



DYNEGY

c/o Dynergy Inc.
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Houston, Texas 77002
Phone (713) 507-6400

Dynergy Services Plum Point, LLC

File: PP 20.4.2
DSPP-ADEQ-0108
Via Certified Mail

December 12, 2008

Bryan Leamons, P.E.
Arkansas Department of Environmental Quality
Solid Waste Management Division
5301 Northshore Drive
North Little Rock, AR 72118

AFIN: 47-00461
Pmt #: 0303-S3N
REC'D
SCAN ☒ DEC 18 2008
Doc ID#: 54305
To: MR Zyle
S
W
M
D

Re: Construction Quality Assurance Report
Plum Point Energy Station – Osceola, AR
Permit No. 0303-S3N – AFIN 47-00461

Dear Mr. Leamons,

Construction of the ash landfill at the Plum Point Energy Station has been completed. As required by the referenced permit, the Construction Quality Assurance Certification Report is enclosed *along with a digital version on disc* for your use.

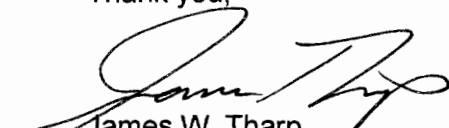
The “certifying professional” is Mr. Ken Bown, P.E. of Terracon.

This submittal does not mean the landfill is “complete.” Several miscellaneous permit conditions will be met over the next month or two, such as planting trees as a visual screen, adding required signs, etc.

Initial waste placement is not expected to occur until at least February 2009. As required by General Condition 2 of the permit, a ten day advance notice will be provided at that time.

If you have any questions, please feel free to contact me at 713-767-8755 or Don Baker at 713-767-0299.

Thank you,


James W. Tharp
Managing Director

CONSTRUCTION QUALITY ASSURANCE CERTIFICATION REPORT



DYNEGY

CELL 1 BOTTOM LINER SYSTEM CONSTRUCTION

**PLUM POINT ENERGY STATION
CLASS 3N LANDFILL
PERMIT NO. 0303-S3N
AFIN: 47-00461**

PREPARED FOR:

**DYNEGY SERVICES, PLUM POINT
2732A COUNTY ROAD 623
OSCEOLA, AR 72370
(870) 622-0119**

PREPARED BY:

**TERRACON CONSULTANTS, INC.
25809 INTERSTATE 30 SOUTH
BRYANT, ARKANSAS 72022
(501) 847-9292**

OCTOBER 2008

Terracon

PROFESSIONAL ENGINEER'S CERTIFICATION

"I certify to the best of my professional judgment that the bottom liner system and leachate collection system for Cell 1 of the Dynegy Plum Point Energy Station Class 3N Landfill (Permit No. 0303-S3N) was constructed in accordance with the project specifications, plans, and applicable Arkansas Department of Environmental Quality regulations. This certification is contingent on the fact that all information supplied to the signatory authority, at the time of this certification is unquestionably accurate and was provided in good faith."



Ken Bown, P.E.
Arkansas Professional Engineer No. 7139

10/22/08
Date

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1.0 INTRODUCTION

This construction quality assurance (CQA) report summarizes activities performed by Terracon Consultants, Inc. (Terracon) during the construction of the bottom liner system, leachate collection system, and related work associated with Cell 1 at the Dynegy Plum Point Energy Station (PPES) Class 3N Landfill located near Osceola, Arkansas. **FIGURE 1** illustrates the geographic location of the facility.

FIGURE 1. SITE LOCATION MAP



Construction generally included; earthwork, construction of the subgrade, bottom composite liner system, geosynthetics, leachate collection system, and the protective cover system. Correspondence, details, quality control test results, and certification associated with the construction are also provided. This document in conjunction with the project as-built

drawing is intended to satisfy the requirements of Arkansas Regulation 22, Sections 22.528 and 22.428.

1.1 GENERAL

The construction of Cell 1 was conducted in accordance with the following documents:

- *“Construction Bid and Contract Documents – Cell Construction”, Dynegy, August 2007.*
- *“Construction Quality Assurance Plan, Plum Point Energy Station Class 3N Landfill, Terracon Consultants, Inc., June 2006.*
- *“Regulation Number 22, Solid Waste Management Rules”, Arkansas Department of Pollution Control and Ecology, Solid Waste Management Division.*

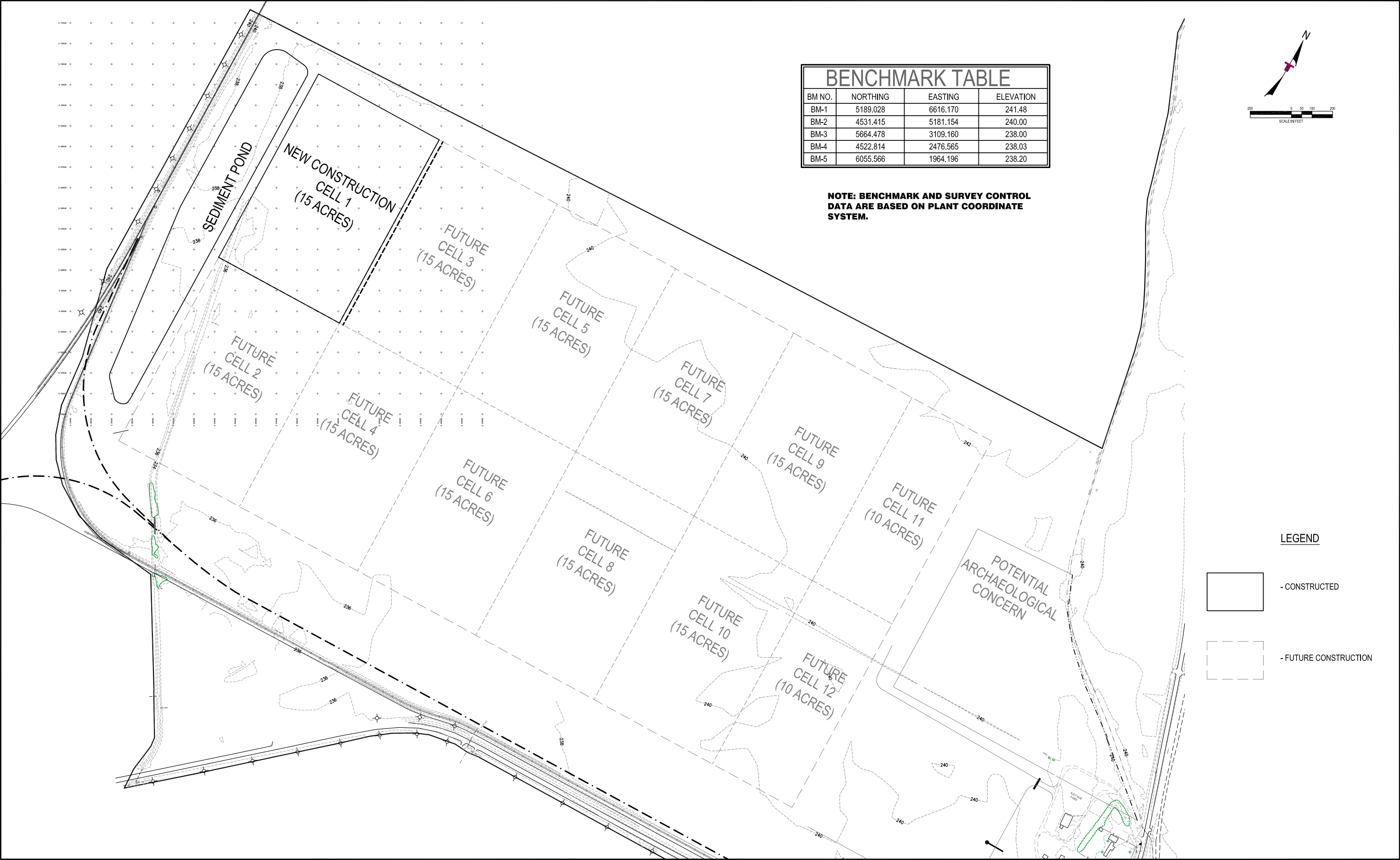
1.2 SITE DESCRIPTION

The Landfill is located at 2732A County Road 623, Osceola, Arkansas. The Landfill is permitted (Permit No. 0303-S3N) by the Arkansas Department of Environmental Quality (ADEQ) for disposal of combustion wastes, coal wastes, and other waste generated by PPES. **FIGURE 2** illustrates the location and orientation of Cell 1 in relation to the rest of the site.

1.3 PROJECT DESCRIPTION

This project involved the construction of approximately 15 acres of composite liner system and leachate collection system. The following information summarizes the construction sequence associated with the construction of Cell 1.

- Site preparation, excavation to subgrade, and grading of cell area;
- Preparation of subgrade layer;
- Installation and quality assurance testing of a 12-inch thick in-situ and compacted clay liner, placed at 95% of the Standard Proctor density with a maximum hydraulic conductivity of 1.0×10^{-5} cm/s;
- Installation and quality assurance testing of a 60-mil HDPE textured geomembrane liner;
- Installation of a leachate collection system consisting of a center collection pipe embedded in gravel and encompassed with geotextile; and
- Installation of a protective cover layer.



BENCHMARK TABLE			
BM NO.	NORTHING	EASTING	ELEVATION
BM-1	5189.028	6616.170	241.48
BM-2	4531.415	5181.154	240.00
BM-3	5664.478	3109.160	238.00
BM-4	4522.814	2476.565	238.03
BM-5	6055.566	1964.196	238.20

NOTE: BENCHMARK AND SURVEY CONTROL DATA ARE BASED ON PLANT COORDINATE SYSTEM.

LEGEND

- CONSTRUCTED
- FUTURE CONSTRUCTION

REV.	DATE	BY	DESCRIPTION



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SITE LAYOUT MAP

CELL 1 CONSTRUCTION QUALITY ASSURANCE

PLUM POINT ENERGY STATION

CLASS 3N SOLID WASTE FACILITY

MISSISSIPPI COUNTY

ARKANSAS

FIGURE 2	
DESIGNED BY:	KEB
DRAWN BY:	JOW
APPVD. BY:	KEB
SCALE:	SEE BARSCALE
DATE:	10-08-08
JOB NO.	084-001-35077169
ACAD NO.	015
SHEET NO.:	OF

Other improvements at the site included the following:

- New access road and perimeter road construction;
- New stormwater ditches, and a 5-acre stormwater sedimentation basin.

The CQA Report is organized using tables, figures, and appendices to provide documentation of the observations and material testing of the construction of Cell 1. General project correspondence is presented in **APPENDIX B**. Daily project field records are presented in **APPENDIX C**.

As required by Reg.22.428(i) the CQA Report includes record drawings of Cell 1 and the appendices and figures identify the following:

Reg.22.428(i)(1) - The limits of liner or final cover barrier construction;

FIGURE 2 and as-built drawings in **APPENDIX A** depicts the limits of the constructed bottom liner system for Cell 1.

Reg.22.428(i)(2) - The top and bottom liner or final cover barrier elevations at 50' intervals referenced to the site grid coordinate system;

APPENDIX A provides the top and bottom elevations of the constructed clay liner system at 50' intervals referenced to the site grid coordinate system.

Reg.22.428(i)(3)- If a granular drainage blanket is utilized in the design, top of blanket elevation should be identified at 50' elevations;

APPENDIX A provides the top and bottom elevations of the constructed drainage layer system at 50' intervals referenced to the site grid coordinate system.

Reg.22.428(i)(4) The location and elevation of slope breaks, leachate piping, leachate sumps and trenches, berms, and any other features which are material to the disposal area construction;

APPENDIX A (As-built Record Drawing) provides the location and elevation information and other features of Cell 1 construction.

Reg.22.428(i)(5) A key map showing the location of the construction in relation to the permitted design, along with an identification of areas previously constructed and areas yet to be constructed;

FIGURE 2 and drawings in **APPENDIX A** depict the limits of the constructed bottom liner system for Cell 1 in relation to the permitted design, along with an identification of areas previously constructed and areas yet to be constructed.

Reg.22.428(i)(6) Compaction and permeability testing locations;

Field logs and Drawings in **APPENDIX F**, **APPENDIX G**, and **FIGURES 3 through 10** provide compaction and permeability test locations for the bottom liner system of Cell 1.

Reg.22.428(i)(7) If necessary to document leachate head level compliance (subsections (a)(2) and (g)(6) of this section), the report should also indicate the lowest point of the liner constructed not including leachate trenches and sumps.

APPENDIX A provides the lowest point of the liner constructed not including leachate trenches and sumps.

Reg.22.428(i)(8) In addition, the certifying professional shall make a statement that the cell was constructed in accordance with the permit drawings and narrative. The report should also include a list of any deviations from the permitted drawings, if they exist, and reasons for the deviations.

Cell 1 was constructed as close as possible and in accordance with the permit drawings and narrative and the plans and specifications. Only minor deviations occurred from the planned construction and did not effect the overall project construction. The minor deviations are as follows:

- Stormwater rain flaps (2) were installed within Cell 1 to separate stormwater from leachate.
- A 24-foot wide gravel road was constructed transporting waste to Cell 1.
- A frac tank for temporary storage of leachate is proposed by Dynegy.

1.4 KEY PERSONNEL

Grayco Construction, Inc. was contracted to perform the earthwork for the project including excavation to subgrade, placement of the clay liner in lifts, installation of the leachate collection system, placement of protective cover, and the other improvements at the site. Installation of the HDPE liner was contracted to Plastic Fusion Fabricators. The key personnel for each participating firm in the project are listed below.

- **Owner:**
Dynegy
 - Construction Site Manager: Richard D'Amato
 - Project Engineer: John Kunze
- **CQA Consultant:**
Terracon
 - Certifying Engineer: Ken Bown, P.E.
 - Project Manager: Brad Fureigh, E.I.
 - CQA Monitors: Earl Pilgrim, Donald Walls, Clayton Haynes
- **Soils Contractor:**
Grayco Construction Co., Inc.
 - Site Superintendent: Danny Johnson

- **Survey Control:**
Lawson Engineering, Inc.
 - Gerald Lawson, RLS
- **Soil Testing Laboratory:**
Terracon
 - Laboratory Manager: Tim Goodall
- **Geosynthetic Testing Laboratory:**
Precision Geosynthetic Laboratories
 - Project Manager: Cora Queja
- **Geosynthetics Contractor:**
Plastic Fusion Fabricators, Inc.
 - Project Manager: Paul Elliott

2.0 SUBGRADE PREPARATION

This section summarizes the excavation and establishment of the subgrade surface corresponding to the permitted design for Cell 1. The bottom grading plan conforms to the approved permit plans.

2.1 PROJECT SPECIFICATIONS

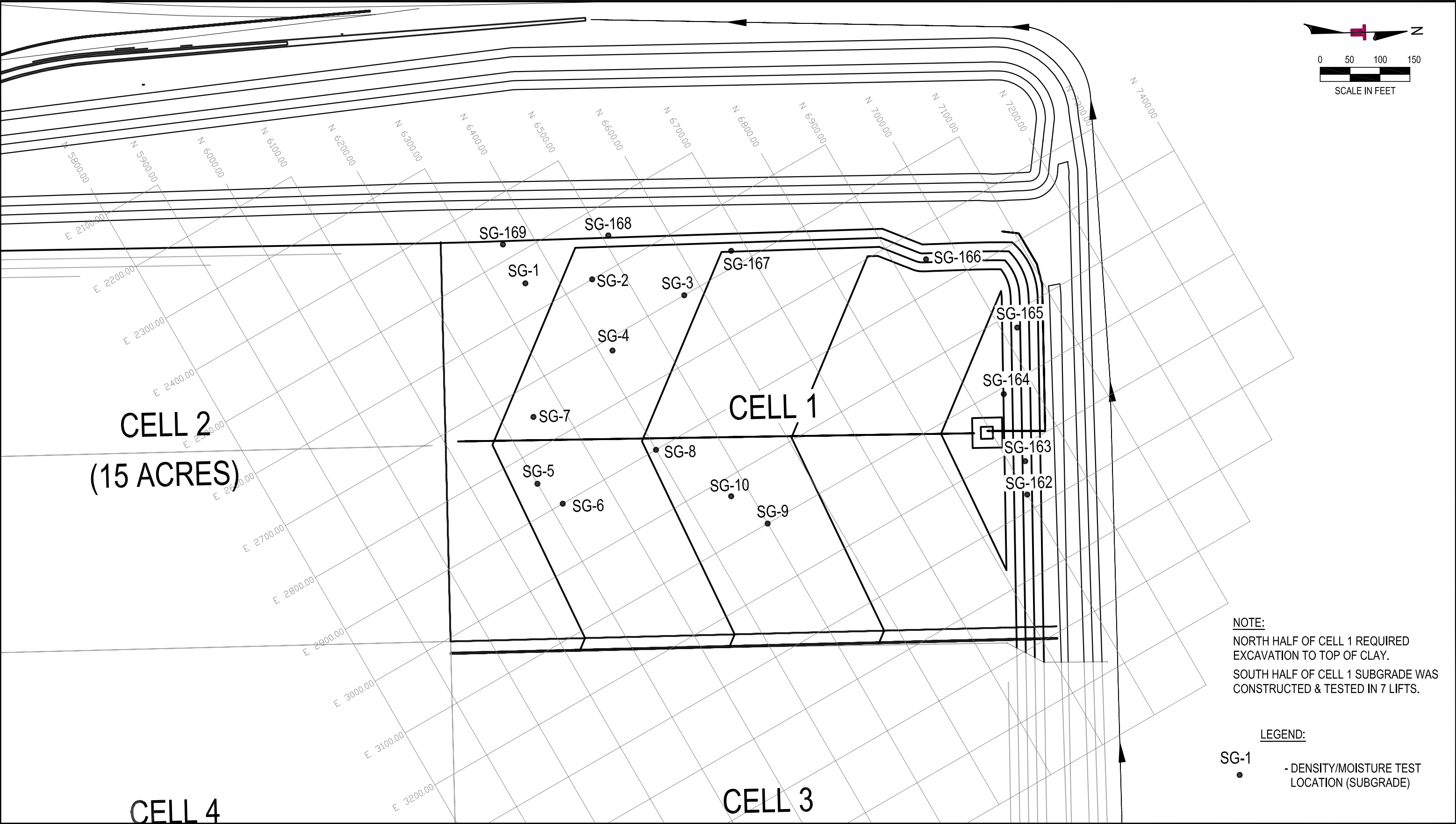
The project specifications called for the subgrade to be established to the lines and grades shown on the project construction plans. Following excavation, the subgrade surface was smooth graded, rolled, and tested to ensure that a suitable foundation was established.

2.2 CONSTRUCTION PROCEDURES

The subgrade preparation and excavation for placement of the compacted clay liner associated with the liner system occurred from May through July of 2008. During this period the construction consisted of excavation of the native clays and silts to the new sub-grade. The elevations associated with the subgrade surface established are provided in **APPENDIX A**.

2.3 SUBGRADE TESTING

The subgrade was compacted to 95% of the Standard Proctor maximum dry density as verified by a Terracon soils technician. **FIGURE 3** illustrates the locations of the field moisture and density tests for the subgrade. **APPENDIX D** provides preconstruction test results for the subgrade material. **APPENDIX F** includes the field logs for the moisture/density testing performed in association with Cell 1 subgrade construction.



NOTE:
NORTH HALF OF CELL 1 REQUIRED
EXCAVATION TO TOP OF CLAY.
SOUTH HALF OF CELL 1 SUBGRADE WAS
CONSTRUCTED & TESTED IN 7 LIFTS.

LEGEND:
SG-1
• - DENSITY/MOISTURE TEST
LOCATION (SUBGRADE)

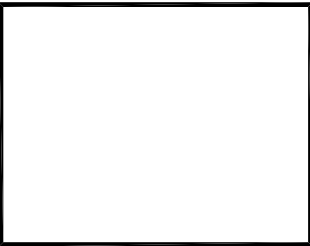
REV.	DATE	BY	DESCRIPTION



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FIELD TEST LOCATIONS - SUBGRADE (LIFT 1)

CELL 1 CONSTRUCTION QUALITY ASSURANCE

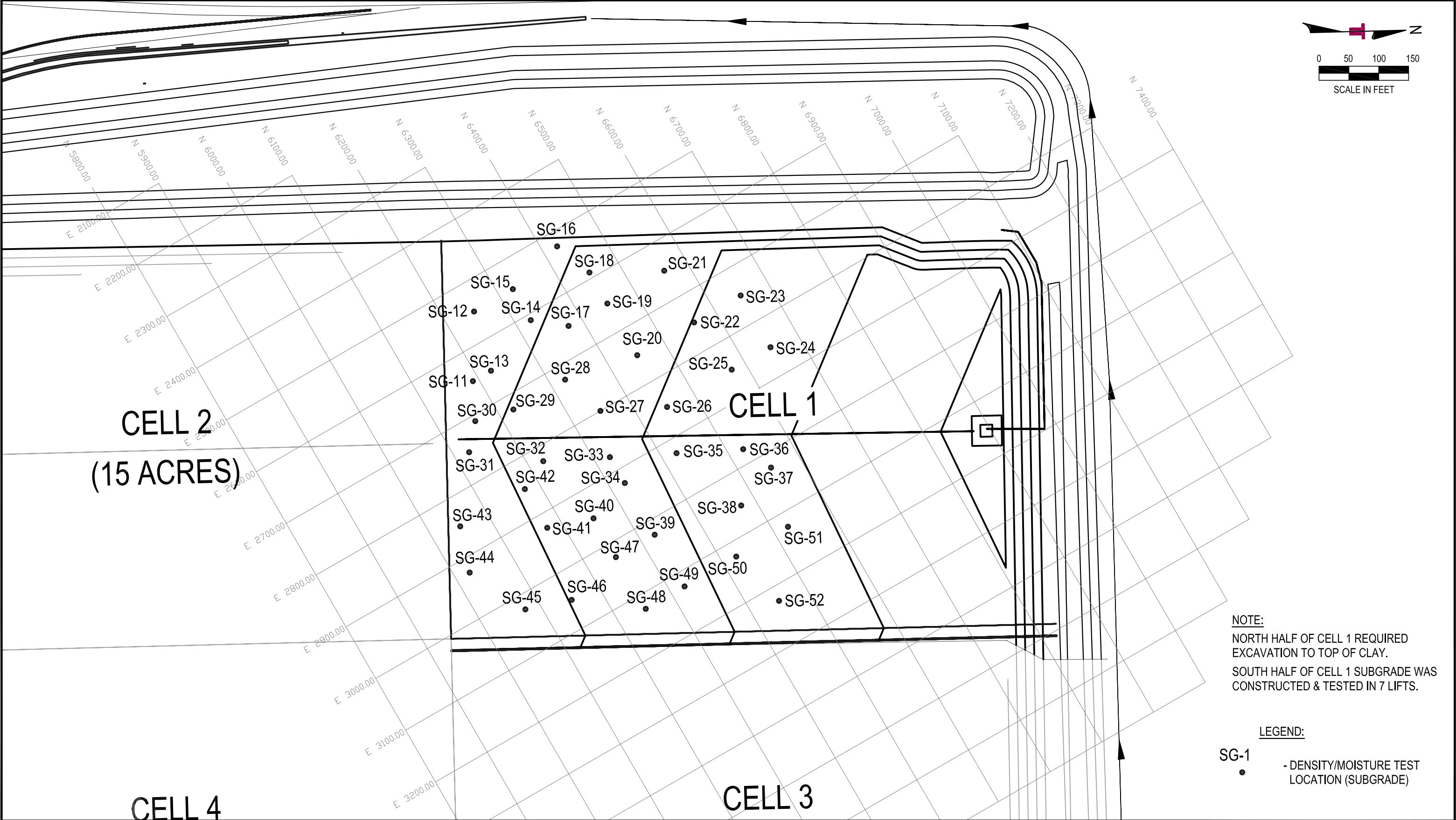
DYNEGY - PLUM POINT

CLASS 3N LANDFILL

OSCEOLA

ARKANSAS

FIGURE 3	
DESIGNED BY:	BNF
DRAWN BY:	PTG
APPVD. BY:	KEB
SCALE:	1" = 150'
DATE:	9/17/08
JOB NO.	084-001-35077169
ACAD NO.	007
SHEET NO.:	OF



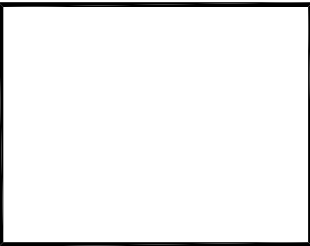
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FIELD TEST LOCATIONS - SUBGRADE (LIFT 2)

CELL 1 CONSTRUCTION QUALITY ASSURANCE

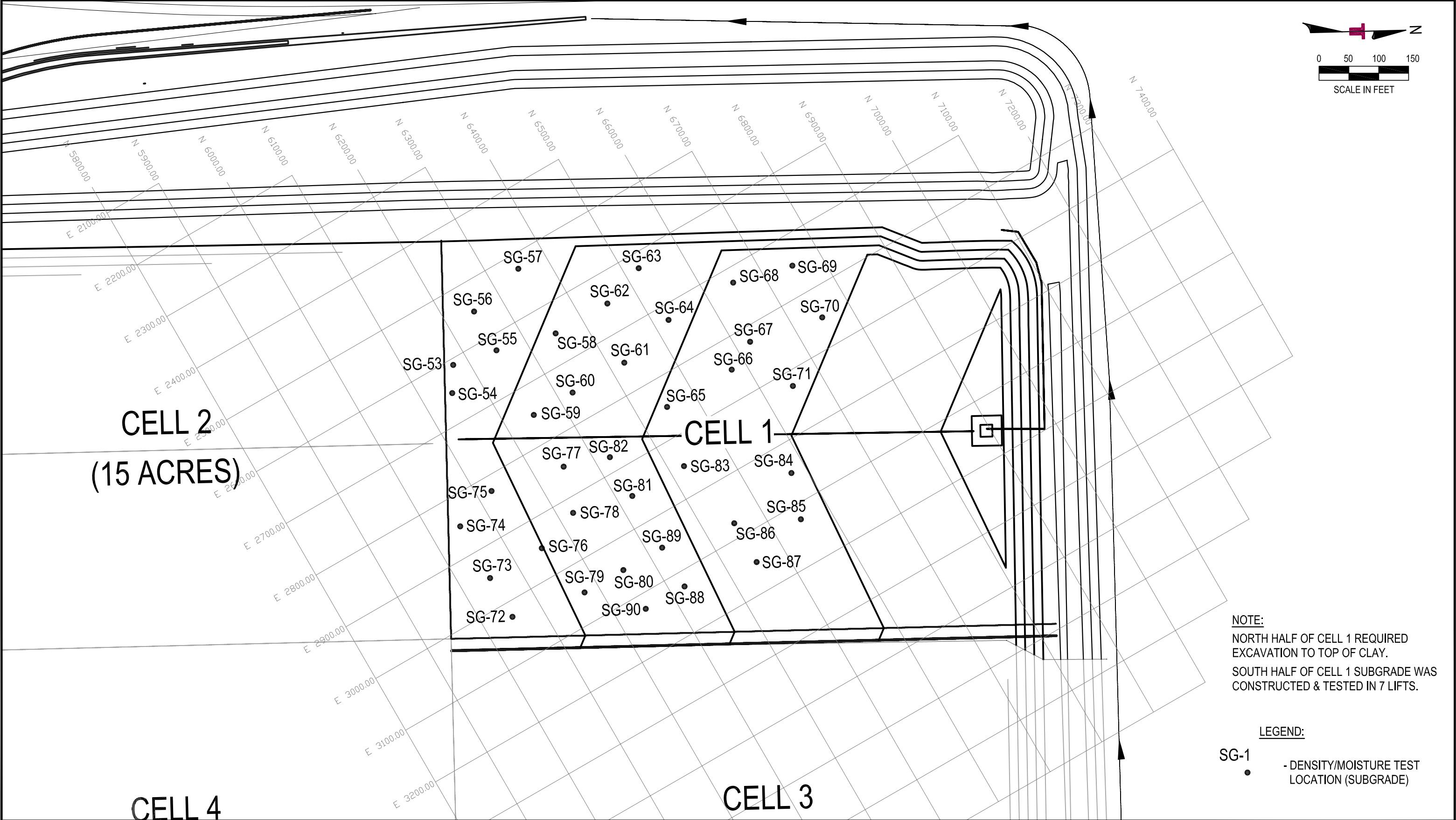
DYNEGY - PLUM POINT

CLASS 3N LANDFILL

OSCEOLA

ARKANSAS

FIGURE 4	
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DRAWN BY:	PTG
APPVD. BY:	KEB
SCALE:	1" = 150'
DATE:	9/17/08
JOB NO.	084-001-35077169
ACAD NO.	008
SHEET NO.:	OF



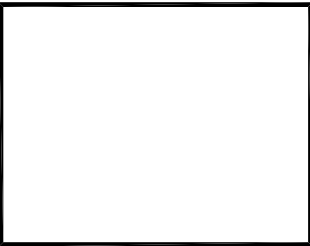
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FIELD TEST LOCATIONS - SUBGRADE (LIFT 3)

CELL 1 CONSTRUCTION QUALITY ASSURANCE

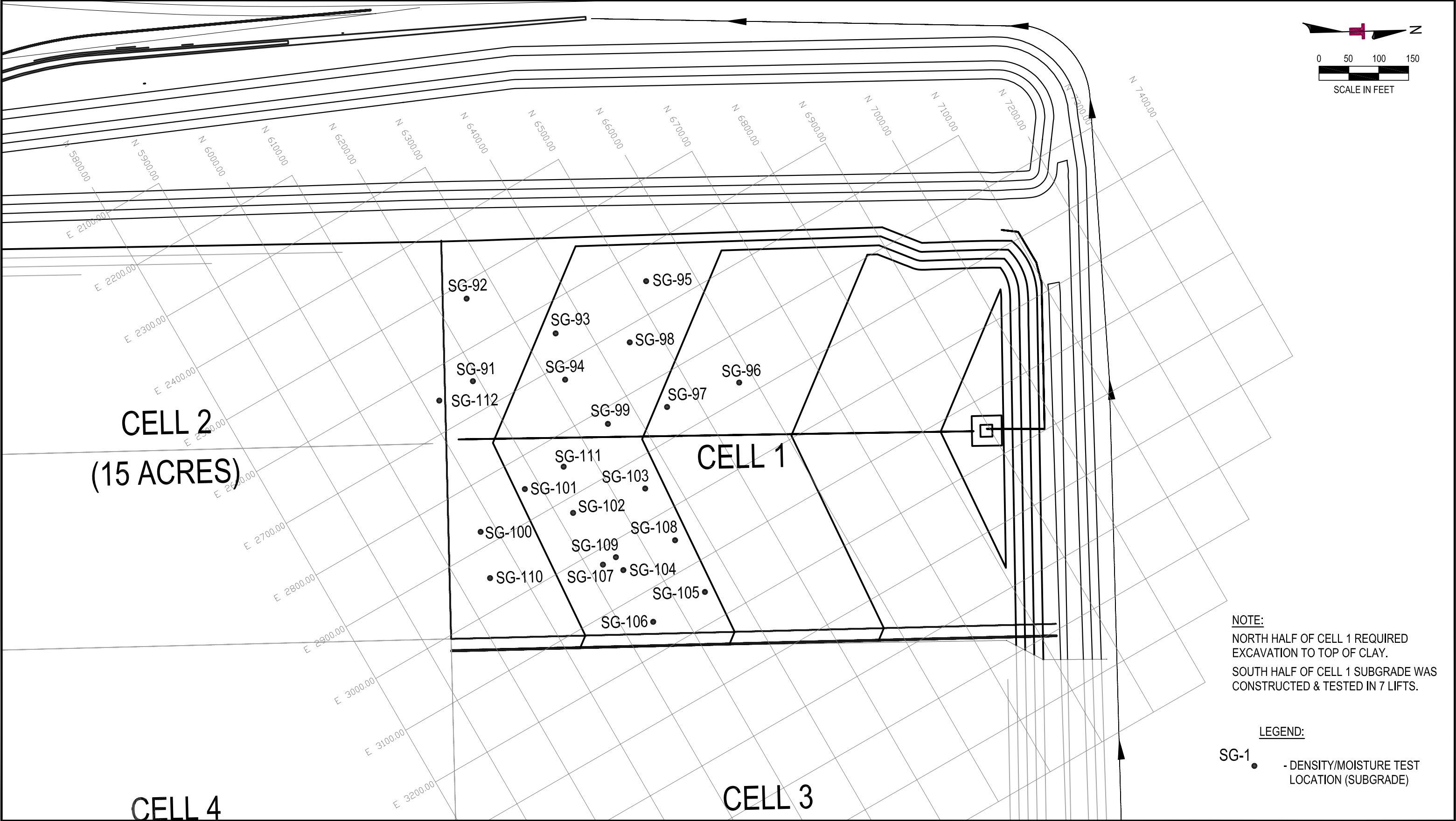
DYNEGY - PLUM POINT

CLASS 3N LANDFILL

OSCEOLA

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FIGURE 5	
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DRAWN BY:	PTG
APPVD. BY:	KEB
SCALE:	1" = 150'
DATE:	9/17/08
JOB NO.	084-001-35077169
ACAD NO.	009
SHEET NO.:	OF



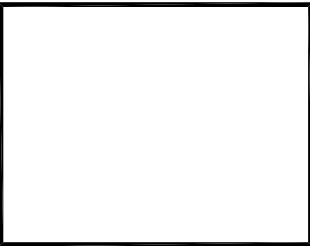
REV.	DATE	BY	DESCRIPTION



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FIELD TEST LOCATIONS - SUBGRADE (LIFT 4)

CELL 1 CONSTRUCTION QUALITY ASSURANCE

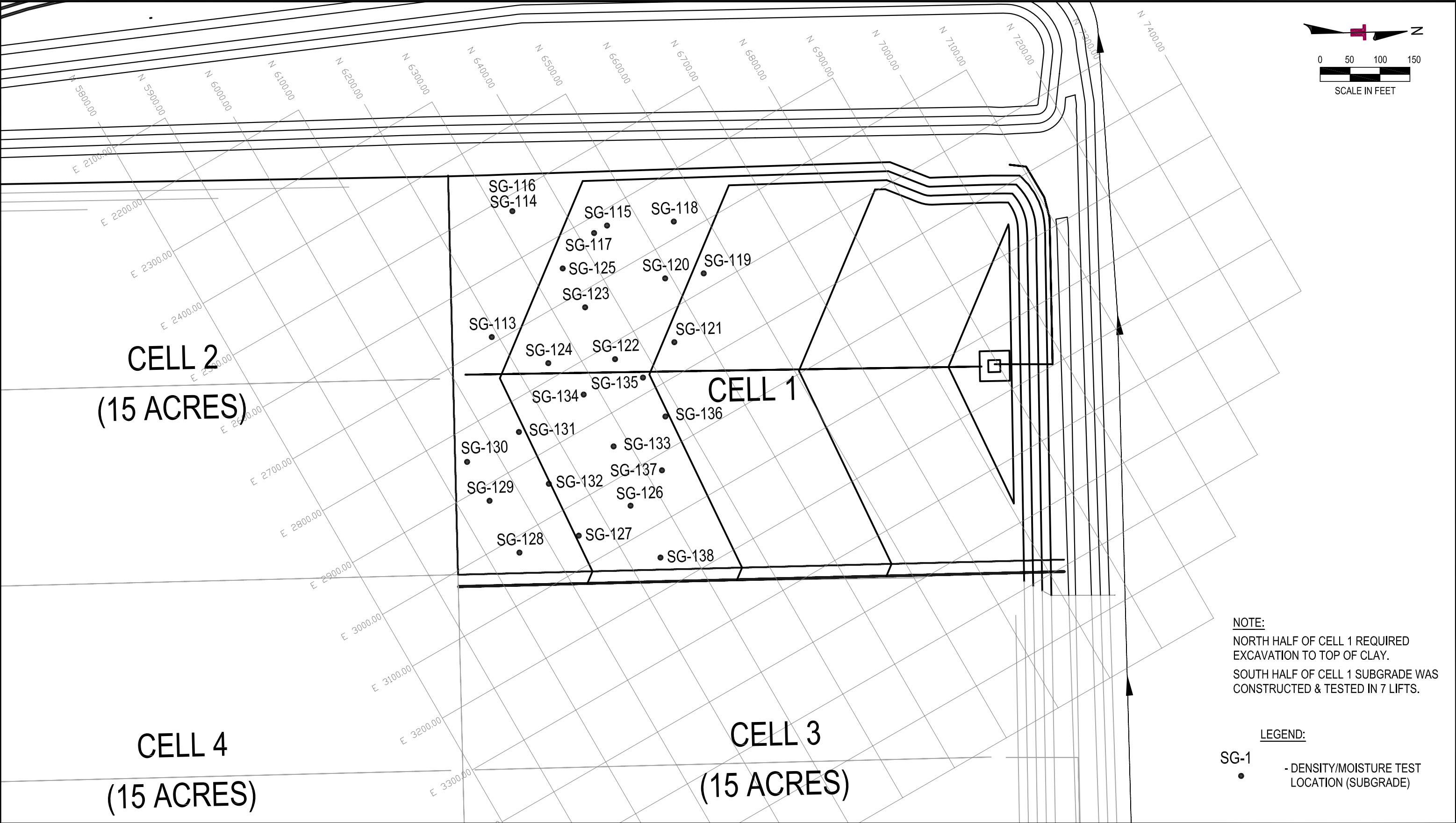
DYNEGY - PLUM POINT

CLASS 3N LANDFILL

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FIGURE 6	
DESIGNED BY:	BNF
DRAWN BY:	PTG
APPVD. BY:	KEB
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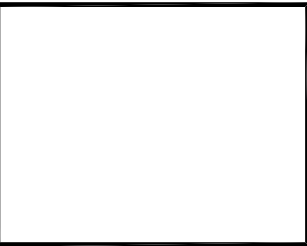
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FIELD TEST LOCATIONS - SUBGRADE (LIFT 5)

CELL 1 CONSTRUCTION QUALITY ASSURANCE

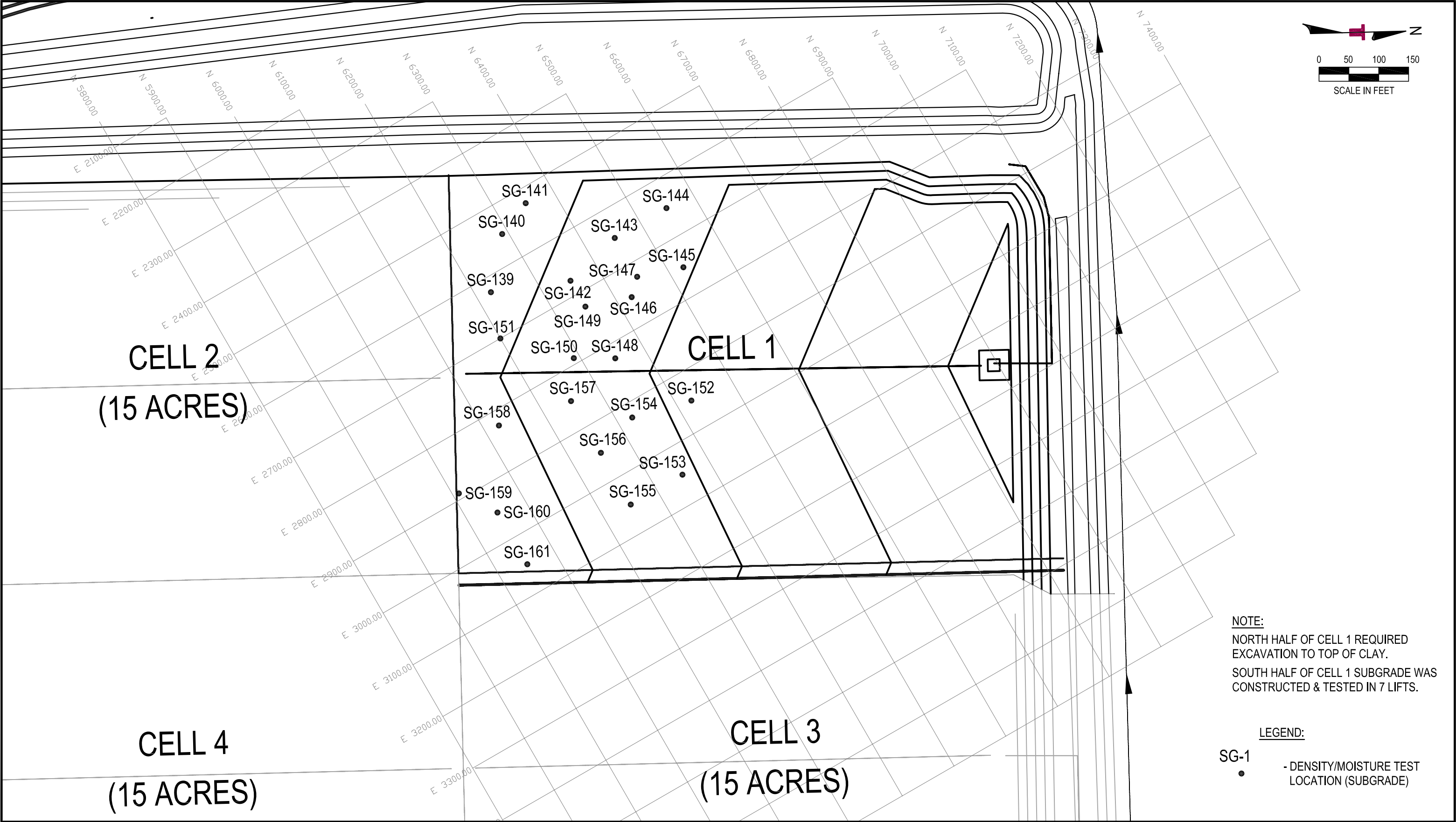
DYNEGY - PLUM POINT

CLASS 3N LANDFILL

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ARKANSAS

FIGURE 7	
DESIGNED BY:	BNF
DRAWN BY:	PTG
APPVD. BY:	KEB
SCALE:	1" = 150'
DATE:	9/18/08
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ACAD NO.	011
SHEET NO.:	OF



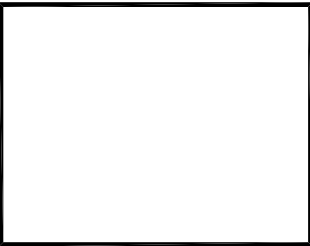
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FIELD TEST LOCATIONS - SUBGRADE (LIFT 6)

CELL 1 CONSTRUCTION QUALITY ASSURANCE

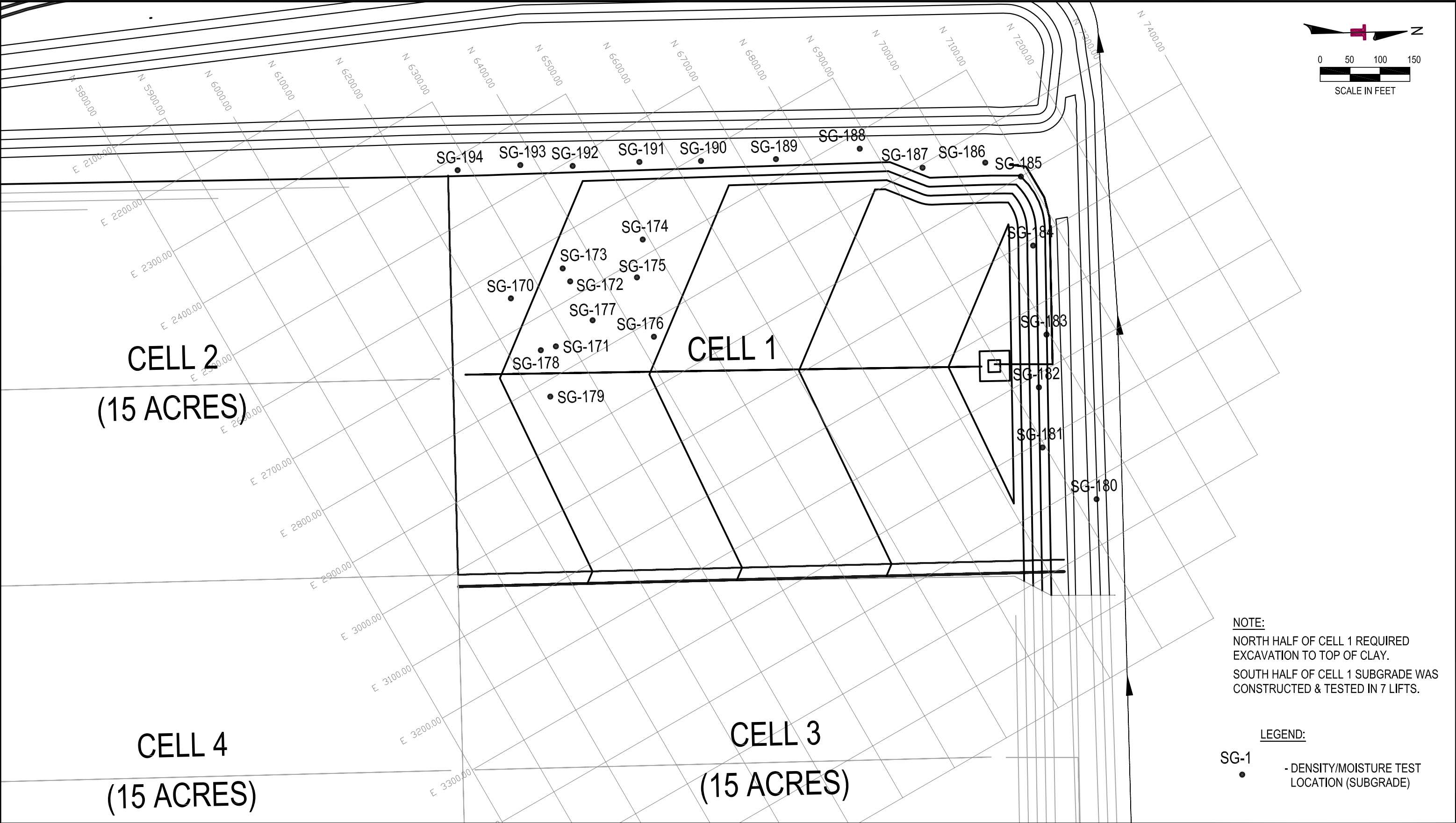
DYNEGY - PLUM POINT

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FIGURE 8	
DESIGNED BY:	BNF
DRAWN BY:	PTG
APPVD. BY:	KEB
SCALE:	1" = 150'
DATE:	9/18/08
JOB NO.	084-001-35077169
ACAD NO.	012
SHEET NO.:	OF



NOTE:
NORTH HALF OF CELL 1 REQUIRED
EXCAVATION TO TOP OF CLAY.
SOUTH HALF OF CELL 1 SUBGRADE WAS
CONSTRUCTED & TESTED IN 7 LIFTS.

LEGEND:
SG-1 • - DENSITY/MOISTURE TEST
LOCATION (SUBGRADE)

REV.	DATE	BY	DESCRIPTION



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FIELD TEST LOCATIONS - SUBGRADE (LIFT 7)

CELL 1 CONSTRUCTION QUALITY ASSURANCE

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FIGURE 9	
DESIGNED BY:	BNF
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APPVD. BY:	KEB
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DATE:	9/18/08
JOB NO.	084-001-35077169
ACAD NO.	013
SHEET NO.:	OF

3.0 CLAY LINER SYSTEM INSTALLATION

The following section describes the construction of the bottom clay liner system. The compacted clay liner corresponding to Cell 1 was completed during July and August of 2008.

3.1 PROJECT SPECIFICATIONS

The project construction plans for the compacted clay liner indicated that the clay liner was to be constructed in one, 12-inch thick compacted lift on the south half of the cell and in-situ tested on the north half of the cell. Each clay lift was to be placed and compacted to 95% of the Standard Proctor maximum dry density at moisture content above the optimum moisture content for the clay material. As required by Site Specific Condition 10 of Permit 0303-S3N, the hydraulic conductivity of the clay bottom sublayer was not to exceed 1×10^{-5} cm/s.

3.2 CONSTRUCTION PROCEDURES

Placement of the clay liner material was accomplished using tractors pulling pans, tractor with a disc, dozers, excavators, haul trucks, a sheeps-foot roller, and a smooth drum roller. The clay liner was moisture conditioned during placement to achieve optimum moisture content and maximum compaction. Finish grading of the surface was accomplished by utilizing laser-leveling equipment attached to earth moving equipment. Drawings provided in **APPENDIX A** provide the elevations associated with the top of the clay liner for the bottom liner system.

3.3 PRE-CONSTRUCTION TESTING OF CLAY LINER MATERIAL

Field and laboratory testing of the clay liner system material was completed as specified in the project specifications, the facility CQA plan, and in accordance with the requirements of Arkansas Regulation No. 22.

Before placement, soil samples were obtained from the excavation and clay stockpiles at a minimum frequency of one test per 20,000 cubic yards of soil placed. **APPENDIX D** contains the results of the compacted clay liner pre-construction testing. **TABLE 1** summarizes the results of the pre-construction testing. The results indicate that the materials used meet or exceed the minimum project standards.

TABLE 1. SUBGRADE & CLAY LINER PRE-CONSTRUCTION TEST RESULTS

Test Description	Moisture/Density Relationships ASTM D698	Atterberg Limits ASTM D4318	Particle Size Analysis ASTM D1140, D422	Soils Classification (USCS)	Remolded Permeability (cm/sec) D5084
Project Requirements	Minimum 95% Standard Proctor maximum dry density	P.I. greater than 10	More than 50% passing No. 200 sieve More than 80% passing No. 4 sieve	SC, CL, or CH	1.0×10^{-5} or less
Sample Number	Test Results				
PC-1	Max Dry Density: 104.0 pcf Optimum Moisture: 17.5%	L.L. 35 P.L. 18 P.I. 17	94.9% passing No. 200 sieve 99.9% passing No. 4 sieve	CL	1.0×10^{-8}
PC-2	Max Dry Density: 104.0 pcf Optimum Moisture: 18.0%	L.L. 32 P.L. 22 P.I. 10	91.1% passing No. 200 sieve 99.8% passing No. 4 sieve	CL	1.0×10^{-8}

3.4 CONSTRUCTION TESTING OF COMPACTED CLAY LINER MATERIAL

During construction of the compacted clay liner, samples were obtained for laboratory testing to verify the consistency of the materials during construction. The results of the construction laboratory testing are included in **APPENDIX E. TABLE 2** summarizes the results obtained from laboratory testing of the clay liner material. Based upon the results of the construction testing performed, most of the clay liner material complies with the project specifications. As shown in **TABLE 2** the materials used meet or exceed the minimum project standards.

TABLE 2. SUBGRADE & CLAY LINER CONSTRUCTION TEST RESULTS

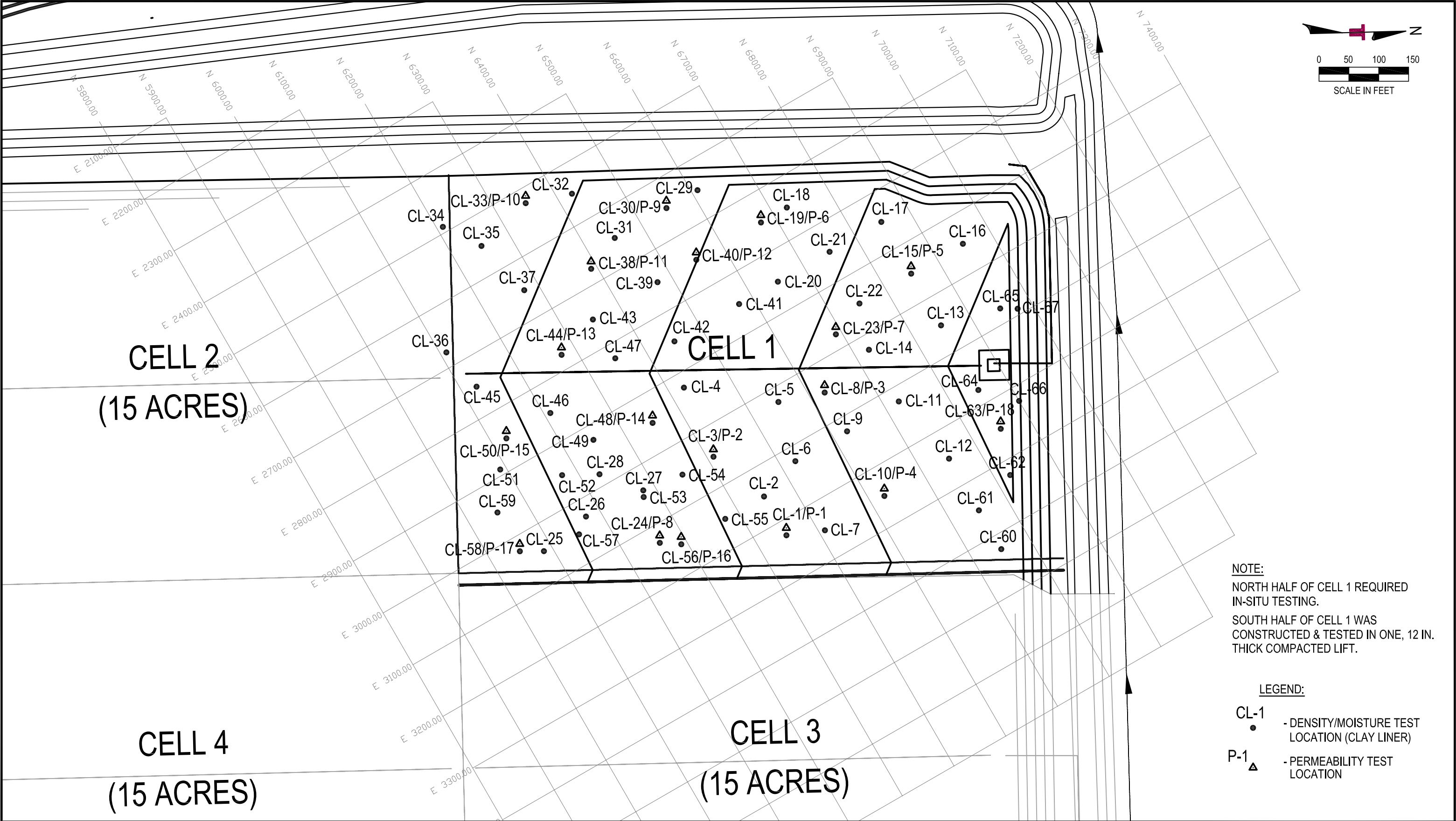
Test Description	Moisture/Density Relationships ASTM D698	Atterberg Limits ASTM D4318	Particle Size Analysis ASTM D1140, D422	Soils Classification (USCS)	Permeability (cm/sec) D5084
Project Requirements	Minimum 95% Standard Proctor maximum dry density	P.I. greater than 10	More than 50% passing No. 200 sieve More than 80% passing No. 4 sieve	SC, CL, or CH	1.0×10^{-5} or less
Sample Number	Test Results				
CS-3	Max Dry Density: 105.5 pcf Optimum Moisture: 18.2%	L.L. 42 P.L. 20 P.I. 22	86.6% passing No. 200 Sieve 97.0% passing No. 4 sieve	CL	2.8×10^{-8}
CS-4	Max Dry Density: 100.7 pcf Optimum Moisture: 20.8%	L.L. 42 P.L. 21 P.I. 21	91.4% passing No. 200 Sieve 95.1% passing No. 4 sieve	CL	5.3×10^{-8}

Field moisture and density tests were performed at a minimum rate of one test for every 10,000 square feet per compacted lift. **FIGURE 4** through **FIGURE 9** illustrate the locations of the field moisture and density tests for each compacted lift of clay. **APPENDIX F** includes the field logs for the moisture and density testing performed in association with the Cell 1 construction. Based upon the results of the moisture and density tests performed by Terracon, the 12-inch thick lift of compacted clay and the in-situ clay liner comply with the project specifications.

Shelby Tube samples were obtained from each lift at a minimum rate of one test for every 40,000 square feet. **FIGURE 10** illustrates the locations where the Shelby Tube samples were taken for each compacted lift of clay. The tubes were sealed and delivered to the laboratory for permeability testing using a flexible-wall permeameter (ASTM D-5084). As indicated in **TABLE 3**, permeability results for the completed compacted clay liner meets the project requirements (less than 1×10^{-5} cm/s). **APPENDIX G** contains the compacted clay liner permeability test results.

TABLE 3. COMPACTED CLAY LINER PERMEABILITY TEST SUMMARY

Test No.	Lift No.	Test Results	
		Average Permeability (cm/sec)	Pass/Fail
P - 1	In-Situ	2.5×10^{-8}	Pass
P - 2	In-Situ	7.8×10^{-8}	Pass
P - 3	In-Situ	5.9×10^{-7}	Pass
P - 4	In-Situ	3.3×10^{-8}	Pass
P - 5	In-Situ	2.3×10^{-8}	Pass
P - 6	In-Situ	3.5×10^{-8}	Pass
P - 7	In-Situ	6.3×10^{-8}	Pass
P - 8	1 st	4.2×10^{-8}	Pass
P - 9	1 st	5.5×10^{-8}	Pass
P - 10	1 st	5.5×10^{-7}	Pass
P - 11	1 st	7.5×10^{-8}	Pass
P - 12	1 st	4.2×10^{-8}	Pass
P - 13	1 st	4.3×10^{-8}	Pass
P - 14	1 st	2.7×10^{-8}	Pass
P - 15	1 st	1.0×10^{-7}	Pass
P - 16	1 st	3.2×10^{-8}	Pass
P - 17	1 st	1.8×10^{-7}	Pass
P - 18	1 st	3.5×10^{-8}	Pass



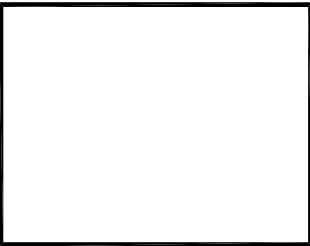
REV.	DATE	BY	DESCRIPTION



Consulting Engineers and Scientists

25809 I-30
PH. (501) 847-9292

BRYANT, AR 72022
FAX. (501) 847-9210



FIELD TEST LOCATIONS - CLAY LINER (LIFT 1 / IN-SITU)

CELL 1 CONSTRUCTION QUALITY ASSURANCE

DYNEGY - PLUM POINT

CLASS 3N LANDFILL

OSCEOLA

ARKANSAS

FIGURE 10	
DESIGNED BY:	BNF
DRAWN BY:	PTG
APPVD. BY:	KEB
SCALE:	1" = 150'
DATE:	9/18/08
JOB NO.	084-001-35077169
ACAD NO.	014
SHEET NO.:	OF

4.0 GEOSYNTHETIC LINER INSTALLATION

Installation of the geosynthetic liner for the bottom liner system of Cell 1 was performed by Plastic Fusion Fabricators (PFF) during August 2008. APPENDIX H provides installer information for PFF. Approximately 276,000 square feet of 60-mil textured HDPE geomembrane liner and was placed in Cell 1 by PFF.

4.1 MANUFACTURER'S QUALITY CONTROL CERTIFICATES

Manufacturer's Quality Control Certificates (roll certification reports) were submitted for comparison of the delivered material properties with the project specifications. Copies of the manufacturer's certificates for the geomembrane are provided in **APPENDIX I**. An inventory of the geomembrane used at the site is included in **APPENDIX K**. Based upon the manufacturer's quality control certificates, the supplied material complies with the project specifications.

4.2 MATERIAL CONFORMANCE TESTING

Conformance test samples of the geomembrane material were tested by Precision Geosynthetic Laboratories, Inc. (PGL) for compliance with the project specifications. A copy of the laboratory conformance test results on the geomembrane is included in **APPENDIX J**. Based upon the results of the conformance testing by PGL, the geosynthetic material supplied complies with the project specifications.

4.3 DEPLOYMENT OF GEOSYNTHETICS

Prior to the deployment of the geomembrane, the PFF field manager and the Grayco site superintendent accepted the subgrade. Copies of the acceptance forms are included in **APPENDIX M**.

Deployment of the panels was accomplished by use of a Track-hoe, Sky Track, and manual labor to transport each panel into place. A Terracon field representative monitored the deployment of panels. The daily deployment logs for the geosynthetics can be found in **APPENDIX N**. Panel layouts of the bottom liner system for Cell 1 are illustrated on the drawing in **APPENDIX A**.

A Terracon field representative reviewed each panel and noted any manufacturing and deployment defects for repair. The panels were anchored temporarily with sandbags to prevent wind damage. The panels were permanently anchored at the top of the slopes by anchor trenches filled and compacted with clay. An overbuild area was constructed on the south and east sides of Cell 1. Plywood was placed over the 60-mil geomembrane and sand was placed over the plywood.

4.4 GEOMEMBRANE TRIAL SEAM MONITORING

Before startup of each seaming period (in the morning and after lunch), the fusion and extrusion welder operators were required to prepare a trial seam. The seams were tested in the field on a gauged tensiometer to check for machine failures or operator errors. **APPENDIX L** contains calibration certificates for the geosynthetic installation field tensiometer. If the tests passed (in peel and in shear), the operator was then allowed to begin seaming. Trial seam logs are presented in **APPENDIX O**. The seams were checked for peel and shear. The coupons were required to exhibit a film tear bond (FTB) and to meet the project specifications for peel and shear strength in order to be acceptable.

4.5 GEOMEMBRANE SEAM MONITORING

The primary seaming method used for joining geomembrane panels was through an automated double track fusion welder. A summary of the geomembrane panel seaming is provided in **APPENDIX P**. Extrusion welding was used for patches, repairs, intersections of fusion seams, and seam reconstruction. Monitoring of the seaming methods consisted of periodic visual observation of the seaming process, visual examination of the completed seam, and verification that the seam was welded for its entire length. Seaming imperfections were marked and subsequently repaired in accordance with the project CQA plan. The panel layouts of the geomembrane installation showing seam locations for the bottom liner system are presented in **APPENDIX A**.

4.6 NON-DESTRUCTIVE SEAM TESTING AND REPAIR MONITORING

Continuity testing on seams, seam repairs, and patches were non-destructively tested by the installer using an air pressure test for fusion welds or vacuum box techniques for extrusion welds. Terracon field CQA personnel monitored and documented field testing of the seams to ensure that the tests were performed in accordance with the project CQA plan. Summaries of the geomembrane continuity testing are presented in **APPENDIX Q**. The location, size, and testing results of seam repairs and patches were documented. Copies of this documentation can be found in **APPENDIX S**.

4.7 DESTRUCTIVE SEAM STRENGTH TESTING

Each destructive sample was divided into three sections: a sample for field testing, a sample for laboratory testing, and an archive sample. Prior to sending the samples to PGL, the samples were tested in the field for peel and shear by PFF using a gauged tensiometer. Summaries of the field destructive sampling and laboratory testing for peel and shear are located in **APPENDIX R**. Destructive samples were obtained at a minimum frequency of one sample per 500 linear feet of production seam length. Only one seam failed and this seam was retested on each side of the failure. The seam that failed was then repaired and capped. The destructive test locations are noted in **APPENDIX A**. Based on the results of the seam peel and shear testing performed by PFF and PGL, each seam complies with the project specifications.

5.0 LEACHATE COLLECTION SYSTEM AND PROTECTIVE COVER

The leachate collection system consists of poorly graded sand overlying the HDPE liner with a minimum of a two-percent slope to a leachate collection trench.

5.1 LEACHATE COLLECTION PIPE

A leachate collection pipe was installed in the center of the Cell 1 bottom liner system. The collection pipes consist of a six-inch diameter perforated HDPE pipe wrapped in a gravel protective/drainage bed. The gravel consists of washed gravel with a gradation varying from No. 4 to 1 ½ inches in diameter. **TABLE 4** presents the results of laboratory testing of the gravel. The gravel was wrapped with an eight ounce filter fabric to protect the system from clogging. The collection pipe gravity drains at approximately two percent slope into a sump located at the north end of Cell 1. **APPENDIX T** presents the laboratory test results on the gravel used in the drainage system.

5.2 LEACHATE PUMP SYSTEM

An 18-inch diameter HDPE side slope riser pipe was installed in the sump and up the northern side slope of Cell 1. A pump was installed within the 18-inch diameter HDPE riser pipe. The liquid in the sump is pumped through a HDPE force main that will be connected to a frac tank storage system that is located within a clay lined secondary containment area.

5.3 PROTECTIVE COVER SOIL

A 12-inch (min) thick sand protective cover layer was placed on top of the geomembrane on the bottom and side slopes of Cell 1. General fill material was placed on the geocomposite material on the side slopes of Cell 1. **APPENDIX T** presents the laboratory test results on the sand protective cover layer. **TABLE 5** presents the results of laboratory testing of the sand protective cover. The survey record drawing provided in **APPENDIX A** illustrates the top of the protective cover layer. The layer was placed using a low ground pressure dozer while maintaining a 12-inch thick minimum working surface to ensure protection of the underlying geosynthetic liner.

TABLE 4. LEACHATE COLLECTION GRAVEL TEST SUMMARY

Test Description	Calcium Carbonate (%)	Particle Size Analysis ASTM D1140, D422	Soils Classification (USCS)	Permeability (cm/sec)
Project Requirements	≤15	More than 95% passing 1-inch sieve Less than 5% passing No. 200 sieve	GW or GP	1.0X10 ⁻²
Sample Number	Test Results			
G-1 (Pre-construction)	0.17	0.0% passing No. 200 sieve	GP	
G-2 (Construction)	N/A	0.0% passing No. 200 sieve	GP	1.62X10 ⁺¹

TABLE 5. PROTECTIVE COVER SAND TEST SUMMARY

Test Description	Calcium Carbonate (%)	Particle Size Analysis ASTM D1140, D422	Soils Classification (USCS)	Permeability (cm/sec)
Project Requirements	NA	Less than 15% passing No. 200 sieve	SP	
Sample Number	Test Results			
S-1 (Pre-construction)	NA	5.4% passing No. 200 sieve	SP-SM	2.02X10 ⁻³
S-2 (Construction)	NA	0.1% passing No. 200 sieve	SP	3.34X10 ⁻²

6.0 SITE IMPROVEMENTS

During the construction of Cell 1, Dynegy made other improvements at the site including the following:

- New access and perimeter road construction,
- New stormwater ditches, and a 5-acre stormwater sedimentation basin.

6.1 ACCESS ROAD AND DITCH CONSTRUCTION

A perimeter berm, road and ditch were constructed on the north side of the Landfill and around the stormwater basin. Soil excavation from the stormwater pond, Cell 1, and future Cells 2, 3 and 4 were used for constructing the berm and road. Soil samples were obtained for laboratory testing and to acquire proctor values to be used in the field compaction testing of the fill material. A stormwater ditch was constructed on the inside of the perimeter road to direct stormwater from the north half of the Landfill to the new stormwater sedimentation basin.

6.2 STORMWATER SEDIMENTATION POND

A sedimentation basin was constructed on the west side of the permitted Landfill. The basin has an area of approximately 7-acres and is about 12-feet deep. The construction of the basin was in accordance with the most recent “10 State Standards”. Below is a summary of construction activities and details for the basin.

Construction Summary:

- Approximately 7 acres;
- Inner and outer slopes: 3:1 (horizontal:vertical);
- Three foot freeboard;
- Controlled pipe outlet structure with riprap and energy dissipater at discharge;
- Perimeter dike road 8-foot wide (Minimum);
- Compacted in lifts, 90 – 95% Standard Proctor;
- Constructed of clay soils, average permeability (based upon 6 Shelby Tube samples) equals 4.8×10^{-8} cm/sec (see **APPENDIX G**); and
- Interior and exterior slopes to be seeded and mulched for erosion control.

APPENDIX A

AS-BUILT DRAWINGS

CERTIFICATION AND ASBUILT PLANS

CELL 1

OCTOBER, 2008

INDEX OF SHEETS		
SHEET NAME		SHEET NO.
CERTIFICATION PLAN - CELL 1		1
HDPE LINER - PANEL LAYOUT - ASBUILT		2
STORMWATER BASIN - ASBUILT		3
GRAVEL ROAD - ASBUILT		4

PLUM POINT ENERGY STATION

MISSISSIPPI COUNTY, ARKANSAS



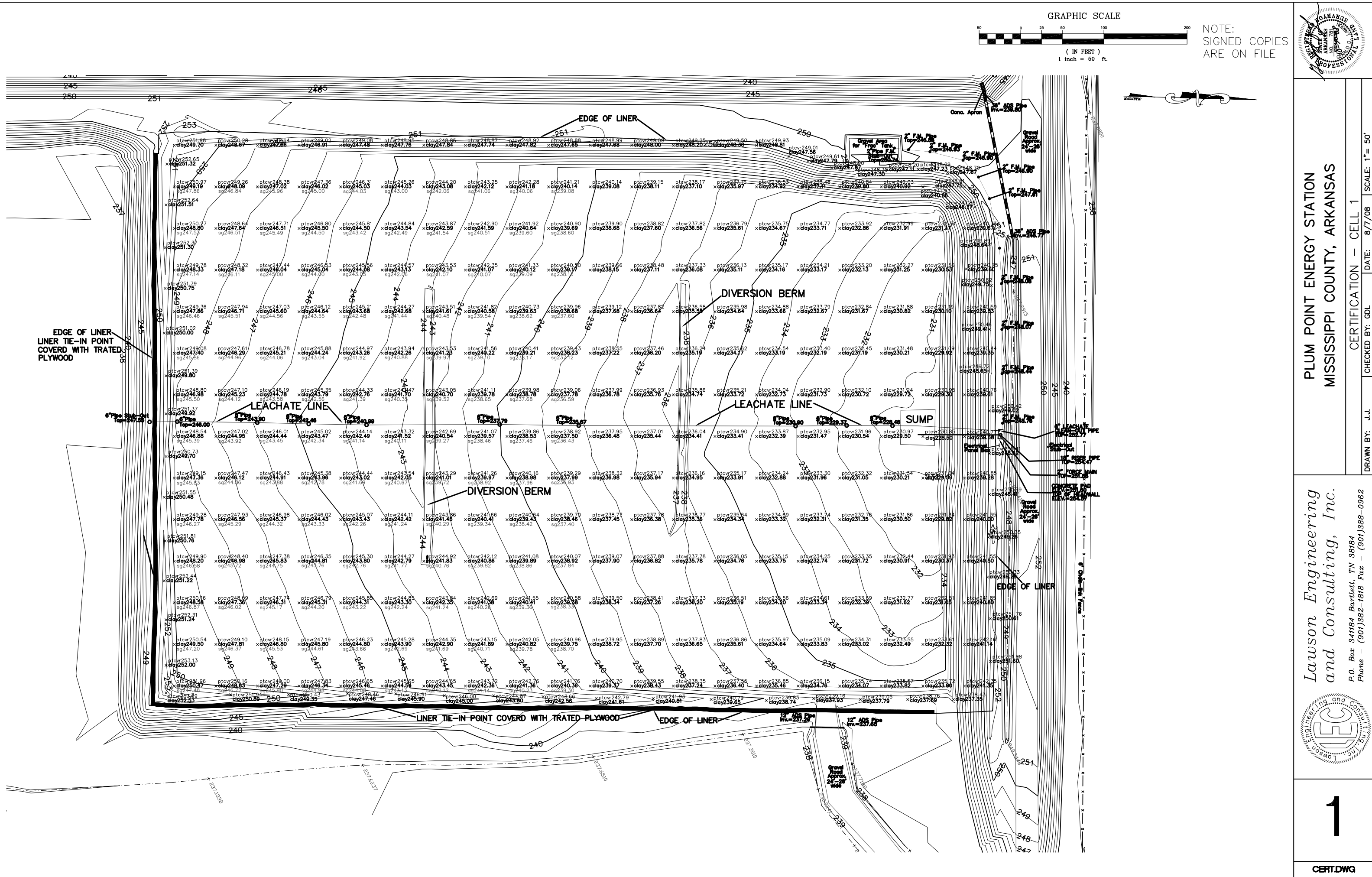
Lawson Engineering and Consulting, Inc.

P.O. Box 341184, Bartlett, TN 38184

Phone - (901)867-3361, Fax - (901)867-5546

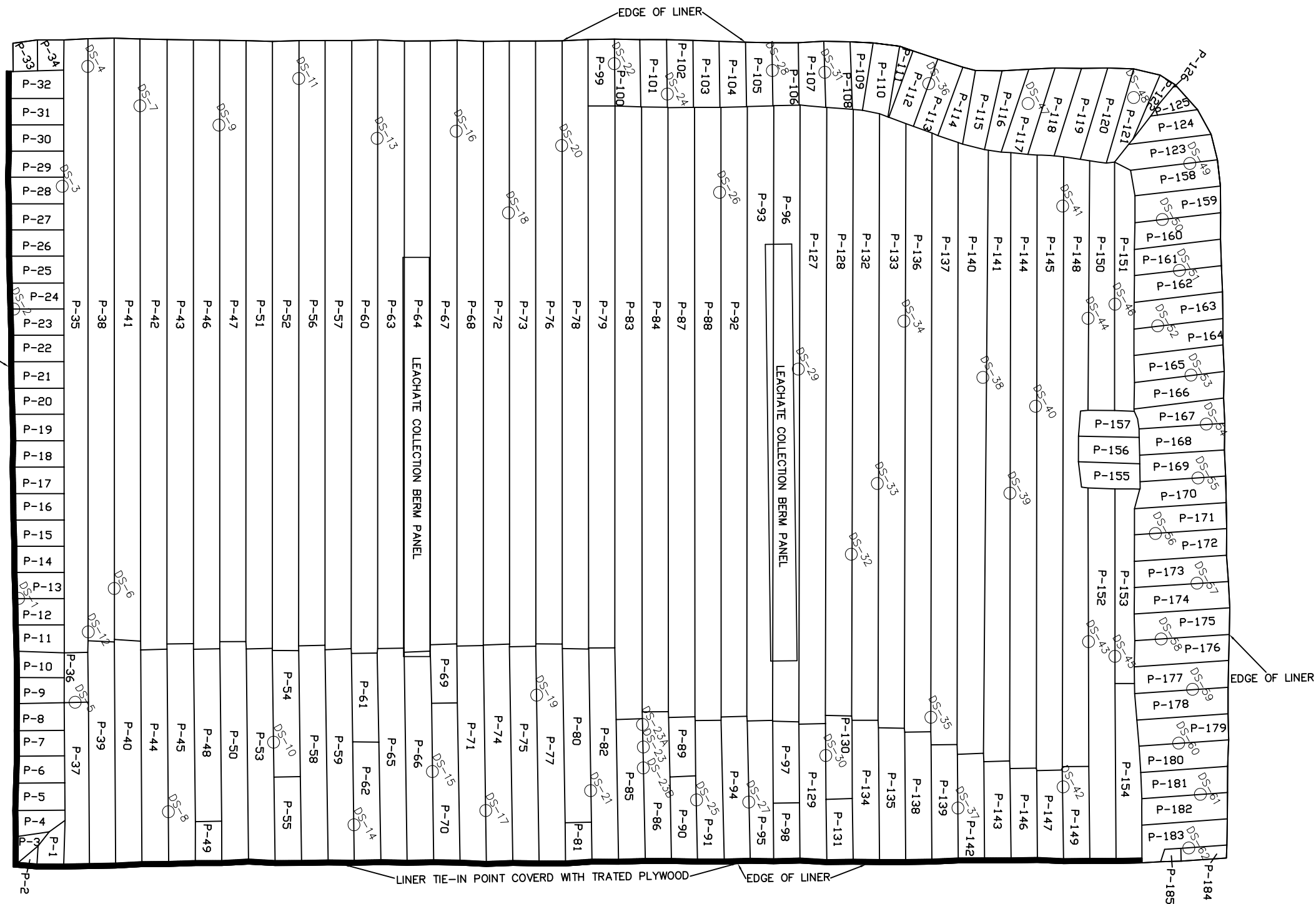
NOTE:
SIGNED COPIES
ARE ON FILE

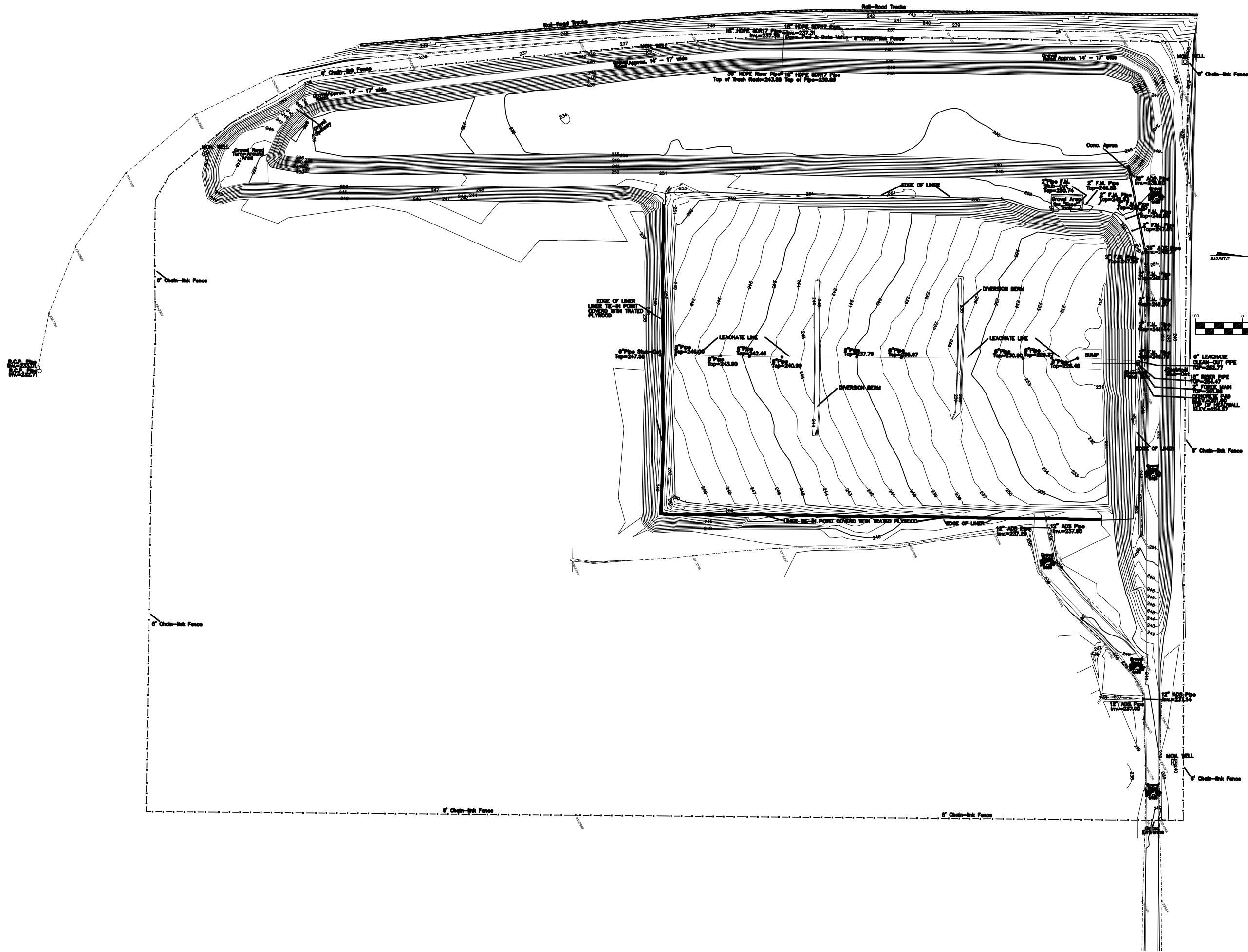




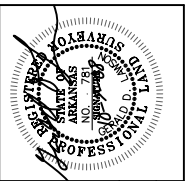
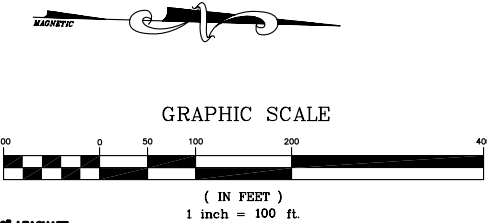
HDPE LINER - PANEL LAYOUT - ASBUILT		
DRAWN BY: J.J.	CHECKED BY: GDL	DATE: 8/7/08 SCALE: 1"= 50'

P.O. Box 341184 Bartlett, TN 38184
Phone - (901)382-1818 Fax - (901)388-0962





NOTE:
SIGNED COPIES
ARE ON FILE



PLUM POINT ENERGY STATION			
MISSISSIPPI COUNTY, ARKANSAS			
STORMWATER BASIN – ASBULT		DATE: 8/7/08	SCALE: 1"= 100'
DRAWN BY: J.J.	CHECKED BY: GDL		

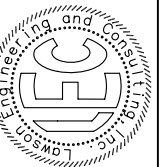
Lawson Engineering
and Consulting, Inc.
P.O. Box 341184 Bartlett, TN 38184
Phone – (901)382-1818 Fax – (901)388-0962



A circular professional seal for Gerald D. Lanson, a Professional Land Surveyor in the State of Arkansas. The seal contains the text: "STATE OF ARKANSAS", "PROFESSIONAL LAND SURVEYOR", "Gerald D. Lanson", "No. 781", and "Exp. 12/31/2006". The seal is stamped over the signature of Gerald D. Lanson.

