-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	146	< 10	SE	FTB	NA	150	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	134	< 10	SE	FTB		146	> 50	FTB	
	4A	136	< 10	SE	FTB					
	5A	135	< 10	SE	FTB		145	> 50	FTB	
DP-66	**MEAN:**	**138**								
	1B	140	< 10	SE	FTB		147	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		144	> 50	FTB	
	4B	138	< 10	SE	FTB					
	5B	140	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**146**			
	1A	137	< 10	SE	FTB	NA	152	> 50	FTB	NA
	2A	131	< 10	SE	FTB					
	3A	128	< 10	SE	FTB		150	> 50	FTB	
	4A	134	< 10	SE	FTB					
	5A	129	< 10	SE	FTB		149	> 50	FTB	
DP-67	**MEAN:**	**132**								
	1B	151	< 10	SE	FTB		151	> 50	FTB	
	2B	138	< 10	SE	FTB					
	3B	145	< 10	SE	FTB		149	> 50	FTB	
	4B	143	< 10	SE	FTB					
	5B	143	< 10	SE	FTB					
	MEAN	**144**				**MEAN:**	**150**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 22-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-50-08
DATE TESTED: 22-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 22-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	129	50	AD-BRK	FTB	NA	152	> 50	FTB	NA
	2A	120	50	AD-BRK	FTB					
	3A	134	< 10	SE	FTB		150	> 50	FTB	
	4A	123	50	AD-BRK	FTB					
	5A	145	< 10	SE	FTB		149	> 50	FTB	
DP-68	**MEAN:**	**130**								
	1B	135	< 10	SE	FTB		148	> 50	FTB	
	2B	133	< 10	SE	FTB					
	3B	131	< 10	SE	FTB		151	> 50	FTB	
	4B	131	< 10	SE	FTB					
	5B	133	< 10	SE	FTB					
	MEAN	**133**				**MEAN:**	**150**			
	1A	144	< 10	SE	FTB	NA	155	> 50	FTB	NA
	2A	134	< 10	SE	FTB					
	3A	140	< 10	SE	FTB		154	> 50	FTB	
	4A	141	< 10	SE	FTB					
	5A	140	< 10	SE	FTB		151	> 50	FTB	
DP-69	**MEAN:**	**140**								
	1B	133	< 10	SE	FTB		151	> 50	FTB	
	2B	127	< 10	SE	FTB					
	3B	124	< 10	SE	FTB		154	> 50	FTB	
	4B	125	< 10	SE	FTB					
	5B	126	< 10	SE	FTB					
	MEAN	**127**				**MEAN:**	**153**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 22-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-50-08
DATE TESTED: 22-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SPA
REPORT DATE: 22-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	138	< 10	SE	FTB	NA	155	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	132	< 10	SE	FTB		154	> 50	FTB	
	4A	142	< 10	SE	FTB					
	5A	134	< 10	SE	FTB		153	> 50	FTB	
DP-70	**MEAN:**	**137**								
	1B	136	< 10	SE	FTB		153	> 50	FTB	
	2B	136	< 10	SE	FTB					
	3B	132	< 10	SE	FTB		156	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	130	< 10	SE	FTB					
	MEAN	**134**				**MEAN:**	**154**			
	1A	141	< 10	SE	FTB	NA	164	> 50	FTB	NA
	2A	143	< 10	SE	FTB					
	3A	142	< 10	SE	FTB		160	> 50	FTB	
	4A	143	< 10	SE	FTB					
	5A	146	< 10	SE	FTB		160	> 50	FTB	
DS-71	**MEAN:**	**143**								
	1B	134	< 10	SE	FTB		160	> 50	FTB	
	2B	145	< 10	SE	FTB					
	3B	133	< 10	SE	FTB		164	> 50	FTB	
	4B	145	< 10	SE	FTB					
	5B	138	< 10	SE	FTB					
	MEAN	**139**				**MEAN:**	**162**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 22-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-50-08
DATE TESTED: 22-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SR4
REPORT DATE: 22-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1A	145	< 10	SE	FTB	NA	157	> 50	FTB	NA
	2A	142	< 10	SE	FTB					
	3A	143	< 10	SE	FTB		151	> 50	FTB	
	4A	133	< 10	SE	FTB					
	5A	146	< 10	SE	FTB		152	> 50	FTB	
DP-72	**MEAN:**	**142**								
	1B	135	< 10	SE	FTB		153	> 50	FTB	
	2B	139	< 10	SE	FTB					
	3B	139	< 10	SE	FTB		154	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	144	< 10	SE	FTB					
	MEAN	**138**				**MEAN:**	**153**			
	1A	145	< 10	SE	FTB	NA	166	> 50	FTB	NA
	2A	129	< 10	SE	FTB					
	3A	132	< 10	SE	FTB		159	> 50	FTB	
	4A	126	< 10	SE	FTB					
	5A	131	< 10	SE	FTB		157	> 50	FTB	
DS-73	**MEAN:**	**133**								
	1B	126	< 10	SE	FTB		161	> 50	FTB	
	2B	143	< 10	SE	FTB					
	3B	143	< 10	SE	FTB		158	> 50	FTB	
	4B	144	< 10	SE	FTB					
	5B	148	< 10	SE	FTB					
	MEAN	**141**				**MEAN:**	**160**			

NA Not Available

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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 22-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-50-08
DATE TESTED: 22-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 22-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-74	1A	145	< 10	SE	FTB	NA	155	> 50	FTB	NA
	2A	144	< 10	SE	FTB					
	3A	143	< 10	SE	FTB		149	> 50	FTB	
	4A	143	< 10	SE	FTB					
	5A	143	< 10	SE	FTB		149	> 50	FTB	
	MEAN:	**144**								
	1B	139	< 10	SE	FTB		150	> 50	FTB	
	2B	142	< 10	SE	FTB					
	3B	145	< 10	SE	FTB		150	> 50	FTB	
	4B	139	< 10	SE	FTB					
	5B	142	< 10	SE	FTB					
	MEAN	**141**				**MEAN:**	**151**			
DS-75	1A	141	< 10	SE	FTB	NA	158	> 50	FTB	NA
	2A	141	< 10	SE	FTB					
	3A	146	< 10	SE	FTB		152	> 50	FTB	
	4A	144	< 10	SE	FTB					
	5A	139	< 10	SE	FTB		153	> 50	FTB	
	MEAN:	**142**								
	1B	145	< 10	SE	FTB		154	> 50	FTB	
	2B	145	< 10	SE	FTB					
	3B	147	< 10	SE	FTB		153	> 50	FTB	
	4B	143	< 10	SE	FTB					
	5B	143	< 10	SE	FTB					
	MEAN	**145**				**MEAN:**	**154**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
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QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 22-Jan-99

MATERIAL: HDPE
SEAM TYPE: HEAT FUSION WELD
TRI LOG #: E2112-50-08
DATE TESTED: 22-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SR4
REPORT DATE: 22-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-76	1A	140	< 10	SE	FTB	NA	164	> 50	FTB	NA
	2A	138	< 10	SE	FTB					
	3A	139	< 10	SE	FTB		164	> 50	FTB	
	4A	142	< 10	SE	FTB					
	5A	142	< 10	SE	FTB		161	> 50	FTB	
	MEAN:	**140**								
	1B	139	< 10	SE	FTB		162	> 50	FTB	
	2B	132	< 10	SE	FTB					
	3B	136	< 10	SE	FTB		164	> 50	FTB	
	4B	135	< 10	SE	FTB					
	5B	136	< 10	SE	FTB					
	MEAN	**136**				**MEAN:**	**163**			

NA Not Available

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: SCS ENGINEERS
PROJECT: TOMOKA FARMS ROAD LANDFILL, PHASE II
CONTACT: MR. KARL SCHMIDT
DATE REC'D: 28-Jan-99

MATERIAL: HDPE
SEAM TYPE: SINGLE EXTRUSION WELD
TRI LOG #: E2112-62-06
DATE TESTED: 28-Jan-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: JAN
REPORT DATE: 28-Jan-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
DP-77	1A	127	< 10	SE	FTB	NA	144	> 50	FTB	NA
	2A	142	< 10	SE	FTB					
	3A	135	< 10	SE	FTB		144	> 50	FTB	
	4A	120	< 10	SE	FTB					
	5A	130	< 10	SE	FTB		144	> 50	FTB	
	MEAN:	131								
							144	> 50	FTB	
							149	> 50	FTB	
						MEAN:	145			

NA Not Available

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ATTACHMENT 7-9

MANUFACTURER'S CQC CERTIFICATES
(GSE GEOMEMBRANE)

COPY

COMANCO

ENVIRONMENTAL CORPORATION

November 2, 1998

Mr. Bill Gilley
Director
SOLID WASTE SERVICES GROUP
County of Volusia, Florida
3151 E. New York Avenue
De Land, FL 32724

RE: **TOMOKA FARMS ROAD LANDFILL**
GEO-SYNTHETIC INSTALLATION
60 MIL TEXTURED
BI-PLANNER FABRA-NET
ALTERNATE PHASE III & IV
GSE MATERIAL QC/QA CERTIFICATES
CEC JOB #98-528

Dear Mr. Gilley:

Please find attached, QA/QC Certificates from GSE Lining Technologies, Inc. for the above referenced project.

Any questions, please telephone.

Sincerely,

COMANCO ENVIRONMENTAL CORPORATION

Mark A. Topp
President

Attachments

MAT/dkw
(A:6498-528 /Gilley-QA/QC Certificates)

CC: Lee Powell

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

SHIPPERS NO.
H 07163

GSE Lining Technology, Inc. at HOUSTON, TEXAS

From GSE LINING TECHNOLOGY, INC.

ved at Houston, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, whi[ch] the word "Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carr[ier] d property, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herei[n] ology, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the [Shipper] Shipper noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier [is] subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable [car]rier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of [dam]age to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

ct to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are [by] agreed and accepted for himself and his assigns.

ernal Ref. COMANCO ENVIRONMENTAL
MARK TOPF

Date Shipped OCTOBER 23, 1998

signed to / tination C/O VOLUSIA COUNTY SOLID WASTE
DAYTONA BEACH

Customer P.O. # VERBAL

State FL 32114

nments from M.R.

FC 01910008 CONTACT: MARK TOPF @ 813/988-6829

No. Packages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK7862FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,640
2	AK7973FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,641
3	AK7974FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,545
4	AK7975FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,595
5	AK7984FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,565
6	AK7990FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,598
7	AK7994FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,591
8	AK7995FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,664
9	AK7997FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,640

Internal Ref.

Material Req. # 7399-05

Job # DS5226

Shippers # 07163

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect
PREPAID

Load Verification
SIGNED

X

Truck/Container #
1910

Seal #

Square Ft.	101,403	Total Weight	52,479	VDL020001

er Ref. OK TO SHIP SHORT PER HEROLD HENDERSON

CARRIER NAME: RUEL SMITH

CARRIER SIGNATURE:

DATE: 10-23 10-23-98

Truckers P.O. # 86139416

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

Here For Shipper

er:

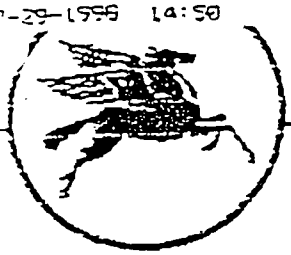
ess: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper:

(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)

RC



STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

09/29/1998

BILL WALLING
GSE LINING TECHNOLOGY INC.
19103 GUMBLE ROAD
HOUSTON, TX 77073-3515

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

S

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDG601	Density (gms/cc)	0.934
Lot Number	Z-61649	Melt Index (gm/10 min)I2	0.67
Hopper Car Number	MBLX-053544		
Quantity Shipped	196,350 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080040337		
P.O. Number	Verbal		
Location Shipped To ALDINE, TX			

211,449

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

Fax To: (281) 230-2510 DON BOHAC
(281) 847-3885 N. IVY

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

BILL WALLING
GSE LINING TECHNOLOGY INC.
19103 GUNDLE ROAD
HOUSTON, TX 77073-3515

09/24/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-5000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDG601	Density (gms/cc)	0.935
Lot Number	Z-61648	Melt Index (gm/10 min) I2	0.67
Hopper Car Number	MBLX-053584		
Quantity Shipped	184,050 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080040126		
P.O. Number	Verbal		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

Fax To: (281) 230-2510 DON BOHAC
(281) 847-3885 N. IVY

STAR... and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

BILL WALLING
GSE LINING TECHNOLOGY INC.
19103 GUNDLE ROAD
HOUSTON, TX 77073-3515

09/08/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDG601	Density (gms/cc)	0.936
Lot Number	Z-61647	Melt Index (gm/10 min) I2	0.63
Hopper Car Number	MBLX-053403		
Quantity Shipped	190,100 LB		
Date Manufactured	08/26/1998		
Delivery Note	0080038712		
P.O. Number	Verbal		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

Fax To: (281) 230-2510 DON BOHAC
(281) 847-3885 N. IVY

GSE

Roll Test Data Report

ROLL NO. AK-7862 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7862 FF	
PROD DATE:	10/17/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3640	pounds
	1651	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61647
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.936
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.630

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	163	lb/in	29	kg/cm
MD -		130		24		160		29	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				19			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	315	lb/in	56	kg/cı.
MD -		243		44		297		53	
REAK ELONGATION	D638								
CD -		560	%			678	%		
MD -		560				666			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	51	lb	23	kg
MD -		45		20		52		24	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	98	lb	44	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.53	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.946	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS _____

DATE SHIPPED _____

20082016

GSE

Roll Test Data Report

ROLL NO. AK-7973 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7973 FF	
PROD DATE:	10/15/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3641	pounds
	1652	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61648
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	161	lb/in	29	kg/cm
MD -		130		24		153		27	
ELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
NSI REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	278	lb/in	50	kg/cm
MD -		243		44		294		52	
EAK ELONGATION	D638								
CD -		560	%			603	%		
MD -		560				640			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	58	lb	26	kg
MD -		45		20		56		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	96	lb	43	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.40	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.46	
AVG. THICKNESS						60		1.53	

TE OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 10-29-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
AMENTS 20042036

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-7974 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7974 FF	
PROD DATE:	10/17/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3545	pounds
	1608	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61648
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	163	lb/in	29	kg/cm
MD -		130		24		160		29	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
NSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	302	lb/in	54	kg/cm
MD -		243		44		280		50	
EAK ELONGATION	D638								
CD -		560	%			666	%		
MD -		560				613			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	49	lb	22	kg
MD -		45		20		52		24	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	106	lb	48	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.3			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.43	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS 20062036

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-7975 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7975 FF	
PROD DATE:	10/17/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3595	pounds
	1631	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61648
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	154	lb/in	28	kg/cm
MD -		130		24		157		28	
LD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				23			
NSIL. EAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	287	lb/in	51	kg/cm
MD -		243		44		317		57	
EAK ELONGATION	D638								
CD -		560	%			638	%		
MD -		560				685			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	23	kg
MD -		45		20		51		23	
CTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
INKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.3			
BON BLACK DISPERSION	D3015	A2				A2			
BON BLACK CONTENT	D1603	2.00	%			2.46	%		
MEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
R	D1693-B	1500	hours			Start 10/16/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TE: OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 10-27-98 QA

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-7984 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7984 FF	
PROD DATE:	10/15/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3565	pounds
	1617	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61649
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	162	lb/in	29	kg/cm
MD -		130		24		154		27	
ELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	298	lb/in	53	kg/cm
MD -		243		44		307		55	
EAK ELONGATION	D638								
CD -		560	%			629	%		
MD -		560				658			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		58		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	91	lb	41	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.41	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 10-27-98 QA

STOMER: VOLUSIA COUNTY WASTE
. NO. 7399
MENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-7990 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7990 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3598	pounds
	1632	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61649
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	151 lb/in	27 kg/cm
MD -		130	24	157	28
ELD ELONGATION	D638				
CD -		13 %		23 %	
MD -		13		20	
ENSI REAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	283 lb/in	51 kg/cm
MD -		243	44	294	53
REAK ELONGATION	D638				
CD -		560 %		628 %	
MD -		560		631	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	58 lb	26 kg
MD -		45	20	52	24
NCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	96 lb	44 kg
RINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.4 %	
MD -		+/-2.00		0.0	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.44 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.944 g/cc
CR	D1693-B	1500 hours		Start 10/16/98	
ICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TI OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 10-27-98 QA

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-7994 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7994 FF	
PROD DATE:	10/15/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3591	pounds
	1629	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61649
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	153	lb/in	27	kg/cm
MD -		130		24		156		28	
ELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
NSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	294	lb/in	52	kg/cm
MD -		243		44		314		56	
EAK ELONGATION	D638								
CD -		560	%			659	%		
MD -		560				677			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	26	kg
MD -		45		20		57		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	92	lb	42	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.43	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
R	D1693-B	1500	hours			Start 10/16/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
IMENTS 30082036

DATE SHIPPED

APPROVED VG #20 10-27-98 QA

GSF

Roll Test Data Report

ROLL NO. AK-7995 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7995 FF	
PROD DATE:	10/15/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3664	pounds
	1662	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61649
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
NSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	149 lb/in	27 kg/cm
MD -		130	24	156	28
ELD ELONGATION	D638				
CD -		13 %		23 %	
MD -		13		21	
NS" REAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	293 lb/in	52 kg/cm
MD -		243	44	299	53
EAK ELONGATION	D638				
CD -		560 %		657 %	
MD -		560		640	
TIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	53 lb	24 kg
MD -		45	20	58	26
NCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	93 lb	42 kg
RINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.2	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.43 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.944 g/cc
CR	D1693-B	1500 hours		Start 10/16/98	
CKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TE. OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS

DATE SHIPPED

APPROVED JK #20 10-27-98 QA

GSE

Roll Test Data Report

ROLL NO. AK-7997 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7997 FF	
PROD DATE:	10/15/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3640	pounds
	1651	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61649
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	148 lb/in	26 kg/cm
MD -		130	24	153	27
IELD ELONGATION	D638				
CD -		13 %		22 %	
MD -		13		21	
ENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	315 lb/in	56 kg/cm
MD -		243	44	283	50
REAK ELONGATION	D638				
CD -		560 %		698 %	
MD -		560		607	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	55 lb	25 kg
MD -		45	20	52	24
NCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	93 lb	42 kg
RINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.1 %	
MD -		+/-2.00		0.0	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.41 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.944 g/cc
CR	D1693-B	1500 hours		Start 10/16/98	
ICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VS #20 10-27-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

20082036

Shipping Order - Packi g List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

SHIPPERS NO.
H 07162

GSE Lining Technology, Inc. at HOUSTON, TEXAS

From GSE LINING TECHNOLOGY, INC.

at Hou... ...as from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which said ..." being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all ...ty, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either (a) if the Shipper noted herein is GSE ...nc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties, ...Shipper noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier ...bject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable ...ner classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...mage to containers, or any other consequences occurring during transportation. Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...o the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...greed and accepted for himself and his assigns.

...al Ref. COMANCO ENVIRONMENTAL
MARK TOPF

...gned to C/O VOLUSIA COUNTY SOLID WASTE

...ation DAYTONA BEACH

Date Shipped OCTOBER 23, 1990

Customer P.O. # VERBAL

State FL 32114

...ents from M.R.

...FL 01910008 CONTACT: MARK TOPF @ 813/988-8829

...es	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK7821FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,597
2	AK7822FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,615
3	AK7837FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,552
4	AK7861FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,546
5	AK7982FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,586
6	AK7983FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,644
	AK7985FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,637
8	AK7986FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,594
9	AK7987FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,620
10	AK7991FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,612
11	AK7996FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,595
12	AK7999FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,632

Internal Ref.

Material Req. #
7399-05

Job #
DS5226

Shippers #
007162

Bus/Market Seg. Code
0101

Terms: Prepaid/Collect
PREPAID

Load Verification
SIGNED
X

Truck/Container #
1909

Seal #

...quare Ft.	135,204	Total Weight	43,230	VOL020001

...r Ref.

CARRIER NAME: RUEL SMITH
CARRIER SIGNATURE:
DATE: 10/23/90

Truckers P.O. # 86139416

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

...ere For Shipper
...r: _____
...s: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____
(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

09/08/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.935
Lot Number	Z-61654	Melt Index (gm/10 min) I2	0.57
Hopper Car Number	MBLX-053310		
Quantity Shipped	194,800 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080038840		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

RC

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

BILL MALLING
GSE LINING TECHNOLOGY INC.
19103 GUNDLE ROAD
HOUSTON, TX 77073-3515

09/29/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

S

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDG601	Density (gms/cc)	0.934
Lot Number	Z-61649	Melt Index (gm/10 min) I2	0.67
Hopper Car Number	MBLX-053544		
Quantity Shipped	196,350 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080040337		
P.O. Number	Verbal		

211,449

Location Shipped To
ALDINE, TX

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

Fax To: (281) 230-2510 DON BOZAC
(281) 847-3885 N. IVY

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

BILL WALLING
GSE LINING TECHNOLOGY INC.
19103 GUNDLE ROAD
HOUSTON, TX 77073-3515

09/24/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDG601	Density (gms/cc)	0.935
Lot Number	Z-61648	Melt Index (gm/10 min) I2	0.67
Hopper Car Number	MBLX-053584		
Quantity Shipped	184,050 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080040126		
P.O. Number	Verbal		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

Fax To: (281) 230-2510 DON BOHAC
(281) 847-3885 N. IVY

STAR... and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

BILL WALLING
GSE LINING TECHNOLOGY INC.
19103 GUNDLE ROAD
HOUSTON, TX 77073-3515

09/08/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDG601	Density (gms/cc)	0.936
Lot Number	Z-61647	Melt Index (gm/10 min) I2	0.63
Hopper Car Number	MBLX-053403		
Quantity Shipped	190,100 LB		
Date Manufactured	08/26/1998		
Delivery Note	0080038712		
P.O. Number	Verbal		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

Fax To: (281) 230-2510 DON BOHAC
(281) 847-3885 N. IVY

GSE

Roll Test Data Report

ROLL NO. AK-7821 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7821 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3597	pounds
	1632	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61654
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.570

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	149 lb/in	27 kg/cm
MD -		130	24	156	28
IELD ELONGATION	D638				
CD -		13 %		25 %	
MD -		13		19	
ENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	309 lb/in	55 kg/cm
MD -		243	44	302	54
REAK ELONGATION	D638				
CD -		560 %		691 %	
MD -		560		643	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	53 lb	24 kg
MD -		45	20	55	25
NCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	95 lb	43 kg
IRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.2	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.50 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.945 g/cc
CR	D1693-B	1500 hours		Start 10/16/98	
ICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

APPROVED #20 10-27-98 QA

GSE

Roll Test Data Report

ROLL NO. AK-7822 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7822 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3615	pounds
	1640	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61654
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.570

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	152	lb/in	27	kg/cm
MD -		130		24		156		28	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
NSIL :EAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	302	lb/in	54	kg/cm
MD -		243		44		264		47	
EAK ELONGATION	D638								
CD -		560	%			662	%		
MD -		560				568			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		59		27	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	101	lb	46	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.50	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TE OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS 20082036

DATE SHIPPED _____

APPROVED VG #20 10-27-98 QA

GSE

Roll Test Data Report

ROLL NO. AK-7837 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7837 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3552	pounds
	1611	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61654
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.570

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	151	lb/in	27	kg/cm
MD -		130		24		154		27	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				19			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	283	lb/in	51	kg/cr.
MD -		243		44		316		56	
REAK ELONGATION	D638								
CD -		560	%			618	%		
MD -		560				675			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		57		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	98	lb	44	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.4			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.55	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

APPROVED JG #26 10-27-98 QA

GSE

Roll Test Data Report

ROLL NO. AK-7861 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7861 FF	
PROD DATE:	10/17/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3546	pounds
	1608	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61647
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.936
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.630

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	142	lb/in	25	kg/cm
MD -		130		24		162		29	
ELD ELONGATION	D638								
CD -		13	%			19	%		
MD -		13				21			
NSIL EAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	269	lb/in	48	kg/cm
MD -		243		44		316		56	
EAK ELONGATION	D638								
CD -		560	%			652	%		
MD -		560				674			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	51	lb	23	kg
MD -		45		20		52		24	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	98	lb	44	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.54	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.946	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TE OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JM #20 10-27-98 QA

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
IMENTS

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Roll Test Data Report

ROLL NO. AK-7982 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7982 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3586	pounds
	1627	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61648
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	151	lb/in	27	kg/cm
MD -		130		24		157		28	
IELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	312	lb/in	56	kg/cr
MD -		243		44		312		56	
REAK ELONGATION	D638								
CD -		560	%			684	%		
MD -		560				658			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	59	lb	27	kg
MD -		45		20		59		27	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	90	lb	41	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.44	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 10-27-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

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Roll Test Data Report

ROLL NO. AK-7983 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7983 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3644	pounds
	1653	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61648
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		153		27	
ELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
NSIL EAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	312	lb/in	56	kg/cm
MD -		243		44		318		57	
EAK ELONGATION	D638								
CD -		560	%			693	%		
MD -		560				678			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	59	lb	27	kg
MD -		45		20		59		27	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	93	lb	42	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.43	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TE OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 10-27-98 QA

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
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Roll Test Data Report

ROLL NO. AK-7985 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7985 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3637	pounds
	1650	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61649
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	144	lb/in	26	kg/cm
MD -		130		24		150		27	
YIELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	276	lb/in	49	kg/c
MD -		243		44		297		53	
BREAK ELONGATION	D638								
CD -		560	%			620	%		
MD -		560				644			
TEAR RESISTANCE	D1004								
CD -		45	lb	20	kg	54	lb	25	kg
MD -		45		20		56		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	99	lb	45	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.1			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.39	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
ESCR	D1693-B	1500	hours			Start 10/16/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 10-27-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

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Roll Test Data Report

ROLL NO. AK-7986 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7986 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3594	pounds
	1630	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61649
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		158		28	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
ENSIL REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	321	lb/in	57	kg/cm
MD -		243		44		290		52	
REAK ELONGATION	D638								
CD -		560	%			703	%		
MD -		560				617			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	24	kg
MD -		45		20		56		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	91	lb	41	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/- 2.00	%			0.2	%		
MD -		+/- 2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.40	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 10-27-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

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Roll Test Data Report

ROLL NO. AK-7987 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7987 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3620	pounds
	1642	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61649
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	148	lb/in	26	kg/cm
MD -		130		24		154		27	
IELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	333	lb/in	59	kg/cı
MD -		243		44		297		53	
REAK ELONGATION	D638								
CD -		560	%			742	%		
MD -		560				633			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		54		24	
JNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	91	lb	41	kg
IRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.41	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

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APPROVED #20 10-27-98 QA

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Roll Test Data Report

ROLL NO. AK-7991 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7991 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3612	pounds
	1638	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61649
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
NSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	149 lb/in	27 kg/cm
MD -		130	24	156	28
ELD ELONGATION	D638				
CD -		13 %		23 %	
MD -		13		20	
NSII REAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	311 lb/in	56 kg/cm
MD -		243	44	312	56
EAK ELONGATION	D638				
CD -		560 %		685 %	
MD -		560		673	
TIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	57 lb	26 kg
MD -		45	20	57	26
NCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	97 lb	44 kg
RINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.4 %	
MD -		+/-2.00		0.0	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.44 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.944 g/cc
:R	D1693-B	1500 hours		Start 10/16/98	
'CKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TE' OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
IMENTS

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APPROVED JG #20 10-27-98 QA

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Roll Test Data Report

ROLL NO. AK-7996 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7996 FF	
PROD DATE:	10/15/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3595	pounds
	1631	kilograms

RESIN LOT INFORMATION

LOT NUMBER	Z-61649
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	139 lb/in	25 kg/cm
MD -		130	24	144	26
IELD ELONGATION	D638				
CD -		13 %		24 %	
MD -		13		20	
ENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	288 lb/in	51 kg/c
MD -		243	44	280	50
REAK ELONGATION	D638				
CD -		560 %		647 %	
MD -		560		619	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	53 lb	24 kg
MD -		45	20	55	25
NCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	92 lb	42 kg
RINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.1 %	
MD -		+/-2.00		0.0	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.42 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.944 g/cc
CR	D1693-B	1500 hours		Start 10/16/98	
ICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 10-27-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

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Roll Test Data Report

ROLL NO. AK-7999 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7999 FF	
PROD DATE:	10/15/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3632	pounds
	1647	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61649
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	148	lb/in	26	kg/cm
MD -		130		24		149		27	
YIELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	280	lb/in	50	kg/cm
MD -		243		44		277		50	
BREAK ELONGATION	D638								
CD -		560	%			612	%		
MD -		560				595			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		54		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	89	lb	40	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.39	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
ESCR	D1693-B	1500	hours			Start 10/16/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 10-27-98 QA

USTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS

DATE SHIPPED

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ENVIRONMENTAL CORPORATION

November 17, 1998

Mr. Bill Gilley
Director
SOLID WASTE SERVICES GROUP
County of Volusia, Florida
3151 E. New York Avenue
De Land, FL 32724

RE: **TOMOKA FARMS ROAD LANDFILL**
GEO-SYNTHETIC INSTALLATION
BI-PLANNER FABRA-NET
60 MIL TEXTURED
ALTERNATE PHASE III & IV
GSE MATERIAL QC/QA CERTIFICATES
CEC JOB #98-528

Dear Mr. Gilley:

Please find attached, QA/QC Certificates from GSE Lining Technologies, Inc. for the above referenced project.

Any questions, please telephone.

Sincerely,

COMANCO ENVIRONMENTAL CORPORATION

Mark A. Topp
President

Attachments

MAT/dkw
(A:64/98-528 /Gilley-QA/QC Certificates)

CC: Lee Powell

7911 PROFESSIONAL PLACE • TAMPA, FLORIDA 33637 • (813) 988-8829 • FAX (813) 989-9779

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	November 10, 1998
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07224

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: November 10, 1998

GSE® GSE Lining Technology, Inc. TB

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

at HOUSTON, TEXAS

SHIPPERS NO. H 07224

From GSE LINING TECHNOLOGY, INC.

...eived at Houston, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which said ...ner (the word "Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all ...perty, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is GSE ... Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties. ... noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier ... to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable ...ssification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ... to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...ject to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...eby agreed and accepted for himself and his assigns.

...ternal Ref. COMANCO ENVIRONMENTAL
MARK TOPP

...nsigned to C/O VOLUSIA COUNTY SOLID WASTE
...stination DAYTONA BEACH

Date Shipped NOVEMBER [illegible], 1998

Customer P.O. # VERBAL

State FL [illegible]

...mments from M.R.

FC 01910008 CONTACT: MARK TOPP @ 8[illegible]

No. ...ckages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK7838FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,616
2	AK7969FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,691
3	AK7972FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,637
4	2000 /EACH		NET TIES	
5	11015751	225	060 FABRINET 2 SIDED 6 OZ.	568
6	11015752	225	060 FABRINET 2 SIDED 6 OZ.	574
7	11015755 •	225	060 FABRINET 2 SIDED 6 OZ.	577
[illegible]	11015758	225	060 FABRINET 2 SIDED 6 OZ.	582
[illegible]	11015760 •	246	060 FABRINET 2 SIDED 6 OZ.	604
[illegible]	11015765 •	225	060 FABRINET 2 SIDED 6 OZ.	577
11	11015768	225	060 FABRINET 2 SIDED 6 OZ.	572
12	11015769	225	060 FABRINET 2 SIDED 6 OZ.	573
13	11015770 •	225	060 FABRINET 2 SIDED 6 OZ.	572
14	11015771	225	060 FABRINET 2 SIDED 6 OZ.	575
15	11015774 75	225	060 FABRINET 2 SIDED 6 OZ.	573
16	11015776 80	225	060 FABRINET 2 SIDED 6 OZ.	582
17	11015781 85	225	060 FABRINET 2 SIDED 6 OZ.	573

Internal Ref.

Material Req. # 7399-05

Job # 055226

Shippers # 007224

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification

SIGNED

X

Truck/Container # 1997

Seal #

Square Ft.	75,045	Total Weight	18,446	VOL020001

...r Ref. 2000 NET TIES

CARRIER NAME: RUEL SMITH

CARRIER SIGNATURE: Earvin Gilden

DATE: 11/5/98

Truckers P.O. # 86

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

11/5/98

...le. ...r Shipper

...er: [signature]

...ss: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____

(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)

LAB.

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

09/08/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA501	Density (gms/cc)	0.935
Lot Number	Z-61654	Melt Index (gm/10 min) I2	0.57
Hopper Car Number	MBLX-053310		
Quantity Shipped	194,800 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080038840		
Location Shipped To ALDINE, TX			

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

BILL WALLING
GSE LINING TECHNOLOGY INC.
19103 GUNDLE ROAD
HOUSTON, TX 77073-3515

09/24/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDG601	Density (gms/cc)	0.935
Lot Number	Z-61648	Melt Index (gm/10 min) I2	0.67
Hopper Car Number	MBLX-053584		
Quantity Shipped	184,050 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080040126		
P.O. Number	Verbal		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

Fax To: (281) 230-2510 DON BOHAC
(281) 847-3885 N. IVY

GSE

Roll Test Data Report

ROLL NO. AK-7972 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7972 FF	
PROD DATE:	10/15/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3637	pounds
	1650	kilograms

RESIN LOT INFORMATION

LOT NUMBER	Z-61648
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	152 lb/in	27 kg/cm
MD -		130	24	154	28
YIELD ELONGATION	D638				
CD -		13 %		21 %	
MD -		13		24	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	277 lb/in	49 kg/cm
MD -		243	44	288	51
BREAK ELONGATION	D638				
CD -		560 %		616 %	
MD -		560		621	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	49 lb	22 kg
MD -		45	20	54	25
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	93 lb	42 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.3 %	
MD -		+/-2.00		0.3	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.36 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.944 g/cc
ESCR	D1693-B	1500 hours		Start 10/16/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.46
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 10-16-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-7838 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7838 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3616	pounds
	1640	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61654
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.570

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	139	lb/in	25	kg/cm
MD -		130		24		153		27	
YIELD ELONGATION	D638								
CD -		13	%			19	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	301	lb/in	54	kg/cm
MD -		243		44		315		56	
RUPTURE ELONGATION	D638								
CD -		560	%			805	%		
MD -		560				622			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	25	kg
MD -		45		20		55		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.4			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.53	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
ESCR	D1693-B	1500	hours			Start 10/16/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JS #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-7969 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-7969 FF	
PROD DATE:	10/16/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3691	pounds
	1674	kilograms

RESIN LOT INFORMATION			
LOT NUMBER	Z-61648		
RESIN TYPE	600 SERIES		
PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	144	lb/in	26	kg/cm
MD -		130		24		149		27	
YIELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				19			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	317	lb/in	57	kg/c
MD -		243		44		315		56	
BREAK ELONGATION	D638								
CD -		560	%			808	%		
MD -		560				889			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		56		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	93	lb	42	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.31	%		
HOMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
SCR	D1693-B	1500	hours			Start 10/16/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED DG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

COMANCO

ENVIRONMENTAL CORPORATION

COPY

November 19, 1998

Mr. Bill Gilley
Director
SOLID WASTE SERVICES GROUP
County of Volusia, Florida
3151 E. New York Avenue
De Land, FL 32724

RE: **TOMOKA FARMS ROAD LANDFILL**
GEO-SYNTHETIC INSTALLATION
BI-PLANNER FABRA-NET
60 MIL TEXTURED
ALTERNATE PHASE III & IV
GSE MATERIAL QC/QA CERTIFICATES
CEC JOB #98-528

Dear Mr. Gilley:

Please find attached, QA/QC Certificates from GSE Lining Technologies, Inc. for the above referenced project.

Any questions, please telephone.

Sincerely,

COMANCO ENVIRONMENTAL CORPORATION

Mark A. Topp
President

Attachments

MAT/dkw
(A:64/98-528 /Gilley-QA/QC Certificates)

CC: Lee Powell

7911 PROFESSIONAL PLACE • TAMPA, FLORIDA 33637 • (813) 988-8829 • FAX (813) 988-8779

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	November 13, 1998
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07280

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: November 13, 1998

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

SHIPPERS NO. H 07280

GSE® GSE Lining Technology, Inc. at HOUSTON, TEXAS

From GSE LINING TECHNOLOGY, INC.

...n, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which said ...arrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all ...erty, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is GSE ...y, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties, ...er noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier ... to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable ...arrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...amage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...ect to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...by agreed and accepted for himself and his assigns.

...ernal Ref. COMANCO ENVIRONMENTAL
MARK TOPP

...nsigned to C/O VOLUSIA COUNTY SOLID WASTE

...stination DAYTONA BEACH

Date Shipped NOVEMBER 12, 1998

Customer P.O. # VERBAL

State FL 32114

...nments from M.R.

FC 01910008 CONTACT: MARK TOPP @ 813/988-8829

No. ...kages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AKB203FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,577
2	AKB204FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,566
3	AKB227FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,631
4	AKB228FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,539
5	AKB235FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,639
[illegible]	AKB236FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,570
[illegible]	AKB241FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,610
[illegible]	AKB244FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,564
[illegible]	AKB245FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,566
10	AKB250FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,577
11	AKB258FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,571
12	AKB259FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,594

Internal Ref.

Material Req. # 7399-05

Job # D55226

Shippers # 007280

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification

SIGNED

X

Truck/Container # 2069

Seal #

Square Ft.	135,204	Total Weight	43,004	VOL020001

...er Ref.

CARRIER NAME: Intransit

CARRIER SIGNATURE: [signature] (Cason)

DATE: 11-12-98

Truckers P.O. # 86117750

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

11/12/98

...Here For Shipper

...er: [signature]

...ss: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____

(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)

GSE

Roll Test Data Report

ROLL NO. AK-8203 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8203 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3577	pounds
	1623	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	149 lb/in	27 kg/cm
MD -		130	24	151	27
YIELD ELONGATION	D638				
CD -		13 %		23 %	
MD -		13		21	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	289 lb/in	52 kg
MD -		243	44	293	52
BREAK ELONGATION	D638				
CD -		560 %		621 %	
MD -		560		629	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	58 lb	26 kg
MD -		45	20	54	25
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	102 lb	46 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.1 %	
MD -		+/-2.00		0.6	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.46 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.943 g/cc
ESCR	D1693-B	1500 hours	Start 10/23/98		
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.47
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS _____

DATE SHIPPED _____

20002115

GSE

Roll Test Data Report

ROLL NO. AK-8204 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8204 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3566	pounds
	1618	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	158	lb/in	28	kg/cm
MD -		130		24		157		28	
YIELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	309	lb/in	55	kg/cm
MD -		243		44		311		56	
BREAK ELONGATION	D638								
CD -		560	%			663	%		
MD -		560				659			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		61		28	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	96	lb	43	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.5			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.46	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.46	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

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20082115

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Roll Test Data Report

ROLL NO. AK-8227 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8227 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3631	pounds
	1647	kilograms

RESIN LOT INFORMATION			
LOT NUMBER	Z-61669		
RESIN TYPE	600 SERIES		
PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	148	lb/in	26	kg/cm
MD -		130		24		147		26	
YIELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	311	lb/in	55	kg
MD -		243		44		321		57	
BREAK ELONGATION	D638								
CD -		560	%			699	%		
MD -		560				714			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	51	lb	23	kg
MD -		45		20		54		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	93	lb	42	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.6			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.35	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours	Start 10/23/98					
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 QA

CUSTOMER: VOLUSIA COUNTY WASTE
PO NO. 7399
COMMENTS

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Roll Test Data Report

ROLL NO. AK-8228 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8228 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3539	pounds
	1605	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
NSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	164 lb/in	29 kg/cm
MD -		130	24	152	27
ELD ELONGATION	D638				
CD -		13 %		23 %	
MD -		13		19	
NSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	321 lb/in	57 kg/cm
MD -		243	44	291	52
EA.. ELONGATION	D638				
CD -		560 %		679 %	
MD -		560		635	
TIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	57 lb	26 kg
MD -		45	20	56	26
VCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	102 lb	46 kg
UNKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.1 %	
MD -		+/-2.00		0.8	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.35 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.942 g/cc
R	D1693-B	1500 hours		Start 10/23/98	
CKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS

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Roll Test Data Report

ROLL NO. AK-8235 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8235 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3639	pounds
	1651	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	151	lb/in	27	kg/cm
MD -		130		24		144		26	
YIELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	321	lb/in	57	kg/
MD -		243		44		302		54	
BREAK ELONGATION	D638								
CD -		560	%			711	%		
MD -		560				672			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	24	kg
MD -		45		20		54		24	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	103	lb	47	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.3			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.32	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

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APPROVED JG #20 11-6-98 QA

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8236 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8236 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3570	pounds
	1619	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	162 lb/in	29 kg/cm
MD -		130	24	155	28
ELD ELONGATION	D638				
CD -		13 %		24 %	
MD -		13		24	
ENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	327 lb/in	58 kg/cm
MD -		243	44	342	61
EAR ELONGATION	D638				
CD -		560 %		687 %	
MD -		560		729	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	50 lb	23 kg
MD -		45	20	55	25
NCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	98 lb	44 kg
RINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.1 %	
MD -		+/-2.00		0.3	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.31 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.941 g/cc
CR	D1693-B	1500 hours		Start 10/23/98	
ICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

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GSE

Roll Test Data Report

ROLL NO. AK-8241 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8241 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3610	pounds
	1637	kilograms

RESIN LOT INFORMATION			
LOT NUMBER	Z-61670		
RESIN TYPE	600 SERIES		
PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	157	lb/in	28	kg/cm
MD -		130		24		148		26	
IELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				20			
EN'SILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	338	lb/in	60	kg
MD -		243		44		320		57	
REAK ELONGATION	D638								
CD -		560	%			714	%		
MD -		560				682			
VITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	58	lb	26	kg
MD -		45		20		56		25	
JNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
IRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
\RBON BLACK DISPERSION	D3015	A2				A2			
\RBON BLACK CONTENT	D1603	2.00	%			2.33	%		
:OMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
:CR	D1693-B	1500	hours			Start 10/23/98			
IICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-6-98 QA

'STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

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Roll Test Data Report

ROLL NO. AK-8244 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8244 FF	
PROD DATE:	11/04/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3564	pounds
	1617	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	144	lb/in	26	kg/cm
MD -		130		24		146		26	
YIELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	299	lb/in	53	kg/cm
MD -		243		44		295		53	
BR. . ELONGATION	D638								
CD -		560	%			656	%		
MD -		560				629			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		55		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	97	lb	44	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.4	%		
MD -		+/-2.00				0.3			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.45	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED YG #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

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20002116

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Roll Test Data Report

ROLL NO. AK-8245 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8245 FF	
PROD DATE:	11/04/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3566	pounds
	1618	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	148	lb/in	26	kg/cm
MD -		130		24		148		26	
IELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	314	lb/in	56	kg/c
MD -		243		44		336		60	
REAK ELONGATION	D638								
CD -		560	%			684	%		
MD -		560				708			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	25	kg
MD -		45		20		57		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	102	lb	46	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.49	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
: NO. 7399
MMENTS

DATE SHIPPED

20083116

GSE

Roll Test Data Report

ROLL NO. AK-8250 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8250 FF	
PROD DATE:	11/04/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3577	pounds
	1623	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	146 lb/in	26 kg/cm
MD -		130	24	145	26
IELD ELONGATION	D638				
CD -		13 %		23 %	
MD -		13		20	
ENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	297 lb/in	53 kg/cm
MD -		243	44	314	56
RE ELONGATION	D638				
CD -		560 %		653 %	
MD -		560		690	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	55 lb	25 kg
MD -		45	20	54	25
NCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	94 lb	43 kg
RINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.1	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.43 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.942 g/cc
CR	D1693-B	1500 hours		Start 10/23/98	
ICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8258 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8258 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3571	pounds
	1620	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	142	lb/in	25	kg/cm
MD -		130		24		147		26	
IELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	247	lb/in	44	kg/c
MD -		243		44		316		56	
REAK ELONGATION	D638								
CD -		560	%			560	%		
MD -		560				678			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		52		24	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	99	lb	45	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.4	%		
MD -		+/-2.00				0.1			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.17	%		
EOMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
SCR	D1693-B	1500	hours			Start 10/23/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8259 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8259 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3594	pounds
	1630	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	147	lb/in	26	kg/cm
MD -		130		24		148		26	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	294	lb/in	52	kg/cm
MD -		243		44		287		51	
E. LONGATION	D638								
CD -		560	%			634	%		
MD -		560				611			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	24	kg
MD -		45		20		56		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.4	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.14	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
ER	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
AMENTS 20082115

DATE SHIPPED

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61669	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053734		
Quantity Shipped	195,800 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040806		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.932
Lot Number	Z-61670	Melt Index (gm/10 min) I2	0.60
Hopper Car Number	MBLX-053481		
Quantity Shipped	198,100 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040807		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	November 13, 1998
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07277

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: November 13, 1998

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

SHIPPERS NO. H 07277

GSE Lining Technology, Inc. at HOUSTON, TEXAS

From GSE LINING TECHNOLOGY, INC.

...ved at H...ston, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which said ... "Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all ...rty, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is GSE ... Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties. ...r noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier ... all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable an... ...ssification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...amage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...ect to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...by agreed and accepted for himself and his assigns.

...ernal Ref. COMANCO ENVIRONMENTAL
MARK TOPP

...signed to C/O VOLUSIA COUNTY SOLID WASTE

...tination DAYTONA BEACH

Date Shipped NOVEMBER 11, 1998

Customer P.O. # VERBAL

State FL 32114

...nments from M.R.

PC 01910003 CONTACT: MARK TOPP @ 813/988-6829

...No. ...kages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,549
2	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,625
3	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,534
4	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,635
5	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,542
6	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,623
7	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,569
8	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,576
9	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,514
10	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,557
11	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,592
12	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,596

Internal Ref.

Material Req. # 7599-05

Job # 055226

Shippers # 007277

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification SIGNED

X

Truck/Container #

Seal #

...Square Ft.	135,204	Total Weight	42,912	VOL.020001

...r Ref.

CARRIER NAME: TRAVIS BRIDGE

CARRIER SIGNATURE:

DATE: 11-11-98

Truckers P.O. # 86117750

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

...here for Shipper

...er: _____

...ss: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____

(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)

LAB.

GSE

Roll Test Data Report

ROLL NO. AK-8200 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8200 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3549	pounds
	1610	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	152	lb/in	27	kg/cm
MD -		130		24		156		28	
IELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				23			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	282	lb/in	50	kg/
MD -		243		44		290		52	
REAK ELONGATION	D638								
CD -		560	%			593	%		
MD -		560				612			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	24	kg
MD -		45		20		54		24	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	99	lb	45	kg
IRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.8			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.40	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8201 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8201 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3625	pounds
	1644	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	157	lb/in	28	kg/cm
MD -		130		24		162		29	
ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				20			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	302	lb/in	54	kg/cm
MD -		243		44		314		56	
EAn ELONGATION	D638								
CD -		560	%			672	%		
MD -		560				664			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		58		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.8			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.46	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8208 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8208 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3534	pounds
	1603	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	153	lb/in	27	kg/cm
MD -		130		24		156		28	
IELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				20			
EN'ILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	333	lb/in	59	kg/
MD -		243		44		317		57	
REAK ELONGATION	D638								
CD -		560	%			720	%		
MD -		560				664			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		57		26	
JNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	102	lb	46	kg
IRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.3			
.RBON BLACK DISPERSION	D3015	A2				A2			
.RBON BLACK CONTENT	D1603	2.00	%			2.43	%		
:OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
:CR	D1693-B	1500	hours			Start 10/23/98			
IICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-6-98 QA

'STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
'MMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8209 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8209 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3635	pounds
	1649	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	161	lb/in	29	kg/cm
MD -		130		24		161		29	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				20			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	298	lb/in	53	kg/cm
MD -		243		44		318		57	
REAK ELONGATION	D638								
CD -		560	%			618	%		
MD -		560				650			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		56		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	106	lb	48	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.3			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.42	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8212 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8212 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3542	pounds
	1607	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	151	lb/in	27	kg/cm
MD -		130		24		155		28	
YIELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	293	lb/in	52	kg
MD -		243		44		317		57	
BREAK ELONGATION	D638								
CD -		560	%			630	%		
MD -		560				680			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	24	kg
MD -		45		20		58		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	103	lb	47	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.32	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VS #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
PO NO. 7399
COMMENTS

DATE SHIPPED

20062115

GSE

Roll Test Data Report

ROLL NO. AK-8215 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8215 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3623	pounds
	1643	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	158 lb/in	28 kg/cm
MD -		130	24	160	29
IELD ELONGATION	D638				
CD -		13 %		23 %	
MD -		13		19	
ENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	303 lb/in	54 kg/cm
MD -		243	44	344	61
RE ELONGATION	D638				
CD -		560 %		628 %	
MD -		560		709	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	55 lb	25 kg
MD -		45	20	57	26
JNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	104 lb	47 kg
IRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.2	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.19 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.942 g/cc
CR	D1693-B	1500 hours		Start 10/23/98	
ICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JS #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS _____

DATE SHIPPED _____

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8218 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8218 FF	
PROD DATE:	11/04/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3569	pounds
	1619	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	149 lb/in	27 kg/cm
MD -		130	24	150	27
YIELD ELONGATION	D638				
CD -		13 %		21 %	
MD -		13		21	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	307 lb/in	55 kg/
MD -		243	44	310	55
BREAK ELONGATION	D638				
CD -		560 %		672 %	
MD -		560		670	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	52 lb	24 kg
MD -		45	20	56	25
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	96 lb	44 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.2	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.30 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.942 g/cc
ESCR	D1693-B	1500 hours		Start 10/23/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JS #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
)MMENTS

DATE SHIPPED

20082116

GSE

Roll Test Data Report

ROLL NO. AK-8219 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8219 FF	
PROD DATE:	11/04/98	
SHEET AREA:	11267	sq.ft..
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3576	pounds
	1622	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		149		27	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	296	lb/in	53	kg/cm
MD -		243		44		328		59	
RE. ELONGATION	D638								
CD -		560	%			651	%		
MD -		560				708			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		57		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	101	lb	46	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.33	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS 20082116

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8220 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8220 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3514	pounds
	1594	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	170	lb/in	30	kg/cm
MD -		130		24		183		33	
YIELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				23			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	327	lb/in	58	kg
MD -		243		44		312		56	
BREAK ELONGATION	D638								
CD -		560	%			672	%		
MD -		560				669			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		55		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.4			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.37	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

USTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8246 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8246 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3557	pounds
	1613	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	147	lb/in	26	kg/cm
MD -		130		24		149		27	
IELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	286	lb/in	51	kg/cm
MD -		243		44		314		56	
REAK ELONGATION	D638								
CD -		560	%			616	%		
MD -		560				656			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		58		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	108	lb	49	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.43	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8247 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8247 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3592	pounds
	1629	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	145	lb/in	26	kg/cm
MD -		130		24		147		26	
YIELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	311	lb/in	55	kg/
MD -		243		44		325		58	
BREAK ELONGATION	D638								
CD -		560	%			671	%		
MD -		560				690			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		57		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.43	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98

USTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS 20052115

DATE SHIPPED

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Roll Test Data Report

ROLL NO. AK-8251 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8251 FF	
PROD DATE:	11/04/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3596	pounds
	1631	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	153 lb/in	27 kg/cm
MD -		130	24	151	27
YIELD ELONGATION	D638				
CD -		13 %		23 %	
MD -		13		20	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	267 lb/in	48 kg/cm
MD -		243	44	322	57
RE. ELONGATION	D638				
CD -		560 %		582 %	
MD -		560		679	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	56 lb	25 kg
MD -		45	20	56	25
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	99 lb	45 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/- 2.00 %		0.2 %	
MD -		+/- 2.00		0.1	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.45 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.942 g/cc
ESCR	D1693-B	1500 hours		Start 10/23/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61669	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053734		
Quantity Shipped	195,800 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040806		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.932
Lot Number	Z-61670	Melt Index (gm/10 min) I2	0.60
Hopper Car Number	MBLX-053481		
Quantity Shipped	198,100 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040807		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	November 13, 1998
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07281

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: November 13, 1998

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

SHIPPERS NO. H 07281

GSE® GSE Lining Technology, Inc. at HOUSTON, TEXAS

From GSE LINING TECHNOLOGY, INC.

...on, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which said ...Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all ...perty, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is GSE ...y, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties, ...er noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier ... to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable ...arrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...amage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...ject to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...eby agreed and accepted for himself and his assigns.

...ternal Ref. COMANCO ENVIRONMENTAL
MARK TOPP

...nsigned to C/O VOLUSIA COUNTY SOLID WASTE

...stination DAYTONA BEACH

Date Shipped NOVEMBER 12, 1998

Customer P.O. # VERBAL

State FL 32114

...mments from M.R.

FC 01910006 CONTACT: MARK TOPP @ 813/988-8829

No. ...ckages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,616
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,614
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,567
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,543
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,634
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,621
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,535
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,633
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,526
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,620
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,547
[illegible]	[illegible]	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,640

Internal Ref.

Material Req. # [illegible]

Job # DS5226

Shippers # 007281

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification SIGNED X

Truck/Container # 2068

Seal #

...l Square Ft. 135,204

Total Weight 43,096

VDL020001

...rier Ref.

CARRIER NAME: TRAVIS budge

CARRIER SIGNATURE: Daniel G Eaton

DATE: 11-12-98

Truckers P.O. # 86117750

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

Here For Shipper

...per: [signature] 11/12/98

...ress: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____

(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)

GSE

Roll Test Data Report

ROLL NO. AK-8199 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8199 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3616	pounds
	1640	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	164 lb/in	29 kg/cm
MD -		130	24	159	28
IELD ELONGATION	D638				
CD -		13 %		21 %	
MD -		13		22	
E[illegible]LE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	320 lb/in	57 kg/
MD -		243	44	321	57
REAK ELONGATION	D638				
CD -		560 %		683 %	
MD -		560		688	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	56 lb	25 kg
MD -		45	20	56	25
NCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	96 lb	43 kg
RINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.2	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.40 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.943 g/cc
CR	D1693-B	1500 hours		Start 10/23/98	
ICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8221 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8221 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3614	pounds
	1639	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	153	lb/in	27	kg/cm
MD -		130		24		156		28	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	300	lb/in	54	kg/cm
MD -		243		44		293		52	
EAK ELONGATION	D638								
CD -		560	%			647	%		
MD -		560				618			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		56		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	97	lb	44	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.4			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.37	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8222 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8222 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3567	pounds
	1618	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	168	lb/in	30	kg/cm
MD -		130		24		169		30	
'ELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				22			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	308	lb/in	55	kg/c
MD -		243		44		301		54	
REAK ELONGATION	D638								
CD -		560	%			655	%		
MD -		560				616			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		55		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	94	lb	42	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			1.0	%		
MD -		+/-2.00				0.4			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.37	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS
20082115

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8224 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8224 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3543	pounds
	1607	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	160	lb/in	29	kg/cm
MD -		130		24		163		29	
IELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				21			
F[illegible] BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	311	lb/in	55	kg/cm
MD -		243		44		339		61	
REAn ELONGATION	D638								
CD -		560	%			673	%		
MD -		560				709			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	26	kg
MD -		45		20		54		24	
JNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	101	lb	46	kg
IRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.2			
LRBON BLACK DISPERSION	D3015	A2				A2			
LRBON BLACK CONTENT	D1603	2.00	%			2.37	%		
COMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
IICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS 20082115

DATE SHIPPED

APPROVED VS #20 11-6-98 QA

GSE

Roll Test Data Report

ROLL NO. AK-8225 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8225 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3634	pounds
	1648	kilograms

RESIN LOT INFORMATION			
LOT NUMBER	Z-61669		
RESIN TYPE	600 SERIES		
PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	154	lb/in	28	kg/cm
MD -		130		24		154		27	
YIELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	333	lb/in	59	kg
MD -		243		44		340		61	
BREAK ELONGATION	D638								
CD -		560	%			732	%		
MD -		560				728			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	25	kg
MD -		45		20		58		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.37	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

USTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8229 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8229 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3621	pounds
	1642	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	157	lb/in	28	kg/cm
MD -		130		24		146		26	
YIELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	317	lb/in	57	kg/cm
MD -		243		44		317		57	
TENSILE ELONGATION	D638								
CD -		560	%			670	%		
MD -		560				699			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		52		24	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.8			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.34	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
PO NO. 7399
COMMENTS _____

DATE SHIPPED _____

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8230 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8230 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3535	pounds
	1603	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	156	lb/in	28	kg/cm
MD -		130		24		151		27	
YIELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	317	lb/in	57	kg
MD -		243		44		276		49	
BREAK ELONGATION	D638								
CD -		560	%			666	%		
MD -		560				581			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	59	lb	27	kg
MD -		45		20		56		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.33	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

DATE SHIPPED

20062115

GSE

Roll Test Data Report

ROLL NO. AK-8231 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8231 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3633	pounds
	1648	kilograms

RESIN LOT INFORMATION

LOT NUMBER	Z-61669
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		142		25	
YIELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				19			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	305	lb/in	54	kg/cm
MD -		243		44		327		58	
BREAK ELONGATION	D638								
CD -		560	%			676	%		
MD -		560				741			
TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		54		24	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	102	lb	46	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.33	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE

3 NO. 7399

MMENTS

20082115

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8234 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8234 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3526	pounds
	1599	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	158	lb/in	28	kg/cm
MD -		130		24		147		26	
YIELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	316	lb/in	56	kg
MD -		243		44		273		49	
BREAK ELONGATION	D638								
CD -		560	%			671	%		
MD -		560				605			
VITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	59	lb	27	kg
MD -		45		20		56		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	99	lb	45	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.3			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.32	%		
COMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8237 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8237 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3620	pounds
	1642	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	162	lb/in	29	kg/cm
MD -		130		24		157		28	
ELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				24			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	318	lb/in	57	kg/cm
MD -		243		44		336		60	
EAK ELONGATION	D638								
CD -		560	%			673	%		
MD -		560				710			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		51		23	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	103	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.3			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.31	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
AMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8264 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8264 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3547	pounds
	1609	kilograms

RESIN LOT INFORMATION			
LOT NUMBER	Z-61670		
RESIN TYPE	600 SERIES		
PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	158	lb/in	28	kg/cm
MD -		130		24		155		28	
YIELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				22			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	307	lb/in	55	kg
MD -		243		44		306		55	
BREAK ELONGATION	D638								
CD -		560	%			658	%		
MD -		560				639			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		51		23	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	105	lb	48	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.30	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		57		1.44	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8265 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8265 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3640	pounds
	1651	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	151 lb/in	27 kg/cm
MD -		130	24	185	33
IELD ELONGATION	D638				
CD -		13 %		24 %	
MD -		13		20	
ENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	317 lb/in	57 kg/cm
MD -		243	44	345	62
REAK ELONGATION	D638				
CD -		560 %		726 %	
MD -		560		715	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	55 lb	25 kg
MD -		45	20	57	26
NCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	100 lb	45 kg
RINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.3 %	
MD -		+/-2.00		0.3	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.35 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.941 g/cc
CR	D1693-B	1500 hours		Start 10/23/98	
ICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	57	1.44
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

30082115

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61669	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053734		
Quantity Shipped	195,800 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040806		
Location Shipped To ALDINE, TX			

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.932
Lot Number	Z-61670	Melt Index (gm/10 min) I2	0.60
Hopper Car Number	MBLX-053481		
Quantity Shipped	198,100 LB		
Data Manufactured	08/30/1998		
Delivery Note	0080040807		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	November 13, 1998
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07285

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: November 13, 1998

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

GSE® GSE Lining Technology, Inc. at HOUSTON, TEXAS

SHIPPERS NO. H 07285

From GSE LINING TECHNOLOGY, INC.