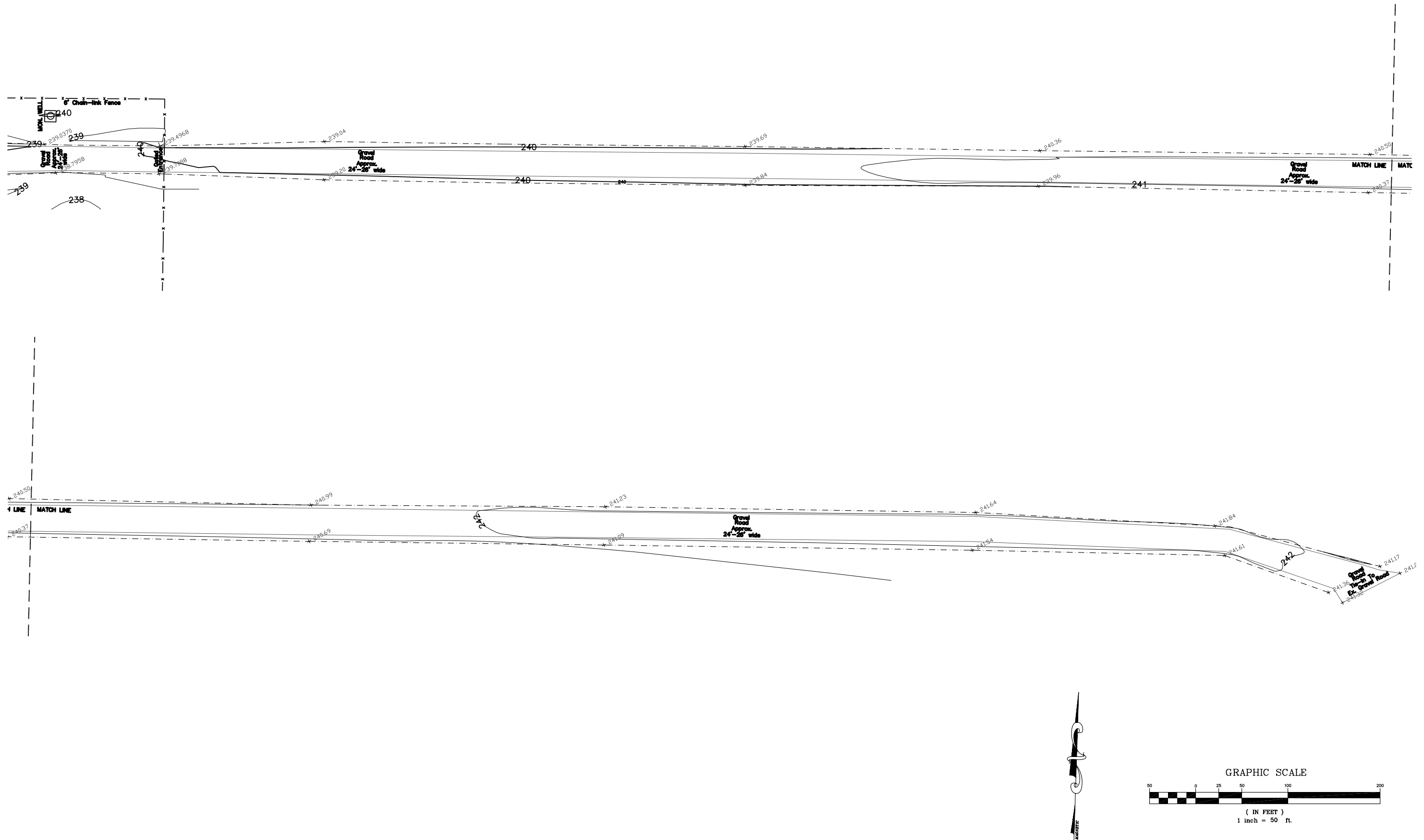
DRAWN BY: J.J.	CHECKED BY: GDL	DATE: 8/7/08	SCALE: 1" = 50'
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2000 000/100 1000 000/100 2000 000/100 1000 000/100



4

LOAD.DWG



APPENDIX B

GENERAL PROJECT CORRESPONDENCE



c/o Dynergy Inc.
1000 Louisiana St. Suite 5800
Houston, Texas 77002
Phone (713) 507-6400

Dynergy Services Plum Point, LLC

File: PP 20.4.2 & 20.4.20
Via Certified Mail

March 26, 2008

Mr. Bryan Leamons, P.E.,
Engineer Supervisor, Solid Waste Management
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72218-5317

AFIN: 47-00461
Pmt #: 0303-S3N
REC'D
SCAN ☒ MAR 28 2008
Doc ID#: 52171
To: SM7 yule

S
W
M
D

Re: **Notification of Construction Schedule**
and Request for Waiver of Test Fill Requirement
Plum Point Energy Station Class 3N Landfill
Permit No. 0303-S3N AFIN 47-00461

Letter: DSPP-ADEQ-0077

Dear Mr. Leamons:

Dynergy Services Plum Point is providing this notification for the tentative construction schedule of the Plum Point Energy Station Class 3N Landfill located near Osceola, Arkansas. Initial construction will consist of Cell 1, a leachate collection system, a stormwater management system, and other related improvements. Per Regulation 22.528 and 22.428(f), the tentative construction schedule and construction contractors are provided below. The "certifying professional" will be Mr. Ken Bown, a licensed Professional Engineer, of Terracon.

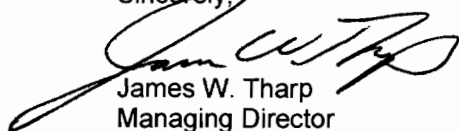
<u>Description/Contractor</u>	<u>Tentative Schedule</u>
General Contractor for Earthwork and Construction Management: Grayco Construction	4/1/08 – 8/31/08
Geosynthetics Installation: Plastic Fusion Fabricators	6/1/08 – 6/30/08
Construction Quality Assurance Services: Terracon	4/1/08 – 8/31/08

Note: This schedule is tentative and may be altered due to changes in circumstances such as weather, equipment availability, etc.

Since the earthwork contractor has completed and documented over 500,000 square feet of clay liner during the last three years, we are requesting that ADEQ waive the test fill requirements of Reg.22.428(c)(11). A certification report documenting construction activities will be submitted to ADEQ upon completion of construction.

If you have any questions, please feel free to contact me at (713) 767-8755 or Don Baker at (713) 767-0299 at your convenience.

Sincerely,


James W. Tharp
Managing Director

Partman, Mona

From: Leamons, Bryan
Sent: Friday, March 28, 2008 4:29 PM
To: 'Bown, Ken'
Cc: Partman, Mona
Subject: Dynegy

We received the Plum Point notification of construction today. Consistent with other projects using experienced contractors, a test fill will not be required in this case.

Bryan Leamons, P.E.
Engineer Supervisor
ADEQ - Solid Waste Management Division
501-682-0601

Rec'd Digitally	
AFIN: 47-00461	
PMT#: 0303-S3N	
RECEIVED <i>By Mona Partman at 9:21 am, Apr 01, 2008</i>	
DOC ID#: 52205	
TO: BL>FILE	
	S W M D

APPENDIX C

DAILY PROJECT FIELD RECORDS

DAILY PROJECT FIELD RECORD

DATE: May 13, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backho (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: May 14, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: May 15, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: May 18, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: May 19, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: May 20, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: May 21, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
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Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: May 22, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: May 29, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (1) John Deere Trackhoe
⇒ Grayco	⇒ (1) Volvo Trackhoe
⇒ • Jonnie, Robert, Mark, Tommy	⇒ (3) Volvo Haul Trucks
⇒	⇒ (2) D6 Dozers
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: May 31, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 1, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 2, 2008

WEATHER CONDITIONS: Partly Cloudy/windy

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:

⇒
⇒ Grayco (7)
⇒ Dynegy (1)

Contractor Equipment on Site:

⇒ Backhoe (1)
⇒ Trac (2)
⇒ Dozer (3)

TIME

NOTES

7:30

Gauge pickup, arrived on site. Finished density shots of slopes, North containment berm being constructed photos #11, 12, 13. Standing water East berm. Addressing drainage issue.

19:30

Securing gauge, leaving site.

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 3, 2008

WEATHER CONDITIONS: Clear/breezy

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 4, 2008

WEATHER CONDITIONS: Clear/breezy

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 5, 2008

WEATHER CONDITIONS: Clear/breezy

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 6, 2008

WEATHER CONDITIONS: Clear/breezy

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Backhoe (1)
⇒	Grayco (7)	⇒	Trac (2)
⇒	Dynegy (1)	⇒	Dozer (3)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: June 9, 2008

WEATHER CONDITIONS: Windy/cloudy

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (3) D-6 Dozers
⇒ Grayco (9)	⇒ (3) CAT off road dump trucks
⇒	⇒ CAT Sheepsfoot compactor
⇒	⇒
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 10, 2008

WEATHER CONDITIONS: sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	(3) D-6 Dozers
⇒	Grayco (9)	⇒	(3) CAT off road dump trucks
⇒		⇒	CAT Sheepsfoot compactor
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 11, 2008

PROJECT: Plum Point Cell 1

LOCATION: Osceola, AR

WEATHER CONDITIONS: sunny

PROJECT NUMBER: 35077169

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	(3) D-6 Dozers
⇒	Grayco (9)	⇒	(3) CAT off road dump trucks
⇒		⇒	CAT Sheepsfoot compactor
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 12, 2008

WEATHER CONDITIONS: sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (3) D-6 Dozers
⇒ Grayco (9)	⇒ (3) CAT off road dump trucks
⇒	⇒ CAT Sheepsfoot compactor
⇒	⇒
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 13, 2008

WEATHER CONDITIONS: sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (3) D-6 Dozers
⇒ Grayco (9)	⇒ (3) CAT off road dump trucks
⇒	⇒ CAT Sheepsfoot compactor
⇒	⇒
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 14, 2008

WEATHER CONDITIONS: rain

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	(3) D-6 Dozers
⇒	Grayco (9)	⇒	(3) CAT off road dump trucks
⇒		⇒	CAT Sheepsfoot compactor
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 16, 2008

WEATHER CONDITIONS: rain

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (3) D-6 Dozers
⇒ Grayco (9)	⇒ (3) CAT off road dump trucks
⇒	⇒ CAT Sheepsfoot compactor
⇒	⇒
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 17, 2008

WEATHER CONDITIONS: rain

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	(3) D-6 Dozers
⇒	Grayco (9)	⇒	(3) CAT off road dump trucks
⇒		⇒	CAT Sheepsfoot compactor
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 18, 2008

WEATHER CONDITIONS: rain

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (3) D-6 Dozers
⇒ Grayco (9)	⇒ (3) CAT off road dump trucks
⇒	⇒ CAT Sheepsfoot compactor
⇒	⇒
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 19, 2008

WEATHER CONDITIONS: rain

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (3) D-6 Dozers
⇒ Grayco (9)	⇒ (3) CAT off road dump trucks
⇒	⇒ CAT Sheepsfoot compactor
⇒	⇒
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 21, 2008

WEATHER CONDITIONS: rain

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (3) D-6 Dozers
⇒ Grayco (11)	⇒ (3) CAT off road dump trucks
⇒	⇒ CAT Sheepsfoot compactor
⇒	⇒ (2) Excavators, (2) tractors with pans
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 23, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (3) D-6 Dozers
⇒ Grayco (11)	⇒ (3) CAT off road dump trucks
⇒	⇒ CAT Sheepsfoot compactor
⇒	⇒ (2) Excavators, (2) tractors with pans
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 24, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (3) D-6 Dozers
⇒ Grayco (11)	⇒ (3) CAT off road dump trucks
⇒	⇒ CAT Sheepsfoot compactor
⇒	⇒ (2) Excavators, (2) tractors with pans
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 25, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (3) D-6 Dozers
⇒ Grayco (11)	⇒ (3) CAT off road dump trucks
⇒	⇒ CAT Sheepsfoot compactor
⇒	⇒ (2) Excavators, (2) tractors with pans
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 26, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (3) D-6 Dozers
⇒ Grayco (11)	⇒ (3) CAT off road dump trucks
⇒	⇒ CAT Sheepsfoot compactor
⇒	⇒ (2) Excavators, (2) tractors with pans
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 27, 2008

WEATHER CONDITIONS: Sunny

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (1) 3 Dozers
⇒ Grayco	⇒ (2) Trackhoe
⇒ • Dynegy	(3) 3 UTE Trucks
⇒	⇒ (2) Scrapers
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 28, 2008

PROJECT: Plum Point Cell 1

LOCATION: Osceola, AR

WEATHER CONDITIONS: Overcast, light showers

PROJECT NUMBER: 35077169

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (1) 3 Dozers
⇒ Grayco	⇒ (2) Trackhoe
⇒ • Dynegy	(3) 3 UTE Trucks
⇒	⇒ (2) Scrapers
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 29, 2008

PROJECT: Plum Point Cell 1

LOCATION: Osceola, AR

WEATHER CONDITIONS: _____

PROJECT NUMBER: 35077169

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (1) 3 Dozers
⇒ Grayco	⇒ (2) Trackhoe
⇒ • Dynegy	(3) 3 UTE Trucks
⇒	⇒ (2) Scrapers
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: June 30, 2008

WEATHER CONDITIONS: Breezy, Sunny,

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	(1) 3 Dozers
⇒	Grayco	⇒	(2) Trackhoe
⇒	Dynegy		(3) 3 UTE Trucks
⇒		⇒	(2) Scrapers
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 1, 2008

WEATHER CONDITIONS: Breezy, Sunny,

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (1) 3 Dozers
⇒ Grayco	⇒ (2) Trackhoe
⇒ Dynegy	(3) 3 UTE Trucks
⇒	⇒ (2) Scrapers
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 2, 2008

PROJECT: Plum Point Cell 1

LOCATION: Osceola, AR

WEATHER CONDITIONS:	Breezy, Sunny,
PROJECT NUMBER:	35077169
TERRACON REP:	Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (1) 3 Dozers
⇒ Grayco	⇒ (2) Trackhoe
⇒ • Dynegy	(3) 3 UTE Trucks
⇒	⇒ (2) Scrapers
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 3, 2008

PROJECT: Plum Point Cell 1

LOCATION: Osceola, AR

WEATHER CONDITIONS:	Sunny, Humid
PROJECT NUMBER:	35077169
TERRACON REP:	Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ (1) Bulldozer – CAT.D6T-Ex CAT
⇒ Grayco	⇒ (2) Ex Deere – 240 DLC
⇒ Dynegy	(3) Scraper Case III STX 430
⇒	⇒ (4) Scraper Deere
⇒	⇒ (5) UTE Hauler CAT (740, 740, 735)
⇒	⇒ (6) Bulldozer CAT D6N
⇒	⇒ (7) Water Truck/Packer B15F

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 7, 2008

WEATHER CONDITIONS: Partly Cloudy , Showers

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Excavator Cat. 330D / Bulldozer Deere 750J
⇒	Grayco	⇒	Disc Challenger MT655B / Scraper Deere 9520
⇒	Danny , Equipment Operators	⇒	Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒		⇒	Scraper Case III STX430 / Bulldozer Cat.D6T
⇒		⇒	Water Truck, Mack / Packer, Cat. 815F
⇒		⇒	UTE Haulers, Cat. (735, 740, 740)
⇒		⇒	Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒		⇒	Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒		⇒	(2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 8, 2008

PROJECT: Plum Point Cell 1

LOCATION: Osceola, AR

WEATHER CONDITIONS:	Partly cloudy, Humid, Breezy
PROJECT NUMBER:	35077169
TERRACON REP:	Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Excavator Cat. 330D / Bulldozer Deere 750J
⇒	Grayco	⇒	Disc Challenger MT655B / Scraper Deere 9520
⇒	Danny , Equipment Operators	⇒	Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒		⇒	Scraper Case III STX430 / Bulldozer Cat.D6T
⇒		⇒	Water Truck, Mack / Packer, Cat. 815F
⇒		⇒	UTE Haulers, Cat. (735, 740, 740)
⇒		⇒	Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒		⇒	Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒		⇒	(2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 9, 2008

PROJECT: Plum Point Cell 1

LOCATION: Osceola, AR

WEATHER CONDITIONS:	Partly cloudy, Sprinkles
PROJECT NUMBER:	35077169
TERRACON REP:	Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 10, 2008

WEATHER CONDITIONS: Cloudy, Light Rain

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 11, 2008

WEATHER CONDITIONS: Partly Cloudy, Showers

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 12, 2008

WEATHER CONDITIONS: Partly Cloudy, Showers

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ • Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 14, 2008

WEATHER CONDITIONS: Sunny, Clear, Calm

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 15, 2008

WEATHER CONDITIONS: Sunny, clear

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ • Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 16, 2008

WEATHER CONDITIONS: Sunny, clear

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: July 17, 2008

WEATHER CONDITIONS: Hot, calm, clear

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: July 18, 2008

WEATHER CONDITIONS: Hot, calm, clear

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: July 19, 2008

WEATHER CONDITIONS: Hot, calm, clear

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 21, 2008

WEATHER CONDITIONS: Hot, calm, clear

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 22, 2008

WEATHER CONDITIONS: Partly cloudy, hot, breezy

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 22, 2008

WEATHER CONDITIONS: Partly cloudy, hot, breezy

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 24, 2008

WEATHER CONDITIONS: Clear, hot

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Excavator Cat. 330D / Bulldozer Deere 750J
⇒	Grayco	⇒	Disc Challenger MT655B / Scraper Deere 9520
⇒	Danny , Equipment Operators	⇒	Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒		⇒	Scraper Case III STX430 / Bulldozer Cat.D6T
⇒		⇒	Water Truck, Mack / Packer, Cat. 815F
⇒		⇒	UTE Haulers, Cat. (735, 740, 740)
⇒		⇒	Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒		⇒	Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒		⇒	(2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 25, 2008

WEATHER CONDITIONS: Hot, Heat Index 106, breeze

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 28 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 29 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 30 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: July 31 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 1, 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 2, 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 3, 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 4 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 5, 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 6, 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 7, 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 8, 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 12, 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 13, 2008

WEATHER CONDITIONS: Hot, Heat Index 108

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: August 14, 2008

WEATHER CONDITIONS: 70°, Rain

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒		⇒	Excavator Cat. 330D / Bulldozer Deere 750J
⇒	Grayco	⇒	Disc Challenger MT655B / Scraper Deere 9520
⇒	Danny , Equipment Operators	⇒	Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒		⇒	Scraper Case III STX430 / Bulldozer Cat.D6T
⇒		⇒	Water Truck, Mack / Packer, Cat. 815F
⇒		⇒	UTE Haulers, Cat. (735, 740, 740)
⇒		⇒	Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒		⇒	Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒		⇒	(2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 15, 2008

WEATHER CONDITIONS: 70°, Rain

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 18, 2008

WEATHER CONDITIONS: 70°, Rain

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 19, 2008

WEATHER CONDITIONS: Clear

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Matt Shepard

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 20, 2008

WEATHER CONDITIONS: Light Rain

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Matt Shepard

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 21, 2008

WEATHER CONDITIONS: Overcast

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Matt Shepard

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 22, 2008

WEATHER CONDITIONS: Rainy / Overcast

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 23, 2008

WEATHER CONDITIONS: Rainy / Overcast

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 24, 2008

WEATHER CONDITIONS: Clear, Windy, 86°

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 25, 2008

WEATHER CONDITIONS: 80°, 30% Rain, Overcast

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 26, 2008

WEATHER CONDITIONS: 80°, 30% Rain, Overcast

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: August 27, 2008

WEATHER CONDITIONS: 80°, 30% Rain, Overcast

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: September 2, 2008

WEATHER CONDITIONS: _____

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: September 3, 2008

WEATHER CONDITIONS: _____

PROJECT: Plum Point Cell 1

PROJECT NUMBER: 35077169

LOCATION: Osceola, AR

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒	⇒ Excavator Cat. 330D / Bulldozer Deere 750J
⇒ Grayco	⇒ Disc Challenger MT655B / Scraper Deere 9520
⇒ Danny , Equipment Operators	⇒ Excavator Deere 240DLC / Bulldozer Cat. D6N
⇒	⇒ Scraper Case III STX430 / Bulldozer Cat.D6T
⇒	⇒ Water Truck, Mack / Packer, Cat. 815F
⇒	⇒ UTE Haulers, Cat. (735, 740, 740)
⇒	⇒ Backhoe Deere 310J / Drum Roller Cat. CS563E
⇒	⇒ Holly Dirt Blade / (2) Dirt Pans Deere 1814C
⇒	⇒ (2) Reynolds 17C

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

APPENDIX D

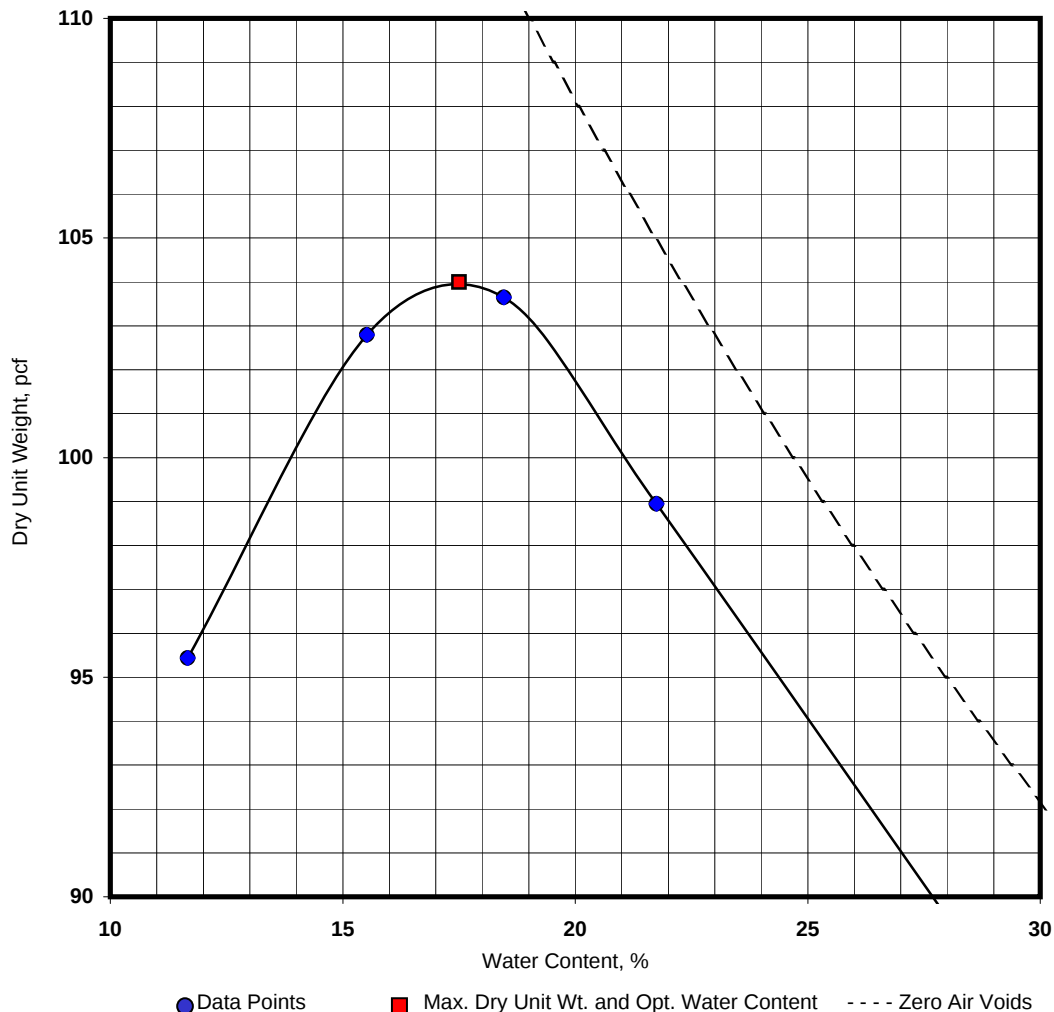
SUBGRADE AND CLAY LINER MATERIAL PRE-CONSTRUCTION TEST RESULTS

Laboratory Compaction Characteristics of Soil

Client Name: Dynegy
Project Name: Plum Point - Cell 1
Location: Class 3N Landfill
City & State: Osceola
Arkansas
Source Material: On-Site
Sample Description: Brown Silty Clay
PC-1
Material Designation: CL Sample date: 5/8/2008
Test Method: ASTM D-698
Test Procedure: Method A
Sample Preparation: Wet Preparation
Rammer: Mechanical X Manual

Project No.: 35077169 Date: 5/16/2008**TEST RESULTS**Maximum Dry Unit Wt.: 104.0 pcfOptimum Water Content: 17.5 %Liquid Limit: 35 Plastic Limit: 18Plasticity Index: 17% passing #40 sieve: 99.9% passing #200 sieve: 94.9Reviewed by: Brad Fureigh, E.I.

Zero air voids for specific gravity of 2.65



Mechanical Grain Size Analysis

ASTM D422



25809 Interstate 30

Bryant, AR 72022

Phone: 501.847.9292

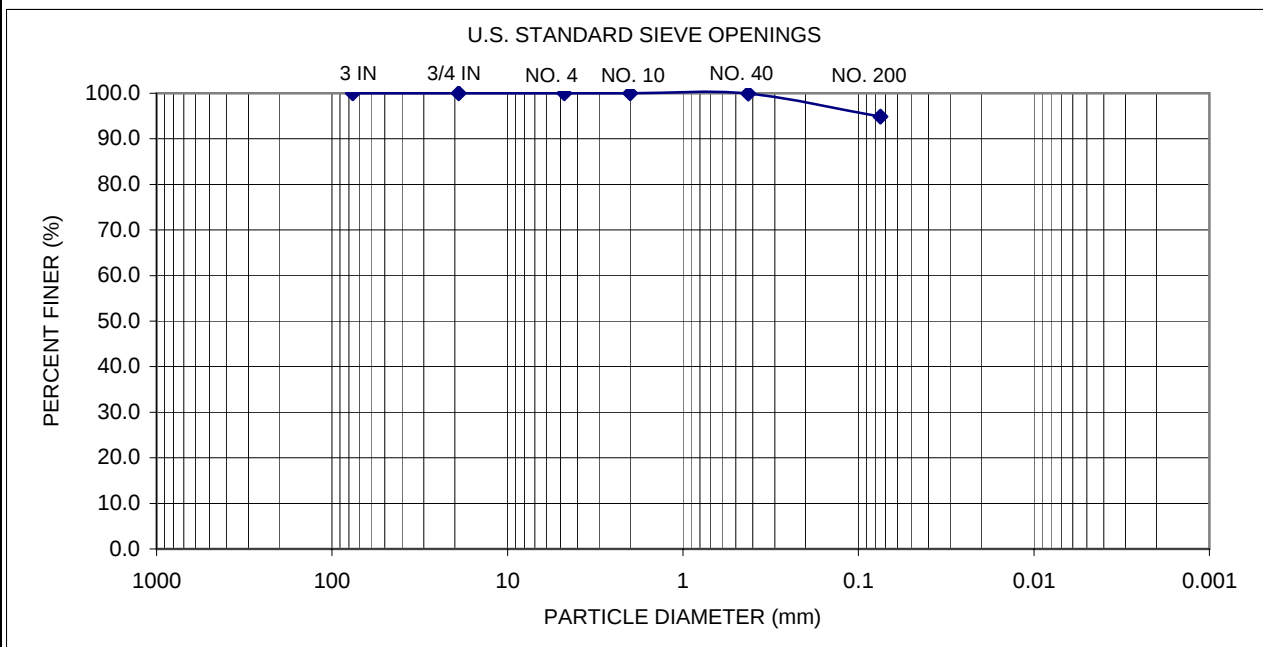
Fax: 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Plum Point Class 3N LF - Cell 1
Location: Osceola, Arkansas
Sample Depth: 1.0' - 2.5'
Soil Description: Brown Clay

Date: 5/19/2008
Project No.: 35077169

Sample No.: PC-1
Sample Weight: 734.5g
Washing Loss: 697.0g

Sieve Size	Individual Wt. Retained (gm)	Cumulative Wt. Retained (gm)	Cumulative Retained (%)	Cumulative Passing (%)
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	0.0	0.0	0.0	100.0
#40	0.5	0.5	0.1	99.9
#200	37.0	37.5	5.1	94.9
PAN	697.0	734.5	100.0	



Gravel: 0.0%
Sand: 5.1%
Silt/Clay: 94.9%

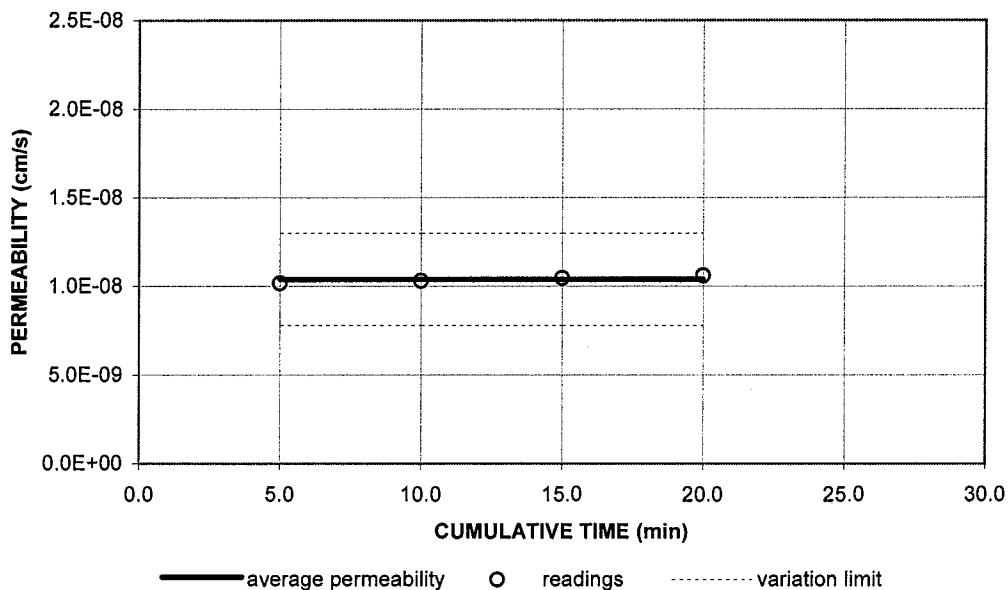
LL: 35
PL: 18
PI: 17

USCS: CL

Technician: Ryan Witherspoon

Reveiwed By: Brad Fureigh, E.I.

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: **ASTM D 5084**

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.34	1.02E-08	1.0E-08
21.00	5.00	10.00	13.15	1.03E-08	
21.00	5.00	15.00	12.97	1.05E-08	
21.00	5.00	20.00	12.78	1.06E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)	104.0	Specimen Height, (inches)		3.00	3.00
Opti. M.C., (%)	17.5	Specimen Diameter, (inches)		4.00	4.00
Comp. Method		Moisture Content, (%)		20.56	25.10
% Recompt.	95.0	Percent Saturation (%)		78.62	96.00
Test Pressures (psi)		Wet Mass Density (pcf)		119.06	123.55
Backpressure	90.00	Dry Mass Density (pcf)		98.75	98.75
Cell pressure	100.00	Void Ratio		0.71	0.71
Eff. Stress	10.00	Calculated Porosity, %		41.38	41.38

USCS		LL	PI	
Permeant Used: WATER		Remarks	BROWN SANDY LEAN CLAY	
Project Name	Plum Point-Cell 1		Tested by	FCE Reviewed by TGG
Client	Dynegy	W.O.#	35077169	FLEXIBLE WALL PERMEABILITY TEST Terracon
Sample Number	PC-1			
Sample Location	0-1.5'			
Date	5/21/2008	Lab No.	4968	

Laboratory Compaction Characteristics of Soil

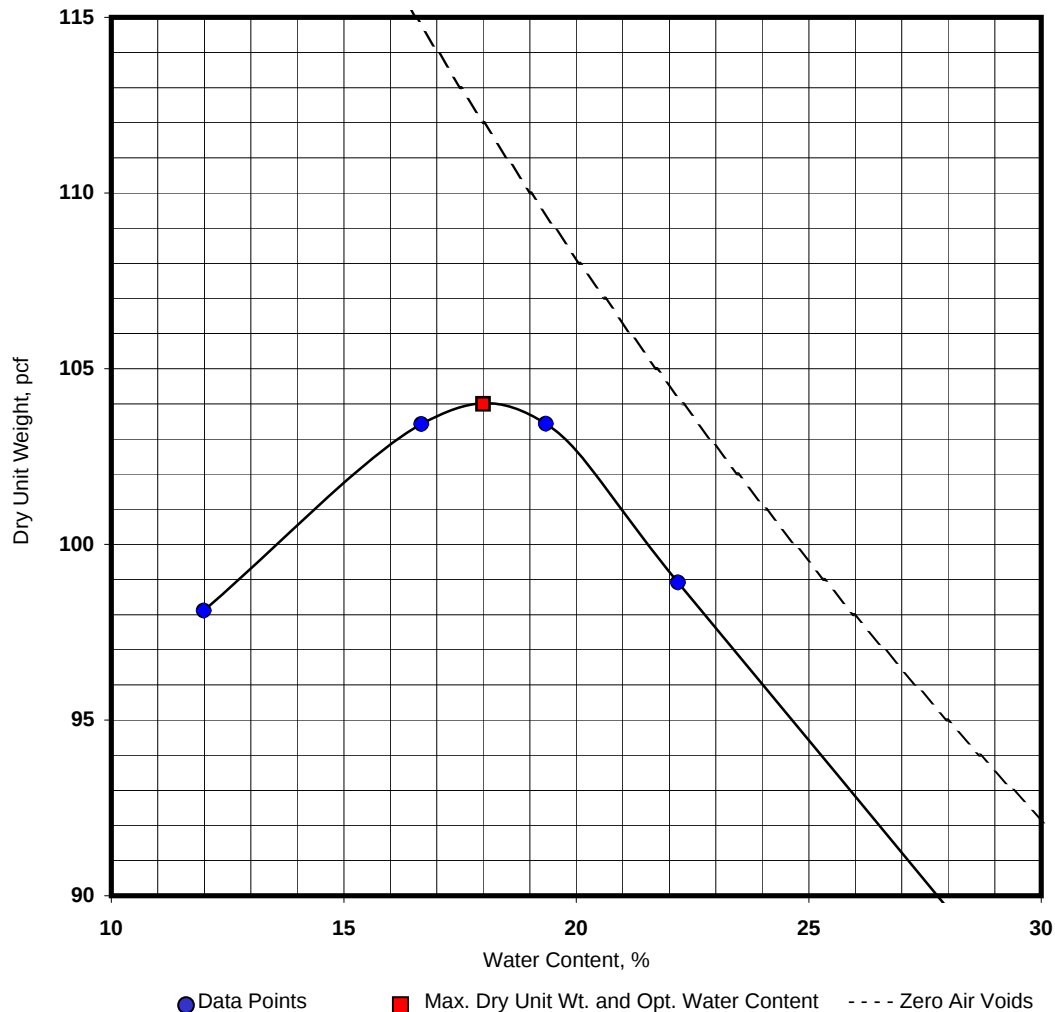
Client Name: Dynegy
Project Name: Plum Point - Cell 1
Location: Class 3N Landfill
City & State: Osceola
Arkansas
Source Material: On-Site
Sample Description: Brown Silty Clay
PC-2
Material Designation: CL Sample date: 5/8/2008
Test Method: ASTM D-698
Test Procedure: Method A
Sample Preparation: Wet Preparation
Rammer: Mechanical X Manual

Project No.: 35077169 Date: 5/16/2008**TEST RESULTS**

Maximum Dry Unit Wt.: 104.0 pcf
Optimum Water Content: 18.0 %

Liquid Limit: 30 Plastic Limit: 22Plasticity Index: 8% passing #40 sieve: 99.8% passing #200 sieve: 91.1Reviewed by: Brad Fureigh, E.I.

Zero air voids for specific gravity of 2.65



Mechanical Grain Size Analysis

ASTM D422



25809 Interstate 30

Bryant, AR 72022

Phone: 501.847.9292

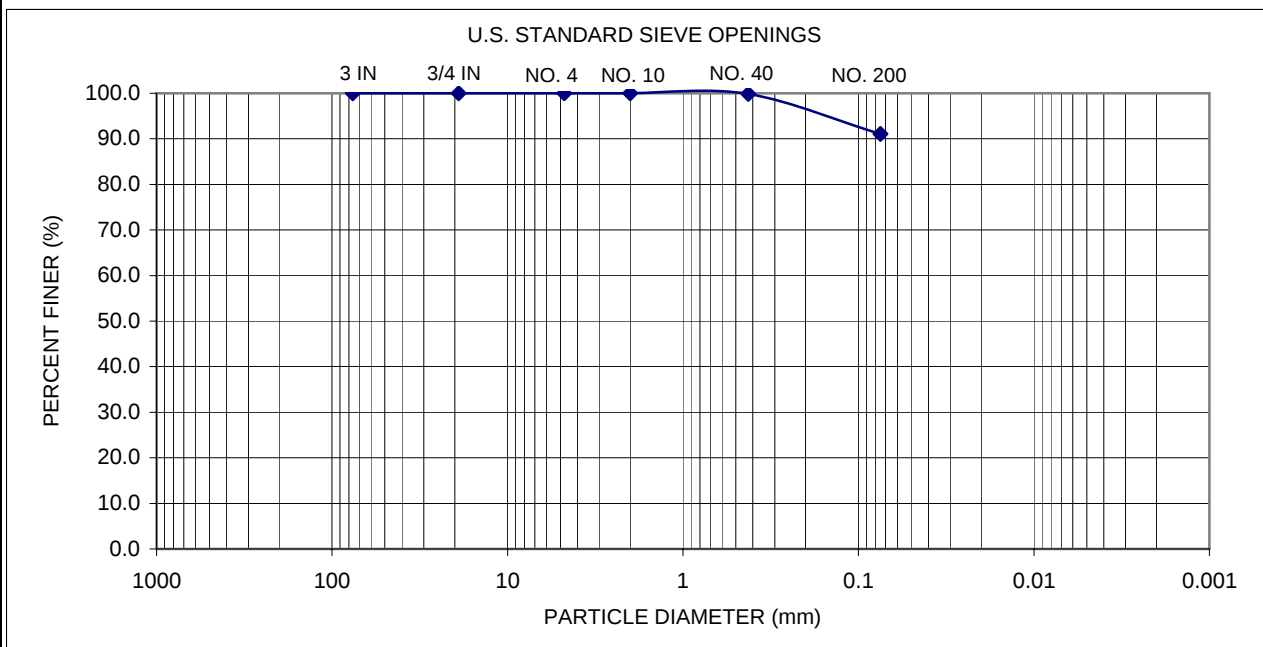
Fax: 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Plum Point Class 3N LF - Cell 1
Location: Osceola, Arkansas
Sample Depth: 1.0' - 2.5'
Soil Description: Brown Clay

Date: 5/19/2008
Project No.: 35077169

Sample No.: PC-2
Sample Weight: 734.5g
Washing Loss: 600.0g

Sieve Size	Individual Wt. Retained (gm)	Cumulative Wt. Retained (gm)	Cumulative Retained (%)	Cumulative Passing (%)
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	0.0	0.0	0.0	100.0
#40	1.2	1.2	0.2	99.8
#200	64.5	65.7	8.9	91.1
PAN	600.0	734.5	100.0	



Gravel: 0.0%
Sand: 8.9%
Silt/Clay: 81.7%

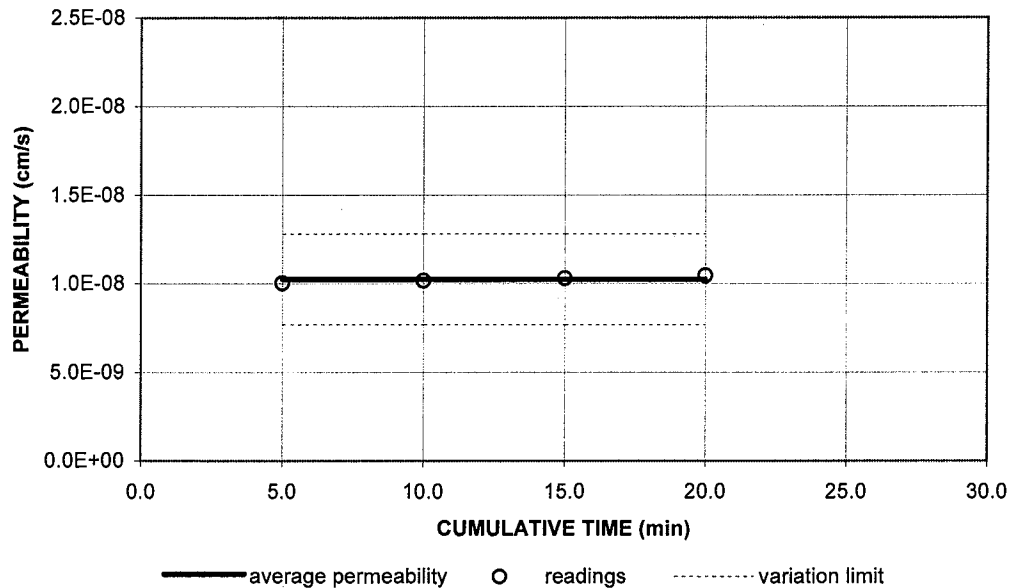
LL: 30
PL: 22
PI: 8

USCS: CL

Technician: Ryan Witherspoon

Reveiwed By: Brad Fureigh, E.I.

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.52	1.00E-08	1.0E-08
21.00	5.00	10.00	13.34	1.02E-08	
21.00	5.00	15.00	13.15	1.03E-08	
21.00	5.00	20.00	12.97	1.05E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)	104.0	Specimen Height, (inches)		3.00	2.99
Opti. M.C., (%)	18.0	Specimen Diameter, (inches)		4.00	4.00
Comp. Method		Moisture Content, (%)		20.79	22.09
% Recompt.	94.9	Percent Saturation (%)		79.38	85.04
Test Pressures (psi)		Wet Mass Density (pcf)		119.21	120.90
Backpressure	90.00	Dry Mass Density (pcf)		98.69	99.02
Cell pressure	100.00	Void Ratio		0.71	0.70
Eff. Stress	10.00	Calculated Porosity, %		41.42	41.23

USCS		LL	PI				
Permeant Used:		WATER	Remarks	BROWN SANDY LEAN CLAY			
Project Name	Plum Point-Cell 1			Tested by	FCE	Reviewed by	TGG
Client	Dynegy	W.O.#	35077169	FLEXIBLE WALL PERMEABILITY TEST Terracon			
Sample Number	PC-2						
Sample Location	0-1.5'						
Date	5/21/2008	Lab No.	4969				

Laboratory Compaction Characteristics of Soil

Client Name: Dynegy
Project Name: Plum Point - Cell 1
Location: Class 3N Landfill
City & State: Osceola
Arkansas
Source Material: On-Site
Sample Description: Brown Silty Clay with Sand
PC-3
Material Designation: CL Sample date: 5/8/2008
Test Method: ASTM D-698
Test Procedure: Method A
Sample Preparation: Wet Preparation
Rammer: Mechanical X Manual

Project No.: 35077169 Date: 5/16/2008

TEST RESULTS

Maximum Dry Unit Wt.: 104.0 pcf
Optimum Water Content: 17.5 %

Liquid Limit: 41 Plastic Limit: 18

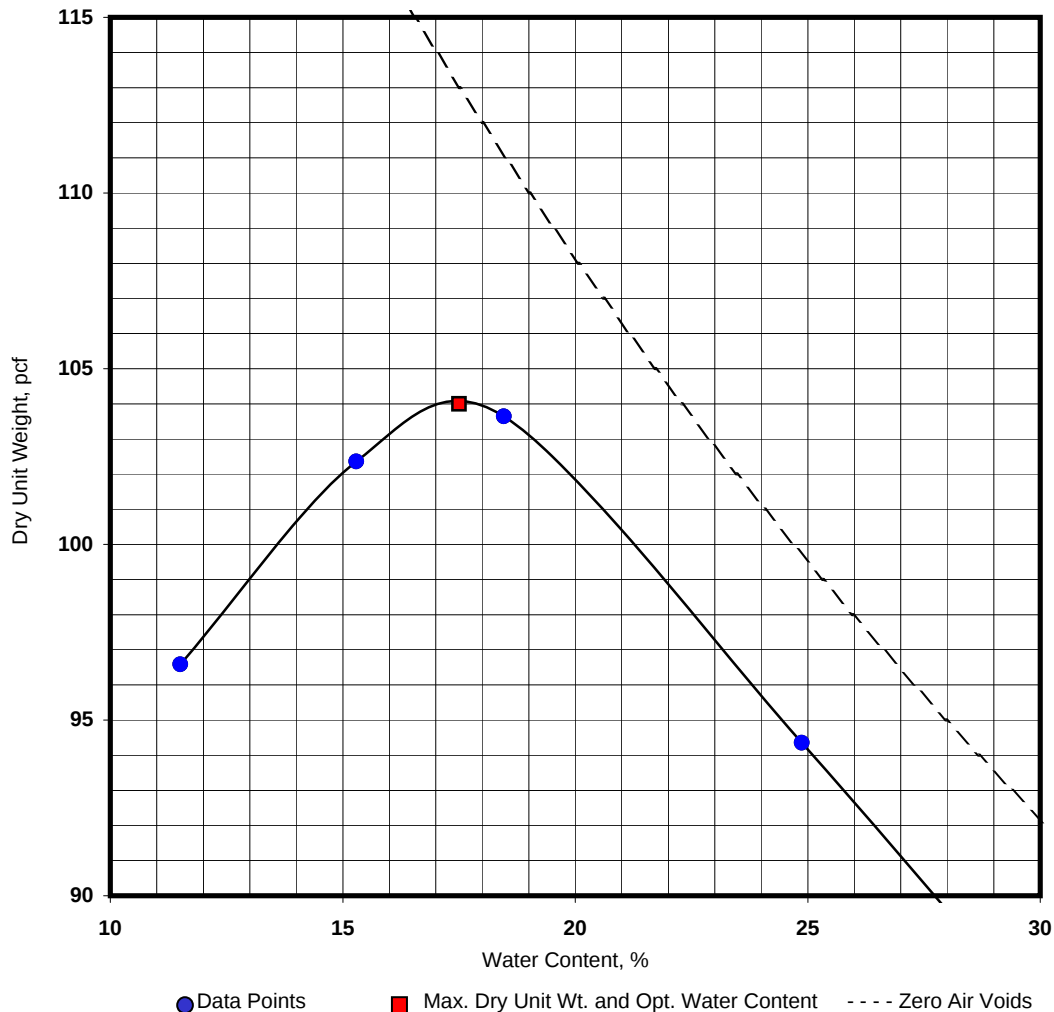
Plasticity Index: 23

% passing #40 sieve: 97.8

% passing #200 sieve: 81.1

Reviewed by: Brad Fureigh, E.I.

Zero air voids for specific gravity of 2.65



Mechanical Grain Size Analysis

ASTM D422



25809 Interstate 30

Bryant, AR 72022

Phone: 501.847.9292

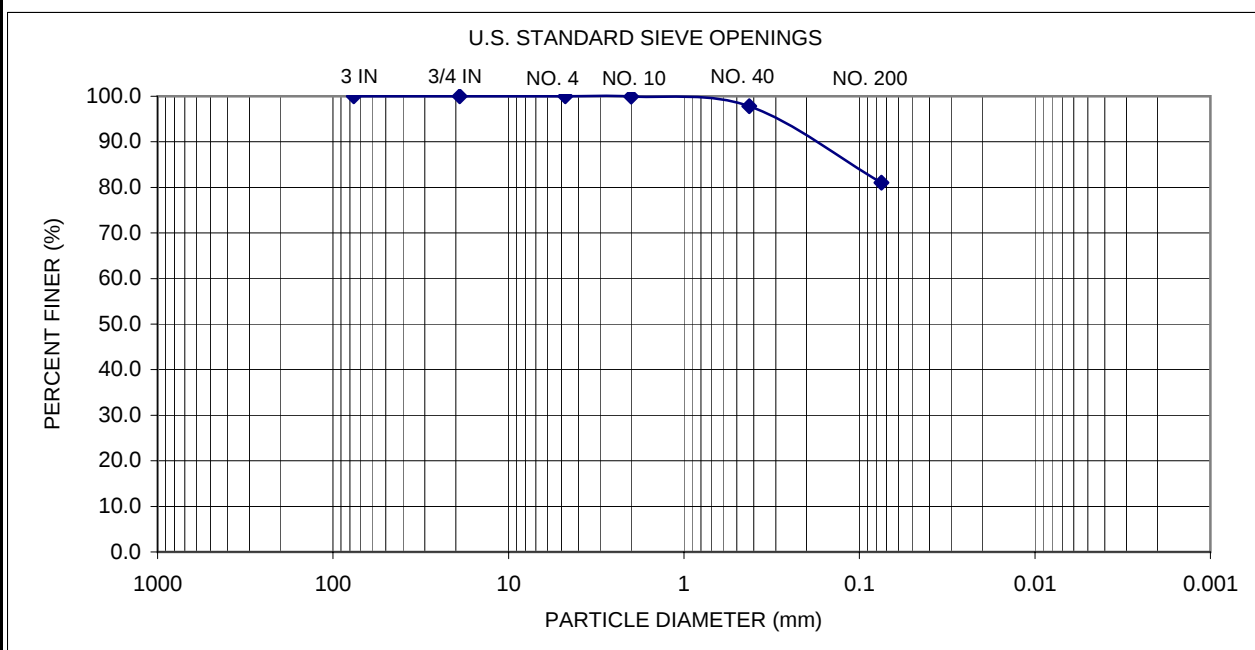
Fax: 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Plum Point Class 3N LF - Cell 1
Location: Osceola, Arkansas
Sample Depth: 0' - 1.0'
Soil Description: Brown Clay with Sand

Date: 5/19/2008
Project No.: 35077169

Sample No.: PC-3
Sample Weight: 969.4g
Washing Loss: 785.7g

Sieve Size	Individual Wt. Retained (gm)	Cumulative Wt. Retained (gm)	Cumulative Retained (%)	Cumulative Passing (%)
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	0.8	0.8	0.1	99.9
#40	20.4	21.2	2.2	97.8
#200	162.5	183.7	18.9	81.1
PAN	785.7	969.4	100.0	



Gravel: 0.0% **LL:** 41 **USCS:** CL
Sand: 18.9% **PL:** 18
Silt/Clay: 81.1% **PI:** 23

Technician: Ryan Witherspoon

Reveiwed By: Brad Fureigh, E.I.

Laboratory Compaction Characteristics of Soil

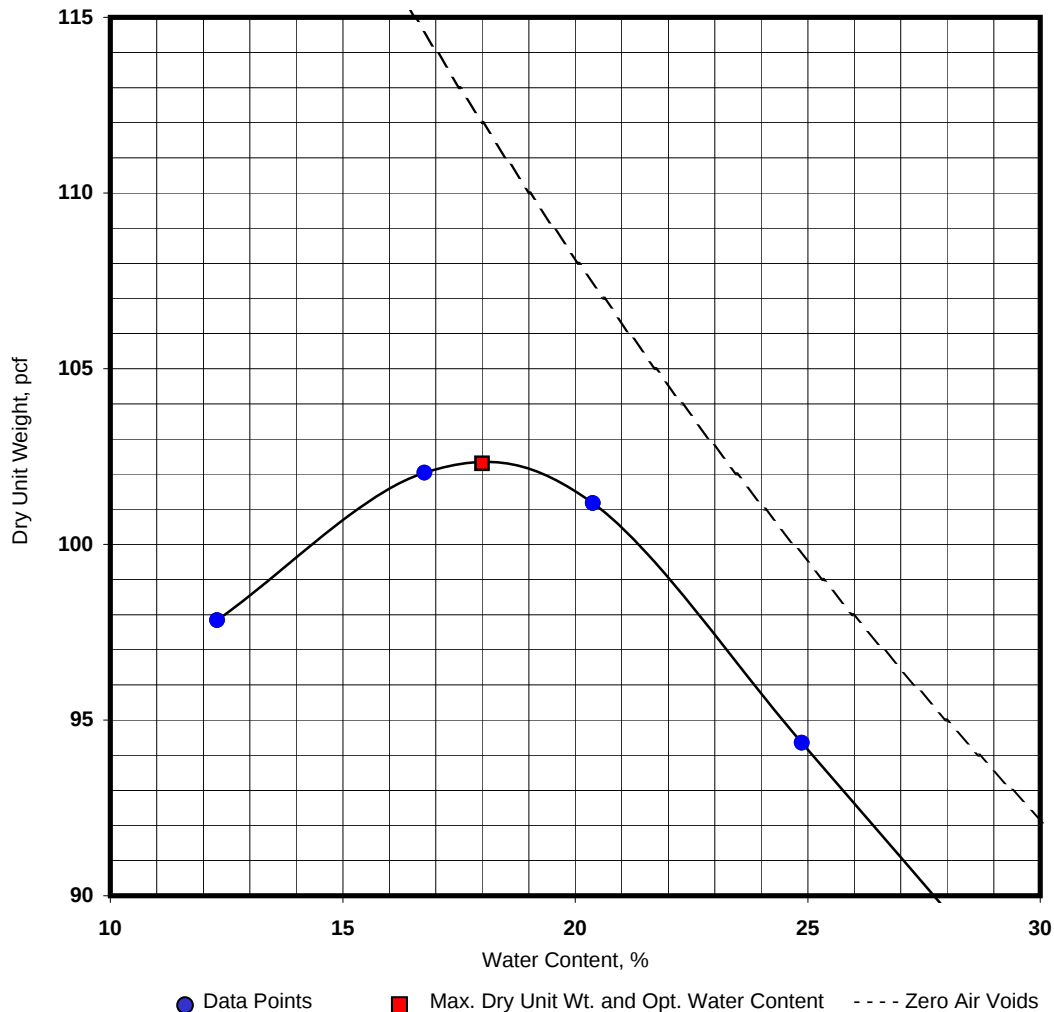
Client Name: Dynegy
Project Name: Plum Point - Cell 1
Location: Class 3N Landfill
City & State: Osceola
Arkansas
Source Material: On-Site
Sample Description: Brown Silty Clay with Sand
PC-4
Material Designation: CL Sample date: 5/8/2008
Test Method: ASTM D-698
Test Procedure: Method A
Sample Preparation: Wet Preparation
Rammer: Mechanical X Manual

Project No.: 35077169 Date: 5/16/2008**TEST RESULTS**

Maximum Dry Unit Wt.: 102.3 pcf
Optimum Water Content: 18.0 %

Liquid Limit: 35 Plastic Limit: 18Plasticity Index: 17% passing #40 sieve: 97.9% passing #200 sieve: 82.1Reviewed by: Brad Fureigh, E.I.

Zero air voids for specific gravity of 2.65



Mechanical Grain Size Analysis

ASTM D422



25809 Interstate 30

Bryant, AR 72022

Phone: 501.847.9292

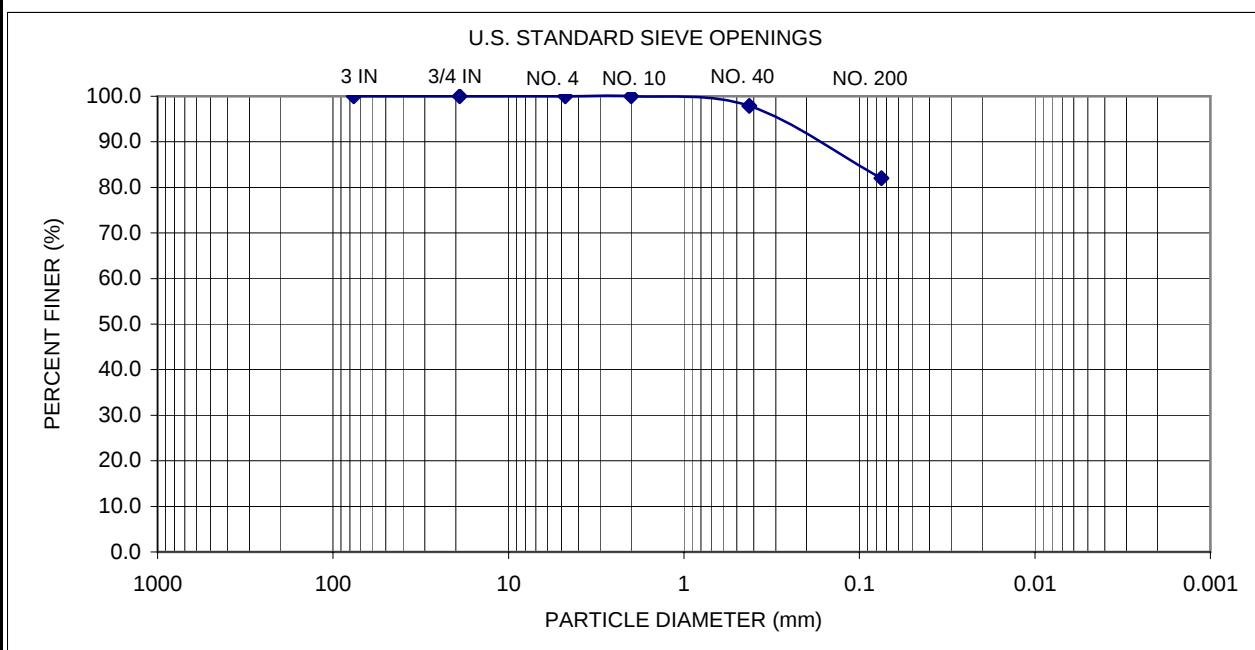
Fax: 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Plum Point Class 3N LF - Cell 1
Location: Osceola, Arkansas
Sample Depth: 0' - 1.0'
Soil Description: Brown Clay with Sand

Date: 5/19/2008
Project No.: 35077169

Sample No.: PC-4
Sample Weight: 947.0g
Washing Loss: 777.0g

Sieve Size	Individual Wt. Retained (gm)	Cumulative Wt. Retained (gm)	Cumulative Retained (%)	Cumulative Passing (%)
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	0.1	0.1	0.0	100.0
#40	20.1	20.2	2.1	97.9
#200	149.7	170.0	17.9	82.1
PAN	777.0	947.0	100.0	



Gravel: 0.0% **LL:** 35
Sand: 17.9% **PL:** 18
Silt/Clay: 82.1% **PI:** 17

USCS: CL

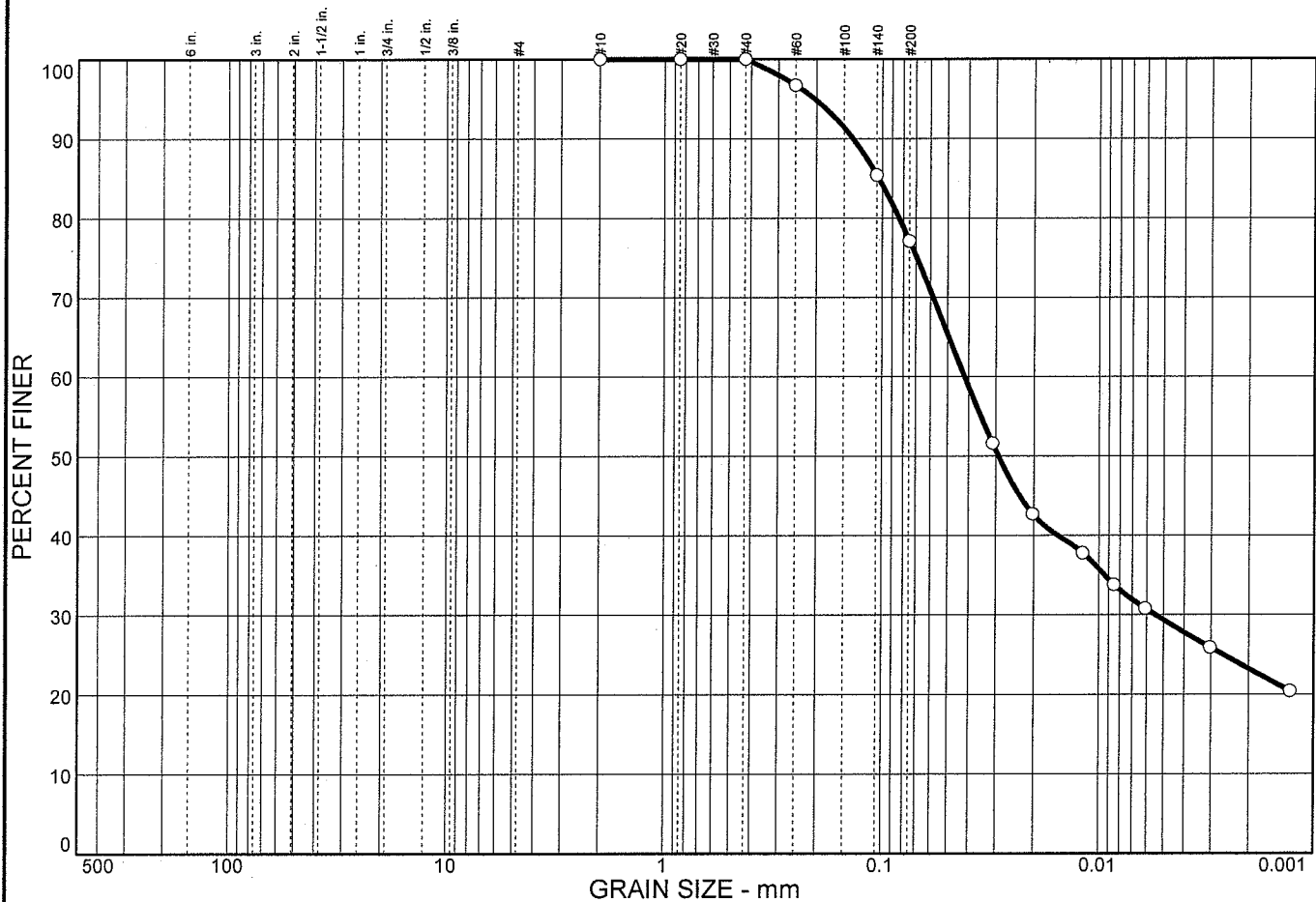
Technician: Ryan Witherspoon

Reveiwed By: Brad Fureigh, E.I.