...n, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which said ...Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all ...erty, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to all the terms and conditions contained in the Contract for Truck Transportation existing between the parties. ...y, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties. ...er noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier ...to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable ...amer classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...amage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...ject to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...by agreed and accepted for himself and his assigns.

...ernal Ref. COMANCO ENVIRONMENTAL. MARK TOPP

...nsigned to C/O VOLUSIA COUNTY SOLID WASTE

...stination DAYTONA BEACH

Date Shipped NOVEMBER 12, 1998

Customer P.O. # VERBAL

State FL 32114

...mments from M.R.

FC 01910008 CONTACT: MARK TOPP @ 813/986-8829

...No. ...ckages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK8202FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,563
2	AK8205FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,599
3	AK8207FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,626
4	AK8217FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,609
5	AK8221FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,634
6	AK8[illegible]8FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,548
7	AK8259FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,605
8	AK8232FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,560
9	AK8235FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,605
10	AK8256FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,548
11	AK8264FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,764
12	AK8267FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,578

Internal Ref.

Material Req. # ZS29-05

Job # DS5226

Shippers # 007285

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification SIGNED X

Truck/Container # 2070

Seal #

...l Square Ft.	135,204	Total Weight	43,259	VOL029001

...ier Ref.

CARRIER NAME: MERCER TRANSPORTATION / 3-T

CARRIER SIGNATURE: [signature]

DATE: 11/12/98

Truckers P.O. # 86127170

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

...Here For Shipper

per: [signature] 11/12/98

...ress: 19103 GUNDLE ROAD HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____

(GSE LINING TECHNOLOGY, INC. APPROVED AGENT FOR SHIPPER)

GSE

Roll Test Data Report

ROLL NO. AK-8202 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8202 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3563	pounds
	1616	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	162	lb/in	29	kg/cm
MD -		130		24		166		30	
YIELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	316	lb/in	56	kg
MD -		243		44		330		59	
BREAK ELONGATION	D638								
CD -		560	%			675	%		
MD -		560				698			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		58		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	101	lb	46	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.1			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.46	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

USTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8205 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8205 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3599	pounds
	1632	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	144	lb/in	26	kg/cm
MD -		130		24		146		26	
YIELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
[illegible] BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	282	lb/in	50	kg/cm
MD -		243		44		305		55	
BREAK ELONGATION	D638								
CD -		560	%			636	%		
MD -		560				662			
TITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		54		25	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	102	lb	46	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.5			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.46	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.46	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
P.O. NO. 7399
COMMENTS

DATE SHIPPED

30082115

GSE

Roll Test Data Report

ROLL NO. AK-8207 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8207 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3626	pounds
	1645	kilograms

RESIN LOT INFORMATION			
LOT NUMBER	Z-61669		
RESIN TYPE	600 SERIES		
PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	163	lb/in	29	kg/cm
MD -		130		24		163		29	
YIELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	314	lb/in	56	kg
MD -		243		44		321		57	
BREAK ELONGATION	D638								
CD -		560	%			671	%		
MD -		560				652			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	49	lb	22	kg
MD -		45		20		51		23	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.7			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.44	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS _____

DATE SHIPPED _____

20062115

GSE

Roll Test Data Report

ROLL NO. AK-8217 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8217 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3609	pounds
	1637	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	162	lb/in	29	kg/cm
MD -		130		24		157		28	
IELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	327	lb/in	58	kg/cm
MD -		243		44		304		54	
REAK ELONGATION	D638								
CD -		560	%			684	%		
MD -		560				652			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		55		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	102	lb	46	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.4	%		
MD -		+/-2.00				0.4			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.26	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.50	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

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Roll Test Data Report

ROLL NO. AK-8223 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8223 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3634	pounds
	1648	kilograms

RESIN LOT INFORMATION			
LOT NUMBER	Z-61669		
RESIN TYPE	600 SERIES		
PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	163	lb/in	29	kg/cm
MD -		130		24		161		29	
YIELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	300	lb/in	54	kg/
MD -		243		44		318		57	
BREAK ELONGATION	D638								
CD -		560	%			656	%		
MD -		560				670			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	58	lb	27	kg
MD -		45		20		56		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	95	lb	43	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			1.0	%		
MD -		+/-2.00				0.4			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.37	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
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Roll Test Data Report

ROLL NO. AK-8238 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8238 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3548	pounds
	1609	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	148 lb/in	26 kg/cm
MD -		130	24	141	25
YIELD ELONGATION	D638				
CD -		13 %		22 %	
MD -		13		22	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	311 lb/in	56 kg/cm
MD -		243	44	326	58
BREAK ELONGATION	D638				
CD -		560 %		694 %	
MD -		560		743	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	56 lb	25 kg
MD -		45	20	54	25
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	100 lb	45 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.1	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.30 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.941 g/cc
ESCR	D1693-B	1500 hours		Start 10/23/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
SHIP NO. 7399
COMMENTS _____

DATE SHIPPED _____

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Roll Test Data Report

ROLL NO. AK-8239 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8239 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3605	pounds
	1635	kilograms

RESIN LOT INFORMATION	
LOT NUMBER	Z-61670
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	159	lb/in	28	kg/cm
MD -		130		24		153		27	
YIELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	336	lb/in	60	kg
MD -		243		44		313		56	
BREAK ELONGATION	D638								
CD -		560	%			713	%		
MD -		560				660			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	58	lb	26	kg
MD -		45		20		56		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	108	lb	49	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/- 2.00	%			0.2	%		
MD -		+/- 2.00				0.1			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.30	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

DATE SHIPPED

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Roll Test Data Report

ROLL NO. AK-8252 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8252 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3560	pounds
	1615	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	158	lb/in	28	kg/cm
MD -		130		24		159		28	
YIELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	311	lb/in	55	kg/cm
MD -		243		44		292		52	
BR. ELONGATION	D638								
CD -		560	%			663	%		
MD -		560				614			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		60		27	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.4			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.45	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.50	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

DATE SHIPPED

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Roll Test Data Report

ROLL NO. AK-8253 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8253 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3605	pounds
	1635	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	156	lb/in	28	kg/cm
MD -		130		24		157		28	
YIELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				22			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	307	lb/in	55	kg
MD -		243		44		342		61	
BREAK ELONGATION	D638								
CD -		560	%			658	%		
MD -		560				705			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	58	lb	26	kg
MD -		45		20		57		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	98	lb	44	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.4			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.44	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.50	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

USTOMER: VOLUSIA COUNTY WASTE
)B NO. 7399
OMMENTS

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Roll Test Data Report

ROLL NO. AK-8256 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8256 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3548	pounds
	1609	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		145		26	
YIELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	306	lb/in	55	kg/cm
MD -		243		44		286		51	
RE... ELONGATION	D638								
CD -		560	%			689	%		
MD -		560				637			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		54		24	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	96	lb	43	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.24	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VS #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

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Roll Test Data Report

ROLL NO. AK-8266 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8266 FF	
PROD DATE:	10/30/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3764	pounds
	1707	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	154	lb/in	28	kg/cm
MD -		130		24		156		28	
YIELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	303	lb/in	54	kg/
MD -		243		44		309		55	
BREAK ELONGATION	D638								
CD -		560	%			680	%		
MD -		560				671			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		57		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	101	lb	46	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.36	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
ESCR	D1693-B	1500	hours			Start 10/30/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		57		1.44	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
PO NO. 7399
COMMENTS 20082115

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8267 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8267 FF	
PROD DATE:	10/30/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3578	pounds
	1623	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	151	lb/in	27	kg/cm
MD -		130		24		155		28	
YIELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				22			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	315	lb/in	56	kg/cm
MD -		243		44		326		58	
ELONGATION	D638								
CD -		560	%			708	%		
MD -		560				705			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		55		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.37	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
ESCR	D1693-B	1500	hours			Start 10/30/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		57		1.44	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
P.O. NO. 7399
COMMENTS

DATE SHIPPED

20082115

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61669	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053734		
Quantity Shipped	195,800 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040806		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.932
Lot Number	Z-61670	Melt Index (gm/10 min) I2	0.60
Hopper Car Number	MBLX-053481		
Quantity Shipped	198,100 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040807		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	November 13, 1998
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07273

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: November 13, 1998

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

SHIPPERS NO. H 07273

GSE® GSE Lining Technology, Inc. at HOUSTON, TEXAS

From GSE LINING TECHNOLOGY, INC.

Received at Houston, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which said "Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all property, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is GSE Lining, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties; or (b) if the Shipper noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier is subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss or damage to containers, or any other consequences occurring during transportation. Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

Subject to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are hereby agreed and accepted for himself and his assigns.

External Ref. COMANCO ENVIRONMENTAL
MARK TOPP

Consigned to C/O VOLUSIA COUNTY SOLID WASTE

Destination DAYTONA BEACH

Date Shipped NOVEMBER 11, 1998

Customer P.O. # VERBAL

State FL 32114

Comments from M.R.

PC 01910008 CONTACT: MARK TOPP @ 813/988-8829

No. Packages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AKB210EE	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,534
2	AKB213ER	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,632
3	AKB214EE	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,541
4	AKB226EE	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,527
5	AKB250EE	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,544
6	AKB253EE	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,620
7	AKB254EE	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,588
8	AKB255EE	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,616
9	AKB260EE	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,590
10	AKB261EE	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,587
11	AKB262EE	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,568
12	AKB263EE	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,594

Internal Ref.

Material Req. # 7399-05

Job # DS5226

Shippers # 007273

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification SIGNED X

Truck/Container # 2064

Seal #

Total Square Ft.	135,204	Total Weight	42,941	VOL020001

Carrier Ref.

CARRIER NAME: MERCER TRANSPORTATION - TEAM

CARRIER SIGNATURE:

DATE: 11/11/98

Truckers P.O. # 86174270

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

Sign Here For Shipper

Shipper: _____

Address: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____

(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)

LAB.

GSE

Roll Test Data Report

ROLL NO. AK-8210 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8210 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3534	pounds
	1603	kilograms

RESIN LOT INFORMATION

LOT NUMBER	Z-61669
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	155 lb/in	28 kg/cm
MD -		130	24	158	28
YIELD ELONGATION	D638				
CD -		13 %		20 %	
MD -		13		19	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	291 lb/in	52 kg/
MD -		243	44	336	60
BREAK ELONGATION	D638				
CD -		560 %		615 %	
MD -		560		679	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	58 lb	26 kg
MD -		45	20	55	25
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	106 lb	48 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.4 %	
MD -		+/-2.00		0.6	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.41 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.943 g/cc
ESCR	D1693-B	1500 hours		Start 10/23/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

USTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS

DATE SHIPPED

30082115

GSE

Roll Test Data Report

ROLL NO. AK-8213 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8213 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3632	pounds
	1647	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	177	lb/in	32	kg/cm
MD -		130		24		171		30	
YIELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				19			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	332	lb/in	59	kg/cm
MD -		243		44		334		60	
BR. ELONGATION	D638								
CD -		560	%			684	%		
MD -		560				693			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		57		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	103	lb	47	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.28	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
P.O. NO. 7399
COMMENTS _____

DATE SHIPPED _____

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8214 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8214 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3541	pounds
	1606	kilograms

RESIN LOT INFORMATION			
LOT NUMBER	Z-61669		
RESIN TYPE	600 SERIES		
PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	157	lb/in	28	kg/cm
MD -		130		24		158		28	
YIELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	320	lb/in	57	kg/
MD -		243		44		328		59	
BREAK ELONGATION	D638								
CD -		560	%			665	%		
MD -		560				669			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		57		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.23	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE

P.O. NO. 7399

COMMENTS _____

DATE SHIPPED _____

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8226 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8226 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3527	pounds
	1600	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	158	lb/in	28	kg/cm
MD -		130		24		155		28	
IELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	273	lb/in	49	kg/cm
MD -		243		44		318		57	
RL ELONGATION	D638								
CD -		560	%			600	%		
MD -		560				685			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		54		25	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	103	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.6			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.36	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8232 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8232 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3544	pounds
	1608	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	151 lb/in	27 kg/cm
MD -		130	24	145	26
YIELD ELONGATION	D638				
CD -		13 %		24 %	
MD -		13		22	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	308 lb/in	55 kg/cm
MD -		243	44	290	52
BREAK ELONGATION	D638				
CD -		560 %		670 %	
MD -		560		614	
VITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	54 lb	24 kg
MD -		45	20	57	26
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	100 lb	45 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.6	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.33 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.941 g/cc
ESCR	D1693-B	1500 hours		Start 10/23/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 10-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-8233 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8233 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3620	pounds
	1642	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	153 lb/in	27 kg/cm
MD -		130	24	156	28
IELD ELONGATION	D638				
CD -		13 %		24 %	
MD -		13		20	
ENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	316 lb/in	56 kg/cm
MD -		243	44	327	58
R ELONGATION	D638				
CD -		560 %		687 %	
MD -		560		692	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	51 lb	23 kg
MD -		45	20	53	24
UNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	103 lb	47 kg
HRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.6	
ARBON BLACK DISPERSION	D3015	A2		A2	
ARBON BLACK CONTENT	D1603	2.00 %		2.32 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.941 g/cc
CR	D1693-B	1500 hours		Start 10/23/98	
IICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

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Roll Test Data Report

ROLL NO. AK-8254 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8254 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3588	pounds
	1628	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	159 lb/in	28 kg/cm
MD -		130	24	157	28
YIELD ELONGATION	D638				
CD -		13 %		22 %	
MD -		13		21	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	286 lb/in	51 kg/
MD -		243	44	299	53
BREAK ELONGATION	D638				
CD -		560 %		624 %	
MD -		560		629	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	54 lb	25 kg
MD -		45	20	54	24
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	93 lb	42 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.3 %	
MD -		+/-2.00		0.2	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.44 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.942 g/cc
ESCR	D1693-B	1500 hours		Start 10/23/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JS #20 11-6-98 QA

JSTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
)MMENTS

DATE SHIPPED

30082115

GSE

Roll Test Data Report

ROLL NO. AK-8255 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8255 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3616	pounds
	1640	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	153 lb/in	27 kg/cm
MD -		130	24	152	27
YIELD ELONGATION	D638				
CD -		13 %		24 %	
MD -		13		21	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	297 lb/in	53 kg/cm
MD -		243	44	313	56
RUPTURE ELONGATION	D638				
CD -		560 %		647 %	
MD -		560		666	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	56 lb	25 kg
MD -		45	20	58	27
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	105 lb	47 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.3 %	
MD -		+/-2.00		0.2	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.43 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.942 g/cc
ESCR	D1693-B	1500 hours		Start 10/23/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

DATE SHIPPED

20082115

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Roll Test Data Report

ROLL NO. AK-8260 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8260 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3590	pounds
	1628	kilograms

RESIN LOT INFORMATION			
LOT NUMBER	Z-61670		
RESIN TYPE	600 SERIES		
PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	160	lb/in	29	kg/cm
MD -		130		24		158		28	
YIELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	272	lb/in	49	kg/
MD -		243		44		323		58	
BREAK ELONGATION	D638								
CD -		560	%			583	%		
MD -		560				671			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		58		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	106	lb	48	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.11	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.940	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE

P.O. NO. 7399

COMMENTS _____

20082115

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Roll Test Data Report

ROLL NO. AK-8261 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8261 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3587	pounds
	1627	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	155 lb/in	28 kg/cm
MD -		130	24	157	28
YIELD ELONGATION	D638				
CD -		13 %		21 %	
MD -		13		21	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	302 lb/in	54 kg/cm
MD -		243	44	292	52
BREAK ELONGATION	D638				
CD -		560 %		643 %	
MD -		560		610	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	54 lb	25 kg
MD -		45	20	54	25
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	92 lb	42 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.2	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.16 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.941 g/cc
ESCR	D1693-B	1500 hours		Start 10/23/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

DATE SHIPPED

20032115

GSE

Roll Test Data Report

ROLL NO. AK-8262 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8262 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3568	pounds
	1618	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	146 lb/in	26 kg/cm
MD -		130	24	149	27
YIELD ELONGATION	D638				
CD -		13 %		22 %	
MD -		13		21	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	293 lb/in	52 kg/-
MD -		243	44	310	55
BREAK ELONGATION	D638				
CD -		560 %		651 %	
MD -		560		676	
'NITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	54 lb	24 kg
MD -		45	20	54	25
'UNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	101 lb	46 kg
'HRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.3 %	
MD -		+/-2.00		0.3	
'ARBON BLACK DISPERSION	D3015	A2		A2	
'ARBON BLACK CONTENT	D1603	2.00 %		2.21 %	
'EOMEMBRANE DENSITY	D1505		0.940 g/cc		0.941 g/cc
SCR	D1693-B	1500 hours		Start 10/23/98	
'HICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

'USTOMER: VOLUSIA COUNTY WASTE
)B NO. 7399
)MMENTS
20082115

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8263 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8263 FF	
PROD DATE:	11/04/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3594	pounds
	1630	kilograms

RESIN LOT INFORMATION	
LOT NUMBER	Z-61670
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	142 lb/in	25 kg/cm
MD -		130	24	144	26
YIELD ELONGATION	D638				
CD -		13 %		19 %	
MD -		13		21	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	279 lb/in	50 kg/cm
MD -		243	44	306	55
R ELONGATION	D638				
CD -		560 %		609 %	
MD -		560		701	
VITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	57 lb	26 kg
MD -		45	20	53	24
UNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	95 lb	43 kg
HRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/- 2.00 %		0.3 %	
MD -		+/- 2.00		0.3	
ARBON BLACK DISPERSION	D3015	A2		A2	
ARBON BLACK CONTENT	D1603	2.00 %		2.25 %	
EOMEMBRANE DENSITY	D1505		0.940 g/cc		0.941 g/cc
SCR	D1693-B	1500 hours		Start 10/23/98	
HICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

IS MER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61669	Melt Index (gm/10 min)I2	0.61
Hopper Car Number	MBLX-053734		
Quantity Shipped	195,800 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040806		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.932
Lot Number	Z-61670	Melt Index (gm/10 min) I2	0.60
Hopper Car Number	MBLX-053481		
Quantity Shipped	198,100 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040807		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

COMANCO

ENVIRONMENTAL CORPORATION

COPY

November 23, 1998

Mr. Bill Gilley
Director
SOLID WASTE SERVICES GROUP
County of Volusia, Florida
3151 E. New York Avenue
De Land, FL 32724

RE: **TOMOKA FARMS ROAD LANDFILL**
GEO-SYNTHETIC INSTALLATION
ALTERNATE PHASE II
GSE MATERIAL QC/QA CERTIFICATES
CEC JOB #98-510

Dear Mr. Gilley:

Please find attached, QC/QA certificates from GSE Lining Technologies, Inc. for the above referenced project.

Any questions, please telephone.

Sincerely,

COMANCO ENVIRONMENTAL CORPORATION

Mark A. Topp
President

Attachments

MAT/dkw
(A:\64-98-510 Gilley-material warranty)

CC: Lee Powell

7911 PROFESSIONAL PLACE • TAMPA, FLORIDA 33637 • (813) 988-8829 • FAX (813) 988-8779

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE: November 17, 1998
JOB NO: DS5226
MR NO: 7399-05
JOB NAME: Volusia County
RE: QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07296

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: November 17, 1998

GSE® GSE Lining Technology, Inc. at HOUSTON, TEXAS

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

SHIPPERS NO. H 07296

From GSE LINING TECHNOLOGY, INC

Received at Houston, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which s carrier (the word "Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of any of said property, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is G ining Technology, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the part (b) if the Shipper noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Car to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applica lassification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss o containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

ubj e above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions a ereby agreed and accepted for himself and his assigns.

xternal Ref. [illegible]
MARK TOPP

onsigned to [illegible]

estination DAYTONA BEACH

Date Shipped [illegible]

Customer P.O. # [illegible]

State [illegible]

omments from M.R.

[illegible]

No. Packages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK8206FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,544
2	AK8211FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,615
3	AK8216FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,540
4	AK8240FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,567
5	AK8257FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,609

Internal Ref.

Material Req. # [illegible]

Job # [illegible]

Shippers # 007296

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification

SIGNED

X

Truck/Container #

Seal #

l Square Ft.	[illegible]	Total Weight	[illegible]	[illegible]

ier Ref.

CARRIER NAME: RUEL SMITH

CARRIER SIGNATURE: Roger [illegible]

DATE: 11-13-98

Truckers P.O. # [illegible]

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

r Shipper [illegible]

ess: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____

(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)

LAB.

Agent must sign, detach and retain a copy of this Shipping Order.

GSE

Roll Test Data Report

ROLL NO. AK-8206 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8206 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3544	pounds
	1608	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	162	lb/in	29	kg/cm
MD -		130		24		166		30	
YIELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	316	lb/in	56	kg/cm
MD -		243		44		330		59	
L AK ELONGATION	D638								
CD -		560	%			675	%		
MD -		560				698			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	58	lb	26	kg
MD -		45		20		58		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	95	lb	43	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.7			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.45	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

JG
11-6-98

USTOMER: VOLUSIA COUNTY WASTE
)B NO. 7399
OMMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8211 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8211 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3615	pounds
	1640	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	157 lb/in	28 kg/cm
MD -		130	24	162	29
YIELD ELONGATION	D638				
CD -		13 %		23 %	
MD -		13		19	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	321 lb/in	57 kg/cm
MD -		243	44	350	63
ELONGATION	D638				
CD -		560 %		658 %	
MD -		560		700	
NITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	59 lb	27 kg
MD -		45	20	58	26
UNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	110 lb	50 kg
HRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.4 %	
MD -		+/-2.00		0.6	
ARBON BLACK DISPERSION	D3015	A2		A2	
ARBON BLACK CONTENT	D1603	2.00 %		2.37 %	
EOMEMBRANE DENSITY	D1505		0.940 g/cc		0.942 g/cc
SCR	D1693-B	1500 hours		Start 10/23/98	
HICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

J. ER: VOLUSIA COUNTY WASTE
B. 7399
OMMENTS

DATE SHIPPED

JG
11-6-98

GSE

Roll Test Data Report

ROLL NO. AK-8216 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8216 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3540	pounds
	1606	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	165 lb/in	29 kg/cm
MD -		130	24	156	28
YIELD ELONGATION	D638				
CD -		13 %		21 %	
MD -		13		19	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	322 lb/in	58 kg/cm
MD -		243	44	335	60
L .K ELONGATION	D638				
CD -		560 %		681 %	
MD -		560		713	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	61 lb	28 kg
MD -		45	20	56	25
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	102 lb	46 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.4 %	
MD -		+/-2.00		0.4	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.23 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.942 g/cc
ESCR	D1693-B	1500 hours		Start 10/23/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.50
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

JG
11-6-98

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8240 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8240 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3567	pounds
	1618	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	157	lb/in	28	kg/cm
MD -		130		24		148		26	
YIELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	334	lb/in	60	kg/cm
MD -		243		44		335		60	
ELONGATION	D638								
CD -		560	%			703	%		
MD -		560				702			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		55		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	106	lb	48	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/- 2.00	%			0.2	%		
MD -		+/- 2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.29	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8257 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8257 FF	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3609	pounds
	1637	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	151	lb/in	27	kg/cm
MD -		130		24		151		27	
YIELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	311	lb/in	56	kg/cm
MD -		243		44		310		55	
BREAK ELONGATION	D638								
CD -		560	%			691	%		
MD -		560				670			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		54		24	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	99	lb	45	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.21	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

DATE SHIPPED

11-6-98

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61669	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053734		
Quantity Shipped	195,800 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040806		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.932
Lot Number	Z-61670	Melt Index (gm/10 min) I2	0.60
Hopper Car Number	MBLX-053481		
Quantity Shipped	198,100 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040807		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSE

Roll Test Data Report

ROLL NO. AK-8698

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8698	
PROD DATE:	11/03/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3402	pounds
	1543	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	140	lb/in	25	kg/cm
MD -		130		24		137		24	
IELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	338	lb/in	60	kg/cm
MD -		243		44		331		59	
RE ELONGATION	D638								
CD -		560	%			781	%		
MD -		560				759			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		54		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	102	lb	46	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.37	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ER	D1693-B	1500	hours			Start 11/06/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-5-98 QA

TOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS

DATE SHIPPED

20002115

GSE

Roll Test Data Report

ROLL NO. AK-8807 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8807 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3536	pounds
	1604	kilograms

RESIN LOT INFORMATION

LOT NUMBER	Z-61678
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	154 lb/in	28 kg/cm
MD -		130	24	156	28
YIELD ELONGATION	D638				
CD -		13 %		22 %	
MD -		13		22	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	312 lb/in	56 kg/cm
MD -		243	44	328	59
BREAK ELONGATION	D638				
CD -		560 %		676 %	
MD -		560		687	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	53 lb	24 kg
MD -		45	20	55	25
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	99 lb	45 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.1	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.43 %	
COMEMBRANE DENSITY	D1505		0.940 g/cc		0.943 g/cc
ESCR	D1693-B	1500 hours		Start 11/13/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS _____

DATE SHIPPED _____

20082119

GSE

Roll Test Data Report

ROLL NO. AK-8833 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8833 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3563	pounds
	1616	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	142	lb/in	25	kg/cm
MD -		130		24		142		25	
IELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				19			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	306	lb/in	55	kg/cm
MD -		243		44		299		53	
RE LONGATION	D638								
CD -		560	%			679	%		
MD -		560				662			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	24	kg
MD -		45		20		53		24	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.21	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-9-98 QA

ER: VOLUSIA COUNTY WASTE
NO. 7399
IMENTS 20082119

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8834 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8834 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3548	pounds
	1609	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	154	lb/in	28	kg/cm
MD -		130		24		161		29	
IELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	316	lb/in	56	kg/
MD -		243		44		291		52	
REAK ELONGATION	D638								
CD -		560	%			668	%		
MD -		560				598			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		59		27	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	105	lb	48	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.19	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MENTS

DATE SHIPPED

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	December 1, 1998
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07346

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: December 1, 1998

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

GSE® GSE Lining Technology, Inc. at HOUSTON, TEXAS

SHIPPERS NO. H 07346

From GSE LINING TECHNOLOGY, INC.

...ved at Houston, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which sa... ...er the word "Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier ... ...y ... property, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted here... ...gy, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between t... ...if b... ...pper noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and t... ...subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the appeable ...rrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...amage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...ect to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...by agreed and accepted for himself and his assigns.

...ernal Ref. COMANCO ENVIRONMENTAL
MARK TOPP

...nsigned to C/O VOLUSIA COUNTY SOLID WASTE
...stination DAYTONA BEACH

Date Shipped NOVEMBER 25, 1998

Customer P.O. # VERBAL

State FL 32114

...nments from M.R.
FC 01910008 CONTACT: MARK TOPP @ 8137988-8829

No. ...ckages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK8726FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,566
2	AK8727FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,577
3	AK8764FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,600
4	AK8790FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,582
5	AK8801FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,664
6	AK8802FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,575
7	AK8805FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,585
8	AK8837FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,572
9	AK8838FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,556
10	AK8841FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,573
11	AK8842FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,587
12	AK8846FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,517

Internal Ref.

Material Req. # 7399-05

Job # D55226

Shippers # 007346

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification

SIGNED

X

Truck/Container # 2159

Seal #

BEFORE INVENTORY

Square Ft.	135,204	Total Weight	42,954	VOL020001

...er Ref.

CARRIER NAME: TRAVIS BRIDGE
CARRIER SIGNATURE:
DATE: 11/25/98

Truckers P.O. # 86117750

The agreed or declared value of the property is hereby specifical... stated by the shipper to be not exceeding _____ per ____

...Here For Shipper
...per: Leonard Stawski
...ess: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____
(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)
LAB.