APPENDIX E

SUBGRADE AND CLAY LINER MATERIAL CONSTRUCTION TEST RESULTS

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	22.9	47.7	29.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	100.0		
#60	96.7		
#140	85.4		
#200	77.1		

* (no specification provided)

Material Description
 Brown Silt with sand

Atterberg Limits
 PL= 22 LL= 25 PI= 3

Coefficients
 D₈₅= 0.104 D₆₀= 0.0418 D₅₀= 0.0291
 D₃₀= 0.0055 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= ML AASHTO=

Remarks
 WC=25.2%

Sample No.: CS-1
Location:

Source of Sample: 6450

Date: 7-15-08
Elev./Depth:

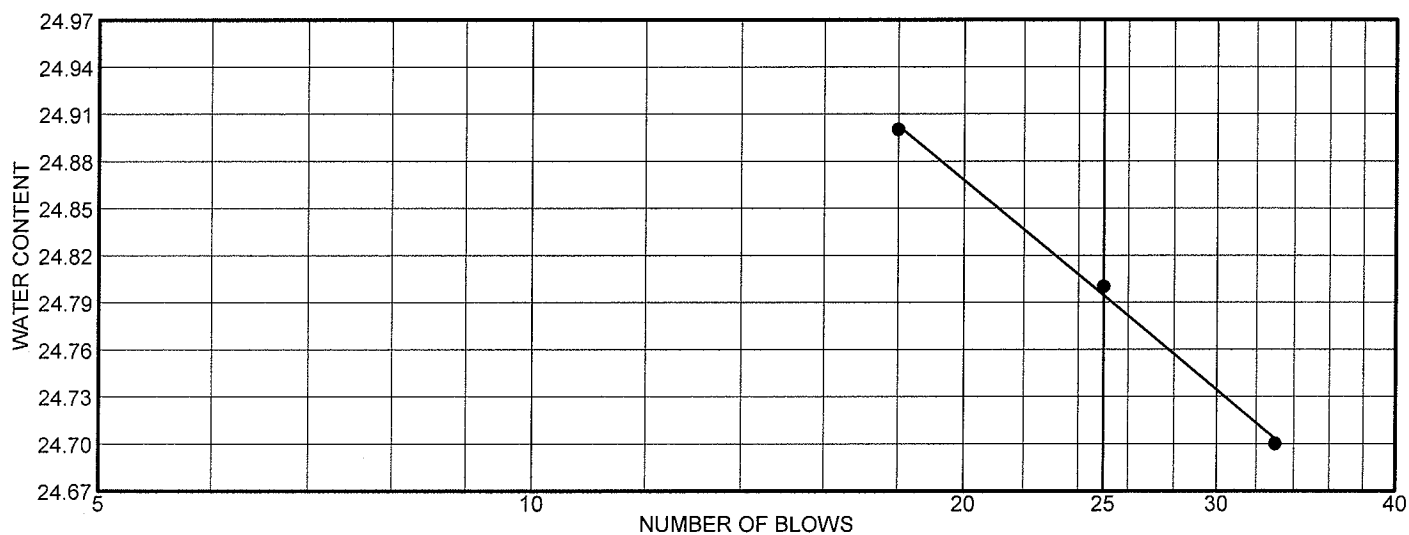
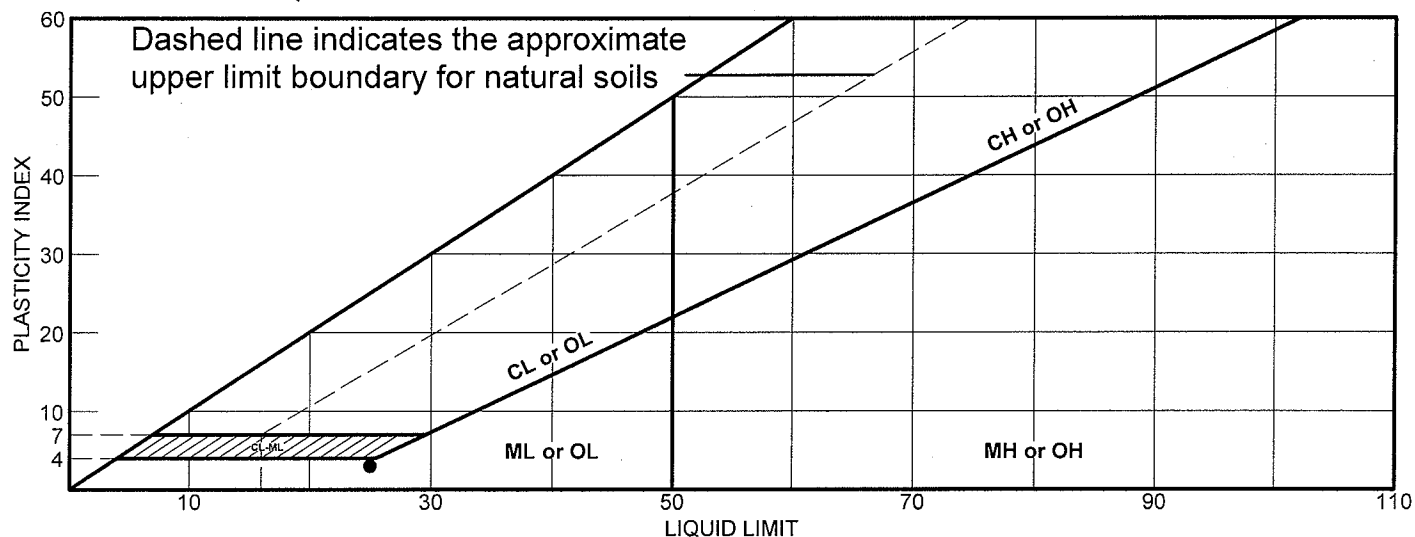
H. C. NUTTING COMPANY

Client: TERRACON
Project: PLUM POINT

Project No: 35077169

Figure 6450

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown Silt with sand	25	22	3	100.0	77.1	ML

Project No. 35077169 Client: TERRACON

Project: PLUM POINT

● Source: 6450

Sample No.: CS-1

Remarks:

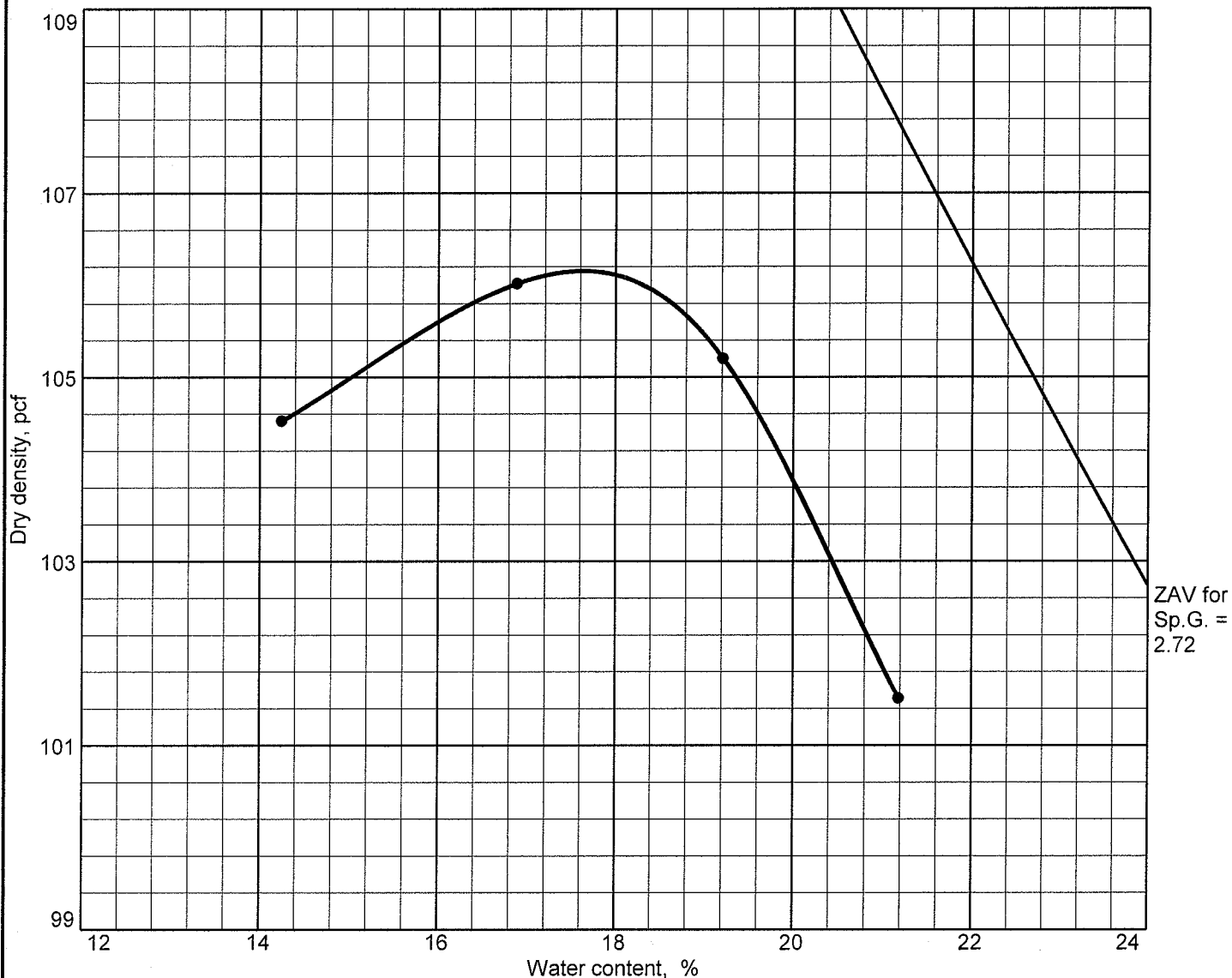
● WC=25.2%

LIQUID AND PLASTIC LIMITS TEST REPORT

H. C. NUTTING COMPANY

Figure 6450

COMPACTION TEST REPORT

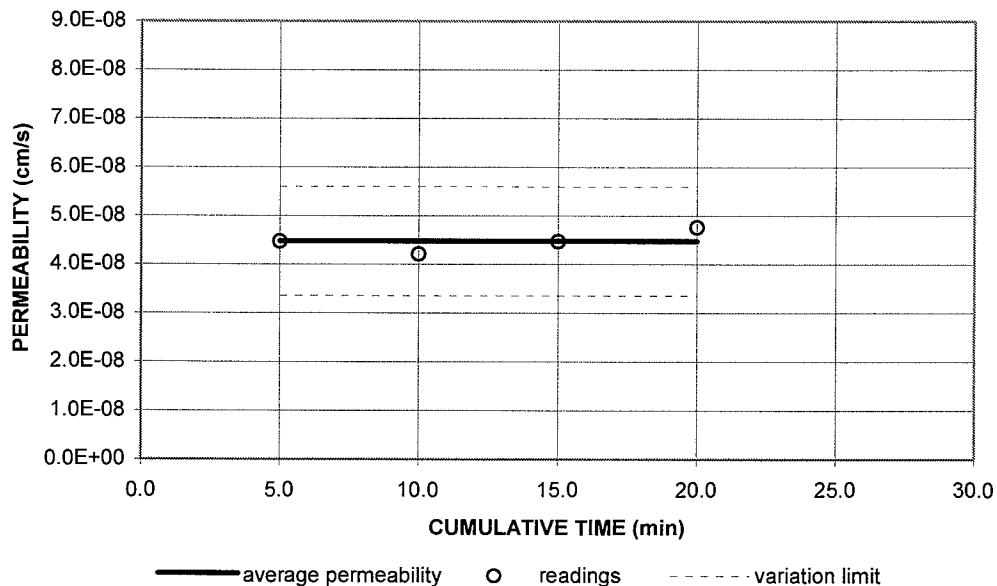


Test specification: ASTM D 698-91 Procedure B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	ML					3	0.0	77.1

TEST RESULTS		MATERIAL DESCRIPTION
Maximum dry density = 106.2 pcf Optimum moisture = 17.6 %		Brown Silt with sand
Project No. 35077169 Client: TERRACON Project: PLUM POINT		Remarks: DATE TYPED 7-8-08 TESTED BY MS
● Source: 6450	Sample No.: CS-1	
COMPACTION TEST REPORT H. C. NUTTING COMPANY		
		Figure 6450

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

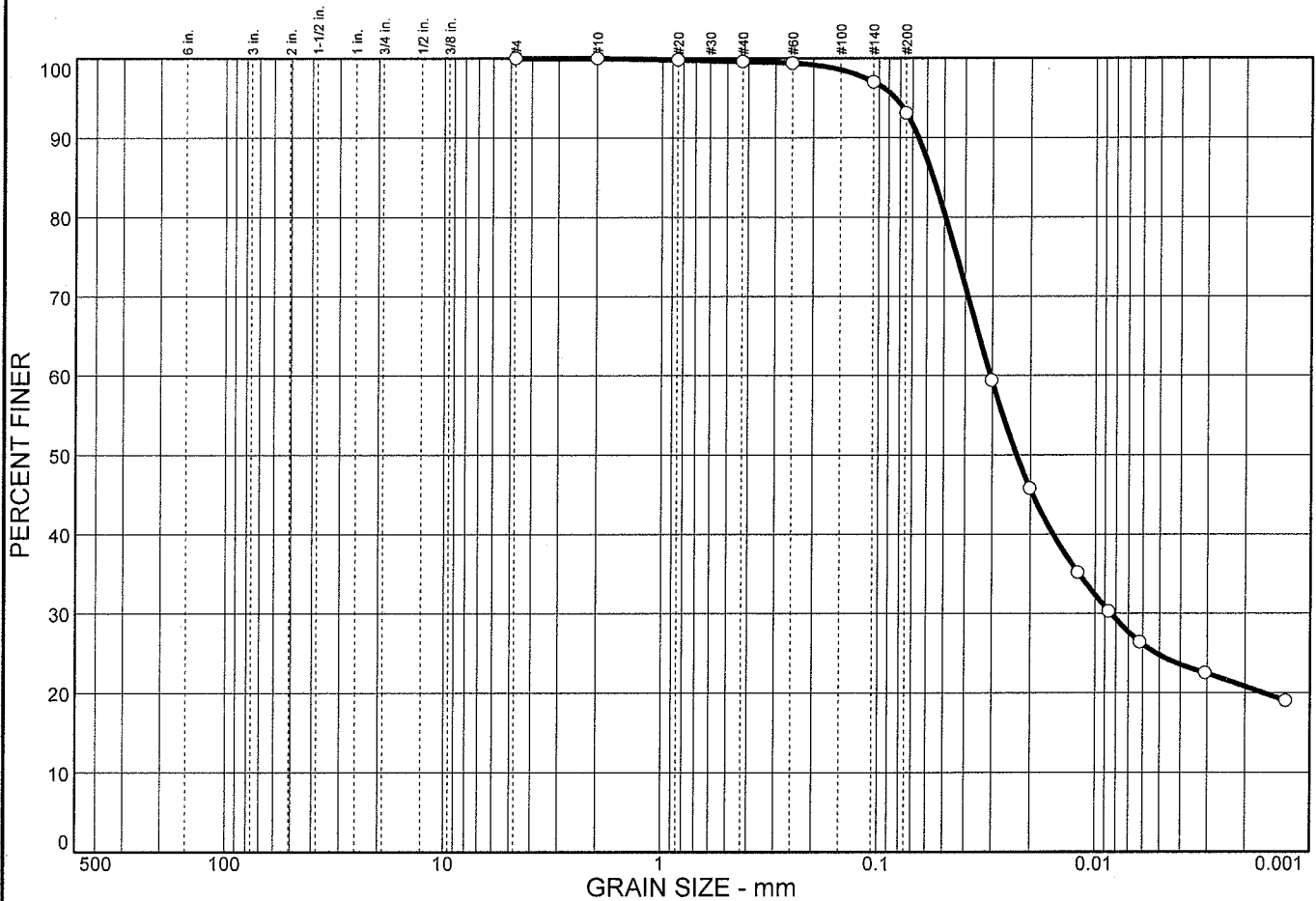
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.34	4.47E-08	4.5E-08
21.00	5.00	10.00	12.60	4.22E-08	
21.00	5.00	15.00	11.86	4.47E-08	
21.00	5.00	20.00	11.11	4.76E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)	106.2	Specimen Height, (inches)		3.00	2.96
Opti. M.C., (%)	17.6	Specimen Diameter, (inches)		4.00	4.00
Comp. Method		Moisture Content, (%)		20.29	22.39
% Recompt.	95.0	Percent Saturation (%)		84.25	96.28
Test Pressures (psi)		Wet Mass Density (pcf)		121.42	125.22
Backpressure	90.00	Dry Mass Density (pcf)		100.94	102.31
Cell pressure	100.00	Void Ratio		0.64	0.62
Eff. Stress	10.00	Calculated Porosity, %		38.96	38.13

USCS		LL	PI
Permeant Used: WATER		Remarks	BROWN SANDY LEAN CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	CS1		
Sample Location			
Date	7/11/2008	Lab No.	6450

7/11/2008

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	6.9	68.4	24.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.6		
#60	99.4		
#140	97.0		
#200	93.1		

* (no specification provided)

Material Description
 Brown Silt

Atterberg Limits
 PL= 25 LL= 27 PI= 2

Coefficients
 D₈₅= 0.0564 D₆₀= 0.0306 D₅₀= 0.0232
 D₃₀= 0.0085 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= ML AASHTO=

Remarks
 WC=24.1%

Sample No.: CS-2
Location:

Source of Sample: 6451

Date: 7-15-08
Elev./Depth:

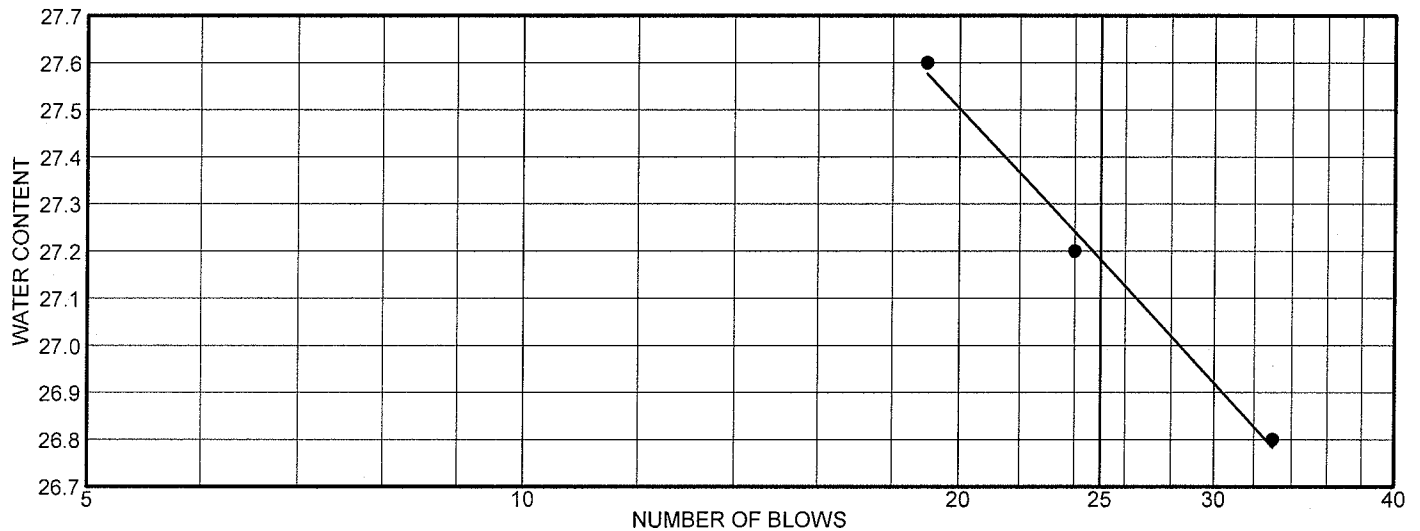
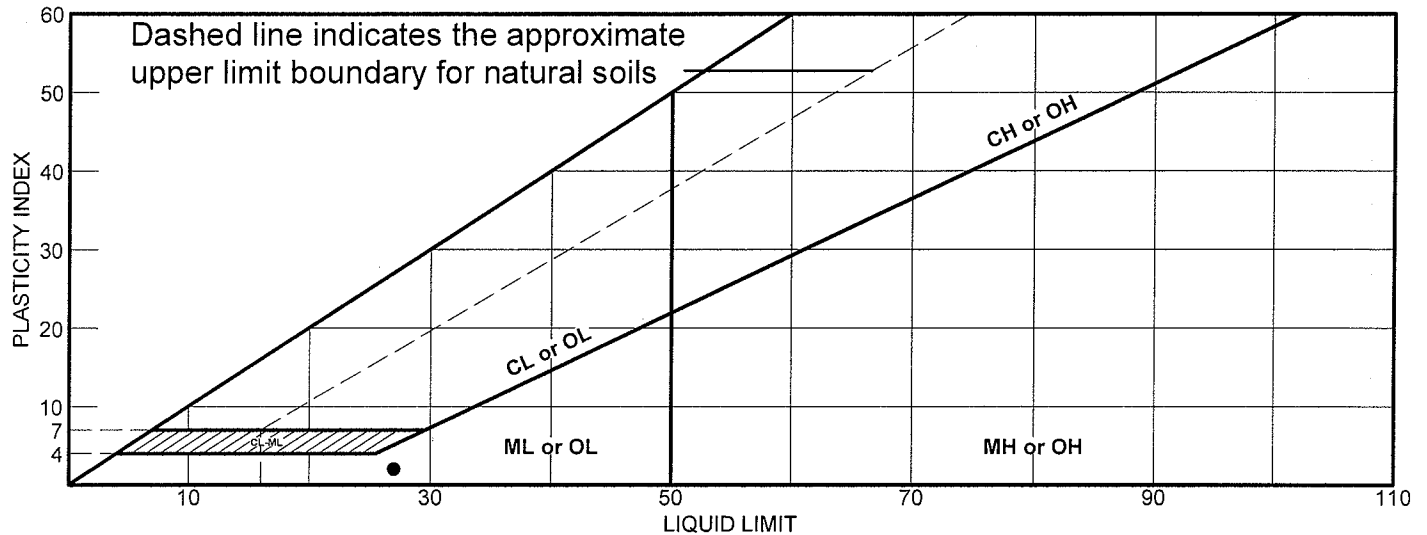
H. C. NUTTING COMPANY

Client: TERRACON
Project: PLUM POINT

Project No: 35077169

Figure 6451

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown Silt	27	25	2	99.6	93.1	ML

Project No. 35077169

Client: TERRACON

Project: PLUM POINT

● Source: 6451

Sample No.: CS-2

Remarks:

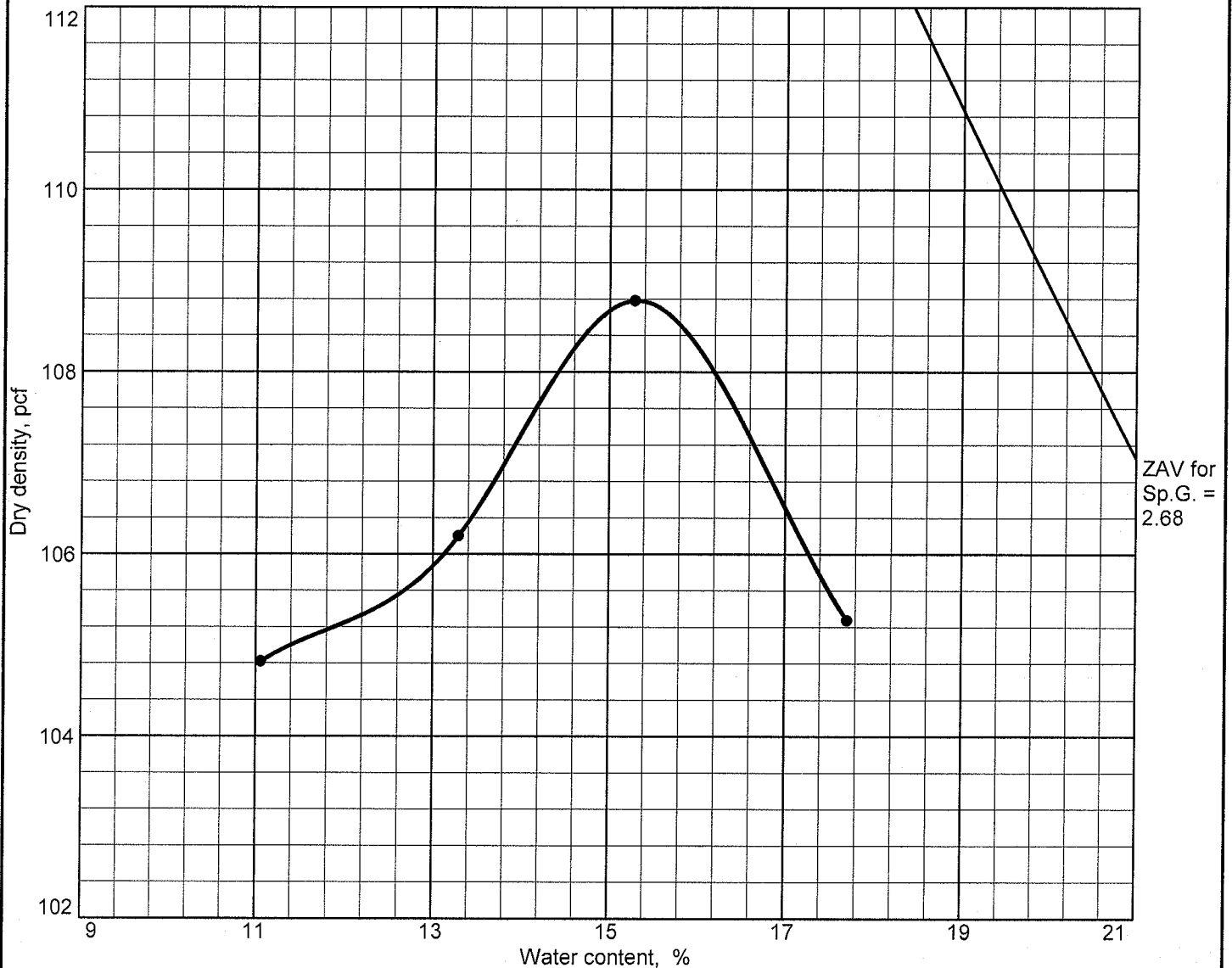
● WC=24.1%

LIQUID AND PLASTIC LIMITS TEST REPORT

H. C. NUTTING COMPANY

Figure 6451

COMPACTION TEST REPORT



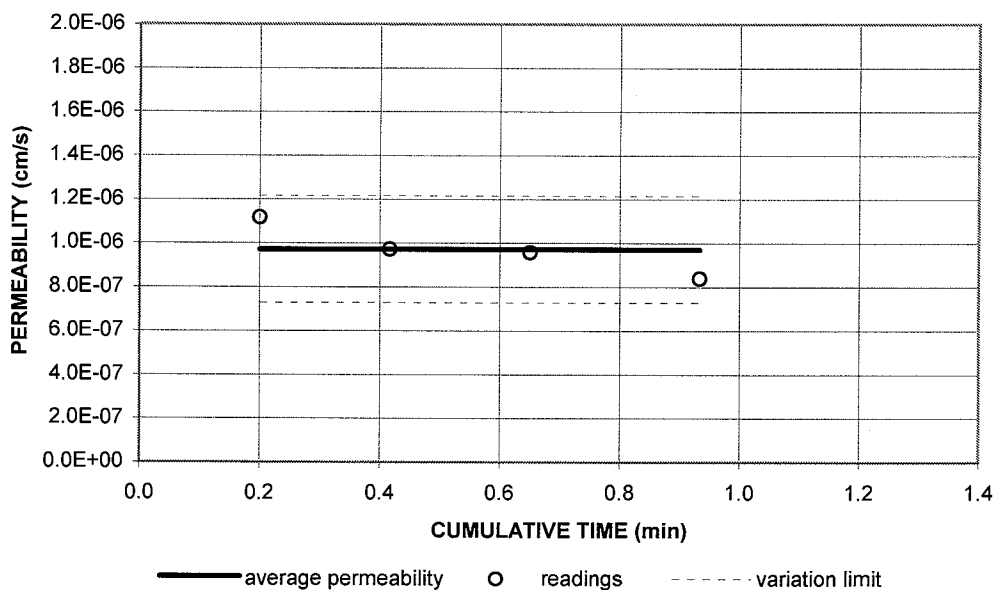
Test specification: ASTM D 698-91 Procedure B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	ML				27	2	0.0	93.1

TEST RESULTS		MATERIAL DESCRIPTION	
Maximum dry density = 108.8 pcf Optimum moisture = 15.3 %		Brown Silt	
Project No. 35077169 Client: TERRACON Project: PLUM POINT ● Source: 6451			

Figure 6451

FLEXIBLE WALL PERMEABILITY TEST



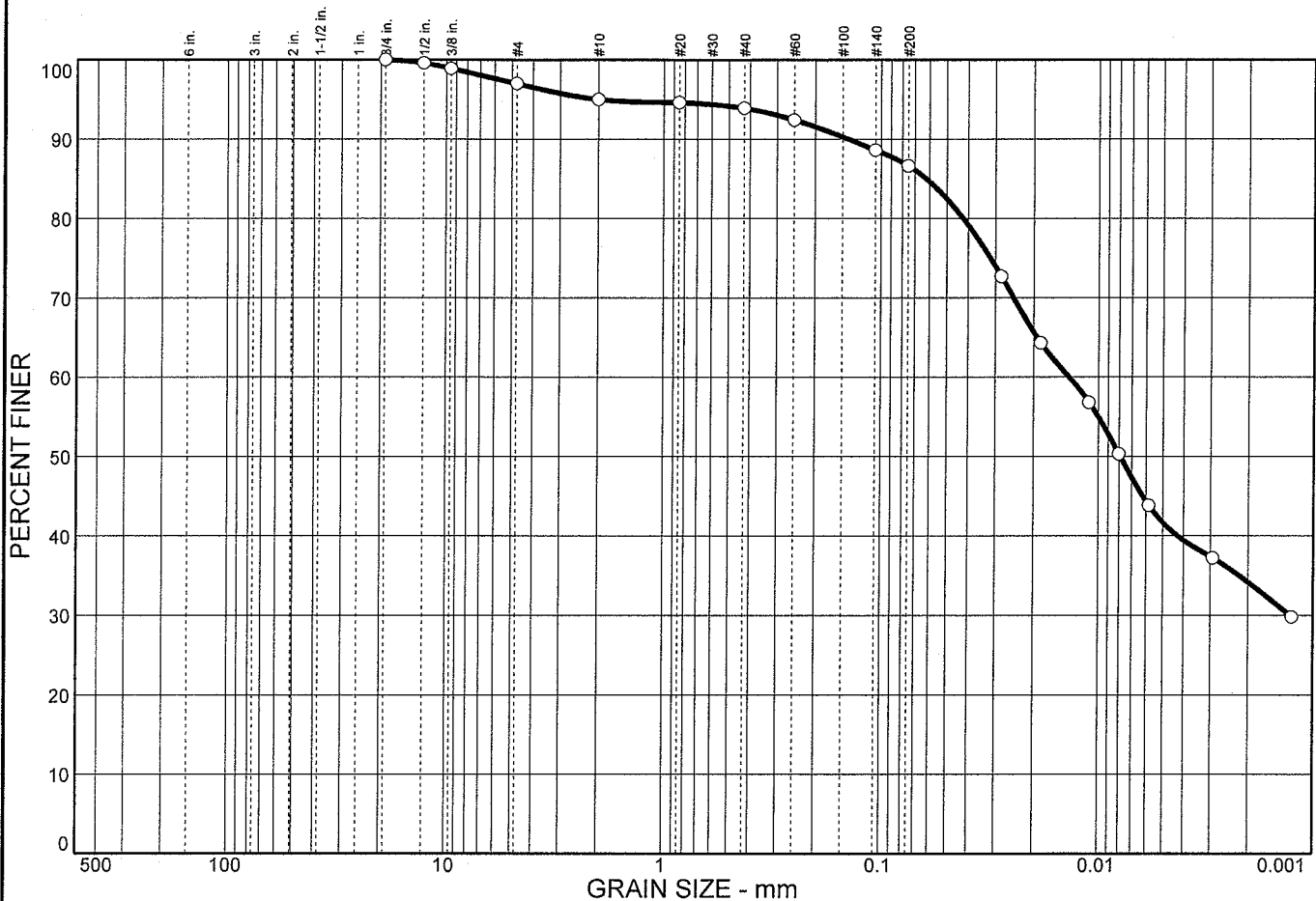
Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	0.20	0.20	13.34	1.12E-06	9.7E-07
21.00	0.22	0.42	12.60	9.73E-07	
21.00	0.23	0.65	11.86	9.58E-07	
21.00	0.28	0.93	11.11	8.40E-07	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)	108.8	Specimen Height, (inches)		3.00	3.00
Opti. M.C., (%)	15.3	Specimen Diameter, (inches)		4.00	4.00
Comp. Method		Moisture Content, (%)		18.33	21.52
% Recompt.	95.0	Percent Saturation (%)		80.91	94.99
Test Pressures (psi)		Wet Mass Density (pcf)		122.27	125.57
Backpressure	90.00	Dry Mass Density (pcf)		103.33	103.33
Cell pressure	100.00	Void Ratio		0.60	0.60
Eff. Stress	10.00	Calculated Porosity, %		37.51	37.51

USCS		LL	PI				
Permeant Used:		WATER	Remarks	BROWN SANDY LEAN CLAY			
Project Name	Plum Point-Cell 1			Tested by	FCE	Reviewed by	TGG
Client	Dynegy	W.O.#	35077169	FLEXIBLE WALL PERMEABILITY TEST Terracon			
Sample Number	CS2						
Sample Location							
Date	7/11/2008	Lab No.	6451				

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	3.0	10.4	45.0	41.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	99.6		
.375 in.	98.9		
#4	97.0		
#10	95.0		
#20	94.6		
#40	93.9		
#60	92.4		
#140	88.6		
#200	86.6		

* (no specification provided)

Material Description
 Brown Clay

Atterberg Limits
 PL= 20 LL= 42 PI= 22

Coefficients
 D₈₅= 0.0626 D₆₀= 0.0137 D₅₀= 0.0079
 D₃₀= 0.0013 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= CL AASHTO=

Remarks
 WC=16.6%

Sample No.: CS-3
Location:

Source of Sample: 6560

Date: 7-17-08
Elev./Depth:

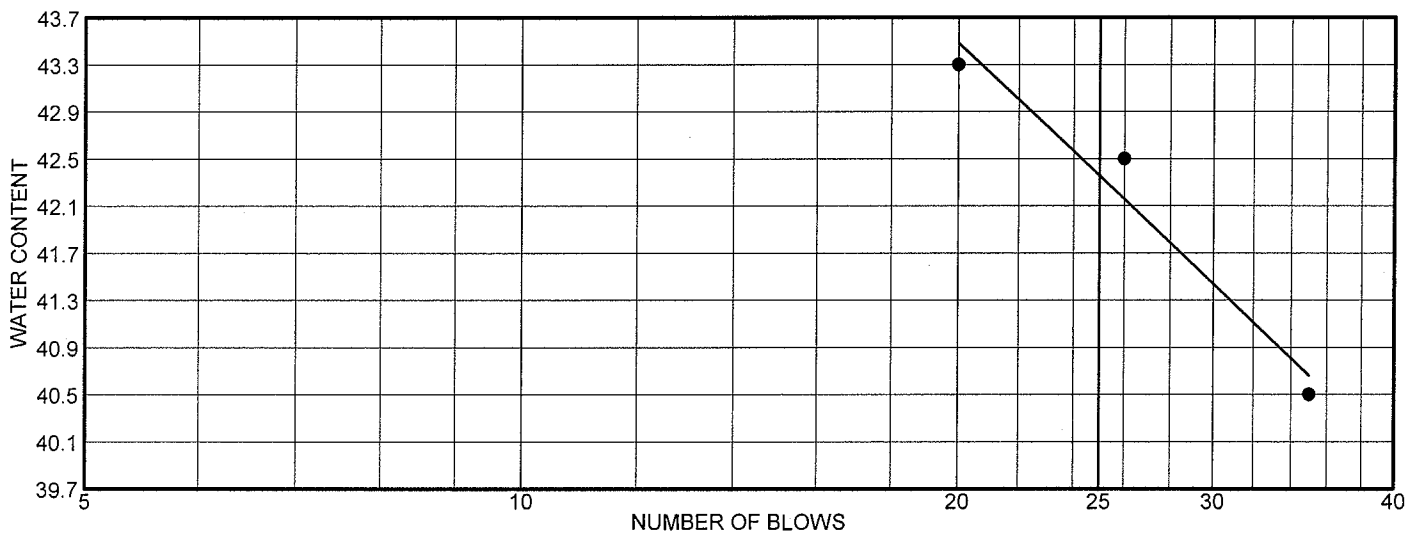
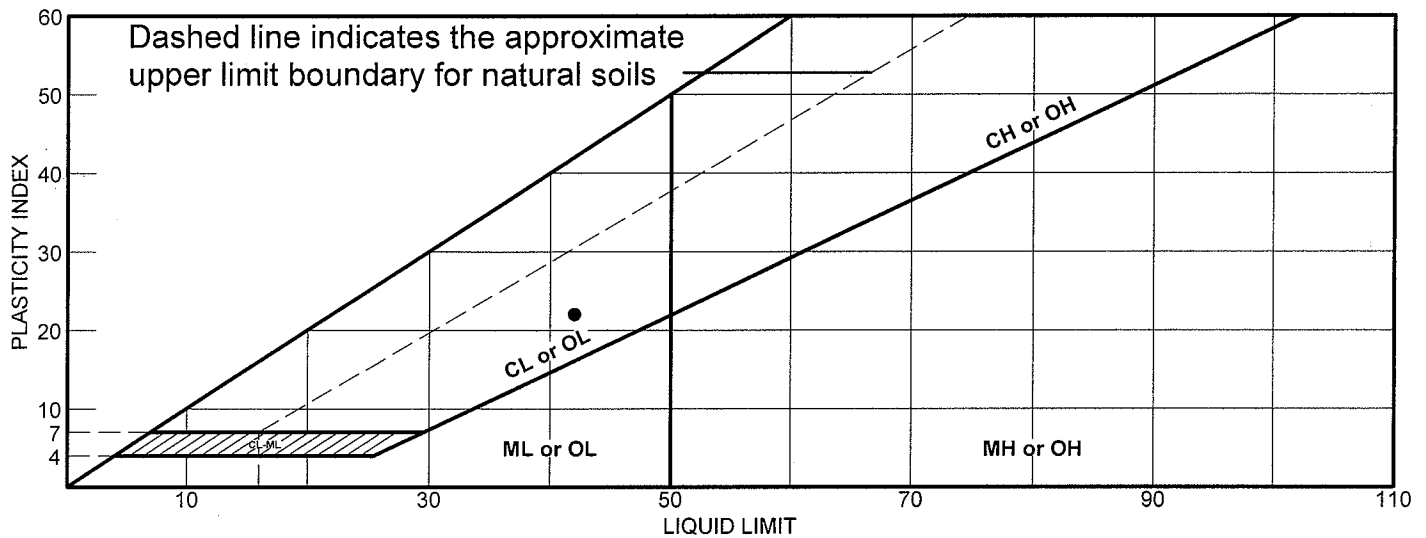
H. C. NUTTING COMPANY

Client: TERRACON
Project: PLUM POINT

Project No: 35077169

Figure 6560

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
•	Brown Clay	42	20	22	93.9	86.6	CL

Project No. 35077169

Client: TERRACON

Project: PLUM POINT

• Source: 6560

Sample No.: CS-3

Remarks:

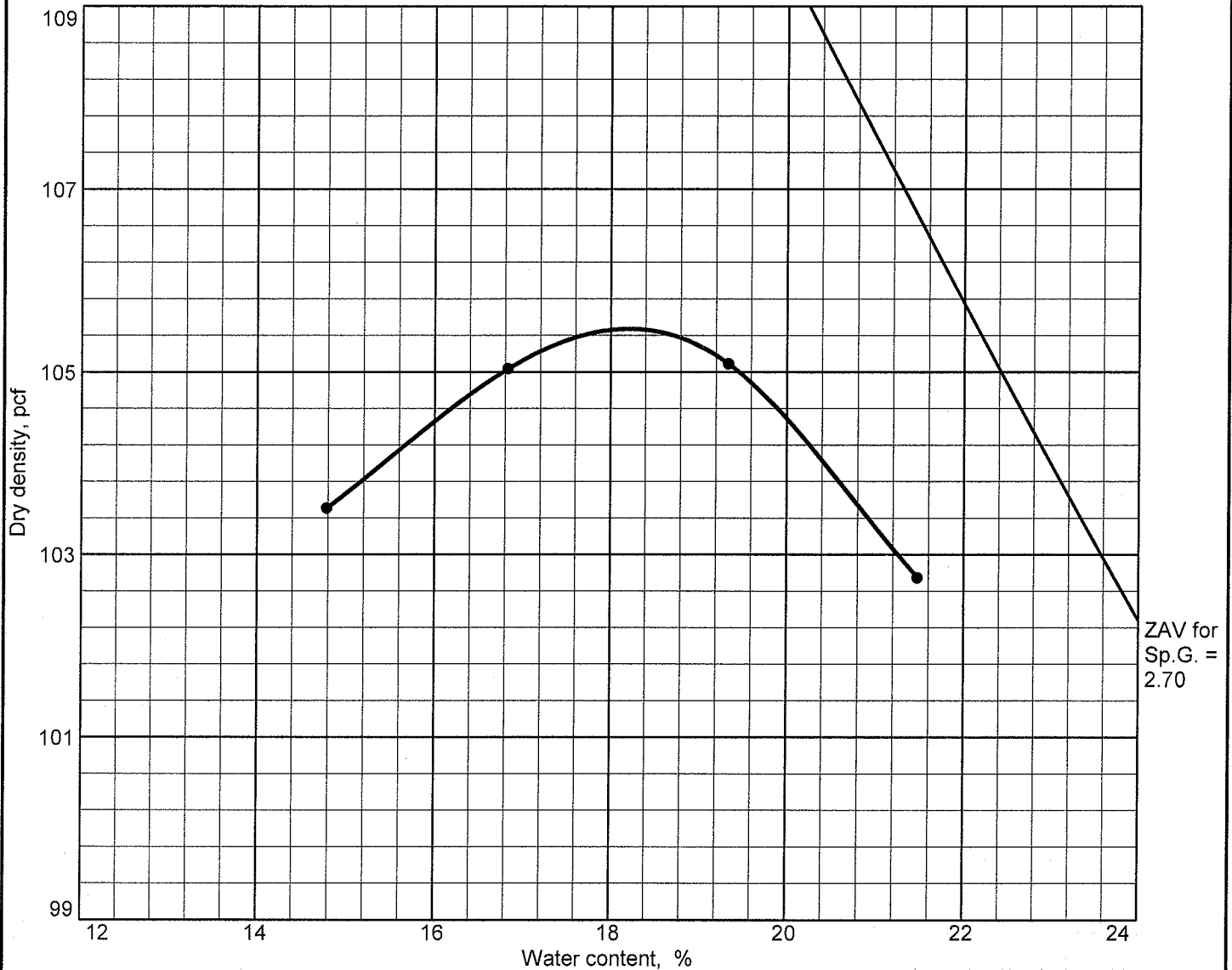
• WC=16.5%

LIQUID AND PLASTIC LIMITS TEST REPORT

H. C. NUTTING COMPANY

Figure 6560

COMPACTION TEST REPORT



Test specification: ASTM D 698-91 Procedure B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	CL				42	22	1.1	86.6

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 105.5 pcf Optimum moisture = 18.2 %	Brown Clay

Project No. 35077169 Client: TERRACON
Project: PLUM POINT

● Source: 6560

Sample No.: CS-3

Remarks:

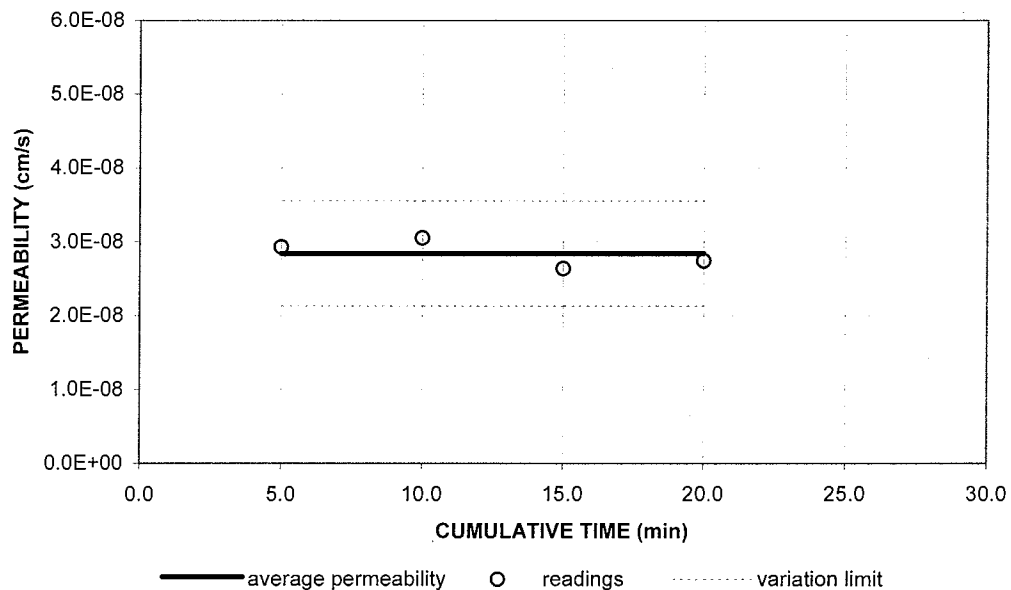
TESTED: 7/11/08
BY: EJ

COMPACTION TEST REPORT

H. C. NUTTING COMPANY

Figure 6560

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

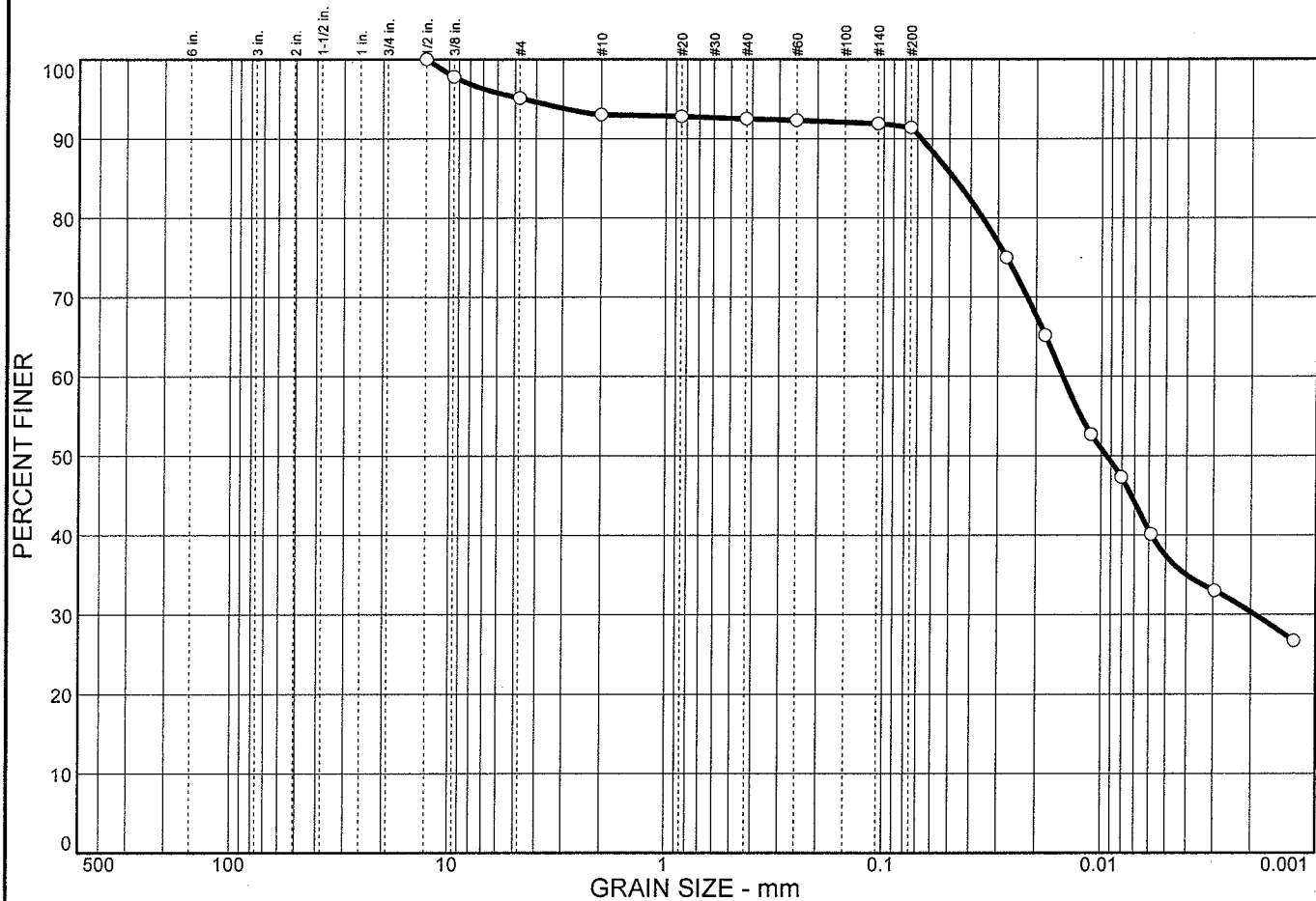
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.71	2.93E-08	2.8E-08
21.00	5.00	10.00	13.15	3.05E-08	
21.00	5.00	15.00	12.69	2.64E-08	
21.00	5.00	20.00	12.23	2.74E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		3.00	3.02
Opti. M.C., (%)		Specimen Diameter, (inches)		4.00	4.00
Comp. Method		Moisture Content, (%)		21.28	23.19
% Recompt.		Percent Saturation (%)		84.74	90.82
Test Pressures (psi)		Wet Mass Density (pcf)		121.77	122.86
Backpressure	90.00	Dry Mass Density (pcf)		100.40	99.73
Cell pressure	100.00	Void Ratio		0.68	0.69
Eff. Stress	10.00	Calculated Porosity, %		40.41	40.80

USCS		LL		PI	
Permeant Used: WATER		Remarks		BROWN CLAY	
Project Name	Plum Point-Cell 1			Tested by	FCE Reviewed by TGG
Client	Dynegy	W.O.#	35077169	FLEXIBLE WALL PERMEABILITY TEST Terracon	
Sample Number	CS-3				
Sample Location					
Date	7/17/2008	Lab No.	6560		

7/17/2008

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	4.9	3.7	54.0	37.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5 in.	100.0		
.375 in.	97.8		
#4	95.1		
#10	93.0		
#20	92.8		
#40	92.5		
#60	92.3		
#140	91.9		
#200	91.4		

* (no specification provided)

Material Description		
Brown Clay		
Atterberg Limits PL= 21 LL= 42 PI= 21 Coefficients D₈₅= 0.0478 D₃₀= 0.0019 C_u= D₆₀= 0.0151 D₁₅= C_c= D₅₀= 0.0095 D₁₀=		
Classification USCS= CL AASHTO=		
Remarks WC=31.1%		

Sample No.: CS-4
Location:

Source of Sample: 6561

Date: 7-17-08
Elev./Depth:

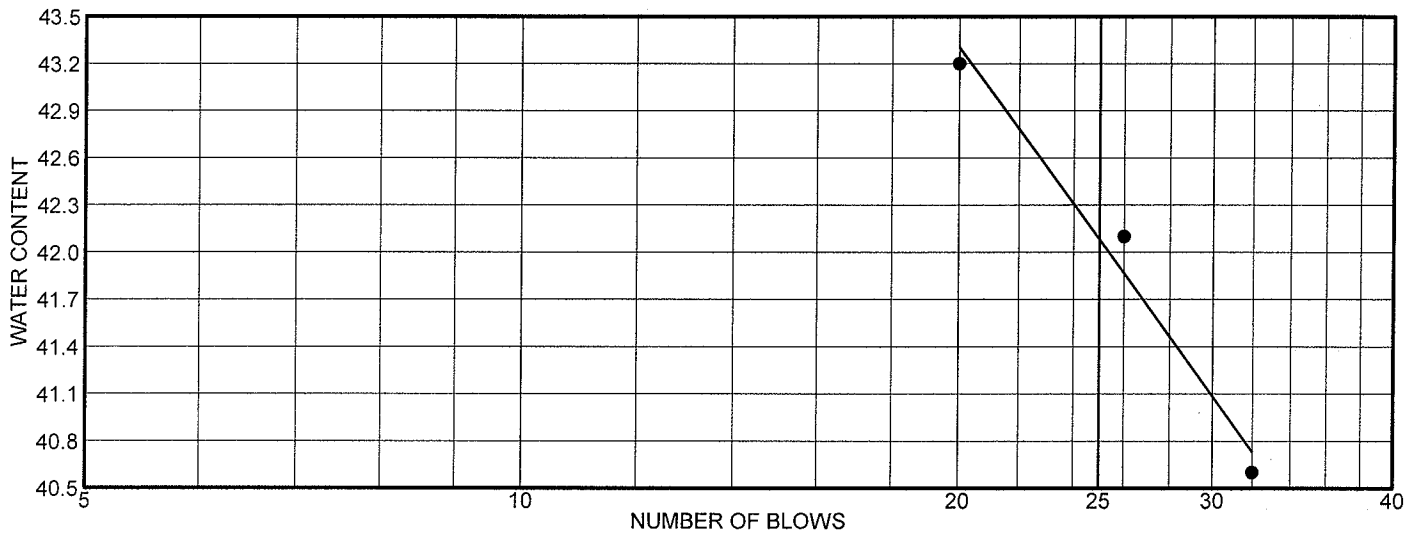
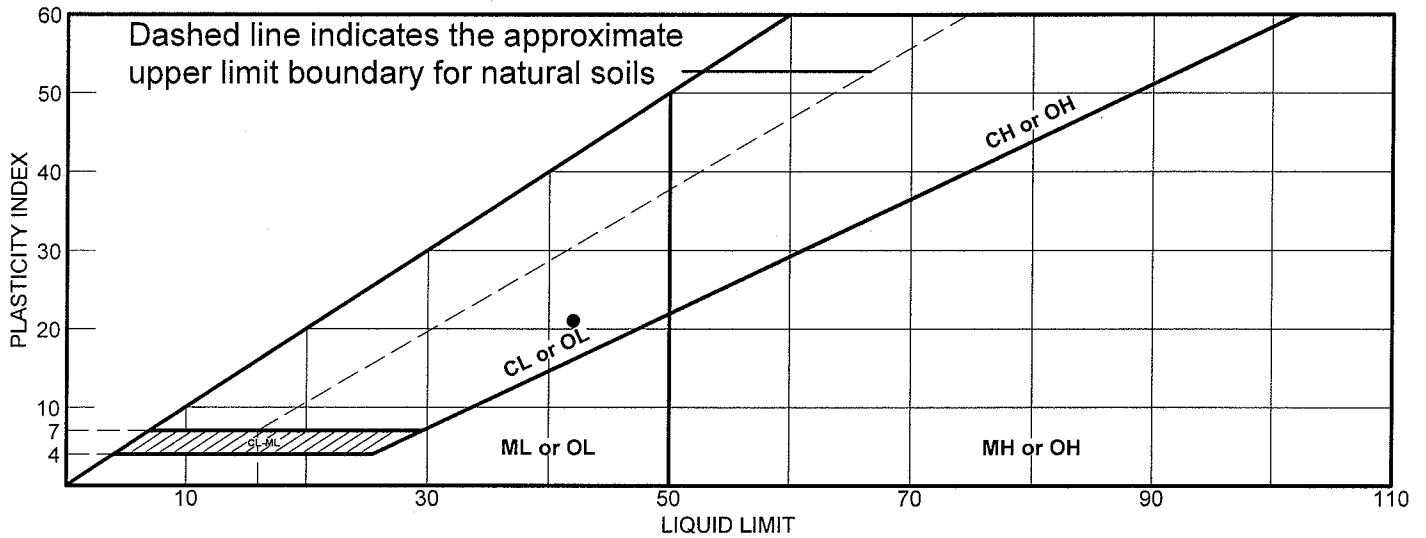
H. C. NUTTING COMPANY

Client: TERRACON
Project: PLUM POINT

Project No: 35077169

Figure 6561

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown Clay	42	21	21	92.5	91.4	CL

Project No. 35077169

Client: TERRACON

Project: PLUM POINT

● Source: 6561

Sample No.: CS-4

Remarks:

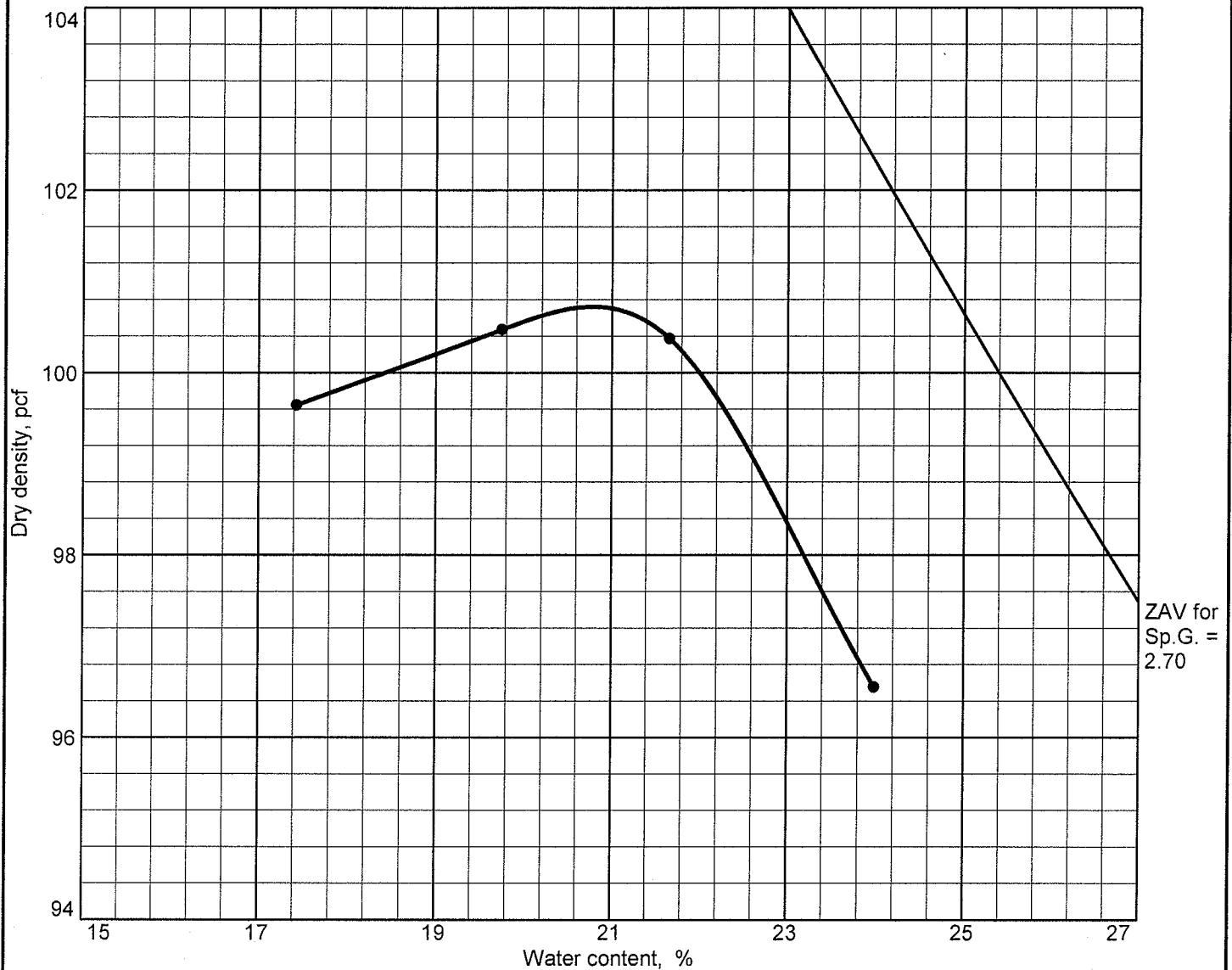
● WC=31.1%

LIQUID AND PLASTIC LIMITS TEST REPORT

H. C. NUTTING COMPANY

Figure 6561

COMPACTION TEST REPORT

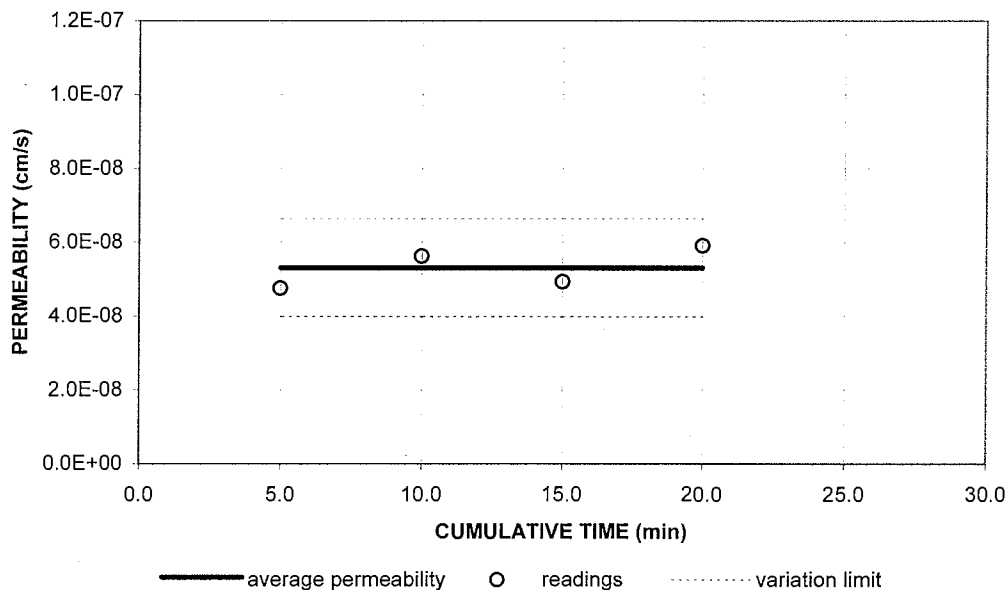


Test specification: ASTM D 698-91 Procedure B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	CL				42	21	2.2	91.4

TEST RESULTS		MATERIAL DESCRIPTION
Maximum dry density = 100.7 pcf Optimum moisture = 20.8 %		Brown Clay
Project No. 35077169 Client: TERRACON Project: PLUM POINT ● Source: 6561 Sample No.: CS-4		Remarks: TESTED: 7/11/08 BY: EJ
COMPACTION TEST REPORT H. C. NUTTING COMPANY		
		Figure 6561

FLEXIBLE WALL PERMEABILITY TEST



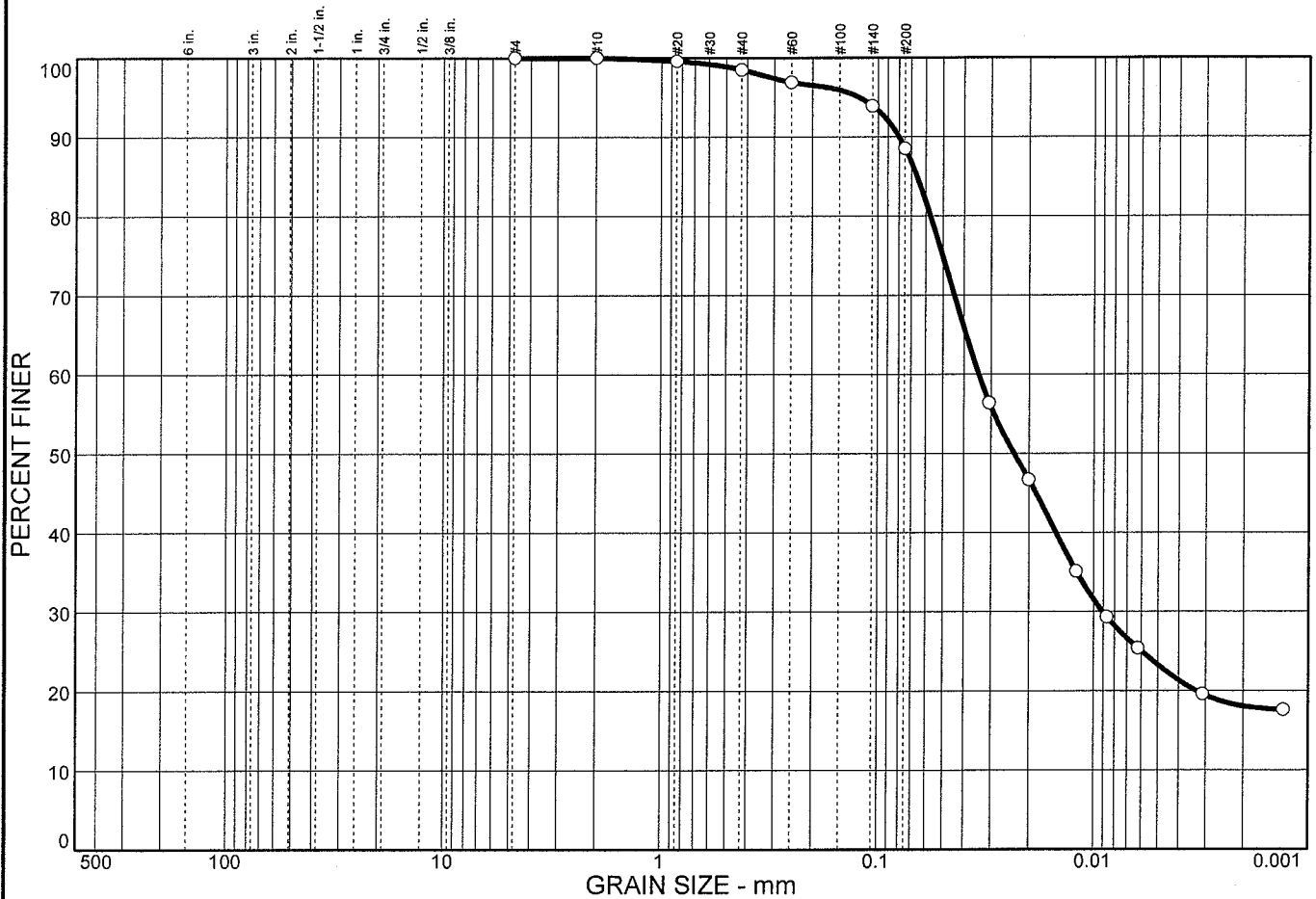
Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.89	4.76E-08	5.3E-08
21.00	5.00	10.00	12.87	5.62E-08	
21.00	5.00	15.00	12.04	4.94E-08	
21.00	5.00	20.00	11.11	5.90E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		3.00	3.00
Opti. M.C., (%)		Specimen Diameter, (inches)		4.00	4.00
Comp. Method		Moisture Content, (%)		23.82	26.06
% Recompct.		Percent Saturation (%)		84.48	92.43
Test Pressures (psi)		Wet Mass Density (pcf)		118.44	120.58
Backpressure	90.00	Dry Mass Density (pcf)		95.65	95.65
Cell pressure	100.00	Void Ratio		0.76	0.76
Eff. Stress	10.00	Calculated Porosity, %		43.23	43.23

USCS			LL		PI				
Permeant Used:		WATER		Remarks		BROWN CLAY			
Project Name		Plum Point-Cell 1			Tested by		FCE	Reviewed by	TGG
Client		Dynegy		W.O.#		35077169		FLEXIBLE WALL PERMEABILITY TEST Terracon	
Sample Number		CS-4							
Sample Location									
Date		7/17/2008		Lab No.		6561			

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	11.5	65.2	23.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.6		
#40	98.5		
#60	96.9		
#140	93.9		
#200	88.5		

* (no specification provided)

Material Description

Brown Lean clay

Atterberg Limits

PL= 22

LL= 30

PI= 8

Coefficients

D₈₅= 0.0662

D₆₀= 0.0342

D₅₀= 0.0235

D₃₀= 0.0091

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= CL

AASHTO=

Remarks

WC=23.9%

Sample No.: CS-5

Source of Sample: 6630

Date: 7-18-08

Location:

Elev./Depth:

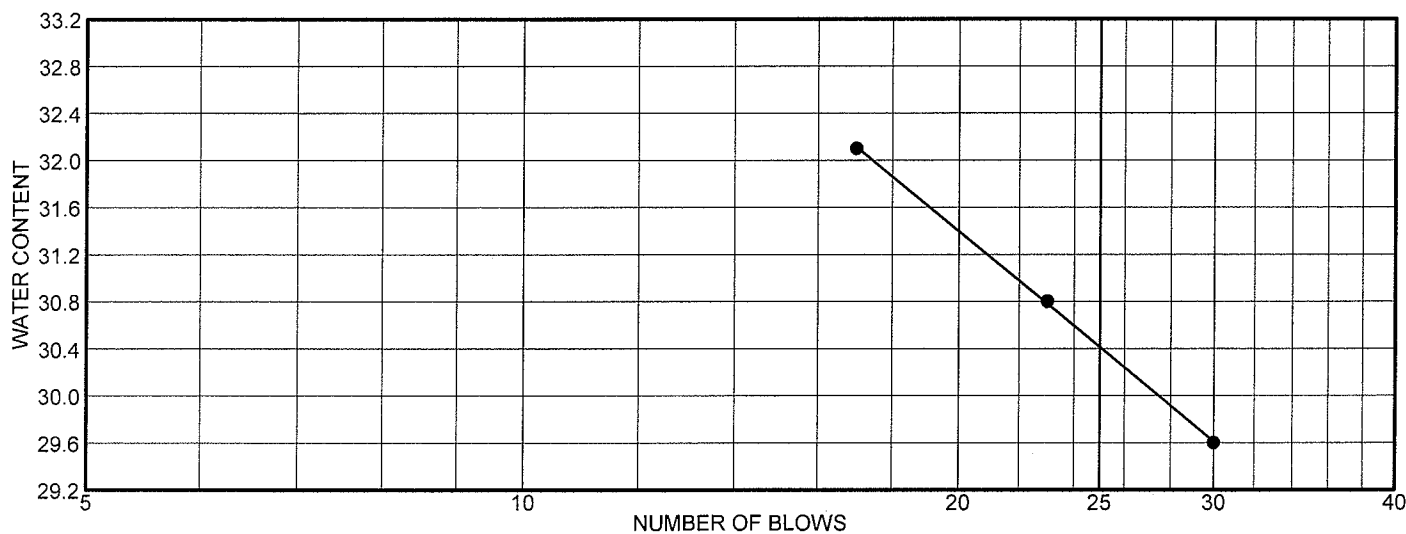
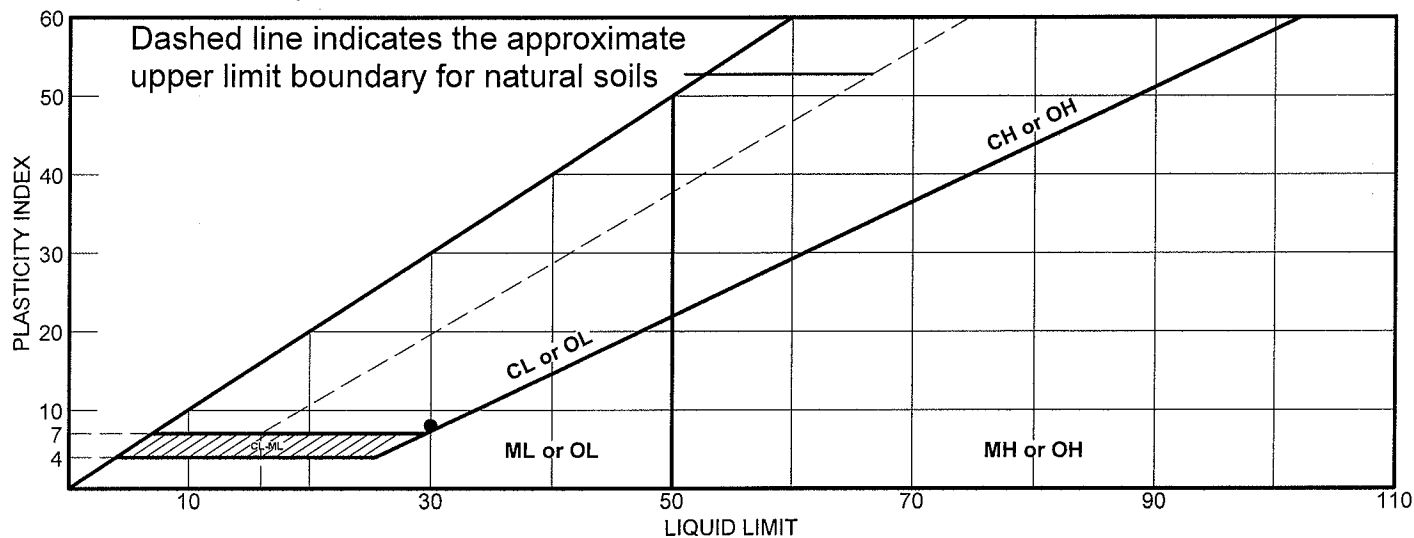
H. C. NUTTING COMPANY

Client: TERRACON
Project: PLUM POINT

Project No: 35077169

Figure 6630

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown Lean clay	30	22	8	98.5	88.5	CL

Project No. 35077169

Client: TERRACON

Project: PLUM POINT

● Source: 6630

Sample No.: CS-5

Remarks:

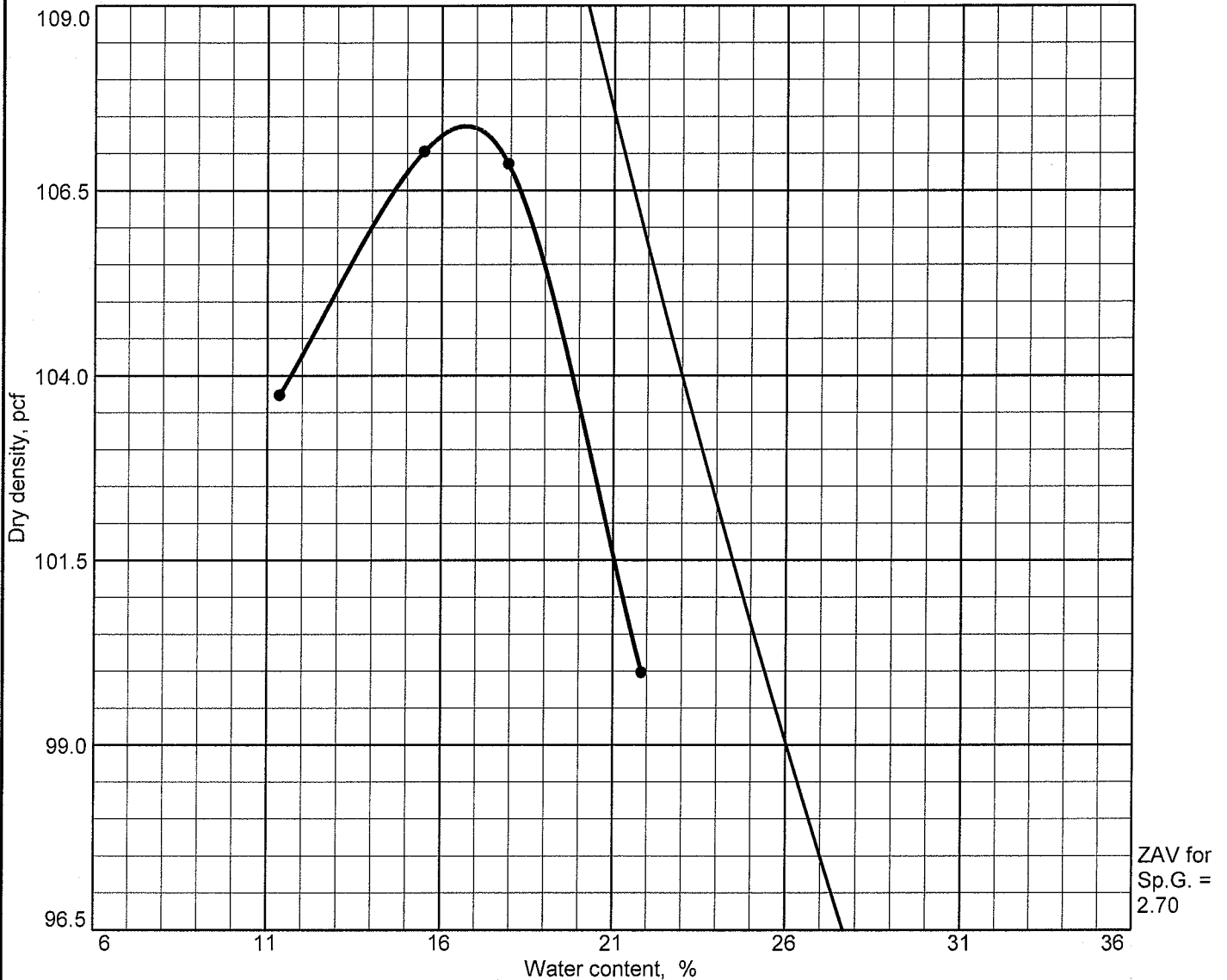
● WC=23.9%

LIQUID AND PLASTIC LIMITS TEST REPORT

H. C. NUTTING COMPANY

Figure 6630

COMPACTION TEST REPORT

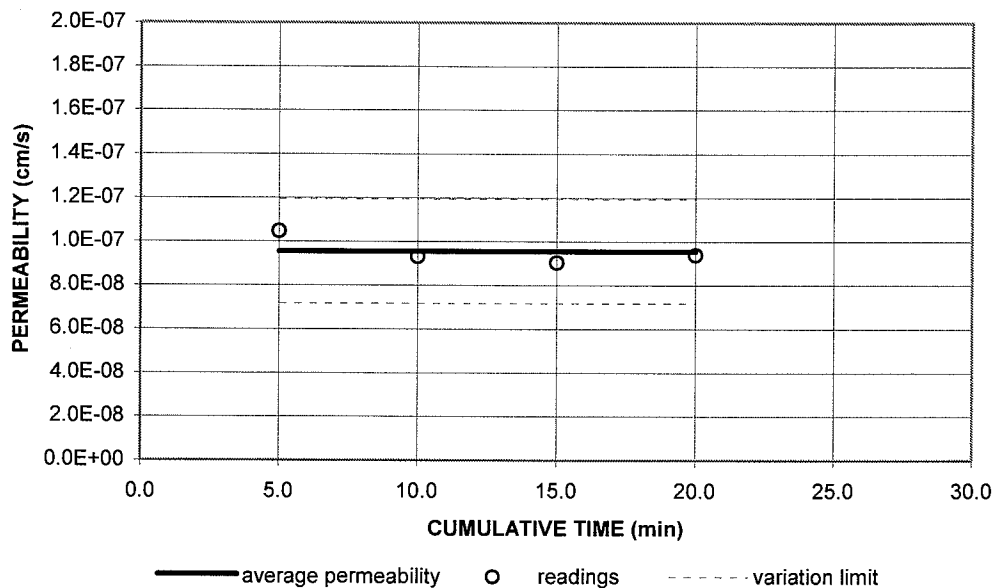


Test specification: ASTM D 698-91 Procedure B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	CL				30	8	0.0	88.5

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 107.4 pcf Optimum moisture = 16.7 %	Brown Lean clay
Project No. 35077169 Client: TERRACON Project: PLUM POINT ● Source: 6630 Sample No.: CS-5	Remarks: DATE TYPED 7-17-08 TESTED BY EJ
COMPACTION TEST REPORT H. C. NUTTING COMPANY	Figure 6630

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	10.93	1.05E-07	9.6E-08
21.00	5.00	10.00	9.63	9.31E-08	
21.00	5.00	15.00	8.52	9.04E-08	
21.00	5.00	20.00	7.50	9.39E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)	107.4	Specimen Height, (inches)		3.00	2.97
Opti. M.C., (%)	16.7	Specimen Diameter, (inches)		4.00	4.00
Comp. Method		Moisture Content, (%)		20.02	22.70
% Recompt.	94.8	Percent Saturation (%)		82.43	95.90
Test Pressures (psi)		Wet Mass Density (pcf)		122.13	126.12
Backpressure	90.00	Dry Mass Density (pcf)		101.76	102.79
Cell pressure	100.00	Void Ratio		0.66	0.64
Eff. Stress	10.00	Calculated Porosity, %		39.60	38.99

USCS		LL	PI
Permeant Used:	WATER	Remarks	BROWN LEAN CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	CS-5		
Sample Location			
Date	7/23/2008	Lab No.	6630

7/23/2008

APPENDIX F

FIELD DENSITY/MOISTURE TEST RESULTS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 6/26/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 7:00 AM Depart Site: 2:00 PM
Arrive Site: 7:30 AM Arrive Lab: 2:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-1	1st Lift Subgrade	6350	2550	N/A	PC-1	118.8	99.5	104.0	95.7	95.0	19.4	17.5	PASS
SG-2	1st Lift Subgrade	6450	2600	N/A	PC-1	121.5	100.9	104.0	97.0	95.0	20.4	17.5	PASS
SG-3	1st Lift Subgrade	6570	2700	N/A	PC-1	121.2	103.7	104.0	99.7	95.0	16.9	17.5	PASS
SG-4	1st Lift Subgrade	6420	2720	N/A	PC-1	123.7	106.7	104.0	102.6	95.0	15.9	17.5	PASS
SG-5	1st Lift Subgrade	6200	2850	N/A	PC-1	120.4	103.5	104.0	99.5	95.0	16.3	17.5	PASS
SG-6	1st Lift Subgrade	6220	2900	N/A	PC-1	120.7	101.0	104.0	97.1	95.0	19.5	17.5	PASS
SG-7	1st Lift Subgrade	6250	2750	N/A	PC-1	121.6	104.8	104.0	100.8	95.0	16.0	17.5	PASS
SG-8	1st Lift Subgrade	6400	2900	N/A	PC-1	122.2	102.6	104.0	98.7	95.0	19.1	17.5	PASS
SG-9	1st Lift Subgrade	6500	3100	N/A	PC-1	118.7	103.1	104.0	99.2	95.0	15.1	17.5	PASS
SG-10	1st Lift Subgrade	6470	3030	N/A	PC-1	119.1	102.8	104.0	98.8	95.0	15.9	17.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 6/27/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 7:00 AM Depart Site: 7:00 PM
Arrive Site: 10:00 AM Arrive Lab: 7:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-11	2nd Lift Subgrade	6190	2650	N/A	PC-3	119.5	99.7	104.0	95.9	95.0	19.8	17.5	PASS
SG-12	2nd Lift subgrade	6250	2550	N/A	PC-3	123.6	104.1	104.0	100.1	95.0	18.7	17.5	PASS
SG-13	2nd Lift Subgrade	6225	2650	N/A	CS-2	120.9	107.0	108.8	98.3	95.0	13.0	15.3	PASS
SG-14	2nd Lift Subgrade	6325	2610	N/A	CS-1	117.7	102.3	106.2	96.3	95.0	15.1	17.6	PASS
SG-15	2nd Lift Subgrade	6325	2550	N/A	CS-2	116.6	105.0	108.8	96.5	95.0	11.1	15.3	PASS
SG-16	2nd Lift Subgrade	6425	2525	N/A	PC-3	123.4	104.7	104.0	100.6	95.0	17.9	17.5	PASS
SG-17	2nd Lift Subgrade	6375	2650	N/A	PC-3	119.0	104.6	104.0	100.5	95.0	13.8	17.5	PASS
SG-18	2nd Lift Subgrade	6450	2590	N/A	PC-3	121.1	101.4	104.0	97.5	95.0	19.4	17.5	PASS
SG-19	2nd Lift Subgrade	6450	2650	N/A	PC-3	120.3	100.0	104.0	96.2	95.0	20.3	17.5	PASS
SG-20	2nd Lift Subgrade	6450	2750	N/A	CS-2	116.1	104.9	108.8	96.4	95.0	10.7	15.3	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 6/27/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 6:30 AM Depart Site: 7:00 PM
Arrive Site: 7:00 AM Arrive Lab: 7:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-21	2nd Lift Subgrade	6560	2650	N/A	PC-3	112.8	99.1	104.0	95.3	95.0	13.8	17.5	PASS
SG-22	2nd Lift Subgrade	6560	2750	N/A	CS-2	118.2	105.4	108.8	96.9	95.0	12.1	15.3	PASS
SG-23	2nd Lift Subgrade	6650	2750	N/A	CS-2	117.3	104.3	108.8	95.8	95.0	12.5	15.3	PASS
SG-24	2nd Lift Subgrade	6650	2850	N/A	PC-3	122.6	99.8	104.0	96.0	95.0	22.8	17.5	PASS
SG-25	2nd Lift Subgrade	6575	2850	N/A	CS-2	123.2	108.3	108.8	99.5	95.0	13.8	15.3	PASS
SG-26	2nd Lift Subgrade	6450	2850	N/A	PC-3	120.6	107.0	108.8	98.4	95.0	12.7	15.3	PASS
SG-27	2nd Lift Subgrade	6350	2800	N/A	PC-3	116.6	104.0	108.8	95.6	95.0	12.1	15.3	PASS
SG-28	2nd Lift Subgrade	6325	2725	N/A	CS-2	120.5	101.7	104.0	97.8	95.0	18.5	17.5	PASS
SG-29	2nd Lift Subgrade	6225	2725	N/A	PC-3	118.3	103.3	104.0	99.3	95.0	14.5	17.5	PASS
SG-30	2nd Lift Subgrade	6160	2710	N/A	CS-1	122.6	104.8	106.2	98.7	95.0	17.0	17.6	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 6/30/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 6:40 AM Depart Site: 7:00 PM
Arrive Site: 7:00 AM Arrive Lab: 7:20 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-31	2nd Lift Subgrade	6125	2750	N/A	CS-2	123.8	109.1	108.8	100.3	95.0	13.5	15.3	PASS
SG-32	2nd Lift Subgrade	6225	2825	N/A	PC-3	122.9	105.4	104.0	101.3	95.0	16.6	17.5	PASS
SG-33	2nd Lift Subgrade	6325	2875	N/A	CS-2	122.6	107.4	108.8	98.8	95.0	14.1	15.3	PASS
SG-34	2nd Lift Subgrade	6325	2925	N/A	PC-3	114.8	99.8	104.0	96.0	95.0	15.0	17.5	PASS
SG-35	2nd Lift Subgrade	6425	2925	N/A	CS-2	123.3	108.9	108.8	100.1	95.0	13.2	15.3	PASS
SG-36	2nd Lift Subgrade	6525	2975	N/A	CS-2	126.1	110.6	108.8	101.7	95.0	14.0	15.3	PASS
SG-37	2nd Lift Subgrade	6550	3025	N/A	CS-1	125.4	105.1	106.2	99.0	95.0	19.3	17.6	PASS
SG-38	2nd Lift Subgrade	6475	30550	N/A	PC-3	122.0	101.2	104.0	97.4	95.0	20.5	17.5	PASS
SG-39	2nd Lift Subgrade	6325	3025	N/A	CS-1	124.4	104.8	106.2	98.7	95.0	18.7	17.6	PASS
SG-40	2nd Lift Subgrade	6250	2950	N/A	CS-1	121.5	105.9	106.2	99.7	95.0	14.7	17.6	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 6/30/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 6:40 AM Depart Site: 7:00 PM
Arrive Site: 7:00 AM Arrive Lab: 4:48 AM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-41	2nd Lift Subgrade	6175	2925	N/A	CS-2	119.9	105.0	108.8	96.5	95.0	14.2	15.3	PASS
SG-42	2nd Lift Subgrade	6175	2850	N/A	CS-2	120.5	104.1	108.8	95.7	95.0	15.7	15.3	PASS
SG-43	2nd Lift Subgrade	6050	2850	N/A	CS-2	122.5	105.4	108.8	96.9	95.0	16.2	15.3	PASS
SG-44	2nd Lift Subgrade	6025	2925	N/A	CS-2	124.5	106.6	108.8	98.0	95.0	16.8	15.3	PASS
SG-45	2nd Lift Subgrade	6075	3025	N/A	CS-2	124.4	108.6	108.8	99.9	95.0	14.5	15.3	PASS
SG-46	2nd Lift Subgrade	6150	3050	N/A	CS-2	122.5	108.2	108.8	99.5	95.0	13.2	15.3	PASS
SG-47	2nd Lift Subgrade	6250	3025	N/A	CS-2	125.6	107.7	108.8	99.0	95.0	16.6	15.3	PASS
SG-48	2nd Lift Subgrade	6250	3125	N/A	CS-2	123.5	106.9	108.8	98.3	95.0	15.5	15.3	PASS
SG-49	2nd Lift Subgrade	6325	3125	N/A	CS-2	124.4	108.4	108.8	99.6	95.0	14.8	15.3	PASS
SG-50	2nd Lift Subgrade	6425	3125	N/A	PC-3	110.5	99.5	104.0	95.7	95.0	11.0	17.5	PASS

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Depart Lab:	<u>6:40 AM</u>	Depart Site:	<u>7:00 PM</u>
Arrive Site:	<u>7:00 AM</u>	Arrive Lab:	<u>7:20 PM</u>

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

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Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/2/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Stormwater Basin

Depart Lab: 6:30 AM Depart Site: 7:00 PM
Arrive Site: 7:00 AM Arrive Lab: 7:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-53	3rd Lift Subgrade	6175	2610	N/A	PC-3	121.6	102.4	104.0	98.5	95.0	18.7	17.5	PASS
SG-54	3rd Lift Subgrade	6150	2650	N/A	PC-3	123.7	101.9	104.0	98.0	95.0	21.4	17.5	PASS
SG-55	3rd Lift Subgrade	6250	2625	N/A	PC-3	118.4	100.1	104.0	96.2	95.0	18.3	17.5	PASS
SG-56	3rd Lift Subgrade	6250	2550	N/A	PC-3	120.6	100.9	104.0	97.0	95.0	19.5	17.5	PASS
SG-57	3rd Lift Subgrade	6350	2525	N/A	PC-3	121.6	101.4	104.0	97.5	95.0	19.9	17.5	PASS
SG-58	3rd Lift Subgrade	6350	2650	N/A	PC-3	118.8	100.4	104.0	96.6	95.0	18.3	17.5	PASS
SG-59	3rd Lift Subgrade	6250	2750	N/A	PC-3	122.3	102.7	104.0	98.7	95.0	19.1	17.5	PASS
SG-60	3rd Lift Subgrade	6325	2750	N/A	PC-3	123.5	104.5	104.0	100.5	95.0	18.2	17.5	PASS
SG-61	3rd Lift Subgrade	6425	2750	N/A	PC-3	119.7	100.9	104.0	97.0	95.0	18.6	17.5	PASS
SG-62	3rd Lift Subgrade	6450	2650	N/A	PC-3	121.7	101.9	104.0	98.0	95.0	19.4	17.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/2/2008

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(501) 847-9292

Client Name:	Dynegy
Contractor:	Grayco Construction Co., Inc.
Project Name:	Plum Point - Cell 1 Construction
Location:	Osceola, Arkansas
Reviewed by:	Brad Fureigh, E.I.
Technician:	Earl Pilgrim
Test Location:	Cell 1 - Subgrade

Depart Lab:	<u>6:30 AM</u>	Depart Site:	<u>7:00 PM</u>
Arrive Site:	<u>7:00 AM</u>	Arrive Lab:	<u>7:30 PM</u>

MATERIAL INFORMATION

Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

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Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/3/2008

Terracon
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(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 7:00 AM Depart Site: 12:30 PM
Arrive Site: 7:30 AM Arrive Lab: 3:00 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-72	3rd Lift Subgrade	6050	3025	N/A	PC-3	122.7	102.1	104.0	98.2	95.0	20.2	17.5	PASS
SG-73	3rd Lift Subgrade	6050	2950	N/A	PC-3	121.8	101.6	104.0	97.7	95.0	19.9	17.5	PASS
SG-74	3rd Lift Subgrade	6050	2850	N/A	PC-3	118.9	103.4	104.0	99.4	95.0	15.0	17.5	PASS
SG-75	3rd Lift Subgrade	6125	2825	N/A	PC-3	116.2	101.8	104.0	97.8	95.0	14.2	17.5	PASS
SG-76	3rd Lift Subgrade	6150	2950	N/A	CS-2	124.6	107.5	108.8	98.8	95.0	15.9	15.3	PASS
SG-77	3rd Lift Subgrade	6250	2850	N/A	CS-2	122.6	105.7	108.8	97.1	95.0	16.0	15.3	PASS
SG-78	3rd Lift Subgrade	6225	2925	N/A	CS-2	122.7	104.0	108.8	95.6	95.0	18.0	15.3	PASS
SG-79	3rd Lift Subgrade	6175	3050	N/A	PC-3	120.4	101.8	104.0	97.9	95.0	18.3	17.5	PASS
SG-80	3rd Lift Subgrade	6250	3050	N/A	CS-1	125.2	105.0	106.2	98.9	95.0	19.2	17.6	PASS
SG-81	3rd Lift Subgrade	6325	2950	N/A	CS-2	126.1	107.1	108.8	98.5	95.0	17.7	15.3	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/3/2008

Terracon
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Bryant, AR 72022
(501) 847-9292

Client Name:	Dynegy
Contractor:	Grayco Construction Co., Inc.
Project Name:	Plum Point - Cell 1 Construction
Location:	Osceola, Arkansas
Reviewed by:	Brad Fureigh, E.I.
Technician:	Earl Pilgrim
Test Location:	Cell 1 - Subgrade

Depart Lab:	<u>7:00 AM</u>	Depart Site:	<u>12:30 PM</u>
Arrive Site:	<u>7:30 AM</u>	Arrive Lab:	<u>3:00 PM</u>

MATERIAL INFORMATION

Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

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Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/7/2008

Terracon
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Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 8:00 AM Depart Site: 7:30 PM
Arrive Site: 9:30 AM Arrive Lab: 8:00 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-91	4th Lift Subgrade	6190	2650	N/A	PC-3	122.8	102.4	104.0	98.5	95.0	19.9	17.5	PASS
SG-92	4th Lift Subgrade	6250	2525	N/A	PC-3	120.1	100.4	104.0	96.6	95.0	19.6	17.5	PASS
SG-93	4th Lift Subgrade	6350	2650	N/A	PC-3	119.3	100.4	104.0	96.6	95.0	18.8	17.5	PASS
SG-94	4th Lift Subgrade	6325	2725	N/A	PC-3	121.0	101.0	104.0	97.1	95.0	19.8	17.5	PASS
SG-95	4th Lift Subgrade	6525	2650	N/A	PC-3	118.5	98.8	104.0	95.0	95.0	19.9	17.5	PASS
SG-96	4th Lift Subgrade	6575	2875	N/A	PC-3	120.2	99.5	104.0	95.7	95.0	20.8	17.5	PASS
SG-97	4th Lift Subgrade	6450	2850	N/A	PC-3	119.3	99.8	104.0	96.0	95.0	19.5	17.5	PASS
SG-98	4th Lift Subgrade	6450	2725	N/A	PC-3	118.7	99.2	104.0	95.4	95.0	19.6	17.5	PASS
SG-99	4th Lift Subgrade	6350	2825	N/A	PC-3	116.3	99.5	104.0	95.7	95.0	16.9	17.5	PASS
SG-100	4th Lift Subgrade	6075	2875	N/A	PC-3	120.3	99.3	104.0	95.4	95.0	21.2	17.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/8/2008

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(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 7:00 AM Depart Site: 7:00 PM
Arrive Site: 7:30 AM Arrive Lab: 7:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-101	4th Lift Subgrade	6175	2850	N/A	PC-1	121.9	102.9	104.0	98.9	95.0	18.5	17.5	PASS
SG-102	4th Lift Subgrade	6225	2925	N/A	PC-1	119.9	99.5	104.0	95.7	95.0	20.5	17.5	PASS
SG-103	4th Lift Subgrade	6350	2950	N/A	PC-1	119.1	99.8	104.0	96.0	95.0	19.3	17.5	PASS
SG-104	4th Lift Subgrade	6325	3050	N/A	CS-1	125.2	105.3	106.2	99.2	95.0	18.9	17.6	PASS
SG-105	4th Lift Subgrade	6350	3150	N/A	PC-1	122.4	99.9	104.0	96.1	95.0	22.5	17.5	PASS
SG-106	4th Lift Subgrade	6250	3150	N/A	PC-1	121.6	100.4	104.0	96.6	95.0	21.1	17.5	PASS
SG-107	4th Lift Subgrade	6225	3025	N/A	PC-1	121.4	100.4	104.0	96.6	95.0	20.9	17.5	PASS
SG-108	4th Lift Subgrade	6350	3050	N/A	PC-1	123.5	103.4	104.0	99.5	95.0	19.4	17.5	PASS
SG-109	4th Lift Subgrade	6250	3025	N/A	PC-1	122.6	104.8	104.0	100.8	95.0	17.0	17.5	PASS
SG-110	4th Lift Subgrade	6050	2950	N/A	PC-4	115.7	98.3	102.3	96.1	95.0	17.7	18.0	PASS

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Depart Lab:	<u>7:00 AM</u>	Depart Site:	<u>7:00 PM</u>
Arrive Site:	<u>7:30 AM</u>	Arrive Lab:	<u>7:30 PM</u>

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

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Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/9/2008

Terracon
25809 Interstate 30
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Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 7:00 AM Depart Site: 7:30 PM
Arrive Site: 7:30 AM Arrive Lab: 8:00 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-113	5th Lift Subgrade	6190	2690	N/A	PC-1	123.0	101.1	104.0	97.2	95.0	21.7	17.5	PASS
SG-114	5th Lift Subgrade	6325	2525	N/A	PC-1	122.5	100.2	104.0	96.4	95.0	22.2	17.5	PASS
SG-115	5th Lift Subgrade	6450	2625	N/A	PC-1	123.9	103.3	104.0	99.4	95.0	19.9	17.5	PASS
SG-116	5th Lift Subgrade	6325	2525	N/A	PC-1	118.7	98.9	104.0	95.1	95.0	20.0	17.5	PASS
SG-117	5th Lift Subgrade	6425	2625	N/A	PC-1	122.0	102.6	104.0	98.7	95.0	18.9	17.5	PASS
SG-118	5th Lift Subgrade	6550	2675	N/A	PC-1	120.6	100.8	104.0	97.0	95.0	19.6	17.5	PASS
SG-119	5th Lift Subgrade	6550	2775	N/A	PC-1	123.3	104.4	104.0	100.4	95.0	18.1	17.5	PASS
SG-120	5th Lift Subgrade	6490	2750	N/A	CS-2	122.2	105.0	108.8	96.5	95.0	16.4	15.3	PASS
SG-121	5th Lift Subgrade	6450	2850	N/A	PC-1	122.5	101.0	104.0	97.1	95.0	21.3	17.5	PASS
SG-122	5th Lift Subgrade	6350	2825	N/A	PC-1	121.8	100.2	104.0	96.3	95.0	21.6	17.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/9/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 7:00 AM Depart Site: 7:30 PM
Arrive Site: 7:30 AM Arrive Lab: 8:00 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-123	5th Lift Subgrade	6350	2725	N/A	PC-1	120.7	99.6	104.0	95.8	95.0	21.2	17.5	PASS
SG-124	5th Lift Subgrade	6250	2775	N/A	PC-1	121.6	103.0	104.0	99.0	95.0	18.1	17.5	PASS
SG-125	5th Lift Subgrade	6350	2650	N/A	PC-1	120.9	100.3	104.0	96.5	95.0	20.5	17.5	PASS
SG-126	5th Lift Subgrade	6250	3050	N/A	PC-1	122.8	102.6	104.0	98.6	95.0	19.7	17.5	PASS
SG-127	5th Lift Subgrade	6150	3050	N/A	PC-1	119.7	99.8	104.0	96.0	95.0	19.9	17.5	PASS
SG-128	5th Lift Subgrade	6050	3025	N/A	PC-1	121.4	101.1	104.0	97.2	95.0	20.1	17.5	PASS
SG-129	5th Lift Subgrade	6050	2925	N/A	CS-2	120.5	103.4	108.8	95.1	95.0	16.5	15.3	PASS
SG-130	5th Lift Subgrade	6050	2850	N/A	PC-1	120.0	99.8	104.0	95.9	95.0	20.3	17.5	PASS
SG-131	5th Lift Subgrade	6150	2850	N/A	CS-1	125.5	104.9	106.2	98.8	95.0	19.6	17.6	PASS
SG-132	5th Lift Subgrade	6150	2950	N/A	CS-1	123.1	103.0	106.2	97.0	95.0	19.5	17.6	PASS

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MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Depart Lab:	<u>7:00 AM</u>	Depart Site:	<u>7:30 PM</u>
Arrive Site:	7:30 AM	Arrive Lab:	8:00 PM

[illegible]

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/11/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 7:15 AM Depart Site: 4:00 PM
Arrive Site: 7:30 AM Arrive Lab: 4:15 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-139	6th Lift Subgrade	6225	2625	N/A	PC-3	119.0	99.8	104.0	96.0	95.0	19.2	17.5	PASS
SG-140	6th Lift Subgrade	6290	2550	N/A	PC-3	118.8	99.2	104.0	95.4	95.0	19.8	17.5	PASS
SG-141	6th Lift Subgrade	6350	2525	N/A	PC-3	116.7	99.5	104.0	95.7	95.0	17.3	17.5	PASS
SG-142	6th Lift Subgrade	6350	2675	N/A	PC-3	118.8	101.4	104.0	97.5	95.0	17.2	17.5	PASS
SG-143	6th Lift Subgrade	6450	2650	N/A	PC-3	118.1	102.0	104.0	98.1	95.0	15.8	17.5	PASS
SG-144	6th Lift Subgrade	6550	2650	N/A	PC-3	116.8	101.0	104.0	97.1	95.0	15.7	17.5	PASS
SG-145	6th Lift Subgrade	6525	2750	N/A	PC-3	115.4	99.0	104.0	95.2	95.0	16.6	17.5	PASS
SG-146	6th Lift Subgrade	6425	2890	N/A	PC-3	123.7	104.6	104.0	100.5	95.0	18.3	17.5	PASS
SG-147	6th Lift Subgrade	6450	725	N/A	PC-3	122.1	102.3	104.0	98.4	95.0	19.3	17.5	PASS
SG-148	6th Lift Subgrade	6350	2825	N/A	PC-1	124.7	105.3	104.0	101.3	95.0	18.4	17.5	PASS

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25809 Interstate 30
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(501) 847-9292

Depart Lab:	<u>7:15 AM</u>	Depart Site:	<u>4:00 PM</u>
Arrive Site:	<u>7:30 AM</u>	Arrive Lab:	<u>4:15 PM</u>

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

[illegible]

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/14/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Subgrade

Depart Lab: 8:45 AM Depart Site: 7:00 PM
Arrive Site: 9:00 AM Arrive Lab: 7:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-152	6th Lift Subgrade	6425	2950	N/A	PC-1	119.9	99.3	104.0	95.5	95.0	20.7	17.5	PASS
SG-153	6th Lift Subgrade	6350	3050	N/A	PC-1	121.6	101.3	104.0	97.4	95.0	20.0	17.5	PASS
SG-154	6th Lift Subgrade	6325	2925	N/A	PC-1	120.1	99.3	104.0	95.5	95.0	20.9	17.5	PASS
SG-155	6th Lift Subgrade	6250	3050	N/A	CS-2	124.7	108.4	108.8	99.7	95.0	15.0	15.3	PASS
SG-156	6th Lift Subgrade	6250	2950	N/A	CS-2	123.4	106.6	108.8	97.9	95.0	15.8	15.3	PASS
SG-157	6th Lift Subgrade	6250	2850	N/A	CS-2	122.6	106.4	108.8	97.8	95.0	15.2	15.3	PASS
SG-158	6th Lift Subgrade	6125	2825	N/A	PC-1	123.2	103.3	104.0	99.3	95.0	19.3	17.5	PASS
SG-159	6th Lift Subgrade	6010	2890	N/A	PC-1	123.5	102.2	104.0	98.3	95.0	20.8	17.5	PASS
SG-160	6th Lift Subgrade	6050	2950	N/A	PC-1	111.7	99.2	104.0	95.4	95.0	12.6	17.5	PASS
SG-161	6th Lift Subgrade	6050	3050	N/A	PC-1	119.9	101.1	104.0	97.2	95.0	18.6	17.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/14/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name:	Dynegy
Contractor:	Grayco Construction Co., Inc.
Project Name:	Plum Point - Cell 1 Construction
Location:	Osceola, Arkansas
Reviewed by:	Brad Fureigh, E.I.
Technician:	Earl Pilgrim
Test Location:	Cell 1 - Slopes

Depart Lab:	<u>8:45 AM</u>	Depart Site:	<u>7:00 PM</u>
Arrive Site:	<u>9:00 AM</u>	Arrive Lab:	<u>7:15 PM</u>

MATERIAL INFORMATION

Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

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Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/15/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegey
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - North Side Cell Floor

Depart Lab: 6:45 AM Depart Site: 7:00 PM
Arrive Site: 7:00 AM Arrive Lab: 7:15 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
CL-1	In-Situ Clay Liner	6450	3225	P-1	PC-1	121.6	103.3	104.0	99.3	95.0	17.7	17.5	PASS
CL-2	In-Situ Clay Liner	6450	3150	N/A	PC-1	121.4	102.8	104.0	98.8	95.0	18.1	17.5	PASS
CL-3	In-Situ Clay Liner	6410	3050	P-2	PC-1	121.2	101.3	104.0	97.4	95.0	19.6	17.5	PASS
CL-4	In-Situ Clay Liner	6425	2925	N/A	PC-1	116.9	98.8	104.0	95.0	95.0	18.3	17.5	PASS
CL-5	In-Situ Clay Liner	6550	3025	N/A	PC-1	117.7	100.2	104.0	96.3	95.0	17.5	17.5	PASS
CL-6	In-Situ Clay Liner	6525	3125	N/A	PC-1	123.0	104.6	104.0	100.6	95.0	17.6	17.5	PASS
CL-7	In-Situ Clay Liner	6510	3250	N/A	PC-1	116.8	99.4	104.0	95.6	95.0	17.5	17.5	PASS
CL-8	In-Situ Clay Liner	6625	3050	P-3	PC-1	122.1	103.5	104.0	99.5	95.0	18.0	17.5	PASS
CL-9	In-Situ Clay Liner	6625	3125	N/A	PC-1	121.8	103.4	104.0	99.4	95.0	17.8	17.5	PASS
CL-10	In-Situ Clay Liner	6625	3250	P-4	PC-1	118.2	100.3	104.0	96.5	95.0	17.8	17.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/15/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name:	Dynegy
Contractor:	Grayco Construction Co., Inc.
Project Name:	Plum Point - Cell 1 Construction
Location:	Osceola, Arkansas
Reviewed by:	Brad Fureigh, E.I.
Technician:	Earl Pilgrim
Test Location:	Cell 1 - North Side Cell Floor

Depart Lab:	<u>6:45 AM</u>	Depart Site:	<u>7:00 PM</u>
Arrive Site:	7:00 AM	Arrive Lab:	7:15 PM

MATERIAL INFORMATION

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

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Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/17/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - North Side Cell Floor

Depart Lab: 7:00 AM Depart Site: 6:00 PM
Arrive Site: 7:30 AM Arrive Lab: 6:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
CL-13	In-Situ Clay Liner	6850	3050	N/A	PC-1	117.9	99.7	104.0	95.9	95.0	18.2	17.5	PASS
CL-14	In-Situ Clay Liner	6725	3025	N/A	PC-1	121.6	102.8	104.0	98.8	95.0	18.3	17.5	PASS
CL-15	In-Situ Clay Liner	6850	2950	P-5	PC-1	121.9	102.2	104.0	98.2	95.0	19.3	17.5	PASS
CL-16	In-Situ Clay Liner	6950	2950	N/A	PC-1	123.9	104.5	104.0	100.5	95.0	18.6	17.5	PASS
CL-17	In-Situ Clay Liner	6850	2850	N/A	PC-1	120.6	101.0	104.0	97.1	95.0	19.4	17.5	PASS
CL-18	In-Situ Clay Liner	6725	2750	N/A	PC-1	122.9	100.8	104.0	96.9	95.0	21.9	17.5	PASS
CL-19	In-Situ Clay Liner	6675	2750	P-6	PC-1	122.6	101.6	104.0	97.7	95.0	20.7	17.5	PASS
CL-20	In-Situ Clay Liner	6650	2850	N/A	PC-1	122.5	102.9	104.0	98.9	95.0	19.1	17.5	PASS
CL-21	In-Situ Clay Liner	6750	2850	N/A	PC-1	119.0	99.2	104.0	95.4	95.0	20.0	17.5	PASS
CL-22	In-Situ Clay Liner	6750	2950	N/A	PC-1	120.4	99.3	104.0	95.4	95.0	21.3	17.5	PASS

Terracon
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Depart Lab:	<u>7:00 AM</u>	Depart Site:	<u>6:00 PM</u>
Arrive Site:	<u>7:30 AM</u>	Arrive Lab:	<u>6:30 PM</u>

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

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Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/19/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name:	Dynegy
Contractor:	Grayco Construction Co., Inc.
Project Name:	Plum Point - Cell 1 Construction
Location:	Osceola, Arkansas
Reviewed by:	Brad Fureigh, E.I.
Technician:	Clayton Haynes
Test Location:	Cell 1 - Clay Liner

Depart Lab:	<u>6:00 AM</u>	Depart Site:	<u>3:30 PM</u>
Arrive Site:	<u>6:30 AM</u>	Arrive Lab:	<u>4:00 PM</u>

MATERIAL INFORMATION

Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

[illegible]

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/22/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgram
Test Location: Cell 1 - Subgrade

Depart Lab: 7:00 AM Depart Site: 7:00 PM
Arrive Site: 7:30 AM Arrive Lab: 7:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-170	Final Lift Subgrade	6250	2650	N/A	PC-3	122.0	103.8	104.0	99.8	95.0	17.5	17.5	PASS
SG-171	Final Lift Subgrade	6275	2757	N/A	PC-3	121.9	102.2	104.0	98.2	95.0	19.3	17.5	PASS
SG-172	Final Lift Subgrade	6350	2675	N/A	PC-3	121.2	103.2	104.0	99.3	95.0	17.4	17.5	PASS
SG-173	Final Lift Subgrade	6350	2650	N/A	PC-3	119.6	100.3	104.0	96.5	95.0	19.2	17.5	PASS
SG-174	Final Lift Subgrade	6490	2675	N/A	PC-3	122.2	100.9	104.0	97.0	95.0	21.1	17.5	PASS
SG-175	Final Lift Subgrade	6450	2725	N/A	PC-3	119.6	99.2	104.0	95.4	95.0	20.6	17.5	PASS
SG-176	Final Lift Subgrade	6425	2825	N/A	PC-3	117.0	99.9	104.0	96.1	95.0	17.1	17.5	PASS
SG-177	Final Lift Subgrade	6350	2750	N/A	PC-3	118.4	100.1	104.0	96.2	95.0	18.3	17.5	PASS
SG-178	Final Lift Subgrade	6250	2750	N/A	PC-3	122.2	102.4	104.0	98.5	95.0	19.3	17.5	PASS
SG-179	Final Lift Subgrade	6225	2825	N/A	PC-3	120.7	99.3	104.0	95.4	95.0	21.6	17.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/24/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Clay Liner

Depart Lab: 7:00 AM Depart Site: 7:00 PM
Arrive Site: 7:30 AM Arrive Lab: 7:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
CL-29	1st Lift Clay Liner	6610	2650	N/A	PC-1	120.7	101.5	104.0	97.6	95.0	18.9	17.5	PASS
CL-30	1st Lift Clay Liner	6550	2650	P-9	PC-1	119.5	99.6	104.0	95.8	95.0	20.0	17.5	PASS
CL-31	1st Lift Clay Liner	6450	2650	N/A	PC-1	119.5	100.5	104.0	96.6	95.0	18.9	17.5	PASS
CL-32	1st Lift Clay Liner	6425	2550	N/A	PC-1	117.7	100.1	104.0	96.2	95.0	17.6	17.5	PASS
CL-33	1st Lift Clay Liner	6350	2525	P-10	PC-1	118.5	99.7	104.0	95.8	95.0	18.9	17.5	PASS
CL-34	1st Lift Clay Liner	6210	2490	N/A	PC-1	121.4	102.2	104.0	98.3	95.0	18.8	17.5	PASS
CL-35	1st Lift Clay Liner	6250	2550	N/A	PC-1	121.7	102.4	104.0	98.5	95.0	18.8	17.5	PASS
CL-36	1st Lift Clay Liner	6110	2675	N/A	PC-1	120.7	101.1	104.0	97.2	95.0	19.4	17.5	PASS
CL-37	1st Lift Clay Liner	6275	2650	N/A	PC-1	122.4	102.8	104.0	98.8	95.0	19.1	17.5	PASS
CL-38	1st Lift Clay Liner	6390	2675	P-11	PC-1	121.4	101.3	104.0	97.4	95.0	19.9	17.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/24/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name:	Dynegy
Contractor:	Grayco Construction Co., Inc.
Project Name:	Plum Point - Cell 1 Construction
Location:	Osceola, Arkansas
Reviewed by:	Brad Fureigh, E.I.
Technician:	Earl Pilgrim
Test Location:	Cell 1 - Clay Lift

Depart Lab:	<u>6:30 AM</u>	Depart Site:	<u>7:00 PM</u>
Arrive Site:	<u>7:00 AM</u>	Arrive Lab:	<u>7:30 PM</u>

MATERIAL INFORMATION

Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

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Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/25/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Clay Liner

Depart Lab: 6:30 AM Depart Site: 7:00 PM
Arrive Site: 7:00 AM Arrive Lab: 7:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
CL-48	1st Lift Clay Liner	6350	2950	P-14	PC-1	121.7	100.7	104.0	96.9	95.0	20.8	17.5	PASS
CL-49	1st Lift Clay Liner	6250	2925	N/A	PC-1	117.8	99.1	104.0	95.3	95.0	18.9	17.5	PASS
CL-50	1st Lift Clay Liner	6125	2850	P-15	PC-1	121.5	100.8	104.0	97.0	95.0	20.5	17.5	PASS
CL-51	1st Lift Clay Liner	6090	2890	N/A	PC-1	117.8	100.2	104.0	96.3	95.0	17.6	17.5	PASS
CL-52	1st Lift Clay Liner	6175	2950	N/A	PC-1	120.1	99.0	104.0	95.2	95.0	21.3	17.5	PASS
CL-53	1st Lift Clay Liner	6275	3050	N/A	PC-1	119.9	102.0	104.0	98.0	95.0	17.6	17.5	PASS
CL-54	1st Lift Clay Liner	6350	3050	N/A	PC-1	121.0	102.2	104.0	98.3	95.0	18.4	17.5	PASS
CL-55	1st Lift Clay Liner	6375	3150	N/A	PC-1	120.5	99.6	104.0	95.8	95.0	21.0	17.5	PASS
CL-56	1st Lift Clay Liner	6290	3150	P-16	PC-1	123.5	102.9	104.0	99.0	95.0	20.0	17.5	PASS
CL-57	1st Lift Clay Liner	6150	3050	N/A	PC-1	117.7	99.1	104.0	95.3	95.0	18.8	17.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 7/25/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 1 - Clay Liner

Depart Lab: 6:30 AM Depart Site: 7:00 PM
Arrive Site: 7:00 AM Arrive Lab: 7:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
CL-58	1st Lift Clay Liner	6050	3025	P-17	PC-1	123.8	102.9	104.0	99.0	95.0	20.3	17.5	PASS
CL-59	1st Lift Clay Liner	6050	2950	N/A	PC-1	118.9	101.2	104.0	97.3	95.0	17.5	17.5	PASS
CL-60	1st Lift Clay Liner	6750	3425	N/A	PC-1	123.1	103.2	104.0	99.2	95.0	19.3	17.5	PASS
CL-61	1st Lift Clay Liner	6750	3350	N/A	PC-1	120.0	98.9	104.0	95.1	95.0	21.3	17.5	PASS
CL-62	1st Lift Clay Liner	6825	3325	N/A	PC-1	122.3	101.4	104.0	97.5	95.0	20.6	17.5	PASS
CL-63	1st Lift Clay Liner	6850	3250	P-18	PC-1	122.3	100.3	104.0	96.5	95.0	21.9	17.5	PASS
CL-64	1st Lift Clay Liner	6850	3175	N/A	PC-1	123.5	100.5	104.0	96.7	95.0	22.8	17.5	PASS
CL-65	1st Lift Clay Liner	6950	3075	N/A	PC-1	120.8	99.5	104.0	95.7	95.0	21.4	17.5	PASS
CL-66	1st Lift Clay Liner	6900	3225	N/A	PC-1	120.2	99.3	104.0	95.4	95.0	21.1	17.5	PASS
CL-67	1st Lift Clay Liner	6975	3090	N/A	PC-1	120.7	99.8	104.0	95.9	95.0	21.0	17.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 8/18/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name: Dynegy
Contractor: Grayco Construction Co., Inc.
Project Name: Plum Point - Cell 1 Construction
Location: Osceola, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgram
Test Location: Subgrade - Anchor Trench

Depart Lab: 6:30 AM Depart Site: 5:30 PM
Arrive Site: 7:00 AM Arrive Lab: 6:00 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-180	Anchor Trench	6830	3430	N/A	CS-1	120.1	106.0	106.2	99.7	95.0	13.4	17.6	PASS
SG-181	Anchor Trench	6895	3310	N/A	CS-1	115.2	103.3	106.2	97.2	95.0	11.6	17.6	PASS
SG-182	Anchor Trench	6940	3220	N/A	PC-3	110.2	99.0	104.0	95.2	95.0	11.3	17.5	PASS
SG-183	Anchor Trench	6995	3150	N/A	PC-3	110.8	99.9	104.0	96.1	95.0	10.9	17.5	PASS
SG-184	Anchor Trench	7050	3010	N/A	PC-3	113.3	101.0	104.0	97.1	95.0	12.1	17.5	PASS
SG-185	Anchor Trench	7090	2900	N/A	PC-3	112.5	99.9	104.0	96.1	95.0	12.6	17.5	PASS
SG-186	Anchor Trench	7050	2850	N/A	PC-3	110.9	100.6	104.0	96.8	95.0	10.2	17.5	PASS
SG-187	Anchor Trench	6955	2805	N/A	CS-2	120.7	108.3	108.8	99.6	95.0	11.4	15.3	PASS
SG-188	Anchor Trench	6880	2725	N/A	CS-2	119.9	106.8	108.8	98.1	95.0	12.3	15.3	PASS
SG-189	Anchor Trench	6750	2670	N/A	PC-3	111.3	101.7	104.0	97.8	95.0	9.5	17.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35077169
Date of Report: 8/18/2008

Terracon
25809 Interstate 30
Bryant, AR 72022
(501) 847-9292

Client Name:	Dynegy
Contractor:	Grayco Construction Co., Inc.
Project Name:	Plum Point - Cell 1 Construction
Location:	Osceola, Arkansas
Reviewed by:	Brad Fureigh, E.I.
Technician:	Earl Pilgram
Test Location:	Subgrade - Anchor Trench

Depart Lab:	<u>6:30 AM</u>	Depart Site:	<u>5:30 PM</u>
Arrive Site:	<u>7:00 AM</u>	Arrive Lab:	<u>6:00 PM</u>

MATERIAL INFORMATION

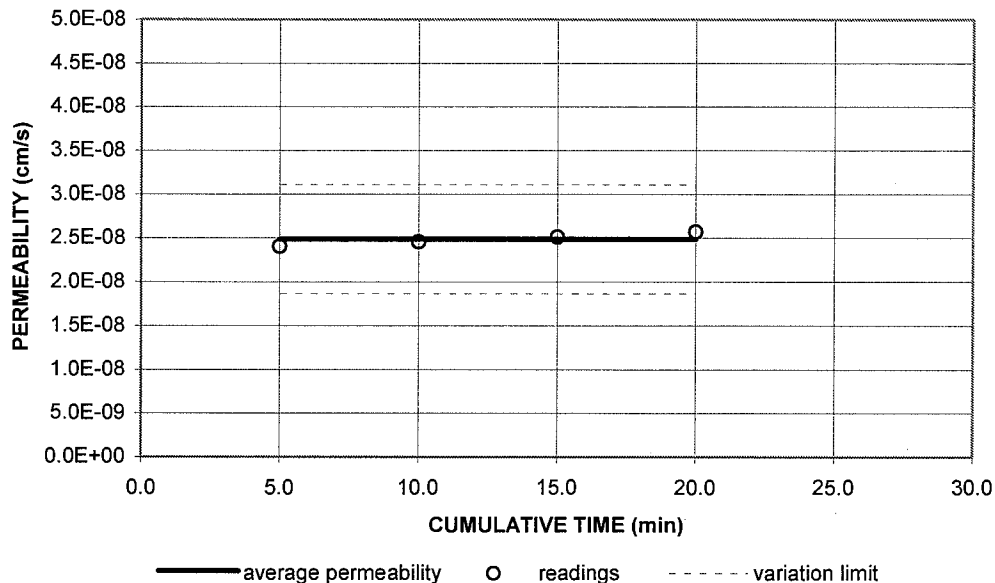
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-1	Brown Silty Clay	104.0	17.5
PC-2	Brown Silty Clay	104.0	18.0
PC-3	Brown Silty Clay w/ Sand	104.0	17.5
PC-4	Brown Silty Clay w/ Sand	102.3	18.0
CS-1	Brown Silt w/ Sand	106.2	17.6
CS-2	Brown Silt	108.8	15.3

[illegible]

APPENDIX G

CLAY LINER PERMEABILITY TEST RESULTS

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

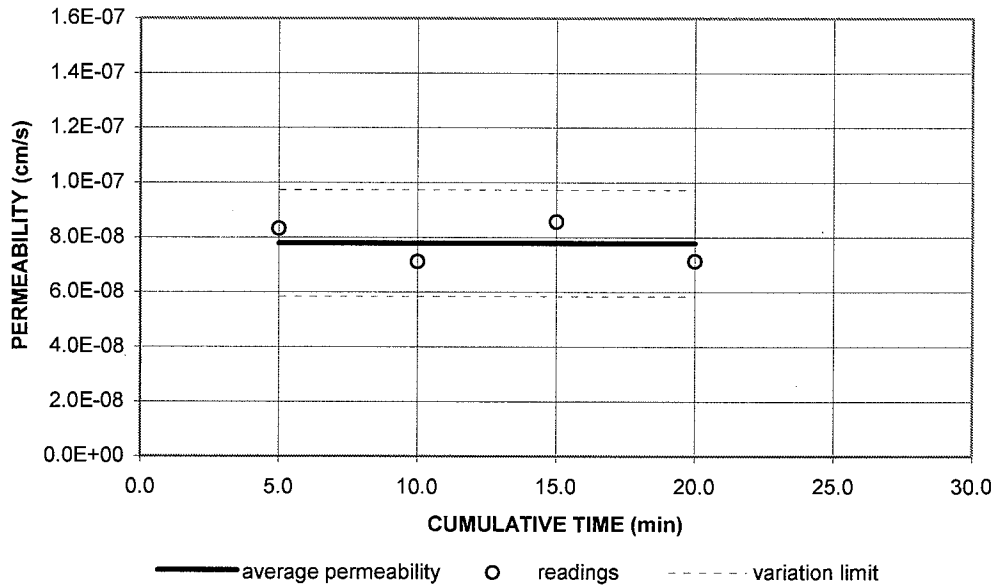
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	16.72	2.41E-08	2.5E-08
21.00	5.00	10.00	16.36	2.46E-08	
21.00	5.00	15.00	16.00	2.51E-08	
21.00	5.00	20.00	15.64	2.57E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.31	2.30
Opti. M.C., (%)		Specimen Diameter, (inches)		2.84	2.84
Comp. Method		Moisture Content, (%)		21.88	23.31
% Recompt.		Percent Saturation (%)		88.79	95.66
Test Pressures (psi)		Wet Mass Density (pcf)		123.31	125.31
Backpressure	90.00	Dry Mass Density (pcf)		101.18	101.62
Cell pressure	100.00	Void Ratio		0.67	0.66
Eff. Stress	10.00	Calculated Porosity, %		39.95	39.69

USCS		LL	PI
Permeant Used: WATER		Remarks	BROWN LEAN CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	S-6751		
Sample Location	P-1(N6450 / E3225) 6"		
Date	7/22/2008 Lab No. 6751		

7/22/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

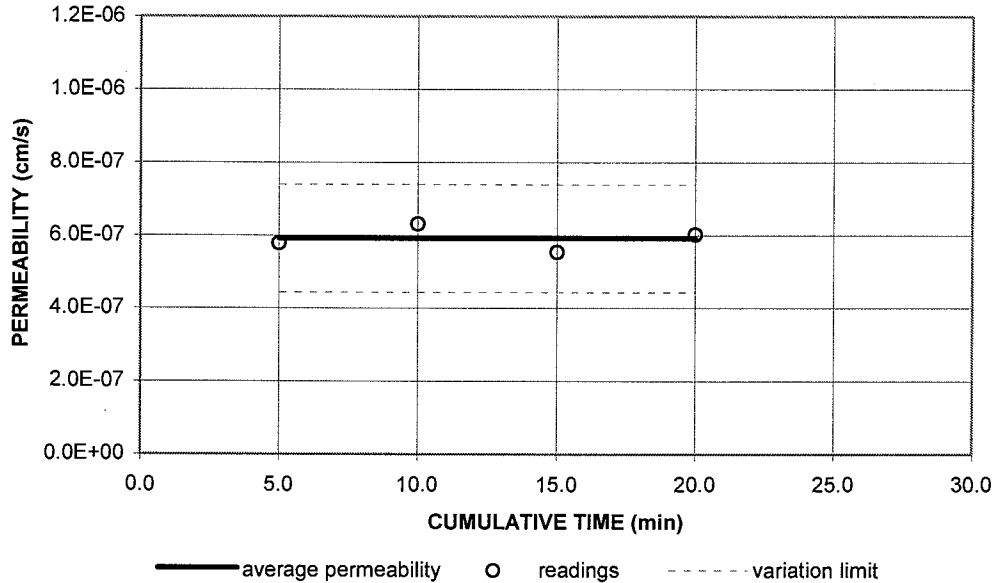
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	15.71	8.32E-08	7.8E-08
21.00	5.00	10.00	14.77	7.11E-08	
21.00	5.00	15.00	13.72	8.56E-08	
21.00	5.00	20.00	12.90	7.13E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.37	2.35
Opti. M.C., (%)		Specimen Diameter, (inches)		2.84	2.84
Comp. Method		Moisture Content, (%)		21.10	24.14
% Recompct.		Percent Saturation (%)		82.35	96.22
Test Pressures (psi)		Wet Mass Density (pcf)		120.60	124.69
Backpressure	90.00	Dry Mass Density (pcf)		99.59	100.44
Cell pressure	100.00	Void Ratio		0.69	0.68
Eff. Stress	10.00	Calculated Porosity, %		40.89	40.39

USCS		LL	PI	
Permeant Used:		WATER	Remarks	BROWN LEAN CLAY
Project Name	Plum Point-Cell 1		Tested by	FCE Reviewed by TGG
Client	Dynegy	W.O.#	35077169	FLEXIBLE WALL PERMEABILITY TEST Terracon
Sample Number	S-6752			
Sample Location	P-2 (N6425 / E2925)		6"	
Date	7/22/2008	Lab No.	6752	

7/22/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

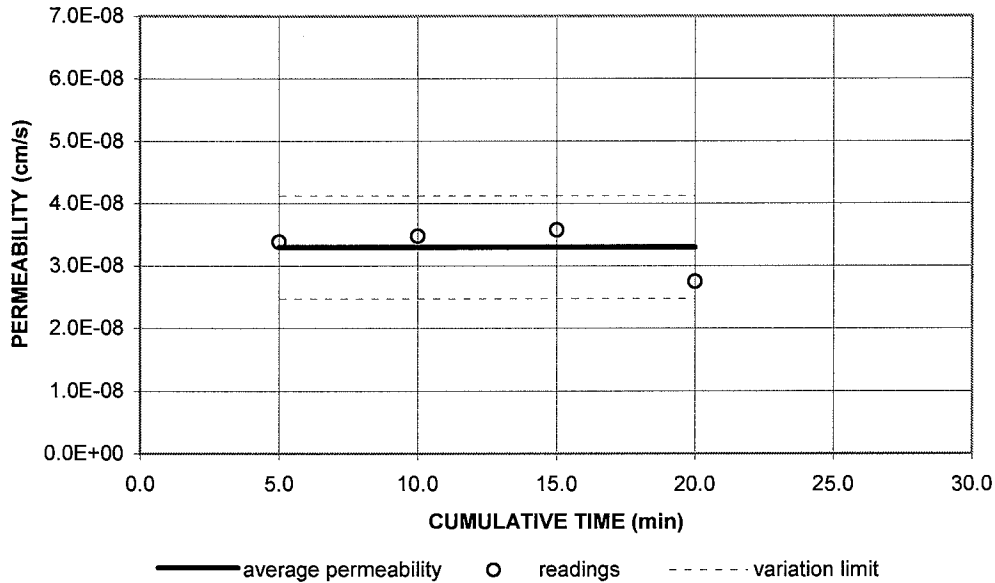
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	9.49	5.79E-07	5.9E-07
21.00	5.00	10.00	5.56	6.31E-07	
21.00	5.00	15.00	3.47	5.54E-07	
21.00	5.00	20.00	2.08	6.02E-07	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.40	2.38
Opti. M.C., (%)		Specimen Diameter, (inches)		2.83	2.83
Comp. Method		Moisture Content, (%)		17.61	22.36
% Recompct.		Percent Saturation (%)		77.88	100.00
Test Pressures (psi)		Wet Mass Density (pcf)		123.03	129.08
Backpressure	90.00	Dry Mass Density (pcf)		104.61	105.49
Cell pressure	100.00	Void Ratio		0.61	0.60
Eff. Stress	10.00	Calculated Porosity, %		37.91	37.65

USCS		LL	PI
Permeant Used: WATER		Remarks	BROWN LEAN CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	S-6753		
Sample Location	P-3 (N6625 / E3050) 6"		
Date	7/22/2008 Lab No. 6753		

7/22/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

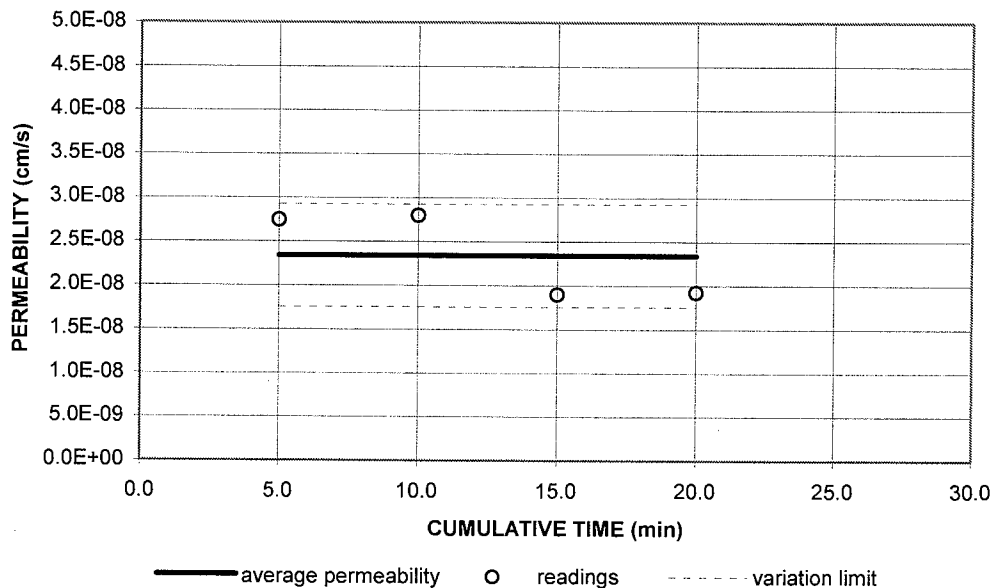
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	15.91	3.39E-08	3.3E-08
21.00	5.00	10.00	15.48	3.48E-08	
21.00	5.00	15.00	15.06	3.57E-08	
21.00	5.00	20.00	14.74	2.75E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.62	2.60
Opti. M.C., (%)		Specimen Diameter, (inches)		2.83	2.83
Comp. Method		Moisture Content, (%)		18.12	17.73
% Recompct.		Percent Saturation (%)		94.79	94.91
Test Pressures (psi)		Wet Mass Density (pcf)		131.27	131.85
Backpressure	90.00	Dry Mass Density (pcf)		111.14	111.99
Cell pressure	100.00	Void Ratio		0.52	0.50
Eff. Stress	10.00	Calculated Porosity, %		34.04	33.53

USCS		LL	PI
Permeant Used: WATER		Remarks	BROWN LEAN CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	S-6754		
Sample Location	P-4 (N6625 / E3250) 6"		
Date	7/22/2008 Lab No. 6754		

7/22/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	14.36	2.75E-08	2.3E-08
21.00	5.00	10.00	14.08	2.80E-08	
21.00	5.00	15.00	13.89	1.90E-08	
21.00	5.00	20.00	13.71	1.92E-08	

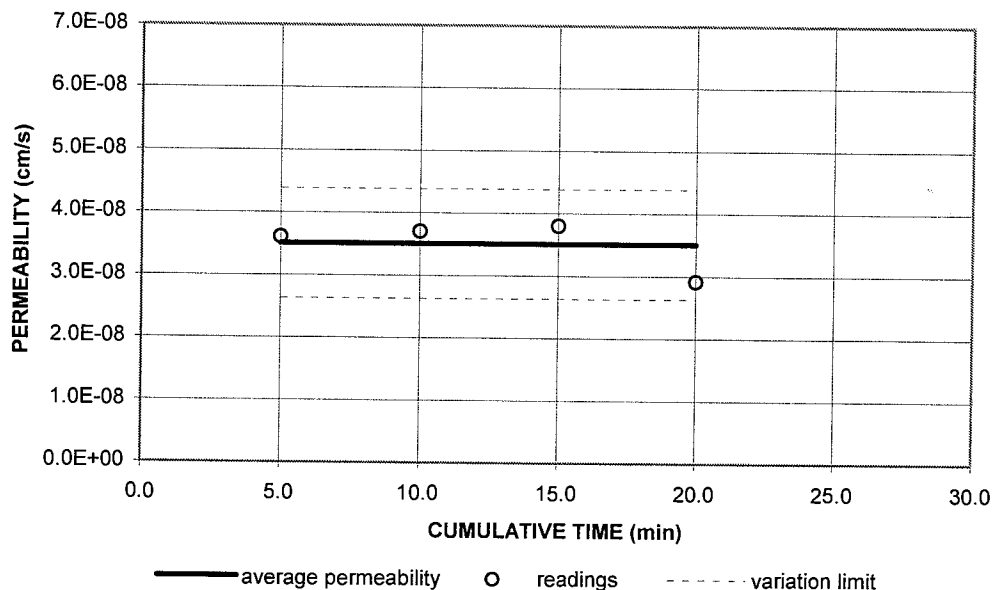
Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		3.00	2.98
Opti. M.C., (%)		Specimen Diameter, (inches)		2.87	2.84
Comp. Method		Moisture Content, (%)		38.62	38.50
% Recompt.		Percent Saturation (%)		99.15	100.00
Test Pressures (psi)		Wet Mass Density (pcf)		114.85	117.97
Backpressure	90.00	Dry Mass Density (pcf)		82.85	85.18
Cell pressure	100.00	Void Ratio		1.07	1.06
Eff. Stress	10.00	Calculated Porosity, %		51.72	51.43

USCS	LL	PI
Permeant Used: WATER	Remarks	BROWN FAT CLAY

Project Name	Plum Point-Cell 1	Tested by	FCE	Reviewed by	TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 			
Sample Number	S-6800				
Sample Location	P-5 (SUBGRADE) 6"				
Date	7/27/2008 Lab No. 6800				

7/27/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

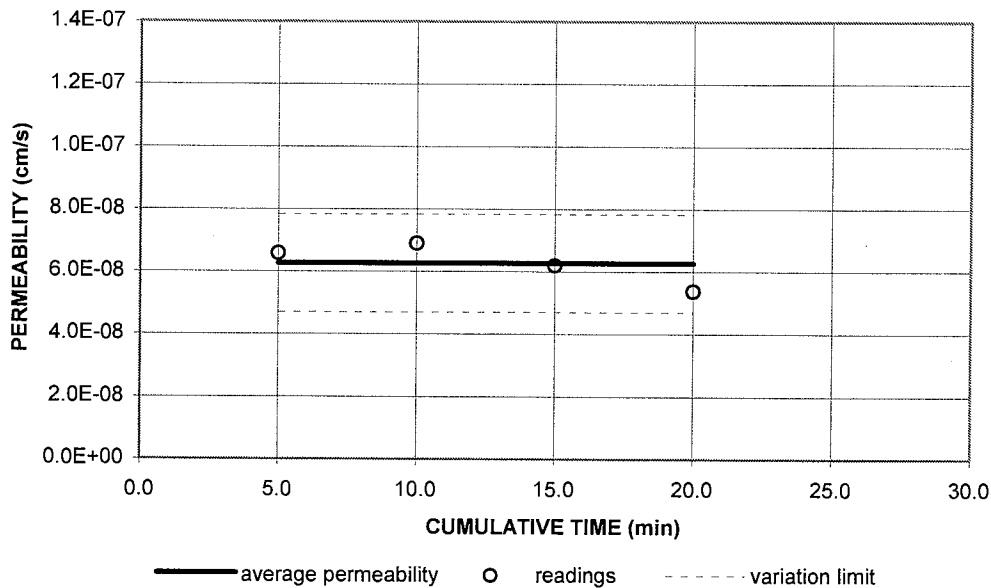
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	14.93	3.61E-08	3.5E-08
21.00	5.00	10.00	14.55	3.70E-08	
21.00	5.00	15.00	14.18	3.80E-08	
21.00	5.00	20.00	13.89	2.92E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.94	2.93
Opti. M.C., (%)		Specimen Diameter, (inches)		2.83	2.83
Comp. Method		Moisture Content, (%)		31.36	32.42
% Recompt.		Percent Saturation (%)		98.01	100.00
Test Pressures (psi)		Wet Mass Density (pcf)		119.91	121.29
Backpressure	90.00	Dry Mass Density (pcf)		91.28	91.60
Cell pressure	100.00	Void Ratio		0.88	0.89
Eff. Stress	10.00	Calculated Porosity, %		46.80	47.13

USCS	LL	PI
Permeant Used: WATER	Remarks	BROWN FAT CLAY

Project Name	Plum Point-Cell 1	Tested by	FCE	Reviewed by	TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 			
Sample Number	S-6801				
Sample Location	P-6 (SUBGRADE) 5"				
Date	7/27/2008 Lab No. 6801				

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

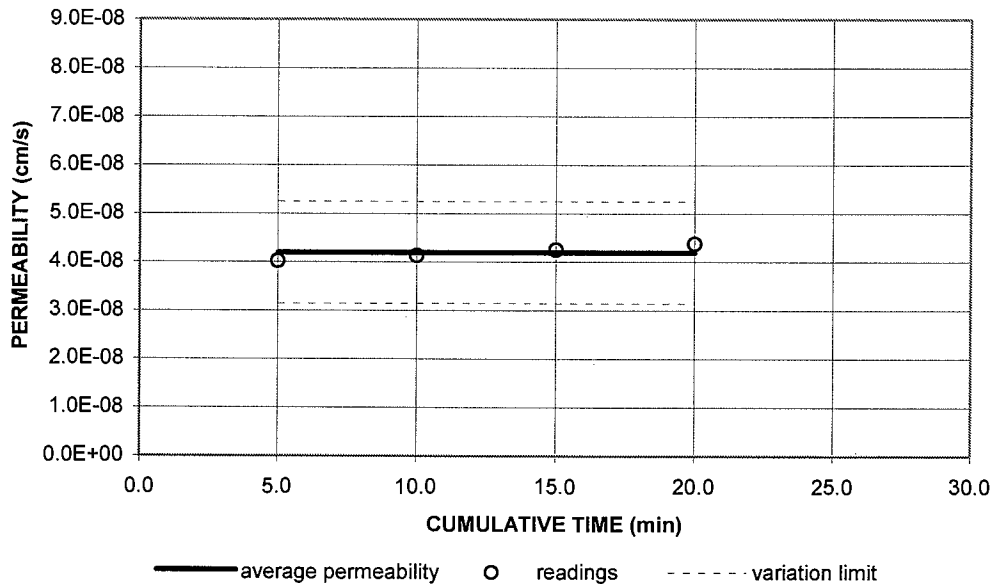
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	14.28	6.58E-08	6.3E-08
21.00	5.00	10.00	13.60	6.90E-08	
21.00	5.00	15.00	13.02	6.20E-08	
21.00	5.00	20.00	12.53	5.38E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.86	2.82
Opti. M.C., (%)		Specimen Diameter, (inches)		2.82	2.82
Comp. Method		Moisture Content, (%)		22.48	26.21
% Recompt.		Percent Saturation (%)		79.84	96.13
Test Pressures (psi)		Wet Mass Density (pcf)		118.45	123.78
Backpressure	90.00	Dry Mass Density (pcf)		96.70	98.08
Cell pressure	100.00	Void Ratio		0.77	0.75
Eff. Stress	10.00	Calculated Porosity, %		43.65	42.85

USCS		LL	PI
Permeant Used: WATER		Remarks	BROWN FAT CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	S-6802		
Sample Location	P-7 (SUBGRADE) 5"		
Date	7/27/2008 Lab No. 6802		

7/27/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

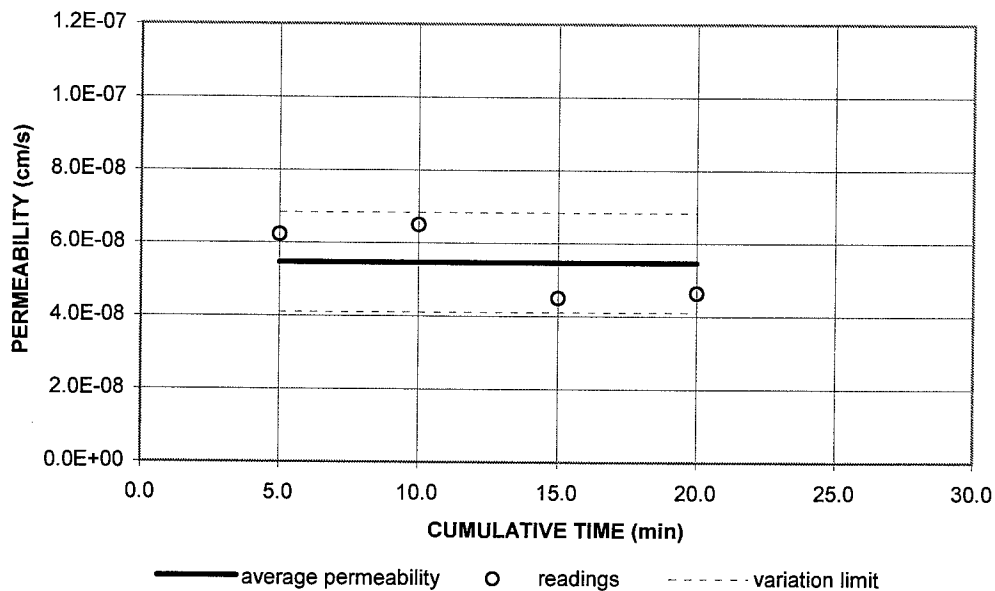
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.39	4.02E-08	4.2E-08
21.00	5.00	10.00	13.02	4.13E-08	
21.00	5.00	15.00	12.65	4.25E-08	
21.00	5.00	20.00	12.29	4.38E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		3.03	3.02
Opti. M.C., (%)		Specimen Diameter, (inches)		2.83	2.83
Comp. Method		Moisture Content, (%)		25.38	25.82
% Recompct.		Percent Saturation (%)		96.75	99.21
Test Pressures (psi)		Wet Mass Density (pcf)		124.99	125.84
Backpressure	90.00	Dry Mass Density (pcf)		99.69	100.02
Cell pressure	100.00	Void Ratio		0.72	0.72
Eff. Stress	10.00	Calculated Porosity, %		41.91	41.72

USCS		LL	PI
Permeant Used: WATER		Remarks	BROWN FAT CLAY
Project Name	Plum Point-Cell 1		Tested by FCE Reviewed by TGG
Client	Dynegy W.O.#	35077169	FLEXIBLE WALL PERMEABILITY TEST Terracon
Sample Number	S-6803		
Sample Location	P-8 (SUBGRADE)	5"	
Date	7/27/2008	Lab No. 6803	

7/27/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	12.95	6.23E-08	5.5E-08
21.00	5.00	10.00	12.39	6.51E-08	
21.00	5.00	15.00	12.02	4.50E-08	
21.00	5.00	20.00	11.64	4.65E-08	

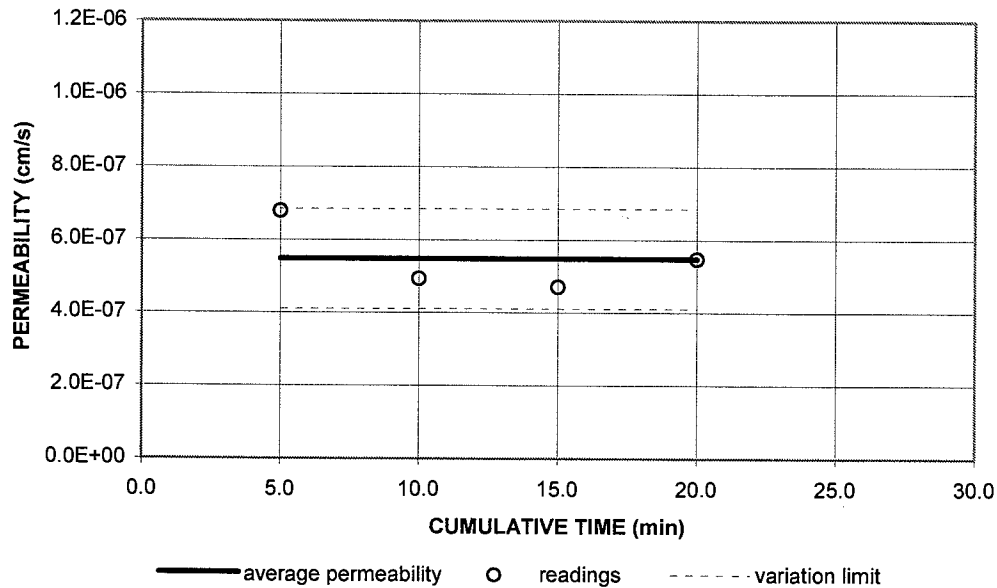
Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.96	2.93
Opti. M.C., (%)		Specimen Diameter, (inches)		2.82	2.82
Comp. Method		Moisture Content, (%)		22.37	24.09
% Recompct.		Percent Saturation (%)		87.88	97.05
Test Pressures (psi)		Wet Mass Density (pcf)		122.19	125.17
Backpressure	90.00	Dry Mass Density (pcf)		99.85	100.87
Cell pressure	100.00	Void Ratio		0.69	0.67
Eff. Stress	10.00	Calculated Porosity, %		40.74	40.13

USCS	LL	PI
Permeant Used: WATER	Remarks	BROWN LEAN CLAY

Project Name Plum Point-Cell 1 Client Dynegy W.O.# 35077169 Sample Number S-7146 Sample Location P-9 Date 7/31/2008 Lab No. 7146	Tested by FCE Reviewed by TGG FLEXIBLE WALL PERMEABILITY TEST
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7/31/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	9.83	6.79E-07	5.5E-07
21.00	5.00	10.00	6.82	4.94E-07	
21.00	5.00	15.00	4.81	4.70E-07	
21.00	5.00	20.00	3.21	5.48E-07	

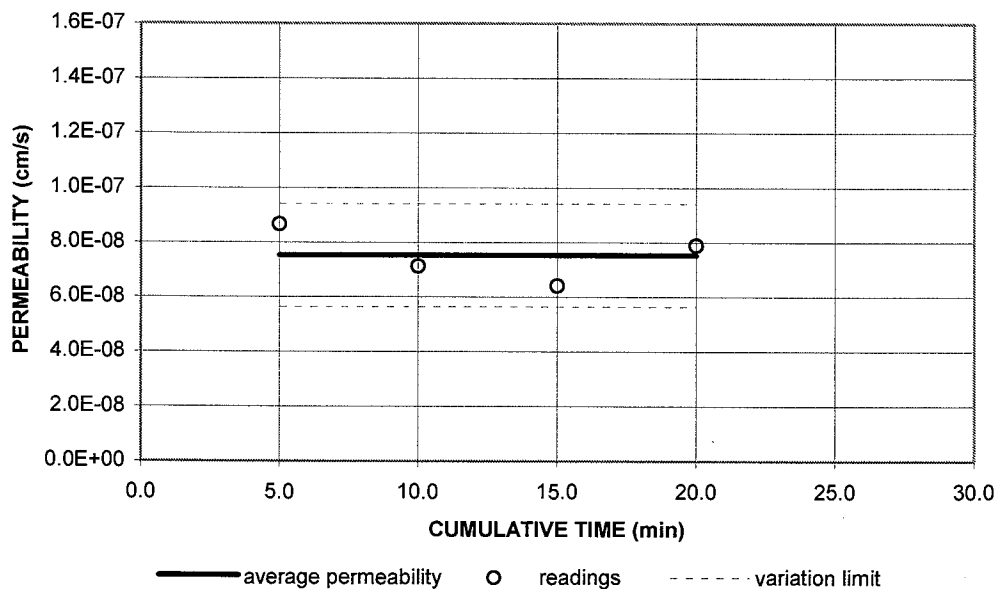
Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.77	2.75
Opti. M.C., (%)		Specimen Diameter, (inches)		2.84	2.84
Comp. Method		Moisture Content, (%)		22.13	26.80
% Recompt.		Percent Saturation (%)		78.03	96.10
Test Pressures (psi)		Wet Mass Density (pcf)		116.53	121.87
Backpressure	90.00	Dry Mass Density (pcf)		95.41	96.11
Cell pressure	100.00	Void Ratio		0.77	0.75
Eff. Stress	10.00	Calculated Porosity, %		43.37	42.96

USCS	LL	PI
Permeant Used: WATER	Remarks	BROWN LEAN CLAY

Project Name	Plum Point-Cell 1	Tested by	FCE	Reviewed by	TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 			
Sample Number	S-7147				
Sample Location	P-10				
Date	8/1/2008	Lab No.	7147		

8/1/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

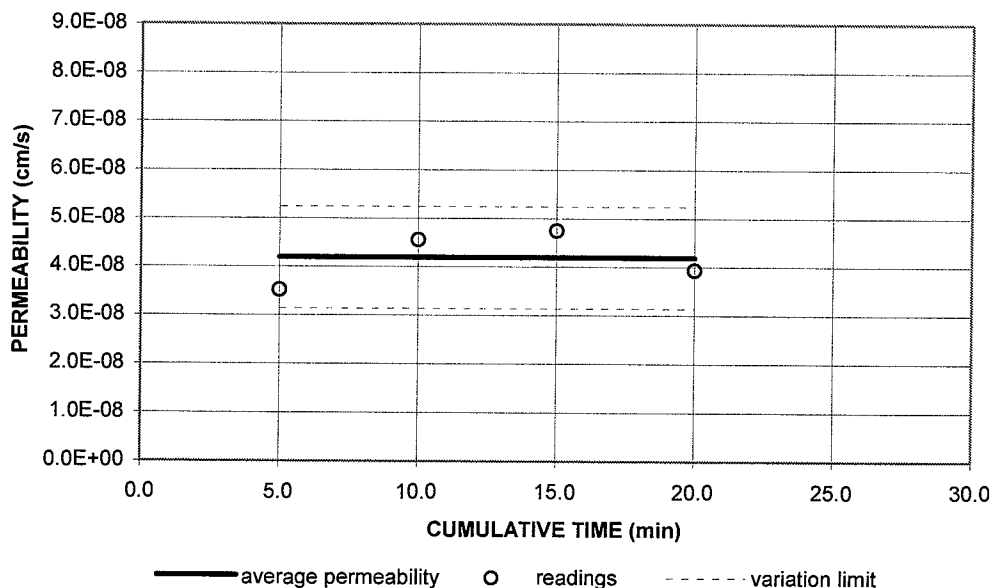
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.65	8.66E-08	7.5E-08
21.00	5.00	10.00	12.96	7.13E-08	
21.00	5.00	15.00	12.37	6.42E-08	
21.00	5.00	20.00	11.68	7.89E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.83	2.81
Opti. M.C., (%)		Specimen Diameter, (inches)		2.84	2.84
Comp. Method		Moisture Content, (%)		20.87	23.14
% Recompct.		Percent Saturation (%)		85.43	96.44
Test Pressures (psi)		Wet Mass Density (pcf)		122.71	125.90
Backpressure	90.00	Dry Mass Density (pcf)		101.52	102.24
Cell pressure	100.00	Void Ratio		0.66	0.65
Eff. Stress	10.00	Calculated Porosity, %		39.74	39.32

USCS		LL	PI
Permeant Used: WATER		Remarks	BROWN LEAN CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	S-7148		
Sample Location	P-11		
Date	8/1/2008	Lab No.	7148

8/1/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

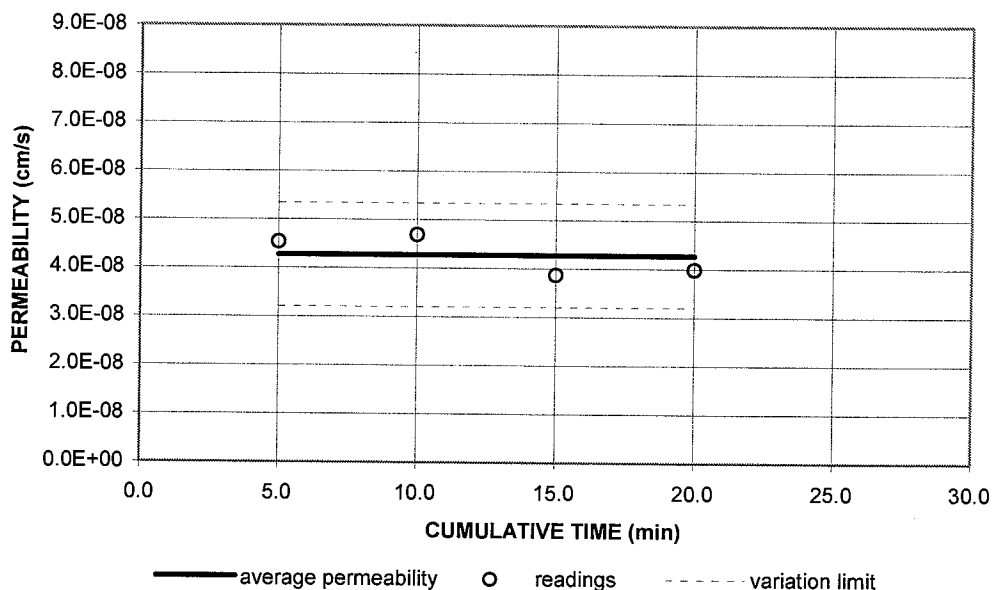
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	15.05	3.52E-08	4.2E-08
21.00	5.00	10.00	14.47	4.56E-08	
21.00	5.00	15.00	13.89	4.74E-08	
21.00	5.00	20.00	13.43	3.94E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.40	2.40
Opti. M.C., (%)		Specimen Diameter, (inches)		2.85	2.85
Comp. Method		Moisture Content, (%)		20.17	24.09
% Recompt.		Percent Saturation (%)		80.60	96.29
Test Pressures (psi)		Wet Mass Density (pcf)		120.83	124.77
Backpressure	90.00	Dry Mass Density (pcf)		100.55	100.55
Cell pressure	100.00	Void Ratio		0.68	0.68
Eff. Stress	10.00	Calculated Porosity, %		40.32	40.32

USCS		LL	PI
Permeant Used: WATER		Remarks	BROWN LEAN CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	S-7149		
Sample Location	P-12		
Date	8/3/2008 Lab No. 7149		

8/3/2008

FLEXIBLE WALL PERMEABILITY TEST



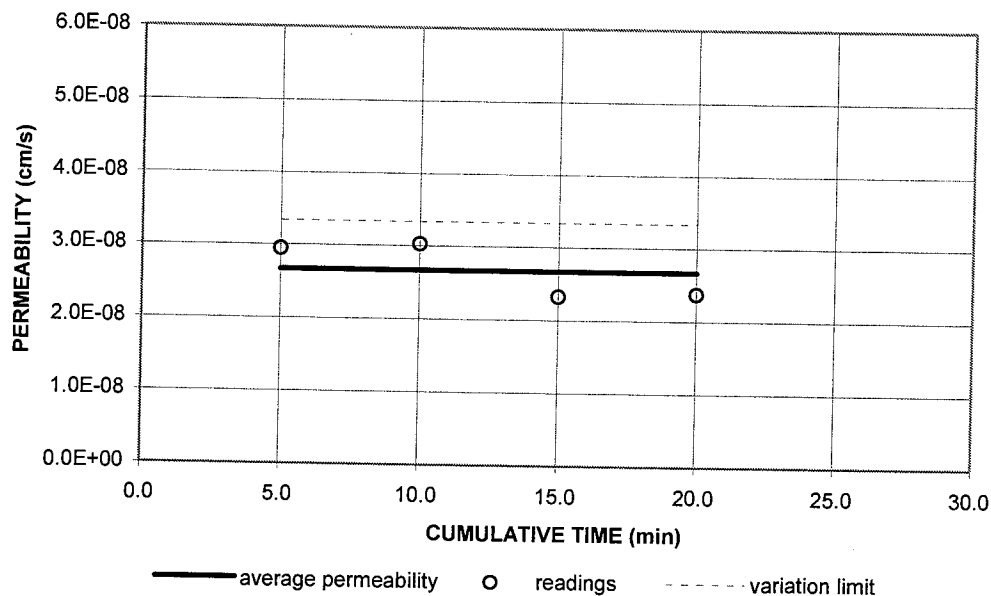
Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	14.80	4.53E-08	4.3E-08
21.00	5.00	10.00	14.30	4.69E-08	
21.00	5.00	15.00	13.89	3.87E-08	
21.00	5.00	20.00	13.49	3.99E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.76	2.74
Opti. M.C., (%)		Specimen Diameter, (inches)		2.83	2.83
Comp. Method		Moisture Content, (%)		22.50	24.14
% Recompct.		Percent Saturation (%)		90.24	98.59
Test Pressures (psi)		Wet Mass Density (pcf)		123.34	125.91
Backpressure	90.00	Dry Mass Density (pcf)		100.69	101.42
Cell pressure	100.00	Void Ratio		0.67	0.66
Eff. Stress	10.00	Calculated Porosity, %		40.24	39.80

USCS		LL	PI
Permeant Used: WATER		Remarks	BROWN LEAN CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	S-7150		
Sample Location	P-13		
Date	8/3/2008	Lab No.	7150

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

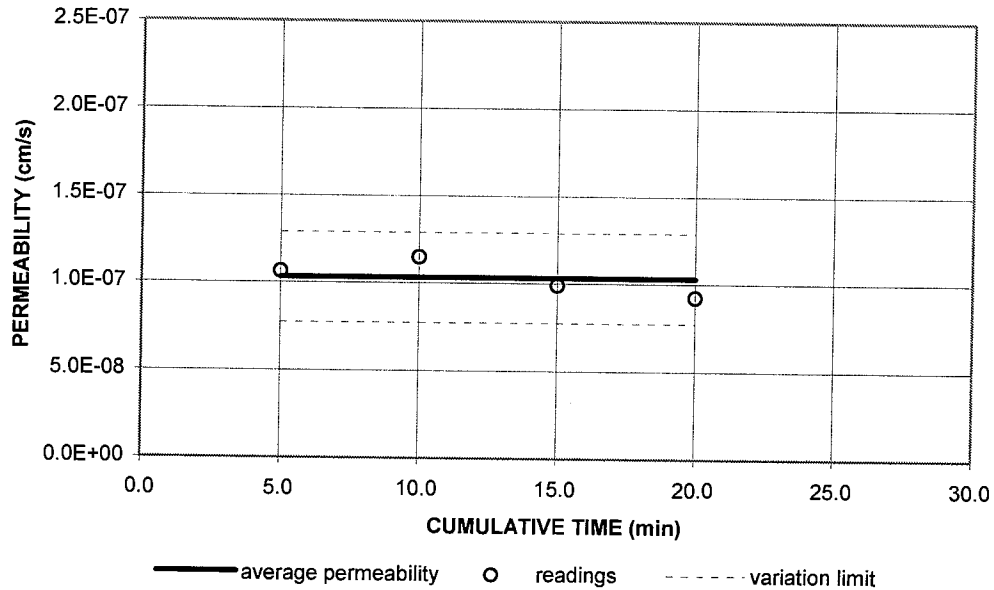
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	18.13	2.95E-08	2.7E-08
21.00	5.00	10.00	17.66	3.03E-08	
21.00	5.00	15.00	17.31	2.32E-08	
21.00	5.00	20.00	16.95	2.37E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.36	2.34
Opti. M.C., (%)		Specimen Diameter, (inches)		2.84	2.84
Comp. Method		Moisture Content, (%)		23.20	24.77
% Recompt.		Percent Saturation (%)		86.68	94.43
Test Pressures (psi)		Wet Mass Density (pcf)		120.49	123.06
Backpressure	90.00	Dry Mass Density (pcf)		97.80	98.63
Cell pressure	100.00	Void Ratio		0.72	0.71
Eff. Stress	10.00	Calculated Porosity, %		41.95	41.46

USCS		LL		PI	
Permeant Used: WATER		Remarks		BROWN LEAN CLAY	
Project Name	Plum Point-Cell 1	Tested by	FCE	Reviewed by	TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 			
Sample Number	S-7356				
Sample Location	P-14				
Date	8/3/2008 Lab No. 7356				

8/3/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

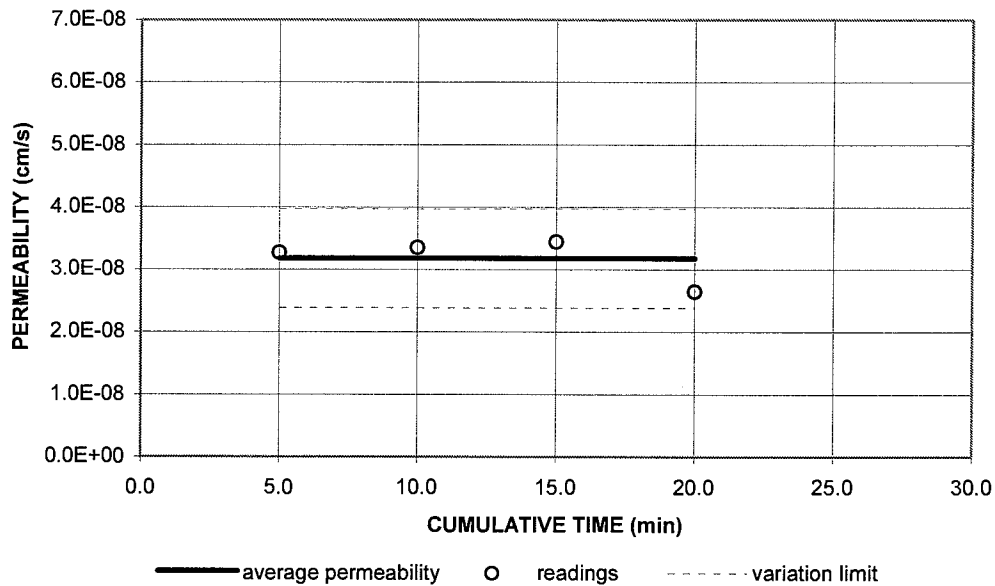
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	12.27	1.06E-07	1.0E-07
21.00	5.00	10.00	11.34	1.15E-07	
21.00	5.00	15.00	10.59	9.89E-08	
21.00	5.00	20.00	9.94	9.24E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.99	2.97
Opti. M.C., (%)		Specimen Diameter, (inches)		2.84	2.94
Comp. Method		Moisture Content, (%)		22.07	28.18
% Recompct.		Percent Saturation (%)		85.38	94.20
Test Pressures (psi)		Wet Mass Density (pcf)		121.12	119.47
Backpressure	90.00	Dry Mass Density (pcf)		99.22	93.21
Cell pressure	100.00	Void Ratio		0.70	0.81
Eff. Stress	10.00	Calculated Porosity, %		41.11	44.68