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61680	Melt Index (gm/10 min) I2	0.59
Hopper Car Number	MBLX-053496		
Quantity Shipped	195,650 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042692		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.934
Lot Number	Z-61681	Melt Index (gm/10 min) I2	0.59
Hopper Car Number	TLCX-038360		
Quantity Shipped	190,400 LB		
Date Manufactured	09/01/1998		
Delivery Note	0080042693		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61678	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053222		
Quantity Shipped	195,200 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042690		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSE

Roll Test Data Report

ROLL NO. AK-8726 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8726 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3566	pounds
	1618	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	145	lb/in	26	kg/cm
MD -		130		24		157		28	
IELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	283	lb/in	51	kg/
MD -		243		44		315		56	
REAK ELONGATION	D638								
CD -		560	%			610	%		
MD -		560				656			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	51	lb	23	kg
MD -		45		20		51		23	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.4	%		
MD -		+/-2.00				0.2			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.34	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS 20062120

DATE SHIPPED

APPROVED JG #20 11-18-98 QA

GSE

Roll Test Data Report

ROLL NO. AK-8727 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8727 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3577	pounds
	1623	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	153	lb/in	27	kg/cm
MD -		130		24		154		28	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	312	lb/in	56	kg/cm
MD -		243		44		273		49	
EAK ELONGATION	D638								
CD -		560	%			632	%		
MD -		560				570			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	59	lb	27	kg
MD -		45		20		57		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	105	lb	48	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.4	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.34	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-10-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

20082120

GSE

Roll Test Data Report

ROLL NO. AK-8764 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8764 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3600	pounds
	1633	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	151	lb/in	27	kg/cm
MD -		130		24		152		27	
IELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				22			
F''ILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	305	lb/in	55	kg/
MD -		243		44		312		56	
REAK ELONGATION	D638								
CD -		560	%			678	%		
MD -		560				680			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		56		25	
JNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	95	lb	43	kg
IRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.1			
\RBON BLACK DISPERSION	D3015	A2				A2			
\RBON BLACK CONTENT	D1603	2.00	%			2.45	%		
:OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
:CR	D1693-B	1500	hours			Start 11/13/98			
IICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-11-98 QA

JSTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
)MMENTS

DATE SHIPPED

2006121

GSE

Roll Test Data Report

ROLL NO. AK-8790 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8790 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3582	pounds
	1625	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	146	lb/in	26	kg/cm
MD -		130		24		149		27	
YIELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				22			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	295	lb/in	53	kg/cm
MD -		243		44		303		54	
BREAK ELONGATION	D638								
CD -		560	%			640	%		
MD -		560				631			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	61	lb	28	kg
MD -		45		20		58		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	99	lb	45	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.35	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-10-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8801 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8801 FF	
PROD DATE:	11/06/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3664	pounds
	1662	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	147 lb/in	26 kg/cm
MD -		130	24	143	26
YIELD ELONGATION	D638				
CD -		13 %		22 %	
MD -		13		20	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	291 lb/in	52 kg
MD -		243	44	287	51
BREAK ELONGATION	D638				
CD -		560 %		636 %	
MD -		560		631	
VITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	53 lb	24 kg
MD -		45	20	55	25
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	104 lb	47 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.1 %	
MD -		+/-2.00		0.4	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.48 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.943 g/cc
ESCR	D1693-B	1500 hours		Start 11/13/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED YG #20 11-9-98 QA

JSTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
)MMENTS

DATE SHIPPED

20062119

GSE

Roll Test Data Report

ROLL NO. AK-8802 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8802 FF	
PROD DATE:	11/06/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3575	pounds
	1622	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	155	lb/in	28	kg/cm
MD -		130		24		160		29	
IELD ELONGATION	D638								
CD -		13	%			19	%		
MD -		13				19			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	327	lb/in	58	kg/cm
MD -		243		44		321		57	
REAK ELONGATION	D638								
CD -		560	%			684	%		
MD -		560				664			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		58		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	103	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.4			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.47	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED QC #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

20082119

GSE

Roll Test Data Report

ROLL NO. AK-8805 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8805 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3585	pounds
	1626	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	146	lb/in	26	kg/cm
MD -		130		24		153		27	
YIELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				22			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	294	lb/in	53	kg/
MD -		243		44		299		53	
BREAK ELONGATION	D638								
CD -		560	%			666	%		
MD -		560				637			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	24	kg
MD -		45		20		54		24	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	97	lb	44	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.1			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.45	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-4-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8837 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8837 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3572	pounds
	1620	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	143	lb/in	25	kg/cm
MD -		130		24		154		28	
'ELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				21			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	264	lb/in	47	kg/cm
MD -		243		44		267		48	
REAK ELONGATION	D638								
CD -		560	%			586	%		
MD -		560				572			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	24	kg
MD -		45		20		57		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.5	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.30	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-10-98 QA

STOMER: VOLUSIA COUNTY WASTE
: NO. 7399
MMENTS

DATE SHIPPED

20082120

GSE

Roll Test Data Report

ROLL NO. AK-8838 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8838 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3556	pounds
	1613	kilograms

RESIN LOT INFORMATION	
LOT NUMBER	Z-61678
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	147	lb/in	26	kg/cm
MD -		130		24		154		27	
YIELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				22			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	331	lb/in	59	kg
MD -		243		44		308		55	
BREAK ELONGATION	D638								
CD -		560	%			707	%		
MD -		560				671			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	50	lb	23	kg
MD -		45		20		51		23	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	102	lb	46	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.5	%		
MD -		+/-2.00				0.1			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.38	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-18-98 QA

JSTOMER: VOLUSIA COUNTY WASTE

DATE SHIPPED

)B NO. 7399

)MMENTS

GSE

Roll Test Data Report

ROLL NO. AK-8841 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8841 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3573	pounds
	1621	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	155	lb/in	28	kg/cm
MD -		130		24		156		28	
IELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	267	lb/in	48	kg/cm
MD -		243		44		301		54	
REAK ELONGATION	D638								
CD -		560	%			589	%		
MD -		560				650			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	61	lb	28	kg
MD -		45		20		58		26	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	102	lb	46	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.5	%		
MD -		+/-2.00				0.3			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.49	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-11-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

20082121

GSE

Roll Test Data Report

ROLL NO. AK-8842 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8842 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3587	pounds
	1627	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	155	lb/in	28	kg/cm
MD -		130		24		154		28	
YIELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	309	lb/in	55	k
MD -		243		44		262		47	
BREAK ELONGATION	D638								
CD -		560	%			654	%		
MD -		560				564			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	60	lb	27	kg
MD -		45		20		57		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	107	lb	49	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.5	%		
MD -		+/-2.00				0.3			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.47	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-11-98 QA

JSTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS

DATE SHIPPED

20082121

GSE

Roll Test Data Report

ROLL NO. AK-8846 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8846 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3517	pounds
	1595	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		145		26	
IELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	294	lb/in	52	kg/cm
MD -		243		44		296		53	
RE... ELONGATION	D638								
CD -		560	%			622	%		
MD -		560				636			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		55		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	107	lb	49	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.40	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-16-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	December 1, 1998
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07362

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: December 1, 1998

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	December 1, 1998
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07344

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: December 1, 1998

Shipping Order - Packing List - Original - Not Negotiable

SHIPPERS NO. H 07344

GSE Lining Technology, Inc.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

at HOUSTON, TEXAS

From GSE LINING TECHNOLOGY, INC.

...ived at Houston, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, ...ier word "Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each C...n property, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted h...% ...logy, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between ...es, ...) if the Shipper noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier ... subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable ...mer classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...amage to containers, or any other consequences occuring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...ject to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...roy agreed and accepted for himself and his assigns.

...ternal Ref. CORNETT ENVIRONMENTAL
MARK TOMP

...nsigned to C/O VOLUSIA COUNTY SOLID WASTE
...stination DAYTONA BEACH

Date Shipped NOVEMBER 25, 1998

Customer P.O. # VERBAL

State FL. 32114

...mments from M.R.
PO 01910004 CONTACT: MARK TOMP @ 813/988-8829

No. ...ckages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK8711FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,619
2	AK8734FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,542
3	AK8733FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,617
4	AK8783FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,564
5	AK8792FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,570
6	AK8797FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,552
7	AK8806FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,585
8	AK8808FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,590
9	AK8843FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,542
10	AK8849FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,539
11	AK8852FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,629
12	AK8853FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,557

Internal Ref.

Material Req. # 7399-05

Job # D55226

Shippers # 007344

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification SIGNED

X

Truck/Container # 2158

Seal #

Square Ft.	135,204	Total Weight	42,897	VOL020001

...er Ref.

CARRIER NAME: RUEL SMITH

CARRIER SIGNATURE:

DATE: 11-25-98

Truckers P.O. # 86127170

The agreed or declared value of the property is hereby specifica... stated by the shipper to be not exceeding _____ per _____

...Here For Shipper

...per: _____

...ess: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____

(GSE LINING TECHNOLOGY, INC.
APPROVED AGENT FOR SHIPPER)
LAB.

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61680	Melt Index (gm/10 min) I2	0.59
Hopper Car Number	MBLX-053496		
Quantity Shipped	195,650 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042692		
Location Shipped To ALDINE, TX			

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.934
Lot Number	Z-61681	Melt Index (gm/10 min) I2	0.59
Hopper Car Number	TLCX-038360		
Quantity Shipped	190,400 LB		
Date Manufactured	09/01/1998		
Delivery Note	0080042693		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

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HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61678	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053222		
Quantity Shipped	195,200 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042690		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSE

Roll Test Data Report

ROLL NO. AK-8711 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8711 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3610	pounds
	1637	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	144	lb/in	26	kg/cm
MD -		130		24		146		26	
YIELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	307	lb/in	55	kg
MD -		243		44		340		61	
BREAK ELONGATION	D638								
CD -		560	%			664	%		
MD -		560				711			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	24	kg
MD -		45		20		57		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	107	lb	49	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.1			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.36	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
ESCR	D1693-B	1500	hours			Start 11/06/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-11-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
PO NO. 7399
COMMENTS _____

DATE SHIPPED _____

20082121

GSE

Roll Test Data Report

ROLL NO. AK-8734 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8734 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3542	pounds
	1607	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	155 lb/in	28 kg/cm
MD -		130	24	145	26
IELD ELONGATION	D638				
CD -		13 %		21 %	
MD -		13		23	
F[illegible] BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	296 lb/in	53 kg/cm
MD -		243	44	312	56
REAK ELONGATION	D638				
CD -		560 %		635 %	
MD -		560		666	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	56 lb	25 kg
MD -		45	20	58	26
JNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	103 lb	47 kg
IRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.1 %	
MD -		+/-2.00		0.1	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.38 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.943 g/cc
CR	D1693-B	1500 hours		Start 11/13/98	
ICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.49
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-11-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8735 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8735 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3617	pounds
	1641	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	154	lb/in	28	kg/cm
MD -		130		24		148		26	
YIELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	293	lb/in	52	k
MD -		243		44		303		54	
BREAK ELONGATION	D638								
CD -		560	%			661	%		
MD -		560				658			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	59	lb	27	kg
MD -		45		20		56		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.1			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.39	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-11-98 QA

USTOMER: VOLUSIA COUNTY WASTE
)B NO. 7399
OMMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8783 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8783 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3564	pounds
	1617	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	164	lb/in	29	kg/cm
MD -		130		24		152		27	
YIELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	338	lb/in	60	kg/cm
MD -		243		44		298		53	
BREAK ELONGATION	D638								
CD -		560	%			696	%		
MD -		560				627			
DIMENSIONAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	60	lb	27	kg
MD -		45		20		58		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	101	lb	46	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/- 2.00	%			0.1	%		
MD -		+/- 2.00				0.3			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.30	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-11-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS _____

DATE SHIPPED _____

20083121

GSE

Roll Test Data Report

ROLL NO. AK-8792 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8792 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3570	pounds
	1619	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
TENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	148 lb/in	26 kg/cm
MD -		130	24	156	28
YIELD ELONGATION	D638				
CD -		13 %		22 %	
MD -		13		21	
TENSILE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	307 lb/in	55 kg
MD -		243	44	323	58
BREAK ELONGATION	D638				
CD -		560 %		662 %	
MD -		560		678	
INITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	54 lb	25 kg
MD -		45	20	53	24
PUNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	100 lb	45 kg
SHRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.2 %	
MD -		+/-2.00		0.1	
CARBON BLACK DISPERSION	D3015	A2		A2	
CARBON BLACK CONTENT	D1603	2.00 %		2.37 %	
GEOMEMBRANE DENSITY	D1505		0.940 g/cc		0.943 g/cc
ESCR	D1693-B	1500 hours		Start 11/13/98	
THICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	59	1.50
AVG. THICKNESS				61	1.54

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-10-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8797 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8797 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3552	pounds
	1611	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	148	lb/in	26	kg/cm
MD -		130		24		150		27	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	276	lb/in	49	kg/cm
MD -		243		44		294		53	
REAK ELONGATION	D638								
CD -		560	%			613	%		
MD -		560				636			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	24	kg
MD -		45		20		54		24	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	98	lb	45	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.5			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.44	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						60		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
. NO. 7399
MMENTS

DATE SHIPPED

20032119

GSE

Roll Test Data Report

ROLL NO. AK-8806 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8806 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3585	pounds
	1626	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	148	lb/in	26	kg/cm
MD -		130		24		152		27	
YIELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				23			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	308	lb/in	55	kg
MD -		243		44		312		56	
BREAK ELONGATION	D638								
CD -		560	%			676	%		
MD -		560				660			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	25	kg
MD -		45		20		56		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	99	lb	45	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.44	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-9-98 QA

USTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS

DATE SHIPPED

20062119

GSE

Roll Test Data Report

ROLL NO. AK-8808 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8808 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3590	pounds
	1628	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	148	lb/in	26	kg/cm
MD -		130		24		152		27	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	293	lb/in	52	kg/cm
MD -		243		44		317		57	
REAK ELONGATION	D638								
CD -		560	%			647	%		
MD -		560				675			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	24	kg
MD -		45		20		54		24	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	92	lb	42	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.42	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

20082119

GSE

Roll Test Data Report

ROLL NO. AK-8843 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8843 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3542	pounds
	1607	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH	ORDER MINIMUMS METRIC	ACTUAL TEST VALUES ENGLISH	ACTUAL TEST VALUES METRIC
ENSILE YIELD STRENGTH	D638				
CD -		130 lb/in	24 kg/cm	157 lb/in	28 kg/cm
MD -		130	24	154	27
IELD ELONGATION	D638				
CD -		13 %		22 %	
MD -		13		22	
E''LE BREAK STRENGTH	D638				
CD -		243 lb/in	44 kg/cm	332 lb/in	59 kg
MD -		243	44	346	62
REAK ELONGATION	D638				
CD -		560 %		718 %	
MD -		560		730	
ITIAL TEARING STRENGTH	D1004				
CD -		45 lb	20 kg	54 lb	25 kg
MD -		45	20	56	25
JNCTURE STRENGTH	FTMS 101C/2065	80 lb	36 kg	99 lb	45 kg
IRINKAGE	D1204				
CD -	(1 HR @ 100C)	+/-2.00 %		0.4 %	
MD -		+/-2.00		0.2	
RBON BLACK DISPERSION	D3015	A2		A2	
RBON BLACK CONTENT	D1603	2.00 %		2.44 %	
OMEMBRANE DENSITY	D1505		0.940 g/cc		0.943 g/cc
CR	D1693-B	1500 hours		Start 11/13/98	
ICKNESS	D1593/D751				
NOMINAL		60 mil	1.52 mm	60 mil	1.52 mm
MINIMUM		55	1.39	58	1.48
AVG. THICKNESS				60	1.53

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-11-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS _____

DATE SHIPPED _____

30082121

GSE

Roll Test Data Report

ROLL NO. AK-8845 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8845 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3539	pounds
	1605	kilograms

RESIN LOT INFORMATION

LOT NUMBER	Z-61678
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	154	lb/in	28	kg/cm
MD -		130		24		155		28	
IELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				20			
F[illegible] BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	298	lb/in	53	kg/cm
MD -		243		44		317		57	
REAK ELONGATION	D638								
CD -		560	%			632	%		
MD -		560				681			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	60	lb	27	kg
MD -		45		20		60		27	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.1			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.39	%		
COMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
SCR	D1693-B	1500	hours			Start 11/13/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-11-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

20062121

GSE

Roll Test Data Report

ROLL NO. AK-8852 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8852 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3629	pounds
	1646	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	162	lb/in	29	kg/cm
MD -		130		24		154		27	
YIELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				22			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	320	lb/in	57	kg.
MD -		243		44		312		56	
BREAK ELONGATION	D638								
CD -		560	%			688	%		
MD -		560				675			
VITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	58	lb	26	kg
MD -		45		20		54		25	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	96	lb	43	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.5			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.45	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-16-98 QA

USTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS _____

DATE SHIPPED _____

20082121

GSE

Roll Test Data Report

ROLL NO. AK-8853 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8853 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3557	pounds
	1613	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		147		26	
YIELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				21			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	296	lb/in	53	kg/cm
MD -		243		44		278		50	
BREAK ELONGATION	D638								
CD -		560	%			598	%		
MD -		560				631			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		58		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	98	lb	44	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.5			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.46	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-11-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

20082121

COMANCO

ENVIRONMENTAL CORPORATION

COPY

January 11, 1999

Mr. Bill Gilley
Director
SOLID WASTE SERVICES GROUP
County of Volusia, Florida
3151 E. New York Avenue
De Land, FL 32724

RE: **TOMOKA FARMS ROAD LANDFILL**
GEO-SYNTHETIC INSTALLATION
BI-PLANNER FABRA-NET
60 MIL TEXTURED
ALTERNATE PHASE III & IV
GSE MATERIAL QC/QA CERTIFICATES
CEC JOB #98-528

Dear Mr. Gilley:

Please find attached, QA/QC Certificates from GSE Lining Technologies, Inc. for the above referenced project.

Any questions, please telephone.

Sincerely,

COMANCO ENVIRONMENTAL CORPORATION

Mark A. Topp
President

Attachments

MAT/dkw
(A:\98-528\Gilley-QA/QC Certificates)

CC: Lee Powell

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	January 5, 1999
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07496

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: January 5, 1999

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

SHIPPERS NO. H 07496

GSE® Lining Technology, Inc. at HOUSTON, TEXAS

From GSE LINING TECHNOLOGY, INC.

n, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which said ...arrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all ...perty, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is GSE ...nology, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties, the Shipper noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable ...rrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...amage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...t to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...agreed and accepted for himself and his assigns.

...rnal Ref. COMANCO ENVIRONMENTAL
MARK TOPP

...signed to C/O VOLUSIA COUNTY SOLID WASTE
...ination DAYTONA BEACH

Date Shipped DECEMBER 31, 1998

Customer P.O. # VERBAL

State FL 32114

...ments from M.R.

FC 01910008 CONTACT: MARK TOPP @ 813/988-8829

...o. ...ages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK8665FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,588
2	AK8731FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,576
3	AK8763FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,541
4	AK8791FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,580
5	...8793FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,583
6	...K8794FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,574
	AK8798FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,555
8	AK8839FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,546
9	AK8840FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,628
10	AK8844FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,630
11	AK8851FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,548
12	AK8854FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,595

Internal Ref.

Material Req. # 7399-05

Job # 055226

Shippers # 007496

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification

SIGNED

X

Truck/Container #

Seal #

Square Ft.	135,204	Total Weight	42,944

VOL020001

...er Re

CARRIER NAME: RUEL SMITH

CARRIER SIGNATURE: R Smith

DATE:

Truckers P.O. # 86127170

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

...Here For Shipper

...per: Leonard Storemski

...ess: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____

(GSE LINING TECHNOLOGY, INC.

STAR... Safety through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/13/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.934
Lot Number	Z-61676	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053498		
Quantity Shipped	191,200 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080041539		
Location Shipped To ALDINE, TX			

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61680	Melt Index (gm/10 min) I2	0.59
Hopper Car Number	MBLX-053496		
Quantity Shipped	195,650 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042692		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.934
Lot Number	Z-61681	Melt Index (gm/10 min) I2	0.59
Hopper Car Number	TLCX-038360		
Quantity Shipped	190,400 LB		
Date Manufactured	09/01/1998		
Delivery Note	0080042693		
Location Shipped To ALDINE, TX			

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61678	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053222		
Quantity Shipped	195,200 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042690		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSE

Roll Test Data Report

ROLL NO. AK-8665 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8665 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3588	pounds
	1628	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61676
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	157	lb/in	28	kg/cm
MD -		130		24		155		28	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	300	lb/in	54	kg/cm
MD -		243		44		317		57	
REAK ELONGATION	D638								
CD -		560	%			650	%		
MD -		560				686			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	26	kg
MD -		45		20		56		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	95	lb	43	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.29	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/06/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

APPROVED JG #20 11-6-98 QA

GSF

Roll Test Data Report

ROLL NO. AK-8731 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8731 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3576	pounds
	1622	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	153	lb/in	27	kg/cm
MD -		130		24		159		28	
ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
NSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	311	lb/in	55	kg/cm
MD -		243		44		332		59	
EAK ELONGATION	D638								
CD -		560	%			628	%		
MD -		560				651			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		61		28	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	106	lb	48	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.4			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.35	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TE NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

APPROVED
#20
11-11-98
QA

GSE

Roll Test Data Report

ROLL NO. AK-8763 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8763 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3541	pounds
	1606	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		151		27	
IELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				22			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	259	lb/in	46	kg/cm
MD -		243		44		322		57	
REAK ELONGATION	D638								
CD -		560	%			586	%		
MD -		560				702			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	25	kg
MD -		45		20		53		24	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	102	lb	46	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.43	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

APPROVED #20 11-11-98 QA

GSE

Roll Test Data Report

ROLL NO. AK-8791 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8791 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3580	pounds
	1624	kilograms

RESIN LOT INFORMATION

LOT NUMBER	Z-61681
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		154		27	
ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				20			
ENSI... REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	309	lb/in	55	kg/cm
MD -		243		44		311		56	
REAK ELONGATION	D638								
CD -		560	%			648	%		
MD -		560				673			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		57		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	105	lb	48	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.36	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.50	
AVG. THICKNESS						61		1.54	

TE NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE

3 NO. 7399

MMENTS

20082119

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Roll Test Data Report

ROLL NO. AK-8793 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8793 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3583	pounds
	1625	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	148	lb/in	26	kg/cm
MD -		130		24		152		27	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	294	lb/in	53	kg/cm
MD -		243		44		317		57	
REAK ELONGATION	D638								
CD -		560	%			643	%		
MD -		560				661			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		52		24	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	98	lb	44	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.1			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.38	%		
EOMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
SCR	D1693-B	1500	hours			Start 11/13/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

JSTOMER: VOLUSIA COUNTY WASTE
)B NO. 7399
)MMENTS _____

DATE SHIPPED _____

20082119

GSE

Roll Test Data Report

ROLL NO. AK-8794 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8794 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3574	pounds
	1621	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	150	lb/in	27	kg/cm
MD -		130		24		155		28	
IELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				21			
ENSI... REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	320	lb/in	57	kg/cm
MD -		243		44		311		56	
REAK ELONGATION	D638								
CD -		560	%			686	%		
MD -		560				642			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		55		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	96	lb	43	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.39	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

T. NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

20083119

GSE

Roll Test Data Report

ROLL NO. AK-8798 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8798 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3555	pounds
	1613	kilograms

RESIN LOT INFORMATION	
LOT NUMBER	Z-61681
RESIN TYPE	600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	140	lb/in	25	kg/cm
MD -		130		24		143		26	
ELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
NSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	273	lb/in	49	kg/cm
MD -		243		44		314		56	
EAK ELONGATION	D638								
CD -		560	%			621	%		
MD -		560				701			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		51		23	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	94	lb	43	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.5			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.45	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						60		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

20082119

GSF

Roll Test Data Report

ROLL NO. AK-8839 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8839 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3546	pounds
	1608	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		150		27	
ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				20			
NSILE PEAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	261	lb/in	47	kg/cm
MD -		243		44		321		57	
EAK ELONGATION	D638								
CD -		560	%			584	%		
MD -		560				698			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		57		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	93	lb	42	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.45	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TE OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

APPROVED YG #20. 11-16-98 QA

20082121

GSE

Roll Test Data Report

ROLL NO. AK-8840 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8840 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3628	pounds
	1646	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	147	lb/in	26	kg/cm
MD -		130		24		145		26	
IELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				19			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	286	lb/in	51	kg/cm
MD -		243		44		299		53	
REAK ELONGATION	D638								
CD -		560	%			622	%		
MD -		560				638			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	24	kg
MD -		45		20		50		23	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	97	lb	44	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.1			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.52	%		
COMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
SCR	D1693-B	1500	hours			Start 11/13/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-11-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

20082121

GSE

Roll Test Data Report

ROLL NO. AK-8844 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8844 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3630	pounds
	1647	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	161	lb/in	29	kg/cm
MD -		130		24		153		27	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				22			
ENSI.. REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	329	lb/in	59	kg/cm
MD -		243		44		287		51	
REAK ELONGATION	D638								
CD -		560	%			718	%		
MD -		560				630			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	62	lb	28	kg
MD -		45		20		57		26	
'NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	46	kg
'RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.4	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.42	%		
'OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
'ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

T: OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-13-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-8851 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8851 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3548	pounds
	1609	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	158	lb/in	28	kg/cm
MD -		130		24		152		27	
YIELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				22			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	323	lb/in	58	kg/cm
MD -		243		44		313		56	
BREAK ELONGATION	D638								
CD -		560	%			682	%		
MD -		560				678			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		55		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	98	lb	44	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.5			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.44	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-11-98 QA

USTOMER: VOLUSIA COUNTY WASTE
)B NO. 7399
)MMENTS _____

DATE SHIPPED _____

20082121

GSE

Roll Test Data Report

ROLL NO. AK-8854 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8854 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3595	pounds
	1631	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	146	lb/in	26	kg/cm
MD -		130		24		149		27	
IELD ELONGATION	D638								
CD -		13	%			19	%		
MD -		13				19			
ENSI. REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	296	lb/in	53	kg/cm
MD -		243		44		313		56	
REAK ELONGATION	D638								
CD -		560	%			640	%		
MD -		560				671			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		56		26	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.5			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.47	%		
EOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
SCR	D1693-B	1500	hours			Start 11/13/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

T NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED SG #20 11-16-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS

DATE SHIPPED

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	January 5, 1999
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07499

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: January 5, 1999

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

GSE® GSE Lining Technology, Inc. at HOUSTON, TEXAS

SHIPPERS NO. H 07499

From GSE LINING TECHNOLOGY, IN

...uston, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which ... "Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier o... property, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is ... Technology, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the par... if the Shipper noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Ca... subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applic... ...rrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for los... ...amage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...bject to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions ...reby agreed and accepted for himself and his assigns.

...xternal Ref. COMANCO ENVIRONMENTAL
MARK TOPP

...onsigned to C/O VOLUSIA COUNTY SOLID WASTE

...estination DAYTONA BEACH

Date Shipped DECEMBER 31, 1998

Customer P.O. # VERBAL

State FL 32114

...omments from M.R.

FC 01910008 CONTACT: MARK TOPP @ 813/988-8829

No. Packages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK7963FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,667
2	AK7964FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,643
3	AK7978FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,729
4	AK8192FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,589
	AK8195FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,627
	AK8269FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,764
7	AK8722FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,551
8	AK8778FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,547
9	AK8789FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,598
10	AK8795FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,546
11	AK8799FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,561
12	AK8800FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,586

Internal Ref.

Material Req. # 7399-05

Job # DS5226

Shippers # 007499

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification

SIGNED

X

Truck/Container #

Seal #

...otal Square Ft. 135,204

Total Weight 43,408

VOL020001

...arrier Ref.

CARRIER NAME: RUEL SMITH
CARRIER SIGNATURE: [signature]
DATE:

Truckers P.O. # 86127170

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

Here For Shipper

...hipper: [signature]

...ddress: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____
(GSE LINING TECHNOLOGY, INC.