USCS		LL		PI	
Permeant Used: WATER		Remarks		BROWN LEAN CLAY	
Project Name	Plum Point-Cell 1	Tested by	FCE	Reviewed by	TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 			
Sample Number	S-7357				
Sample Location	P-15				
Date	8/3/2008 Lab No. 7357				

8/3/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

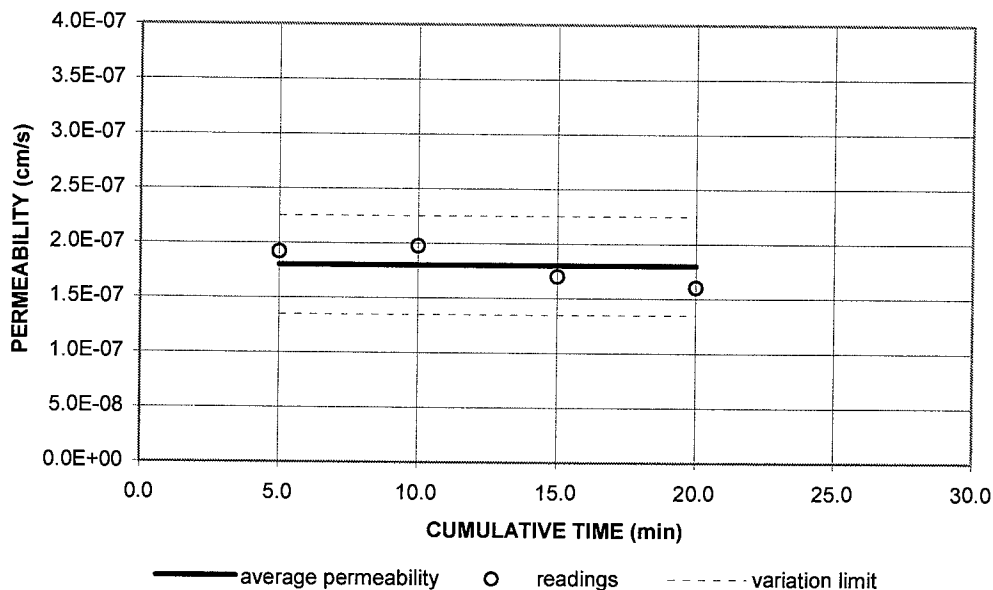
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	16.48	3.27E-08	3.2E-08
21.00	5.00	10.00	16.06	3.35E-08	
21.00	5.00	15.00	15.64	3.44E-08	
21.00	5.00	20.00	15.32	2.64E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.63	2.59
Opti. M.C., (%)		Specimen Diameter, (inches)		2.83	2.83
Comp. Method		Moisture Content, (%)		25.01	25.72
% Recompt.		Percent Saturation (%)		88.42	94.27
Test Pressures (psi)		Wet Mass Density (pcf)		119.42	121.96
Backpressure	90.00	Dry Mass Density (pcf)		95.53	97.01
Cell pressure	100.00	Void Ratio		0.76	0.74
Eff. Stress	10.00	Calculated Porosity, %		43.30	42.42

USCS		LL	PI
Permeant Used:	WATER	Remarks	BROWN LEAN CLAY
Project Name	Plum Point-Cell 1		Tested by FCE Reviewed by TGG
Client	Dynegy W.O.#	35077169	FLEXIBLE WALL PERMEABILITY TEST Terracon
Sample Number	S-7358		
Sample Location	P-16		
Date	8/3/2008	Lab No. 7358	

8/3/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

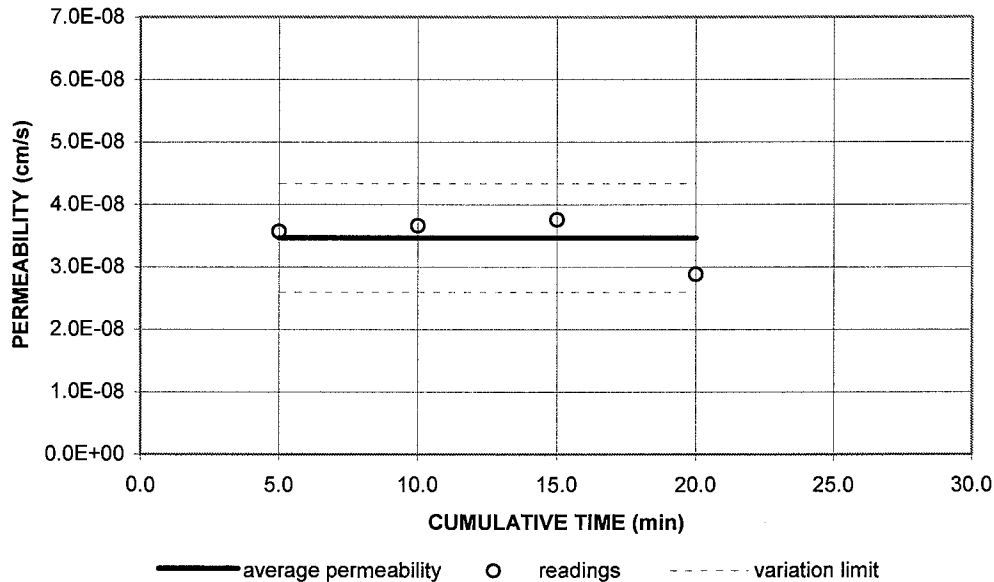
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	12.07	1.92E-07	1.8E-07
21.00	5.00	10.00	10.41	1.97E-07	
21.00	5.00	15.00	9.16	1.70E-07	
21.00	5.00	20.00	8.12	1.60E-07	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.67	2.64
Opti. M.C., (%)		Specimen Diameter, (inches)		2.81	2.81
Comp. Method		Moisture Content, (%)		24.52	26.53
% Recompt.		Percent Saturation (%)		86.91	96.53
Test Pressures (psi)		Wet Mass Density (pcf)		119.08	122.37
Backpressure	90.00	Dry Mass Density (pcf)		95.63	96.72
Cell pressure	100.00	Void Ratio		0.76	0.74
Eff. Stress	10.00	Calculated Porosity, %		43.24	42.59

USCS		LL	PI
Permeant Used:	WATER	Remarks	BROWN LEAN CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	S-7359		
Sample Location	P-17		
Date	8/7/2008	Lab No.	7359

8/7/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

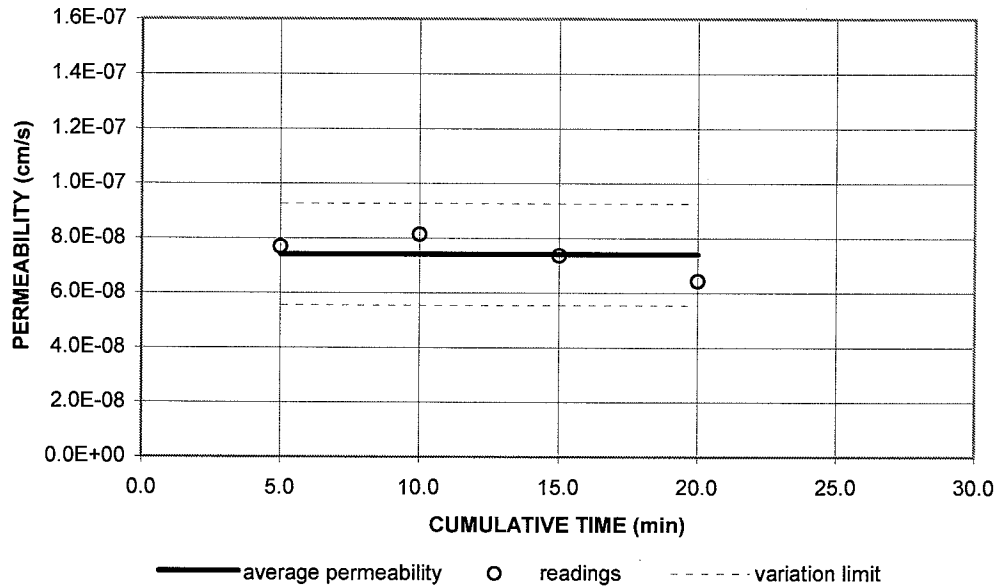
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	15.00	3.57E-08	3.5E-08
21.00	5.00	10.00	14.61	3.66E-08	
21.00	5.00	15.00	14.23	3.76E-08	
21.00	5.00	20.00	13.94	2.89E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.89	2.89
Opti. M.C., (%)		Specimen Diameter, (inches)		2.84	2.84
Comp. Method		Moisture Content, (%)		22.33	24.22
% Recompt.		Percent Saturation (%)		89.77	97.36
Test Pressures (psi)		Wet Mass Density (pcf)		123.30	125.20
Backpressure	90.00	Dry Mass Density (pcf)		100.79	100.79
Cell pressure	100.00	Void Ratio		0.67	0.67
Eff. Stress	10.00	Calculated Porosity, %		40.18	40.18

USCS	LL	PI
Permeant Used: WATER	Remarks BROWN LEAN CLAY	

Project Name	Plum Point-Cell 1	Tested by	FCE	Reviewed by	TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 			
Sample Number	S-7360				
Sample Location	P-18				
Date	8/3/2008 Lab No. 7360				

FLEXIBLE WALL PERMEABILITY TEST



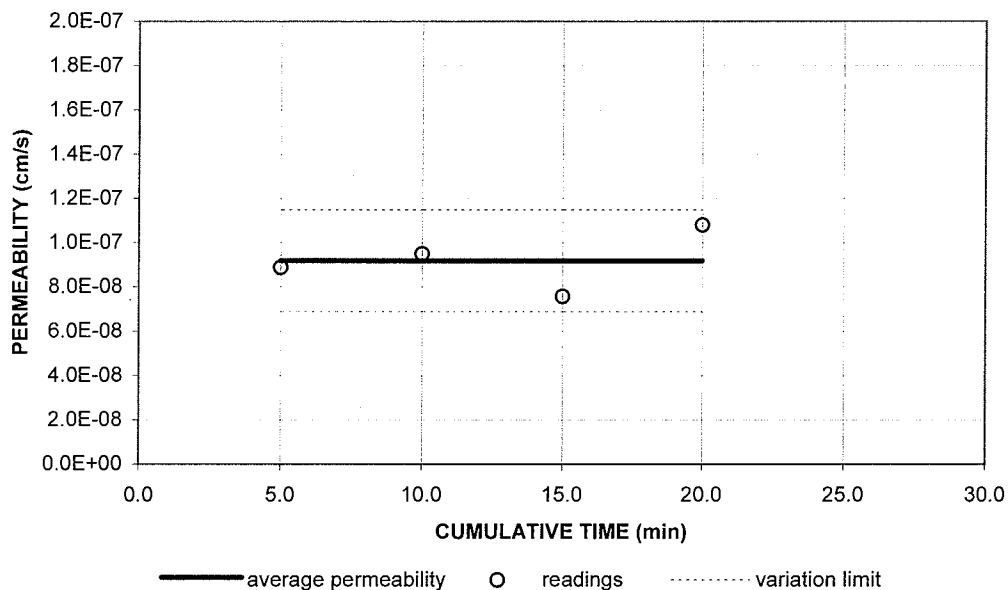
Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	12.17	7.70E-08	7.4E-08
21.00	5.00	10.00	11.50	8.13E-08	
21.00	5.00	15.00	10.92	7.36E-08	
21.00	5.00	20.00	10.44	6.43E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.90	2.86
Opti. M.C., (%)		Specimen Diameter, (inches)		2.82	2.82
Comp. Method		Moisture Content, (%)		35.47	35.51
% Recompct.		Percent Saturation (%)		91.41	94.05
Test Pressures (psi)		Wet Mass Density (pcf)		111.46	113.05
Backpressure	90.00	Dry Mass Density (pcf)		82.28	83.43
Cell pressure	100.00	Void Ratio		1.05	1.02
Eff. Stress	10.00	Calculated Porosity, %		51.17	50.48

USCS		LL	PI
Permeant Used:	WATER	Remarks	BR & GR LEAN CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	P-1		
Sample Location	6680N / 2470E		
Date	6/26/2008 Lab No. 6263		

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

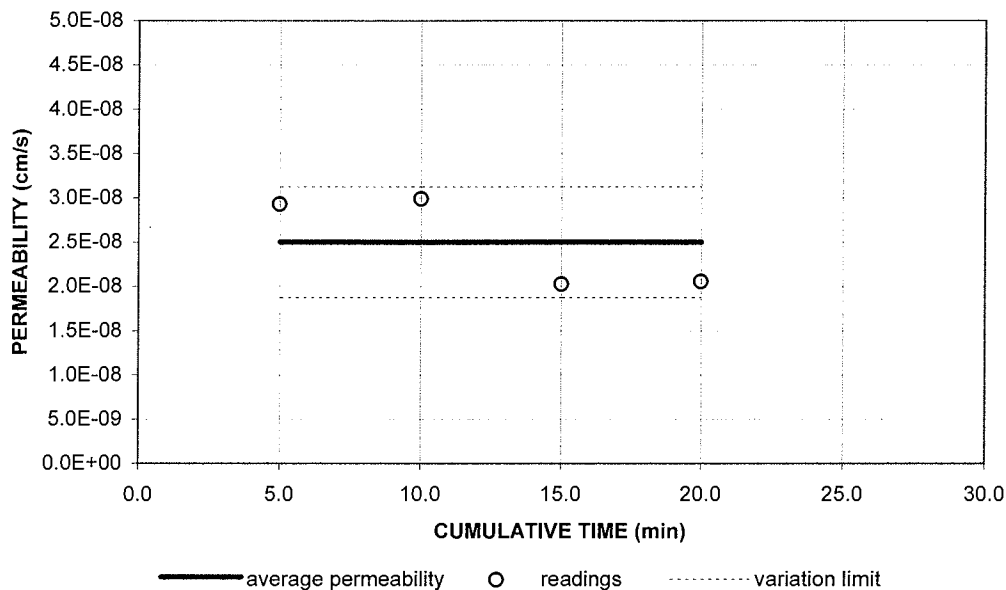
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	11.82	8.87E-08	9.2E-08
21.00	5.00	10.00	11.04	9.49E-08	
21.00	5.00	15.00	10.44	7.57E-08	
21.00	5.00	20.00	9.66	1.08E-07	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.82	2.78
Opti. M.C., (%)		Specimen Diameter, (inches)		2.84	2.84
Comp. Method		Moisture Content, (%)		31.72	29.94
% Recompct.		Percent Saturation (%)		92.82	90.29
Test Pressures (psi)		Wet Mass Density (pcf)		115.42	115.51
Backpressure	90.00	Dry Mass Density (pcf)		87.63	88.89
Cell pressure	100.00	Void Ratio		0.92	0.90
Eff. Stress	10.00	Calculated Porosity, %		47.99	47.24

USCS	LL	PI
Permeant Used: WATER	Remarks	BR & GR LEAN CLAY

Project Name	Plum Point-Cell 1			Tested by	FCE	Reviewed by	TGG
Client	Dynegy	W.O.#	35077169	FLEXIBLE WALL PERMEABILITY TEST Terracon			
Sample Number	P-2						
Sample Location	6920N / 2580E						
Date	6/26/2008	Lab No.	6264				

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

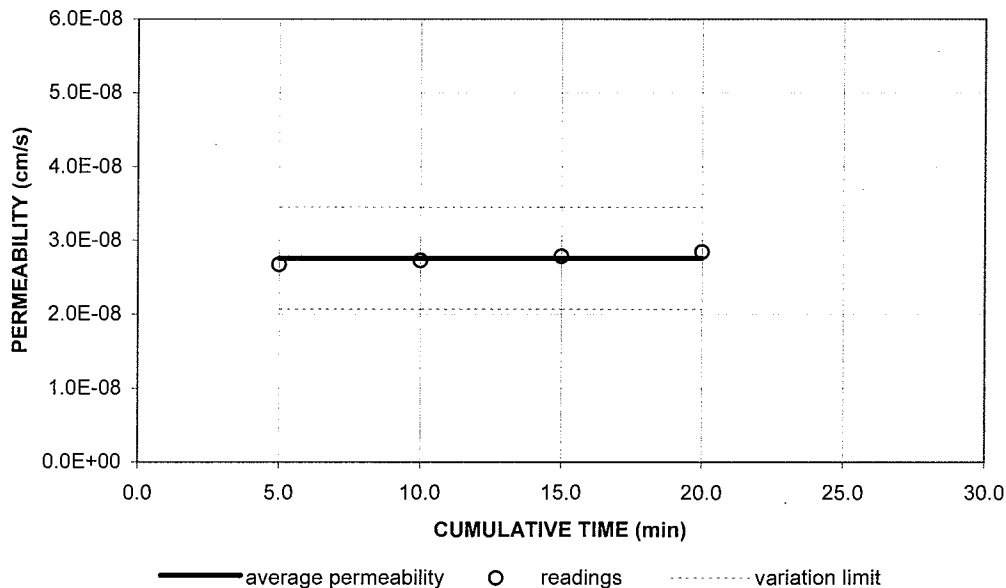
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.84	2.93E-08	2.5E-08
21.00	5.00	10.00	13.56	2.99E-08	
21.00	5.00	15.00	13.37	2.03E-08	
21.00	5.00	20.00	13.18	2.06E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.91	2.87
Opti. M.C., (%)		Specimen Diameter, (inches)		2.83	2.83
Comp. Method		Moisture Content, (%)		29.44	29.92
% Reompct.		Percent Saturation (%)		99.45	100.00
Test Pressures (psi)		Wet Mass Density (pcf)		121.21	123.35
Backpressure	90.00	Dry Mass Density (pcf)		93.64	94.95
Cell pressure	100.00	Void Ratio		0.80	0.81
Eff. Stress	10.00	Calculated Porosity, %		44.42	44.68

USCS	LL	PI
Permeant Used: WATER	Remarks	GR LEAN CLAY

Project Name	Plum Point-Cell 1	Tested by	FCE	Reviewed by	TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 			
Sample Number	P-3				
Sample Location	5520N / 1905E				
Date	6/26/2008	Lab No.	6265		

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	15.04	2.68E-08	2.8E-08
21.00	5.00	10.00	14.74	2.73E-08	
21.00	5.00	15.00	14.44	2.79E-08	
21.00	5.00	20.00	14.14	2.84E-08	

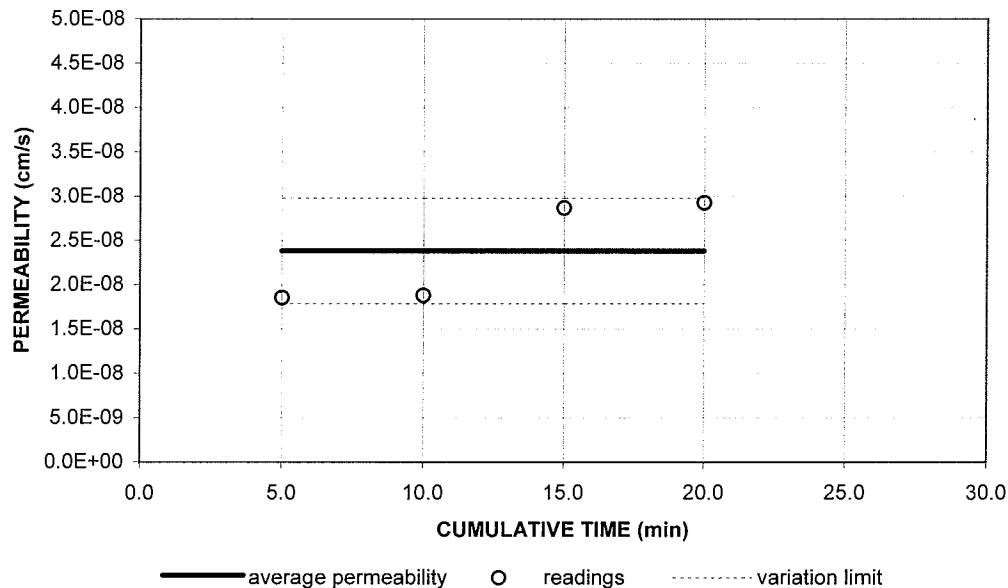
Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.79	27.60
Opti. M.C., (%)		Specimen Diameter, (inches)		2.84	2.84
Comp. Method		Moisture Content, (%)		26.77	27.09
% Recompct.		Percent Saturation (%)		102.15	4.60
Test Pressures (psi)		Wet Mass Density (pcf)		125.08	12.68
Backpressure	90.00	Dry Mass Density (pcf)		98.67	9.97
Cell pressure	100.00	Void Ratio		0.71	15.89
Eff. Stress	10.00	Calculated Porosity, %		41.44	94.08

USCS	LL	PI
Permeant Used: WATER	Remarks	BR & GR LEAN CLAY

Project Name	Plum Point-Cell 1	Tested by	FCE	Reviewed by	TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 			
Sample Number	P-4				
Sample Location	6400N / 2090E				
Date	6/26/2008 Lab No. 62266				

6/26/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

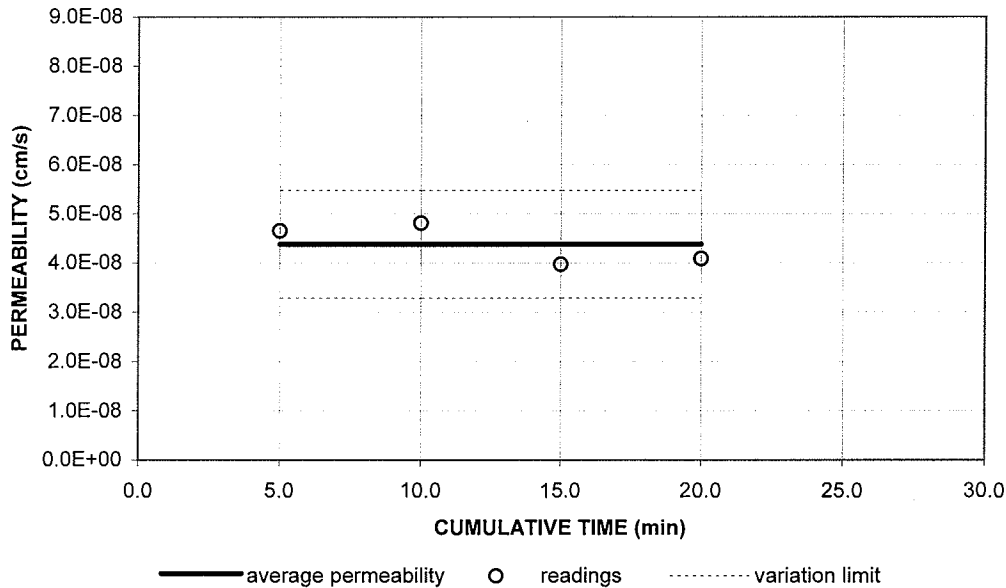
Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	14.63	1.85E-08	2.4E-08
21.00	5.00	10.00	14.44	1.88E-08	
21.00	5.00	15.00	14.14	2.87E-08	
21.00	5.00	20.00	13.84	2.93E-08	

Compaction Data		Sample Data		Initial	Final
Proctor (pcf)		Specimen Height, (inches)		2.81	2.81
Opti. M.C., (%)		Specimen Diameter, (inches)		2.83	2.83
Comp. Method		Moisture Content, (%)		25.24	26.81
% Recompct.		Percent Saturation (%)		91.09	96.74
Test Pressures (psi)		Wet Mass Density (pcf)		120.70	122.21
Backpressure	90.00	Dry Mass Density (pcf)		96.38	96.38
Cell pressure	100.00	Void Ratio		0.75	0.75
Eff. Stress	10.00	Calculated Porosity, %		42.80	42.80

USCS		LL	PI	
Permeant Used:		WATER	Remarks	GR LEAN CLAY
Project Name	Plum Point-Cell 1		Tested by	FCE Reviewed by TGG
Client	Dynegy	W.O.#	35077169	FLEXIBLE WALL PERMEABILITY TEST Terracon
Sample Number	P-5			
Sample Location	6000N / 2200E			
Date	6/26/2008	Lab No.	6267	

6/26/2008

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	14.43	4.65E-08	4.4E-08
21.00	5.00	10.00	13.94	4.81E-08	
21.00	5.00	15.00	13.55	3.97E-08	
21.00	5.00	20.00	13.17	4.09E-08	

Compaction Data		Sample Data	Initial	Final
Proctor (pcf)		Specimen Height, (inches)	2.87	2.84
Opti. M.C., (%)		Specimen Diameter, (inches)	2.83	2.83
Comp. Method		Moisture Content, (%)	22.26	22.64
% Recompct.		Percent Saturation (%)	90.39	94.43
Test Pressures (psi)		Wet Mass Density (pcf)	123.72	125.42
Backpressure	90.00	Dry Mass Density (pcf)	101.20	102.27
Cell pressure	100.00	Void Ratio	0.66	0.65
Eff. Stress	10.00	Calculated Porosity, %	39.93	39.30

USCS		LL	PI
Permeant Used:	WATER	Remarks	GR LEAN CLAY
Project Name	Plum Point-Cell 1	Tested by	FCE Reviewed by TGG
Client	Dynegy W.O.# 35077169	FLEXIBLE WALL PERMEABILITY TEST 	
Sample Number	P-6		
Sample Location	6415N / 2520E		
Date	6/26/2008 Lab No. 6268		

6/26/2008

APPENDIX H

GEOSYNTHETICS INSTALLER'S INFORMATION



3455 Stanwood Boulevard Huntsville, Alabama 35811
1-800-356-1480 (256)852-0378 (256)852-0442 Fax

RESUME

Name: JERRY KING

Position: FIELD SUPERVISOR/MASTER SEAMER

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
OLIN CHEMICALS SALTVILLE, VA	17,500
CHEM-NUCLEAR BARNWELL, SC	543,761
MCGUIRE LANDFILL HUNTERSVILLE, NC	281,364
HAMILTON FABRICS HAMILTON, AL	64,680
DAIRY FRESH CORP. DOTHAN, AL	51,384
U.S. MOTORS PHILADELPHIA, MS	25,000
WALTON COUNTY LANDFILL DEFUNIAK SPRINGS, FL	258,000
WESTVACO CORPORATION DERIDDER, LA	10,656
BFI-HICKORY RIDGE CELL 1 CONLEY, GA	434,024
WILLIAMSON COUNTY FRANKLIN, TN	275,058
STEEL TECHNOLOGIES LOUISVILLE, KY	132,698
FOUR SEASONS LAKE CHARLES, LA	20,340
SEVIER COUNTY LANDFILL SEVIERVILLE, TN	174,240
NE REGIONAL WWTP OUACHITA PARISH, LA	155,000
DELTA HUDSON - BAYOU CHOCTAW PLAQUEMINE, LA	43,000
BRYAN MOUND SITE FREEPORT, TX	54,811

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
CHEATHAM COUNTY PLEASANTVILLE, TN	69,045
STAR ENTERPRISE SORRENTO, LA	257,288
SPR SITE PAD LINER WEST HACKBERRY, LA	46,159
BIT MANUFACTURING COPPERHILL, TN	109,410
RHONE POULENC AG COMPANY WOODBINE, GA	52,688
IMC PHASE 2 FUELING FACILITY MEMPHIS, TN	23,450
PICKETT COUNTY LANDFILL PICKETT COUNTY, TN	28,726
APAC ALABAMA HUNTSVILLE, AL	335,000
AE STALEY MANUFACTURING LOUDON, TN	15,000
SMITH COUNTY LANDFILL CARTHAGE, TN	230,068
SHELL/NORCO NORCO, LA	783,127
BOWATER LANDFILL CALHOUN, TN	509,482
STAR ENTERPRISE SORRENTO, LA	257,643
SUMMITT LANDFILL OOLTEWAH, TN	896,221
JACKSON-MADISON LANDFILL JACKSON, TN	411,628
ASARCO - YOUNG MILL STRAWBERRY, TN	56,976
IVY SANITARY LANDFILL CHARLOTTESVILLE, VA	44,835
KERSEY VALLEY LANDFILL HIGH POINT, NC	496,042
CLARIANT CORPORATION CHARLOTTE, NC	43,560

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
FRIEDBERG CAMPUS LANDFILL WINSTON-SALEM, NC	30,800
BFI-SAMPSON CO. PHASE III ROSEBORO, NC	402,000
AMERICAN PROTEINS, INC. CUMMING, GA	60,000
MINE ROAD LANDFILL ATHENS, TN	280,720
BIRMINGHAM STEEL MEMPHIS, TN	431,743
HARDEMAN COUNTY LANDFILL TOONE, TN	1,170,000
MEAD PAPER COMPANY STEVENSON, AL	113,504
MCMINN COUNTY LANDFILL ATHENS, TN	234,989
MI-TECH STEEL DECATUR, AL	64,000
CLARIANT CORPORATION CHARLOTTE, NC	74,356
BFI BUFORD, GA	403,875
HUNTSVILLE LANDFILL HUNTSVILLE, AL	315,460
SAVANNAH RIVER AIKEN, SC	136,897
PORT ARTHUR LANDFILL CELL NO. 43 PORT ARTHUR, TEXAS	382,300
UPPER CUMBERLAND MSWL MOSS, TN	51,865
CIBA SPECIALTY CHEMICALS MCINTOSH, AL	75,000
BISHOP LANDFILL ALBERTVILLE, AL	80,000
BRINE SLUDGE LANDFILL EXPANSION CHARLESTON, TN	172,000
AJINOMOTO USA, INC. RALEIGH, NC	20,300

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
NORTH MONTGOMERY LANDFILL MONTGOMERY, AL	372,000
DEGUSSA CORP. THEODORE, AL	28,652
GEORGIA PACIFIC CEDAR SPRINGS, GA	86,940
WYETH/AYERST PHARMACEUTICALS VONORE, TN	147,237
THE POINT WWT POND MOORESVILLE, NC	48,279
BFI CONLEY, GA	519,468
CROWDER CONSTRUCTION CHATTANOOGA, TN	70,003
BUSH BROTHERS COMPANY DANDRIDGE, TN	16,348
AJINOMOTO USA RALEIGH, NC	106,140
TWIGGS-WILKINSON LANDFILL CELL 3 DRY BRANCH, GA	92,905
HUNTSVILLE-MADISON CO. AIRPORT HUNTSVILLE, AL	120,000
CLAY COUNTY LANDFILL MOSS, TN	68,625
SPRINGVILLE WWTP SPRINGVILLE, AL	69,824
BIRMINGHAM EAST AREA LANDFILL BIRMINGHAM, AL	581,000
BFI BUFORD, GA	199,558
AMERICAN CREOSOTE LOUISVILLE, MS	56,805
MARSHALL COUNTYLANDFILL BENTON, KY	1,484,600
TVA-JOHNSONVILLE FOSSIL PLANT NEW JOHNSONVILLE, TN	2,000,000
DEKALB CO. LANDFILL SPARTA, TN	142,197

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
PRESTAGE FARMS, INC. CLINTON, NC	22,730
N. MONTGOMERY LANDFILL MONTGOMERY, AL	540,540
HONORS GOLF COURSE CHATTANOOGA, TN	82,790
ALCOA LANDFILL ALCOA, TN	704,394
HWY 521 LANDFILL CHARLOTTE, NC	1,028,635
JEFFERSON CO. LANDFILL GARDENDALE, AL	600,000
BI-COUNTY LANDFILL WOODLAWN, TN	225,000
DESTIN WWTP DESTIN, FL	43,990
ONE LAKEVIEW PLACE NASHVILLE, TN	20,000
RED RIDGE LANDFILL SWEETWATER, TN	662,064
WILLIAMSON CO. SOCCER COMPLEX FRANKLIN, TN	39,150
GTR. ATLANTA CHRISTIAN SCHOOLS NORCROSS, GA	33,555
RHEA COUNTY LANDFILL PHASE IV DAYTON, TN	201,868
JACKSON/MADISON LANDFILL JACKSON, TN	334,891
DECATUR MILL SERVICES TRINITY, AL	31,710
RIDGEVILLE II LANDFILL NORWALK, WI	156,658
MARION CO LANDFILL JASPER, TN	272,250
NASHVILLE RESERVIOR NASHVILLE, TN	317,000
LION OIL EL DORADO, AR	200,000

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
GROVES DAIRY PORTLAND, TN	27,845
SANDERSON FARMS COLLINS, MS	151,000
ALCOA/MARYVILLE/BLOUNT CO LANDFILL FRIENDSVILLE, TN	343,791
PACTOLUS LANDFILL KINGSPORT, TN	1,014,236.5
BRADLEY COUNTY LANDFILL CLEVELAND, TN	272,944
MCMINN COUNTY LANDFILL SECTION 2, PHASE III ATHENS, TN	200,800
MALLARD FOX WEST WWTF TRINITY, AL	116,000
RHODIA LANDFILL CLOSURE MOUNT PLEASANT, TN	168,209
ERACHEM COMILOG, INC. NEW JOHNSONVILLE, TN	206,500
SOLWAY COMPOSTING FACILITY KNOXVILLE, TN	121,600
EASTMAN CHEMICAL KINGSPORT, TN	99,500
WM-LIVE OAK LANDFILL CONLEY, GA	4,349,662
DECATUR - MORGAN CO. LANDFILL TRINITY, AL	397,798
MARION COUNTY LANDFILL JASPER, TN	82,800
MORRILTON LANDFILL MORRILTON, AR	224,300
MARION COUNTY LANDFILL JASPER, TN	10,350
S. WAKE LANDFILL PHASE 1A HOLLY SPRINGS, NC	1,161,500
CRITTENDEN COUNTY LANDFILL PHASE 1, CELL 2 WEST MEMPHIS, AR	170,695
SEVIER COUNTY LANDFILL SEVIERVILLE, TN	236,500



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RESUME

Name: Alonzo Cortez

Position: Plastic Technician

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
BFI - SAMPSON COUNTY PHASE II ROSEBORO, NC	706,842
GRUNDY COUNTY ALTAMONT, TN	57,940
BFI GULF PINES STAGE 5	322,936
NE REGIONAL WWTP OUACHITA PARISH, LA	155,000
CHAMBERS ATLANTA LANDFILL ATLANTA, GA	495,759
DOTHAN LANDFILL DOTHAN, AL	1,413,816
TRANSAMERICA CHANSTANG	550,620
BIT MANUFACTURING COPPERHILL, TN	109,410
RSA-49 LANDFILL CLOSURE REDSTONE ARSENAL, AL	513,045
LEDBETTER WWT LAGOONS PADUCAH, KY	250,000
AUBURN UNIVERSITY/TVA BELLMINA, AL	706,226
PICKETT COUNTY LANDFILL PICKETT COUNTY, TN	28,726
APAC ALABAMA HUNTSVILLE, AL	335,000
BFI-CMS LANDFILL V, CELL 2B HARRISBURG, NC	880,404
CITY OF BROWNSVILLE BROWNSVILLE, TX	405,037
W. L. CONSTRUCTION & PAVING CHILHOWIE, VA	457,000

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
INTERNATIONAL PAPER PINEVILLE, LA	212,000
BFI-CMS CELLS 1A-1B HARRISBURG, NC	2,650,000
APAC - TRICO STEEL DECATUR, AL	1,004,882
JACKSON-MADISON LANDFILL JACKSON, TN	411,628
ASARCO - YOUNG MILL STRAWBERRY, TN	56,976
KERSEY VALLEY LANDFILL HIGH POINT, NC	496,042
CLARIANT CORPORATION CHARLOTTE, NC	43,560
SOUTHEAST REGIONAL WWTF MINDEN, LA	155,112
MALLARD CREEK POLYMERS CHARLOTTE, NC	35,000
BFI-SAMPSON CO. PHASE III ROSEBORO, NC	402,000
PARAGOULD LANDFILL PARAGOULD, AR	284,600
SABINE PARISH LANDFILL MANY, LA	400,000
BIRMINGHAM STEEL MEMPHIS, TN	431,743
ROBESON COUNTY LANDFILL ST. PAULS, NC	854,000
WEST STAND DELUGE POND REDSTONE ARSENAL, AL	340,402
LEBANON LANDFILL COLLINSVILLE, AL	317,452
ARNOLD AIR FORCE BASE TULLAHOMA, TN	64,000
BI-COUNTY SOLID WASTE LANDFILL WOODLAWN, TN	216,495
OXYCHEM PIPELINE MARKHAM, TX	242,270

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
WEST CARROLL PARISH LANDFILL OAK GROVE, LA	175,200
BFI BUFORD, GA	403,875
THOMASVILLE LANDFILL CELLS 2A & 2B THOMASVILLE, GA	507,598
GEORGIA FEED PRODUCTS CUTHBERT, GA	139,454
BFI-SAMPSON CO PHASE IIIB ROSEBORO, NC	261,508
LAMAR COUNTY CELL 1A BARNESVILLE, GA	252,437
PORT ARTHUR LANDFILL CELL NO. 43 PORT ARTHUR, TEXAS	382,300
LAMAR CO. CELL 1B BARNESVILLE, GA	217,487
BFI-CMS CELL 2D HARRISBURG, NC	1,359,890
SIMMONS FOODS, INC. SOUTHWEST CITY, MO	130,000
BRINE SLUDGE LANDFILL EXPANSION CHARLESTON, TN	172,000
LEBANON LANDFILL COLLINSVILLE, AL	145,500
SAVAGE ZINC CLARKSVILLE, TN	46,640
SIMPSON MILL WWT FACILITY MCDONOUGH, GA	80,000
COKER LANDFILL COKER, AL	343,998
TRUS JOIST MACMILLAN CASTLEBERRY, AL	37,736
DEGUSSA CORP. THEODORE, AL	28,652
AMICK FARMS BATESBURG, SC	65,000
PHILIP INDUSTRIAL SERVICES PHALBA, TX	80,325

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
CHEMETALL FOOTE CORP. NW, TN	48,248
CHOCTAW ROAD LANDFILL FRANKLINTON, LA	314,868
THE POINT WWT POND MOORESVILLE, NC	48,279
ST. LANDRY PARISH LANDFILL BEGGS, LA	184,000
SAMPSON CO. LANDFILL CELL 1 & 2 ROSEBORO, NC	746,258
BFI CONLEY, GA	519,468
BFI BUFORD, GA	446,490
CROWDER CONSTRUCTION CHATTANOOGA, TN	70,003
GEK, INC. COLLINSVILLE, AL	153,340
CITY OF MONMOUTH MONMOUTH, IL	67,600
TWIGGS-WILKINSON LANDFILL CELL 3 DRY BRANCH, GA	92,905
WEST CARROLL PARISH LANDFILL OAK GROVE, LA	225,000
LAMAR CO. LANDFILL BARNESVILLE, GA	452,471
BIRMINGHAM EAST AREA LANDFILL BIRMINGHAM, AL	581,000
MARSHALL COUNTYLANDFILL BENTON, KY	1,484,600
TVA-JOHNSONVILLE FOSSIL PLANT NEW JOHNSONVILLE, TN	2,000,000
EAST CAROLINA LANDFILL AULANDER, NC	184,585
INTERNATIONAL PAPER PRATTVILLE, AL	292,600
CULLMAN ENVIRONMENTAL CULLMAN, AL	269,028

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
SAMPSON CO. LANDFILL ROSEBORO, NC	870,000
HOUSTON COUNTY LANDFILL KATHLEEN, GA	417,717
ATOFINA AXIS, AL	43,750
REPUBLIC SERVICES, INC. ROUGEMONT, NC	307,634
CANDLER CO. LANDFILL CANDLER CO., GA	155,367
TAYLOR ROAD LANDFILL CHESTERFIELD, VA	214,000
ALCOA LANDFILL ALCOA, TN	704,394
PCA LANDFILL COUNCE, TN	214,400
RIVERSIDE FARM CLAXTON, GA	79,325
GASTON CO. LANDFILL DALLAS, NC CELL 2 CONSTRUCTION	493,300
INLAND CONTAINER ROME, GA	115,680
DEKALB CO. LANDFILL CLOSURE SPARTA, TN	182,710
HWY 521 LANDFILL CHARLOTTE, NC	1,028,635
JEFFERSON CO. LANDFILL GARDENDALE, AL	600,000
BI-COUNTY LANDFILL WOODLAWN, TN	225,000
EASTBRIDGE BUSINESS PARK MASCOT, TN	57,388
AMERISTEEL, INC. JACKSON, TN	149,765
RED RIDGE LANDFILL SWEETWATER, TN	662,064
CLAXTON POULTRY CLAXTON, GA	200,000

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
UWHARRIE MSW LANDFILL CELL 8 MT. GILEAD, NC	245,000
UWHARRIE MSW LANDFILL CLOSURE MT. GILEAD, NC	594,502
RHEA COUNTY LANDFILL PHASE IV DAYTON, TN	201,868
JACKSON/MADISON LANDFILL JACKSON, TN	334,891
EAGLE POINT LANDFILL CELL 2A BALL GROUND, GA	414,826
GLASGOW LANDFILL GLASGOW, KY	934,872
COPPERMINE LAS EXPANSION HIRAM, GA	221,500
SUNFLOWER LANDFILL TALLASSEE, AL	39,714
EAGLE POINT CELLS 1B & 2B BALL GROUND, GA	359,971
NASHVILLE RESERVIOR NASHVILLE, TN	317,000
CRISP CO. CELLS 8 & 9 CORDELE, GA	401,682
TWIGGS-WILKINSON LANDFILL DRY BRANCH, GA	132,965
THOMASVILLE LANDFILL THOMASVILLE, GA	547,049
AMERICAN PROTEIN CUMMING, GA	177,280
LENOIR CO. LANDFILL PHASE I LA GRANGE, NC	510,000
PINE GROVE LANDFILL COLUMBUS, GA	366,592
MAGNOLIA LANDFILL SUMMERDALE, AL	603,900
BI-COUNTY LANDFILL WOODLAWN, TN	372,580
ALCOA/MARYVILLE/BLOUNT CO LANDFILL FRIENDSVILLE, TN	343,791

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
PACTOLUS LANDFILL KINGSPORT, TN	1,014,236.5
LAURENS CO. LANDFILL CELLS 11 - 25 OMEGA, GA	594,334
BRADLEY COUNTY LANDFILL CLEVELAND, TN	272,944
DUPONT COPRODUCT STORAGE AREA NEW JOHNSONVILLE, TN	66,000
ERACHEM COMILOG, INC. NEW JOHNSONVILLE, TN	206,500
PLEASANT VIEW UTILITIES PLEASANT VIEW, TN	388,600
PACKERLAND-PLAINWELL, INC. PLAINWELL, MI	230,000
TUSCARORA LANDFILL NEW BERN, NC	1,524,000
SAMPSON COUNTY LANDFILL CELL 6 ROSEBORO, NC	925,900
BRISTOL QUARRY LANDFILL SIDEWALL EXTENSION BRISTOL, VA	68,180
WM-LIVE OAK LANDFILL CONLEY, GA	4,349,662
NATIONAL BEEF LIBERAL, KS	358,500
NUCOR STEEL TRINITY, AL	238,185
WALKER MOUNTAIN ROAD LANDFILL PHASE 7 ROME, GA	500,000
WOLF CREEK LANDFILL CELL 5 DRY BRANCH, GA	244,891
EAGLE POINT LANDFILL CELL 7 BALL GROUND, GA	512,090
SANDERSON FARMS, INC. HAZELHURST, MS	162,300
DUKE ENERGY - RESIDUE LANDFILL BELEWS CREEK, NC	1,094,600
SANDERSON FARMS FLOATING COVER WACO, TX	216,000

JOB NAME/LOCATION

SQ. FT. INST.

HILMAR CHEESE
DALHART, TX

345,375

TOTAL SQ. FT. INST.

56,169,675.5



3455 Stanwood Boulevard Huntsville, Alabama 35811
1-800-356-1480 (256)852-0378 (256)852-0442 Fax

RESUME

Name: Guillermo Montero

Position: Plastic Technician

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
PLEASANT VIEW UTILITIES PLEASANT VIEW, TN	388,600
WM-LIVE OAK LANDFILL CONLEY, GA	4,349,662
SANDERS LEAD TROY, AL	322,313
WALKER MOUNTAIN ROAD LANDFILL PHASE 7 ROME, GA	500,000
WOLF CREEK LANDFILL CELL 5 DRY BRANCH, GA	244,891
SANDERSON FARMS, INC. HAZELHURST, MS	162,300
DUKE ENERGY - RESIDUE LANDFILL BELEWS CREEK, NC	1,094,600
S. WAKE LANDFILL PHASE 1A HOLLY SPRINGS, NC	1,161,500
HILMAR CHEESE DALHART, TX	345,375
TOTAL SQ. FT. INST.	8,569,241



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RESUME

Name: Jimmie Crutch

Position: Field Superintendent/Quality Control Technician

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
SMITH COUNTY LANDFILL CARTHAGE, TN	230,068
INDUSTRIAL MECHANICAL CONTS. MEMPHIS, TN 38132	35,402
MINE ROAD LANDFILL ATHENS, TN	280,720
ROBESON COUNTY LANDFILL ST. PAULS, NC	854,000
POLK COUNTY LANDFILL CEDARTOWN, GA	370,450
WEST STAND DELUGE POND REDSTONE ARSENAL, AL	340,402
LEBANON LANDFILL COLLINSVILLE, AL	317,452
ARNOLD AIR FORCE BASE TULLAHOMA, TN	64,000
MCMINN COUNTY LANDFILL ATHENS, TN	234,989
ORANGE BEACH LANDFILL ORANGE BEACH, AL	42,513
MI-TECH STEEL DECATUR, AL	64,000
MILAN ARMY AMMUNITION PLANT MILAN, TN	130,000
CALCASIEU LANDFILL CAP WESTLAKE, LA	132,690
BFI BUFORD, GA	403,875
HUNTSVILLE LANDFILL HUNTSVILLE, AL	315,460
SAMPSON COUNTY LANDFILL ROSEBORO, NC	150,000

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
TEXARKANA MIL DOMINO, TX	33,340
THOMASVILLE LANDFILL CELLS 2A & 2B THOMASVILLE, GA	507,598
GEORGIA FEED PRODUCTS CUTHBERT, GA	105,000
SAVANNAH RIVER AIKEN, SC	136,897
CAJUN CONTRACTORS ALBANY, KY	763,800
LEBANON LANDFILL COLLINSVILLE, AL	54,765
CECOS INT'L WESTLAKE, LA	312,937.5
LAMAR CO. CELL 1B BARNESVILLE, GA	217,487
CIBA SPECIALTY CHEMICALS MCINTOSH, AL	75,000
LEBANON LANDFILL COLLINSVILLE, AL	145,500
NORTH MONTGOMERY LANDFILL MONTGOMERY, AL	372,000
SIMPSON MILL WWT FACILITY MCDONOUGH, GA	80,000
DEGUSSA CORP. THEODORE, AL	28,652
GEORGIA PACIFIC CEDAR SPRINGS, GA	86,940
TOWN OF OCEAN CITY OCEAN CITY, MD	74,000
AMICK FARMS BATESBURG, SC	65,000
WYETH/AYERST PHARMACEUTICALS VONORE, TN	147,237
CHOCTAW ROAD LANDFILL FRANKLINTON, LA	314,868
SAMPSON CO. LANDFILL CELL 1 & 2 ROSEBORO, NC	746,258

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
BFI CONLEY, GA	519,468
BFI BUFORD, GA	446,490
LOS ALAMOS NATIONAL LAB LOS ALAMOS, NM	32,000
EQUISTAR CHEMICALS MARKHAM, TX BRINE PIT NO. 2	245,000
EQUISTAR CHEMICALS MARKHAM, TX BRINE PIT NO. 3	245,000
WEST CARROLL PARISH LANDFILL OAK GROVE, LA	225,000
VANDERBILT CHEMICAL MURRAY, KY	25,440
SPRINGVILLE WWTP SPRINGVILLE, AL	69,824
MINE ROAD REGIONAL LANDFILL ATHENS, TN	398,566
THOMASVILLE MSW LANDFILL PHASE IV, CELLS 1B & 2B THOMASVILLE, GA	537,520
BFI BUFORD, GA	199,558
EQUISTAR CHEMICALS MONT BELVIEU, TX BRINE POND "A"	415,800
EQUISTAR CHEMICALS MONT BELVIEU, TX BRINE POND "B"	415,800
TVA-JOHNSONVILLE FOSSIL PLANT NEW JOHNSONVILLE, TN	2,000,000
OLIN CORPORATION MCINTOSH, AL	130,127
EAST CAROLINA LANDFILL AULANDER, NC	184,585
INTERNATIONAL PAPER PRATTVILLE, AL	292,600
BIRCHWOOD LANDFILL HARRISON, TN	661,406
AMERISTEEL JACKSON, TN	138,000

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
SAMPSON CO. LANDFILL ROSEBORO, NC	870,000
HOUSTON COUNTY LANDFILL KATHLEEN, GA	417,717
MONROE CO. LANDFILL FORSYTH, GA	154,000
UNION PARISH LANDFILL FARMERVILLE, LA	161,663.94
CLIFT'S COVE MADISON, AL	154,000
DEKALB CO. LANDFILL SPARTA, TN	142,197
TELFAIR CO. LANDFILL MCRAE, GA	232,450
ATOFINA AXIS, AL	43,750
REPUBLIC SERVICES, INC. ROUGEMONT, NC	307,634
CANDLER CO. LANDFILL CANDLER CO., GA	155,367
TAYLOR ROAD LANDFILL CHESTERFIELD, VA	214,000
ALCOA LANDFILL ALCOA, TN	704,394
RIVERSIDE FARM CLAXTON, GA	79,325
HABERSHAM CO. LANDFILL CELL 3 MT. AIRY, GEORGIA	388,502
GASTON CO. LANDFILL DALLAS, NC CELL 2 CONSTRUCTION	493,300
INLAND CONTAINER ROME, GA	115,680
DEKALB CO. LANDFILL CLOSURE SPARTA, TN	182,710
HWY 521 LANDFILL CHARLOTTE, NC	1,028,635
NORFOLK SOUTHERN CHATTANOOGA, TN	123,400

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
SMITH CO. LANDFILL - PHASE III CARTHAGE, TN	176,198
AMERICAN PROTEIN, INC. HANCEVILLE, AL	214,000
JEFFERSON CO. LANDFILL GARDENDALE, AL	600,000
DESTIN WWTP DESTIN, FL	43,990
AMERISTEEL, INC. JACKSON, TN	149,765
RED RIDGE LANDFILL SWEETWATER, TN	662,064
WILLIAMSON CO. SOCCER COMPLEX FRANKLIN, TN	39,150
MEADOW BRANCH LANDFILL CELL E-2 ATHENS, TN	258,051
UWHARRIE MSW LANDFILL CELL 8 MT. GILEAD, NC	245,000
N.E. REGIONAL LANDFILL CELL E-2 WALNUT, MS	285,418
RHEA COUNTY LANDFILL PHASE IV DAYTON, TN	201,868
VOLUNTEER REGIONAL LANDFILL ONEIDA, TN	184,226
AMERICAN PROTEIN HANCEVILLE, AL	99,976
DECATUR MILL SERVICES TRINITY, AL	31,710
RIDGEVILLE II LANDFILL NORWALK, WI	156,658
GLASGOW LANDFILL GLASGOW, KY	934,872
SUNFLOWER LANDFILL TALLASSEE, AL	39,714
INLAND PAPERBOARD ROME, GA	32,338
EAGLE POINT CELLS 1B & 2B BALL GROUND, GA	359,971

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
MARION CO LANDFILL JASPER, TN	272,250
NASHVILLE RESERVIOR NASHVILLE, TN	317,000
TWIGGS-WILKINSON LANDFILL DRY BRANCH, GA	132,965
AMERICAN PROTEIN CUMMING, GA	177,280
RHEA COUNTY LANDFILL PHASE IV DAYTON, TN	
GROVES DAIRY PORTLAND, TN	27,845
LENOIR CO. LANDFILL PHASE I LA GRANGE, NC	510,000
ADAMSVILLE WWTP ADAMSVILLE, TN	370,500
TVA - COLBERT STEAM PLANT TUSCUMBIA, AL	
SANDERSON FARMS COLLINS, MS	151,000
BI-COUNTY LANDFILL WOODLAWN, TN	372,580
GOLD KIST, INC. STALEY, NC	43,656
WEST CARROLL PARISH LANDFILL OAK GROVE, LA	50,000
FF&WCC - BLACKWATER HATCHERIES HOLT, FL	262,000
FOOD LION HOLDEN BEACH, FL	
EAGLE POINT CELLS 5 & 6 BALL GROUND, GA	893,943
DEKALB CO. LANDFILL SPARTA, TN	84,452
WEST CARROLL PARISH LANDFILL OAK GROVE, LA	164,007
CULLMAN ENVIRONMENTAL CULLMAN, AL	233,800

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
CULLMAN ENVIRONMENTAL CULLMAN, AL	
RHODIA LANDFILL CLOSURE MOUNT PLEASANT, TN	168,209
UPPER CUMBERLAND MSWLF AREA 10 RED BOILING, TN	127,952
HOUSTON COUNTY LANDFILL PHASE 3, CELLS 1, 2 & 3 KATHLEEN, GA	447,056
PLEASANT VIEW UTILITIES PLEASANT VIEW, TN	388,600
CLAXTON POULTRY CLAXTON, GA	132,500
TUSCARORA LANDFILL NEW BERN, NC	1,524,000
SAMPSON COUNTY LANDFILL CELL 6 ROSEBORO, NC	925,900
SYNGENTA CROP PROTECTION BUCKS, AL	22,250
BRISTOL QUARRY LANDFILL SIDEWALL EXTENSION BRISTOL, VA	68,180
CAGLE'S, INC. PINE MOUNTAIN, GA	
TOOMBS COUNTY LANDFILL LIFT I, CELLS 8-10 LYONS, GA	305,300
TAYLOR PACKAGING WYALUSING, PA	79,524
WM-LIVE OAK LANDFILL CONLEY, GA	4,349,662
DECATUR - MORGAN CO. LANDFILL TRINITY, AL	397,798
MORRILTON LANDFILL MORRILTON, AR	224,300
ERACHEM COMILOG, INC. NEW JOHNSONVILLE, TN	260,694
QUAIL RUN GOLF COURSE PERRY, GA	84,000
SANDERS LEAD TROY, AL	322,313

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
PRESTAGE FARMS, INC. CLINTON, NC	
EAGLE POINT LANDFILL CELL 7 BALL GROUND, GA	512,090
SANDERSON FARMS, INC. HAZELHURST, MS	162,300
AMERICAN PROTEIN HANCEVILLE, AL	
WM - PINE BLUFF LANDFILL BALL GROUND, GA	
EQUITY GROUP CAMILLA, GA	244,900
AMERICAN PROTEIN AERATION POND LINER CUTHBERT, GA	221,200
LOUISVILLE LANDFILL CELL 3 LOUISVILLE, MS	
S. WAKE LANDFILL PHASE 1A HOLLY SPRINGS, NC	1,161,500
SEVIER COUNTY LANDFILL SEVIERVILLE, TN	236,500
NUCOR STEEL MEMPHIS, TN	
NUCOR STEEL MEMPHIS, TN	
LAMAR COUNTY LANDFILL CELLS 3 & 4 BARNESVILLE, GA	
PINEY WOODS SCHOOL PINEY WOODS, MS	
SANDERSON FARMS COLLINS, MS	
TOTAL SQ. FT. INST.	42,529,184.44



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RESUME

Name: Jose A. Ramirez

Position: Plastic Technician

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
BIT MANUFACTURING COPPERHILL, TN	109,410
CLEVELAND WWTP CLEVELAND, TN	81,324
TIFT COUNTY LANDFILL TIFTON, GA	563,548
APAC ALABAMA HUNTSVILLE, AL	335,000
SMITH COUNTY LANDFILL CARTHAGE, TN	230,068
BFI-CMS LANDFILL V, CELL 2B HARRISBURG, NC	880,404
CITY OF BROWNSVILLE BROWNSVILLE, TX	405,037
BOWATER LANDFILL CALHOUN, TN	509,482
BFI-CMS CELLS 1A-1B HARRISBURG, NC	2,650,000
CALCASIEU PARISH LANDFILL LAKE CHARLES, LA	229,030
SUMMITT LANDFILL OOLTEWAH, TN	896,221
KERSEY VALLEY LANDFILL HIGH POINT, NC	496,042
MALLARD CREEK POLYMERS CHARLOTTE, NC	35,000
BFI-SAMPSON CO. PHASE III ROSEBORO, NC	402,000
HAMILTON COUNTY CHATTANOOGA, TN	94,600
AQUATIC BIOENHANCEMENT FALLS CITY, TX	108,460

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
POLK COUNTY LANDFILL CEDARTOWN, GA	370,450
HARDEMAN COUNTY LANDFILL TOONE, TN	1,170,000
LEBANON LANDFILL COLLINSVILLE, AL	317,452
BFI-CMS CELL 2C HARRISBURG, NC	1,453,000
MEAD PAPER COMPANY STEVENSON, AL	113,504
MCMINN COUNTY LANDFILL ATHENS, TN	234,989
CLARIANT CORPORATION CHARLOTTE, NC	74,356
MILAN ARMY AMMUNITION PLANT MILAN, TN	130,000
BFI BUFORD, GA	403,875
HUNTSVILLE LANDFILL HUNTSVILLE, AL	315,460
BFI-SAMPSON CO PHASE IIIB ROSEBORO, NC	261,508
CAJUN CONTRACTORS ALBANY, KY	763,800
LEBANON LANDFILL COLLINSVILLE, AL	54,765
SOUTH WASH RACK FACILITY FORT CAMPBELL, KY	51,750
PORT ARTHUR LANDFILL CELL NO. 43 PORT ARTHUR, TEXAS	382,300
UPPER CUMBERLAND MSWL MOSS, TN	51,865
BFI-CMS CELL 2D HARRISBURG, NC	1,359,890
SIMMONS FOODS, INC. SOUTHWEST CITY, MO	130,000
BRINE SLUDGE LANDFILL EXPANSION CHARLESTON, TN	172,000

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
LEBANON LANDFILL COLLINSVILLE, AL	145,500
SIMPSON MILL WWT FACILITY MCDONOUGH, GA	80,000
CECOS INTERNATIONAL WESTLAKE, LA	169,180
COKER LANDFILL COKER, AL	343,998
WYETH/AYERST PHARMACEUTICALS VONORE, TN	147,237
SAMPSON CO. LANDFILL CELL 1 & 2 ROSEBORO, NC	746,258
BFI CONLEY, GA	519,468
BFI BUFORD, GA	446,490
CROWDER CONSTRUCTION CHATTANOOGA, TN	70,003
CSO ROOF LINER CHATTANOOGA, TN	110,250
AJINOMOTO USA RALEIGH, NC	106,140
GEK, INC. COLLINSVILLE, AL	153,340
WINTER ENVIRONMENTAL AUGUSTA, GA	39,440
HUNTSVILLE-MADISON CO. AIRPORT HUNTSVILLE, AL	120,000
CLAY COUNTY LANDFILL MOSS, TN	68,625
LAMAR CO. LANDFILL BARNESVILLE, GA	452,471
BRISTOL QUARRY LANDFILL BRISTOL, VA	95,000
BIRMINGHAM EAST AREA LANDFILL BIRMINGHAM, AL	581,000
THOMASVILLE MSW LANDFILL PHASE IV, CELLS 1B & 2B THOMASVILLE, GA	537,520

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
BFI BUFORD, GA	199,558
GEORGIA FEED PRODUCTS CUTHBERT, GA	123,200
AMERICAN CREOSOTE LOUISVILLE, MS	56,805
MARSHALL COUNTYLANDFILL BENTON, KY	1,484,600
TVA-JOHNSONVILLE FOSSIL PLANT NEW JOHNSONVILLE, TN	2,000,000
INTERNATIONAL PAPER PRATTVILLE, AL	292,600
BIRCHWOOD LANDFILL HARRISON, TN	661,406
SAMPSON CO. LANDFILL ROSEBORO, NC	870,000
DEKALB CO. LANDFILL SPARTA, TN	142,197
N. MONTGOMERY LANDFILL MONTGOMERY, AL	540,540
REPUBLIC SERVICES, INC. ROUGEMONT, NC	307,634
ALCOA LANDFILL ALCOA, TN	704,394
PCA LANDFILL COUNCE, TN	214,400
WASH RACK LAGOON FORT KNOX, KY	45,000
SOUTHERN REGIONAL WWTP WAVELAND, MS	70,500
HWY 521 LANDFILL CHARLOTTE, NC	1,028,635
AMERICAN PROTEIN, INC. HANCEVILLE, AL	214,000
BI-COUNTY LANDFILL WOODLAWN, TN	225,000
DESTIN WWTP DESTIN, FL	43,990

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
SIMMONS HATCHERIES JANE, MO	65,479
MEADOW BRANCH LANDFILL CELL E-2 ATHENS, TN	258,051
GTR. ATLANTA CHRISTIAN SCHOOLS NORCROSS, GA	33,555
N.E. REGIONAL LANDFILL CELL E-2 WALNUT, MS	285,418
VOLUNTEER REGIONAL LANDFILL ONEIDA, TN	184,226
JACKSON/MADISON LANDFILL JACKSON, TN	334,891
AMERICAN PROTEIN HANCEVILLE, AL	99,976
DECATUR MILL SERVICES TRINITY, AL	31,710
SWIFT & COMPANY, INC. GRAND ISLAND, NE	106,000
GLASGOW LANDFILL GLASGOW, KY	934,872
EAGLE POINT CELLS 1B & 2B BALL GROUND, GA	359,971
NASHVILLE RESERVIOR NASHVILLE, TN	317,000
TWIGGS-WILKINSON LANDFILL DRY BRANCH, GA	132,965
THOMASVILLE LANDFILL THOMASVILLE, GA	547,049
AMERICAN PROTEIN CUMMING, GA	177,280
MASLAND CARPETS ATMORE, AL	35,040
GROVES DAIRY PORTLAND, TN	27,845
PINE GROVE LANDFILL COLUMBUS, GA	366,592
BI-COUNTY LANDFILL WOODLAWN, TN	372,580

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
WHITESELL CORPORATION TUSCUMBIA, AL	108,900
MADISONVILLE WWTP MADISONVILLE, KY	20,000
ALCOA/MARYVILLE/BLOUNT CO LANDFILL FRIENDSVILLE, TN	343,791
PACTOLUS LANDFILL KINGSPORT, TN	1,014,236.5
MALLARD FOX WEST WWTF TRINITY, AL	116,000
CULLMAN ENVIRONMENTAL CULLMAN, AL	233,800
RHODIA LANDFILL CLOSURE MOUNT PLEASANT, TN	168,209
DUPONT COPRODUCT STORAGE AREA NEW JOHNSONVILLE, TN	66,000
UPPER CUMBERLAND MSWLF AREA 10 RED BOILING, TN	127,952
PLEASANT VIEW UTILITIES PLEASANT VIEW, TN	388,600
CLAXTON POULTRY CLAXTON, GA	132,500
TUSCARORA LANDFILL NEW BERN, NC	1,524,000
SAMPSON COUNTY LANDFILL CELL 6 ROSEBORO, NC	925,900
BRISTOL QUARRY LANDFILL SIDEWALL EXTENSION BRISTOL, VA	68,180
WM-LIVE OAK LANDFILL CONLEY, GA	4,349,662
MORRILTON LANDFILL MORRILTON, AR	224,300
ERACHEM COMILOG, INC. NEW JOHNSONVILLE, TN	260,694
QUAIL RUN GOLF COURSE PERRY, GA	84,000
SANDERS LEAD TROY, AL	322,313

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
NUCOR STEEL TRINITY, AL	238,185
WALKER MOUNTAIN ROAD LANDFILL PHASE 7 ROME, GA	500,000
WOLF CREEK LANDFILL CELL 5 DRY BRANCH, GA	244,891
EQUITY GROUP CAMILLA, GA	244,900
SANDERSON FARMS FLOATING COVER WACO, TX	216,000
S. WAKE LANDFILL PHASE 1A HOLLY SPRINGS, NC	1,161,500
SEVIER COUNTY LANDFILL SEVIERVILLE, TN	236,500
HILMAR CHEESE DALHART, TX	345,375
TOTAL SQ. FT. INST.	48,329,857.5



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1-800-356-1480 (256)852-0378 (256)852-0442 Fax

RESUME

Name: Jose D. Ramirez

Position: Plastic Technician

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
CHAMBERS ATLANTA LANDFILL ATLANTA, GA	495,759
BIT MANUFACTURING COPPERHILL, TN	109,410
TIFT COUNTY LANDFILL TIFTON, GA	563,548
NORTH MONTGOMERY LANDFILL MONTGOMERY, AL	487,085
AUBURN UNIVERSITY/TVA BELLMINA, AL	706,226
APAC ALABAMA HUNTSVILLE, AL	335,000
SMITH COUNTY LANDFILL CARTHAGE, TN	230,068
BFI-CMS LANDFILL V, CELL 2B HARRISBURG, NC	880,404
CITY OF BROWNSVILLE BROWNSVILLE, TX	405,037
INTERNATIONAL PAPER PINEVILLE, LA	212,000
BFI-CMS CELLS 1A-1B HARRISBURG, NC	2,650,000
SOUTHERN LANDFILL MANAGEMENT FAYETTE, MS	258,819
UPPER CUMBERLAND SWLF MOSS, TN	47,499
JACKSON-MADISON LANDFILL JACKSON, TN	411,628
ASARCO - YOUNG MILL STRAWBERRY, TN	56,976
KERSEY VALLEY LANDFILL HIGH POINT, NC	496,042

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
CLARIANT CORPORATION CHARLOTTE, NC	43,560
SOUTHEAST REGIONAL WWTF MINDEN, LA	155,112
MALLARD CREEK POLYMERS CHARLOTTE, NC	35,000
BFI-SAMPSON CO. PHASE III ROSEBORO, NC	402,000
AMERICAN PROTEINS, INC. CUMMING, GA	60,000
BIRMINGHAM STEEL MEMPHIS, TN	431,743
POLK COUNTY LANDFILL CEDARTOWN, GA	370,450
HARDEMAN COUNTY LANDFILL TOONE, TN	1,170,000
LEBANON LANDFILL COLLINSVILLE, AL	317,452
MEAD PAPER COMPANY STEVENSON, AL	113,504
MCMINN COUNTY LANDFILL ATHENS, TN	234,989
CLARIANT CORPORATION CHARLOTTE, NC	74,356
MILAN ARMY AMMUNITION PLANT MILAN, TN	130,000
WEST CARROLL PARISH LANDFILL OAK GROVE, LA	175,200
BFI BUFORD, GA	403,875
HUNTSVILLE LANDFILL HUNTSVILLE, AL	315,460
CAJUN CONTRACTORS ALBANY, KY	763,800
SOUTH WASH RACK FACILITY FORT CAMPBELL, KY	51,750
PORT ARTHUR LANDFILL CELL NO. 43 PORT ARTHUR, TEXAS	382,300

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
UPPER CUMBERLAND MSWL MOSS, TN	51,865
LEBANON LANDFILL COLLINSVILLE, AL	145,500
CECOS INTERNATIONAL WESTLAKE, LA	169,180
COKER LANDFILL COKER, AL	343,998
ARKANSAS DEPT. OF CORRECTION CALICO ROCK, AR	22,069
AMICK FARMS BATESBURG, SC	65,000
WYETH/AYERST PHARMACEUTICALS VONORE, TN	147,237
PHILIP INDUSTRIAL SERVICES PHALBA, TX	80,325
CHEMETALL FOOTE CORP. NW, TN	48,248
SAMPSON CO. LANDFILL CELL 1 & 2 ROSEBORO, NC	746,258
BFI CONLEY, GA	519,468
BFI BUFORD, GA	446,490
CROWDER CONSTRUCTION CHATTANOOGA, TN	70,003
CSO ROOF LINER CHATTANOOGA, TN	110,250
AJINOMOTO USA RALEIGH, NC	106,140
GEK, INC. COLLINSVILLE, AL	153,340
WINTER ENVIRONMENTAL AUGUSTA, GA	39,440
HUNTSVILLE-MADISON CO. AIRPORT HUNTSVILLE, AL	120,000
CLAY COUNTY LANDFILL MOSS, TN	68,625

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
LAMAR CO. LANDFILL BARNESVILLE, GA	452,471
BRISTOL QUARRY LANDFILL BRISTOL, VA	95,000
BIRMINGHAM EAST AREA LANDFILL BIRMINGHAM, AL	581,000
VULCAN MATERIALS NORCROSS, GA	17,000
MINE ROAD REGIONAL LANDFILL ATHENS, TN	398,566
THOMASVILLE MSW LANDFILL PHASE IV, CELLS 1B & 2B THOMASVILLE, GA	537,520
BFI BUFORD, GA	199,558
GEORGIA FEED PRODUCTS CUTHBERT, GA	123,200
AMERICAN CREOSOTE LOUISVILLE, MS	56,805
MARSHALL COUNTYLANDFILL BENTON, KY	1,484,600
TVA-JOHNSONVILLE FOSSIL PLANT NEW JOHNSONVILLE, TN	2,000,000
INTERNATIONAL PAPER PRATTVILLE, AL	292,600
BIRCHWOOD LANDFILL HARRISON, TN	661,406
SAMPSON CO. LANDFILL ROSEBORO, NC	870,000
N. MONTGOMERY LANDFILL MONTGOMERY, AL	540,540
ALCOA LANDFILL ALCOA, TN	704,394
PCA LANDFILL COUNCE, TN	214,400
WASH RACK LAGOON FORT KNOX, KY	45,000
SOUTHERN REGIONAL WWTP WAVELAND, MS	70,500

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
HWY 521 LANDFILL CHARLOTTE, NC	1,028,635
AMERICAN PROTEIN, INC. HANCEVILLE, AL	214,000
BI-COUNTY LANDFILL WOODLAWN, TN	225,000
SIMMONS HATCHERIES JANE, MO	65,479
MEADOW BRANCH LANDFILL CELL E-2 ATHENS, TN	258,051
RHEA COUNTY LANDFILL PHASE IV DAYTON, TN	201,868
VOLUNTEER REGIONAL LANDFILL ONEIDA, TN	184,226
JACKSON/MADISON LANDFILL JACKSON, TN	334,891
NASHVILLE RESERVIOR NASHVILLE, TN	317,000
LION OIL EL DORADO, AR	200,000
PINE GROVE LANDFILL COLUMBUS, GA	366,592
MADISONVILLE WWTP MADISONVILLE, KY	20,000
BRISTOL QUARRY - PH 2B EXTENSION BRISTOL, VA	38,500
EAGLE POINT CELLS 5 & 6 BALL GROUND, GA	893,943
ALCOA/MARYVILLE/BLOUNT CO LANDFILL FRIENDSVILLE, TN	343,791
PACTOLUS LANDFILL KINGSPORT, TN	1,014,236.5
MALLARD FOX WEST WWTF TRINITY, AL	116,000
CULLMAN ENVIRONMENTAL CULLMAN, AL	233,800
DUPONT COPRODUCT STORAGE AREA NEW JOHNSONVILLE, TN	66,000

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
PLEASANT VIEW UTILITIES PLEASANT VIEW, TN	388,600
DUKE POWER MARSHALL STEAM STATION TERRELL, NC	90,817
PACKERLAND-PLAINWELL, INC. PLAINWELL, MI	230,000
SAMPSON COUNTY LANDFILL CELL 6 ROSEBORO, NC	925,900
EASTMAN CHEMICAL KINGSPORT, TN	99,500
WM-LIVE OAK LANDFILL CONLEY, GA	4,349,662
MORRILTON LANDFILL MORRILTON, AR	224,300
ERACHEM COMILOG, INC. NEW JOHNSONVILLE, TN	260,694
QUAIL RUN GOLF COURSE PERRY, GA	84,000
SANDERS LEAD TROY, AL	322,313
NATIONAL BEEF LIBERAL, KS	358,500
WOLF CREEK LANDFILL CELL 5 DRY BRANCH, GA	244,891
SANDERSON FARMS, INC. HAZELHURST, MS	162,300
DUKE ENERGY - RESIDUE LANDFILL BELEWS CREEK, NC	1,094,600
AMERICAN PROTEIN AERATION POND LINER CUTHBERT, GA	221,200
S. WAKE LANDFILL PHASE 1A HOLLY SPRINGS, NC	1,161,500
SEVIER COUNTY LANDFILL SEVIERVILLE, TN	236,500
HILMAR CHEESE DALHART, TX	345,375

TOTAL SQ. FT. INST.	43,696,712.5
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RESUME

Name: Jose Romero

Position: Plastic Technician

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
WILLIAMSON CO. SOCCER COMPLEX FRANKLIN, TN	39,150
NASHVILLE RESERVIOR NASHVILLE, TN	317,000
LENOIR CO. LANDFILL PHASE I LA GRANGE, NC	510,000
ADAMSVILLE WWTP ADAMSVILLE, TN	370,500
BI-COUNTY LANDFILL WOODLAWN, TN	372,580
GOLD KIST, INC. STALEY, NC	43,656
WEST CARROLL PARISH LANDFILL OAK GROVE, LA	50,000
MADISONVILLE WWTP MADISONVILLE, KY	20,000
FF&WCC - BLACKWATER HATCHERIES HOLT, FL	262,000
EAGLE POINT CELLS 5 & 6 BALL GROUND, GA	893,943
PACTOLUS LANDFILL KINGSPORT, TN	1,014,236.5
BRADLEY COUNTY LANDFILL CLEVELAND, TN	272,944
MCMINN COUNTY LANDFILL SECTION 2, PHASE III ATHENS, TN	200,800
HOUSTON COUNTY LANDFILL PHASE 3, CELLS 1, 2 & 3 KATHLEEN, GA	447,056
SOLWAY COMPOSTING FACILITY KNOXVILLE, TN	121,600
PLEASANT VIEW UTILITIES PLEASANT VIEW, TN	388,600

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
DUKE POWER MARSHALL STEAM STATION TERRELL, NC	90,817
PACKERLAND-PLAINWELL, INC. PLAINWELL, MI	230,000
TUSCARORA LANDFILL NEW BERN, NC	1,524,000
SAMPSON COUNTY LANDFILL CELL 6 ROSEBORO, NC	925,900
BRISTOL QUARRY LANDFILL SIDEWALL EXTENSION BRISTOL, VA	68,180
EASTMAN CHEMICAL KINGSPORT, TN	99,500
TOOMBS COUNTY LANDFILL LIFT I, CELLS 8-10 LYONS, GA	305,300
SANDERSON FARMS MOULTRIE, GA	185,000
WM-LIVE OAK LANDFILL CONLEY, GA	4,349,662
ERACHEM COMILOG, INC. NEW JOHNSONVILLE, TN	260,694
QUAIL RUN GOLF COURSE PERRY, GA	84,000
AMERICAN PROTEIN CUTHBERT, GA	203,310
UPPER CUMBERLAND MSWLF AREA 9 RED BOILING, TN	111,577
EAGLE POINT LANDFILL CELL 7 BALL GROUND, GA	512,090
MARION COUNTY LANDFILL JASPER, TN	10,350
EQUITY GROUP CAMILLA, GA	244,900
SANDERSON FARMS FLOATING COVER WACO, TX	216,000
CRITTENDEN COUNTY LANDFILL PHASE 1, CELL 2 WEST MEMPHIS, AR	170,695
NUCOR STEEL TRINITY, AL	55,650



3455 Stanwood Boulevard Huntsville, Alabama 35811
1-800-356-1480 (256)852-0378 (256)852-0442 Fax

RESUME

Name: Juan Romero

Position: Plastic Technician

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
WM-LIVE OAK LANDFILL CONLEY, GA	4,349,662
EQUITY GROUP CAMILLA, GA	244,900
SANDERSON FARMS FLOATING COVER WACO, TX	216,000
CRITTENDEN COUNTY LANDFILL PHASE 1, CELL 2 WEST MEMPHIS, AR	170,695
NUCOR STEEL TRINITY, AL	55,650
SEVIER COUNTY LANDFILL SEVIERVILLE, TN	236,500
HILMAR CHEESE DALHART, TX	345,375
TOTAL SQ. FT. INST.	5,618,782



3455 Stanwood Boulevard Huntsville, Alabama 35811
1-800-356-1480 (256)852-0378 (256)852-0442 Fax

RESUME

Name: Mario Bocanegra

Position: Plastic Technician

<u>JOB NAME/LOCATION</u>	<u>SQ. FT. INST.</u>
SAMPSON COUNTY LANDFILL CELL 6 ROSEBORO, NC	925,900
WM-LIVE OAK LANDFILL CONLEY, GA	4,349,662
SANDERS LEAD TROY, AL	322,313
DUKE ENERGY - RESIDUE LANDFILL BELEWS CREEK, NC	1,094,600
AMERICAN PROTEIN AERATION POND LINER CUTHBERT, GA	221,200
S. WAKE LANDFILL PHASE 1A HOLLY SPRINGS, NC	1,161,500
SEVIER COUNTY LANDFILL SEVIERVILLE, TN	236,500
TOTAL SQ. FT. INST.	8,311,675