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

BILL WALLING
GSE LINING TECHNOLOGY INC.
19103 GUNDLE ROAD
HOUSTON, TX 77073-3515

09/24/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDG601	Density (gms/cc)	0.935
Lot Number	Z-61648	Melt Index (gm/10 min) I2	0.67
Hopper Car Number	MBLX-053584		
Quantity Shipped	184,050 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080040126		
P.O. Number	Verbal		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

Fax To: (281) 230-2510 DON BOHAC
(281) 847-3885 N. IVY

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61669	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053734		
Quantity Shipped	195,800 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040806		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.932
Lot Number	Z-61670	Melt Index (gm/10 min) I2	0.60
Hopper Car Number	MBLX-053481		
Quantity Shipped	198,100 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040807		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61680	Melt Index (gm/10 min) I2	0.59
Hopper Car Number	MBLX-053496		
Quantity Shipped	195,650 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042692		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.934
Lot Number	Z-61681	Melt Index (gm/10 min) I2	0.59
Hopper Car Number	TLCX-038360		
Quantity Shipped	190,400 LB		
Date Manufactured	09/01/1998		
Delivery Note	0080042693		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSE

Roll Test Data Report

ROLL NO. AK-7963 FF

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-7963 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3667	pounds
	1663	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61648
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	153	lb/in	27	kg/cm
MD -		130		24		155		28	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				19			
ENSILE REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	298	lb/in	53	kg/cm
MD -		243		44		332		59	
REAK ELONGATION	D638								
CD -		560	%			630	%		
MD -		560				686			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	61	lb	28	kg
MD -		45		20		54		24	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	106	lb	48	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.0			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.31	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TE OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
MMENTS

DATE SHIPPED

APPROVED #20 11-6-98 QA

GSE

Roll Test Data Report

ROLL NO. AK-7964 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7964 FF	
PROD DATE:	10/23/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3643	pounds
	1652	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61648
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	161	lb/in	29	kg/cm
MD -		130		24		157		28	
YIELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	287	lb/in	51	kg/cm
MD -		243		44		280		50	
BREAK ELONGATION	D638								
CD -		560	%			616	%		
MD -		560				600			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	26	kg
MD -		45		20		57		26	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	105	lb	47	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.6	%		
MD -		+/-2.00				0.5			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.34	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
ESCR	D1693-B	1500	hours			Start 10/16/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

DATE SHIPPED

20082113

GSF

Roll Test Data Report

ROLL NO. AK-7978 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7978 FF	
PROD DATE:	10/24/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3729	pounds
	1691	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61648
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	153	lb/in	27	kg/cm
MD -		130		24		152		27	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
NSIT REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	295	lb/in	53	kg/cm
MD -		243		44		276		49	
EAK ELONGATION	D638								
CD -		560	%			662	%		
MD -		560				621			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	26	kg
MD -		45		20		57		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	94	lb	42	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.47	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

T1 OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

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Roll Test Data Report

ROLL NO. AK-8192 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8192 FF	
PROD DATE:	11/04/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3589	pounds
	1628	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	139	lb/in	25	kg/cm
MD -		130		24		142		25	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	275	lb/in	49	kg/cm
MD -		243		44		317		57	
REAK ELONGATION	D638								
CD -		560	%			615	%		
MD -		560				697			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	50	lb	23	kg
MD -		45		20		54		25	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	95	lb	43	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.4			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.39	%		
EOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
SCR	D1693-B	1500	hours			Start 10/23/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

JSTOMER: VOLUSIA COUNTY WASTE
'B NO. 7399
)MMENTS

DATE SHIPPED

20082116

GSF

Roll Test Data Report

ROLL NO. AK-8195 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8195 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3627	pounds
	1645	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	165	lb/in	29	kg/cm
MD -		130		24		151		27	
ELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				24			
...SI... ...REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	343	lb/in	61	kg/cm
MD -		243		44		322		58	
EAK ELONGATION	D638								
CD -		560	%			725	%		
MD -		560				693			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		53		24	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.7			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.38	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TI NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

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AJG
#20
11-6-98
QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

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Roll Test Data Report

ROLL NO. AK-8269 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8269 FF	
PROD DATE:	10/30/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3764	pounds
	1707	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	153	lb/in	27	kg/cm
MD -		130		24		155		28	
IELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				23			
FNSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	292	lb/in	52	kg/cm
MD -		243		44		345		62	
REAK ELONGATION	D638								
CD -		560	%			657	%		
MD -		560				758			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		55		25	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	102	lb	46	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.7			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.38	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 10/30/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

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Roll Test Data Report

ROLL NO. AK-8722 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8722 FF	
PROD DATE:	11/07/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3551	pounds
	1611	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	148	lb/in	26	kg/cm
MD -		130		24		148		26	
ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				20			
ENSIL REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	343	lb/in	61	kg/cm
MD -		243		44		322		58	
REAK ELONGATION	D638								
CD -		560	%			722	%		
MD -		560				671			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	57	lb	26	kg
MD -		45		20		57		26	
'NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	108	lb	49	kg
'RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.5			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.33	%		
'OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.50	
AVG. THICKNESS						61		1.55	

T. OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

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Roll Test Data Report

ROLL NO. AK-8778 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8778 FF	
PROD DATE:	11/07/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3547	pounds
	1609	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	144	lb/in	26	kg/cm
MD -		130		24		145		26	
IELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				22			
FNSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	288	lb/in	51	kg/cm
MD -		243		44		263		47	
REAK ELONGATION	D638								
CD -		560	%			620	%		
MD -		560				570			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		52		24	
JNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	111	lb	50	kg
IRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.0			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.27	%		
COMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
SCR	D1693-B	1500	hours			Start 11/13/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED SG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS 20082119

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GSF.

Roll Test Data Report

ROLL NO. AK-8789 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8789 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3598	pounds
	1632	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	147	lb/in	26	kg/cm
MD -		130		24		152		27	
ELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				20			
ENSIL_ _REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	315	lb/in	56	kg/cm
MD -		243		44		313		56	
REAK ELONGATION	D638								
CD -		560	%			668	%		
MD -		560				663			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	25	kg
MD -		45		20		55		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	97	lb	44	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.34	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

T. NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

APPROVED
#20
11-B-98
QA

GSE

Roll Test Data Report

ROLL NO. AK-8795 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8795 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3546	pounds
	1608	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		151		27	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	312	lb/in	56	kg/cm
MD -		243		44		319		57	
REAK ELONGATION	D638								
CD -		560	%			656	%		
MD -		560				660			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		56		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	105	lb	47	kg
IRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.2			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.40	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

APPROVED
#20
11-9-98
QA

GSF

Roll Test Data Report

ROLL NO. AK-8799 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8799 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3561	pounds
	1615	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	149	lb/in	27	kg/cm
MD -		130		24		150		27	
ELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
ENSIL.. ..REAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	316	lb/in	56	kg/cm
MD -		243		44		348		62	
REAK ELONGATION	D638								
CD -		560	%			665	%		
MD -		560				724			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	24	kg
MD -		45		20		56		25	
INCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	106	lb	48	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/- 2.00	%			0.2	%		
MD -		+/- 2.00				0.3			
.RBON BLACK DISPERSION	D3015	A2				A2			
.RBON BLACK CONTENT	D1603	2.00	%			2.47	%		
:OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
'ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

T. NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

20082119

GSE

Roll Test Data Report

ROLL NO. AK-8800 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8800 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3586	pounds
	1627	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	146	lb/in	26	kg/cm
MD -		130		24		149		27	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				22			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	321	lb/in	57	kg/cm
MD -		243		44		334		60	
REAK ELONGATION	D638								
CD -		560	%			689	%		
MD -		560				708			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		54		25	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.3			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.49	%		
SOMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
SCR	D1693-B	1500	hours			Start 11/13/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

JSTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS

DATE SHIPPED

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	January 5, 1999
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07498

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: January 5, 1999

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

SHIPPERS NO. H 07498

GSE Lining Technology, Inc. at HOUSTON, TEXAS

From GSE LINING TECHNOLOGY, INC

...uston, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which (the word "Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of said property, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is GSE Technology, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties, the Shipper noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable ...rrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...amage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...t to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ... agreed and accepted for himself and his assigns.

...rnal Ref. COMANCO ENVIRONMENTAL
MARK TOPP

...signed to C/O VOLUSIA COUNTY SOLID WASTE
...ination DAYTONA BEACH

Date Shipped DECEMBER 31, 1998

Customer P.O. # VERBAL

State FL 32114

...ments from M.R.

FC 01910008 CONTACT: MARK TOPP @ 813/988-8829

No. ...kages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK7834FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,644
2	AK7965FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,660
3	AK7989FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,742
4	AK8193FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,592
5	AK8194FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,543
6	AK8197FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,634
7	AK8268FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,670
8	AK8724FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,595
9	AK8777FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,646
10	AK8784FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,612
11	AK8796FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,556
12	AK8804FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,588

Internal Ref.

Material Req. # 7399-05

Job # DS5226

Shippers # 007498

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification SIGNED

X

Truck/Container #

Seal #

...al Square Ft. 135,204

Total Weight 43,482

VUL020001

...rrier Ref.

CARRIER NAME: RUEL SMITH
CARRIER SIGNATURE: [signature]
DATE: 12-31-98

Truckers P.O. # 86127170

The agreed or declared value of the property is hereby specific... stated by the shipper to be not exceeding _____ per _____

...Here For Shipper
...ipper: Leonard Stranski
...dress: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____
(GSE LINING TECHNOLOGY, INC.

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

09/08/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.935
Lot Number	Z-61654	Melt Index (gm/10 min) I2	0.57
Hopper Car Number	MBLX-053310		
Quantity Shipped	194,800 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080038840		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

BILL WALLING
GSE LINING TECHNOLOGY INC.
19103 GUNDLE ROAD
HOUSTON, TX 77073-3515

09/24/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDG601	Density (gms/cc)	0.935
Lot Number	Z-61648	Melt Index (gm/10 min) I2	0.67
Hopper Car Number	MBLX-053584		
Quantity Shipped	184,050 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080040126		
P.O. Number	Verbal		
Location Shipped To ALDINE, TX			

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

Fax To: (281) 230-2510 DON BOHAC
(281) 847-3885 N. IVY

STAR... Safety Through Accountability and Recognition

RC

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

09/29/1998

BILL MALLING
GSE LINING TECHNOLOGY INC.
19103 GOMULE ROAD
HOUSTON, TX 77073-3515

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

S

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDG601	Density (gms/cc)	0.934
Lot Number	Z-61649	Melt Index (gm/10 min) I2	0.67
Hopper Car Number	MBLX-053544		
Quantity Shipped	196,350 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080040337		
P.O. Number	Verbal		
Location Shipped To	ALDINE, TX		

211449

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

Fax To: (281) 230-2510 DON BOHAC
(281) 847-3885 N. IVY

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

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DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61669	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053734		
Quantity Shipped	195,800 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040806		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.932
Lot Number	Z-61670	Melt Index (gm/10 min) I2	0.60
Hopper Car Number	MBLX-053481		
Quantity Shipped	198,100 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040807		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

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Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61680	Melt Index (gm/10 min) I2	0.59
Hopper Car Number	MBLX-053496		
Quantity Shipped	195,650 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042692		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.934
Lot Number	Z-61681	Melt Index (gm/10 min) I2	0.59
Hopper Car Number	TLCX-038360		
Quantity Shipped	190,400 LB		
Date Manufactured	09/01/1998		
Delivery Note	0080042693		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GONDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61678	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053222		
Quantity Shipped	195,200 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042690		
Location Shipped To ALDINE, TX			

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSE

Roll Test Data Report

ROLL NO. AK-7834 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7834 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3644	pounds
	1653	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61654
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.570

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	164	lb/in	29	kg/cm
MD -		130		24		158		28	
IELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	356	lb/in	64	kg/cm
MD -		243		44		318		57	
REAK ELONGATION	D638								
CD -		560	%			753	%		
MD -		560				669			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	24	kg
MD -		45		20		58		26	
JNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	101	lb	46	kg
IRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.56	%		
COMEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

20082115

GSE

Roll Test Data Report

ROLL NO. AK-7989 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7989 FF	
PROD DATE:	10/23/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3742	pounds
	1697	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61649
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	157	lb/in	28	kg/cm
MD -		130		24		154		28	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				19			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	275	lb/in	49	kg/cm
MD -		243		44		322		58	
REAK ELONGATION	D638								
CD -		560	%			609	%		
MD -		560				690			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	62	lb	28	kg
MD -		45		20		57		26	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	102	lb	46	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.2			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.43	%		
SOMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
SCR	D1693-B	1500	hours			Start 10/16/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
)MMENTS

DATE SHIPPED

GSF

Roll Test Data Report

ROLL NO. AK-7965 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7965 FF	
PROD DATE:	10/23/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3660	pounds
	1660	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61648
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	152	lb/in	27	kg/cm
MD -		130		24		159		28	
ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				19			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	260	lb/in	46	kg/cm
MD -		243		44		309		55	
EAK ELONGATION	D638								
CD -		560	%			588	%		
MD -		560				674			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		56		26	
VCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	97	lb	44	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.6	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.36	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
:R	D1693-B	1500	hours			Start 10/16/98			
'CKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TES. .OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
NO. 7399
AMENTS 20082115

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GSE

Roll Test Data Report

ROLL NO. 5

ROLL DIMENSIONS ≈ ± 1%		
ROLL NUMBER:	AK-8193 FF	
PROD DATE:	11/04/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3592	pounds
	1629	kilograms

RESIN LOT INFORMATION			
LOT NUMBER	Z-61669		
RESIN TYPE	600 SERIES		
PROPERTY	UNITS	METHOD	RESUL
DENSITY	g/cc	D1505	0.93
MOISTURE	%	D570	< 0.0
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VAL ENGLISH		METR	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	141	lb/in	25	
MD -		130		24		144		26	
YIELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	273	lb/in	49	
MD -		243		44		299		53	
BREAK ELONGATION	D638								
CD -		560	%			616	%		
MD -		560				655			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	
MD -		45		20		54		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	93	lb	42	
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.4			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.39	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	
ESCR	D1693-B	1500	hours			Start 10/23/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS

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Roll Test Data Report

ROLL NO. AK-8194 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8194 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3543	pounds
	1607	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	164	lb/in	29	kg/cm
MD -		130		24		154		28	
ELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				23			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	328	lb/in	59	kg/cm
MD -		243		44		325		58	
REAK ELONGATION	D638								
CD -		560	%			682	%		
MD -		560				694			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		59		27	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	107	lb	48	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.7			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.38	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 10/23/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TL NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

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APPROVED #20 11-6-98 QA

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Roll Test Data Report

ROLL NO. AK-8197 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8197 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3634	pounds
	1648	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	173	lb/in	31	kg/cm
MD -		130		24		161		29	
IELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
'ILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	336	lb/in	60	kg/cm
MD -		243		44		353		63	
REAK ELONGATION	D638								
CD -		560	%			677	%		
MD -		560				733			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		74		33	
JNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	99	lb	45	kg
IRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.6			
:RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.39	%		
:OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
:CR	D1693-B	1500	hours			Start 10/23/98			
IICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
)MMENTS 20082115

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Roll Test Data Report

ROLL NO. AK-8268 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8268 FF	
PROD DATE:	10/30/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3670	pounds
	1665	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61670
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.932
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.600

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	146	lb/in	26	kg/cm
MD -		130		24		155		28	
ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				22			
BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	273	lb/in	49	kg/cm
MD -		243		44		327		58	
EAK ELONGATION	D638								
CD -		560	%			602	%		
MD -		560				702			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	58	lb	26	kg
MD -		45		20		56		26	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.7			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.37	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.941	g/cc
CR	D1693-B	1500	hours			Start 10/30/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TES. NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

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20082115

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Roll Test Data Report

ROLL NO. AK-8724 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8724 FF	
PROD DATE:	11/07/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3595	pounds
	1631	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	144	lb/in	26	kg/cm
MD -		130		24		145		26	
ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				20			
'ILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	318	lb/in	57	kg/cm
MD -		243		44		311		56	
REAK ELONGATION	D638								
CD -		560	%			687	%		
MD -		560				658			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	52	lb	24	kg
MD -		45		20		54		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	105	lb	48	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.0	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.30	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS 20082119

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APPROVED JG #20 11-9-98 QA

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Roll Test Data Report

ROLL NO. AK-8777 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8777 FF	
PROD DATE:	11/07/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3646	pounds
	1654	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	152	lb/in	27	kg/cm
MD -		130		24		151		27	
ELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	307	lb/in	55	kg/cm
MD -		243		44		311		56	
REAK ELONGATION	D638								
CD -		560	%			644	%		
MD -		560				640			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		56		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	107	lb	49	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.0			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.25	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TI OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

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30082119

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Roll Test Data Report

ROLL NO. AK-8784 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8784 FF	
PROD DATE:	11/10/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3612	pounds
	1638	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	148	lb/in	26	kg/cm
MD -		130		24		150		27	
IELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	266	lb/in	48	kg/cm
MD -		243		44		282		50	
REAK ELONGATION	D638								
CD -		560	%			596	%		
MD -		560				620			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		55		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	45	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.3			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.30	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

APPROVED
#20
11-11-98
QA

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Roll Test Data Report

ROLL NO. AK-8796 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8796 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3556	pounds
	1613	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61681
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
TENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	151	lb/in	27	kg/cm
MD -		130		24		155		28	
YIELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				20			
TENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	322	lb/in	58	kg/cm
MD -		243		44		315		56	
BREAK ELONGATION	D638								
CD -		560	%			679	%		
MD -		560				648			
INITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		56		25	
PUNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	103	lb	47	kg
SHRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.2			
CARBON BLACK DISPERSION	D3015	A2				A2			
CARBON BLACK CONTENT	D1603	2.00	%			2.42	%		
GEOMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
ESCR	D1693-B	1500	hours			Start 11/13/98			
THICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

CUSTOMER: VOLUSIA COUNTY WASTE
JOB NO. 7399
COMMENTS _____

DATE SHIPPED _____

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Roll Test Data Report

ROLL NO. AK-8804 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8804 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3588	pounds
	1628	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	148	lb/in	26	kg/cm
MD -		130		24		152		27	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	327	lb/in	58	kg/cm
MD -		243		44		335		60	
REAK ELONGATION	D638								
CD -		560	%			698	%		
MD -		560				704			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		54		25	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	46	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.0			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.46	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

GSE Lining Technology, Inc.

LETTER OF TRANSMITTAL

02
Mark Topp
COMANCO Env Corporation
7911 Professional Place
Tampa, FL 33637

DATE:	January 5, 1999
JOB NO:	DS5226
MR NO:	7399-05
JOB NAME:	Volusia County
RE:	QC/QA Certificate

COPIES	DESCRIPTION
1	QC/QA Documentation as per Bill of Lading #07497

TRANSMIT VIA:

U.S. Mail

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

SIGNED : Tonya Switalski
DATE: January 5, 1999

Shipping Order - Packing List - Original - Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Order Form.

SHIPPERS NO. H 07497

GSE® GSE Lining Technology, Inc. at HOUSTON, TEXAS

From GSE LINING TECHNOLOGY, INC.

...ouston, Texas from GSE Lining Technology, Inc. the property described below, in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated below, which ...rd "Carrier" being understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of ... ...d property, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is GSE Technology, Inc., as indicated by the designation of the "Shipper" to be GSE Lining Technology, Inc., then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties, the Shipper noted herein is not GSE Lining Technology, Inc., then GSE Lining Technology, Inc. is acting solely as the agent for the denoted Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier ... subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable ...rrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for a Shipper in placing the material in transit on behalf of a Shipper, GSE Lining Technology, Inc. accepts no liability for loss of ...amage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was initiated by the Shipper and not by GSE Lining Technology, Inc.

...ct to the above terms and conditions as to which party is the Shipper, Shipper hereby certifies that he is familiar with the terms and conditions that govern the transportation of this shipment, and the said terms and conditions are ...y agreed and accepted for himself and his assigns.

...rnal Ref. COMANCO ENVIRONMENTAL
MARK TOPP

...signed to C/O VOLUSIA COUNTY SOLID WASTE
...ination DAYTONA BEACH

Date Shipped DECEMBER 31, 1998

Customer P.O. # VERBAL

State FL 32114

...ments from M.R.

FC 01910008 CONTACT: MARK TOPP @ 813/988-8829

...o. ...kages	Roll #	Length	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT
1	AK7831FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,540
2	AK7961FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,660
3	AK7979FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,709
4	AK8196FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,548
5	AK8664FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,565
6	AK8728FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,598
7	AK8729FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,558
8	AK8730FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,579
9	AK8732FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,573
10	AK8803FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,548
11	AK8809FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,571
12	AK8810FF	475	060 HYPERFLEX FF,060MIL,AVG,BLK,24	3,595

Internal Ref.

Material Req. # 7399-05

Job # 055226

Shippers # 007497

Bus/Market Seg. Code 0101

Terms: Prepaid/Collect PREPAID

Load Verification

SIGNED

X

Truck/Container #

Seal #

...Square Ft.	135,204	Total Weight	43,044	VOL020001

...er Ref.

CARRIER NAME: RUEL SMITH
CARRIER SIGNATURE: P.S. Cobleigh
DATE: 12/31/98

Truckers P.O. # 86127170

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

...Here For Shipper
...per: Leonard Florenski
...ess: 19103 GUNDLE ROAD
HOUSTON, TX 77073

Sign Here For Agent Of Shipper

Agent for Shipper: _____
(GSE LINING TECHNOLOGY, INC.

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

09/08/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.935
Lot Number	Z-61654	Melt Index (gm/10 min) I2	0.57
Hopper Car Number	MBLX-053310		
Quantity Shipped	194,800 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080038840		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

BILL WALLING
GSE LINING TECHNOLOGY INC.
19103 GUNDLE ROAD
HOUSTON, TX 77073-3515

09/24/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDG601	Density (gms/cc)	0.935
Lot Number	Z-61648	Melt Index (gm/10 min) I2	0.67
Hopper Car Number	MBLX-053584		
Quantity Shipped	184,050 LB		
Date Manufactured	08/27/1998		
Delivery Note	0080040126		
P.O. Number	Verbal		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

Fax To: (281) 230-2510 DON BOHAC
(281) 847-3885 N. IVY

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene
Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/02/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61669	Melt Index (gm/10 min)I2	0.61
Hopper Car Number	MBLX-053734		
Quantity Shipped	195,800 LB		
Date Manufactured	08/30/1998		
Delivery Note	0080040806		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/13/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.934
Lot Number	Z-61676	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053498		
Quantity Shipped	191,200 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080041539		
Location Shipped To ALDINE, TX			

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61680	Melt Index (gm/10 min) I2	0.59
Hopper Car Number	MBLX-053496		
Quantity Shipped	195,650 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042692		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

STAR... Safety Through Accountability and Recognition

Mobil Polyethylene

Certificate of Analysis

"QUALITY PEOPLE MAKING QUALITY PRODUCTS"

DENISE ADAMS
GSE LINING TECHNOLOGY INC
19103 GUNDLE ROAD
HOUSTON, TX 77073

10/27/1998

Mobil Chemical, a major supplier of quality polyethylene, has shipped a lot of material to your facility. The lot identification and analyses are listed below. This data has been supplied by our Quality Control Laboratory located here in Beaumont. If you should need further information or another copy of this report, please call your sales office in EDISON, NJ Phone: (908)321-6000.

Resin Identification		Resin Analysis Test	Lot Data
Product Type	HDA601	Density (gms/cc)	0.933
Lot Number	Z-61678	Melt Index (gm/10 min) I2	0.61
Hopper Car Number	MBLX-053222		
Quantity Shipped	195,200 LB		
Date Manufactured	08/31/1998		
Delivery Note	0080042690		
Location Shipped To	ALDINE, TX		

Thank you for your business. If you need additional assistance, please do not hesitate to contact our Sales Representative in your area.

CC: MP-EDISON

Fax To: (281) 230-2510 DENISE ADAMS
(281) 847-3885 JD
(281) 230-2510 DON BOHAC

GSF

Roll Test Data Report

ROLL NO. AK-7831 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7831 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3540	pounds
	1606	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61654
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.570

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	166	lb/in	30	kg/cm
MD -		130		24		165		30	
ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				23			
NSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	320	lb/in	57	kg/cm
MD -		243		44		324		58	
EAK ELONGATION	D638								
CD -		560	%			643	%		
MD -		560				670			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	58	lb	26	kg
MD -		45		20		60		27	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	106	lb	48	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.3	%		
MD -		+/-2.00				0.3			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.47	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						61		1.54	

TE NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

20051115

GSE

Roll Test Data Report

ROLL NO. AK-7961 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7961 FF	
PROD DATE:	10/31/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3660	pounds
	1660	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61648
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	157	lb/in	28	kg/cm
MD -		130		24		160		29	
IELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				24			
F'SILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	285	lb/in	51	kg/cm
MD -		243		44		304		54	
REAK ELONGATION	D638								
CD -		560	%			615	%		
MD -		560				644			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	24	kg
MD -		45		20		62		28	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	101	lb	46	kg
IRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.4	%		
MD -		+/-2.00				0.3			
\RBON BLACK DISPERSION	D3015	A2				A2			
\RBON BLACK CONTENT	D1603	2.00	%			2.26	%		
:OMEMBRANE DENSITY	D1505			0.940	g/cc			0.944	g/cc
;CR	D1693-B	1500	hours			Start 10/16/98			
IICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

'STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
)MMENTS

DATE SHIPPED

GSE

Roll Test Data Report

ROLL NO. AK-7979 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-7979 FF	
PROD DATE:	10/24/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3709	pounds
	1682	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61648
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.935
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.670

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	153	lb/in	27	kg/cm
MD -		130		24		157		28	
ELD ELONGATION	D638								
CD -		13	%			23	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	298	lb/in	53	kg/cm
MD -		243		44		332		59	
REAK ELONGATION	D638								
CD -		560	%			675	%		
MD -		560				742			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		55		25	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	100	lb	46	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.48	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.945	g/cc
CR	D1693-B	1500	hours			Start 10/16/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.47	
AVG. THICKNESS						60		1.53	

TE NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
MMENTS

DATE SHIPPED

APPROVED JG #20 11-6-98 QA

GSE

Roll Test Data Report

ROLL NO. AK-8196 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8196 FF	
PROD DATE:	11/01/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3548	pounds
	1609	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61669
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	167	lb/in	30	kg/cm
MD -		130		24		154		28	
IELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				23			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	323	lb/in	58	kg/cm
MD -		243		44		337		60	
REAK ELONGATION	D638								
CD -		560	%			673	%		
MD -		560				718			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	24	kg
MD -		45		20		56		25	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	99	lb	45	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.6			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.38	%		
GOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
SCR	D1693-B	1500	hours			Start 10/23/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
)MMENTS

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GSE

Roll Test Data Report

ROLL NO. AK-8664 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8664 FF	
PROD DATE:	11/02/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3565	pounds
	1617	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61676
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.934
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	154	lb/in	28	kg/cm
MD -		130		24		154		28	
ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	312	lb/in	56	kg/cm
MD -		243		44		303		54	
REAK ELONGATION	D638								
CD -		560	%			698	%		
MD -		560				660			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	58	lb	26	kg
MD -		45		20		57		26	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	96	lb	44	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.1			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.28	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/06/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						61		1.54	

TL NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-6-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

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Roll Test Data Report

ROLL NO. AK-8728 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8728 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3598	pounds
	1632	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	146	lb/in	26	kg/cm
MD -		130		24		150		27	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				21			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	328	lb/in	59	kg/cm
MD -		243		44		320		57	
REAK ELONGATION	D638								
CD -		560	%			691	%		
MD -		560				658			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		58		26	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	101	lb	46	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.0			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.34	%		
EOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
SCR	D1693-B	1500	hours			Start 11/13/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-16-98 QA

JSTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
OMMENTS

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Roll Test Data Report

ROLL NO. AK-8729 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8729 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3558	pounds
	1614	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		ORDER MINIMUMS METRIC		ACTUAL TEST VALUES ENGLISH		ACTUAL TEST VALUES METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	142	lb/in	25	kg/cm
MD -		130		24		146		26	
ELD ELONGATION	D638								
CD -		13	%			24	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	273	lb/in	49	kg/cm
MD -		243		44		311		56	
REAK ELONGATION	D638								
CD -		560	%			606	%		
MD -		560				674			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	55	lb	25	kg
MD -		45		20		59		27	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	103	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.0			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.34	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TES. NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-11-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

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GSE

Roll Test Data Report

ROLL NO. AK-8730 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8730 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3579	pounds
	1623	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	138	lb/in	25	kg/cm
MD -		130		24		142		25	
IELD ELONGATION	D638								
CD -		13	%			20	%		
MD -		13				20			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	295	lb/in	53	kg/cm
MD -		243		44		334		60	
REAK ELONGATION	D638								
CD -		560	%			652	%		
MD -		560				691			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	24	kg
MD -		45		20		57		26	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	96	lb	44	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.2	%		
MD -		+/-2.00				0.4			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.34	%		
EOMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
SCR	D1693-B	1500	hours			Start 11/13/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-16-98 QA

STOMER: VOLUSIA COUNTY WASTE
B NO. 7399
)MMENTS

DATE SHIPPED

GSF

Roll Test Data Report

ROLL NO. AK-8732 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8732 FF	
PROD DATE:	11/09/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3573	pounds
	1621	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61680
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.590

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
NSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	140	lb/in	25	kg/cm
MD -		130		24		150		27	
ELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				19			
NSI[illegible] BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	289	lb/in	52	kg/cm
MD -		243		44		303		54	
EAK ELONGATION	D638								
CD -		560	%			620	%		
MD -		560				638			
TIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	54	lb	24	kg
MD -		45		20		62		28	
NCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	104	lb	47	kg
RINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.6	%		
MD -		+/-2.00				0.1			
RBON BLACK DISPERSION	D3015	A2				A2			
RBON BLACK CONTENT	D1603	2.00	%			2.36	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.942	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
ICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						61		1.54	

TE. OTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

APPROVED
#20
11-10-98
QA

GSE

Roll Test Data Report

ROLL NO. AK-8803 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8803 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3548	pounds
	1609	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	145	lb/in	26	kg/cm
MD -		130		24		149		27	
IELD ELONGATION	D638								
CD -		13	%			21	%		
MD -		13				22			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	298	lb/in	53	kg/cm
MD -		243		44		317		57	
REAK ELONGATION	D638								
CD -		560	%			645	%		
MD -		560				671			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	56	lb	25	kg
MD -		45		20		58		26	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	105	lb	48	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.1	%		
MD -		+/-2.00				0.0			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.47	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
SCR	D1693-B	1500	hours			Start 11/13/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		59		1.49	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

JSTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
)MMENTS

DATE SHIPPED

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#20
11-9-98
QA

GSE

Roll Test Data Report

ROLL NO. AK-8809 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8809 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3571	pounds
	1620	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	140	lb/in	25	kg/cm
MD -		130		24		142		25	
IELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				22			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	291	lb/in	52	kg/cm
MD -		243		44		325		58	
REAK ELONGATION	D638								
CD -		560	%			652	%		
MD -		560				721			
ITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		53		24	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	103	lb	47	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/- 2.00	%			0.4	%		
MD -		+/- 2.00				0.1			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.41	%		
OMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
CR	D1693-B	1500	hours			Start 11/13/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

T. NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED VG #20 11-9-98 QA

STOMER: VOLUSIA COUNTY WASTE
3 NO. 7399
MMENTS

DATE SHIPPED

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Roll Test Data Report

ROLL NO. AK-8810 FF

ROLL DIMENSIONS ≈ ± 1%

ROLL NUMBER:	AK-8810 FF	
PROD DATE:	11/08/98	
SHEET AREA:	11267	sq.ft.
	1047	sq. meters
LENGTH:	475	feet
	145	meters
WIDTH:	23.72	feet
	7.2	meters
WEIGHT:	3595	pounds
	1631	kilograms

RESIN LOT INFORMATION

LOT NUMBER Z-61678
RESIN TYPE 600 SERIES

PROPERTY	UNITS	METHOD	RESULT
DENSITY	g/cc	D1505	0.933
MOISTURE	%	D570	< 0.09
BRITTLENESS	°C	D746	<-70
MELT INDEX	g/10 min.	D1238	0.610

PROPERTY	ASTM METHOD	ORDER MINIMUMS ENGLISH		METRIC		ACTUAL TEST VALUES ENGLISH		METRIC	
ENSILE YIELD STRENGTH	D638								
CD -		130	lb/in	24	kg/cm	139	lb/in	25	kg/cm
MD -		130		24		145		26	
IELD ELONGATION	D638								
CD -		13	%			22	%		
MD -		13				22			
ENSILE BREAK STRENGTH	D638								
CD -		243	lb/in	44	kg/cm	289	lb/in	52	kg/cm
MD -		243		44		306		55	
REAK ELONGATION	D638								
CD -		560	%			641	%		
MD -		560				659			
NITIAL TEARING STRENGTH	D1004								
CD -		45	lb	20	kg	53	lb	24	kg
MD -		45		20		56		25	
UNCTURE STRENGTH	FTMS 101C/2065	80	lb	36	kg	101	lb	46	kg
HRINKAGE	D1204								
CD -	(1 HR @ 100C)	+/-2.00	%			0.4	%		
MD -		+/-2.00				0.1			
ARBON BLACK DISPERSION	D3015	A2				A2			
ARBON BLACK CONTENT	D1603	2.00	%			2.40	%		
EOMEMBRANE DENSITY	D1505			0.940	g/cc			0.943	g/cc
SCR	D1693-B	1500	hours			Start 11/13/98			
HICKNESS	D1593/D751								
NOMINAL		60	mil	1.52	mm	60	mil	1.52	mm
MINIMUM		55		1.39		58		1.48	
AVG. THICKNESS						60		1.53	

TEST NOTES: MD=MACHINE DIRECTION CD=CROSS DIRECTION ESCR START DATE IS GIVEN
-FOR TENSILE ELONGATION TEST GAUGE LENGTH=1.3 ON YIELD, 2.5 ON BREAK
ALL STRENGTH VALUES BASED ON NOMINAL THICKNESS

APPROVED JG #20 11-9-98 QA

JSTOMER: VOLUSIA COUNTY WASTE
B NO. 7399
)MMENTS

DATE SHIPPED

ATTACHMENT 7-10

CONFORMANCE TEST RESULTS

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

October 22, 1998

Mr. Joe O'Neill
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 813-623-6757

Dear Mr. O'Neill:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms Road Landfill project.

TRI Job Reference Number:	E2109-80-06
Date Received:	10-21-98
Material(s) Tested:	3 GSE 60 mil textured HDPE geomembranes
Test(s) Requested:	Thickness (ASTM D 5994) Tensile Properties (ASTM D 638/NSF 54) Carbon Black Content (ASTM D 1603) Carbon Black Dispersion (ASTM D 3015/NSF 54) Carbon Black Dispersion (ASTM D 5596) Density (ASTM D 1505)

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

Sincerely,

Sam R. Allen

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

9063 Bee Caves Road • Austin, TX 78733-6201 • (512) 263-2101 • FAX (512) 263-2558

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Road Landfill

Material: GSE 60 mil textured HDPE geomembrane
Resin #: Z61647 **Roll #: AK 7862**
TRI Log #: E2109-80-06

SRA 10.22.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10				
% Carbon Black	2.42	2.62									2.52	0.10		N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)														
Rating	A1	A2	A1	A1	A1	A1					A1			N/A
Carbon Black Dispersion (ASTM D 5596)														
Category Rating - 1st random field view	2	2	1	1	2									N/A
Category Rating - 2nd random field view	1	2	1	1	1									
Density (ASTM D 1505)														
Density (g/cm3)	0.941	0.941	0.942								0.941	0.000		N/A
Tensile Properties (ASTM D 638/NSF 54) - elongation @ break calculated w/2.0" gauge length														
MD Yield Strength (ppi)	145	145	147	147	144						146	1		N/A
TD Yield Strength (ppi)	158	154	156	155	153						155	2		N/A
MD Break Strength (ppi)	261	270	304	298	268						280	17		N/A
TD Break Strength (ppi)	278	295	305	280	285						289	10		N/A
MD Yield Elongation (%)	19	20	23	21	21						21	1		N/A
TD Yield Elongation (%)	21	20	20	20	20						20	0		N/A
MD Break Elongation (%)	765	785	879	856	788						815	45		N/A
TD Break Elongation (%)	783	854	870	803	829						828	32		N/A
Thickness (ASTM D 5994)														
Thickness (mils)	64	66	66	68	62	68	65	65	63	65	65	2		N/A
											62	<= min		N/A

MD Machine Direction N/A Not Available
TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Road Landfill

Material: GSE 60 mil textured HDPE geomembrane
Resin #: Z61648 **Roll #: AK 7982**
TRI Log #: E2109-80-06

SRA 10·22·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10				
% Carbon Black	2.29	2.46									2.38	0.09		N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)														
Rating	A1	A1	A1	A1	A1	A1					A1			N/A
Carbon Black Dispersion (ASTM D 5596)														
Category Rating - 1st random field view	1	2	1	1	1									N/A
Category Rating - 2nd random field view	3	3	1	1	1									
Density (A[illegible] D 1505)														
[illegible]sity (g/cm3)	0.939	0.940	0.940								0.940	0.000		N/A
Tensile Properties (ASTM D 638/NSF 54) - elongation @ break calculated w/2.0" gauge length														
MD Yield Strength (ppi)	156	158	155	156	155						156	1		N/A
TD Yield Strength (ppi)	145	143	142	145	147						144	2		N/A
MD Break Strength (ppi)	300	255	286	281	289						282	15		N/A
TD Break Strength (ppi)	270	294	272	234	262						266	19		N/A
MD Yield Elongation (%)	20	21	20	20	20						20	0		N/A
TD Yield Elongation (%)	21	21	21	21	21						21	0		N/A
MD Break Elongation (%)	841	716	813	791	816						796	43		N/A
TD Break Elongation (%)	785	874	860	759	774						810	47		N/A
Thickness (ASTM D 5994)														
Thickness (mils)	66	67	72	69	69	71	68	71	67	71	69	2		N/A
											66	<= min		N/A

MD Machine Direction N/A Not Available
TD Transverse Direction
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Road Landfill

Material: GSE 60 mil textured HDPE geomembrane
Resin #: Z61649 **Roll #: AK 7990**
TRI Log #: E2109-80-06

SRA 10·22·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	COEFF. OF VAR.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10				
% Carbon Black	2.49	2.72									2.61	0.11		N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)														
Rating	A1	A1	A1	A1	A1	A1					A1			N/A
Carbon Black Dispersion (ASTM D 5596)														
Category Rating - 1st random field view	1	1	1	2	1									N/A
Category Rating - 2nd random field view	1	2	2	1	1									
Density (ASTM D 1505)														
...sity (g/cm3)	0.940	0.940	0.940								0.940	0.000		N/A
Tensile Properties (ASTM D 638/NSF 54) - elongation @ break calculated w/2.0" gauge length														
MD Yield Strength (ppi)	147	143	143	145	144						144	1		N/A
TD Yield Strength (ppi)	157	155	152	154	153						154	2		N/A
MD Break Strength (ppi)	292	307	294	298	301						298	5		N/A
TD Break Strength (ppi)	304	300	296	300	293						299	4		N/A
MD Yield Elongation (%)	21	21	21	21	21						21	0		N/A
TD Yield Elongation (%)	19	19	19	19	21						19	1		N/A
MD Break Elongation (%)	824	878	843	851	870						853	19		N/A
TD Break Elongation (%)	826	826	826	838	814						826	8		N/A
Thickness (ASTM D 5994)														
Thickness (mils)	68	70	67	67	69	67	68	70	65	69	68	1		N/A
											65	<= min		N/A

MD Machine Direction
TD Transverse Direction

N/A Not Available

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

November 14, 1998

Mr. Lee Powell
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 904-947-2955

Dear Mr. Powell:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms Landfill project.

TRI Job Reference Number:	E2112-07-01
Date Received:	11-13-98
Material(s) Tested:	6 textured HDPE geomembranes
Sample ID(s):	AK 8726, AK 8790, AK 8799, AK 8805 AK 8837, AK 8665
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Tensile Properties (ASTM D 638/NSF 54, mod.) Carbon Content (ASTM D 1603) Carbon Dispersion (ASTM D 5596) Carbon Dispersion (ASTM D 3015/NSF 54) Tear Resistance (ASTM D 1004)

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

Sincerely,

Sam R. Allen
Vice President and Division Manager

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TRI/ENVIRONMENTAL, INC.
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GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil textured HDPE geomembrane
Roll #: AK 8665
TRI Log #: E2112-07-01

SBA 11.14.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDAR DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.09	2.11									2.10	0.01	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	1	1	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (ASTM D 1505)													
L .y (g/cm3)	0.94	0.94	0.94								0.940	0.000	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	150	151	148	149	148						149	1	N/A
TD Yield Strength (ppi)	148	150	150	150	154						150	2	N/A
MD Break Strength (ppi)	280	294	285	322	301						296	15	N/A
TD Break Strength (ppi)	281	277	308	279	308						291	14	N/A
MD Yield Elongation (%)	19	19	19	19	19						19	0	N/A
TD Yield Elongation (%)	20	20	20	20	20						20	0	N/A
MD Break Elongation (%)	745	785	778	855	786						790	36	N/A
TD Break Elongation (%)	770	765	851	779	836						800	36	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	62	65	63	64	65	63	64	63	65	64	64	1	N/A
											62	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
T' 'ther accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil textured HDPE geomembrane
Roll #: AK 8805
TRI Log #: E2112-07-01

SRA 11.14.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDAR DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.63	2.77									2.70	0.07	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	1	1	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (AS[illegible] 1505)													
L [illegible]ty (g/cm3)	0.941	0.940	0.942								0.941	0.001	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	141	141	149	153	152						147	5	N/A
TD Yield Strength (ppi)	152	158	151	155	159						155	3	N/A
MD Break Strength (ppi)	265	278	280	285	288						279	8	N/A
TD Break Strength (ppi)	305	326	296	279	306						302	15	N/A
MD Yield Elongation (%)	20	20	26	17	17						20	3	N/A
TD Yield Elongation (%)	20	20	20	20	18						20	1	N/A
MD Break Elongation (%)	741	861	789	779	811						796	40	N/A
TD Break Elongation (%)	826	865	811	771	819						819	30	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	63	64	64	63	64	67	63	64	65	64	64	1	N/A
											63	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available
The tr[illegible] herein is based upon accepted industry practice as well as the test method listed.
T[illegible] accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil textured HDPE geomembrane
Roll #: AK 8837
TRI Log #: E2112-07-01

SBA 11-14-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDAR DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.37	2.56									2.47	0.10	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	2	2	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (ASTM D 1505)													
..ity (g/cm3)	0.941	0.941	0.940								0.941	0.000	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	157	153	157	153	150						154	3	N/A
TD Yield Strength (ppi)	149	150	145	144	150						148	3	N/A
MD Break Strength (ppi)	314	299	276	263	302						291	19	N/A
TD Break Strength (ppi)	265	292	271	303	316						289	19	N/A
MD Yield Elongation (%)	18	19	28	23	23						22	4	N/A
TD Yield Elongation (%)	19	19	19	19	19						19	0	N/A
MD Break Elongation (%)	821	811	741	718	816						782	43	N/A
TD Break Elongation (%)	726	805	773	828	890						804	55	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	64	60	64	63	63	65	61	63	62	62	63	1	N/A
											60	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
..ither accepts responsibility for nor makes claim as to the final use and purpose of the material.

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil textured HDPE geomembrane
Roll #: AK 8799
TRI Log #: E2112-07-01

SEA 11-14-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDAR DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.58	2.37									2.48	0.11	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	1	1	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (AST[illegible] D 1505)													
...ity (g/cm3)	0.944	0.943	0.940								0.942	0.002	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	143	145	151	153	152						149	4	N/A
TD Yield Strength (ppi)	149	147	147	148	153						149	2	N/A
MD Break Strength (ppi)	273	305	298	306	316						300	14	N/A
TD Break Strength (ppi)	293	298	302	303	326						304	11	N/A
MD Yield Elongation (%)	19	19	21	26	21						21	3	N/A
TD Yield Elongation (%)	18	19	19	21	21						20	1	N/A
MD Break Elongation (%)	763	849	803	845	864						825	37	N/A
TD Break Elongation (%)	771	811	825	833	878						824	34	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	63	64	64	63	66	65	65	64	64	63	64	1	N/A
											63	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
T[illegible] accepts responsibility for nor makes claim as to the final use and purpose of the material.

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A Texas Research International Company

GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil textured HDPE geomembrane
Roll #: AK 8790
TRI Log #: E2112-07-01

SCA 11-14-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDAR DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.20	2.28									2.24	0.04	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	1	1	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (ASTM D 1505)													
ıty (g/cm3)	0.941	0.940	0.941								0.941	0.000	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	149	148	147	150	152						149	2	N/A
TD Yield Strength (ppi)	153	147	149	146	148						149	2	N/A
MD Break Strength (ppi)	300	315	276	262	296						290	19	N/A
TD Break Strength (ppi)	292	263	279	287	298						284	12	N/A
MD Yield Elongation (%)	21	21	21	21	21						21	0	N/A
TD Yield Elongation (%)	21	21	21	21	21						21	0	N/A
MD Break Elongation (%)	791	838	740	710	785						773	44	N/A
TD Break Elongation (%)	805	740	776	808	826						791	30	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	62	63	64	64	60	62	64	63	63	62	63	1	N/A
											60	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
T ›ither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil textured HDPE geomembrane
Roll #: AK 8726
TRI Log #: E2112-07-01

SRA 11.14.98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDAR DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.37	2.35									2.36	0.01	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	1	1	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (AS[illegible]1505)													
L .y (g/cm3)	0.941	0.940	0.940								0.940	0.000	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	144	146	140	142	146						144	2	N/A
TD Yield Strength (ppi)	147	146	149	145	147						147	1	N/A
MD Break Strength (ppi)	292	268	289	287	292						286	9	N/A
TD Break Strength (ppi)	315	294	288	316	295						302	12	N/A
MD Yield Elongation (%)	20	20	20	22	22						21	1	N/A
TD Yield Elongation (%)	21	21	21	21	21						21	0	N/A
MD Break Elongation (%)	825	746	820	824	824						808	31	N/A
TD Break Elongation (%)	859	816	783	889	813						832	37	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	63	64	61	63	63	61	62	63	61	63	62	1	N/A
											61	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available
The te[illegible] herein is based upon accepted industry practice as well as the test method listed.
T[illegible] accepts responsibility for nor makes claim as to the final use and purpose of the material.

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TRI/ENVIRONMENTAL, INC.
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November 23, 1998

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NOV 30 1998
SCS ENGINEERS
TAMPA

Mr. Lee Powell
SCS Engineers
3012 U.S. Highway 301 North
Tampa, FL 33619-2242

fax: 904-947-2955

Dear Mr. Powell:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Tomoka Farms Landfill project.

TRI Job Reference Number:	E2112-13-01
Date Received:	11-18-98
Material(s) Tested:	3 textured HDPE geomembranes 3 smooth HDPE geomembranes
Sample ID(s):	AK 8711, AK 8788, AK 8853, AK 8680, AK 8690, AK 8698
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Tensile Properties (ASTM D 638/NSF 54, mod.) Carbon Content (ASTM D 1603) Carbon Dispersion (ASTM D 5596) Carbon Dispersion (ASTM D 3015/NSF 54) Tear Resistance (ASTM D 1004)

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

Sincerely,

Sam R. Allen

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

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TRI/ENVIRONMENTAL, INC.
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GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil textured HDPE geomembrane
Roll #: AK 8711
TRI Log #: E2112-13-01

SRA 11-23-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.15	2.15									2.15	0.00	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	1	1	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (ASTM D 1505)													
Density (g/cm3)	0.938	0.938	0.939								0.938	0.000	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	147	145	143	141	142						144	2	N/A
TD Yield Strength (ppi)	143	145	143	141	138						142	2	N/A
MD Break Strength (ppi)	306	280	274	304	300						293	13	N/A
TD Break Strength (ppi)	308	301	301	324	308						308	8	N/A
MD Yield Elongation (%)	24	24	24	24	24						24	0	N/A
TD Yield Elongation (%)	24	24	24	24	24						24	0	N/A
MD Break Elongation (%)	851	780	773	854	840						820	36	N/A
TD Break Elongation (%)	870	841	855	924	884						875	28	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	61	60	60	60	62	61	62	60	60	60	61	1	N/A
											60	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available

The testing herein is based upon accepted industry practice as well as the test method listed.
TRI/Environmental, Inc. accepts responsibility for nor makes claim as to the final use and purpose of the material.

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil textured HDPE geomembrane
Roll #: AK 8788
TRI Log #: E2112-13-01

SRA 11·23·98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.52	2.49									2.51	0.02	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	1	1	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (ASTM D 1505)													
Density (g/cm3)	0.940	0.940	0.940								0.940	0.000	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	141	139	137	137	132						137	3	N/A
TD Yield Strength (ppi)	143	139	145	143	142						142	2	N/A
MD Break Strength (ppi)	304	270	290	285	280						286	11	N/A
TD Break Strength (ppi)	291	309	296	263	292						290	15	N/A
MD Yield Elongation (%)	19	19	19	19	19						19	0	N/A
TD Yield Elongation (%)	21	21	21	21	21						21	0	N/A
MD Break Elongation (%)	875	783	830	825	818						826	30	N/A
TD Break Elongation (%)	839	888	851	758	848						837	43	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	61	61	60	60	60	60	61	61	60	60	60	0	N/A
											60	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOMEMBRANE TEST RESULTS

Client: SCS Engineers
Project: Tomoka Farms Landfill

Material: GSE 60 mil textured HDPE geomembrane
Roll #: AK 8853
TRI Log #: E2112-13-01

SRA 11-23-98
Quality Review/Date

PARAMETER	TEST REPLICATE NUMBER										MEAN	STANDARD DEV.	PROJECT SPEC.
Carbon Black Content (ASTM D 1603)	1	2	3	4	5	6	7	8	9	10			
% Carbon Black	2.42	2.46									2.44	0.02	N/A
Carbon Black Dispersion (ASTM D 5596)													
Category Rating - 1st random field view	1	1	1	1	1								
Category Rating - 2nd random field view	1	1	1	1	1								N/A
Carbon Black Dispersion (ASTM D 3015/NSF 54)													
Rating	A1	A1	A1	A1	A1	A1					A1		
Density (ASTM D 1505)													
Density (g/cm3)	0.940	0.940	0.941								0.940	0.000	N/A
Tensile Properties (ASTM D 638/NSF 54, mod. using 2 inch gage length for elongation @ break)													
MD Yield Strength (ppi)	145	145	143	143	142						144	1	N/A
TD Yield Strength (ppi)	147	147	141	145	142						144	2	N/A
MD Break Strength (ppi)	265	309	284	300	278						287	16	N/A
TD Break Strength (ppi)	287	278	284	267	266						276	9	N/A
MD Yield Elongation (%)	21	21	21	21	21						21	0	N/A
TD Yield Elongation (%)	21	21	21	21	21						21	0	N/A
MD Break Elongation (%)	758	871	813	858	791						818	42	N/A
TD Break Elongation (%)	831	804	828	771	771						801	26	N/A
Thickness (ASTM D 5994)													
Thickness (mils)	60	61	61	61	61	60	60	61	61	60	61	0	N/A
											60	<= min	N/A

MD Machine Direction
TD Transverse Direction
NA Not Available
The testing herein is based upon accepted industry practice as well as the test method listed.
TRI/Environmental, Inc. accepts responsibility for nor makes claim as to the final use and purpose of the material.

TRI/ENVIRONMENTAL, INC.
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SCS

GSE material sampled from inventory

Project: Tomoka Farms Road Landfill
Material: GSE 60 mil smooth HDPE geomembrane

	Roll Number	Date Manufac-tured	Roll Length & Width	Thickness Checked at Line: TRI	Thickness Checked at Line: Manufac-turer	Conf. Sample Taken (date)	Conf. Sample Sent (date)	QC Certs: Date Recd.	QC Certs: Date Aprvd.	Rail Car, Resin, Lot No.	Resin Cert. Recd.	Conform. Lab (pass/fail)	* Comments	OK for shlp-ment	Recd.
1	AK 8678	11/2/98	475' x 23.7'		X					Z - 61680					
2	AK 8679	11/2/98	475' x 23.7'		X					Z - 61680					
3	AK 8680	11/2/98	475' x 23.7'	X	X	11/17/98	11/17/98			Z - 61680			1st conformance sample		
4	AK 8681	11/2/98	475' x 23.7'		X					Z - 61680					
5	AK 8682	11/2/98	475' x 23.7'		X					Z - 61680					
6	AK 8683	11/2/98	475' x 23.7'		X					Z - 61680					
7	AK 8684	11/2/98	475' x 23.7'		X					Z - 61680					
8	AK 8685	11/2/98	475' x 23.7'		X					Z - 61680					
9	AK 8686	11/2/98	475' x 23.7'		X					Z - 61680					
10	AK 8687	11/2/98	475' x 23.7'		X					Z - 61680					
11	AK 8688	11/2/98	475' x 23.7'		X					Z - 61680					
12	AK 8689	11/2/98	475' x 23.7'		X					Z - 61680					
13	AK 8690	11/2/98	475' x 23.7'	X	X	11/17/98	11/17/98			Z - 61680			2nd conformance sample		
14	AK 8691	11/2/98	475' x 23.7'		X					Z - 61680					
15	AK 8692	11/2/98	475' x 23.7'		X					Z - 61680					
16	AK 8693	11/2/98	475' x 23.7'		X					Z - 61680					
17	AK 8694	11/2/98	475' x 23.7'		X					Z - 61680					
18	AK 8695	11/2/98	475' x 23.7'		X					Z - 61680					
19	AK 8696	11/3/98	475' x 23.7'		X					Z - 61680					
20	AK 8697	11/3/98	475' x 23.7'		X					Z - 61680					
21	AK 8698	11/3/98	475' x 23.7'	X	X	11/17/98	11/17/98			Z - 61680			3rd conformance sample		
22	AK 8699	11/3/98	475' x 23.7'		X					Z - 61680					

* RJ - Rejected

Sheet 1 of 1
Inspector/Sampling Technician: Sam P. Jolin

Reviewed and Approved MCH

10/3/98, status report:
22 rolls produced at 475' in length x 23.7'
=> 247,665ft2, 3 samples taken
JOB IS COMPLETE

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Manufacturing Inventory, In-Plant Monitoring

Project: Tomoka Farms Road Landfill
Material: GSE 60 mil textured HDPE geomembrane

	Roll Number	Date Manufac-tured	Roll Length & Width	Thickness Checked at Line		Conf. Sample Taken (date)	Conf. Sample Sent (date)	QC Certs		Rail Car, Resin, Lot No.	Resin Cert. Recd.	Conform. Lab (pass/fail)	* Comments	OK for ship-ment	Recd.
				TRI	Manufac-turer			Date Recd.	Date Aprvd.						
1	AK7821	10/16/98	475' x 23.7'		X					Z - 61654					
2	AK7822	10/16/98	475' x 23.7'		X					Z - 61654					
3	AK7831	11/1/98	475' x 23.7'		X					Z - 61654					
4	AK7833	11/1/98	475' x 23.7'		X					Z - 61654					
5	AK7834	11/1/98	475' x 23.7'		X					Z - 61654					
6	AK7837	10/17/98	475' x 23.7'		X					Z - 61654					
7	AK7838	10/17/98	475' x 23.7'		X					Z - 61654					
8	AK7861	10/17/98	475' x 23.7'		X					**Z - 61647**					
9	AK7862	10/17/98	475' x 23.7'	X	X	10/17/98	10/19/98			Z - 61647			1st conformance sample		
10	AK7960	10/31/98	475' x 23.7'		X					**Z - 61648**					
11	AK7961	10/31/98	475' x 23.7'		X					Z - 61648					
12	AK7963	10/31/98	475' x 23.7'		X					Z - 61648					
13	AK7964	10/23/98	475' x 23.7'		X					Z - 61648					
14	AK7965	10/23/98	475' x 23.7'		X					Z - 61648					
15	AK7969	10/16/98	475' x 23.7'		X					Z - 61648					
16	AK7972	10/16/98	475' x 23.7'		X					Z - 61648					
17	AK7973	10/16/98	475' x 23.7'		X					Z - 61648					
18	AK7974	10/16/98	475' x 23.7'		X					Z - 61648					
19	AK7975	10/16/98	475' x 23.7'		X					Z - 61648					
20	AK7978	10/24/98	475' x 23.7'		X					Z - 61648					
21	AK7979	10/24/98	475' x 23.7'		X					Z - 61648					
22	AK7982	10/15/98	475' x 23.7'	X	X	10/16/98	10/19/98			Z - 61648			2nd conformance sample		
23	AK7983	10/15/98	475' x 23.7'		X					Z - 61648					
24	AK7984	10/15/98	475' x 23.7'		X					Z - 61648					
25	AK7985	10/15/98	475' x 23.7'		X					**Z - 61649**					

*** RJ - Rejected**

Sheet 1 of

Inspector/Sampling Technician: Sam P. Jolin

Reviewed and Approved MCH

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TRI/ENVIRONMENTAL, INC.
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Manufacturing Inventory, In-Plant Monitoring

Project: Tomoka Farms Road Landfill
Material: GSE 60 mil textured HDPE geomembrane

	Roll Number	Date Manufac-tured	Roll Length & Width	Thickness Checked at Line: TRI	Thickness Checked at Line: Manufac-turer	Conf. Sample Taken (date)	Conf. Sample Sent (date)	QC Certs: Date Recd.	QC Certs: Date Aprvd.	Rail Car, Resin, Lot No.	Resin Cert. Recd.	Conform. Lab (pass/fail)	* Comments	OK for ship-ment	Recd.
26	AK 7986	10/15/98	475' x 23.7'		X					Z - 61649					
27	AK 7987	10/15/98	475' x 23.7'		X					Z - 61649					
28	AK 7989	10/23/98	475' x 23.7'		X					Z - 61649					
29	AK 7990	10/15/98	475' x 23.7'	X	X	10/15/98	10/17/98			Z - 61649			3rd conformance sample		
30	AK 7991	10/15/98	475' x 23.7'		X					Z - 61649					
31	AK 7994	10/16/98	475' x 23.7'		X					Z - 61649					
32	AK 7995	10/16/98	475' x 23.7'		X					Z - 61649					
33	AK 7996	10/16/98	475' x 23.7'		X					Z - 61649					
34	AK 7997	10/16/98	475' x 23.7'		X					Z - 61649					
35	AK 7999	10/16/98	475' x 23.7'		X					Z - 61649					
36	AK 8194	11/2/98	475' x 23.7'		X					Z - 61669					
37	AK 8195	11/2/98	475' x 23.7'		X					Z - 61669					
38	AK 8196	11/2/98	475' x 23.7'		X					Z - 61669					
39	AK 8197	11/2/98	475' x 23.7'		X					Z - 61669					
40	AK 8198	11/2/98	475' x 23.7'		X					Z - 61669					
41	AK 8199	11/2/98	475' x 23.7'	X	X	11/2/98	11/4/98			Z - 61669			4th conformance sample		
42	AK 8200	11/2/98	475' x 23.7'		X					Z - 61669					
43	AK 8201	11/2/98	475' x 23.7'		X					Z - 61669					
44	AK 8202	11/3/98	475' x 23.7'		X					Z - 61669					
45	AK 8203	11/3/98	475' x 23.7'		X					Z - 61669					
46	AK 8204	11/3/98	475' x 23.7'		X					Z - 61669					
47	AK 8205	11/3/98	475' x 23.7'		X					Z - 61669					
48	AK 8206	10/31/98	475' x 23.7'	X	X	10/31/98	11/4/98			Z - 61669			5th conformance sample		
49	AK 8207	10/31/98	475' x 23.7'		X					Z - 61669					
50	AK 8208	10/31/98	475' x 23.7'		X					Z - 61669					

*** RJ - Rejected**

Sheet 2 of _____
Inspector/Sampling Technician: Sam P. Jolin

Reviewed and Approved MCH

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TRI/ENVIRONMENTAL, INC.
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Manufacturing Inventory, In-Plant Monitoring

Project: Tomoka Farms Road Landfill
Material: GSE 60 mil textured HDPE geomembrane