APPENDIX I

GEOMEMBRANE MANUFACTURER'S QC CERTIFICATES

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Plum Point Landfill

TYPE OF MQA: LEVEL (2)

QA by: 

Material: 60 mil HDPE Textured Geomembrane

SAMPLING FREQUENCY: 1/100,000 sq.ft./Lot

Manufacturer: GSE

Location: TX

Rec 244, DC # 1972

No.	Roll #	Resin Lot	Length ft.	Width ft.	Area ft ²	Date Manufactured	Sampled by	Date Sampled	Date Received	Reference Job No/Control No
1	108126469	199782	520	22.5	11700	1/31/2008	MB	1/31/2008	1/31/2008	J080014 C#35266
2	108126470	199782	520	22.5	11700	1/31/2008				
3	108126471	199782	520	22.5	11700	1/31/2008				
4	108126472	199782	520	22.5	11700	1/31/2008				
5	108126473	199782	520	22.5	11700	1/31/2008				
6	108126474	199782	520	22.5	11700	1/31/2008				
7	108126475	199782	520	22.5	11700	1/31/2008				
8	108126476	199782	520	22.5	11700	1/31/2008				
9	108126477	199782	520	22.5	11700	1/31/2008	MB	2/1/2008	2/1/2008	J080015 C#35267
10	108126478	199782	520	22.5	11700	1/31/2008				
11	108126479	199782	520	22.5	11700	1/31/2008				
12	108126480	199782	520	22.5	11700	1/31/2008				
13	108126481	199782	520	22.5	11700	1/31/2008				
14	108126482	199782	520	22.5	11700	1/31/2008				
15	108126483	199782	520	22.5	11700	2/1/2008				
16	108126484	199782	520	22.5	11700	2/1/2008				
17	108126485	199782	520	22.5	11700	2/1/2008	MB	2/1/2008	2/1/2008	J080015 C#35268
18	108126486	199782	520	22.5	11700	2/1/2008				
19	108126487	199782	520	22.5	11700	2/1/2008				
20	108126488	199782	520	22.5	11700	2/1/2008				
21	108126489	199782	520	22.5	11700	2/1/2008				

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Plum Point Landfill

TYPE OF MQA: LEVEL (2)

QA by: 

Material: 60 mil HDPE Textured Geomembrane

SAMPLING FREQUENCY: 1/100,000 sq.ft./Lot

Manufacturer: GSE

Location: TX

Rec 244, DC # 1972

No.	Roll #	Resin Lot	Length ft.	Width ft.	Area ft ²	Date Manufactured	Sampled by	Date Sampled	Date Received	Reference Job No/Control No
22	108126490	199782	520	22.5	11700	2/1/2008				
23	108126491	199782	520	22.5	11700	2/1/2008				
24	108126493	199782	520	22.5	11700	2/1/2008				
25	108126494	199782	520	22.5	11700	2/1/2008	MB	2/4/2008	2/4/2008	J080016 C#35269
26	108126495	199782	520	22.5	11700	2/1/2008				
27	108126496	199782	520	22.5	11700	2/1/2008				
28	108126497	199782	520	22.5	11700	2/1/2008				
29	108126498	199782	520	22.5	11700	2/1/2008				
30	108126499	199782	520	22.5	11700	2/1/2008				
31	108126500	199782	520	22.5	11700	2/1/2008				
32	108126501	199782	520	22.5	11700	2/1/2008				
33	108126502	199782	520	22.5	11700	2/1/2008	MB	2/4/2008	2/4/2008	J080016 C#35270
34	108126503	199782	520	22.5	11700	2/2/2008				
35	108126504	199782	520	22.5	11700	2/2/2008				
36	108126505	199782	520	22.5	11700	2/2/2008				
37	108126506	199782	520	22.5	11700	2/2/2008				
38	108126507	199782	520	22.5	11700	2/2/2008				
Sub Total ft ² =					444600					
39	108126508	199778	520	22.5	11700	2/2/2008				
40	108126509	199778	520	22.5	11700	2/2/2008				
41	108126510	199778	520	22.5	11700	2/2/2008	MB	2/4/2008	2/4/2008	J080016 C#35271
42	108126511	199778	520	22.5	11700	2/2/2008				
43	108126512	199778	520	22.5	11700	2/2/2008				

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Plum Point Landfill

TYPE OF MQA: LEVEL (2)

QA by: 

Material: 60 mil HDPE Textured Geomembrane

SAMPLING FREQUENCY: 1/100,000 sq.ft./Lot

Manufacturer: GSE

Location: TX

Rec 244, DC # 1972

No.	Roll #	Resin Lot	Length ft.	Width ft.	Area ft ²	Date Manufactured	Sampled by	Date Sampled	Date Received	Reference Job No/Control No
44	108126513	199778	520	22.5	11700	2/2/2008				
45	108126514	199778	520	22.5	11700	2/2/2008				
46	108126515	199778	520	22.5	11700	2/2/2008				
47	108126516	199778	520	22.5	11700	2/2/2008				
48	108126517	199778	520	22.5	11700	2/2/2008				
49	108126518	199778	520	22.5	11700	2/2/2008	MB	2/4/2008	2/4/2008	J080016 C#35272
50	108126519	199778	520	22.5	11700	2/2/2008				
51	108126520	199778	520	22.5	11700	2/2/2008				
52	108126521	199778	520	22.5	11700	2/2/2008				
53	108126522	199778	520	22.5	11700	2/2/2008				
54	108126523	199778	520	22.5	11700	2/3/2008				
55	108126524	199778	520	22.5	11700	2/3/2008				
56	108126525	199778	520	22.5	11700	2/3/2008				
57	108126526	199778	520	22.5	11700	2/3/2008	MB	2/4/2008	2/4/2008	J080016 C#35273
58	108126527	199778	520	22.5	11700	2/3/2008				
59	108126528	199778	520	22.5	11700	2/3/2008				
60	108126529	199778	520	22.5	11700	2/3/2008				
61	108126530	199778	520	22.5	11700	2/3/2008				
62	108126531	199778	520	22.5	11700	2/3/2008				
63	108126532	199778	520	22.5	11700	2/3/2008				
64	108126533	199778	520	22.5	11700	2/3/2008				
65	108126534	199778	520	22.5	11700	2/3/2008	MB	2/4/2008	2/4/2008	J080016 C#35274
66	108126535	199778	520	22.5	11700	2/3/2008				

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Plum Point Landfill

TYPE OF MQA: LEVEL (2)

QA by: 

Material: 60 mil HDPE Textured Geomembrane

SAMPLING FREQUENCY: 1/100,000 sq.ft./Lot

Manufacturer: GSE

Location: TX

Rec 244, DC # 1972

No.	Roll #	Resin Lot	Length ft.	Width ft.	Area ft ²	Date Manufactured	Sampled by	Date Sampled	Date Received	Reference Job No/Control No
67	108126536	199778	520	22.5	11700	2/3/2008				
68	108126537	199778	520	22.5	11700	2/3/2008				
69	108126538	199778	520	22.5	11700	2/3/2008				
70	108126539	199778	520	22.5	11700	2/3/2008				
71	108126540	199778	520	22.5	11700	2/3/2008				
72	108126541	199778	520	22.5	11700	2/3/2008				
Sub Total ft ² =					397800					
Total ft ² =					842400					

Roll Test Data Report

Sales Order No.	Project Number		Customer Name		Project Location		Product Name		Report Date									
53161	524161		Plastic Fusion Fabricators		Osceola, AR		HDT060AW00		2/4/2008									
										*Modified								
ASTM D 5994		ASTM D638, Type IV / D6693								ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218/1603	ASTM D 5596	GRI GM 12		
Average	Minimum	TD Strength	MD Strength	TD Strength	MD Strength	TD Elongation	MD Elongation	TD Elongation	MD Elongation	TD Tear	MD Tear	Puncture		Carbon Black	Carbon Black	Asperity Height	Asperity Height	
Thickness	Thickness	@ Yield	@ Yield	@ Break	@ Break	@ Yield	@ Yield	@ Break	@ Break	Resistance	Resistance	Resistance	Density	Content	Dispersion	Side A	Side B	
(mils)	(mils)	(ppi)	(ppi)	(ppi)	(ppi)	(%)	(%)	(%)	(%)	(lbs)	(lbs)	(lbs)	(g/cc)	(%)	Views in Cat1 - Cat2	(mils)	(mils)	
Roll No.	every roll		every 3rd								every 3rd		every 3rd	every 3rd	every 3rd	every 3rd	every 2nd	
108126469	63	59	173	168	197	213	15	17	565	568	54	56	153	0.948	2.69	10	21	23
108126470	62	58	173	168	197	213	15	17	565	568	54	56	153	0.948	2.69	10	21	23
108126471	61	56	173	168	197	213	15	17	565	568	54	56	153	0.948	2.69	10	19	22
108126472	61	56	170	164	167	190	15	18	406	507	53	57	151	0.948	2.61	10	19	22
108126473	61	57	170	164	167	190	15	18	406	507	53	57	151	0.948	2.61	10	20	23
108126474	61	58	170	164	167	190	15	18	406	507	53	57	151	0.948	2.61	10	20	23
108126475	61	56	174	167	189	200	16	17	540	535	54	57	156	0.948	2.58	10	19	21
108126476	61	57	174	167	189	200	16	17	540	535	54	57	156	0.948	2.58	10	19	21
108126477	60	56	174	167	189	200	16	17	540	535	54	57	156	0.948	2.58	10	21	22
108126478	61	57	176	171	180	196	15	15	487	510	54	58	153	0.948	2.88	10	21	22
108126479	61	59	176	171	180	196	15	15	487	510	54	58	153	0.948	2.88	10	21	21
108126480	61	57	176	171	180	196	15	15	487	510	54	58	153	0.948	2.88	10	21	21
108126481	61	56	178	175	178	200	14	16	507	522	54	57	150	0.948	2.88	10	20	21
108126482	60	54	178	175	178	200	14	16	507	522	54	57	150	0.948	2.88	10	20	21
108126483	60	55	178	175	178	200	14	16	507	522	54	57	150	0.948	2.88	10	21	21
108126484	60	54	184	178	173	203	15	15	479	513	55	58	157	0.948	2.75	10	21	21
108126485	60	55	184	178	173	203	15	15	479	513	55	58	157	0.948	2.75	10	21	22
108126486	60	55	184	178	173	203	15	15	479	513	55	58	157	0.948	2.75	10	21	22
108126487	60	54	179	166	160	209	15	16	373	539	55	58	158	0.948	2.84	10	20	21
108126488	60	55	179	166	160	209	15	16	373	539	55	58	158	0.948	2.84	10	20	21
108126489	61	56	179	166	160	209	15	16	373	539	55	58	158	0.948	2.84	10	20	22
108126490	61	56	174	161	191	202	15	16	538	544	55	58	158	0.949	2.81	10	20	22
108126491	61	56	174	161	191	202	15	16	538	544	55	58	158	0.949	2.81	10	22	22
108126493	61	56	174	161	191	202	15	16	538	544	55	58	158	0.949	2.81	10	22	22
108126494	61	56	178	166	184	207	15	16	485	540	53	57	152	0.947	2.69	10	21	22
108126495	61	55	178	166	184	207	15	16	485	540	53	57	152	0.947	2.69	10	21	22
108126496	61	56	178	166	184	207	15	16	485	540	53	57	152	0.947	2.69	10	21	22
108126497	61	56	173	172	195	216	16	15	561	577	54	55	153	0.947	2.71	10	21	22
108126498	61	57	173	172	195	216	16	15	561	577	54	55	153	0.947	2.71	10	20	21
108126499	61	56	173	172	195	216	16	15	561	577	54	55	153	0.947	2.71	10	20	21
108126500	60	55	180	178	179	202	15	15	507	521	55	57	155	0.948	2.49	10	19	22
108126501	60	54	180	178	179	202	15	15	507	521	55	57	155	0.948	2.49	10	19	22
108126502	60	55	180	178	179	202	15	15	507	521	55	57	155	0.948	2.51	10	19	21
108126503	60	55	181	179	192	213	15	16	540	544	55	59	157	0.948	2.54	10	19	21

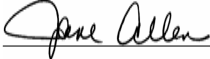
Roll Test Data Report

Sales Order No.	Project Number		Customer Name		Project Location		Product Name		 Report Date 2/4/2008									
53161	524161		Plastic Fusion Fabricators		Osceola, AR		HDT060AW00		*Modified									
Roll No.	ASTM D 5994		ASTM D638, Type IV / D6693								ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218/1603	ASTM D 5596	GRI GM 12	
	Average	Minimum	TD Strength	MD Strength	TD Strength	MD Strength	TD Elongation	MD Elongation	TD Elongation	MD Elongation	TD Tear	MD Tear	Puncture		Carbon Black	Carbon Black	Asperity Height	Asperity Height
	Thickness	Thickness	@ Yield	@ Yield	@ Break	@ Break	@ Yield	@ Yield	@ Break	@ Break	Resistance	Resistance	Resistance	Density	Content	Dispersion	Side A	Side B
	(mils)	(mils)	(ppi)	(ppi)	(ppi)	(ppi)	(%)	(%)	(%)	(%)	(lbs)	(lbs)	(lbs)	(g/cc)	(%)	Views in Cat1 - Cat2	(mils)	(mils)
	every roll		every 3rd								every 3rd		every 3rd	every 3rd	every 3rd	every 3rd	every 2nd	
108126504	61	56	181	179	192	213	15	16	540	544	55	59	157	0.948	2.54	10	20	22
108126505	60	55	181	179	192	213	15	16	540	544	55	59	157	0.948	2.54	10	20	22
108126506	60	54	185	181	192	201	15	15	517	514	56	58	158	0.948	2.52	10	21	21
108126507	60	56	185	181	192	201	15	15	517	514	56	58	158	0.948	2.52	10	21	21
108126508	61	58	185	181	192	201	15	15	517	514	56	58	158	0.948	2.52	10	20	21
108126509	61	57	173	162	193	214	15	17	542	567	53	58	154	0.947	2.52	10	20	21
108126510	61	58	173	162	193	214	15	17	542	567	53	58	154	0.947	2.52	10	21	20
108126511	61	57	173	162	193	214	15	17	542	567	53	58	154	0.947	2.52	10	21	20
108126512	61	56	169	164	186	208	15	15	547	562	55	57	153	0.948	2.53	10	20	22
108126513	60	57	169	164	186	208	15	15	547	562	55	57	153	0.948	2.53	10	20	22
108126514	61	57	169	164	186	208	15	15	547	562	55	57	153	0.948	2.53	10	21	21
108126515	61	57	172	160	186	215	15	17	534	563	55	56	153	0.947	2.54	10	21	21
108126516	61	57	172	160	186	215	15	17	534	563	55	56	153	0.947	2.54	10	19	20
108126517	60	57	172	160	186	215	15	17	534	563	55	56	153	0.947	2.54	10	19	20
108126518	60	57	163	166	184	194	17	17	550	526	51	56	149	0.947	2.49	10	22	21
108126519	60	57	163	166	184	194	17	17	550	526	51	56	149	0.947	2.49	10	22	21
108126520	60	55	163	166	184	194	17	17	550	526	51	56	149	0.947	2.49	10	22	22
108126521	60	56	155	161	188	205	16	18	541	570	52	55	145	0.947	2.53	10	22	22
108126522	60	55	155	161	188	205	16	18	541	570	52	55	145	0.947	2.53	10	22	22
108126523	60	55	155	161	188	205	16	18	541	570	52	55	145	0.947	2.53	10	22	22
108126524	60	55	164	168	181	200	16	17	536	548	53	56	150	0.947	2.42	10	22	22
108126525	60	56	164	168	181	200	16	17	536	548	53	56	150	0.947	2.42	10	22	22
108126526	61	55	164	168	181	200	16	17	536	548	53	56	150	0.947	2.42	10	22	21
108126527	60	55	174	169	185	206	18	16	488	523	56	55	156	0.947	2.41	10	22	21
108126528	60	57	174	169	185	206	18	16	488	523	56	55	156	0.947	2.41	10	22	21
108126529	60	56	174	169	185	206	18	16	488	523	56	55	156	0.947	2.41	10	22	21
108126530	61	56	175	167	156	220	15	16	380	567	54	58	151	0.947	2.52	10	21	22
108126531	61	57	175	167	156	220	15	16	380	567	54	58	151	0.947	2.52	10	21	22
108126532	61	57	175	167	156	220	15	16	380	567	54	58	151	0.947	2.52	10	21	23
108126533	61	57	175	161	173	190	15	16	488	481	53	57	155	0.947	2.60	10	21	23
108126534	61	57	175	161	173	190	15	16	488	481	53	57	155	0.947	2.60	10	22	22
108126535	60	56	175	161	173	190	15	16	488	481	53	57	155	0.947	2.60	10	22	22
108126536	61	56	170	158	168	206	15	15	468	562	53	56	156	0.947	2.63	10	21	22
108126537	60	57	170	158	168	206	15	15	468	562	53	56	156	0.947	2.63	10	21	22

Roll Test Data Report

Sales Order No.	Project Number	Customer Name	Project Location	Product Name		Report Date	
53161	524161	Plastic Fusion Fabricators	Osceola, AR	HDT060AW00		2/4/2008	*Modified

Roll No.	ASTM D 5994		ASTM D638, Type IV / D6693								ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218/1603	ASTM D 5596	GRI GM 12	
	Average	Minimum	TD Strength	MD Strength	TD Strength	MD Strength	TD Elongation	MD Elongation	TD Elongation	MD Elongation	TD Tear	MD Tear	Puncture		Carbon Black	Carbon Black	Asperity Height	Asperity Height
	Thickness	Thickness	@ Yield	@ Yield	@ Break	@ Break	@ Yield	@ Yield	@ Break	@ Break	Resistance	Resistance	Resistance	Density	Content	Dispersion	Side A	Side B
	(mils)	(mils)	(ppi)	(ppi)	(ppi)	(ppi)	(%)	(%)	(%)	(%)	(lbs)	(lbs)	(lbs)	(g/cc)	(%)	Views in Cat1 - Cat2	(mils)	(mils)
	every roll		every 3rd								every 3rd		every 3rd	every 3rd	every 3rd	every 3rd	every 2nd	
108126538	61	58	170	158	168	206	15	15	468	562	53	56	156	0.947	2.63	10	21	22
108126539	61	57	180	181	173	222	15	15	372	547	55	59	156	0.947	2.68	10	21	22
108126540	61	56	180	181	173	222	15	15	372	547	55	59	156	0.947	2.68	10	21	22
108126541	60	56	180	181	173	222	15	15	372	547	55	59	156	0.947	2.68	10	21	22

Laboratory Manager: 

GSE-8.2.4-029 Rev -- 03/05

This test report shall not be reproduced, except in full, without written approval of the laboratory.

19103 Gundle Road - Houston, Texas 77073

APPENDIX J

GEOMEMBRANE CONFORMANCE TEST RESULTS



Precision Geosynthetic Laboratories



February 1, 2008

Brad Fureigh
GENESIS/TERRACON
11400 West Baseline Road
Little Rock, AR 72209

RE: **Plum Point Landfill**

Dear Mr. Fureigh:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of one (1) 60 mil HDPE Textured Geomembrane sample received on January 31, 2008

It shall be noted that the sample tested is believed to be a true representative of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Cora B. Queja
Vice President
NR

Enclosure: (Job No. J080014)



Precision Geosynthetic Laboratories



CLIENT: GENESIS/TERRACON
PROJECT NAME: Plum Point Landfill

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. J080014)

MATERIAL DESCRIPTION: 60 mil HDPE Textured Geomembrane

SAMPLED BY: PGL at GSE, TX

DATE RECEIVED: January 31, 2008

DATE REPORTED: February 1, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID

PRECISION CONTROL NUMBER

R# 108126469 L#199782

35266

TESTS REQUIRED:

TEST METHOD

DESCRIPTION

ASTM D1505
ASTM D4218
ASTM D5596
ASTM D5994
ASTM D638
ASTM D1004

Density
Carbon Content Muffle
Carbon Black Dispersion
Thickness
Tensile Strength (Type IV)
Tear Resistance

TEST CONDITIONS: The sample was conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Table 1. The units in which the data are reported are included on this table.

PRECISION GEOSYNTHETIC LABORATORIES



Cora B. Queja
Vice President

TABLE 1.
MATERIAL PROPERTIES
CLIENT: GENESIS/TERRACON
PROJECT: Plum Point Landfill

Date Received: **1/31/2008**
Date Reported: **2/1/2008**
Client Sample ID: **R#108126469 L#199782**
Material Description: **60 mil HDPE Textured Geomembrane**

QC'd By: 
PGL Job No.: **J080014**
PGL Control No.: **35266**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs.
1	2	3	4	5	6	7	8	9	10						
METHOD	DESCRIPTION														
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>														
	61	63	61	63	65	60	63	63	64	63	62	1	60	65	57 min.
ASTM D1505	Density (grams/ cm.3) 0.949 0.949 0.949										0.949	0.000	0.949	0.949	0.940
ASTM D638	<u>Tensile Properties:</u> <i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)</i>														
Type IV	Tensile Strength at Yield (lbs/ in.-width) <i>MD 172 178 173 175 190</i> <i>TD 180 180 180 182 184</i>										178	8	172	190	
	Tensile Strength at Break (lbs/ in.- width) <i>MD 213 212 216 215 157</i> <i>TD 210 193 218 195 178</i>										181	2	180	184	
	Elongation at Yield (percent) <i>MD 15 13 12 14 16</i> <i>TD 13 13 12 15 14</i>										202	26	157	216	
	Elongation at Break (percent) <i>Gauge Length = 2.0 in. (GRI-GM13 Mod)</i> <i>MD 543 523 561 523 243</i> <i>TD 578 495 597 509 457</i>										199	16	178	218	
ASTM D1004	Tear Resistance (lbs) <i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i>														
Die C	MD	64	67	67	65	68	63	67	68	64	66	2	63	68	42
	TD	64	66	64	62	67	63	66	64	63	65	2	62	68	
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38) 1 1 1 1 1 1 1 1 1 1										1	N/A			1,2, or 3
ASTM D4218	Carbon Content Muffle 2.60 2.71										2.65	0.08	2.60	2.71	





Precision Geosynthetic Laboratories



February 5, 2008

Brad Fureigh
GENESIS/TERRACON
11400 West Baseline Road
Little Rock, AR 72209

RE: **Plum Point Landfill**

Dear Mr. Fureigh:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of two (2) 60 mil HDPE Textured Geomembrane samples received on February 1, 2008.

It shall be noted that the samples tested are believed to be true representative of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Cora B. Queja
Vice President
NR

Enclosure: (Job No. J080015)



Precision Geosynthetic Laboratories



CLIENT: GENESIS/TERRACON
PROJECT NAME: Plum Point Landfill

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. J080015)

MATERIAL DESCRIPTION: 60 mil HDPE Textured Geomembrane

SAMPLED BY: PGL at GSE, TX

DATE RECEIVED: February 1, 2008

DATE REPORTED: February 5, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
R#108126477 L#199782	35267
R#108126485 L#199782	35268

TESTS REQUIRED:

TEST METHOD	DESCRIPTION
ASTM D1505	Density
ASTM D4218	Carbon Content Muffle
ASTM D5596	Carbon Black Dispersion
ASTM D5994	Thickness
ASTM D638	Tensile Strength (Type IV)
ASTM D1004	Tear Resistance

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 & 2. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES



Cora B. Queja
Vice President

TABLE 1.
MATERIAL PROPERTIES
CLIENT: GENESIS/TERRACON
PROJECT: Plum Point Landfill

Date Received: **2/1/2008**
Date Reported: **2/5/2008**
Client Sample ID: **R#108126477 L#199782**
Material Description: **60 mil HDPE Textured Geomembrane**

QC'd By: 
PGL Job No.: **J080015**
PGL Control No.: **35267**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>															
		61	63	65	62	62	60	64	65	62	60	62	2	60	65	57 min.
ASTM D1505	Density (grams/ cm.3) 0.949 0.949 0.949											0.949	0.000	0.949	0.949	0.940
ASTM D638 Type IV	<u>Tensile Properties:</u> <i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)</i> Tensile Strength at Yield (lbs/ in.-width) <i>MD 180 174 179 181 178</i> <i>TD 170 177 179 180 185</i> Tensile Strength at Break (lbs/ in.- width) <i>MD 178 206 216 230 231</i> <i>TD 185 199 193 194 197</i> Elongation at Yield (percent) <i>MD 14 14 14 16 14</i> <i>TD 12 14 13 13 14</i> Elongation at Break (percent) <i>Gauge Length = 2.0 in. (GRI-GM13 Mod)</i> <i>MD 436 509 553 596 591</i> <i>TD 516 534 520 516 514</i>															
												178	2	174	181	
												178	5	170	185	
												212	22	178	231	
												194	5	185	199	
												14	1	14	16	
												13	1	12	14	
												537	67	436	596	
												520	8	514	534	
ASTM D1004 Die C	Tear Resistance (lbs) <i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i>															
		MD 58	69	59	62	64	59	68	59	63	64	63	4	58	69	42
		TD 58	59	59	61	67	60	60	58	61	62	60	3	58	67	
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
		1	1	1	1	1	1	1	1	1	1	1	N/A			1,2, or 3
ASTM D4218	Carbon Content Muffle															
		2.65	2.92									2.78	0.19	2.65	2.92	



TABLE 2.
MATERIAL PROPERTIES
CLIENT: GENESIS/TERRACON
PROJECT: Plum Point Landfill

Date Received: **2/1/2008**
Date Reported: **2/5/2008**
Client Sample ID: **R#108126485 L#199782**
Material Description: **60 mil HDPE Textured Geomembrane**

QC'd By: 
PGL Job No.: **J080015**
PGL Control No.: **35268**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>															
		59	66	57	60	60	58	64	61	60	61	60	3	57	66	57 min.
ASTM D1505	Density (grams/ cm.3) 0.950 0.950 0.950											0.950	0.000	0.950	0.950	0.940
ASTM D638	<u>Tensile Properties:</u> <i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F, and</i>															
Type IV	<i>Tensile Strength at Yield (lbs/ in.-width)</i>															
	<i>MD</i> 164 172 169 167 164											167	3	164	172	
	<i>TD</i> 162 176 168 174 175											171	6	162	176	
	<i>Tensile Strength at Break (lbs/ in.- width)</i>															
	<i>MD</i> 200 233 195 234 231											219	19	195	234	
	<i>TD</i> 132 152 189 187 188											170	26	132	189	
	<i>Elongation at Yield (percent)</i>															
	<i>MD</i> 13 13 13 13 13											13	0	13	13	
	<i>TD</i> 12 13 15 13 14											13	1	12	15	
	<i>Elongation at Break (percent) Gauge Length = 2.0 in. (GRI-GM13 Mod)</i>															
	<i>MD</i> 497 596 495 598 607											559	57	495	607	
	<i>TD</i> 330 420 537 489 483											452	80	330	537	
ASTM D1004	Tear Resistance (lbs) <i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i>															
Die C																
	<i>MD</i> 63 66 59 61 60 59 63 62 62 60											62	2	59	66	42
	<i>TD</i> 54 54 62 60 59 59 57 65 58 60											59	3	54	65	
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
	1 1 1 1 1 1 1 1 1 1											1	N/A			1,2, or 3
ASTM D4218	Carbon Content Muffle 2.37 2.82											2.59	0.32	2.37	2.82	





Precision Geosynthetic Laboratories



February 6, 2008

Brad Fureigh
GENESIS/TERRACON
11400 West Baseline Road
Little Rock, AR 72209

RE: **Plum Point Landfill**

Dear Mr. Fureigh:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of six (6) 60 mil HDPE Textured Geomembrane samples received on February 4, 2008.

It shall be noted that the samples tested are believed to be true representative of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Cora B. Queja
Vice President
TN

Enclosure: (Job No. J080016)



Precision Geosynthetic Laboratories



CLIENT: GENESIS/TERRACON
PROJECT NAME: Plum Point Landfill

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. J080016)

MATERIAL DESCRIPTION: 60 mil HDPE Textured Geomembrane

SAMPLED BY: PGL at GSE, TX

DATE RECEIVED: February 4, 2008

DATE REPORTED: February 6, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
R#108126494 L#199782	35269
R#108126502 L#199782	35270
R#108126510 L#199778	35271
R#108126518 L#199778	35272
R#108126526 L#199778	35273
R#108126534 L#199778	35274

TESTS REQUIRED:

TEST METHOD	DESCRIPTION
ASTM D1505	Density
ASTM D4218	Carbon Content Muffle
ASTM D5596	Carbon Black Dispersion
ASTM D5594	Core Thickness
ASTM D638	Tensile Strength (Type IV)
ASTM D1004	Tear Resistance

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 to 6. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES



Cora B. Queja
Vice President

TABLE 1.
MATERIAL PROPERTIES
CLIENT: GENESIS/TERRACON
PROJECT: Plum Point Landfill

Date Received: **2/4/2008**
Date Reported: **2/6/2008**
Client Sample ID: **R#108126494 L#199782**
Material Description: **60 mil HDPE Textured Geomembrane**

QC'd By: 
PGL Job No.: **J080016**
PGL Control No.: **35269**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION														
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>														
	58	65	62	66	62	58	63	66	65	62	62	3	58	66	57 min.
ASTM D1505	Density (grams/ cm.3) 0.951 0.951 0.951										0.951	0.000	0.951	0.951	0.940
ASTM D638 Type IV	<u>Tensile Properties:</u> <i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)</i> Tensile Strength at Yield (lbs/ in.-width) <i>MD 170 174 176 184 160</i> <i>TD 179 189 183 189 180</i> Tensile Strength at Break (lbs/ in.- width) <i>MD 200 213 205 243 244</i> <i>TD 184 188 190 162 189</i> Elongation at Yield (percent) <i>MD 13 15 12 13 14</i> <i>TD 13 15 12 13 12</i> Elongation at Break (percent) <i>Gauge Length = 2.0 in. (GRI-GM13 Mod)</i> <i>MD 480 533 484 588 577</i> <i>TD 509 506 529 415 507</i>										173 184	9 5	160 179	184 189	
											221 183	21 12	200 162	244 190	
											13 13	1 1	12 12	15 15	
											532 493	50 45	480 415	588 529	
ASTM D1004 Die C	Tear Resistance (lbs) <i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i> <i>MD 60 62 60 63 65 59 62 60 62 61</i> <i>TD 53 60 58 59 63 56 58 58 61 66</i>										62 59	2 4	59 53	65 66	42
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38) 1 1 1 1 1 1 1 1 1 1										1	N/A			1,2, or 3
ASTM D4218	Carbon Content Muffle 2.83 2.82										2.82	0.01	2.82	2.83	



TABLE 2.
MATERIAL PROPERTIES
CLIENT: GENESIS/TERRACON
PROJECT: Plum Point Landfill

Date Received: **2/4/2008**
 Date Reported: **2/6/2008**
 Client Sample ID: **R#108126502 L#199782**
 Material Description: **60 mil HDPE Textured Geomembrane**

QC'd By: 
 PGL Job No.: **J080016**
 PGL Control No.: **35270**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD DESCRIPTION															
ASTM D5994 Thickness (mils)	<i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>														
	63	64	64	66	61	58	64	57	63	60	62	3	57	66	57 min.
ASTM D1505 Density (grams/ cm.3)															
	0.949	0.949	0.949								0.949	0.000	0.949	0.949	0.940
ASTM D638 <u>Tensile Properties:</u>															
Type IV	<i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F, and</i>														
Tensile Strength at Yield (lbs/ in.-width)															
MD	178	176	176	174	170						175	3	170	178	
TD	179	185	176	185	185						182	4	176	185	
Tensile Strength at Break (lbs/ in.- width)															
MD	243	213	227	214	218						223	13	213	243	
TD	205	188	205	192	201						198	8	188	205	
Elongation at Yield (percent)															
MD	15	13	13	12	13						13	1	12	15	
TD	13	15	12	14	14						13	1	12	15	
Elongation at Break (percent)	Gauge Length = 2.0 in. (GRI-GM13 Mod)														
MD	620	538	576	532	567						567	35	532	620	
TD	565	471	565	507	533						528	40	471	565	
ASTM D1004 Tear Resistance (lbs)															
Die C	Machine: Tensile machine equipped with constant rate of extension and chart recorder.														
MD	56	63	63	62	62	59	62	63	64	64	62	3	56	64	42
TD	57	62	62	60	64	56	60	61	58	64	60	3	56	64	
ASTM D5596 Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
	1	1	1	1	1	1	1	1	1	1	1	N/A			1,2, or 3
ASTM D4218 Carbon Content Muffle															
	2.44	2.43									2.44	0.01	2.43	2.44	



TABLE 3.
MATERIAL PROPERTIES
CLIENT: GENESIS/TERRACON
PROJECT: Plum Point Landfill

Date Received: **2/4/2008**
Date Reported: **2/6/2008**
Client Sample ID: **R#108126510 L#199778**
Material Description: **60 mil HDPE Textured Geomembrane**

QC'd By: 
PGL Job No.: **J080016**
PGL Control No.: **35271**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>															
		57	63	60	61	63	63	62	62	63	59	61	2	57	63	57 min.
ASTM D1505	Density (grams/ cm.3) 0.949 0.949 0.949											0.949	0.000	0.949	0.949	0.940
ASTM D638	<u>Tensile Properties:</u> <i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)</i>															
Type IV	Tensile Strength at Yield (lbs/ in.-width)															
	MD 176 172 183 180 180											178	4	172	183	
	TD 173 181 182 188 172											179	7	172	188	
	Tensile Strength at Break (lbs/ in.- width)															
	MD 198 223 234 190 218											213	18	190	234	
	TD 183 208 166 213 193											192	19	166	213	
	Elongation at Yield (percent)															
	MD 14 13 13 14 16											14	1	13	16	
	TD 13 12 13 14 13											13	1	12	14	
	Elongation at Break (percent) Gauge Length = 2.0 in. (GRI-GM13 Mod)															
	MD 493 590 591 441 548											533	65	441	591	
	TD 501 544 430 552 551											516	52	430	552	
ASTM D1004	Tear Resistance (lbs) <i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i>															
Die C	MD 60 62 57 58 66 63 62 62 60 69											62	4	57	69	42
	TD 57 60 65 62 65 60 62 66 59 61											62	3	57	66	
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
	1 1 1 1 1 1 1 1 1 1											1	N/A			1,2, or 3
ASTM D4218	Carbon Content Muffle															
	2.58 2.56											2.57	0.01	2.56	2.58	



TABLE 4.
MATERIAL PROPERTIES
CLIENT: GENESIS/TERRACON
PROJECT: Plum Point Landfill

Date Received: **2/4/2008**
Date Reported: **2/6/2008**
Client Sample ID: **R#108126518 L#199778**
Material Description: **60 mil HDPE Textured Geomembrane**

QC'd By: 
PGL Job No.: **J080016**
PGL Control No.: **35272**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD DESCRIPTION															
ASTM D5994 Thickness (mils)	<i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>														
	58	60	58	62	60	61	61	61	58	60	60	2	58	62	57 min.
ASTM D1505 Density (grams/ cm.3)															
	0.948	0.948	0.948								0.948	0.000	0.948	0.948	0.940
ASTM D638 <u>Tensile Properties:</u>															
Type IV	<i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)</i>														
Tensile Strength at Yield (lbs/ in.-width)															
MD	176	182	182	177	172						177	4	172	182	
TD	177	173	182	181	183						179	4	173	183	
Tensile Strength at Break (lbs/ in.- width)															
MD	209	207	235	204	210						213	13	204	235	
TD	166	187	194	189	187						185	11	166	194	
Elongation at Yield (percent)															
MD	13	16	13	14	12						13	2	12	16	
TD	12	13	13	13	14						13	1	12	14	
Elongation at Break (percent)	Gauge Length = 2.0 in. (GRI-GM13 Mod)														
MD	544	530	603	536	543						551	29	530	603	
TD	468	511	535	513	506						507	24	468	535	
ASTM D1004 Tear Resistance (lbs)															
Die C	Machine: Tensile machine equipped with constant rate of extension and chart recorder.														
MD	60	62	59	58	65	59	63	60	56	63	61	3	56	65	42
TD	59	58	61	60	64	59	58	60	58	63	60	2	58	64	
ASTM D5596 Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
	1	1	1	1	1	1	1	1	1	1	1	N/A			1,2, or 3
ASTM D4218 Carbon Content Muffle															
	2.55	2.58									2.56	0.02	2.55	2.58	



TABLE 5.
MATERIAL PROPERTIES
CLIENT: GENESIS/TERRACON
PROJECT: Plum Point Landfill

Date Received: **2/4/2008**
Date Reported: **2/6/2008**
Client Sample ID: **R#108126526 L#199778**
Material Description: **60 mil HDPE Textured Geomembrane**

QC'd By: 
PGL Job No.: **J080016**
PGL Control No.: **35273**

SPECIMENS

		SPECIMENS													Proj. Specs.	
		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	
METHOD	DESCRIPTION															
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>															
		60	62	60	60	58	60	58	60	61	59	60	1	58	62	57 min.
ASTM D1505	Density (grams/ cm.3)															
		0.948	0.948	0.948								0.948	0.000	0.948	0.948	0.940
ASTM D638	<u>Tensile Properties:</u>															
Type IV	<i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2⁰ C (73.4+/-3.6⁰ F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)</i>															
	Tensile Strength at Yield (lbs/ in.-width)															
	MD	177	187	185	184	172					181	6	172	187		
	TD	176	172	173	174	172					174	2	172	176		
	Tensile Strength at Break (lbs/ in.- width)															
	MD	212	206	184	183	199					197	13	183	212		
	TD	124	177	173	150	177					160	23	124	177		
	Elongation at Yield (percent)															
	MD	13	15	13	14	13					13	1	13	15		
	TD	13	12	12	13	12					12	1	12	13		
	Elongation at Break (percent)	Gauge Length = 2.0 in. (GRI-GM13 Mod)														
	MD	563	516	450	448	517					499	49	448	563		
	TD	223	473	459	438	474					413	108	223	474		
ASTM D1004	Tear Resistance (lbs)															
Die C	<i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i>															
	MD	57	58	59	57	61	59	61	64	59	60	59	2	57	64	42
	TD	58	56	56	60	62	65	59	61	58	60	60	3	56	65	
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
		1	1	1	1	1	1	1	1	1	1	1	N/A			1,2, or 3
ASTM D4218	Carbon Content Muffle															
		2.59	2.60								2.60	0.01	2.59	2.60		



TABLE 6.
MATERIAL PROPERTIES
CLIENT: GENESIS/TERRACON
PROJECT: Plum Point Landfill

Date Received: **2/4/2008**
Date Reported: **2/6/2008**
Client Sample ID: **R#108126534 L#199778**
Material Description: **60 mil HDPE Textured Geomembrane**

QC'd By: 
PGL Job No.: **J080016**
PGL Control No.: **35274**

SPECIMENS

		SPECIMENS														Proj. Specs.
		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	
METHOD	DESCRIPTION															
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>	60	60	59	60	61	65	61	62	61	62	61	2	59	65	57 min.
ASTM D1505	Density (grams/ cm.3) 0.948 0.948 0.948											0.948	0.000	0.948	0.948	0.940
ASTM D638	Tensile Properties:															
Type IV	Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2 ⁰ C (73.4+/-3.6 ⁰ F, and															
	Tensile Strength at Yield (lbs/ in.-width)															
	MD 169 169 167 168 166											168	1	166	169	
	TD 178 179 170 176 180											177	4	170	180	
	Tensile Strength at Break (lbs/ in.- width)															
	MD 188 218 189 204 222											204	16	188	222	
	TD 177 196 166 197 134											174	26	134	197	
	Elongation at Yield (percent)															
	MD 16 14 14 14 13											14	1	13	16	
	TD 12 13 12 12 13											12	0	12	13	
	Elongation at Break (percent) Gauge Length = 2.0 in. (GRI-GM13 Mod)															
	MD 455 578 495 509 558											519	50	455	578	
	TD 468 517 465 540 311											460	89	311	540	
ASTM D1004	Tear Resistance (lbs)															
Die C	Machine: Tensile machine equipped with constant rate of extension and chart recorder.															
	MD 58 56 62 62 61 57 63 63 58 59											60	3	56	63	42
	TD 59 68 59 67 59 61 62 59 58 58											61	4	58	68	
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)	1	1	1	1	1	1	1	1	1	1	1	N/A		1,2, or 3	
ASTM D4218	Carbon Content Muffle	2.59	2.58									2.58	0.00	2.58	2.59	



APPENDIX K

GEOMEMBRANE INVENTORY LOGS

Geomembrane Inventory



Terracon Project No: 35077169

25809 Interstate 30 South
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Manufacturer: Poly-Flex, Inc.
Transportation: Truck
Date of Arrival:
Material Type: 60T
Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
1	108126469	199782	520	22.5	11700	62	EP	YES	
2	108126470	199782	520	22.5	11700		EP		
3	108126471	199782	520	22.5	11700		EP		
4	108126472	199782	520	22.5	11700		EP		
5	108126473	199782	520	22.5	11700		EP		
6	108126474	199782	520	22.5	11700		EP		
7	108126475	199782	520	22.5	11700		EP		
8	108126476	199782	520	22.5	11700		EP		
9	108126477	199782	520	22.5	11700	62	EP	YES	
10	108126478	199782	520	22.5	11700		EP		
11	108126479	199782	520	22.5	11700		EP		
12	108126480	199782	520	22.5	11700		EP		
13	108126481	199782	520	22.5	11700		EP		
14	108126482	199782	520	22.5	11700		EP		
15	108126483	199782	520	22.5	11700		EP		
16	108126484	199782	520	22.5	11700		EP		
17	108126485	199782	520	22.5	11700	60	EP	YES	
18	108126486	199782	520	22.5	11700		EP		
19	108126487	199782	520	22.5	11700		EP		
20	108126488	199782	520	22.5	11700		EP		
21	108126489	199782	520	22.5	11700		EP		
22	108126490	199782	520	22.5	11700		EP		
23	108126491	199782	520	22.5	11700		EP		
24	108126493	199782	520	22.5	11700		EP		
25	108126494	199782	520	22.5	11700	62	EP	YES	

TOTAL THIS PAGE: 292,500 ft²
TOTAL ACCUMULATED: 292,500 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geomembrane Inventory



Terracon Project No: 35077169

25809 Interstate 30 South
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Manufacturer: Poly-Flex, Inc.
Transportation: Truck
Date of Arrival:
Material Type: 60T
Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
26	108126495	199782	520	22.5	11700		EP		
27	108126496	199782	520	22.5	11700		EP		
28	108126497	199782	520	22.5	11700		EP		
29	108126498	199782	520	22.5	11700		EP		
30	108126499	199782	520	22.5	11700		EP		
31	108126500	199782	520	22.5	11700		EP		
32	108126501	199782	520	22.5	11700		EP		
33	108126502	199782	520	22.5	11700	62	EP	YES	
34	108126503	199782	520	22.5	11700		EP		
35	108126504	199782	520	22.5	11700		EP		
36	108126505	199782	520	22.5	11700		EP		
37	108126506	199782	520	22.5	11700		EP		
38	108126507	199782	520	22.5	11700		EP		
39	108126508	199778	520	22.5	11700		EP		
40	108126509	199778	520	22.5	11700		EP		
41	108126510	199778	520	22.5	11700		EP	YES	
42	108126511	199778	520	22.5	11700		EP		
43	108126512	199778	520	22.5	11700		EP		
44	108126513	199778	520	22.5	11700		EP		
45	108126514	199778	520	22.5	11700		EP		
46	108126515	199778	520	22.5	11700		EP		
47	108126516	199778	520	22.5	11700		EP		
48	108126517	199778	520	22.5	11700		EP		
49	108126518	199778	520	22.5	11700		EP	YES	
50	108126519	199778	520	22.5	11700		EP		

TOTAL THIS PAGE: 292,500 ft²
TOTAL ACCUMULATED: 585,000 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geomembrane Inventory



Terracon Project No: 35077169

25809 Interstate 30 South
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Manufacturer: Poly-Flex, Inc.
Transportation: Truck
Date of Arrival:
Material Type: 60T
Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
51	108126520	199778	520	22.5	11700	60	EP		
52	108126521	199778	520	22.5	11700		EP		
53	108126522	199778	520	22.5	11700		EP		
54	108126523	199778	520	22.5	11700		EP		
55	108126524	199778	520	22.5	11700		EP		
56	108126525	199778	520	22.5	11700		EP		
57	108126526	199778	520	22.5	11700		EP		
58	108126527	199778	520	22.5	11700		EP	YES	
59	108126528	199778	520	22.5	11700		EP		
60	108126529	199778	520	22.5	11700		EP		
61	108126530	199778	520	22.5	11700		EP		
62	108126531	199778	520	22.5	11700		EP		
63	108126532	199778	520	22.5	11700		EP		
64	108126533	199778	520	22.5	11700		EP		
65	108126534	199778	520	22.5	11700		EP		
66	108126535	199778	520	22.5	11700		EP	YES	
67	108126536	199778	520	22.5	11700		EP		
68	108126537	199778	520	22.5	11700		EP		
69	108126538	199778	520	22.5	11700		EP		
70	108126539	199778	520	22.5	11700		EP		
71	108126540	199778	520	22.5	11700		EP		
72	108126541	199778	520	22.5	11700		EP		

TOTAL THIS PAGE: 257,400 ft²
TOTAL ACCUMULATED: 842,400 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

APPENDIX L

GEOMEMBRANE EQUIPMENT CALIBRATION LOGS

APPENDIX M

SUBGRADE ACCEPTANCE CERTIFICATES



25809 Interstate 30
Bryant, Arkansas 72022
Phone 501.847.9292
Fax 501.847.9210

SUBGRADE SURFACE ACCEPTANCE

Project Name: Plum Point – Cell 1

Customer: Dynegy

Project Number: 350877169

Date: 8-1-08

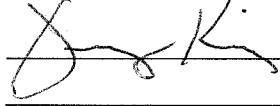
Location: Osceola, AR

Partial: _____ **Final:** _____

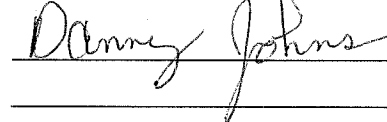
This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Plastic Fusion Fabricators does not accept responsibility for compaction, elevation or moisture content, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

South End drops panels #1 thru #41

For Plastic Fusion Fabricators:



For Contractor/Owner:



Acceptance No: _____ Area Accepted: _____ ft² Total Area accepted to date: _____ ft²

SUBGRADE SURFACE ACCEPTANCE

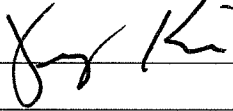
Project Name: Plum Point – Cell 1
Project Number: 350877169
Location: Osceola, AR

Customer: Dynegy
Date: 8-2-08
Partial: _____ **Final:** _____

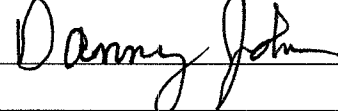
This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Plastic Fusion Fabricators does not accept responsibility for compaction, elevation or moisture content, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

PANELS DEPLOYED #42 - #50

For Plastic Fusion Fabricators:



For Contractor/Owner:



Acceptance No: _____ Area Accepted: _____ ft² Total Area accepted to date: _____ ft²

SUBGRADE SURFACE ACCEPTANCE

Project Name: Plum Point – Cell 1

Project Number: 350877169

Location: Osceola, AR

Customer: Dynegy

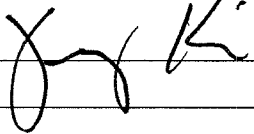
Date: 8-3-08

Partial: _____ **Final:** _____

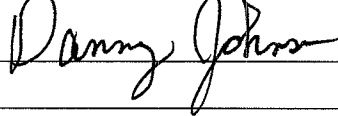
This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Plastic Fusion Fabricators does not accept responsibility for compaction, elevation or moisture content, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

PANELS DEPLOYED #51 - #66

For Plastic Fusion Fabricators:



For Contractor/Owner:



Acceptance No: _____ Area Accepted: _____ ft² Total Area accepted to date: _____ ft²

SUBGRADE SURFACE ACCEPTANCE

Project Name: Plum Point – Cell 1

Project Number: 350877169

Location: Osceola, AR

Customer: Dynegy

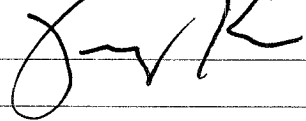
Date: 8-4-08

Partial: _____ **Final:** _____

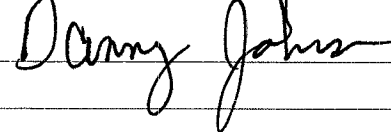
This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Plastic Fusion Fabricators does not accept responsibility for compaction, elevation or moisture content, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

PANELS DEPLOYED P67 - P86

For Plastic Fusion Fabricators:



For Contractor/Owner:



Acceptance No: _____ Area Accepted: _____ ft² Total Area accepted to date: _____ ft²



25809 Interstate 30
Bryant, Arkansas 72022
Phone 501.847.9292
Fax 501.847.9210

SUBGRADE SURFACE ACCEPTANCE

Project Name: Plum Point – Cell 1

Project Number: 350877169

Location: Osceola, AR

Customer: Dynegy

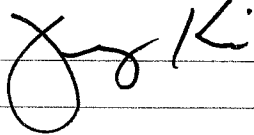
Date: 8-5-03

Partial: Final:

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PANELS DEPLOYED P37-P106

For Plastic Fusion Fabricators:



For Contractor/Owner:



Acceptance No: Area Accepted: ft² Total Area accepted to date: ft²



25809 Interstate 30
Bryant, Arkansas 72022
Phone 501.847.9292
Fax 501.847.9210

SUBGRADE SURFACE ACCEPTANCE

Project Name: Plum Point – Cell 1

Project Number: 350877169

Location: Osceola, AR

Customer: Dynegey

Date: 8-7-08

Partial: Final:

This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Plastic Fusion Fabricators does not accept responsibility for compaction, elevation or moisture content, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

DEPLOYING PANELS P107 – P125

For Plastic Fusion Fabricators:

For Contractor/Owner:

Acceptance No: Area Accepted: ft² Total Area accepted to date: ft²



25809 Interstate 30
Bryant, Arkansas 72022
Phone 501.847.9292
Fax 501.847.9210

SUBGRADE SURFACE ACCEPTANCE

Project Name: Plum Point – Cell 1

Customer: Dynegy

Project Number: 350877169

Date: 3-12-03

Location: Osceola, AR

Partial: Final:

This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Plastic Fusion Fabricators does not accept responsibility for compaction, elevation or moisture content, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

PANEL DEPLOYED P126-139

For Plastic Fusion Fabricators:

For Contractor/Owner:

Acceptance No: Area Accepted: ft² Total Area accepted to date: ft²



25809 Interstate 30
Bryant, Arkansas 72022
Phone 501.847.9292
Fax 501.847.9210

SUBGRADE SURFACE ACCEPTANCE

Project Name: Plum Point – Cell 1

Project Number: 350877169

Location: Osceola, AR

Customer: Dynegy

Date: 8-13-08

Partial: Final:

This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Plastic Fusion Fabricators does not accept responsibility for compaction, elevation or moisture content, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

PANELS DEPLOYED P140 - P157

For Plastic Fusion Fabricators:

For Contractor/Owner:

Acceptance No: Area Accepted: ft² Total Area accepted to date: ft²

APPENDIX N

GEOSYNTHETICS DAILY DEPLOYMENT LOGS

Geosynthetics Daily Deployment Log



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
8/1/08	P1	108126511	90	0 - 5 MPH	60T	46	22.5	Y	EP
8/1/08	P2	108126511	90	0 - 5 MPH	60T	21	22.5	Y	EP
8/1/08	P3	108126511	90	0 - 5 MPH	60T	41	22.5	Y	EP
8/1/08	P4	108126511	90	0 - 5 MPH	60T	66	22.5	Y	EP
8/1/08	P5	108126511	90	0 - 5 MPH	60T	46	22.5	Y	EP
8/1/08	P6	108126511	90	0 - 5 MPH	60T	44	22.5	Y	EP
8/1/08	P7	108126511	90	0 - 5 MPH	60T	45	22.5	Y	EP
8/1/08	P8	108126511	90	0 - 5 MPH	60T	44	22.5	Y	EP
8/1/08	P9	108126511	90	0 - 5 MPH	60T	44	22.5	Y	EP
8/1/08	P10	108126511	90	0 - 5 MPH	60T	45	22.5	Y	EP
8/1/08	P11	108126511	90	0 - 5 MPH	60T	45	22.5	Y	EP
8/1/08	P12	108126511	90	0 - 5 MPH	60T	46	22.5	Y	EP
8/1/08	P13	108126474	90	0 - 5 MPH	60T	45	22.5	Y	EP
8/1/08	P14	108126474	90	0 - 5 MPH	60T	46	22.5	Y	EP
8/1/08	P15	108126474	90	0 - 5 MPH	60T	46	22.5	Y	EP
8/1/08	P16	108126474	90	0 - 5 MPH	60T	46	22.5	Y	EP
8/1/08	P17	108126474	90	0 - 5 MPH	60T	47	22.5	Y	EP
8/1/08	P18	108126474	90	0 - 5 MPH	60T	47	22.5	Y	EP
8/1/08	P19	108126474	90	0 - 5 MPH	60T	46	22.5	Y	EP
8/1/08	P20	108126474	90	0 - 5 MPH	60T	46	22.5	Y	EP

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
8/1/08	P21	108126474	90	0 - 5 MPH	60T	47	22.5	Y	EP
8/1/08	P22	108126474	90	0 - 5 MPH	60T	46	22.5	Y	EP
8/1/08	P23	108126474	90	0 - 5 MPH	60T	46	22.5	Y	EP
8/1/08	P24	108126524	90	0 - 5 MPH	60T	48	22.5	Y	EP
8/1/08	P25	108126524	90	0 - 5 MPH	60T	48	22.5	Y	EP
8/1/08	P26	108126524	90	0 - 5 MPH	60T	48	22.5	Y	EP
8/1/08	P27	108126524	90	0 - 5 MPH	60T	49	22.5	Y	EP
8/1/08	P28	108126524	90	0 - 5 MPH	60T	49	22.5	Y	EP
8/1/08	P29	108126524	90	0 - 5 MPH	60T	50	22.5	Y	EP
8/1/08	P30	108126524	90	0 - 5 MPH	60T	50	22.5	Y	EP
8/1/08	P31	108126524	90	0 - 5 MPH	60T	51	22.5	Y	EP
8/1/08	P32	108126524	90	0 - 5 MPH	60T	51	22.5	Y	EP
8/1/08	P33	108126524	90	0 - 5 MPH	60T	40	22.5	Y	EP
8/1/08	P34	108126511	90	0 - 5 MPH	60T	40	22.5	Y	EP
8/1/08	P35	108126517	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/1/08	P36	108126524	90	0 - 5 MPH	60T	45	22.5	Y	EP
8/1/08	P37	108126521	90	0 - 5 MPH	60T	141	22.5	Y	EP
8/1/08	P38	108126537	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/1/08	P39	108126521	90	0 - 5 MPH	60T	193	22.5	Y	EP
8/1/08	P40	108126521	90	0 - 5 MPH	60T	192	22.5	Y	EP

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
8/1/08	P41	108126534	80	0 - 5 MPH	60T	520	22.5	Y	EP
8/2/08	P42	108126535	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/2/08	P43	108126536	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/2/08	P44	108126479	90	0 - 5 MPH	60T	189	22.5	Y	EP
8/2/08	P45	108126479	90	0 - 5 MPH	60T	191	22.5	Y	EP
8/2/08	P46	108126476	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/2/08	P47	108126503	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/2/08	P48	108126479	90	0 - 5 MPH	60T	148	22.5	Y	EP
8/2/08	P49	108126531	90	0 - 5 MPH	60T	40	22.5	Y	EP
8/2/08	P50	108126531	90	0 - 5 MPH	60T	191	22.5	Y	EP
8/3/08	P51	108126518	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/3/08	P52	108126513	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/3/08	P53	108126521	90	0 - 5 MPH	60T	184	22.5	Y	EP
8/3/08	P54	108126515	90	0 - 5 MPH	60T	108	22.5	Y	EP
8/3/08	P55	108126531	90	0 - 5 MPH	60T	75	22.5	Y	EP
8/3/08	P56	108126512	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/3/08	P57	108126522	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/3/08	P58	108126515	90	0 - 5 MPH	60T	186	22.5	Y	EP

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

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 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
8/3/08	P59	108126515	90	0 - 5 MPH	60T	46	22.5	Y	EP
8/3/08	P60	108126532	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/3/08	P61	108126515	90	0 - 5 MPH	60T	180	22.5	Y	EP
8/3/08	P62	108126472	90	0 - 5 MPH	60T	105	22.5	Y	EP
8/3/08	P63	108126508	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/3/08	P64	108126480	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/3/08	P65	108126472	90	0 - 5 MPH	60T	185	22.5	Y	EP
8/3/08	P66	108126472	90	0 - 5 MPH	60T	189	22.5	Y	EP
8/4/08	P67	108126526	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/4/08	P68	108126539	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/4/08	P69	108126472	90	0 - 5 MPH	60T	52	22.5	Y	EP
8/4/08	P70	108126541	90	0 - 5 MPH	60T	138	22.5	Y	EP
8/4/08	P71	108126541	90	0 - 5 MPH	60T	189	22.5	Y	EP
8/4/08	P72	108126523	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/4/08	P73	108126533	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/4/08	P74	108126541	90	0 - 5 MPH	60T	180	22.5	Y	EP
8/4/08	P75	108126489	90	0 - 5 MPH	60T	184	22.5	Y	EP
8/4/08	P76	108126540	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/4/08	P77	108126489	90	0 - 5 MPH	60T	186	22.5	Y	EP

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
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Geosynthetics Daily Deployment Log



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
8/4/08	P78	108126494	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/4/08	P79	108126520	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/4/08	P80	108126489	90	0 - 5 MPH	60T	144	22.5	Y	EP
8/4/08	P81	108126488	90	0 - 5 MPH	60T	32	22.5	Y	EP
8/4/08	P82	108126488	90	0 - 5 MPH	60T	176	22.5	Y	EP
8/4/08	P83	108126469	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/4/08	P84	108126483	90	0 - 5 MPH	60T	520	22.5	Y	EP
8/4/08	P85	108126488	90	0 - 5 MPH	60T	117	22.5	Y	EP
8/4/08	P86	108126488	90	0 - 5 MPH	60T	122	22.5	Y	EP
8/5/08	P87	108126500	90	0 - 5 MPH	60T	508	22.5	Y	EP
8/5/08	P88	108126481	90	0 - 5 MPH	60T	511	22.5	Y	EP
8/5/08	P89	108126488	90	0 - 5 MPH	60T	49	22.5	Y	EP
8/5/08	P90	108126516	90	0 - 5 MPH	60T	68	22.5	Y	EP
8/5/08	P91	108126516	90	0 - 5 MPH	60T	115	22.5	Y	EP
8/5/08	P92	108126471	90	0 - 5 MPH	60T	507	22.5	Y	EP
8/5/08	P93	108126519	90	0 - 5 MPH	60T	512	22.5	Y	EP
8/5/08	P94	108126516	90	0 - 5 MPH	60T	126	22.5	Y	EP
8/5/08	P95	108126519	90	0 - 5 MPH	60T	124	22.5	Y	EP
8/5/08	P96	108126525	90	0 - 5 MPH	60T	513	22.5	Y	EP

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

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 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
8/5/08	P97	108126516	90	0 - 5 MPH	60T	72	22.5	Y	EP
8/5/08	P98	108126497	90	0 - 5 MPH	60T	53	22.5	Y	EP
8/5/08	P99	108126497	90	0 - 5 MPH	60T	75	22.5	Y	EP
8/5/08	P100	108126497	90	0 - 5 MPH	60T	68	22.5	Y	EP
8/5/08	P101	108126497	90	0 - 5 MPH	60T	68	22.5	Y	EP
8/5/08	P102	108126497	90	0 - 5 MPH	60T	67	22.5	Y	EP
8/5/08	P103	108126497	90	0 - 5 MPH	60T	67	22.5	Y	EP
8/5/08	P104	108126497	90	0 - 5 MPH	60T	57	22.5	Y	EP
8/5/08	P105	108126510	90	0 - 5 MPH	60T	65	22.5	Y	EP
8/5/08	P106	108126510	90	0 - 5 MPH	60T	62	22.5	Y	EP
8/7/08	P107	108126510	90	0 - 5 MPH	60T	67	22.5	Y	EP
8/7/08	P108	108126510	90	0 - 5 MPH	60T	69	22.5	Y	EP
8/7/08	P109	108126510	90	0 - 5 MPH	60T	70	22.5	Y	EP
8/7/08	P110	108126510	90	0 - 5 MPH	60T	57	22.5	Y	EP
8/7/08	P111	108126510	90	0 - 5 MPH	60T	71	22.5	Y	EP
8/7/08	P112	108126510	90	0 - 5 MPH	60T	72	22.5	Y	EP
8/7/08	P113	108126475	90	0 - 5 MPH	60T	73	22.5	Y	EP
8/7/08	P114	108126475	90	0 - 5 MPH	60T	76	22.5	Y	EP
8/7/08	P115	108126475	90	0 - 5 MPH	60T	69	10	Y	EP
8/7/08	P116	108126475	90	0 - 5 MPH	60T	81	22.5	Y	EP

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

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 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
8/7/08	P117	108126575	90	0 - 5 MPH	60T	84	22.5	Y	EP
8/7/08	P118	108126575	90	0 - 5 MPH	60T	86	22.5	Y	EP
8/7/08	P119	108126575	90	0 - 5 MPH	60T	83	22.5	Y	EP
8/7/08	P120	108126498	90	0 - 5 MPH	60T	93	22.5	Y	EP
8/7/08	P121	108126498	90	0 - 5 MPH	60T	80	22.5	Y	EP
8/7/08	P122	108126498	90	0 - 5 MPH	60T	54	22.5	Y	EP
8/7/08	P123	108126498	90	0 - 5 MPH	60T	85	22.5	Y	EP
8/7/08	P124	108126498	90	0 - 5 MPH	60T	66	22.5	Y	EP
8/7/08	P125	108126498	90	0 - 5 MPH	60T	38	22.5	Y	EP
8/12/08	P126	108126498	90	0 - 5 MPH	60T	10	22.5	Y	EP
8/12/08	P127	108126487	90	0 - 5 MPH	60T	514	22.5	Y	EP
8/12/08	P128	108126473	90	0 - 5 MPH	60T	507	22.5	Y	EP
8/12/08	P129	108126486	90	0 - 5 MPH	60T	121	22.5	Y	EP
8/12/08	P130	108126486	90	0 - 5 MPH	60T	73	22.5	Y	EP
8/12/08	P131	108126502	90	0 - 5 MPH	60T	52	22.5	Y	EP
8/12/08	P132	108126496	90	0 - 5 MPH	60T	510	22.5	Y	EP
8/12/08	P133	108126495	90	0 - 5 MPH	60T	507	22.5	Y	EP
8/12/08	P134	108126502	90	0 - 5 MPH	60T	123	22.5	Y	EP
8/12/08	P135	108126514	90	0 - 5 MPH	60T	118	22.5	Y	EP
8/12/08	P136	108126507	90	0 - 5 MPH	60T	503	22.5	Y	EP

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
8/12/08	P137	108126507	90	0 - 5 MPH	60T	505	22.5	Y	EP
8/12/08	P138	108126502	90	0 - 5 MPH	60T	115	22.5	Y	EP
8/12/08	P139	108126502	90	0 - 5 MPH	60T	105	22.5	Y	EP
8/13/08	P140	108126490	90	0 - 5 MPH	60T	505	22.5	Y	EP
8/13/08	P141	108126477	90	0 - 5 MPH	60T	508	22.5	Y	EP
8/13/08	P142	108126484	90	0 - 5 MPH	60T	96	22.5	Y	EP
8/13/08	P143	108126484	90	0 - 5 MPH	60T	89	22.5	Y	EP
8/13/08	P144	108126482	90	0 - 5 MPH	60T	513	22.5	Y	EP
8/13/08	P145	108126509	90	0 - 5 MPH	60T	511	22.5	Y	EP
8/13/08	P146	108126484	90	0 - 5 MPH	60T	83	22.5	Y	EP
8/13/08	P147	108126484	90	0 - 5 MPH	60T	82	22.5	Y	EP
8/13/08	P148	108126528	90	0 - 5 MPH	60T	505	22.5	Y	EP
8/13/08	P149	108126528	90	0 - 5 MPH	60T	76	22.5	Y	EP
8/13/08	P150	108126470	90	0 - 5 MPH	60T	208	22.5	Y	EP
8/13/08	P151	108126470	90	0 - 5 MPH	60T	208	22.5	Y	EP
8/13/08	P152	108126470	90	0 - 5 MPH	60T	306	22.5	Y	EP
8/13/08	P153	108126485	90	0 - 5 MPH	60T	183	22.5	Y	EP
8/13/08	P154	108126485	90	0 - 5 MPH	60T	145	22.5	Y	EP
8/13/08	P155	108126485	90	0 - 5 MPH	60T	50	22.5	Y	EP
8/13/08	P156	108126485	90	0 - 5 MPH	60T	50	22.5	Y	EP

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
8/13/08	P157	108126485	90	0 - 5 MPH	60T	50	22.5	Y	EP
8/14/08	P158	108126504	70	0 - 5 MPH	60T	71	22.5	Y	EP
8/14/08	P159	108126504	70	0 - 5 MPH	60T	71	22.5	Y	EP
8/14/08	P160	108126501	70	0 - 5 MPH	60T	71	22.5	Y	EP
8/14/08	P161	108126501	70	0 - 5 MPH	60T	73	22.5	Y	EP
8/14/08	P162	108126501	70	0 - 5 MPH	60T	73	22.5	Y	EP
8/14/08	P163	108126501	70	0 - 5 MPH	60T	74	22.5	Y	EP
8/14/08	P164	108126501	70	0 - 5 MPH	60T	75	22.5	Y	EP
8/14/08	P165	108126499	70	0 - 5 MPH	60T	76	22.5	Y	EP
8/14/08	P166	108126499	70	0 - 5 MPH	60T	75	22.5	Y	EP
8/14/08	P167	108126499	70	0 - 5 MPH	60T	72	22.5	Y	EP
8/14/08	P168	108126499	70	0 - 5 MPH	60T	73	22.5	Y	EP
8/14/08	P169	108126499	70	0 - 5 MPH	60T	71	22.5	Y	EP
8/14/08	P170	108126538	70	0 - 5 MPH	60T	74	22.5	Y	EP
8/14/08	P171	108126538	70	0 - 5 MPH	60T	76	22.5	Y	EP
8/14/08	P172	108126538	70	0 - 5 MPH	60T	76	22.5	Y	EP
8/14/08	P173	108126538	70	0 - 5 MPH	60T	77	22.5	Y	EP
8/14/08	P174	108126538	70	0 - 5 MPH	60T	80	22.5	Y	EP
8/14/08	P175	108126506	70	0 - 5 MPH	60T	79	22.5	Y	EP
8/14/08	P176	108126506	70	0 - 5 MPH	60T	78	22.5	Y	EP

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
8/14/08	P177	108126506	70	0 - 5 MPH	60T	77	22.5	Y	EP
8/14/08	P178	108126506	70	0 - 5 MPH	60T	78	22.5	Y	EP
8/14/08	P179	108126506	70	0 - 5 MPH	60T	75	22.5	Y	EP
8/14/08	P180	108126505	70	0 - 5 MPH	60T	74	22.5	Y	EP
8/14/08	P181	108126505	70	0 - 5 MPH	60T	76	22.5	Y	EP
8/14/08	P182	108126505	70	0 - 5 MPH	60T	76	22.5	Y	EP
8/14/08	P183	108126499	70	0 - 5 MPH	60T	71	22.5	Y	EP
8/14/08	P184	108126506	70	0 - 5 MPH	60T	37	22.5	Y	EP
8/14/08	P185	108126506	70	0 - 5 MPH	60T	15	22.5	Y	EP
8/14/08	P186	108126538	70	0 - 5 MPH	60T	17	22.5	Y	EP

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

APPENDIX O

GEOMEMBRANE TRIAL WELD SUMMARY

Geomembrane Trial Weld Summary

Terracon
25809 Interstate 30 South
Bryant, Arkansas 72202
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

Specification for Trial Welds	
Peel Extrusion =	78
Peel Fusion =	90
Shear Extrusion =	120
Shear Fusion =	120

Date	Time	Ambient Temp °F	Sample ID	QC Initials	Machine Number	Seamer Initials	Weld Type	Fusion Weld		Extrusion Weld		Test Values lbs/inch								Pass or Fail
								Wedge Temp °F	Speed ft/hr	Temp °F	Preheat Setting									
8/1/08	7:15	80	1	EP	776	HB	F	400	5.2			P 128	137	141	134	135	140			Pass
												S 170		161		163				
8/1/08	7:20	80	2	EP	775	AC	F	400	5.2			P 130	131	138	141	128	131			Pass
												S 166		161		168				
8/1/08	1:05	100	3	EP	776	HB	F	400	5.2			P 115	111	111	115	116	117			Pass
												S 166		163		162				
8/2/08	7:02	80	4	EP	776	HB	F	400	5.4			P 132	130	130	133	119	137			Pass
												S 159		160		149				
8/2/08	7:45	80	5	EP	609	JA	F	400	5.2			P 121	123	131	128	126	134			Pass
												S 159		160		149				
8/2/08	8:00	85	6	EP	775	AC	F	400	5.4			P 124	118	123	127	128	129			Pass
												S 154		149		154				
8/2/08	12:30	100	7	EP	609	JA	F	400	5.2			P 129	116	119	117	126	117			Pass
												S 138		136		138				
8/2/08	12:30	100	8	EP	706	HB	F	400	5.2			P 107	121	117	105	109	112			Pass
												S 141		143		139				
8/3/08	7:00	80	9	EP	775	AC	F	400	5.2			P 122	122	124	124	127	122			Pass
												S 161		160		164				
8/3/08	7:30	80	10	EP	776	HB	F	400	5.2			P 111	109	120	131	124	121			Pass
												S 166		154		164				
8/3/08	7:30	80	11	EP	609	JA	F	400	5.2			P 116	121	131	130	137	139			Pass
												S 165		169		166				
8/3/08	1:11	100	12	EP	775	AC	F	400	5.4			P 106	114	111	104	114	107			Pass
												S 134		138		135				
8/3/08	1:15	100	13	EP	776	HB	F	400	5.4			P 117	116	111	118	123	120			Pass
												S 131		135		136				
8/3/08	1:20	100	14	EP	609	JA	F	400	5.4			P 106	115	108	113	122	119			Pass
												S 130		141		133				
8/4/08	7:05	80	15	EP	775	AC	F	400	5.2			P 136	129	135	130	131	135			Pass
												S 168		173		170				

Geomembrane Trial Weld Summary

Terracon
25809 Interstate 30 South
Bryant, Arkansas 72202
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

Specification for Trial Welds	
Peel Extrusion =	78
Peel Fusion =	90
Shear Extrusion =	120
Shear Fusion =	120

Date	Time	Ambient Temp °F	Sample ID	QC Initials	Machine Number	Seamer Initials	Weld Type	Fusion Weld		Extrusion Weld		Test Values lbs/inch								Pass or Fail			
								Wedge Temp °F	Speed ft/hr	Temp °F	Preheat Setting												
8/4/08	7:10	100	16	EP	776	HB	F	400	5.2			P	141	130	132	135	130	130					Pass
												S	161		165		161						
8/4/08	7:15	100	17	EP	609	JA	F	400	5.2			P	134	145	135	126	132	141					Pass
												S	170		171		171						
8/4/08	12:15	100	18	EP	776	HB	F	400	5.2			P	118	126	121	118	126	122					Pass
												S	136		139		136						
8/4/08	12:20	100	19	EP	609	JA	F	400	5.2			P	120	120	122	115	123	118					Pass
												S	134		133		141						
8/4/08	12:50	100	20	EP	610	AC	F	400	5.2			P	104	102	107	109	106	111					Pass
												S	136		130		131						
8/5/08	12:50	100	21	EP	775	AC	F	400	5.4			P	104	102	107	109	106	111					Pass
												S	136		130		131						
8/5/08	7:00	100	22	EP	776	HB	F	400	5.2			P	128	141	128	129	130	141					Pass
												S	158		157		163						
8/5/08	7:05	100	23	EP	609	JA	F	400	5.2			P	138	140	127	124	137	139					Pass
												S	179		170		171						
8/5/08	8:10	100	24	EP	775	AC	F	400	5.2			P	124	127	125	130	131	117					Pass
												S	161		162		163						
8/5/08	12:45	100	25	EP	775	AC	F	400	5.2			P	109	114	111	109	108	120					Pass
												S	133		136		133						
8/5/08	12:50	100	26	EP	776	HB	F	400	5.2			P	112	108	116	107	106	117					Pass
												S	134		131		136						
8/6/08	7:00	100	27	EP	776	HB	F	400	5.2			P	143	128	132	146	137	133					Pass
												S	170		169		170						
8/6/08	9:00	100	28	EP	609	JA	F	400	5.2			P	126	128	122	146	115	133					Pass
												S	153		156		155						
8/7/08	7:20	100	29	EP	609	JA	F	400	5.2			P	131	129	136	133	130	142					Pass
												S	171		173		171						
8/7/08	7:30	100	30	EP	453	AC	F	400	5.2			P	110	111	121	114	108	125					Pass
												S	164		166		161						

Geomembrane Trial Weld Summary

Terracon
25809 Interstate 30 South
Bryant, Arkansas 72202
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

Specification for Trial Welds	
Peel Extrusion =	78
Peel Fusion =	90
Shear Extrusion =	120
Shear Fusion =	120

Date	Time	Ambient Temp °F	Sample ID	QC Initials	Machine Number	Seamer Initials	Weld Type	Fusion Weld		Extrusion Weld		Test Values lbs/inch								Pass or Fail			
								Wedge Temp °F	Speed ft/hr	Temp °F	Preheat Setting												
8/11/08	7:20	80	31	EP	609	JA	F	400	5.2			P	131	131	122	135	129	131					Pass
												S	177		173		177						
8/11/08	10:30	90	32	EP	Ext 43	JR	E			440	260	P	131		130		128						Pass
												S	150		157		159						
8/12/08	7:10	70	33	EP	453	AC	F	400	5.2			P	134	141	141	137	137	151					Pass
												S	174		174		173						
8/12/08	7:20	70	34	EP	609	JA	F	400	5.2			P	121	127	118	139	125	125					Pass
												S	174		176		174						
8/12/08	7:30	70	35	EP	776	HB	F	400	5.2			P	132	127	131	122	127	130					Pass
												S	176		177		176						
8/12/08	12:15	100	36	EP	453	AC	F	400	5.2			P	138	120	129	122	136	115					Pass
												S	166		169		169						
8/12/08	12:30	100	37	EP	776	HB	F	400	5.2			P	131	128	132	134	135	127					Pass
												S	159		162		151						
8/12/08	12:35	100	38	EP	609	JA	F	400	5.2			P	129	121	120	121	113	124					Pass
												S	157		156		157						
8/13/08	7:15	70	39	EP	453	AC	F	400	4.5			P	131	128	136	136	120	136					Pass
												S	173		171		173						
8/13/08	7:20	70	40	EP	776	HB	F	400	5.0			P	137	133	138	134	129	133					Pass
												S	181		181		178						
8/13/08	7:20	70	41	EP	609	JA	F	400	5.0			P	144	131	132	143	130	132					Pass
												S	184		182		181						
8/13/08	12:40	95	42	EP	776	HB	F	400	5.0			P	117	107	107	108	117	111					Pass
												S	127		134		133						
8/13/08	12:45	95	43	EP	609	JA	F	400	5.0			P	107	106	110	110	113	108					Pass
												S	130		132		127						
8/13/08	12:50	95	44	EP	453	AC	F	400	5.0			P	117	110	109	107	112	111					Pass
												S	129		130		131						
8/14/08	7:10	75	45	EP	776	HB	F	400	5.0			P	127	141	143	129	133	132					Pass
												S	186		184		181						

Terracon

Bryant, Arkansas 72202

Phone 501.847.9292

Fax 501.847.9210

Liner Installer: Plastic Fusion Fabricators

[illegible]

APPENDIX P

GEOMEMBRANE PANEL SEAMING SUMMARY

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Dynegy

Contractor: Grayco Construction Co.

Project Name: Cell 1 CQA

Address: Plum Point Class 3N Landfill

Location: Osceola, Arkansas

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. 776, 775, 609

Carry Over: 3,216 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
8/1/08	7:31	AC 775	P1 - P2	21	NP	EOBB-P4	3237				
8/1/08	8:16	HB 776	P2 - P3	41	NP	EOBB-P4	3278				
8/1/08	7:47	HB 776	P3 - P4	66	NP	P2-SOBB	3344				
8/1/08	7:54	AC 775	P4 - P5	46	NP	P38-SOBB	3390				
8/1/08	8:06	AC 775	P5 - P6	44	NP	P38-SOBB	3434				
8/1/08	8:18	AC 775	P6 - P7	45	NP	P38-SOBB	3479				
8/1/08	8:15	AC 775	P7 - P8	44	NP	P38-SOBB	3523				
8/1/08	8:24	AC 775	P8 - P9	44	NP	P38-SOBB	3567				
8/1/08	8:42	HB 776	P9 - P10	45	NP	P38-SOBB	3612				
8/1/08	8:45	AC 775	P10 - P11	45	NP	P38-SOBB	3657				
8/1/08	8:52	HB 776	P11 - P12	45	NP	P36-SOBB	3702				
8/1/08	8:55	AC 775	P12 - P13	46	NP	P36-SOBB	3748	DS1	EOS - 20'N	PASS	PASS
8/1/08	9:00	HB 776	P13 - P14	45	NP	P36-SOBB	3793				
8/1/08	9:06	AC 775	P14 - P15	46	NP	P35-SOBB	3839				
8/1/08	9:10	HB 776	P15 - P16	46	NP	P35-SOBB	3885				
8/1/08	9:27	AC 775	P16 - P17	46	NP	P35-SOBB	3931				
8/1/08	9:37	HB 776	P17 - P18	47	NP	P35-SOBB	3978				
8/1/08	9:40	HB 776	P18 - P19	47	NP	P35-SOBB	4025				
8/1/08	9:50	AC 775	P19 - P20	46	NP	P35-SOBB	4071				
8/1/08	9:49	HB 776	P20 - P21	46	NP	P35-SOBB	4117				

TOTAL = 901 ft

Seam Length this Machine:

This Page: 901 ft

Accumulated: 4,117 ft

Carry Over: 3,216 ft

Note: _____

Geomembrane Panel Seaming Summary



25809 Interstate 30 South
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion Fabricators

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. 776, 775, 609

Carry Over: 4,117 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
8/1/08	9:59	AC 775	P21 - P22	47	NP	SOBB-P35	4164				
8/1/08	10:08	HB 776	P22 - P23	46	NP	SOBB-P35	4210	DS2	EOS - 25'N	PASS	PASS
8/1/08	10:14	HB 776	P23 - P24	46	NP	SOBB-P35	4256				
8/1/08	10:20	AC 775	P24 - P25	48	NP	SOBB-P35	4304				
8/1/08	10:24	HB 776	P25 - P26	48	NP	SOBB-P35	4352				
8/1/08	10:30	AC 775	P26 - P27	48	NP	SOBB-P35	4400				
8/1/08	10:30	HB 776	P27 - P28	49	NP	SOBB-P35	4449				
8/1/08	10:36	AC 775	P28 - P29	49	NP	SOBB-P35	4498				
8/1/08	10:40	HB 776	P29 - P30	50	NP	SOBB-P35	4548				
8/1/08	10:46	AC 775	P30 - P31	50	NP	SOBB-P35	4598				
8/1/08	10:53	HB 776	P31 - P32	51	NP	SOBB-P35	4649				
8/1/08	11:03	HB 776	P32 - P33	51	NP	SOBB-P34	4700				
8/1/08	11:03	HB 776	P33 - P34	40	NP	WAT-P32	4740				
8/2/08	7:35	HB 776	P34 - P35	40	NP	WAT-P32	4780				
8/2/08	7:40	JA 609	P35 - P36	706	NP	WAT-EOBB	5486	DS3	AT - 100'E	PASS	PASS
8/2/08	2:34	HB 776	P35 - P38	713	NP	WAT-P36	6199	DS4/DS12	AT - 40'E / OBB - 190'W	PASS	PASS
8/2/08	8:00	JA 609	P36 - P37	22.5	NP	P11-P39	6222	DS5	P9 - 10'N	PASS	PASS
8/2/08	3:45	AC 775	P38 - P41	712	NP	WAT-EOBB	6934	DS6	AT - 500'E	PASS	PASS
8/2/08	9:00	AC 775	P38 - P39	22.5	NP	P36-P41	6956				
8/2/08	9:15	HB 776	P40 - P41	22.5	NP	P39-P42	6979				

TOTAL = 2,862 ft

Seam Length this Machine:

This Page: 2,862 ft

Accumulated: 6,979 ft

Note: _____

Carry Over: 4,117 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Dynegy

Contractor: Grayco Construction Co.

Project Name: Cell 1 CQA

Address: Plum Point Class 3N Landfill

Location: Osceola, Arkansas

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. 776, 775, 609

Carry Over: 6,979 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
8/2/08	9:33	AC 609	P41 - P42	709	NP	WAT-EOBB	7688	DS7	AT - 120'E	PASS	PASS
8/2/08	9:41	HB 776	P42 - P43	711	NP	WAT-EOBB	8399				
8/2/08	9:51	AC 775	P42 - P44	22.5	NP	P71-P74	8422	DS8	EOS - 100'W	PASS	PASS
8/2/08	10:02	AC 775	P43 - P45	22.5	NP	P80-P82	8444				
8/2/08	1:15	JA 609	P43 - P46	711	NP	WAT-EOBB	9155				
8/2/08	1:53	HB 776	P46 - P47	711	NP	WAT-EOBB	9866	DS9	AT - 90'E	PASS	PASS
8/2/08	2:15	HB 776	P46 - P48	22.5	NP	P47-P43	9889				
8/2/08	2:45	HB 776	P47 - P50	22.5	NP	P48-P51	9911				
8/3/08	7:23	AC 609	P47 - P51	704	NP	WAT-EOBB	10615				
8/3/08	8:15	AC 609	P48 - P49	22.5	NP	P45-P50	10638				
8/3/08	7:47	HB 776	P51 - P52	704	NP	WAT-EOBB	11342				
8/3/08	7:53	JA 609	P51 - P53	22.5	NP	P50-P54	11364				
8/3/08	7:51	JA 609	P52 - P54	22.5	NP	P51-P56	11387				
8/3/08	6:07	JA 609	P54 - P55	22.5	NP	P53-P58	11409	DS10	EOS - 140'W	PASS	PASS
8/3/08	9:27	AC 775	P52 - P56	706	NP	WAT-EOBB	12115	DS11	AT - 60'E	PASS	PASS
8/3/08	9:38	HB 776	P56 - P57	706	NP	WAT-EOBB	12821				
8/3/08	9:53	JA 609	P56 - P58	22.5	NP	P54-P59	12844				
8/3/08	11:10	AC 775	P57 - P59	22.5	NP	P56-P61	12866				
8/3/08	11:20	AC 775	P57 - P60	805	NP	WAT-EOBB	13671	DS14	EOS - 25'W	PASS	PASS
8/3/08	10:59	JA 609	P60 - P61	22.5	NP	P57-P63	13694				

TOTAL = 6,715 ft

Seam Length this Machine:

This Page: 6,715 ft

Accumulated: 13,694 ft

Note: _____

Carry Over: 6,979 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Dynegy

Contractor: Grayco Construction Co.

Project Name: Cell 1 CQA

Address: Plum Point Class 3N Landfill

Location: Osceola, Arkansas

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. 776, 775, 609

Carry Over: 13,694 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
8/3/08	1:25	AC 775	P60 - P63	705.0	NP	WAT-EOBB	14399	DS13	AT - 46'E	PASS	PASS
8/3/08	11:23	JA 609	P61 - P62	22.5	NP	P59-P65	14422				
8/3/08	1:37	HB 776	P63 - P64	709.0	NP	WAT-EOBB	15131				
8/3/08	1:55	JA 609	P63 - P65	22.5	NP	P61-P66	15153				
8/3/08	2:05	JA 609	P64 - P66	22.5	NP	P63-P69	15176				
8/4/08	6:35	AC 775	P64 - P67	709.0	NP	WAT-EOBB	15885	DS15	EOS - 41'W	PASS	PASS
8/4/08	7:41	HB 776	P67 - P68	709.0	NP	WAT-EOBB	16594	DS16	AT - 46'E	PASS	PASS
8/4/08	7:50	AC 775	P67 - P69	22.5	NP	P64-P68	16616				
8/4/08	8:10	JA 609	P68 - P71	22.5	NP	P69-P72	16639				
8/4/08	9:13	AC 775	P68 - P72	706.0	NP	WAT-EOBB	17345	DS17	EOS - 50'W	PASS	PASS
8/4/08	8:20	JA 609	P69 - P70	22.5	NP	P66-P71	17367				
8/4/08	9:44	HB 776	P72 - P73	704.0	NP	WAT-EOBB	18071	DS18	AT - 108'E	PASS	PASS
8/4/08	10:07	JA 609	P72 - P74	22.5	NP	P71-P75	18094				
8/4/08	10:12	JA 609	P73 - P75	22.5	NP	P72-P76	18116				
8/4/08	11:03	AC 775	P73 - P76	706.0	NP	WAT-EOBB	18822	DS19	EOS - 182'W	PASS	PASS
8/4/08	11:20	JA 609	P76 - P77	22.5	NP	P75-P77	18845				
8/4/08	12:50	HB 776	P76 - P78	709.0	NP	WAT-EOBB	19554	DS20	AT - 86'E	PASS	PASS
8/4/08	1:13	AC 775	P78 - P79	709.0	NP	WAT-EOBB	20263	DS21	EOS - 190'W	PASS	PASS
8/4/08	1:36	JA 609	P78 - P80	22.5	NP	P76-P79	20285				
8/4/08	2:15	JA 609	P79 - P82	22.5	NP	P80-P83	20308				

TOTAL = 6,614 ft

Seam Length this Machine:

This Page: 6,614 ft

Accumulated: 20,308 ft

Carry Over: 13,694 ft

Note: _____

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Dynegy

Contractor: Grayco Construction Co.

Project Name: Cell 1 CQA

Address: Plum Point Class 3N Landfill

Location: Osceola, Arkansas

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. 776, 775, 609, 453

Carry Over: 20,308 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
8/4/08	1:20	HB 776	P79 - P99	22.5	NP	WAT-EOBB	20331	DS22	AT - 25'E	PASS	PASS
8/4/08	1:52	AC 775	P80 - P81	22.5	NP	P77-P82	20353				
8/4/08	3:10	HB 776	P83 - P84	628.0	NP	P100-EOBB	20981				
8/4/08	3:22	JA 609	P83 - P85	22.5	NP	P82-P86	21004				
8/4/08	3:33	JA 609	P84 - P86	22.5	NP	P83-P89	21026	DS23	EOS - 30'W	PASS	FAILED
							21026	DS23A	DS23 - 10'E	PASS	PASS
							21026	DS23B	DS23 - 10'W	PASS	PASS
8/5/08	8:10	HB 776	P87 - P88	630.0	NP	P102-EOBB	21656				
8/5/08	7:50	JA 609	P87 - P89	22.5	NP	P84-P88	21679				
8/5/08	8:26	JA 609	P88 - P91	22.5	NP	P89-P94	21701				
8/5/08	9:05	HB 776	P88 - P92	627.0	NP	P102-EOBB	22328				
8/5/08	10:00	HB 776	P92 - P93	644.0	NP	P104-EOBB	22972				
8/5/08	9:55	JA 609	P92 - P94	22.5	NP	P88-P93	22995				
8/5/08	10:10	JA 609	P93 - P95	22.5	NP	P94-P97	23017				
8/5/08	10:50	HB 776	P93 - P96	626.0	NP	P105-EOBB	23643				
8/5/08	11:25	JA 609	P96 - P97	22.5	NP	P93-P127	23666				
8/12/08	7:35	AC 453	P96 - P127	627.0	NP	P106-EOBB	24293	DS29	AT - 134'E	PASS	PASS
8/12/08	9:00	AC 453	P97 - P98	22.5	NP	P95-P129	24315				
8/5/08	1:20	HB 776	P99 - P100	68.0	NP	P84-WAT	24383				
8/5/08	1:32	HB 776	P100 - P101	68.0	NP	P87-WAT	24451	DS24	AT - 50'E	PASS	PASS

TOTAL = 4,143 ft

Seam Length this Machine:

This Page: 4,143 ft

Accumulated: 24,451 ft

Carry Over: 20,308 ft

Note: _____

Terracon

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

☒ Primary

☐ **Secondary**

☐ Other: _____

Carry Over: 24,451 ft

TOTAL = 1,286 ft

This Page: 1,286 ft

Carry Over: 24,451 ft

Note:

Terracon

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

☒ Primary

☐ Secondary

☐ Other: _____

Carry Over: 25,737 ft

TOTAL = 323 ft

Accumulated:	26,060	ft
---------------------	--------	----

Carry Over: 25,737 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Dynegy

Contractor: Grayco Construction Co.

Project Name: Cell 1 CQA

Address: Plum Point Class 3N Landfill

Location: Osceola, Arkansas

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. 776, 775, 609, 453

Carry Over: 26,060 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
8/5/08	3:37	HB 776	P108 - P109	70.0	NP	P133-WAT	26130				
8/5/08	3:56	HB 776	P109 - P110	70.0	NP	P136-WAT	26200				
8/5/08	4:16	HB 776	P110 - P111	71.0	NP	P137-WAT	26271				
8/5/08	4:35	HB 776	P111 - P112	72.0	NP	P140-WAT	26343				
8/7/08	7:36	HB 609	P112 - P113	73.0	NP	P141-WAT	26416				
8/7/08	7:57	AC 453	P113 - P114	76.0	NP	P144-WAT	26492				
8/7/08	7:51	HB 609	P114 - P115	69.0	NP	P145-WAT	26561				
8/7/08	7:51	HB 609	P115 - P116	81.0	NP	P148-WAT	26642				
8/7/08	8:20	AC 453	P116 - P117	84.0	NP	P150-WAT	26726	DS47	AT - 80'E	PASS	PASS
8/7/08	8:40	HB 609	P117 - P118	86.0	NP	P151-WAT	26812				
8/7/08	9:07	HB 609	P119 - P120	83.0	NP	P123-WAT	26895				
8/7/08	9:15	AC 775	P120 - P121	93.0	NP	P124-WAT	26988	DS48	AT - 90'E	PASS	PASS
8/7/08	9:25	HB 609	P121 - P122	52.0	NP	P125-WAT	27040				
8/7/08	8:05	JA 609	P122 - P125	30.0	NP	P122-NAT	27070				
8/7/08	10:06	AC 453	P125 - P124	37.0	NP	P121-NAT	27107				
8/7/08	10:00	HB 609	P124 - P123	65.0	NP	P120-NAT	27172				
8/12/08	7:52	HB 776	P127 - P128	645.0	NP	P107-EOBB	27817	DS30	EOS - 62'W	PASS	PASS
8/12/08	8:00	JA 609	P127 - P129	22.5	NP	P97-P130	27840				
8/12/08	8:15	JA 609	P128 - P130	22.5	NP	P127-P132	27862				
8/12/08	9:26	AC 453	P128 - P132	643.0	NP	P108-EOBB	28505	DS32	EOS - 153'W	PASS	PASS

TOTAL = 2,445 ft

Seam Length this Machine:

This Page: 2,445 ft

Accumulated: 28,505 ft

Carry Over: 26,060 ft

Note: _____

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Dynegy

Contractor: Grayco Construction Co.

Project Name: Cell 1 CQA

Address: Plum Point Class 3N Landfill

Location: Osceola, Arkansas

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. 776, 775, 609, 453

Carry Over: 28,505 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
8/12/08	8:27	JA 609	P130 - P131	22.5	NP	P129-P134	28528				
8/12/08	9:49	HB 776	P132 - P133	638.0	NP	P109-EOBB	29166	DS33	EOS - 218'W	PASS	PASS
8/12/08	10:40	JA 609	P132 - P134	22.5	NP	P130-P133	29188				
8/12/08	10:26	JA 609	P133 - P135	22.5	NP	P134-P136	29211				
8/12/08	12:30	AC 453	P133 - P136	635.0	NP	P109-EOBB	29846	DS34	AT - 170'E	PASS	PASS
8/12/08	12:44	HB 776	P136 - P137	625.0	NP	P111-EOBB	30471	DS35	EOS - 125'W	PASS	PASS
8/12/08	1:15	JA 609	P136 - P138	22.5	NP	P135-P137	30493				
8/12/08	1:28	JA 609	P137 - P139	22.5	NP	P138-P140	30516				
8/13/08	7:41	HB 776	P137 - P140	617.0	NP	P112-EOBB	31133	DS36/DS37	AT - 102'E / EOS - 80'W	PASS	PASS
8/13/08	8:08	AC 453	P140 - P141	609.0	NP	P113-EOBB	31742	DS38	AT - 273'E	PASS	PASS
8/13/08	8:33	JA 609	P140 - P142	22.5	NP	P139-P141	31764				
8/13/08	8:45	JA 609	P141 - P143	22.5	NP	P142-P146	31787				
8/13/08	9:45	HB 776	P141 - P144	603.0	NP	P113-EOBB	32390	DS39	EOS - 249'W	PASS	PASS
8/13/08	10:27	AC 453	P144 - P145	602.0	NP	P114-EOBB	32992	DS40	AT - 170'E	PASS	PASS
8/13/08	10:45	JA 609	P144 - P146	22.5	NP	P141-P145	33014				
8/13/08	10:50	JA 609	P145 - P147	22.5	NP	P146-P149	33037				
8/13/08	12:50	HB 776	P145 - P148	585.0	NP	P115-EOBB	33622	DS41/DS42	AT - 104'E / EOS - 60'W	PASS	PASS
8/13/08	2:48	JA 609	P148 - P149	22.5	NP	P145-P150	33644				
8/13/08	11:30	AC 453	P148 - P150	205.0	NP	P116-EOBB	33849	DS44	AT - 181'E	PASS	PASS
8/13/08	2:00	AC 453	P150 - P151	205.0	NP	P117-P157	34054	DS46	AT - 106'E	PASS	PASS

TOTAL = 5,549 ft

Seam Length this Machine:

This Page: 5,549 ft

Accumulated: 34,054 ft

Carry Over: 28,505 ft

Note: _____

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Dynegy

Contractor: Grayco Construction Co.

Project Name: Cell 1 CQA

Address: Plum Point Class 3N Landfill

Location: Osceola, Arkansas

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. 776, 775, 609, 453

Carry Over: 34,054 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
8/14/08	7:27	HB 776	P123 - P158	71.0	NP	P151-NAT	34125	DS49	AT - 15'S	PASS	PASS
8/14/08	7:37	JA 609	P158 - P159	74.0	NP	P151-NAT	34199				
8/14/08	7:50	HB 776	P159 - P160	74.0	NP	P151-NAT	34273	DS50	AT - 50'S	PASS	PASS
8/14/08	8:00	JA 609	P160 - P161	71.0	NP	P151-NAT	34344				
8/14/08	8:12	HB 776	P161 - P162	73.0	NP	P151-NAT	34417	DS51	AT - 35'S	PASS	PASS
8/14/08	8:22	JA 609	P162 - P163	75.0	NP	P151-NAT	34492				
8/14/08	8:35	HB 776	P163 - P164	75.0	NP	P151-NAT	34567	DS52	AT - 55'S	PASS	PASS
8/14/08	8:53	JA 609	P164 - P165	75.0	NP	P151-NAT	34642				
8/14/08	8:57	HB 776	P165 - P166	74.0	NP	P151-NAT	34716	DS53	AT - 30'S	PASS	PASS
8/14/08	9:25	HB 776	P166 - P167	76.0	NP	P151-NAT	34792				
8/14/08	9:45	HB 776	P167 - P168	72.0	NP	P151-NAT	34864	DS54	AT - 15'S	PASS	PASS
8/14/08	10:03	HB 776	P168 - P169	70.0	NP	P156-NAT	34934				
8/14/08	10:22	HB 776	P169 - P170	71.0	NP	P153-NAT	35005	DS55	AT - 25'S	PASS	PASS
8/14/08	10:40	JA 609	P170 - P171	75.0	NP	P153-NAT	35080				
8/14/08	10:40	HB 776	P171 - P172	76.0	NP	P153-NAT	35156	DS56	AT - 60'S	PASS	PASS
8/14/08	10:57	JA 609	P172 - P173	77.0	NP	P153-NAT	35233				
8/14/08	11:02	HB 776	P173 - P174	78.0	NP	P153-NAT	35311	DS57	AT - 25'S	PASS	PASS
8/14/08	11:32	HB 776	P174 - P175	80.0	NP	P153-NAT	35391				
8/14/08	11:41	JA 609	P175 - P176	78.0	NP	P153-NAT	35469	DS58	AT - 55'S	PASS	PASS
8/14/08	11:54	HB 776	P176 - P177	77.0	NP	P153-NAT	35546				

TOTAL = 1,492 ft

Seam Length this Machine:

This Page: 1,492 ft

Accumulated: 35,546 ft

Carry Over: 34,054 ft

Note: _____

Terracon

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

☒ Primary

☐ **Secondary**

☐ Other: _____

Carry Over: 35,546 ft

TOTAL = 420 ft

This Page: 420 ft

Carry Over: 35,546 ft

Note: _____

APPENDIX Q

GEOMEMBRANE NON-DESTRUCTIVE TEST LOG SUMMARY

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
08/01/08	P1 - P2	46	JK	30	30	0	7:37	7:42	P	P	P3 - OBB
08/01/08	P2 - P3	41	JK	30	30	0	8:45	8:50	P	P	P1 - OBB
08/01/08	P3 - P4	27	JK	30	30	0	7:53	7:58	P	P	P1 - OBB
08/01/08	P4 - P5	46	JK	30	30	0	8:30	8:35	P	P	P37 - OBB
08/01/08	P5 - P6	44	JK	30	30	0	8:33	8:38	P	P	P37 - OBB
08/01/08	P6 - P7	45	JK	30	30	0	8:40	8:45	P	P	P37 - OBB
08/01/08	P7 - P8	44	JK	30	30	0	8:41	8:46	P	P	P37 - OBB
08/01/08	P8 - P9	44	JK	30	30	0	8:55	9:00	P	P	P39 - OBB
08/01/08	P9 - P10	45	JK	30	30	0	9:02	9:07	P	P	P36 - OBB
08/01/08	P10 - P11	45	JK	30	30	0	9:16	9:21	P	P	P39 - OBB
08/01/08	P11 - P12	46	JK	30	30	0	9:25	9:30	P	P	P35 - OBB
08/01/08	P12 - P13	45	JK	30	30	0	9:28	9:33	P	P	P35 - OBB
08/01/08	P14 - P15	46	JK	30	30	0	9:40	9:45	P	P	P35 - OBB
08/01/08	P15 - P16	46	JK	30	30	0	9:45	9:50	P	P	P35 - OBB
08/01/08	P16 - P17	47	JK	30	30	0	9:48	9:53	P	P	P35 - OBB
08/01/08	P17 - P18	47	JK	30	30	0	9:53	9:58	P	P	P35 - OBB
08/01/08	P18 - P19	46	JK	30	30	0	9:57	10:02	P	P	P35 - OBB
08/01/08	P19 - P20	46	JK	30	30	0	10:00	10:05	P	P	P35 - OBB
08/01/08	P20 - P21	47	JK	30	30	0	10:00	10:05	P	P	P35 - OBB
08/01/08	P21 - P22	46	JK	30	30	0	10:11	10:16	P	P	P35 - OBB
08/01/08	P22 - P23	46	JK	30	30	0	10:14	10:19	P	P	P35 - OBB
08/01/08	P23 - P24	48	JK	30	30	0	10:24	10:29	P	P	P35 - OBB
08/01/08	P24 - P25	48	JK	30	30	0	10:30	10:35	P	P	P35 - OBB
08/01/08	P25 - P26	48	JK	30	30	0	10:34	10:39	P	P	P35 - OBB
08/01/08	P26 - P27	49	JK	30	30	0	10:37	10:42	P	P	P35 - OBB

Key:

AT = Anchor Trench
EOS = End of Seam
P-1 = Panel Number 1
EX = Existing Liner

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing					Vacuum Box P/F	Seam Section	
				Pressure			Time			P/F	From - To
				Start	End	+/-	Start	End			
08/01/08	P27 - P28	49	JK	30	30	0	10:49	10:51	P	P	P35 - OBB
08/01/08	P28 - P29	50	JK	30	30	0	11:05	11:10	P	P	P35 - OBB
08/01/08	P29 - P30	50	JK	30	30	0	11:10	11:15	P	P	P35 - OBB
08/01/08	P31 - P32	51	JK	30	30	0	11:18	11:23	P	P	P35 - OBB
08/01/08	P32 - P33	51	JK	32	32	0	11:30	11:35	P	P	P35 - OBB
08/01/08	P33 - P34	40	JK	30	30	0	11:18	11:23	P	P	P32 - WAT
08/01/08	P34 - P32	22.5	JK	32	32	0	11:30	11:35	P	P	P35 - OBB
08/01/08	P34 - P35	40	JK	30	30	0	11:40	11:45	P	P	P32 - WAT
08/01/08	P35 - P36	22.5	JK	30	30	0	2:09	2:14	P	P	P10 - P39
08/01/08	P36 - P37	22.5	JK	30	30	0	2:14	2:19	P	P	P9 - P39
08/01/08	P38 - P39	22.5	JK	30	30	0	3:02	3:07	P	P	P35 - P41
08/01/08	P39 - P40	192	JK	30	30	0	3:17	3:22	P	P	P41 - OBB
08/01/08	P40 - P41	22.5	JK	30	30	0	3:41	3:46	P	P	P38 - P42
08/02/08	P38 - P41	505	JK	30	30	0	8:35	8:40	P	P	P40 - WAT
08/02/08	P41 - P42	504	JK	30	30	0	8:45	8:50	P	P	P44 - WAT
08/02/08	P42 - P43	520	JK	30	30	0	8:55	9:00	P	P	P45 - WAT
08/02/08	P42 - P44	22.5	JK	30	30	0	9:55	10:00	P	P	P40 - P45
08/02/08	P43 - P45	22.5	JK	30	30	0	10:10	10:15	P	P	P42 - P46
08/02/08	P43 - P46	520	JK	30	30	0	10:20	10:25	P	P	P48 - WAT
08/02/08	P46 - P48	22.5	JK	30	30	0	10:30	10:35	P	P	P45 - P50
08/02/08	P46 - P47	520	JK	30	30	0	1:52	1:57	P	P	P50 - WAT
08/02/08	P48 - P49	22.5	JK	30	30	0	2:15	2:20	P	P	P45 - P50
08/02/08	P47 - P50	520	JK	30	30	0	2:50	2:55	P	P	P46 - P51

Key: AT = Anchor Trench P-1 = Panel Number 1
EOS = End of Seam EX = Existing Liner

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
08/03/08	P52 - P54	22.5	JK	30	30	0	8:08	8:13	P	P	P53 - P58
08/03/08	P51 - P53	22.5	JK	30	30	0	8:04	8:09	P	P	P50 - P52
08/03/08	P53 - P55	75	JK	30	30	0	8:19	8:24	P	P	P54 - OBB
08/03/08	P56 - P58	22.5	JK	30	30	0	9:58	10:30	P	P	P52 - P57
08/03/08	P57 - P59	22.5	JK	30	30	0	10:10	10:15	P	P	P58 - P60
08/03/08	P61 - P62	22.5	JK	30	30	0	11:27	11:32	P	P	P59 - P65
08/03/08	P60 - P61	22.5	JK	30	30	0	11:00	11:05	P	P	P59 - P65
08/03/08	P63 - P65	22.5	JK	30	30	0	2:05	2:10	P	P	P60 - P64
08/03/08	P64 - P66	22.5	JK	30	30	0	2:25	2:30	P	P	P65 - P69
08/03/08	P55 - P58	75	JK	30	30	0	3:02	3:07	P	P	P54 - OBB
08/04/08	P67 - P69	22.5	JK	30	30	0	7:56	8:01	P	P	P64 - P68
08/04/08	P68 - P71	22.5	JK	30	30	0	8:15	8:20	P	P	P69 - P74
08/04/08	P72 - P74	22.5	JK	30	30	0	10:05	10:10	P	P	P71 - P73
08/04/08	P73 - P75	22.5	JK	30	30	0	10:07	10:12	P	P	P74 - P77
08/04/08	P76 - P77	22.5	JK	30	30	0	11:20	11:25	P	P	P73 - P78
08/04/08	P78 - P80	22.5	JK	30	30	0	1:40	1:45	P	P	P77 - P82
08/04/08	P79 - P82	22.5	JK	30	30	0	2:18	2:23	P	P	P78 - P83
08/04/08	P83 - P85	22.5	JK	30	30	0	3:30	3:35	P	P	P82 - P86
08/04/08	P80 - P81	22.5	JK	30	30	0	2:05	2:10	P	P	P77 - P82
08/04/08	P84 - P86	22.5	JK	30	30	0	3:43	3:48	P	P	P83 - P87
08/05/08	P87 - P89	22.5	JK	30	30	0	7:50	7:55	P	P	P83 - P86
08/05/08	P89 - P90	22.5	JK	30	30	0	8:20	8:25	P	P	P86 - P91
08/05/08	P88 - P91	22.5	JK	30	30	0	8:35	8:40	P	P	P89 - P94
08/05/08	P93 - P95	22.5	JK	30	30	0	10:15	10:20	P	P	P94 - P97

Key:

AT = Anchor Trench
EOS = End of Seam

P-1 = Panel Number 1
EX = Existing Liner

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing					Vacuum Box P/F	Seam Section From - To	
				Pressure			Time				P/F
				Start	End	+/-	Start	End			
08/04/08	P79 - P83	513	JK	30	30	0	12:35	12:40	P	P	P82 - P100
08/04/08	P79 - P99	79	JK	30	30	0	8:16	8:21	P	P	P78 - P100
08/04/08	P83 - P84	513	JK	30	30	0	12:45	12:50	P	P	P86 - P101
08/04/08	P87 - P88	512	JK	30	30	0	12:55	1:00	P	P	P103 - P91
08/04/08	P88 - P92	515	JK	30	30	0	1:00	1:05	P	P	P104 - OBB
08/04/08	P92 - P93	513	JK	30	30	0	1:02	1:07	P	P	P95 - P105
08/04/08	P93 - P96	514	JK	30	30	0	1:05	1:10	P	P	P97 - P106
08/04/08	P96 - P97	22.5	JK	30	30	0	11:30	11:35	P	P	P95 - P129
08/04/08	P84 - P87	503	JK	32	32	0	12:55	1:00	P	P	P102 - OBB
08/05/08	P97 - P98	22.5	JK	30	30	0	11:50	11:55	P	P	P95 - P129
08/05/08	P99 - P100	68	JK	30	30	0	3:35	3:40	P	P	P83 - WAT
08/05/08	P100 - P101	68	JK	30	30	0	3:37	3:42	P	P	P84 - WAT
08/05/08	P101 - P102	67	JK	30	30	0	3:40	3:45	P	P	P87 - WAT
08/05/08	P102 - P103	67	JK	30	30	0	3:45	3:50	P	P	P88 - WAT
08/05/08	P103 - P104	57	JK	30	30	0	3:50	3:53	P	P	P92 - WAT
08/05/08	P104 - P105	65	JK	30	30	0	3:52	3:57	P	P	P92 - WAT
08/05/08	P105 - P106	62	JK	30	30	0	3:54	3:59	P	P	P93 - WAT
08/05/08	P106 - P107	67	JK	30	30	0	3:55	4:00	P	P	P96 - WAT
08/05/08	P107 - P108	69	JK	30	30	0	4:00	4:05	P	P	P127 - WAT
08/05/08	P108 - P109	70	JK	30	30	0	4:10	4:15	P	P	P128 - WAT
08/06/08	P109 - P110	71	JK	30	30	0	8:05	8:10	P	P	P132 - WAT
08/06/08	P110 - P111	71	JK	30	30	0	8:15	8:20	P	P	P133 - WAT
08/06/08	P111 - P112	72	JK	30	30	0	8:25	8:30	P	P	P133 - WAT

Key: AT = Anchor Trench P-1 = Panel Number 1
EOS = End of Seam EX = Existing Liner

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210

Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing					Vacuum Box P/F	Seam Section	
				Pressure			Time			P/F	From - To
				Start	End	+/-	Start	End			
08/07/08	P112 - P113	73	JK	30	30	0	8:00	8:05	P	P	P136 - WAT
08/07/08	P113 - P114	76	JK	30	30	0	8:05	8:10	P	P	P137 - WAT
08/07/08	P114 - P115	69	JK	30	30	0	8:15	8:20	P	P	P140 - WAT
08/07/08	P115 - P116	81	JK	30	30	0	1:05	1:10	P	P	P140 - WAT
08/07/08	P116 - P117	84	JK	30	30	0	9:50	9:55	P	P	P141 - WAT
08/07/08	P117 - P118	86	JK	30	30	0	9:40	9:45	P	P	P144 - WAT
08/07/08	P118 - P119	83	JK	30	30	0	9:55	10:00	P	P	P145 - WAT
08/07/08	P119 - P120	93	JK	30	30	0	9:15	9:20	P	P	P198 - WAT
08/07/08	P120 - P121	82	JK	30	30	0	9:20	9:25	P	P	P150 - WAT
08/07/08	P121 - P122	57	JK	30	30	0	9:35	9:45	P	P	P124 - WAT
08/07/08	P123 - P124	67	JK	30	30	0	3:10	3:15	P	P	P121 - NAT
08/07/08	P124 - P125	37	JK	30	30	0	3:15	3:20	P	P	P122 - NAT
08/07/08	P125 - P126	82	JK	30	30	0	3:20	3:25	P	P	P122 - NAT
08/11/08	P1 - P37	46	JK	30	30	0	7:25	7:30	P	P	P9 - OBB
08/11/08	P37 - P39	141	JK	30	30	0	8:00	8:05	P	P	WAT - OBB
08/11/08	P40 - P44	187	JK	30	30	0	1:25	1:30	P	P	P36 - OBB
08/11/08	P44 - P45	189	JK	30	30	0	1:27	1:32	P	P	WAT - OBB
08/11/08	P49 - P50	40	JK	30	30	0	1:55	2:00	P	P	WAT - OBB
08/11/08	P50 - P53	184	JK	30	30	0	2:00	2:05	P	P	WAT - OBB

Key: AT = Anchor Trench P-1 = Panel Number 1
EOS = End of Seam EX = Existing Liner

Geomembrane Non-Destructive Test Log Summary



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: Plastic Fusion

25809 Interstate 30
 Bryant, AR 72022
 Phone 501.847.9292
 Fax 501.847.9210

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
08/12/08	P127 - P129	22.5	JK	30	30	0	8:13	8:18	P	P	P97 - P130
08/12/08	P128 - P130	22.5	JK	30	30	0	8:15	8:20	P	P	P127 - P132
08/12/08	P130 - P131	22.5	JK	30	30	0	8:30	8:35	P	P	P129 - P139
08/12/08	P132 - P134	22.5	JK	30	30	0	10:05	10:10	P	P	P130 - P133
08/12/08	P133 - P135	22.5	JK	30	30	0	10:33	10:38	P	P	P139 - P136
08/12/08	P136 - P138	22.5	JK	30	30	0	10:40	10:45	P	P	P135 - P137
08/12/08	P98 - P129	53	JK	30	30	0	1:50	1:55	P	P	P107 - OBB
08/12/08	P129 - P131	52	JK	30	30	0	1:52	1:57	P	P	P107 - OBB
08/12/08	P131 - P134	52	JK	30	30	0	2:00	2:05	P	P	P108 - OBB
08/12/08	P134 - P135	118	JK	30	30	0	2:08	2:13	P	P	P110 - OBB
08/12/08	P135 - P138	115	JK	30	30	0	2:16	2:21	P	P	P112 - OBB
08/12/08	P137 - P139	22.5	JK	30	30	0	3:30	3:35	P	P	P113 - OBB
08/12/08	P138 - P139	105	JK	32	32	0	2:21	2:26	P	P	P113 - OBB
08/13/08	P140 - P141	520	JK	30	30	0	8:35	8:40	P	P	P116 - OBB
08/13/08	P141 - P143	22.5	JK	30	30	0	8:45	8:50	P	P	P192 - P199
08/13/08	P144 - P146	22.5	JK	30	30	0	10:45	10:50	P	P	P193 - P195
08/13/08	P145 - P147	22.5	JK	30	30	0	11:00	11:05	P	P	P196 - P199
08/13/08	P148 - P149	22.5	JK	30	30	0	1:10	1:15	P	P	P195 - P152
08/13/08	P153 - P154	22.5	JK	30	30	0	2:50	2:55	P	P	P152 - P177
08/13/08	P155 - P156	51	JK	33	33	0	3:57	4:02	P	P	P198 - P169
08/13/08	P156 - P157	51	JK	30	30	0	4:04	4:09	P	P	P198 - P168
											-
											-
											-
											-

Key:

AT = Anchor Trench
 EOS = End of Seam

P-1 = Panel Number 1
 EX = Existing Liner

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Dynegy

Contractor: Grayco Construction Co.

Project Name: Cell 1 CQA

Address: Plum Point Class 3N Landfill

Location: Osceola, Arkansas

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section From - To
				Pressure			Time		P/F		
				Start	End	+/-	Start	End			
08/14/08	P123 - P158	75	JK	30	30	0	11:30	11:35	P	P	P151 - NAT
08/14/08	P158 - P159	72	JK	30	30	0	11:37	11:42	P	P	P151 - NAT
08/14/08	P159 - P160	72	JK	30	30	0	11:40	11:45	P	P	P151 - NAT
08/14/08	P160 - P161	72	JK	30	30	0	11:50	11:55	P	P	P151 - NAT
08/14/08	P161 - P162	72	JK	30	30	0	11:52	11:57	P	P	P151 - NAT
08/14/08	P162 - P163	74	JK	30	30	0	11:55	12:00	P	P	P151 - NAT
08/14/08	P163 - P164	74	JK	30	30	0	11:57	12:02	P	P	P151 - NAT
08/14/08	P164 - P165	74	JK	30	30	0	11:58	12:03	P	P	P151 - NAT
08/14/08	P165 - P166	75	JK	30	30	0	11:59	12:04	P	P	P151 - NAT
08/14/08	P166 - P167	75	JK	30	30	0	12:40	12:45	P	P	P151 - NAT
08/14/08	P151 - P166	72	JK	30	30	0	9:00	9:05	P	P	P123 - P167
08/14/08	P167 - P168	73	JK	30	30	0	12:41	12:46	P	P	P157 - NAT
08/14/08	P168 - P169	71	JK	30	30	0	12:42	12:46	P	P	P156 - NAT
08/14/08	P169 - P170	71	JK	30	30	0	12:50	12:55	P	P	P155 - NAT
08/14/08	P170 - P171	76	JK	30	30	0	12:51	12:56	P	P	P153 - NAT
08/14/08	P171 - P172	77	JK	30	30	0	12:53	12:58	P	P	P153 - NAT
08/14/08	P172 - P173	77	JK	30	30	0	1:10	1:15	P	P	P153 - NAT
08/14/08	P173 - P174	77	JK	30	30	0	1:11	1:16	P	P	P153 - NAT
08/14/08	P174 - P175	77	JK	30	30	0	1:15	1:20	P	P	P153 - NAT
08/14/08	P175 - P176	79	JK	30	30	0	1:16	1:21	P	P	P153 - NAT
08/14/08	P176 - P177	78	JK	30	30	0	1:30	1:35	P	P	P153 - NAT
08/14/08	P177 - P178	78	JK	30	30	0	1:40	1:45	P	P	P153 - NAT
08/14/08	P178 - P179	76	JK	30	30	0	1:41	1:46	P	P	P153 - NAT

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Terracon

25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

Liner Installer: Plastic Fusion Fabricators

Key:	AT = Anchor Trench	P1 = Panel Number 1
	EOS = End of Seam	OBB = Overbuild Berm

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Dynegy

Contractor: Grayco Construction Co.

Project Name: Cell 1 CQA

Address: Plum Point Class 3N Landfill

Location: Osceola, Arkansas

Project Number: 35077169

CQA Monitor: Earl Pilgram

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: Plastic Fusion Fabricators

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
08/03/08	P53 - P54	685	JK	30	30	0	2:00	2:05	P	P	WAT - OBB
08/03/08	P59 - P55	22.5	JK	30	30	0	8:19	8:24	P	P	P53 - P58
08/13/08	P149 - P152	310	JK	30	30	0	3:44	3:49	P	P	P155 - OBB
08/13/08	P154 - P152	310	JK	30	30	0	3:54	3:59	P	P	P155 - OBB
08/13/08	P146 - P147	585	JK	30	30	0	4:00	4:05	P	P	P118 - OBB
08/13/08	P143 - P146	590	JK	30	30	0	4:05	4:10	P	P	P117 - OBB
08/13/08	P142 - P143	590	JK	30	30	0	4:07	4:12	P	P	P116 - OBB
08/13/08	P139 - P142	597	JK	30	30	0	2:21	2:26	P	P	P114 - OBB
08/13/08	P155 - P148	64	JK	30	30	0	2:16	2:21	P	P	P150 - P152
08/15/08	P93 - P104	22.5	JK	30	30	0	2:22	2:27	P	P	P103 - P105
08/15/08	P83 - P84	628	JK	30	30	0	12:45	12:50	P	P	P101 - OBB
08/13/08	P150 - P151	207	JK	30	30	0	4:20	4:26	P	P	P121 - P157
08/04/08	P81 - P82	685	JK	30	30	0	1:50	1:55	P	P	WAT - OBB
08/03/08	P58 - P59	685	JK	30	30	0	10:04	10:09	P	P	WAT - OBB
08/03/08	P59 - P62	685	JK	30	30	0	10:17	10:22	P	P	WAT - OBB
08/03/08	P62 - P65	685	JK	30	30	0	11:10	11:15	P	P	WAT - OBB
08/03/08	P65 - P66	685	JK	30	30	0	2:35	2:40	P	P	WAT - OBB
08/03/08	P66 - P70	685	JK	30	30	0	2:45	2:50	P	P	WAT - OBB
08/04/08	P70 - P71	685	JK	30	30	0	8:05	8:10	P	P	WAT - OBB
08/04/08	P71 - P74	685	JK	30	30	0	8:25	8:30	P	P	WAT - OBB
08/04/08	P74 - P75	685	JK	30	30	0	10:13	10:18	P	P	WAT - OBB
08/04/08	P75 - P77	685	JK	30	30	0	11:30	11:35	P	P	WAT - OBB
08/04/08	P77 - P81	685	JK	30	30	0	1:50	1:55	P	P	WAT - OBB

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

APPENDIX R

GEOMEMBRANE DESTRUCTIVE TEST LOG SUMMARY & LABORATORY TEST RESULTS

Geomembrane Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.455.4547

Client Name: Dynegy
 Contractor: Grayco Construction Co.
 Project Name: Cell 1 CQA
 Address: Plum Point Class 3N LF
 Location: Osceola, Arkansas

Project Number: 35077169
 CQA Monitor: Earl Pilgrim
 Reviewed By: Brad Fureigh, E.I.
 Approved By: Ken Bown, P.E.
 Liner Installer: Plastic Fusion Fabricators

Destructive Testing Specifications	
Peel Extrusion =	78
Peel Fusion =	90
Shear Extrusion =	120
Shear Fusion =	120

Date	Sample ID	Seam Number	Machine Number	Seamer Initials	Test Values lbs/inch										Field Pass/Fail	Lab Pass/Fail	Comments	
8/2/08	DS-1	P12-P13	775	JC	P	135	119	134	131	116	126	122	123	133	114	Pass	Pass	
					S	169		171		166		164		168				
8/2/08	DS-2	P23-P24	776	JC	P	117	122	121	108	127	128	125	108	115	139	Pass	Pass	
					S	161		155		163		160		162				
8/2/08	DS-3	P28-P35	776	JC	P	134	121	120	133	132	132	134	122	128	124	Pass	Pass	
					S	166		164		163		167		165				
8/2/08	DS-4	P35-P38	776	JC	P	124	119	116	118	119	117	123	118	125	112	Pass	Pass	
					S	159		160		157		155		159				
8/2/08	DS-5	P36-P37	775	JC	P	112	109	101	111	103	109	112	112	113	111	Pass	Pass	
					S	130		133		136		131		135				
8/2/08	DS-6	P38-P41	776	JC	P	107	118	120	111	125	119	118	105	122	112	Pass	Pass	
					S	148		150		147		144		150				
8/2/08	DS-7	P41-P42	776	JC	P	112	109	116	106	110	113	117	105	118	103	Pass	Pass	
					S	130		133		131		130		132				
8/2/08	DS-8	P44-P45	775	JC	P	116	104	115	126	113	107	130	109	111	122	Pass	Pass	
					S	162		161		158		163		161				
8/2/08	DS-9	P46-P47	776	JC	P	123	108	122	102	124	107	115	110	114	114	Pass	Pass	
					S	143		136		140		150		147				
8/4/08	DS-10	P53-P54	609	JC	P	114	122	115	117	127	110	112	116	111	113	Pass	Pass	
					S	141		139		142		144		143				
8/4/08	DS-11	P52-P56	775	JC	P	114	104	105	111	122	115	132	115	104	124	Pass	Pass	
					S	160		154		156		152		150				
8/4/08	DS-12	P35-P38	776	JC	P	121	104	138	107	136	114	110	120	113	122	Pass	Pass	
					S	140		143		142		146		140				
8/4/08	DS-13	P60-P63	775	JC	P	112	113	127	112	115	113	120	104	112	117	Pass	Pass	
					S	158		156		161		156		158				
8/4/08	DS-14	P59-P62	609	JC	P	127	114	138	121	122	126	126	121	127	121	Pass	Pass	
					S	153		157		150		154		152				
8/4/08	DS-15	P66-P70	609	JC	P	114	107	113	113	119	109	115	115	111	107	Pass	Pass	
					S	144		140		143		141		143				

Geomembrane Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.455.4547

Client Name: Dynegy
 Contractor: Grayco Construction Co.
 Project Name: Cell 1 CQA
 Address: Plum Point Class 3N LF
 Location: Osceola, Arkansas

Project Number: 35077169
 CQA Monitor: Earl Pilgrim
 Reviewed By: Brad Fureigh, E.I.
 Approved By: Ken Bown, P.E.
 Liner Installer: Plastic Fusion Fabricators

Destructive Testing Specifications	
Peel Extrusion =	78
Peel Fusion =	90
Shear Extrusion =	120
Shear Fusion =	120

Date	Sample ID	Seam Number	Machine Number	Seamer Initials	Test Values lbs/inch										Field Pass/Fail	Lab Pass/Fail	Comments	
8/4/08	DS-16	P67-P68	775	JC	P	106	116	125	120	119	115	113	119	111	115	Pass	Pass	
					S	147		143		150		146		145				
8/4/08	DS-17	P71-P74	609	JC	P	115	124	114	114	122	113	120	114	105	113	Pass	Pass	
					S	132		130		133		129		132				
8/4/08	DS-18	P72-P73	775	JC	P	110	123	114	113	113	121	107	124	117	115	Pass	Pass	
					S	136		132		132		128		130				
8/4/08	DS-19	P75-P77	775	JC	P	116	115	112	112	114	106	106	119	118	111	Pass	Pass	
					S	143		140		141		139		140				
8/4/08	DS-20	P76-P78	775	JC	P	121	121	122	119	121	121	120	121	117	124	Pass	Pass	
					S	140		136		133		131		135				
8/4/08	DS-21	P80-P82	775	JC	P	122	104	118	108	123	104	117	101	114	119	Pass	Pass	
					S	134		130		136		131		130				
8/4/08	DS-22	P99-P100	776	JC	P	122	115	126	109	126	118	123	109	106	110	Pass	Pass	
					S	133		137		130		133		134				
8/4/08	DS-23	P85-P86	776	JC	P	116	114	113	114	118	107	110	114	112	121	Pass	Failed	Obtained DS-23A & DS-23B
					S	130		127		130		133		129				
8/5/08	DS-24	P102-P101	776	JC	P	127	121	122	124	120	110	124	117	108	128	Pass	Pass	
					S	133		130		129		132		133				
8/5/08	DS-25	P90-P91	609	JC	P	114	122	113	111	114	120	120	119	118	118	Pass	Pass	
					S	131		129		136		133		130				
8/5/08	DS-26	P88-P92	776	JC	P	127	108	114	118	127	121	120	111	119	117	Pass	Pass	
					S	138		130		137		129		134				
8/5/08	DS-27	P94-P95	775	JC	P	108	116	105	123	112	108	114	109	105	119	Pass	Pass	
					S	129		130		136		132		131				
8/5/08	DS-28	P106-P105	776	JC	P	108	127	115	124	116	103	108	114	105	113	Pass	Pass	
					S	136		133		134		130		137				
8/12/08	DS-29	P96-P127	453	JC	P	123	110	111	127	113	132	115	134	123	116	Pass	Pass	
					S	152		149		157		153		150				
8/12/08	DS-30	P129-P130	609	JC	P	139	119	113	127	144	128	129	137	127	128	Pass	Pass	
					S	176		173		170		177		172				

Geomembrane Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.455.4547

Client Name: Dynegy
 Contractor: Grayco Construction Co.
 Project Name: Cell 1 CQA
 Address: Plum Point Class 3N LF
 Location: Osceola, Arkansas

Project Number: 35077169
 CQA Monitor: Earl Pilgrim
 Reviewed By: Brad Fureigh, E.I.
 Approved By: Ken Bown, P.E.
 Liner Installer: Plastic Fusion Fabricators

Destructive Testing Specifications	
Peel Extrusion =	78
Peel Fusion =	90
Shear Extrusion =	120
Shear Fusion =	120

Date	Sample ID	Seam Number	Machine Number	Seamer Initials	Test Values lbs/inch										Field Pass/Fail	Lab Pass/Fail	Comments	
8/12/08	DS-31	P108-P107	776	JC	P	137	120	121	118	120	118	120	117	122	121	Pass	Pass	
					S	175		170		168		173		170				
8/12/08	DS-32	P128-P132	453	JC	P	112	129	120	134	114	122	123	132	117	123	Pass	Pass	
					S	169		163		171		168		173				
8/12/08	DS-33	P132-P133	776	JC	P	133	113	119	141	140	128	130	132	132	116	Pass	Pass	
					S	163		159		156		161		166				
8/12/08	DS-34	P133-P136	453	JC	P	127	126	125	120	134	129	125	139	124	114	Pass	Pass	
					S	159		163		161		166		158				
8/12/08	DS-35	P136-P137	776	JC	P	103	143	118	138	119	143	108	139	136	132	Pass	Pass	
					S	182		179		180		183		179				
8/12/08	DS-36	P112-P113	776	JC	P	126	121	132	116	115	126	134	108	122	114	Pass	Pass	
					S	156		160		154		150		158				
8/12/08	DS-37	P139-P142	776	JC	P	131	107	130	128	116	131	133	109	139	114	Pass	Pass	
					S	155		151		157		150		152				
8/12/08	DS-38	P140-P141	453	JC	P	114	116	128	112	126	117	111	117	116	113	Pass	Pass	
					S	153		150		149		152		150				
8/12/08	DS-39	P141-P144	776	JC	P	117	117	121	125	115	127	127	125	126	116	Pass	Pass	
					S	150		149		148		147		150				
8/12/08	DS-40	P144-P145	453	JC	P	132	111	124	112	130	111	123	111	110	115	Pass	Pass	
					S	143		146		144		148		149				
8/12/08	DS-41	P145-P148	776	JC	P	104	126	132	112	139	115	135	114	115	130	Pass	Pass	
					S	157		149		151		156		150				
8/12/08	DS-42	P147-P149	776	JC	P	127	122	125	140	115	124	124	119	117	111	Pass	Pass	
					S	150		153		160		163		155				
8/12/08	DS-43	P148-P152	453	JC	P	117	108	121	105	128	121	120	104	130	127	Pass	Pass	
					S	144		150		147		143		150				
8/12/08	DS-44	P148-P150	453	JC	P	114	139	134	117	139	134	141	124	144	123	Pass	Pass	
					S	160		158		161		160		157				
8/12/08	DS-45	P152-P153	776	JC	P	111	113	129	135	128	116	111	129	129	119	Pass	Pass	
					S	161		155		159		160		153				

Geomembrane Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone 501.847.9292

Fax 501.455.4547

Client Name: Dynegy
 Contractor: Grayco Construction Co.
 Project Name: Cell 1 CQA
 Address: Plum Point Class 3N LF
 Location: Osceola, Arkansas

Project Number: 35077169
 CQA Monitor: Earl Pilgrim
 Reviewed By: Brad Fureigh, E.I.
 Approved By: Ken Bown, P.E.
 Liner Installer: Plastic Fusion Fabricators

Destructive Testing Specifications	
Peel Extrusion =	78
Peel Fusion =	90
Shear Extrusion =	120
Shear Fusion =	120

Date	Sample ID	Seam Number	Machine Number	Seamer Initials	Test Values lbs/inch										Field Pass/Fail	Lab Pass/Fail	Comments	
8/12/08	DS-46	P150-P151	453	JC	P	121	128	115	120	135	115	140	116	138	130	Pass	Pass	
					S	155		158		150		159		161				
8/12/08	DS-47	P116-P117	453	JC	P	127	118	115	125	116	127	131	124	118	130	Pass	Pass	
					S	155		160		157		155		153				
8/12/08	DS-48	P120-P121	775	JC	P	135	126	134	114	133	132	123	127	131	121	Pass	Pass	
					S	157		154		149		150		155				
8/14/08	DS-49	P123-P158	776	JC	P	138	130	131	137	130	128	136	134	121	130	Pass	Pass	
					S	178		181		177		180		179				
8/14/08	DS-50	P159-P160	776	JC	P	126	123	141	129	122	136	126	129	122	127	Pass	Pass	
					S	170		173		176		169		171				
8/14/08	DS-51	P161-P162	776	JC	P	133	117	122	121	112	115	120	119	115	120	Pass	Pass	
					S	155		153		157		154		160				
8/14/08	DS-52	P163-P164	776	JC	P	110	119	134	125	132	118	113	128	132	127	Pass	Pass	
					S	157		158		150		151		153				
8/14/08	DS-53	P165-P166	776	JC	P	144	123	137	114	129	114	150	117	115	121	Pass	Pass	
					S	152		154		157		149		150				
8/14/08	DS-54	P167-P168	776	JC	P	126	126	136	122	136	128	133	137	135	129	Pass	Pass	
					S	147		150		149		153		147				
8/14/08	DS-55	P169-P170	776	JC	P	128	135	123	137	139	135	131	131	136	133	Pass	Pass	
					S	141		144		140		147		143				
8/14/08	DS-56	P171-P172	776	JC	P	124	112	128	116	131	114	130	115	130	135	Pass	Pass	
					S	149		142		140		143		148				
8/14/08	DS-57	P173-P174	776	JC	P	127	120	122	122	109	117	112	114	137	124	Pass	Pass	
					S	146		139		137		140		143				
8/14/08	DS-58	P175-P176	609	JC	P	110	128	114	124	129	116	132	132	136	123	Pass	Pass	
					S	143		140		138		141		139				
8/14/08	DS-59	P177-P178	776	JC	P	124	133	134	138	127	123	133	134	136	133	Pass	Pass	
					S	168		165		159		161		166				
8/14/08	DS-60	P179-P180	776	JC	P	137	130	152	118	135	114	118	122	155	146	Pass	Pass	
					S	180		179		169		173		178				



Precision Geosynthetic Laboratories



August 11, 2008

Brad Fureigh
GENESIS/TERRACON
11400 West Baseline Road
Little Rock, AR 72209

RE: **Plum Point Landfill**

Dear Mr. Fureigh:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of twenty-eight (28) HDPE Seam samples received on August 11, 2008.

It shall be noted that the samples tested are believed to be true representative of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,
PRECISION GEOSYNTHETIC LABORATORIES

Carmelo V. Zantua
Technical/Laboratory Director

Enclosure: (Job No. G080972)



Precision Geosynthetic Laboratories

CLIENT: GENESIS/TERRACON
PROJECT NAME: Plum Point Landfill



VERIFICATION OF MATERIAL PROPERTIES (PGL Job No. G080972)

MATERIAL DESCRIPTION: HDPE Seams

SAMPLES SENT BY: B. Fureigh @ Terracon

DATE RECEIVED: August 11, 2008

DATE REPORTED: August 11, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
DS-1-S12 P12/13	49506
DS-2-S23 P23/24	49507
DS-3 S35 P34/35	49508
DS-4 S36 P35/38	49509
DS-5 S38 P36/37	49510
DS-6 S39 P38/41	49511
DS-7 S41 P41/42	49512
DS-8 S43 P44/45	49513
DS-9 S47 P46/47	49514
DS-10 S52 P53/54	49515
DS-11 S55 P52/56	49516
DS-12 S36 P35/38	49517
DS-13 S62 P60/63	49518
DS-14 S59 P59/62	49519
DS-15 S66 P66/70	49520
DS-16 S69 P67/68	49521
DS-17 S70 P71/74	49522
DS-18 S72 P72/73	49523
DS-19 S74 P75/77	49524
DS-20 S76 P76/78	49525
DS-21 S77 P80/82	49526
DS-22 S79 P79/99	49527
DS-23 S81 P85/86	49528
DS-24 S85 P100/101	49529
DS-25 S88 P90/91	49530
DS-26 S89 P88/92	49531
DS-27 S92 P94/95	49532
DS-28 S93 P104/105	49533

TESTS REQUIRED:

TEST METHOD	DESCRIPTION
ASTM D4437	Peel Adhesion
ASTM D4337	Shear Strength



Precision Geosynthetic Laboratories

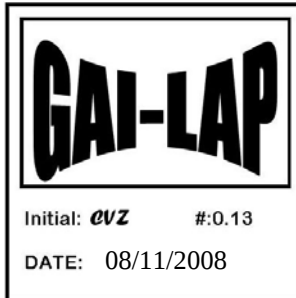


TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 to 14. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES



Carmelo V. Zantua
Technical/Laboratory Director

TABLE 1.
SEAM SHEAR AND PEEL TEST RESULTS



CLIENT: GENESIS TERRACON	MATERIAL: HDPE SEAM	QC'd By: _____
PROJECT: Plum Project Cell 1	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 11-Aug-08	PGL JOB #: G080972	UNREINFORCED
Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.		DATE REPORT: 11-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-1 S12 P12/13	49506	178	BRK		1 Outside	124		SE1	
		178	BRK		2 Outside	128		SE1	
		180	BRK		3 Outside	132		SE1	
		179	BRK		4 Outside	128		SE1	
		184	BRK		5 Outside	128		SE1	
		AVG:			128				
		STD. DEV.			3				
		1 Inside			138		SE1		
		2 Inside			130		SE1		
		3 Inside			136		SE1		
		4 Inside			12		SE1		
		5 Inside			130		SE1		
AVG:		109							
STD. DEV.		54							
DS- 2 S23 P23/24	49507	186	BRK		1 Outside	152		SE1	
		186	BRK		2 Outside	144		SE1	
		189	BRK		3 Outside	150		SE1	
		188	BRK		4 Outside	128		SE1	
		194	BRK		5 Outside	146		SE1	
		AVG:			144				
		STD. DEV.			9				
		1 Inside			138		SE1		
		2 Inside			130		SE1		
		3 Inside			136		SE1		
		4 Inside			122		SE1		
		5 Inside			130		SE1		
AVG:		131							
STD. DEV.		6							

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE		EXTRUSION	
HOT WEDGE	AD Adhesion Failure	AD1	Failure in Adhesion. Specimens delaminated under the bead
	BRK Break in Sheeting	AD2	Failure in Adhesion. Specimens delaminated from the extrudate
	SE1 Break at Outer Edge of the seam	AD-WLD	Break through the fillet
	SE2 Break at Inner Edge of the seam through both sheets	SE1	Break at Seam Edge in the bottom sheet
	AD-BRK Break in first seam after some adhesion failure	SE2	Break at Seam Edge in the top Sheet
		SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
		BRK1	Break in the bottom sheeting
		BRK2	Break in the top sheeting
		AD-BRK	Break in the bottom sheeting with some adhesion failure



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TABLE 2.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Project Cell 1**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS- 3 S35 P34/35	49508	181	BRK		1 Outside	144		SE1	
		181	BRK		2 Outside	142		SE1	
		184	BRK		3 Outside	150		SE1	
		182	BRK		4 Outside	152		SE1	
		184	BRK		5 Outside	146		SE1	
		AVG:			147				
		STD. DEV.			4				
		1 Inside	144			SE1			
		2 Inside	150			SE1			
		3 Inside	148			SE1			
4 Inside	150	SE1							
5 Inside	152	SE1							
AVG.		182			AVG:	149			
STD. DEV.		2			STD. DEV.	3			
DS- 4 S36 P35/38	49509	183	BRK		1 Outside	140		SE1	
		184	BRK		2 Outside	144		SE1	
		190	BRK		3 Outside	150		SE1	
		189	BRK		4 Outside	142		SE1	
		196	BRK		5 Outside	146		SE1	
		AVG:			144				
		STD. DEV.			4				
		1 Inside	126			SE1			
		2 Inside	130			SE1			
		3 Inside	128			SE1			
4 Inside	132	SE1							
5 Inside	138	SE1							
AVG:		188			AVG:	131			
STD. DEV.		5			STD. DEV.	5			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD Adhesion Failure
BRK Break in Sheeting
SE1 Break at Outer Edge of the seam
SE2 Break at Inner Edge of the seam through both sheets
AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
AD2 Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD Break through the fillet
SE1 Break at Seam Edge in the bottom sheet
SE2 Break at Seam Edge in the top Sheet
SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1 Break in the bottom sheeting
BRK2 Break in the top sheeting
AD-BRK Break in the bottom sheeting with some adhesion failure



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DC#1724, Record#176

TABLE 3.
SEAM SHEAR AND PEEL TEST RESULTS



CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Project Cell 1**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-5 S38 P36/37	49510	189	BRK		1 Outside	140		SE1	
		190	BRK		2 Outside	132		SE1	
		195	BRK		3 Outside	120		SE1	
		193	BRK		4 Outside	164		SE1	
		194	BRK		5 Outside	152		SE1	
					AVG:	142			
					STD. DEV.	17			
					1 Inside	171		SE1	
					2 Inside	156		SE1	
					3 Inside	112		SE1	
DS-6 S39 P38/41	49511	187	BRK		4 Inside	154		SE1	
		186	BRK		5 Inside	152		SE1	
		191	BRK		AVG:	149			
		189	BRK		STD. DEV.	22			
		196	BRK		1 Outside	138		SE1	
					2 Outside	140		SE1	
					3 Outside	152		SE1	
					4 Outside	138		SE1	
					5 Outside	136		SE1	
					AVG:	141			
					STD. DEV.	6			
					1 Inside	152		SE1	
					2 Inside	152		SE1	
					3 Inside	154		SE1	
					4 Inside	154		SE1	
					5 Inside	148		SE1	
					AVG:	152			
					STD. DEV.	2			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD Adhesion Failure
BRK Break in Sheeting
SE1 Break at Outer Edge of the seam
SE2 Break at Inner Edge of the seam through both sheets
AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
AD2 Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD Break through the fillet
SE1 Break at Seam Edge in the bottom sheet
SE2 Break at Seam Edge in the top Sheet
SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1 Break in the bottom sheeting
BRK2 Break in the top sheeting
AD-BRK Break in the bottom sheeting with some adhesion failure



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DC#1724, Record#176

TABLE 4.
SEAM SHEAR AND PEEL TEST RESULTS



CLIENT: GENESIS TERRACON	MATERIAL: HDPE SEAM	QC'd By: _____
PROJECT: Plum Project Cell 1	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 11-Aug-08	PGL JOB #: G080972	UNREINFORCED
Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.		DATE REPORT: 11-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"						
SHEAR EVALUATION					PEEL EVALUATION						
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)		
DS-7 S41 P41/42	49512	185	BRK		1 Outside	138		SE1			
		187	BRK		2 Outside	144		SE1			
		185	BRK		3 Outside	136		SE1			
		188	BRK		4 Outside	142		SE1			
		196	BRK		5 Outside	126		SE1			
		AVG: 188					AVG: 137				
		STD. DEV. 5					STD. DEV. 7				
							1 Inside	130		SE1	
							2 Inside	144		SE1	
							3 Inside	134		SE1	
							4 Inside	134		SE1	
							5 Inside	130		SE1	
AVG: 188				AVG: 134							
STD. DEV. 5				STD. DEV. 6							
DS-8 S43 P44/45	49513	188	BRK		1 Outside	152		SE1			
		190	BRK		2 Outside	146		SE1			
		194	BRK		3 Outside	160		SE1			
		190	BRK		4 Outside	142		SE1			
		197	BRK		5 Outside	150		SE1			
		AVG: 192					AVG: 150				
		STD. DEV. 4					STD. DEV. 7				
							1 Inside	128		SE1	
							2 Inside	126		SE1	
							3 Inside	130		SE1	
							4 Inside	126		SE1	
							5 Inside	130		SE1	
AVG: 192				AVG: 128							
STD. DEV. 4				STD. DEV. 2							

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE		EXTRUSION	
HOT WEDGE	AD Adhesion Failure	AD1	Failure in Adhesion. Specimens delaminated under the bead
	BRK Break in Sheeting	AD2	Failure in Adhesion. Specimens delaminated from the extrudate
	SE1 Break at Outer Edge of the seam	AD-WLD	Break through the fillet
	SE2 Break at Inner Edge of the seam through both sheets	SE1	Break at Seam Edge in the bottom sheet
	AD-BRK Break in first seam after some adhesion failure	SE2	Break at Seam Edge in the top Sheet
		SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
		BRK1	Break in the bottom sheeting
		BRK2	Break in the top sheeting
		AD-BRK	Break in the bottom sheeting with some adhesion failure



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TABLE 5.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Project Cell 1**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-9 S47 P46/47	49514	189	BRK		1 Outside	142		SE1	
		189	BRK		2 Outside	144		SE1	
		191	BRK		3 Outside	146		SE1	
		191	BRK		4 Outside	150		SE1	
		199	BRK		5 Outside	142		SE1	
					AVG:	145			
					STD. DEV.	3			
					1 Inside	130		SE1	
					2 Inside	130		SE1	
					3 Inside	134		SE1	
DS-10 S52 P53/54	49515	185	BRK		4 Inside	132		SE1	
		186	BRK		5 Inside	126		SE1	
		191	BRK		AVG:	130			
		188	BRK		STD. DEV.	3			
		194	BRK		1 Outside	140		SE1	
					2 Outside	134		SE1	
					3 Outside	142		SE1	
					4 Outside	132		SE1	
					5 Outside	138		SE1	
					AVG:	137			
					STD. DEV.	4			
					1 Inside	140		SE1	
					2 Inside	144		SE1	
					3 Inside	140		SE1	
					4 Inside	134		SE1	
					5 Inside	132		SE1	
					AVG:	138			
					STD. DEV.	5			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD Adhesion Failure
BRK Break in Sheeting
SE1 Break at Outer Edge of the seam
SE2 Break at Inner Edge of the seam through both sheets
AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
AD2 Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD Break through the fillet
SE1 Break at Seam Edge in the bottom sheet
SE2 Break at Seam Edge in the top Sheet
SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1 Break in the bottom sheeting
BRK2 Break in the top sheeting
AD-BRK Break in the bottom sheeting with some adhesion failure



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TABLE 6.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Project Cell 1**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-11 S55 P52/56	49516	189	BRK		1 Outside	136		SE1	
		190	BRK		2 Outside	138		SE1	
		192	BRK		3 Outside	134		SE1	
		190	BRK		4 Outside	126		SE1	
		196	BRK		5 Outside	134		SE1	
		AVG:			134				
		STD. DEV.			5				
		1 Inside	128			SE1			
		2 Inside	128			SE1			
		3 Inside	126			SE1			
4 Inside	110	SE1							
5 Inside	118	SE1							
AVG.		191			AVG:	122			
STD. DEV.		3			STD. DEV.	8			
DS-12 S36 P35/38	49517	183	BRK		1 Outside	160		SE1	
		183	BRK		2 Outside	158		SE1	
		190	BRK		3 Outside	166		SE1	
		190	BRK		4 Outside	154		SE1	
		195	BRK		5 Outside	160		SE1	
		AVG:			160				
		STD. DEV.			4				
		1 Inside	128			SE1			
		2 Inside	130			SE1			
		3 Inside	136			SE1			
4 Inside	128	SE1							
5 Inside	128	SE1							
AVG:		188			AVG:	130			
STD. DEV.		5			STD. DEV.	3			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD	Adhesion Failure
BRK	Break in Sheeting
SE1	Break at Outer Edge of the seam
SE2	Break at Inner Edge of the seam through both sheets
AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



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TABLE 7.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Project Cell 1**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-13 S62 P60/63	49518	189	BRK		1 Outside	154		SE1	
		189	BRK		2 Outside	150		SE1	
		195	BRK		3 Outside	182		SE1	
		190	BRK		4 Outside	134		SE1	
		198	BRK		5 Outside	142		SE1	
					AVG:	152			
					STD. DEV.	18			
					1 Inside	126		SE1	
					2 Inside	138		SE1	
					3 Inside	140		SE1	
DS-14 S59 P59/62	49519	187	BRK		4 Inside	120		SE1	
		184	BRK		5 Inside	134		SE1	
		189	BRK		AVG:	132			
		189	BRK		STD. DEV.	8			
		195	BRK		1 Outside	138		SE1	
					2 Outside	134		SE1	
					3 Outside	138		SE1	
					4 Outside	136		SE1	
					5 Outside	134		SE1	
					AVG:	136			
					STD. DEV.	2			
					1 Inside	144		SE1	
					2 Inside	140		SE1	
					3 Inside	146		SE1	
					4 Inside	142		SE1	
					5 Inside	142		SE1	
					AVG:	143			
					STD. DEV.	2			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE		EXTRUSION	
HOT WEDGE	AD	AD1	Failure in Adhesion. Specimens delaminated under the bead
	BRK	AD2	Failure in Adhesion. Specimens delaminated from the extrudate
	SE1	AD-WLD	Break through the fillet
	SE2	SE1	Break at Seam Edge in the bottom sheet
	AD-BRK	SE2	Break at Seam Edge in the top Sheet
		SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
		BRK1	Break in the bottom sheeting
		BRK2	Break in the top sheeting
		AD-BRK	Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



TABLE 8.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Project Cell 1**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-15 S66 P66/70	49520	189	BRK		1 Outside	132		SE1	
		190	BRK		2 Outside	150		SE1	
		195	BRK		3 Outside	132		SE1	
		194	BRK		4 Outside	142		SE1	
		200	BRK		5 Outside	132		SE1	
					AVG:	138			
					STD. DEV.	8			
					1 Inside	150		SE1	
					2 Inside	148		SE1	
					3 Inside	144		SE1	
DS-16 S69 P67/68	49521	186	BRK		4 Inside	152		SE1	
		185	BRK		5 Inside	142		SE1	
		187	BRK		AVG:	147			
		184	BRK		STD. DEV.	4			
		191	BRK		1 Outside	138		SE1	
					2 Outside	144		SE1	
					3 Outside	152		SE1	
					4 Outside	126		SE1	
					5 Outside	134		SE1	
					AVG:	139			
					STD. DEV.	10			
					1 Inside	126		SE1	
					2 Inside	126		SE1	
					3 Inside	126		SE1	
					4 Inside	142		SE1	
					5 Inside	144		SE1	
					AVG:	133			
					STD. DEV.	9			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE		EXTRUSION	
HOT WEDGE	AD	AD1	Failure in Adhesion. Specimens delaminated under the bead
	BRK	AD2	Failure in Adhesion. Specimens delaminated from the extrudate
	SE1	AD-WLD	Break through the fillet
	SE2	SE1	Break at Seam Edge in the bottom sheet
	AD-BRK	SE2	Break at Seam Edge in the top Sheet
		SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
		BRK1	Break in the bottom sheeting
		BRK2	Break in the top sheeting
		AD-BRK	Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



TABLE 9.
SEAM SHEAR AND PEEL TEST RESULTS



CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Project Cell 1**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-17 S70 P71/74	49522	185	BRK		1 Outside	138		SE1	
		187	BRK		2 Outside	142		SE1	
		189	BRK		3 Outside	161		SE1	
		190	BRK		4 Outside	159		SE1	
		195	BRK		5 Outside	164		SE1	
					AVG:	153			
					STD. DEV.	12			
					1 Inside	148		SE1	
					2 Inside	140		SE1	
					3 Inside	152		SE1	
DS-18 S72 P72/73	49523	185	BRK		4 Inside	138		SE1	
		187	BRK		5 Inside	144		SE1	
		190	BRK		AVG:	144			
		188	BRK		STD. DEV.	6			
		194	BRK		1 Outside	146		SE1	
					2 Outside	146		SE1	
					3 Outside	132		SE1	
					4 Outside	148		SE1	
					5 Outside	152		SE1	
					AVG:	145			
AVG:	STD. DEV.	189	3		STD. DEV.	8			
AVG:	STD. DEV.	189	3		AVG:	137			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD Adhesion Failure
BRK Break in Sheeting
SE1 Break at Outer Edge of the seam
SE2 Break at Inner Edge of the seam through both sheets
AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
AD2 Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD Break through the fillet
SE1 Break at Seam Edge in the bottom sheet
SE2 Break at Seam Edge in the top Sheet
SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1 Break in the bottom sheeting
BRK2 Break in the top sheeting
AD-BRK Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



DC#1724, Record#176

TABLE 10.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Project Cell 1**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-19 S74 P75/77	49524	186	BRK		1 Outside	154		SE1	
		187	BRK		2 Outside	140		SE1	
		189	BRK		3 Outside	148		SE1	
		188	BRK		4 Outside	136		SE1	
		193	BRK		5 Outside	156		SE1	
		AVG:			147				
		STD. DEV.			9				
		1 Inside	140			SE1			
		2 Inside	142			SE1			
		3 Inside	141			SE1			
4 Inside	144	SE1							
5 Inside	140	SE1							
AVG.		188			AVG:	141			
STD. DEV.		3			STD. DEV.	2			
DS-20 S76 P76/78	49525	186	BRK		1 Outside	152		SE1	
		187	BRK		2 Outside	150		SE1	
		189	BRK		3 Outside	138		SE1	
		191	BRK		4 Outside	150		SE1	
		198	BRK		5 Outside	138		SE1	
		AVG:			146				
		STD. DEV.			7				
		1 Inside	140			SE1			
		2 Inside	141			SE1			
		3 Inside	146			SE1			
4 Inside	128	SE1							
5 Inside	150	SE1							
AVG:		190			AVG:	141			
STD. DEV.		5			STD. DEV.	8			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD Adhesion Failure
BRK Break in Sheeting
SE1 Break at Outer Edge of the seam
SE2 Break at Inner Edge of the seam through both sheets
AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
AD2 Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD Break through the fillet
SE1 Break at Seam Edge in the bottom sheet
SE2 Break at Seam Edge in the top Sheet
SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1 Break in the bottom sheeting
BRK2 Break in the top sheeting
AD-BRK Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



DC#1724, Record#176

TABLE 11.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Point Landfill**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-21 S77 P80/82	49526	187	BRK		1 Outside	142		SE1	
		186	BRK		2 Outside	132		SE1	
		191	BRK		3 Outside	152		SE1	
		188	BRK		4 Outside	138		SE1	
		194	BRK		5 Outside	136		SE1	
					AVG:	140			
					STD. DEV.	8			
					1 Inside	128		SE1	
					2 Inside	134		SE1	
					3 Inside	126		SE1	
DS-22 S79 P79/99	49527	180	BRK		4 Inside	140		SE1	
		182	BRK		5 Inside	124		SE1	
		185	BRK		AVG:	130			
		184	BRK		STD. DEV.	7			
		191	BRK		1 Outside	136		SE1	
					2 Outside	138		SE1	
					3 Outside	156		SE1	
					4 Outside	132		SE1	
					5 Outside	150		SE1	
					AVG:	142			
					STD. DEV.	10			
					1 Inside	122		SE1	
					2 Inside	130		SE1	
					3 Inside	132		SE1	
					4 Inside	122		SE1	
					5 Inside	122		SE1	
					AVG:	126			
					STD. DEV.	5			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD Adhesion Failure
BRK Break in Sheeting
SE1 Break at Outer Edge of the seam
SE2 Break at Inner Edge of the seam through both sheets
AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
AD2 Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD Break through the fillet
SE1 Break at Seam Edge in the bottom sheet
SE2 Break at Seam Edge in the top Sheet
SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1 Break in the bottom sheeting
BRK2 Break in the top sheeting
AD-BRK Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



DC#1724, Record#176

TABLE 12.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Point Landfill**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-23 S81 P85/86	49528	187	BRK		1 Outside	124		SE1	
		188	BRK		2 Outside	138		SE1	
		193	BRK		3 Outside	144		SE1	
		191	BRK		4 Outside	132		SE1	
		196	BRK		5 Outside	126		SE1	
		AVG:			133				
		STD. DEV.			8				
					1 Inside	94	75%	AD-BRK	
					2 Inside	128		SE1	
					3 Inside	120		SE1	
4 Inside	122			80%	AD-BRK				
5 Inside	96				SE1				
AVG.		191							
STD. DEV.		4							
DS-24 S85 P100/101	49529	187	BRK		1 Outside	144		SE1	
		185	BRK		2 Outside	140		SE1	
		110	BRK		3 Outside	144		SE1	
		189	BRK		4 Outside	146		SE1	
		195	BRK		5 Outside	140		SE1	
		AVG:			143				
		STD. DEV.			3				
					1 Inside	136		SE1	
					2 Inside	132		SE1	
					3 Inside	148		SE1	
4 Inside	146			SE1					
5 Inside	138			SE1					
AVG:		173							
STD. DEV.		36							
AVG:		140							
STD. DEV.		7							

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD Adhesion Failure
BRK Break in Sheeting
SE1 Break at Outer Edge of the seam
SE2 Break at Inner Edge of the seam through both sheets
AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
AD2 Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD Break through the fillet
SE1 Break at Seam Edge in the bottom sheet
SE2 Break at Seam Edge in the top Sheet
SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1 Break in the bottom sheeting
BRK2 Break in the top sheeting
AD-BRK Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



TABLE 13.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Point Landfill**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-25 S88 P90/91	49530	187	BRK		1 Outside	144		SE1	
		193	BRK		2 Outside	132		SE1	
		188	BRK		3 Outside	130		SE1	
		184	BRK		4 Outside	130		SE1	
		194	BRK		5 Outside	132		SE1	
		AVG:			134				
		STD. DEV.			6				
		1 Inside	142			SE1			
		2 Inside	138			SE1			
		3 Inside	138			SE1			
		4 Inside	138			SE1			
		5 Inside	140			SE1			
AVG:		139							
STD. DEV.		2							
DS-26 S89 P88/92	49531	192	BRK		1 Outside	144		SE1	
		193	BRK		2 Outside	152		SE1	
		197	BRK		3 Outside	148		SE1	
		195	BRK		4 Outside	130		SE1	
		201	BRK		5 Outside	136		SE1	
		AVG:			142				
		STD. DEV.			9				
		1 Inside	144			SE1			
		2 Inside	146			SE1			
		3 Inside	156			SE1			
		4 Inside	130			SE1			
		5 Inside	124			SE1			
AVG:		140							
STD. DEV.		13							

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD	Adhesion Failure
BRK	Break in Sheeting
SE1	Break at Outer Edge of the seam
SE2	Break at Inner Edge of the seam through both sheets
AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



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TABLE 14.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON**
PROJECT: **Plum Point Landfill**
DATE REC'D: **11-Aug-08**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **G080972**

QC'd By: _____
TEST METHOD: **ASTM D4437**
UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi.