	Roll Number	Date Manufac-tured	Roll Length & Width	Thickness Checked at Line: TRI	Thickness Checked at Line: Manufac-turer	Conf. Sample Taken (date)	Conf. Sample Sent (date)	QC Certs: Date Recd.	QC Certs: Date Aprvd.	Rail Car, Resin, Lot No.	Resin Cert. Recd.	Conform. Lab (pass/fail)	* Comments	OK for ship-ment	Recd.
51	AK 8209	10/31/98	475' x 23.7'		X					Z - 61669					
52	AK 8210	10/31/98	475' x 23.7'		X					Z - 61669					
53	AK 8211	10/31/98	475' x 23.7'		X					Z - 61669					
54	AK 8212	10/31/98	475' x 23.7'		X					Z - 61669					
55	AK 8213	10/31/98	475' x 23.7'		X					Z - 61669					
56	AK 8214	10/31/98	475' x 23.7'		X					Z - 61669					
57	AK 8215	10/31/98	475' x 23.7'		X					Z - 61669					
58	AK 8216	11/1/98	475' x 23.7'		X					Z - 61669					
59	AK 8217	11/1/98	475' x 23.7'		X					Z - 61669					
60	AK 8220	11/2/98	475' x 23.7'	X	X	11/2/98	11/4/98			Z - 61669			6th conformance sample		
61	AK 8221	11/2/98	475' x 23.7'		X					Z - 61669					
62	AK 8222	11/2/98	475' x 23.7'		X					Z - 61669					
63	AK 8223	11/2/98	475' x 23.7'		X					Z - 61669					
64	AK 8224	11/2/98	475' x 23.7'		X					Z - 61669					
65	AK 8225	11/2/98	475' x 23.7'		X					Z - 61669					
66	AK 8226	11/2/98	475' x 23.7'		X					Z - 61669					
67	AK 8227	11/3/98	475' x 23.7'		X					Z - 61669					
68	AK 8228	11/1/98	475' x 23.7'		X					Z - 61669					
69	AK 8229	11/1/98	475' x 23.7'		X					Z - 61669					
70	AK 8230	11/1/98	475' x 23.7'	X	X	11/1/98	11/4/98			Z - 61669			7th conformance sample		
71	AK 8231	11/1/98	475' x 23.7'		X					Z - 61669					
72	AK 8232	11/1/98	475' x 23.7'		X					Z - 61670					
73	AK 8233	11/1/98	475' x 23.7'		X					Z - 61670					
74	AK 8234	11/1/98	475' x 23.7'		X					Z - 61670					
75	AK 8235	11/1/98	475' x 23.7'		X					Z - 61670					

* RJ - Rejected

Sheet 3 of _____
Inspector/Sampling Technician: Sam P. Jolin

Reviewed and Approved MCH

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

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Manufacturing Inventory, In-Plant Monitoring

Project: Tomoka Farms Road Landfill
Material: GSE 60 mil textured HDPE geomembrane

	Roll Number	Date Manufac-tured	Roll Length & Width	Thickness Checked at Line: TRI	Thickness Checked at Line: Manufac-turer	Conf. Sample Taken (date)	Conf. Sample Sent (date)	QC Certs: Date Recd.	QC Certs: Date Aprvd.	Rail Car, Resin, Lot No.	Resin Cert. Recd.	Conform. Lab (pass/fail)	* Comments	OK for ship-ment	Recd.
76	AK 8236	11/1/98	475' x 23.7'		X					Z - 61670					
77	AK 8237	11/1/98	475' x 23.7'		X					Z - 61670					
78	AK 8238	11/1/98	475' x 23.7'		X					Z - 61670					
79	AK 8239	11/1/98	475' x 23.7'	X	X	11/1/98	11/4/98			Z - 61670			8th conformance sample		
80	AK 8240	11/1/98	475' x 23.7'		X					Z - 61670					
81	AK 8241	11/1/98	475' x 23.7'		X					Z - 61670					
82	AK 8246	11/3/98	475' x 23.7'		X					Z - 61670					
83	AK 8247	11/3/98	475' x 23.7'		X					Z - 61670					
84	AK 8252	11/3/98	475' x 23.7'		X					Z - 61670					
85	AK 8253	11/3/98	475' x 23.7'		X					Z - 61670					
86	AK 8254	11/3/98	475' x 23.7'		X					Z - 61670					
87	AK 8255	11/3/98	475' x 23.7'	X	X	11/3/98	11/4/98			Z - 61670			9th conformance sample		
88	AK 8256	11/3/98	475' x 23.7'		X					Z - 61670					
89	AK 8257	11/3/98	475' x 23.7'		X					Z - 61670					
90	AK 8258	11/3/98	475' x 23.7'		X					Z - 61670					
91	AK 8259	11/3/98	475' x 23.7'		X					Z - 61670					
92	AK 8260	11/3/98	475' x 23.7'		X					Z - 61670					
93	AK 8261	11/3/98	475' x 23.7'		X					Z - 61670					
94	AK 8262	11/3/98	475' x 23.7'		X					Z - 61670					
95	AK 8264	10/31/98	475' x 23.7'		X					Z - 61670					
96	AK 8265	10/31/98	475' x 23.7'		X					Z - 61670					
97	AK 8266	10/30/98	475' x 23.7'		X					Z - 61670					
98	AK 8267	10/30/98	475' x 23.7'	X	X	10/30/98	11/4/98			Z - 61670			10th conformance sample		
99	AK 8268	10/30/98	475' x 23.7'		X					Z - 61670					
100	AK 8269	10/30/98	475' x 23.7'		X					Z - 61670					

* RJ - Rejected

Sheet 4 of
Inspector/Sampling Technician: Sam P. Jolin

Reviewed and Approved MCH

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

SCS
Manufacturing Inventory, In-Plant Monitoring

Project: Tomoka Farms Road Landfill
Material: GSE 60 mil textured HDPE geomembrane

	Roll Number	Date Manufac-tured	Roll Length & Width	Thickness Checked at Line: TRI	Thickness Checked at Line: Manufac-turer	Conf. Sample Taken (date)	Conf. Sample Sent (date)	QC Certs: Date Recd.	QC Certs: Date Aprvd.	Rail Car, Resin, Lot No.	Resin Cert. Recd.	Conform. Lab (pass/fail)	* Comments	OK for ship-ment	Recd.
101	AK 8664	11/3/98	475' x 23.7'		X					**Z - 61676**					
102	AK 8665	11/3/98	475' x 23.7'	X	X	11/3/98	11/4/98			Z - 61676			11th conformance sample		

*** RJ - Rejected**

Sheet 5 of
Inspector/Sampling Technician: Sam P. Jolin

Reviewed and Approved MCH

11/5/98, status report:
102 rolls produced at 475' in length x 23.7'
=> 1,148,265ft2, 11 samples taken
Approx. 30 more rolls needed

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ATTACHMENT 7-11

WARRANTIES

COMANCO

ENVIRONMENTAL CORPORATION

LIMITED WARRANTY

PROJECT:	TOMOKA FARMS ROAD LANDFILL PHASE IV AND LEACHATE POND NO. 2
OWNER:	VOLUSIA COUNTY BOARD OF COUNTY COMMISSIONERS
CONTRACT AMOUNT:	$588,164.30

COMANCO ENVIRONMENTAL CORPORATION ("COMANCO"), subject to the terms and conditions set forth below, warrants the above referenced installation shall be installed free from defects in workmanship for a period of one (1) year from the date the installation is completed. This Limited Warranty extends only to the proper installation of the lining system and does not include damages or defects in the installation caused by entities other than COMANCO or resulting from Acts of God or casualty or catastrophe, including but not limited to, earthquakes, fire, floods, hail, tornados, hurricanes, tropical storms, gale force winds, other events of force majeure or vandalism. Further, this Limited Warranty does not include damages or defects in the installation resulting from exposure to harmful chemicals, abuse by machinery, equipment or people, excessive pressures or stresses from any source, subsurface or overburdened soil conditions, total or differential soil settlements, or any other cause not within COMANCO's control.

The extent of COMANCO's liability for breach of this Limited Warranty shall be limited to repairing or replacing the defective installation workmanship that will result in providing the Owner with the pro-rated performance remaining under the original period of this Limited Warranty. COMANCO shall have the right to inspect and determine the cause of any alleged defect in the installation and to take the appropriate steps to repair or replace the installation workmanship if a defect exists and is within the terms of this Limited Warranty.

This Limited Warranty will not be effective unless COMANCO receives written notice, by certified mail, to the President of COMANCO within thirty (30) days after the alleged defect is first discovered or should have been discovered by the Owner. Should the required notice not be given, the defect and all warranties shall be deemed to have been waived by Owner and Owner shall have no right of recovery against COMANCO. In the event repairs or replacement are to be effected, said repairs and/or replacements shall not become due until the area subject to repair or replacement is made available to COMANCO in a clean, dry, unencumbered condition. This includes, but is not limited to, the repair or replacement area being free from all water, dirt, sludge, waste, residuals, liquids, or overlying material of any kind. In no event will COMANCO be liable for any costs expended by any person or entity other than COMANCO on any defective work with respect to the installation. Any repairs, replacements or alterations which affect COMANCO's original installation work will void this Limited Warranty.

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Notwithstandinganything herein to the contrary, COMANCO's liability under this Limited Warranty shall in no event exceed the Contract Amount above stated. Further, under no circumstances, shall COMANCO be liable for any special, direct, indirect or consequential damages arising from loss of production or product, or any other losses, including losses due to personal injuries and product liability owing to the failure of the material or installation. Owner shall be deemed to have waived its rights under this Limited Warranty with respect to any repairs, replacements or alterations made by Owner without the express written consent of COMANCO. COMANCO neither assumes nor authorizes any person other than an officer of COMANCO to assume for it any other or additional liability in connection with the installation. This Limited Warranty is extended to Owner only is non-transferable and non-assignable. No rights against COMANCO will survive an attempted transfer or assignment.

THE LIMITED WARRANTY HEREIN IS GIVEN IN LIEU OF ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE, OR OTHER WARRANTIES OR REPRESENTATIVES, EXPRESS OR IMPLIED . BY ACCEPTING THE INSTALLATION, OWNER WAIVES ALL OTHER SUCH POSSIBLE WARRANTIES OR REPRESENTATIONS, EXCEPT THOSE SPECIFICALLY GIVEN HEREIN. CORRECTION OF NONCONFORMITIES, IN THE MANNER AND FOR THE PERIOD OF TIME PROVIDED ABOVE, SHALL CONSTITUTE FULFILLMENT OF ALL LIABILITIES OF COMANCO TO OWNER, WHETHER BASED ON CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE WITH RESPECT TO OR ARISING OUT OF THE INSTALLATION OF THE LINING SYSTEM. THE PARTIES HERETO EXPRESSLY AGREE THAT THE SALE HEREUNDER IS FOR COMMERCIAL OR INDUSTRIAL USE ONLY. WARRANTIES, IF ANY, CONCERNING THE MATERIALS INCORPORATED INTO THE LINING SYSTEM ARE COVERED, IF AT ALL, BY SEPARATE WARRANTIES FROM THE MANUFACTURERS OR SUPPLIERS OF SUCH MATERIALS AND ARE EXPRESSLY EXCLUDED FROM THE SCOPE OF THIS LIMITED WARRANTY AND OWNER ACKNOWLEDGES AND AGREES THAT COMANCO HAS MADE NO WARRANTIES OR REPRESENTATIONS TO IT CONCERNING EITHER THE AVAILABILITY OR SUFFICIENCY OF ANY SUCH WARRANTIES OR REPRESENTATIONS FROM MANUFACTURERS OR SUPPLIERS.

EXCEPT AS EXPRESSLY STATED ABOVE, COMANCO MAKES NO WARRANTY OF ANY KIND AND HEREBY DISCLAIMS ALL WARRANTIES WITH RESPECT TO THE INSTALLATION OF THE LINING SYSTEM , BOTH EXPRESSED AND IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

No terms or conditions other than those stated herein and no agreement or understanding, oral or written and no course of conduct or performance in any way purporting to modify this Limited Warranty or to waive COMANCO's rights hereunder shall be binding on COMANCO unless the same shall be clearly described in writing that refers to this Limited Warranty and is signed by an officer of COMANCO. Additional liabilities created by other documents shall have no force or effect upon this Limited Warranty or the installation performed by COMANCO. The laws of the State of Florida will govern the rights and duties of the parties under this Warranty. Venue for all proceedings involving this Limited Warranty or any other matter contained herein shall be in Hillsborough County, Florida.

COMANCO ENVIRONMENTAL CORPORATION

BY: _____ **TITLE:** Executive Vice President **DATE:** May 11,1999

COMANCO

PRO-RATA LIMITED WARRANTY
FOR GSE LINING TECHNOLOGY, INC.
(GEOSYNTHETIC MANUFACTURED MATERIALS)
(U.S.A.)

Date:	September 9, 1998	Warranty No.:	DS5226
Purchaser Name:	Volusia County, Florida	Project No.:	DS5226 MR#7399
Address:	3151 E. New York Avenue	Effective Date:	July 20, 1998
City, State:	De land, Florida 32724	Project Name:	Volusia County Landfill Alternate Phase II
Product Type/Description:	GSE HD Textured 60 mil	Project Address:	Daytona Beach, Florida

GSE Lining Technology, Inc. ("GSE") warrants each GSE product described above to be free from material manufacturing defects (as described by the contract's material specifications) and to be able to withstand normal weathering for a period of twenty (20) years from the above effective date for "normal use" in approved applications. This limited warranty does not include damages or defects in the GSE product resulting from acts of God, casualty or catastrophe, including but not limited to: earthquakes, floods, piercing hail, tornadoes or force majeure. The term "normal use" does not include, among other things, the exposure of GSE's product to harmful chemicals, abuse by machinery, equipment or people; improper site preparation or placement of cover materials; excessive pressures or stresses from any source. This warranty is intended for commercial use only and is not in effect for the consumer as defined in the Magnuson-Moss Warranty Act.

Should defects or premature loss of use within the scope of this warranty occur, GSE will, at its option, repair or replace the GSE product on a pro-rata basis at the current price in such manner as to charge the Purchaser only for that portion of the warranted life which has elapsed since the purchase of the product. GSE shall have the right to inspect and determine the cause of the alleged defect in the product and to take appropriate steps to repair or replace the product if a defect exists that is covered under this warranty. This limited warranty only extends to the geosynthetic portion of this product manufactured by GSE and does not apply to any third-party manufactured materials attached to GSE's product. The third-party portion of the product will carry the original manufacturer's warranty that will be passed through to the Purchaser.

Any claim for any alleged breach of this warranty must be made in writing, by certified mail or courier, to the President of GSE, within ten (10) days of Purchaser becoming aware of the alleged defect. Should the required notice not be given, the defect and all warranties are waived by the Purchaser, and Purchaser shall not have rights under this warranty. GSE shall not be obligated to perform any inspection or obligated to perform any repair or replacement under this warranty until the area is made available free from all obstructions, water, dirt, sludge, residuals and liquids of any kind. If after inspection it is determined that there is no claim under this warranty, Purchaser shall reimburse GSE for its costs associated with the site inspection.

In the event the exclusive remedy provided herein fails in its essential purpose, and in that event only, the Purchaser shall be entitled to a return of the purchase price for so much of the product as GSE determines to have violated the warranty provided herein. GSE shall not be liable for direct, indirect, special, consequential or incidental damages resulting from a breach of this warranty including, but not limited to: damages for loss of production, lost profits, personal injury or property damage. GSE shall not be obligated to reimburse Purchaser for any repairs, replacement, modifications or alterations made by Purchaser to GSE's product, unless GSE specifically authorized, in writing, said repairs, replacements, modifications or alterations in advance. GSE liability under this warranty shall in no event exceed the replacement cost of the product sold to the Purchaser for the particular installation in which it failed.

GSE neither assumes nor authorizes any person other than an officer of GSE to assume for it any other or additional liability in connection with the GSE product made on the basis of the Limited Warranty. **GSE MAKES NO WARRANTY OF ANY KIND OTHER THAN THAT GIVEN HEREIN AND HEREBY DISCLAIMS ALL WARRANTIES, INCLUDING BOTH EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, AND BY ACCEPTING DELIVERY OF THE PRODUCT, PURCHASER WAIVES ALL OTHER POSSIBLE WARRANTIES. GSE's WARRANTY BECOMES AN OBLIGATION OF GSE TO PERFORM UNDER THE WARRANTY ONLY UPON RECEIPT OF FINAL PAYMENT**

This warranty is extended to the Purchaser and is non-transferable and non-assignable, i.e. there are no third-party beneficiaries to this warranty.

GSE LINING TECHNOLOGY, INC.

BY: Carolyn Gregor

Authorized Representative

SECTION 8

DRAINAGE SAND

8.1 DRAINAGE SAND INSTALLATION

The permeability and sieve analysis of the drainage sand are contained in Attachment 8-1 in this section.

8.2 FINAL PROJECT SURVEY

Contained in Attachment 8-2 is the final project survey conducted by Blackwell and Associates Land Surveyors Incorporated (Blackwell & Associates). The final drainage sand elevations, edge of bottom liner locations, and drainage swales are shown on this survey.

ATTACHMENT 8-1

DRAINAGE SAND INFORMATION

UNIVERSAL
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Consultants In: Geotechnical Engineering • Environmental Sciences •
Construction Materials Testing • Threshold Inspection

Offices In:
• Daytona Beach
• Jacksonville
• DeBary
• St. Augustine
• Orlando
• Gainesville
• Fort Myers
• Rockledge
• West Palm Beach

October 30, 1998

Mr. Nathan Hunter
Volusia County
123 West Indiana Avenue
DeLand, Florida 32720-4262

Reference: **PERMEABILITY TESTING AND GRAIN SIZE ANALYSIS**
Tomoka Landfill, Daytona Beach, Florida
UES Project No. 41011-116-01 and Report No. 66849

Dear Mr. Hunter:

Universal Engineering Sciences (UES) is pleased to submit the results of the laboratory tests performed on samples from the stockpiled soils at the above referenced site. We understand that the soils are intended to be used as a cover for the landfill.

Two samples were obtained for vertical permeability testing and grain size analysis. The results are provided in the following tables:

TABLE I - PERMEABILITY DATA

Sample Location	Laboratory Vertical Permeability
Pioneer Trail Bar Pit	28.0 feet/day
Pioneer Trail Bar Pit	17.1 feet/day

911 Beville Road, Suite 3 • South Daytona, Florida 32119 • (904) 756-1105 • FAX (904) 760-4067

TABLE II - SIEVE ANALYSIS		
SIEVE SIZE	PERCENT PASSING	
¾	100	100
⅜	100	100
4	100	100
10	99.1	99.8
40	92.5	92.3
60	70.0	67.0
100	7.7	7.9
200	1.8	1.6

We have also provided soil gradation curves for these soil samples in Attachment A.

UES appreciates the opportunity to be of service to you on this project. Please contact us if we can be of further assistance.

Respectfully submitted,

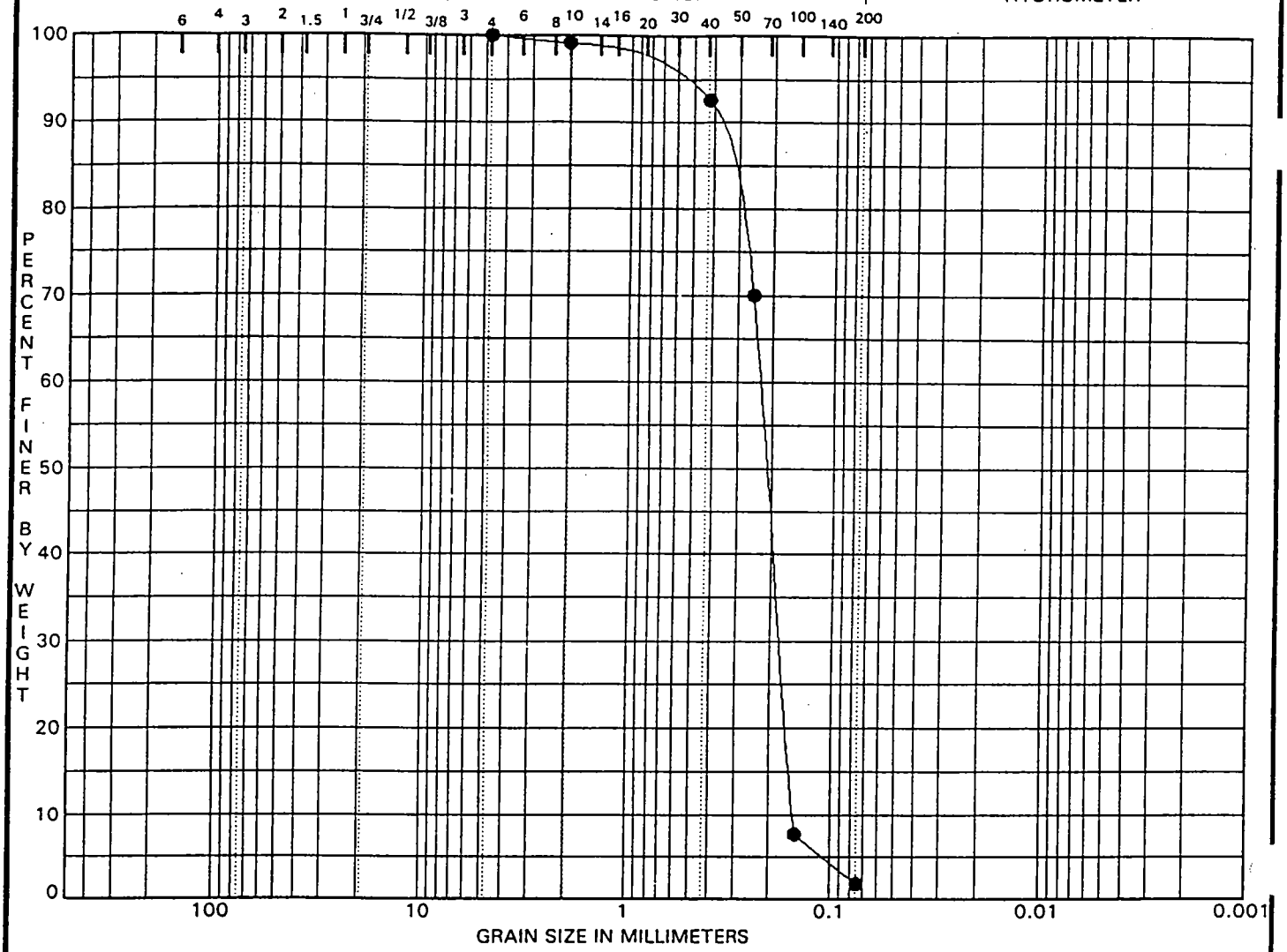
UNIVERSAL ENGINEERING SCIENCES

Sheila M. Smith, P.E. 10/30/98
P.E. Number 51512
Branch Manager

Michael P. Zanotelli
Project Engineer

xc: Mr. Jim Griffin; Volusia County Solid Waste
Mr. Lee Powell, P.E.; SCS Engineering

ATTACHMENT A



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● SAMPLE 1	Light gray SAND (SP)					0.92	1.5

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SAMPLE 1	4.75	0.23	0.180	0.1529	0.0	98.2	1.8	

3/4"	3/8"	NO. 4	NO. 10	NO. 40	NO. 60	NO. 100	NO. 200
100.0	100.0	100.0	99.1	92.5	70.0	7.7	1.8

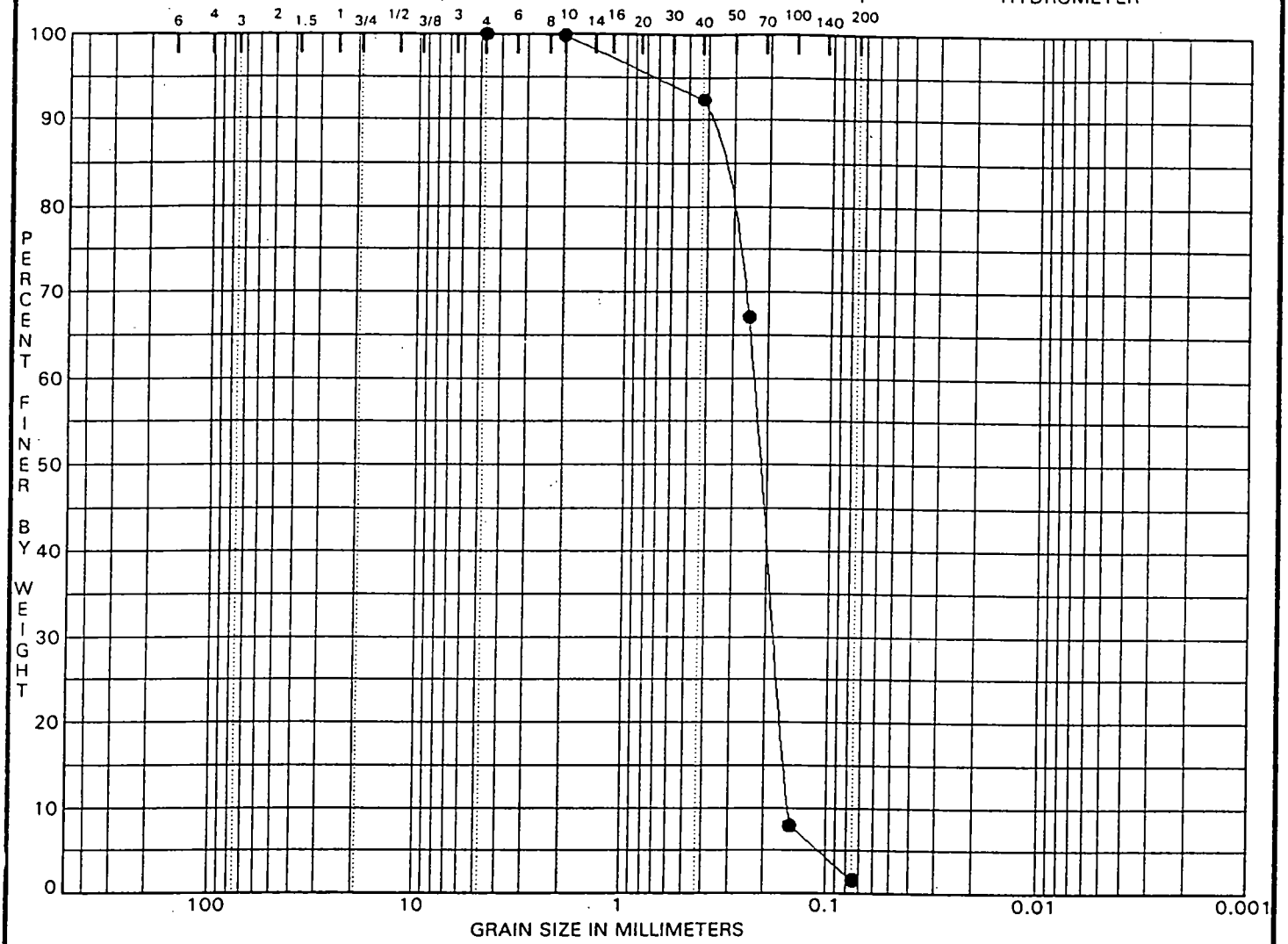
Client: VOLUSIA COUNTY

Client No: 41011-116-01
Report No: 66849
Date: 10/30/98

Project: GEOTECHNICAL SERVICES FOR STORMWATER RETENTION
TOMOKA LANDFILL
DAYTONA BEACH, FLORIDA

SOIL GRADATION CURVES

Universal Engineering Sciences
SOUTH DAYTONA, FLORIDA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● SAMPLE 2	Light gray SAND (SP)					0.92	1.5

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SAMPLE 2	4.75	0.24	0.182	0.1527	0.0	98.4	1.6	

3/4"	3/8"	NO. 4	NO. 10	NO. 40	NO. 60	NO. 100	NO. 200
100.0	100.0	100.0	99.8	92.3	67.0	7.9	1.6

Client: VOLUSIA COUNTY

Client No: 41011-116-01
Report No: 66849
Date: 10/30/98

Project: GEOTECHNICAL SERVICES FOR STORMWATER RETENTION
TOMOKA LANDFILL
DAYTONA BEACH, FLORIDA

SOIL GRADATION CURVES

Universal Engineering Sciences
SOUTH DAYTONA, FLORIDA

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• Fort Myers
• Rockledge
• West Palm Beach
• Ocala
• Tampa

February 22, 1999

Mr. Nathan Hunter
County of Volusia
123 West Indiana Avenue
DeLand, Florida 32720-4262

REFERENCE: **LABORATORY PERMEABILITY AND SOIL GRADATION TEST RESULTS**
Tomoka Landfill, Volusia County, Florida
UES Project No. 41011-116-01 and UES Report No. 68002

Dear Mr. Hunter:

Please find enclosed the results of the laboratory permeability tests and the soil gradation tests performed at the above referenced site. The soil samples were collected from various locations, as directed by Mr. Lee Powell of SCS Engineers. The samples were also numbered as Mr. Powell indicated.

We appreciate the opportunity to provide these services to you. Please do not hesitate to contact us if we can be of further assistance.

Respectfully submitted,

UNIVERSAL ENGINEERING SCIENCES

Sheila M. Smith, P.E. 2/25/99
Branch Manager
P.E. Number 51512

SMS:cme

xc: Mr. Lee Powell; SCS Engineers

UES Project No. 41011-116-01
Report No. 68002
February 22, 1999

EXHIBIT A

Laboratory Permeability Tests
Tomoka Landfill, Volusia County, Florida

February 22, 1999

Sample No.	Laboratory Vertical Permeability	
	feet/day	cm/s
1	6.9	2.4×10^{-3}
2	11.5	4.1×10^{-3}
3	6.4	2.3×10^{-3}
4	7.8	2.8×10^{-3}
5	5.0	1.8×10^{-3}
6	8.8	3.1×10^{-3}
7	9.1	3.2×10^{-3}
8	9.4	3.3×10^{-3}
9	14.1	5.0×10^{-3}
10	11.4	4.0×10^{-3}
11	10.0	3.5×10^{-3}
12	10.3	3.6×10^{-3}
13	14.3	5.0×10^{-3}
14	14.9	5.3×10^{-3}
15	12.7	4.5×10^{-3}
16	14.2	5.0×10^{-3}
17	3.2	1.1×10^{-3}
18	5.8	2.0×10^{-3}
19	7.0	2.5×10^{-3}
20	17.2	6.1×10^{-3}
21	14.6	5.2×10^{-3}
22	7.0	2.5×10^{-3}

UES Project No. 41011-116-01
Report No. 68002
February 22, 1999

EXHIBIT B

Soil Gradation Tests
Tomoka Landfill, Volusia County

February 22, 1999

Sample No.	Sieve No.	Percent Passing
1	3/8"	100
	No.4	100
	No. 10	99.9
	No. 40	94.7
	No. 60	73.1
	No. 100	13.5
	No. 200	1.6
2	3/8"	100
	No.4	100
	No. 10	99.8
	No. 40	95.2
	No. 60	77.7
	No. 100	19.1
	No. 200	1.5
3	3/8"	100
	No.4	100
	No. 10	100
	No. 40	94.8
	No. 60	76.2
	No. 100	19.7
	No. 200	1.8
4	3/8"	100
	No.4	100
	No. 10	100
	No. 40	95.1
	No. 60	75.8
	No. 100	18.5
	No. 200	2.4

EXHIBIT B continued

Sample No.	Sieve No.	Percent Passing
5	3/8"	100
	No.4	99.8
	No. 10	99.6
	No. 40	94.3
	No. 60	72.9
	No. 100	14.6
	No. 200	2.4
6	3/8"	100
	No.4	99.9
	No. 10	99.7
	No. 40	94.7
	No. 60	76.9
	No. 100	19.1
	No. 200	2.5
7	3/8"	100
	No.4	99.7
	No. 10	99.5
	No. 40	93.7
	No. 60	76.8
	No. 100	13.1
	No. 200	1.9
8	3/8"	99.3
	No.4	99.2
	No. 10	99.0
	No. 40	93.6
	No. 60	69.3
	No. 100	13.6
	No. 200	2.2
9	3/8"	100
	No.4	100
	No. 10	99.8
	No. 40	95.8
	No. 60	77.7
	No. 100	14.5
	No. 200	1.6

EXHIBIT B continued

Sample No.	Sieve No.	Percent Passing
10	3/8"	100
	No.4	100
	No. 10	99.9
	No. 40	93.5
	No. 60	75.9
	No. 100	19.9
	No. 200	2.0
11	3/8"	100
	No.4	99.8
	No. 10	99.7
	No. 40	94.2
	No. 60	72.0
	No. 100	17.5
	No. 200	3.4
12	3/8"	100
	No.4	100
	No. 10	100
	No. 40	93.9
	No. 60	73.9
	No. 100	17.8
	No. 200	1.6
13	3/8"	100
	No.4	100
	No. 10	99.8
	No. 40	99.1
	No. 60	90.5
	No. 100	19.0
	No. 200	2.4
14	3/8"	100
	No.4	100
	No. 10	100
	No. 40	98.7
	No. 60	89.1
	No. 100	16.8
	No. 200	1.7

EXHIBIT B continued

Sample No.	Sieve No.	Percent Passing
15	3/8"	100
	No.4	100
	No. 10	100
	No. 40	95.0
	No. 60	77.3
	No. 100	20.0
	No. 200	3.0
16	3/8"	100
	No.4	99.8
	No. 10	99.6
	No. 40	97.4
	No. 60	84.6
	No. 100	17.0
	No. 200	2.6
17	3/8"	100
	No.4	100
	No. 10	99.9
	No. 40	96.1
	No. 60	83.5
	No. 100	25.8
	No. 200	6.5
18	3/8"	100
	No.4	100
	No. 10	99.5
	No. 40	94.7
	No. 60	80.6
	No. 100	24.3
	No. 200	7.4
19	3/8"	100
	No.4	99.6
	No. 10	99.2
	No. 40	93.6
	No. 60	75.6
	No. 100	21.4
	No. 200	6.5

EXHIBIT B continued

Sample No.	Sieve No.	Percent Passing
20	3/8"	100
	No.4	100
	No. 10	99.9
	No. 40	94.9
	No. 60	76.2
	No. 100	13.4
	No. 200	4.0
21	3/8"	100
	No.4	99.9
	No. 10	99.8
	No. 40	95.6
	No. 60	79.6
	No. 100	9.9
	No. 200	3.8
22	3/8"	100
	No.4	100
	No. 10	99.8
	No. 40	95.7
	No. 60	79.9
	No. 100	12.2
	No. 200	4.9

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• Fort Myers
• Rockledge
• West Palm Beach
• Ocala
• Tampa

April 14, 1999

Mr. Nathan Hunter
Volusia County
123 West Indiana Avenue
DeLand, Florida 32720-4262

Reference: **PERMEABILITY TESTING**
Tomoka Landfill, Daytona Beach, Florida
UES Project No. 41011-116-01 and Report No. 68591

Dear Mr. Hunter:

Universal Engineering Sciences (UES) is pleased to submit the results of the laboratory permeability tests. Soil samples were obtained from inplace materials as directed by SCS Engineers personnel.

The ten samples were returned to our laboratory and vertical permeability tests were performed. The results are provided in the attached table.

UES appreciates the opportunity to be of service to you on this project. Please contact us if we can be of further assistance.

Respectfully submitted,

UNIVERSAL ENGINEERING SCIENCES

Sheila M. Smith, P.E.
P.E. Number 51512
Branch Manager

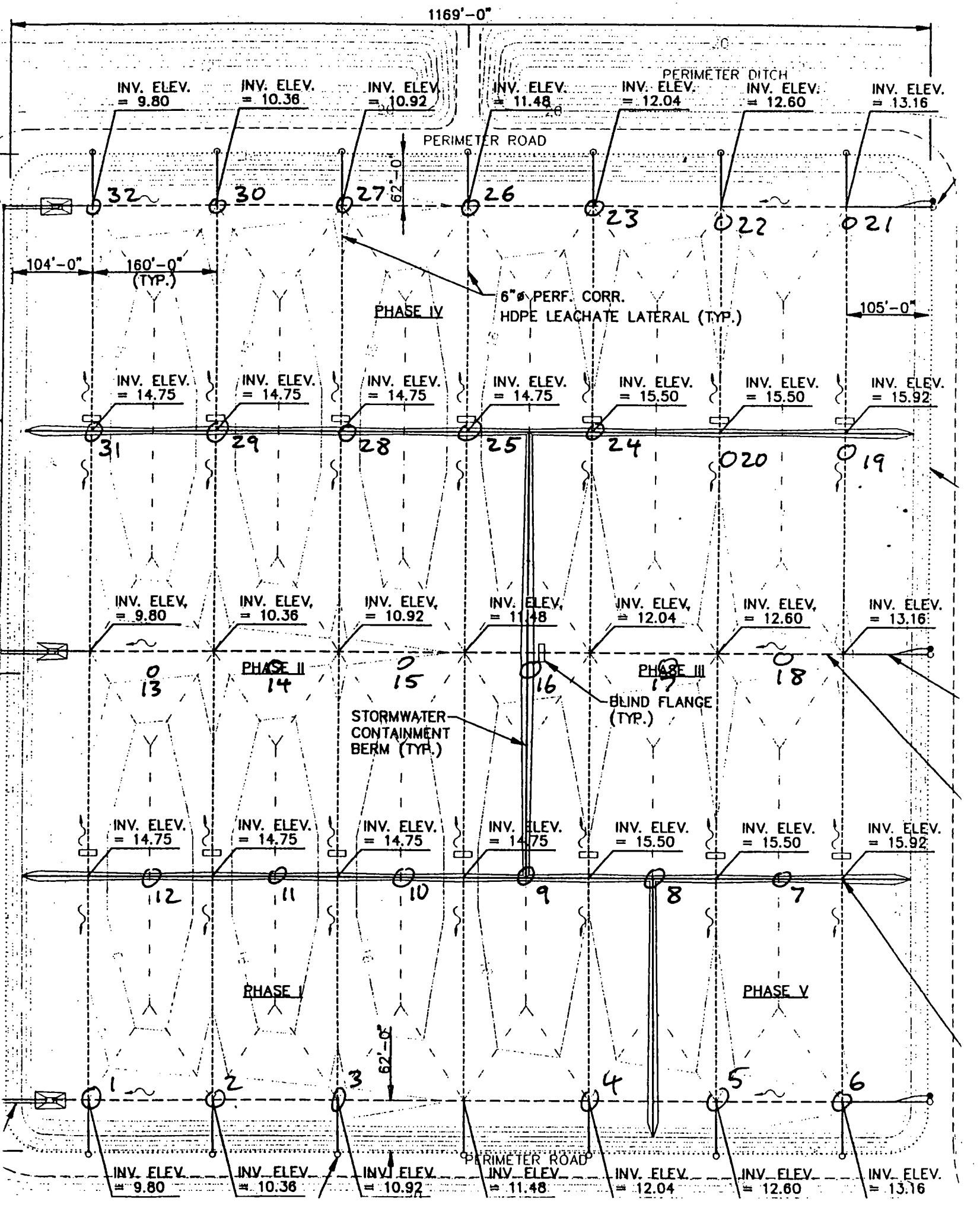
Thomas L. Morrissey III
P.E. Number 33198
Project Engineer 4.15.99

xc: Mr. Billy Gilley; Volusia County Solid Waste
Mr. Lee Powell, P.E.; SCS Engineering

911 Beville Road, Suite 3 • South Daytona, Florida 32119 • (904) 756-1105 • FAX (904) 760-4067

Tomoka Landfill
Daytona Beach, Florida

TABLE I - PERMEABILITY DATA		
Inplace Samples obtained on 4/12/99	**Laboratory Vertical Permeability**	
	feet/day	cm/sec
#23	12.6	4.4E-3
#24	13.3	4.7E-3
#25	20.3	7.2E-3
#26	18.0	6.4E-3
#27	10.1	3.6E-3
#28	10.2	3.6E-3
#29	12.5	4.4E-3
#30	7.5	2.7E-3
#31	9.2	3.2E-3
#32	10.5	3.7E-3


1169'-0"
PERIMETER DITCH
PERIMETER ROAD
62'-0"
104'-0"
160'-0" (TYP.)
105'-0"
6"ø PERF. CORR. HDPE LEACHATE LATERAL (TYP.)
PHASE IV
PHASE II
PHASE III
PHASE I
PHASE V
BLIND FLANGE (TYP.)
STORMWATER CONTAINMENT BERM (TYP.)
INV. ELEV. = 9.80
INV. ELEV. = 10.36
INV. ELEV. = 10.92
INV. ELEV. = 11.48
INV. ELEV. = 12.04
INV. ELEV. = 12.60
INV. ELEV. = 13.16
INV. ELEV. = 14.75
INV. ELEV. = 15.50
INV. ELEV. = 15.92
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SECTION 9

LEACHATE PUMP AND PIPING SYSTEM

9.1 PIPING SYSTEM INSTALLATION

Comanco installed the HDPE leachate piping system to connect the discharge from each of the leak detection pumps to the leachate collection sumps, to connect the discharge from the leachate collection pumps to the two leachate basins, to provide piping spray irrigation in the two leachate basins, and to provide return of leachate to the landfill for recirculation. The pipe was fusion welded, with flanged connections for the valves, flow meters, and other special fittings. The pipe was pressure tested in accordance with the manufacturer's recommendations. SCS Engineers provided an on-site CQA representative to monitor the installation and testing of the leachate piping system.

9.2 PUMP INSTALLATION

The leak detection pumps, the leachate collection pumps, and the leachate recirculation pumps were installed by Delta P Booster Systems of Holly Hill, Florida. Installation included the control panels and electrical connections. SCS Engineers provided an on-site CQA representative to monitor the installation, calibration, and testing of the pump systems.

ATTACHMENT 9-1

CQA REPRESENTATIVE'S DAILY FIELD REPORTS

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pipe System

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/1/99 Contract Day: N/A Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 56° (PM) 75° Rain: — Duration of rain: —

Description of weather: Sunny and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

8:00 Arrived on-site.
Attended pre-construction meeting with Paul Ramias of Volusia County, Clayton Lung and Chris Sowers of Comanco Environmental, and Lee Powell of SCS Engineers.
Also looked over the site and reviewed the plans with Lee Powell.
17:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative Steven Rostach Date 3/1/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pipe System Project number: 09P5039.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 3/2/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 65° (PM) 77° Rain: — Duration of rain: —

Description of weather: Sunny and Warm

List of Equipment on site: (A) for active (I) for idle

Caterpillar Forklift (A)		
John Deere 544G Frontloader (A)		

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	1	2

Description of Construction Activity

7:00 Arrived on-site.
Comanco tested the pipe fusion machine by welding together small sections of pipe, both straight and at 45 degree angles.
8:30 Comanco staged 40 foot sections of 6" HDPE pipe around Leachate Pond #2 using the Caterpillar Forklift and the John Deere Frontloader.
9:00 Comanco fused together 1280 feet of 6" HDPE along the east side of Leachate Pond #1 and the east side of Leachate Pond #2. Each weld was made with the fusing temperature set at 450° and the fusing pressure at 300 lbs. per square inch. SCS checked the temperature and pressure hourly.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

N/A

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE Pipe	1280 feet	1280 feet.

Field Representative [signature] Date 3/2/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pipe System

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/3/99 Contract Day: N/A Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 50° (PM) 65° Rain: —— Duration of rain: ——

Description of weather: Overcast and Cool

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site.
Comanco installed 1280 feet of 6" HDPE pipe along the westside of Leachate Ponds #1 and #2. The welding temperature was 450° and the fusing pressure was 500 lbs. per square inch, checked hourly by SCS Engineers.
17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

N/A

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE Pipe	1280 feet	2560 feet

Field Representative [signature] Date 3/3/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pipe System

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/4/99 Contract Day: N/A Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 45° (PM) 67° Rain: — Duration of rain: —

Description of weather: Sunny and Warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site.

Comanco installed 176 feet of 6" HDPE at the north end of Leachate Pond #2, and 520 feet of 6" HDPE pipe on the west side of ~~Pond #2~~, for a total of 696 feet of pipe. The fusing temperature was 450° and the fusing pressure was 300 lbs. per square inch, checked hourly by SCS Engineers. (The North Cell)

17:00 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

N/A

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE pipe	696 feet	3256 feet

Field Representative Steven Kodiak Date 3/4/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pipe System

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/5/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 55° (PM) 74° Rain: — Duration of rain: —

Description of weather: Sunny and Warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site.
Comanco welded together 2 200' sections of 8" HDPE pipe and staged them alongside Leachate Pond #2 for installation between the ponds and the North Cell at a later date.
14:30 Departed site.

List of Subcontractors

N/A

List of Materials Delivered

N/A

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE Pipe	Ø	3256 feet.
8" HDPE Pipe	400 feet	400 feet

Field Representative [signature] Date 3/5/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pipe System Project number: 09950339.27

Owner: Volusia County Contractor: Comanco Environmental

Date: 3/8/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 50° (PM) 70° Rain: —— Duration of rain: ——

Description of weather: P. Cloudy, windy, and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

8:00 Arrived on-site.
Comanco installed 520 feet of 6" HDPE pipe from the northwest corner of the North Cell to the center of the west side of the north cell. The fusing temperature was 450° and the fusing pressure was 300 lbs. per square inch.
17:00 Depart site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE Pipe	520 feet.	3776 feet.
8" HDPE Pipe	Ø	400 feet.

Field Representative Steven Pastrak Date 3/8/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
Leachate Pipe System

Project number: 0995039.27

Owner: Volusia County

Contractor: Comanco Environmental

Date: 3/9/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 61° (PM) 73° Rain: — Duration of rain: —

Description of weather: Overcast and Warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site.
Comanco installed 176 feet of 6" HDPE Pipe at the south end of Leachate Pond #2. The fusing temperature was 450° and the fusing pressure was 300 lbs. per square inch, checked hourly by SCS.
Comanco also pressure tested the 1040 feet of 6" HDPE pipe along the west side of the North Cell. It held 61 lbs. of water pressure for 1½ hours with no drop in the pressure.
Comanco also filled the pipe around leachate ~~(pipe)~~ pond #2 to 130 lbs. of water pressure and left it over night.
17:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE Pipe	176 feet	3952 feet
8" HDPE Pipe	Ø	400 feet.

Field Representative Steven Rosbach Date 3/9/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pipe System Project number: 0995039.27

Owner: Volusia County Contractor: Comanco

Date: 3/10/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 63° (PM) 82° Rain: — Duration of rain: —

Description of weather: Sunny and warm

List of Equipment on site: (A) for active (I) for idle

Linkbelt 3400 Trackhoe (A)		
Caterpillar 544G Frontloader (A)		

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

8:00 Arrived on-site.
SCS checked the pressure on the pipe around Leachate Pond #2. It had fallen 3 lbs. overnight to 127 lbs. of pressure, a passing result. Comanco then released the pressure.
Comanco excavated across the access road between the North Cell and the Leachate Ponds to a depth of 5½ feet. They then placed 2 18" ADS pipes in the trench, side by side, separated by about 1 foot of space. The 18" pipe was placed so as to gradually emerge to the surface about 30 feet south of the center sump at the North Cell end, and directly between the Leachate Ponds at the other end. Comanco then back filled around and over the pipes using a Caterpillar Frontloader, filling in 1 foot lifts and compacting each lift by rolling over it with the Frontloader. The excavation was done with the Linkbelt 3400 Trackhoe. Comanco then filled the pipe around Leachate Pond #1 to 120 lbs. of pressure. The County placed the pipe support posts around the perimeter of Leachate Pond #2 as shown

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE Pipe	0	3952 feet.
8" HDPE Pipe	0	400 feet.

Field Representative [signature] Date 3/10/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill Leachate Pipe System Project number: 0995039.27

Owner: Volusia County Contractor: Comanco

Date: 3/10/99 (Cont.) Contract Day: _____ Contract Duration: _____
Days Remaining: _____

Weather
Temperature: (AM) _____ (PM) _____ Rain: _____ Duration of rain: _____

Description of weather: _____

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

in the Contract drawings.
19:30 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative _____ Date _____
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pipe System Project number: 09P5059.27

Owner: Volusia County Contractor: Comanco

Date: 3/11/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 61° (PM) 75° Rain: — Duration of rain: —

Description of weather: P. Cloudy and Warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site.
SCS checked the pressure on the pipe around Leachate Pond #1. It had fallen 1 lb. to 119 lbs. of pressure, a passing result. Comanco then released the pressure.
Comanco then placed the 2 200 foot sections of 8" HDPE pipe through the 18" ADS pipe buried yesterday.
10:30 Universal arrived on-site and took 6 moisture/density tests in 3 different locations over the 18" ADS pipe, 1 test on the surface and 1 2 feet below the surface at each location. All the tests showed that greater than 98% compaction had been attained.
Comanco then fused the the T-Joints onto the N. Cell end (east end) of the 8" HDPE pipe that will be used to pump leachate from the Cell to the Leachate Ponds, and welded the 8"-to-6" reducers onto the ends of the T-Joint.
They also removed the plugs from the ends of the 6" HDPE pipes around

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE Pipe	0	3952 feet
8" HDPE Pipe	50'	450 feet

Field Representative [signature] Date 3/11/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pond Pipe System (SR)

Project number: 09503927

Owner: Volusia County

Contractor: Comanco

Date: 3/11/99 (Cont.)

Contract Day: _____

Contract Duration: _____

Days Remaining: _____

Weather

Temperature: (AM) _____ (PM) _____ Rain: _____ Duration of rain: _____

Description of weather: _____

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

the Leachate Ponds and welded in segments to make them into full loops around the Ponds.
They also welded together 50 feet of 8 inch HDPE pipe and staged it next to the Leachate Ponds, to be attached to the rest of the 8" pipe later.
17:00 Depart site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative _____ Date _____

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd Landfill Leachate Pipe System Project number: 09P5039.27

Owner: Volusia County Contractor: Comanco

Date: 3/12/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 58° (PM) 77° Rain: — Duration of rain: —

Description of weather: P. Cloudy and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site.
Comanco welded 130 feet of 8" pipe onto the west end of the northernmost 8" line, and 50 feet onto the west end of the southernmost 8" line. The northernmost line now extended up the slope and halfway across the berm between the leachate ponds, and the southernmost line extended to the top of the slope. (§50' of the pipe was the section welded yesterday.) Comanco also welded in the 6" T-Joints near the southeast corner of Pond #2 and the northeast corner of Pond #1.
The County placed the support posts around Pond #1 as shown in the Contract Drawings, and poured 1 concrete pad under the 8" pipes where they emerge, to rise up the slope to the ponds, to act as a support.
15:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE pipe	0	3952 feet
8" HDPE pipe	130 feet	580 feet

Field Representative [signature] Date 3/12/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd Landfill Leachate Pipe System

Project number: 09950039.27

Owner: Volusia County

Contractor: Comanco

Date: 3/15/99 Contract Day: N/A Contract Duration: N/A

Days Remaining: N/A

Weather

Temperature: (AM) 45° (PM) 65° Rain: — Duration of rain: —

Description of weather: Overcast and cool.

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

8:00 Arrived on-site.
Comanco welded in an extra 6' of 6" pipe at each corner of Leachate Pipe #2, to assure that pipe would lay at the edges of the liner.
They also welded 8" discharge pipes onto the ~~end~~ (SR) west end of the northernmost 8" line, going half way down the slopes into Pond #1 and Pond #2.
The County poured 5 more concrete support pads under the 8" lines up the slope to the Leachate Ponds, spaced about 20 feet apart.
17:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE pipe	24'	3976'
8" HDPE pipe	60'	640'

Field Representative [signature] Date 3/15/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pipe System Project number: 09P5039.27

Owner: Volusia County Contractor: Comanco

Date: 3/16/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 55° (PM) 75° Rain: — Duration of rain: —

Description of weather: Sunny and Warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

8:00 Arrived on-site.
Comanco welded in an extra 6' of 6" pipe at each corner of Leachate Pond #1, to assure that the pipe would lay at the edges of the liner.
Comanco also installed 8 Butterfly valves around the Leachate Ponds, 6 on the 6" pipe and 2 at the 8" discharge lines.
17:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE pipe	24'	4000'
8" HDPE pipe	Ø	640'

Field Representative [signature] Date 3/16/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pipe System Project number: 0995039.27

Owner: Volusia County Contractor: Comanco

Date: 3/17/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 58° (PM) 77° Rain: — Duration of rain: —

Description of weather: Sunny and Warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers
1	1	2

Description of Construction Activity

8:00 Arrived on-site.
Comanco installed the Butterfly valves on the east end of the southernmost 8" line, and welded the northernmost line to the 6" pipe on the west side of the cell, as well as the Butterfly shut-off valves.
The County placed a double layer of geotextile on the bottom of the sump in Pond #2, then poured a 5 foot by 10 foot by 4 inch concrete pad on the bottom of the sump to act as an anchor for the riser pipe, to be installed at a later date.
16:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity
6" HDPE pipe	0	4000'
8" HDPE pipe	0	640'

Field Representative [signature] Date 3/17/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd Landfill Leachate Pipe System Project number: 09950339.27

Owner: Volusia County Contractor: Comanco

Date: 3/18/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 57° (PM) 80° Rain: — Duration of rain: —

Description of weather: Partly cloudy and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:30 Arrived on-site.
Comanco pumped the 8" lines with water to 60 lbs. of pressure. The County poured another 5 foot by 10 foot by 4 inch pad at the bottom of Pond #1 in the sump to serve as an anchor for the risers pipe (6-XP) to be installed at a later date.
18:30 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 3/18/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill Leachate Pipe System Project number: 0995059.27

Owner: Volusia County Contractor: Comanco

Date: 3/19/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 57° (PM) 81° Rain: — Duration of rain: —

Description of weather: P. Cloudy and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

1	1	2
No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site.
SCS checked the pressure on the 8" lines. They were at 58 lbs. of pressure, a drop of 2 lbs. overnight, which was a passing result. Comanco then released the pressure.
The County installed the 30 inch ADS riser pipe in Leachate Pond #2, going down the east slope and into the sump. It was then strapped to the anchor pad with 1/2 steel cable, attached to ~~eye~~ (8) stainless steel eyerings which had been set in the ~~front~~ (8) pad.
15:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative Steven Forbath Date 3/19/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd Landfill Leachate Pipe System Project number: 09950327

Owner: Volusia County Contractor: Comanco

Date: 3/25/99 Contract Day: N/A Contract Duration: N/A
Days Remaining: N/A

Weather
Temperature: (AM) 53° (PM) 81° Rain: — Duration of rain: —

Description of weather: Sunny and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site..
Comanco had installed the check valves, pressure gauges, flowmeters, and air release valves at each of 3 sumps along the west side of the cell, as shown on the Contract drawings.
Comanco also installed the 2" HDPE Pump discharge pipes with the required ball valves, check valves, flowmeters, and pressure gauges.
17:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 3/25/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09P5039.27

Owner: Volusia County

Contractor: Comanco

Date: 4/20/99 Contract Day: — Contract Duration: —
Days Remaining:

Weather
Temperature: (AM) 65° (PM) 73° Rain: — Duration of rain: —

Description of weather: Sunny and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

7:00 Arrived on-site. The pump contractors installed the pump in Leachate Pond #1. Donovan electricians had installed and wired the control panels at the 3 sumps (A), (B) & (C) in the north cell and the 2 sumps at the basins over the course of the past 2 weeks.

17:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 4/20/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco

Date: ~~4/28/98~~ 4/28/99 Contract Day: ——— Contract Duration: ———
Days Remaining: ———

Weather
Temperature: (AM) 68° (PM) 90° Rain: —— Duration of rain: ———

Description of weather: P.Cloudy and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

9:00 Arrived on-site. The County brought a video taping unit on-site and video taped the inside of all the riser pipe's in the North Cell Sump Areas. Lee Powell was also on-site to review the tapes and record whatever problems may ~~(exist)~~ (A) arise in the installation of the pumps.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative _____ Date 4/28/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Rd. Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco

Date: 4/29/99 Contract Day: —— Contract Duration: ——
Days Remaining: ——

Weather
Temperature: (AM) 70° (PM) 89° Rain: —— Duration of rain: ——

Description of weather: P. Cloudy and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

8:00 Arrived on-site. Delta P installed the pump in the 12-inch riser pipe at Sump Station number 3 in the North Cell. The pump was lowered slowly into the pipe until it rested on the bottom of the sump.
16:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative Steven Gardner Date 4/29/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950339.27

Owner: Volusia County

Contractor: Comanco

Date: 5/3/99 Contract Day: ——— Contract Duration: ———
Days Remaining: ———

Weather
Temperature: (AM) 70° (PM) 88° Rain: —— Duration of rain: ———

Description of weather: P.Cloudy and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

10:00 Delta P installed the pumps in Sump Station #1, in both the 12-inch and the 24-inch riser pipes. The pumps and attached PVC pipes were lowered slowly into the pipes until they rested firmly on the bottom of the sump.

16:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative _____ Date 5/3/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950327

Owner: Volusia County

Contractor: Comanco

Date: 5/4/99 Contract Day: — Contract Duration: —
Days Remaining: —

Weather
Temperature: (AM) 70° (PM) 87° Rain: — Duration of rain: —

Description of weather: Windy, p. cloudy and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

10:00 Delta P installed the pumps in Sump Station #2 in both the 12-inch and 24-inch riser pipes. The pumps and attached PVC pipes were lowered slowly into the pipes until they rested firmly on the bottom of the sump.

16:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative Steven Postrack Date 5/4/99

(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill
North Cell, Class I, Phase IV Expansion

Project number: 09950539.27

Owner: Volusia County

Contractor: Comanco

Date: 5/5/99 Contract Day: — Contract Duration: —
Days Remaining: —

Weather
Temperature: (AM) 69° (PM) 85° Rain: — Duration of rain: —

Description of weather: P. Cloudy and warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

10:00 Delta P installed the pump in the 24-inch riser pipe in sump station #3. The pump and attached PVC pipes were lowered slowly into the pipe until it rested firmly on the bottom of the sump. Delta P then pulled the wire from the pumps (to the SP) through the conduit to the control panels (through all SP) at all 3 sump stations.

16:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative [signature] Date 5/5/99
(see reverse side for documentation of quantities)

SCS ENGINEERS DAILY FIELD REPORT

Project: Tomoka Farms Road Landfill North Cell, Class I, Phase IV Expansion

Project number: 0925039.27

Owner: Volusia County

Contractor: Comanco

Date: 5/10/99 Contract Day: ——— Contract Duration: ———

Days Remaining: ———

Weather

Temperature: (AM) 70° (PM) 85° Rain: ——— Duration of rain: ———

Description of weather: P. Cloudy and Warm

List of Equipment on site: (A) for active (I) for idle

Personnel on site:

No. of Superintendents	No. of Skilled	No. of Laborers

Description of Construction Activity

9:00 Delta P calibrated the depth indicators at all 3 sump stations; the depth indicator at Leachate Pond #1 was calibrated on Friday, 5/7/99. Delta also attached (8) 180° elbow joints to the ends of the PVC pipes connected to the pumps to allow the water pumped during the start-up test to flow back down the riser pipes and into the landfill.

14:00 Departed site.

List of Subcontractors

List of Materials Delivered

List of Quantities installed this date:

Item Description	Quantity	Accumulated Quantity

Field Representative Steven Goddard Date 5/10/99

(see reverse side for documentation of quantities)

ATTACHMENT 9-2

PIPING SYSTEM AS-BUILT DRAWING