DATE REPORT: 11-Aug-08

SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-27 S92 P94/95	49532	185	BRK		1 Outside	132		SE1	
		187	BRK		2 Outside	128		SE1	
		190	BRK		3 Outside	126		SE1	
		189	BRK		4 Outside	124		SE1	
		196	BRK		5 Outside	124		SE1	
					AVG:	127			
					STD. DEV.	3			
					1 Inside	138		SE1	
					2 Inside	152		SE1	
					3 Inside	132		SE1	
DS-28 S93 P104/105	49533	190	BRK		4 Inside	150		SE1	
		192	BRK		5 Inside	146		SE1	
		195	BRK		AVG:	144			
		193	BRK		STD. DEV.	8			
		199	BRK		1 Outside	134		SE1	
					2 Outside	124		SE1	
					3 Outside	126		SE1	
					4 Outside	124		SE1	
					5 Outside	124		SE1	
					AVG:	126			
					STD. DEV.	4			
					1 Inside	144		SE1	
					2 Inside	132		SE1	
					3 Inside	144		SE1	
					4 Inside	144		SE1	
					5 Inside	136		SE1	
					AVG:	140			
					STD. DEV.	6			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD Adhesion Failure
BRK Break in Sheeting
SE1 Break at Outer Edge of the seam
SE2 Break at Inner Edge of the seam through both sheets
AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
AD2 Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD Break through the fillet
SE1 Break at Seam Edge in the bottom sheet
SE2 Break at Seam Edge in the top Sheet
SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1 Break in the bottom sheeting
BRK2 Break in the top sheeting
AD-BRK Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



DC#1724, Record#176



Precision Geosynthetic Laboratories



August 19, 2008

Brad Fureigh
GENESIS/TERRACON
11400 West Baseline Road
Little Rock, AR 72209

RE: **Plum Point Landfill**

Dear Mr. Fureigh:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of thirty-five (35) 60mil HDPE Seam samples received on August 19, 2008.

It shall be noted that the samples tested are believed to be true representative of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,
PRECISION GEOSYNTHETIC LABORATORIES

Carmelo V. Zantua
Technical/Laboratory Director

Enclosure: (Job No. G081035)



Precision Geosynthetic Laboratories



CLIENT: GENESIS/TERRACON
PROJECT NAME: Plum Point Landfill

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. G081035)

MATERIAL DESCRIPTION: 60mil HDPE Seams

SAMPLES SENT BY: B. Fureigh @ Terracon

DATE RECEIVED: August 19, 2008

DATE REPORTED: August 19, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
DS-29 P96/127	49846
DS-30 P129/130	49847
DS-31 P106/107	49848
DS-32 P128/132	49849
DS-33 P132/133	49850
DS-34 P133/136	49851
DS-35 P136/137	49852
DS-36 P137/140	49853
DS-37 P139/142	49854
DS-38 P140/141	49855
DS-39 P141/144	49856
DS-40 P144/145	49857
DS-41 P145/148	49858
DS-42 P147/149	49859
DS-43 P148/152	49860
DS-45 P152/153	49862
DS-46 P150/151	49863
DS-47 P116/117	49864
DS-48 P120/121	49865
DS-49 P123/158	49866
DS-50 P159/160	49867
DS-51 P161/162	49868
DS-52 P163/164	49869
DS-53 P165/166	49870
DS-54 P167/168	49871
DS-55 P169/170	49872
DS-56 P171/172	49873
DS-57 P173/174	49874
DS-58 P175/176	49875
DS-59 P177/178	49876
DS-60 P179/180	49877
DS-61 P181/182	49878
DS-62 P183/184	49879
D23-A P85/86	49880
D23-B P85/86	49881



Precision Geosynthetic Laboratories



TESTS REQUIRED:

TEST METHOD

DESCRIPTION

ASTM D4437
ASTM D4337

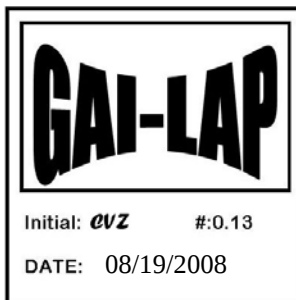
Peel Adhesion
Shear Strength

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 to 18. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES



Carmelo V. Zantua
Technical/Laboratory Director

TABLE 1.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: GENESIS TERRACON	MATERIAL: 60mil HDPE SEAM	QC'd By: _____
PROJECT: Plum Point Landfill	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 19-Aug-08	PGL JOB #: G081035	UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-29 P96/127	49846	191	BRK		1 Outside	144		SE1	
		197	BRK		2 Outside	134		SE1	
		190	BRK		3 Outside	134		SE1	
		190	BRK		4 Outside	134		SE1	
		191	BRK		5 Outside	141		SE1	
					AVG:	137			
					STD. DEV.	5			
					1 Inside	128		SE1	
					2 Inside	124		SE1	
					3 Inside	128		SE1	
DS-30 P129/130	49847	200	BRK		4 Inside	122		SE1	
		192	BRK		5 Inside	116		SE1	
		191	BRK		AVG:	124			
		190	BRK		STD. DEV.	5			
		192	BRK		1 Outside	158		SE1	
					2 Outside	152		SE1	
					3 Outside	152		SE1	
					4 Outside	148		SE1	
					5 Outside	146		SE1	
					AVG:	151			
					STD. DEV.	5			
					1 Inside	134		SE1	
					2 Inside	126		SE1	
					3 Inside	138		SE1	
					4 Inside	124		SE1	
					5 Inside	126		SE1	
					AVG:	130			
					STD. DEV.	6			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD	Adhesion Failure
BRK	Break in Sheeting
SE1	Break at Outer Edge of the seam
SE2	Break at Inner Edge of the seam through both sheets
AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



DC#1724, Record#176

TABLE 2.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON** MATERIAL: **60mil HDPE SEAM** QC'd By: _____
 PROJECT: **Plum Point Landfill** SEAM TYPE: **Fusion Weld** TEST METHOD: **ASTM D4437**
 DATE REC'D: **19-Aug-08** PGL JOB #: **G081035** UNREINFORCED
 Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"					
SHEAR EVALUATION					PEEL EVALUATION					
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)	
DS-31 P106/107	49848	189	BRK		1 Outside	144		SE1		
		194	BRK		2 Outside	158		SE1		
		198	BRK		3 Outside	142		SE1		
		191	BRK		4 Outside	146		SE1		
		194	BRK		5 Outside	160		SE1		
		AVG:			150					
		STD. DEV.			8					
					1 Inside	136		SE1		
					2 Inside	146		SE1		
					3 Inside	154		SE1		
					4 Inside	154		SE1		
					5 Inside	138		SE1		
AVG.		193			AVG:	146				
STD. DEV.		4			STD. DEV.	9				
DS-32 P128/132	49849	199	BRK		1 Outside	142		SE1		
		194	BRK		2 Outside	152		SE1		
		198	BRK		3 Outside	142		SE1		
		189	BRK		4 Outside	126		SE1		
		193	BRK		5 Outside	112		SE1		
		AVG:			135					
		STD. DEV.			16					
					1 Inside	138		SE1		
					2 Inside	134		SE1		
					3 Inside	136		SE1		
					4 Inside	112		SE1		
					5 Inside	110		SE1		
AVG:		195			AVG:	126				
STD. DEV.		4			STD. DEV.	14				

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD	Adhesion Failure
BRK	Break in Sheeting
SE1	Break at Outer Edge of the seam
SE2	Break at Inner Edge of the seam through both sheets
AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



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TABLE 3.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: GENESIS TERRACON	MATERIAL: 60mil HDPE SEAM	QC'd By: _____
PROJECT: Plum Point Landfill	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 19-Aug-08	PGL JOB #: G081035	UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-33 P132/133	49850	191	BRK		1 Outside	144		SE1	
		195	BRK		2 Outside	148		SE1	
		191	BRK		3 Outside	134		SE1	
		190	BRK		4 Outside	140		SE1	
		190	BRK		5 Outside	136		SE1	
		AVG:			140				
		STD. DEV.			6				
					1 Inside	130		SE1	
					2 Inside	132		SE1	
					3 Inside	128		SE1	
		4 Inside	134	SE1					
		5 Inside	148	SE1					
AVG.		191			AVG:	134			
STD. DEV.		2			STD. DEV.	8			
DS-34 P133/136	49851	199	BRK		1 Outside	152		SE1	
		194	BRK		2 Outside	129		SE1	
		193	BRK		3 Outside	124		SE1	
		193	BRK		4 Outside	134		SE1	
		190	BRK		5 Outside	140		SE1	
		AVG:			136				
		STD. DEV.			11				
					1 Inside	138		SE1	
					2 Inside	124		SE1	
					3 Inside	131		SE1	
		4 Inside	120	SE1					
		5 Inside	124	SE1					
AVG:		194			AVG:	127			
STD. DEV.		3			STD. DEV.	7			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE	AD	Adhesion Failure
	BRK	Break in Sheeting
	SE1	Break at Outer Edge of the seam
	SE2	Break at Inner Edge of the seam through both sheets
	AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



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TABLE 4.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: GENESIS TERRACON	MATERIAL: 60mil HDPE SEAM	QC'd By: _____
PROJECT: Plum Point Landfill	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 19-Aug-08	PGL JOB #: G081035	UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-35 P136/137	49852	193	BRK		1 Outside	138		SE1	
		198	BRK		2 Outside	128		SE1	
		188	BRK		3 Outside	132		SE1	
		190	BRK		4 Outside	130		SE1	
		192	BRK		5 Outside	130		SE1	
		AVG:			132				
		STD. DEV.			4				
		1 Inside	131			SE1			
		2 Inside	120			SE1			
		3 Inside	108			SE1			
		4 Inside	118			SE1			
		5 Inside	132			SE1			
AVG.		192			AVG:	122			
STD. DEV.		4			STD. DEV.	10			
DS-36 P137/140	49853	193	BRK		1 Outside	130		SE1	
		195	BRK		2 Outside	144		SE1	
		191	BRK		3 Outside	128		SE1	
		200	BRK		4 Outside	130		SE1	
		195	BRK		5 Outside	152		SE1	
		AVG:			137				
		STD. DEV.			11				
		1 Inside	134			SE1			
		2 Inside	126			SE1			
		3 Inside	126			SE1			
		4 Inside	128			SE1			
		5 Inside	140			SE1			
AVG:		195			AVG:	131			
STD. DEV.		3			STD. DEV.	6			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE	AD	Adhesion Failure
	BRK	Break in Sheeting
	SE1	Break at Outer Edge of the seam
	SE2	Break at Inner Edge of the seam through both sheets
	AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



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TABLE 5.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON** MATERIAL: **60mil HDPE SEAM** QC'd By: _____
 PROJECT: **Plum Point Landfill** SEAM TYPE: **Fusion Weld** TEST METHOD: **ASTM D4437**
 DATE REC'D: **19-Aug-08** PGL JOB #: **G081035** UNREINFORCED
 Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"						
SHEAR EVALUATION					PEEL EVALUATION						
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)		
DS-37 P139/142	49854	193	BRK		1 Outside	152		SE1			
		192	BRK		2 Outside	134		SE1			
		190	BRK		3 Outside	140		SE1			
		192	BRK		4 Outside	130		SE1			
		197	BRK		5 Outside	136		SE1			
		AVG:				138					
		STD. DEV.				8					
					1 Inside	134		SE1			
					2 Inside	140		SE1			
					3 Inside	146		SE1			
					4 Inside	140		SE1			
					5 Inside	134		SE1			
AVG.		193			AVG:	139					
STD. DEV.		3			STD. DEV.	5					
DS-38 P140/141	49855	193	BRK		1 Outside	148		SE1			
		194	BRK		2 Outside	132		SE1			
		191	BRK		3 Outside	126		SE1			
		194	BRK		4 Outside	134		SE1			
		192	BRK		5 Outside	132		SE1			
		AVG:				134					
		STD. DEV.				8					
					1 Inside	142		SE1			
					2 Inside	130		SE1			
					3 Inside	130		SE1			
					4 Inside	140		SE1			
					5 Inside	120		SE1			
AVG:		193			AVG:	132					
STD. DEV.		1			STD. DEV.	9					

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD	Adhesion Failure
BRK	Break in Sheeting
SE1	Break at Outer Edge of the seam
SE2	Break at Inner Edge of the seam through both sheets
AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



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TABLE 6.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: GENESIS TERRACON	MATERIAL: 60mil HDPE SEAM	QC'd By: _____
PROJECT: Plum Point Landfill	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 19-Aug-08	PGL JOB #: G081035	UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-39 P141/144	49856	187	BRK		1 Outside	140		SE1	
		192	BRK		2 Outside	142		SE1	
		194	BRK		3 Outside	148		SE1	
		190	BRK		4 Outside	140		SE1	
		192	BRK		5 Outside	138		SE1	
		AVG:			142				
		STD. DEV.			4				
		1 Inside	128			SE1			
		2 Inside	122			SE1			
		3 Inside	128			SE1			
		4 Inside	124			SE1			
		5 Inside	124			SE1			
AVG.		191			AVG:	125			
STD. DEV.		3			STD. DEV.	3			
DS-40 P144/145	49857	200	BRK		1 Outside	138		SE1	
		193	BRK		2 Outside	138		SE1	
		198	BRK		3 Outside	146		SE1	
		190	BRK		4 Outside	130		SE1	
		188	BRK		5 Outside	124		SE1	
		AVG:			135				
		STD. DEV.			8				
		1 Inside	120			SE1			
		2 Inside	122			SE1			
		3 Inside	134			SE1			
		4 Inside	140			SE1			
		5 Inside	136			SE1			
AVG:		194			AVG:	130			
STD. DEV.		5			STD. DEV.	9			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE	AD	Adhesion Failure
	BRK	Break in Sheeting
	SE1	Break at Outer Edge of the seam
	SE2	Break at Inner Edge of the seam through both sheets
	AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



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**TABLE 7.
SEAM SHEAR AND PEEL TEST RESULTS**

CLIENT: GENESIS TERRACON	MATERIAL: 60mil HDPE SEAM	QC'd By: _____
PROJECT: Plum Point Landfill	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 19-Aug-08	PGL JOB #: G081035	UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-41 P145/148	49858	198	BRK		1 Outside	130		SE1	
		198	BRK		2 Outside	128		SE1	
		188	BRK		3 Outside	142		SE1	
		197	BRK		4 Outside	130		SE1	
		189	BRK		5 Outside	126		SE1	
		AVG:			131				
		STD. DEV.			6				
		1 Inside	122			SE1			
		2 Inside	118			SE1			
		3 Inside	122			SE1			
		4 Inside	120			SE1			
		5 Inside	118			SE1			
AVG.		194			AVG:	120			
STD. DEV.		5			STD. DEV.	2			
DS-42 P147/149	49859	187	BRK		1 Outside	138		SE1	
		190	BRK		2 Outside	132		SE1	
		190	BRK		3 Outside	136		SE1	
		190	BRK		4 Outside	126		SE1	
		192	BRK		5 Outside	136		SE1	
		AVG:			134				
		STD. DEV.			5				
		1 Inside	152			SE1			
		2 Inside	146			SE1			
		3 Inside	130			SE1			
		4 Inside	132			SE1			
		5 Inside	132			SE1			
AVG:		190			AVG:	138			
STD. DEV.		2			STD. DEV.	10			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE	AD	Adhesion Failure
	BRK	Break in Sheeting
	SE1	Break at Outer Edge of the seam
	SE2	Break at Inner Edge of the seam through both sheets
	AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



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TABLE 8.
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON** MATERIAL: **60mil HDPE SEAM** QC'd By: _____
 PROJECT: **Plum Point Landfill** SEAM TYPE: **Fusion Weld** TEST METHOD: **ASTM D4437**
 DATE REC'D: **19-Aug-08** PGL JOB #: **G081035** UNREINFORCED
 Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-43 P148/152	49860	196	BRK		1 Outside	128		SE1	
		185	BRK		2 Outside	124		SE1	
		189	BRK		3 Outside	130		SE1	
		186	BRK		4 Outside	124		SE1	
		187	BRK		5 Outside	124		SE1	
					AVG:	126			
					STD. DEV.	3			
					1 Inside	122		SE1	
					2 Inside	126		SE1	
					3 Inside	134		SE1	
DS-45 P148/153	49862	188	BRK		4 Inside	124		SE1	
		187	BRK		5 Inside	124		SE1	
		189	BRK		AVG:	126			
		191	BRK		STD. DEV.	5			
		189	BRK		1 Outside	136		SE1	
					2 Outside	134		SE1	
					3 Outside	136		SE1	
					4 Outside	136		SE1	
					5 Outside	128		SE1	
					AVG:	134			
					STD. DEV.	3			
					1 Inside	128		SE1	
					2 Inside	118		SE1	
					3 Inside	116		SE1	
					4 Inside	138		SE1	
					5 Inside	142		SE1	
					AVG:	128			
					STD. DEV.	12			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE AD Adhesion Failure
 BRK Break in Sheeting
 SE1 Break at Outer Edge of the seam
 SE2 Break at Inner Edge of the seam through both sheets
 AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
 AD2 Failure in Adhesion. Specimens delaminated from the extrudate
 AD-WLD Break through the fillet
 SE1 Break at Seam Edge in the bottom sheet
 SE2 Break at Seam Edge in the top Sheet
 SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
 BRK1 Break in the bottom sheeting
 BRK2 Break in the top sheeting
 AD-BRK Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



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**TABLE 9.
SEAM SHEAR AND PEEL TEST RESULTS**

CLIENT: GENESIS TERRACON	MATERIAL: 60mil HDPE SEAM	QC'd By: _____
PROJECT: Plum Point Landfill	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 19-Aug-08	PGL JOB #: G081035	UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-46 P150/151	49863	198	BRK		1 Outside	138		SE1	
		198	BRK		2 Outside	150		SE1	
		197	BRK		3 Outside	142		SE1	
		190	BRK		4 Outside	140		SE1	
		195	BRK		5 Outside	142		SE1	
		AVG:			142				
		STD. DEV.			5				
		1 Inside	130			SE1			
		2 Inside	126			SE1			
		3 Inside	132			SE1			
		4 Inside	144			SE1			
		5 Inside	144			SE1			
AVG.		196			AVG:	135			
STD. DEV.		3			STD. DEV.	8			
DS-47 P116/117	49864	191	BRK		1 Outside	136		SE1	
		192	BRK		2 Outside	138		SE1	
		196	BRK		3 Outside	146		SE1	
		198	BRK		4 Outside	126		SE1	
		199	BRK		5 Outside	136		SE1	
		AVG:			136				
		STD. DEV.			7				
		1 Inside	118			SE1			
		2 Inside	136			SE1			
		3 Inside	130			SE1			
		4 Inside	120			SE1			
		5 Inside	124			SE1			
AVG:		195			AVG:	126			
STD. DEV.		3			STD. DEV.	7			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE	AD	Adhesion Failure
	BRK	Break in Sheeting
	SE1	Break at Outer Edge of the seam
	SE2	Break at Inner Edge of the seam through both sheets
	AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



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**TABLE 10.
SEAM SHEAR AND PEEL TEST RESULTS**

CLIENT: GENESIS TERRACON	MATERIAL: 60mil HDPE SEAM	QC'd By: _____
PROJECT: Plum Point Landfill	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 19-Aug-08	PGL JOB #: G081035	UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-48 P120/121	49865	192	BRK		1 Outside	141		SE1	
		190	BRK		2 Outside	143		SE1	
		192	BRK		3 Outside	134		SE1	
		194	BRK		4 Outside	142		SE1	
		194	BRK		5 Outside	134		SE1	
		AVG:			139				
		STD. DEV.			4				
					1 Inside	134		SE1	
					2 Inside	128		SE1	
					3 Inside	122		SE1	
		4 Inside	120	SE1					
		5 Inside	128	SE1					
AVG.		192			AVG:	126			
STD. DEV.		2			STD. DEV.	6			
DS-49 P123/158	49866	189	BRK		1 Outside	138		SE1	
		187	BRK		2 Outside	132		SE1	
		193	BRK		3 Outside	130		SE1	
		190	BRK		4 Outside	132		SE1	
		191	BRK		5 Outside	134		SE1	
		AVG:			133				
		STD. DEV.			3				
					1 Inside	144		SE1	
					2 Inside	136		SE1	
					3 Inside	130		SE1	
		4 Inside	132	SE1					
		5 Inside	134	SE1					
AVG:		190			AVG:	135			
STD. DEV.		2			STD. DEV.	5			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE	AD	Adhesion Failure
	BRK	Break in Sheeting
	SE1	Break at Outer Edge of the seam
	SE2	Break at Inner Edge of the seam through both sheets
	AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



DC#1724, Record#176

TABLE 11
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: GENESIS TERRACON	MATERIAL: 60mil HDPE SEAM	QC'd By: _____
PROJECT: Plum Point Landfill	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 19-Aug-08	PGL JOB #: G081035	UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-50 P159/160	49867	187	BRK		1 Outside	132		SE1	
		190	BRK		2 Outside	150		SE1	
		194	BRK		3 Outside	138		SE1	
		194	BRK		4 Outside	130		SE1	
		192	BRK		5 Outside	138		SE1	
		AVG:			138				
		STD. DEV.			8				
		1 Inside	138			SE1			
		2 Inside	144			SE1			
		3 Inside	148			SE1			
4 Inside	134	SE1							
5 Inside	134	SE1							
AVG:		191			AVG:	140			
STD. DEV.		3			STD. DEV.	6			
DS-51 P161/162	49868	188	BRK		1 Outside	136		SE1	
		189	BRK		2 Outside	136		SE1	
		192	BRK		3 Outside	142		SE1	
		193	BRK		4 Outside	142		SE1	
		198	BRK		5 Outside	136		SE1	
		AVG:			138				
		STD. DEV.			3				
		1 Inside	118			SE1			
		2 Inside	132			SE1			
		3 Inside	122			SE1			
4 Inside	128	SE1							
5 Inside	132	SE1							
AVG:		192			AVG:	126			
STD. DEV.		4			STD. DEV.	6			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE	AD	Adhesion Failure
	BRK	Break in Sheeting
	SE1	Break at Outer Edge of the seam
	SE2	Break at Inner Edge of the seam through both sheets
	AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



DC#1724, Record#176

TABLE 12
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON** MATERIAL: **60mil HDPE SEAM** QC'd By: _____
 PROJECT: **Plum Point Landfill** SEAM TYPE: **Fusion Weld** TEST METHOD: **ASTM D4437**
 DATE REC'D: **19-Aug-08** PGL JOB #: **G081035** UNREINFORCED
 Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"						
SHEAR EVALUATION					PEEL EVALUATION						
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)		
DS-52 P163/164	49869	188	BRK		1 Outside	140		SE1			
		187	BRK		2 Outside	140		SE1			
		197	BRK		3 Outside	136		SE1			
		190	BRK		4 Outside	136		SE1			
		184	BRK		5 Outside	122		SE1			
		AVG:				135					
		STD. DEV.				7					
					1 Inside	150		SE1			
					2 Inside	146		SE1			
					3 Inside	148		SE1			
					4 Inside	128		SE1			
					5 Inside	130		SE1			
AVG.		189			AVG:	140					
STD. DEV.		5			STD. DEV.	11					
DS-53 P165/166	49870	188	BRK		1 Outside	148		SE1			
		187	BRK		2 Outside	140		SE1			
		192	BRK		3 Outside	144		SE1			
		192	BRK		4 Outside	138		SE1			
		190	BRK		5 Outside	140		SE1			
		AVG:				142					
		STD. DEV.				4					
					1 Inside	132		SE1			
					2 Inside	128		SE1			
					3 Inside	126		SE1			
					4 Inside	130		SE1			
					5 Inside	148		SE1			
AVG:		190			AVG:	133					
STD. DEV.		2			STD. DEV.	9					

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD	Adhesion Failure
BRK	Break in Sheeting
SE1	Break at Outer Edge of the seam
SE2	Break at Inner Edge of the seam through both sheets
AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



DC#1724, Record#176

TABLE 13
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: GENESIS TERRACON	MATERIAL: 60mil HDPE SEAM	QC'd By: _____
PROJECT: Plum Point Landfill	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 19-Aug-08	PGL JOB #: G081035	UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-54 P167/168	49871	183	BRK		1 Outside	140		SE1	
		193	BRK		2 Outside	138		SE1	
		182	BRK		3 Outside	141		SE1	
		190	BRK		4 Outside	136		SE1	
		192	BRK		5 Outside	138		SE1	
		AVG:			AVG:	139			
					STD. DEV.	2			
					1 Inside	140		SE1	
					2 Inside	134		SE1	
					3 Inside	130		SE1	
DS-55 P169/170	49872	182	BRK		4 Inside	132		SE1	
		187	BRK		5 Inside	128		SE1	
		189	BRK		AVG:	133			
		189	BRK		STD. DEV.	5			
		191	BRK		1 Outside	140		SE1	
					2 Outside	136		SE1	
					3 Outside	142		SE1	
					4 Outside	134		SE1	
					5 Outside	138		SE1	
					AVG:	138			
					STD. DEV.	3			
					1 Inside	120		SE1	
					2 Inside	126		SE1	
					3 Inside	140		SE1	
					4 Inside	132		SE1	
					5 Inside	132		SE1	
		AVG:			AVG:	130			
		STD. DEV.			STD. DEV.	7			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE	AD	Adhesion Failure
	BRK	Break in Sheeting
	SE1	Break at Outer Edge of the seam
	SE2	Break at Inner Edge of the seam through both sheets
	AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



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TABLE 14
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: GENESIS TERRACON	MATERIAL: 60mil HDPE SEAM	QC'd By: _____
PROJECT: Plum Point Landfill	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 19-Aug-08	PGL JOB #: G081035	UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-56 P171/172	49873	188	BRK		1 Outside	142		SE1	
		196	BRK		2 Outside	134		SE1	
		191	BRK		3 Outside	134		SE1	
		188	BRK		4 Outside	135		SE1	
		189	BRK		5 Outside	138		SE1	
					AVG:	137			
					STD. DEV.	3			
					1 Inside	144		SE1	
					2 Inside	144		SE1	
					3 Inside	124		SE1	
					4 Inside	148		SE1	
					5 Inside	116		SE1	
AVG.		190			AVG:	135			
STD. DEV.		4			STD. DEV.	14			
DS-57 P173/174	49874	183	BRK		1 Outside	148		SE1	
		191	BRK		2 Outside	141		SE1	
		186	BRK		3 Outside	146		SE1	
		181	BRK		4 Outside	141		SE1	
		184	BRK		5 Outside	139		SE1	
					AVG:	143			
					STD. DEV.	4			
					1 Inside	138		SE1	
					2 Inside	142		SE1	
					3 Inside	140		SE1	
					4 Inside	124		SE1	
					5 Inside	118		SE1	
AVG:		185			AVG:	132			
STD. DEV.		4			STD. DEV.	11			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE	AD	Adhesion Failure
	BRK	Break in Sheeting
	SE1	Break at Outer Edge of the seam
	SE2	Break at Inner Edge of the seam through both sheets
	AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



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TABLE 15
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON** MATERIAL: **60mil HDPE SEAM** QC'd By: _____
 PROJECT: **Plum Point Landfill** SEAM TYPE: **Fusion Weld** TEST METHOD: **ASTM D4437**
 DATE REC'D: **19-Aug-08** PGL JOB #: **G081035** UNREINFORCED
 Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"						
SHEAR EVALUATION					PEEL EVALUATION						
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)		
DS-58 P175/176	49875	189	BRK		1 Outside	147		SE1			
		186	BRK		2 Outside	146		SE1			
		198	BRK		3 Outside	142		SE1			
		190	BRK		4 Outside	135		SE1			
		190	BRK		5 Outside	138		SE1			
		AVG:				142					
		STD. DEV.				5					
					1 Inside	140		SE1			
					2 Inside	140		SE1			
					3 Inside	138		SE1			
		4 Inside	132		SE1						
				5 Inside	151		SE1				
AVG.		190			AVG:	140					
STD. DEV.		5			STD. DEV.	7					
DS-59 P177/178	49876	186	BRK		1 Outside	148		SE1			
		189	BRK		2 Outside	148		SE1			
		186	BRK		3 Outside	148		SE1			
		191	BRK		4 Outside	138		SE1			
		197	BRK		5 Outside	138		SE1			
		AVG:				144					
		STD. DEV.				5					
					1 Inside	136		SE1			
					2 Inside	124		SE1			
					3 Inside	142		SE1			
		4 Inside	123		SE1						
				5 Inside	139		SE1				
AVG:		190			AVG:	133					
STD. DEV.		4			STD. DEV.	9					

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD Adhesion Failure
 BRK Break in Sheeting
 SE1 Break at Outer Edge of the seam
 SE2 Break at Inner Edge of the seam through both sheets
 AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
 AD2 Failure in Adhesion. Specimens delaminated from the extrudate
 AD-WLD Break through the fillet
 SE1 Break at Seam Edge in the bottom sheet
 SE2 Break at Seam Edge in the top Sheet
 SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
 BRK1 Break in the bottom sheeting
 BRK2 Break in the top sheeting
 AD-BRK Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



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TABLE 16
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON** MATERIAL: **60mil HDPE SEAM** QC'd By: _____
 PROJECT: **Plum Point Landfill** SEAM TYPE: **Fusion Weld** TEST METHOD: **ASTM D4437**
 DATE REC'D: **19-Aug-08** PGL JOB #: **G081035** UNREINFORCED
 Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-60 P179/180	49877	186	BRK		1 Outside	138		SE1	
		188	BRK		2 Outside	144		SE1	
		191	BRK		3 Outside	144		SE1	
		188	BRK		4 Outside	142		SE1	
		195	BRK		5 Outside	137		SE1	
		AVG:			141				
		STD. DEV.			3				
		1 Inside	130			SE1			
		2 Inside	142			SE1			
		3 Inside	138			SE1			
4 Inside	130	SE1							
5 Inside	132	SE1							
AVG.		189			AVG:	134			
STD. DEV.		3			STD. DEV.	5			
DS-61 P181/182	49878	186	BRK		1 Outside	150		SE1	
		183	BRK		2 Outside	145		SE1	
		187	BRK		3 Outside	140		SE1	
		188	BRK		4 Outside	123		SE1	
		193	BRK		5 Outside	128		SE1	
		AVG:			137				
		STD. DEV.			11				
		1 Inside	128			SE1			
		2 Inside	145			SE1			
		3 Inside	146			SE1			
4 Inside	146	SE1							
5 Inside	149	SE1							
AVG:		187			AVG:	143			
STD. DEV.		4			STD. DEV.	8			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD Adhesion Failure
 BRK Break in Sheeting
 SE1 Break at Outer Edge of the seam
 SE2 Break at Inner Edge of the seam through both sheets
 AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
 AD2 Failure in Adhesion. Specimens delaminated from the extrudate
 AD-WLD Break through the fillet
 SE1 Break at Seam Edge in the bottom sheet
 SE2 Break at Seam Edge in the top Sheet
 SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
 BRK1 Break in the bottom sheeting
 BRK2 Break in the top sheeting
 AD-BRK Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



DC#1724, Record#176

TABLE 17
SEAM SHEAR AND PEEL TEST RESULTS

CLIENT: **GENESIS TERRACON** MATERIAL: **60mil HDPE SEAM** QC'd By: _____
 PROJECT: **Plum Point Landfill** SEAM TYPE: **Fusion Weld** TEST METHOD: **ASTM D4437**
 DATE REC'D: **19-Aug-08** PGL JOB #: **G081035** UNREINFORCED
 Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
DS-62 P183/184	49879	191	BRK		1 Outside	142		SE1	
		188	BRK		2 Outside	142		SE1	
		191	BRK		3 Outside	148		SE1	
		191	BRK		4 Outside	146		SE1	
		194	BRK		5 Outside	152		SE1	
		AVG:			146				
		STD. DEV.			4				
		1 Inside	152			SE1			
		2 Inside	144			SE1			
		3 Inside	152			SE1			
4 Inside	146	SE1							
5 Inside	144	SE1							
AVG.		191			AVG:		148		
STD. DEV.		2			STD. DEV.		4		
D23-A P85/86	49880	189	BRK		1 Outside	136		SE1	
		180	BRK		2 Outside	136		SE1	
		192	BRK		3 Outside	138		SE1	
		189	BRK		4 Outside	135		SE1	
		192	BRK		5 Outside	140		SE1	
		AVG:			137				
		STD. DEV.			2				
		1 Inside	126			SE1			
		2 Inside	136			SE1			
		3 Inside	134			SE1			
4 Inside	132	SE1							
5 Inside	134	SE1							
AVG:		188			AVG:		132		
STD. DEV.		5			STD. DEV.		4		

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE

AD Adhesion Failure
 BRK Break in Sheeting
 SE1 Break at Outer Edge of the seam
 SE2 Break at Inner Edge of the seam through both sheets
 AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
 AD2 Failure in Adhesion. Specimens delaminated from the extrudate
 AD-WLD Break through the fillet
 SE1 Break at Seam Edge in the bottom sheet
 SE2 Break at Seam Edge in the top Sheet
 SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
 BRK1 Break in the bottom sheeting
 BRK2 Break in the top sheeting
 AD-BRK Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



DC#1724, Record#176

TABLE 18
SEAM SHEAR AND PEEL TEST RESULTS



CLIENT: GENESIS TERRACON	MATERIAL: 60mil HDPE SEAM	QC'd By: _____
PROJECT: Plum Point Landfill	SEAM TYPE: Fusion Weld	TEST METHOD: ASTM D4437
DATE REC'D: 19-Aug-08	PGL JOB #: G081035	UNREINFORCED

Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 19-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"				
SHEAR EVALUATION					PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)
D23B P85/86	49881	189	BRK		1 Outside	152		SE1	
		188	BRK		2 Outside	128		SE1	
		196	BRK		3 Outside	150		SE1	
		197	BRK		4 Outside	140		SE1	
		189	BRK		5 Outside	142		SE1	
		AVG:			142				
		STD. DEV.			10				
		1 Inside	136			SE1			
		2 Inside	132			SE1			
		3 Inside	138			SE1			
		4 Inside	133			SE1			
		5 Inside	142			SE1			
AVG.		192			AVG:	136			
STD. DEV.		4			STD. DEV.	4			

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE	AD	Adhesion Failure
	BRK	Break in Sheeting
	SE1	Break at Outer Edge of the seam
	SE2	Break at Inner Edge of the seam through both sheets
	AD-BRK	Break in first seam after some adhesion failure

EXTRUSION

AD1	Failure in Adhesion. Specimens delaminated under the bead
AD2	Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD	Break through the fillet
SE1	Break at Seam Edge in the bottom sheet
SE2	Break at Seam Edge in the top Sheet
SE3	Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1	Break in the bottom sheeting
BRK2	Break in the top sheeting
AD-BRK	Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories





Precision Geosynthetic Laboratories



August 20, 2008

Brad Fureigh
GENESIS/TERRACON
11400 West Baseline Road
Little Rock, AR 72209

RE: **Plum Point Landfill**

Dear Mr. Fureigh:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of one (1) HDPE Seam sample received on August 20, 2008.

It shall be noted that the sample tested is believed to be a true representative of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Carmelo V. Zantua
Technical/Laboratory Director

Enclosure: (Job No. G081046)



Precision Geosynthetic Laboratories



CLIENT: GENESIS/TERRACON
PROJECT NAME: Plum Point Landfill

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. G081046)

MATERIAL DESCRIPTION: HDPE Seams

SAMPLE SENT BY: B. Fureigh @ Terracon

DATE RECEIVED: August 20, 2008

DATE REPORTED: August 20, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID

PRECISION CONTROL NUMBER

DS-44 P148/150

49861

TESTS REQUIRED:

TEST METHOD

DESCRIPTION

ASTM D4437
ASTM D4337

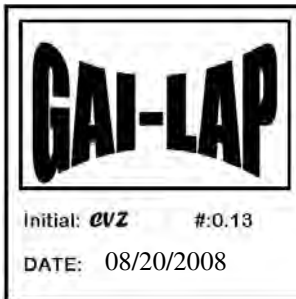
Peel Adhesion
Shear Strength

TEST CONDITIONS: The sample was conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Table 1. The units in which the data are reported are included on this table.

PRECISION GEOSYNTHETIC LABORATORIES



Carmelo V. Zantua
Technical/Laboratory Director

**TABLE 1.
SEAM SHEAR AND PEEL TEST RESULTS**

CLIENT: **GENESIS TERRACON** MATERIAL: **60mil HDPE SEAM** QC'd By: 
PROJECT: **Plum Point Landfill** SEAM TYPE: **Fusion Weld** TEST METHOD: **ASTM D4437**
DATE REC'D: **20-Aug-08** PGL JOB #: **G081046** **UNREINFORCED**
Use Tensile Testing Machine, 1" x 1.5" sand papered face / serrated pneumatic grips with grip pressure of 80psi. DATE REPORT: 20-Aug-08

Grip separation: 2" plus seam width Crosshead Speed: 2"/min Specimen Size: 1" x 10"					Grip Separation: 1" Crosshead speed: 2"/min Specimen Size: 1" X 10"					
SHEAR EVALUATION					PEEL EVALUATION					
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in-width)	Type of Failure	PROJECT SPEC. (lb/in- width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in-width)	% Incursion (%)	Type of Failure	PROJECT SPEC. (lb/in-width)	
DS-44 P148/150	49861	204	BRK		1 Outside	144		SE1		
		204	BRK		2 Outside	146		SE1		
		203	BRK		3 Outside	146		SE1		
		205	BRK		4 Outside	138		SE1		
		211	BRK		5 Outside	138		SE1		
		AVG:			142					
		STD. DEV.			4					
					1 Inside	134		SE1		
					2 Inside	138		SE1		
					3 Inside	130		SE1		
					4 Inside	136		SE1		
					5 Inside	124		SE1		
AVG.		205			AVG:	132				
STD. DEV.		3			STD. DEV.	6				

TYPE OF FAILURE BASED ON NSF54 LOCUS OF BREAK CODE

HOT WEDGE AD Adhesion Failure
BRK Break in Sheeting
SE1 Break at Outer Edge of the seam
SE2 Break at Inner Edge of the seam through both sheets
AD-BRK Break in first seam after some adhesion failure

EXTRUSION

AD1 Failure in Adhesion. Specimens delaminated under the bead
AD2 Failure in Adhesion. Specimens delaminated from the extrudate
AD-WLD Break through the fillet
SE1 Break at Seam Edge in the bottom sheet
SE2 Break at Seam Edge in the top Sheet
SE3 Break at Seam Edge in the bottom sheet (for PEEL only)
BRK1 Break in the bottom sheeting
BRK2 Break in the top sheeting
AD-BRK Break in the bottom sheeting with some adhesion failure



Precision Geosynthetic Laboratories



DC#1724, Record#176

APPENDIX S

GEOMEMBRANE REPAIR LOG SUMMARY

Geomembrane Repair Log Summary



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project No.: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E. I.
Approved By: Ken Bown, P. E.
Liner Installer: TEP

Liner System

☒ **Primary**
☐ **Secondary**
☐ **Other:** _____

25809 Interstate 30
 Bryant, AR 72022
 Phone 501.847.9292
 Fax 501.847.9210

DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
8/14/08		P16-P17-P35	40.0	EOS	R1		E			4.0						VAC		
8/14/08		P18-P35	40.0	EOS	R2		E			2.0								
8/14/08		P18	NA		R3		E			1.5								
8/14/08		P12-P13	22.0	EOS	R4	D1	E	4.0	2.0									
8/14/08		P23-P24	23.0	EOS	R5	D2	E	4.0	2.0									
8/14/08		P28-P35	100.0		R6	D3	E	4.0	2.0									
8/14/08		P35-P38	25.0	AT	R7	D4	E	4.0	2.0									
8/14/08		P35-P38	195.0	EOS	R8	D12	E	4.0	2.0									
8/14/08		P38-P39-P40-P41	192.0	EOS	R9		E			3.0								
8/14/08		P38-P41	NA		R10	D6	E	4.0	2.0									
8/14/08		P41-P42	50.0	AT	R11	D7	E	4.0	2.0									
8/14/08		P36-P37	41.0	EOS	R12	D5	E	4.0	2.0									
8/14/08		P44-P45	30.0	EOS	R13	D8	E	4.0	2.0									
8/14/08		P43-P46	196.0	EOS	R14		E	4.0	2.0									
8/14/08		P46-P47	53.0	AT	R15	D9	E	4.0	2.0									
8/14/08		P53-P54	86.0	EOS	R16	D10	E	4.0	2.0									
8/14/08		P53-P54-P55	69.0	EOS	R17		E			2.0								
8/14/08		P52-P56	46.0	AT	R18	D11	E	4.0	2.0									
8/14/08		P57-P60	400.0	AT	R19		E			1.5								
8/14/08		P59-P62	25.0	EOS	R20	D14	E	4.0	2.0									

NOTES: (1) Repair No.: Repairs should be numbered sequentially
 (2) Repair Codes.: P = Patch, C = Cap, S = Anchor Trench Ext., DS = Destructive Sample, G = Grind and Weld, T = Topping along Fusion Seam
 (3) Repair Types: E = Extrusion and F = Fusion

ABBREVIATIONS:
 GV = Gas Vent AT = Anchor Trench
 EXT = Existing EOS = End of Seam

Geomembrane Repair Log Summary



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project No.: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E. I.
Approved By: Ken Bown, P. E.
Liner Installer: TEP

Liner System

☒ **Primary**
☐ **Secondary**
☐ **Other:** _____

25809 Interstate 30
 Bryant, AR 72022
 Phone 501.847.9292
 Fax 501.847.9210

DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
											MACH NO	OPER ID						
	PANEL	SEAM	DIST (ft)	OFFSET	(1)	(2)		LENGTH (ft)	WIDTH (ft)	DIA (ft)				DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
8/14/08		P60-P63	46.0	AT	R21	D13	E	4.0	2.0									
8/14/08		P71-P74	43.0	EOS	R22	D17	E	4.0	2.0									
8/14/08		P75-P77	182.0	EOS	R23	D19	E	4.0	2.0									
8/14/08		P72-P73	108.0	AT	R24	D18	E	4.0	2.0									
8/14/08		P76-P78	86.0	AT	R25	D20	E	4.0	2.0									
8/14/08		P79-P83-P99	70.0	AT	R26	C	E			1.5								
8/14/08		P79-P83	25.0	AT	R27	D22	E	4.0	2.0									
8/14/08		P100-P101	50.0	AT	R28	D24	E	4.0	2.0									
8/14/08		P90-P91	93.0	EOS	R29	D25	E	4.0	2.0									
8/14/08		P90	45.0	EOS	R30		E	4.0	2.0									
8/14/08		P90	47.0	EOS	R31		E	4.0	2.0									
8/14/08		P94-P95	30.0	EOS	R32	D27	E	4.0	2.0									
8/14/08		P93-P95-P96-P97	72.0	EOS	R33		E	4.0	4.0									
8/14/08		P88-P92	134.0	AT	R34	D26	E	4.0	2.0									
8/14/08		P104-P105	35.0	AT	R35	D28	E	4.0	2.0									
8/14/08		P78	200.0	EOS	R36	C	E			1.5								
8/14/08		P78	195.0	EOS	R37	C	E			1.5								
8/14/08		P78	190.0	EOS	R38	C	E			1.5								
8/14/08		P78	185.0	EOS	R39	C	E			1.5								
8/14/08		P85-P86	40.0	EOS	R40	D23	E	4.0	2.0									

NOTES: (1) Repair No.: Repairs should be numbered sequentially
 (2) Repair Codes.: P = Patch, C = Cap, S = Anchor Trench Ext., DS = Destructive Sample, G = Grind and Weld, T = Topping along Fusion Seam
 (3) Repair Types: E = Extrusion and F = Fusion

ABBREVIATIONS:
 GV = Gas Vent AT = Anchor Trench
 EXT = Existing EOS = End of Seam

Geomembrane Repair Log Summary



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project No.: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E. I.
Approved By: Ken Bown, P. E.
Liner Installer: TEP

Liner System

☒ **Primary**
☐ **Secondary**
☐ **Other:** _____

25809 Interstate 30
 Bryant, AR 72022
 Phone 501.847.9292
 Fax 501.847.9210

DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
8/15/08		P96-P127	100.0	EOS	R41	D29	E	4.0	2.0									
8/15/08		P96-P121-P105-P106	67.0	AT	R42	C	E			1.5								
8/15/08		P110-P111	60.0	AT	R43	C	E			1.5								
8/15/08		P132-P133	35.0	AT	R44	D33	E	4.0	2.0									
8/15/08		P116-P117	25.0	AT	R45	D47	E	4.0	2.0									
8/15/08		P120-P121	25.0	AT	R46	D48	E	4.0	2.0									
8/15/08		P121-P122-P125	20.0	AT	R47	C	E			1.5								
8/15/08		P120-P124-P123	93.0	AT	R48	P	E			1.5								
8/15/08		P120-P123-P151	80.0	AT	R49	P	E			1.5								
8/15/08		P145-P148	30.0	EOS	R50	D41	E	4.0	2.0									
8/15/08		P150-P151	125.0	EOS	R51	D46	E	4.0	2.0									
8/15/08		P150-P151	96.0	EOS	R52	P	E			1.5								
8/15/08		P165	150.0	AT	R53	C	E			1.5								
8/15/08		P165	160.0	AT	R54	C	E			1.5								
8/15/08		P157-P166-P167	170.0	AT	R55	C	E			1.5								
8/15/08		P139-P140-P142	93.0	EOS	R56	C	E			1.5								
8/15/08		P153-P170	206.0	EOS	R57	C	E			1.5								
8/15/08		P152	206.0	EOS	R58	C	E			1.5								
8/15/08		P137-P140	192.0	EOS	R59	D36	E	4.0	2.0									

NOTES: (1) Repair No.: Repairs should be numbered sequentially
 (2) Repair Codes.: P = Patch, C = Cap, S = Anchor Trench Ext., DS = Destructive Sample, G = Grind and Weld, T = Topping along Fusion Seam
 (3) Repair Types: E = Extrusion and F = Fusion

ABBREVIATIONS:
 GV = Gas Vent AT = Anchor Trench
 EXT = Existing EOS = End of Seam

Geomembrane Repair Log Summary



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project No.: 35077169
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E. I.
Approved By: Ken Bown, P. E.
Liner Installer: TEP

Liner System

☒ **Primary**
☐ **Secondary**
☐ **Other:** _____

25809 Interstate 30
 Bryant, AR 72022
 Phone 501.847.9292
 Fax 501.847.9210

DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/FAIL	ACTION	QA ID
					(1)	(2)												
8/15/08		P106-P107	6.0	AT	R60	D21	E	4.0	2.0									
8/15/08		P126-P158	25.0	AT	R61	D49	E	4.0	2.0									
8/15/08		P159-P160	36.0	AT	R62	D50	E	4.0	2.0									
8/15/08		P161-P162	40.0	AT	R63	D51	E	4.0	2.0									
8/15/08		P163-P164	50.0	AT	R64	D52	E	4.0	2.0									
8/15/08		P165-P166	25.0	AT	R65	D53	E	4.0	2.0									
8/15/08		P167-P168	41.0	AT	R66	D54	E	4.0	2.0									
8/15/08		P169-P170	60.0	AT	R67	D55	E	4.0	2.0									
8/15/08		P171-P172	30.0	AT	R68	D56	E	4.0	2.0									
8/15/08		P173-P174	150.0	AT	R69	D57	E	4.0	2.0									
8/15/08		P175-P176	20.0	AT	R70	D58	E	4.0	2.0									
8/15/08		P177-P178	161.0	AT	R71	D59	E	4.0	2.0									
8/15/08		P179-P180	22.0	AT	R72	D60	E	4.0	2.0									
8/15/08		P181-P182	176.0	AT	R73	D61	E	4.0	2.0									
8/15/08		P182-P183	31.0	AT	R74	D62	E	4.0	2.0									

NOTES: (1) Repair No.: Repairs should be numbered sequentially
 (2) Repair Codes.: P = Patch, C = Cap, S = Anchor Trench Ext., DS = Destructive Sample, G = Grind and Weld, T = Topping along Fusion Seam
 (3) Repair Types: E = Extrusion and F = Fusion

ABBREVIATIONS:
 GV = Gas Vent AT = Anchor Trench
 EXT = Existing EOS = End of Seam

Geomembrane Repair Log Summary



Client Name: Dynegy
Contractor: Grayco Construction Co.
Project Name: Cell 1 CQA
Address: Plum Point Class 3N Landfill
Location: Osceola, Arkansas

Project Number: 35077169
CQA Monitor: Earl Pligam
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: TEP

Liner System

☒ **Primary**
☐ **Secondary**
☐ **Other:** _____

25809 Interstate 30 South
 Bryant, AR 72022
 Phone 501.847.9292
 Fax 501.455.4547

DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET (ft)	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
8/14/08		P66-P70	74.0	OBB	R75	DS15	E	4.0	2.0									
8/15/08		P67-P68	46.0	East AT	R76	DS16	E	4.0	2.0									
8/15/08		P127-P130	62.0	West EOS	R77	DS30	E	4.0	2.0									
8/15/08		P128-P132	153.0	West EOS	R78	DS32	E	4.0	2.0									
8/15/08		P133-P136	170.0	East AT	R79	DS34	E	4.0	2.0									
8/15/08		P136-P137	125.0	West EOS	R80	DS35	E	4.0	2.0									
8/15/08		P139-P142	80.0	West EOS	R81	DS37	E	4.0	2.0									
8/15/08		P140-P141	273.0	East AT	R82	DS38	E	4.0	2.0									
8/15/08		P141-P144	249.0	West EOS	R83	DS39	E	4.0	2.0									
8/15/08		P144-P145	170.0	East AT	R84	DS40	E	4.0	2.0									
8/15/08		P147-P149	60.0	West EOS	R85	DS42	E	4.0	2.0									
8/15/08		P148-P150 R	200.0	West EOS	R86	DS43	E	4.0	2.0									
8/15/08		P148-P150 L	181.0	East AT	R87	DS44	E	4.0	2.0									
8/15/08		P152-P154	240.0	West EOS	R88	DS45	E	4.0	2.0									

NOTES: (1) Repair No.: Repairs should be numbered sequentially
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 (3) Repair Types: E = Extrusion and F = Fusion

ABBREVIATIONS:
 GV = Gas Vent AT = Anchor Trench
 EXT = Existing PP = Pipe Penetration

APPENDIX T

LEACHATE COLLECTION SYSTEM MATERIAL TEST RESULTS



Precision Geosynthetic Laboratories



August 20, 2008

Brad Fureigh
GENESIS/TERRACON
11400 West Baseline Road
Little Rock, AR 72209

RE: **Plum Point Landfill**

Dear Mr. Fureigh:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of one (1) Non-Woven Geotextile sample received on August 18, 2008

It shall be noted that the sample tested is believed to be a true representative of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Carmelo V. Zantua
Technical/Laboratory Director

Enclosure: (Job No. G081026)



Precision Geosynthetic Laboratories



CLIENT: GENESIS/TERRACON
PROJECT NAME: Plum Point Landfill

VERIFICATION OF MATERIAL PROPERTIES (PGL Job No. G081026)

MATERIAL DESCRIPTION: Non-Woven Geotextile

SAMPLE SENT BY: A..Stewart @ Terracon

DATE RECEIVED: August 18, 2008

DATE REPORTED: August 20, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
Geotextile 1	49819

TESTS REQUIRED:

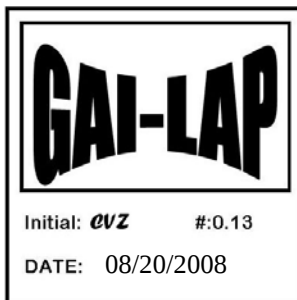
TEST METHOD	DESCRIPTION
ASTM D4751	Apparent Opening Size
ASTM D4533	Trapezoidal Tear Resistance
ASTM D4632	Grab Tensile
ASTM D4833	Puncture Resistance
ASTM D3786	Mullen Burst Strength
ASTM D5261	Mass per Unit

TEST CONDITIONS: The sample was conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Table 1. The units in which the data are reported are included on this table.

PRECISION GEOSYNTHETIC LABORATORIES



Carmelo V. Zantua
Technical/Laboratory Director

TABLE 1.
MATERIAL PROPERTIES
CLIENT: GENESIS TERRACON
PROJECT: Plum Point Landfill

Date Received: **8/18/2008**
Date Reported: **8/20/2008**
Client Sample ID: **Geotextile 1**
Material Description: **Non-woven Geotextile**

QC'd By: 
PGL Job No.: **G081026**
PGL Control No.: **49819**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5261	Mass per Unit Area (oz/ yd. ²) <i>Test Specimen Size: 4" x 8"</i>															
		9.4	9.0	9.2	9.6	9.4						9.3	0.2	9.0	9.6	
ASTM D4632	Grab Tensile <i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 bs</i>															
	Grab Breaking Load (lbs)															
MD		263	259	247	248	250	251	260	275	248	248	255	9	247	275	
TD		337	320	321	340	298	288	299	306	301	330	314	18	288	340	
	Apparent Breaking Elongation (percent)															
MD		91	87	86	87	93	87	93	93	94	93	90	3	86	94	
TD		76	73	77	74	73	75	77	80	77	77	76	2	73	80	
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.</i>															
		169	170	171	165	168	171	170	168	168	169	170	2	165	174	
		171	172	173	171	174										
ASTM D4533	Trapezoid Tear Strength (lbs) <i>Specimens were tested as directed in Test Method D4533, dry condition.</i>															
MD		108	94	106	111	98	119	98	97	120	103	105	9	94	120	
TD		140	142	175	152	136	131	162	142	153	162	150	14	131	175	
ASTM D3786	Mullen Burst Strength (psi) (Total Breaking Pressure - Tare Pressure) <i>Specimens were tested as directed in Test Method D3786 using the Mullen Tester.</i>															
		465	475	435	460	465	470	485	480	465	470	467	14	435	485	



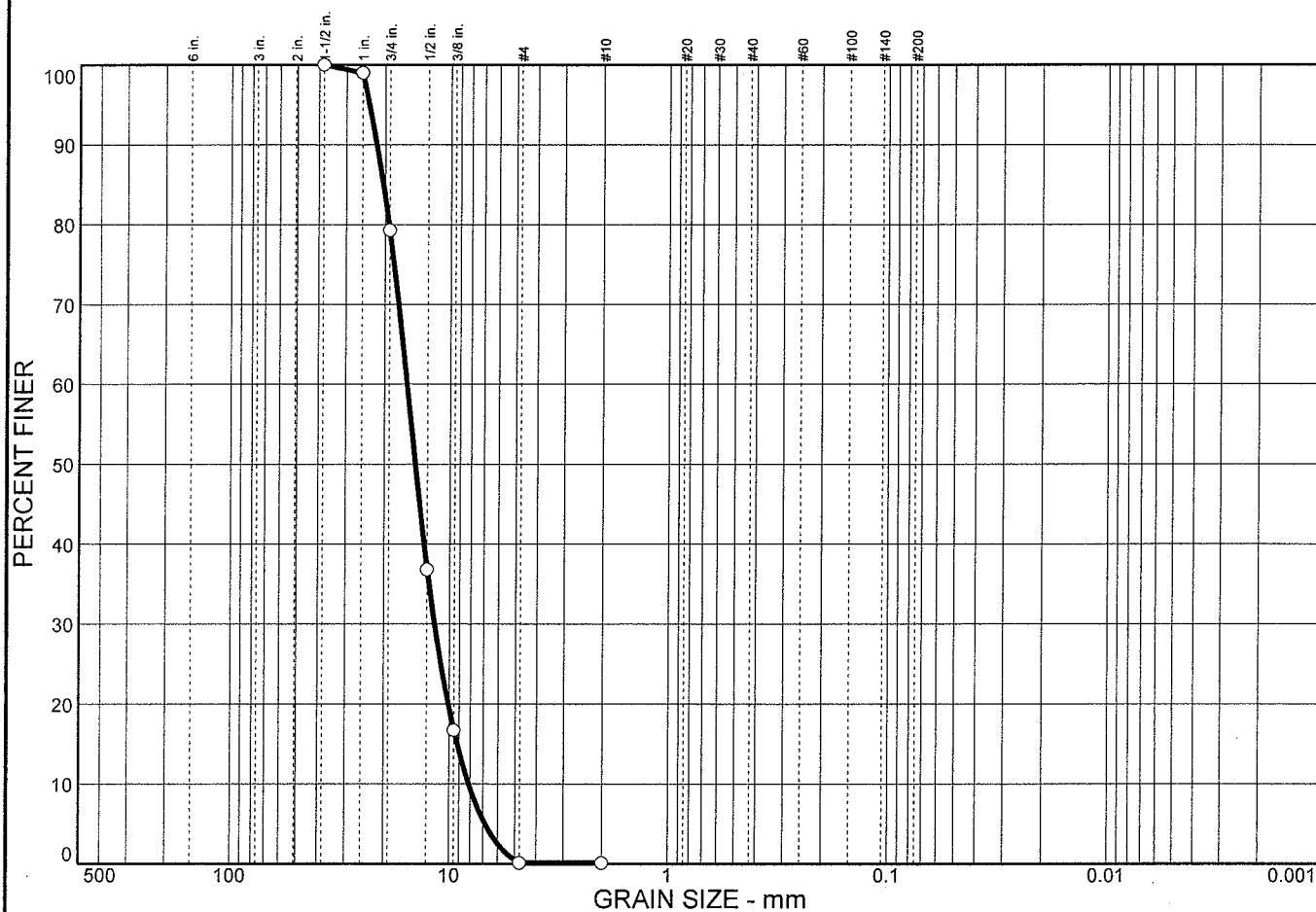
TABLE 1.
MATERIAL PROPERTIES
CLIENT: GENESIS TERRACON
PROJECT: Plum Point Landfill

Date Received: **8/18/2008**
 Date Reported: **8/20/2008**
 Client Sample ID: **Geotextile 1**
 Material Description: **Non-woven Geotextile**

QC'd By: 
 PGL Job No.: **G081026**
 PGL Control No.: **49819**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D4751	Apparent Opening Size (U.S. standard sieve size)															
	<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>															
		70-100	70-100	70-100	70-100	70-100						70-100	N/A			
ASTM D4751	Apparent Opening Size (mm)															
	<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>															
		0.207	0.209	0.211	0.210	0.210						0.209	0.002	0.207	0.211	

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	99.9	0.1		

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5 in.	100.0		
1 in.	99.0		
.75 in.	79.3		
.5 in.	36.8		
.375 in.	16.7		
#4	0.1		
#10	0.1		

* (no specification provided)

Material Description
 AGGREGATE

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₈₅= 20.4 D₆₀= 15.8 D₅₀= 14.4
 D₃₀= 11.7 D₁₅= 9.20 D₁₀= 8.15
 C_u= 1.94 C_c= 1.07

Classification
 USCS= AASHTO=

Remarks

Sample No.: G-1
Location:

Source of Sample: 6920

Date: 7-29-08
Elev./Depth:

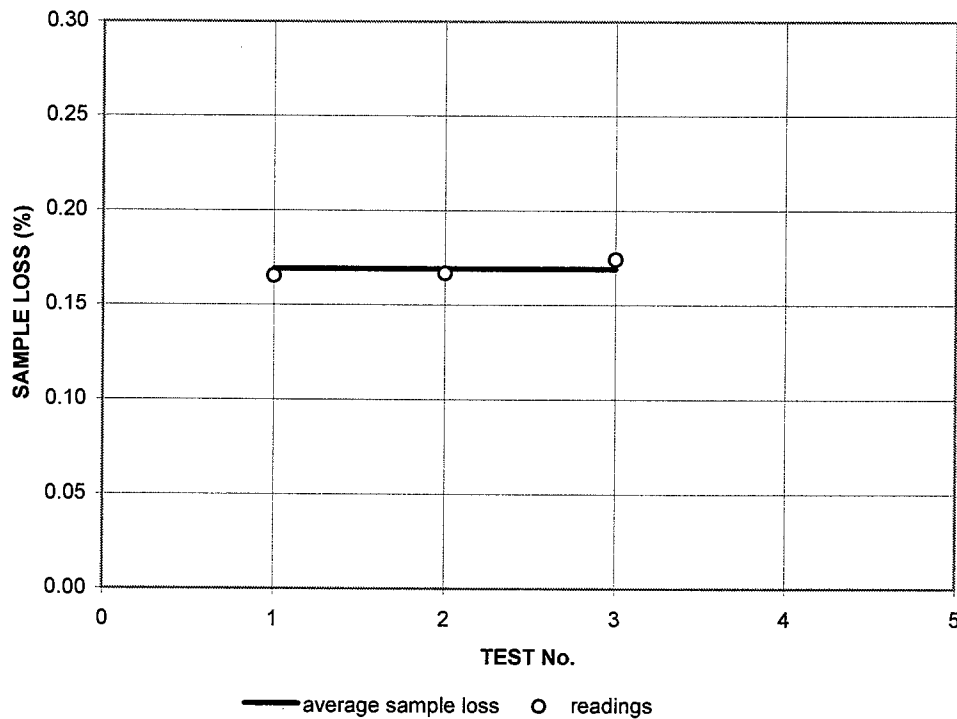
H. C. NUTTING COMPANY

Client: TERRACON
Project: PLUM POINT

Project No: 35077169

Figure 6920

INSOLUBLE CARBONATE CONTENT TEST



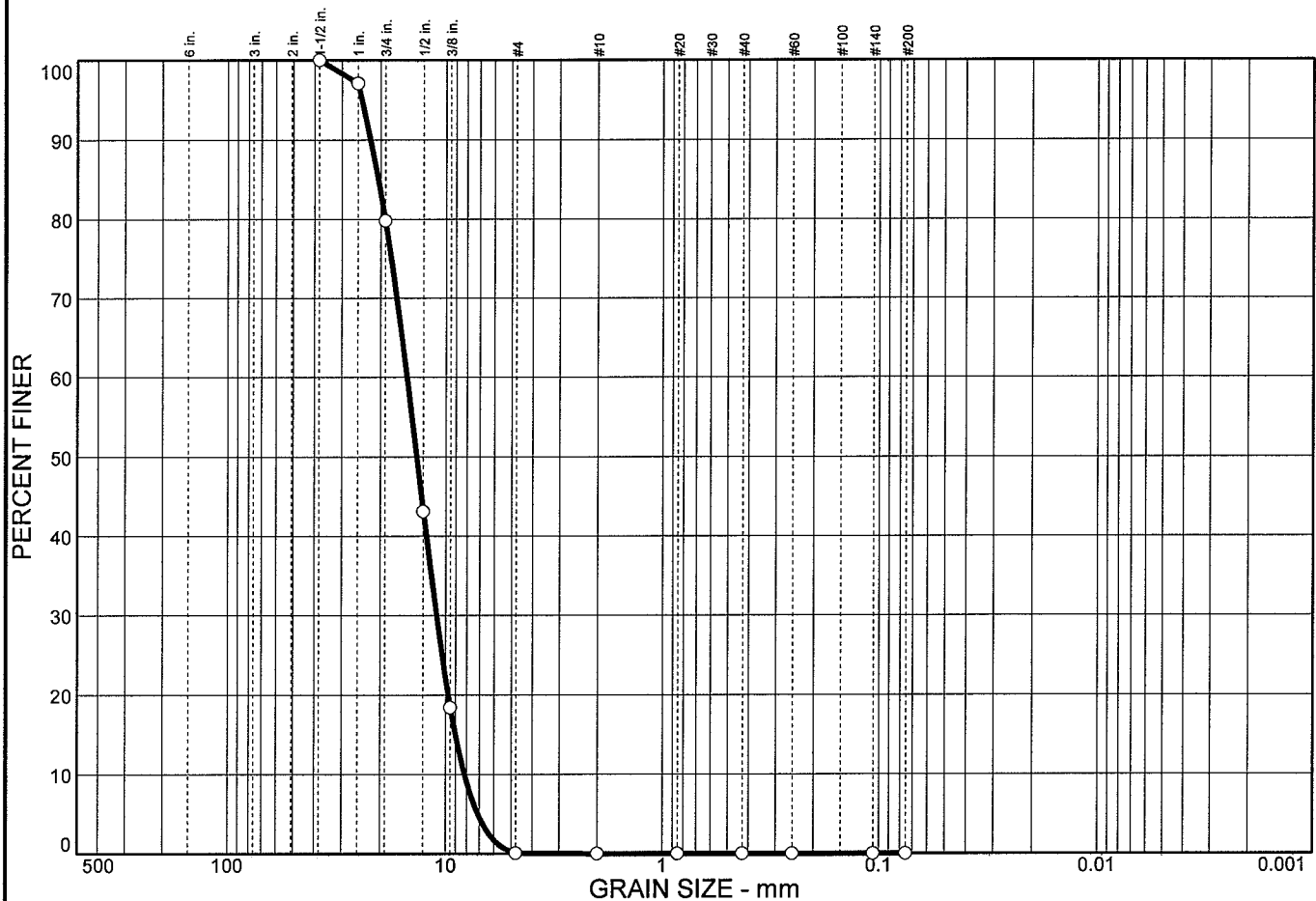
Test Specification: ASTM D 3042

Trial No.	Sample+ Tare Weight (g)	Tare Weight (g)	Sample Weight (g)	Sample+ Tare Weight (g)	Tare Weight (g)	Sample Weight (g)	Sample Loss (g)	Sample Loss (%)
1	302.1		302.1	301.6		301.6	0.5	0.17
2	299.6		299.6	299.1		299.1	0.5	0.17
3	344.2		344.2	343.6		343.6	0.6	0.17
Total	945.9		945.9	944.3		944.3	1.6	0.17

Material Description	Remarks
Permeability (cm/s) USCS	Solution: PH OF 4

Project Name	Plum Point-Cell 1		Tested by	DR	Review. by	TGG
Client	Dynegy	W.O.#	35077169	INSOLUBLE CARBONATE CONTENT TEST  H. C. NUTTING COMPANY		
Sample Number	S-6920					
Sample Location	G-1					
Date	31-Jul-08	Lab No.	6920			

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	99.9	0.1	0.0	0.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5 in.	100.0		
1 in.	97.1		
.75 in.	79.8		
.5 in.	43.1		
.375 in.	18.4		
#4	0.1		
#10	0.0		
#20	0.0		
#40	0.0		
#60	0.0		
#140	0.0		
#200	0.0		

* (no specification provided)

Material Description

GRAVEL
(Poorly graded gravel)

Atterberg Limits

PL=

LL=

PI=

Coefficients

D₈₅= 20.5

D₆₀= 15.1

D₅₀= 13.6

D₃₀= 11.0

D₁₅= 9.03

D₁₀= 8.19

C_u= 1.85

C_c= 0.98

Classification

USCS= GP

AASHTO=

Remarks

Sample No.: G-02

Source of Sample: 8227

Date: 8-28-08

Location:

Elev./Depth:

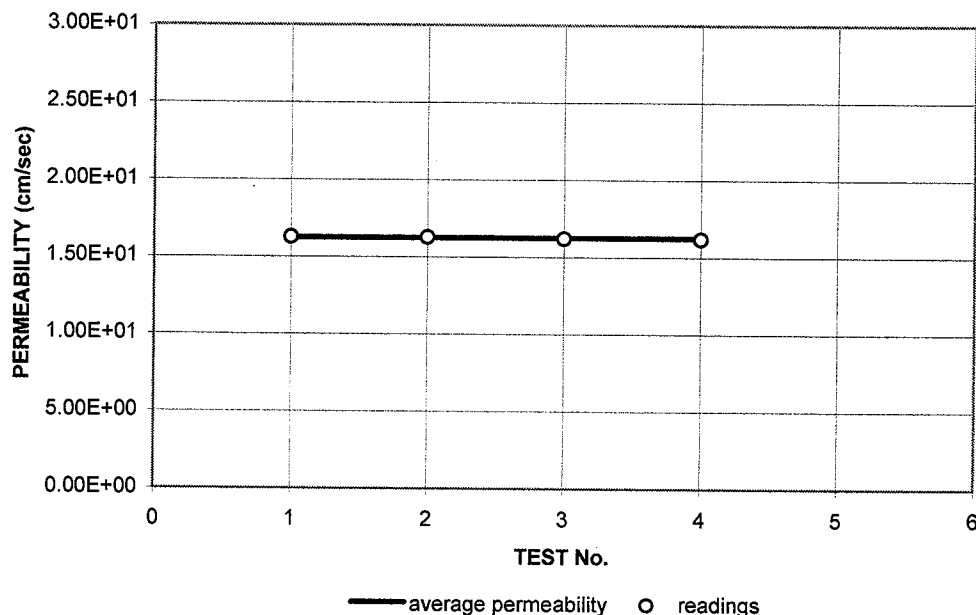
H. C. NUTTING COMPANY

Client: TERRACON
Project: PLUM POINT

Project No: 35077169

Figure 8227

CONSTANT HEAD PERMEABILITY TEST



Test Specification: ASTM D 2434

Test No.	Manometers		Water Levels		Water Head (cm)	Flow Volume (cm ³)	Elapsed Time (s)	Calculated Permeability (cm/s)
	H1 (cm)	H2 (cm)	L1 (cm)	L2 (cm)				
1	36.9	36.6	1000		0.3	1000	17.11	1.63E+01
2	36.9	36.6	1000		0.3	1000	17.12	1.63E+01
3	36.9	36.6	1000		0.3	1000	17.2	1.62E+01
4	36.9	36.6	1000		0.3	1000	17.21	1.62E+01
Average								1.62E+01

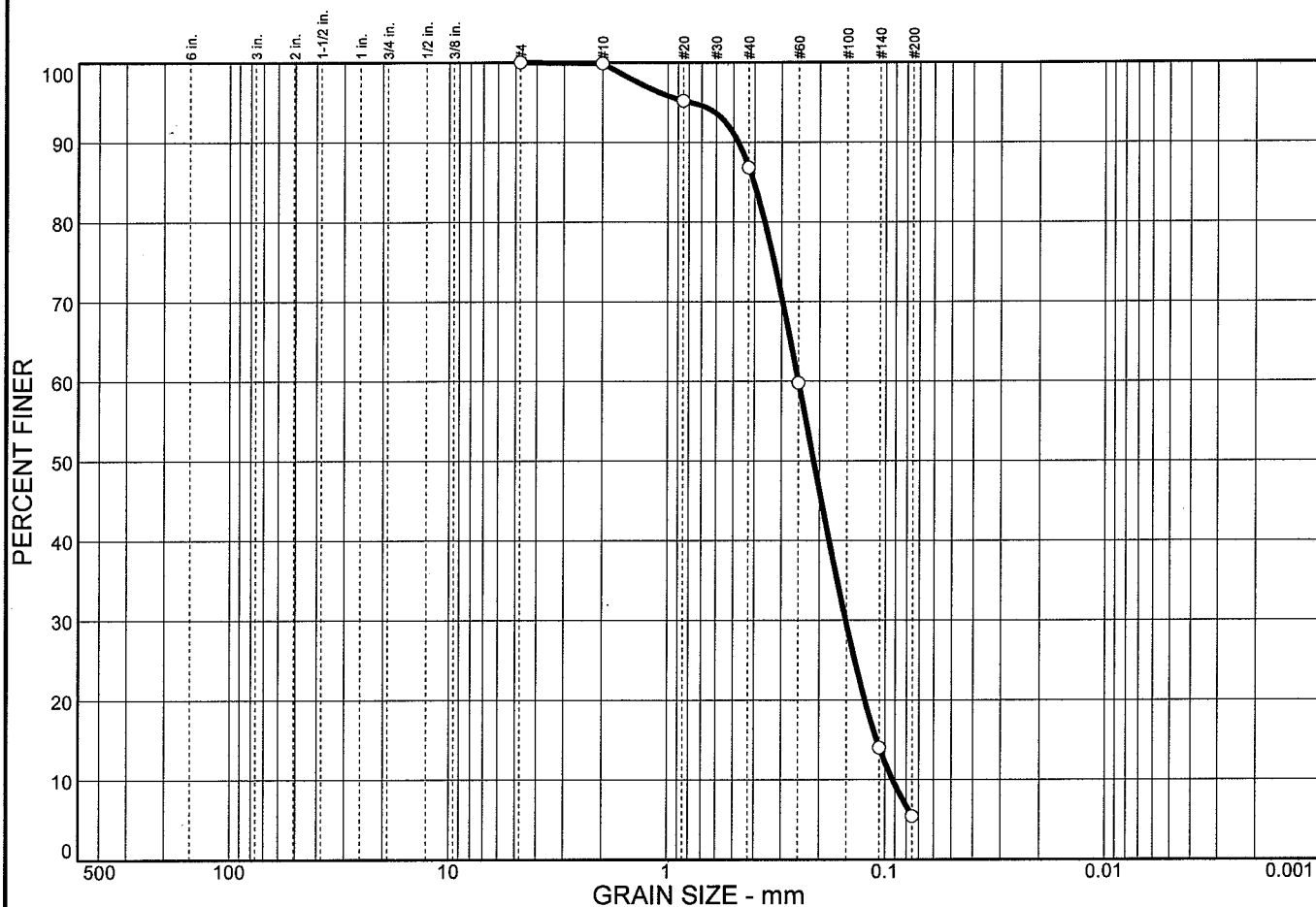
Specimen Conditions

Diameter D (in)	6.0	Weight of Specimen (gms)	6040.0
Length of Specimen (in)	8.5	Density of Specimen (pcf)	95.7
Length of Flow (in)	6.0	Approximate Porosity(%)	43.2

Material Description	Remarks
Carbonate Content (%)	
USCS	
Water Content (%)	

Project Name	Plum Point-Cell 1			Tested by	ARC	Review. by	TGG
Client	Dynegy	W.O.#	35077169	CONSTANT HEAD PERMEABILITY TEST			
Sample Number	S-8227						
Sample Location	G-02						
Date	26-Aug-08	Lab No.	8227	 H. C. NUTTING COMPANY			

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	94.6	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	95.2		
#40	86.8		
#60	59.8		
#140	14.0		
#200	5.4		

* (no specification provided)

Material Description

Poorly graded sand with silt

Atterberg Limits

PL= LL= PI=

Coefficients

$D_{85} = 0.404$ $D_{60} = 0.251$ $D_{50} = 0.213$
 $D_{30} = 0.152$ $D_{15} = 0.109$ $D_{10} = 0.0923$
 $C_u = 2.72$ $C_c = 0.99$

Classification

USCS= SP-SM AASHTO=

Remarks

Sample No.: S-1
Location:

Source of Sample: 7355

Date: 8-7-08
Elev./Depth:

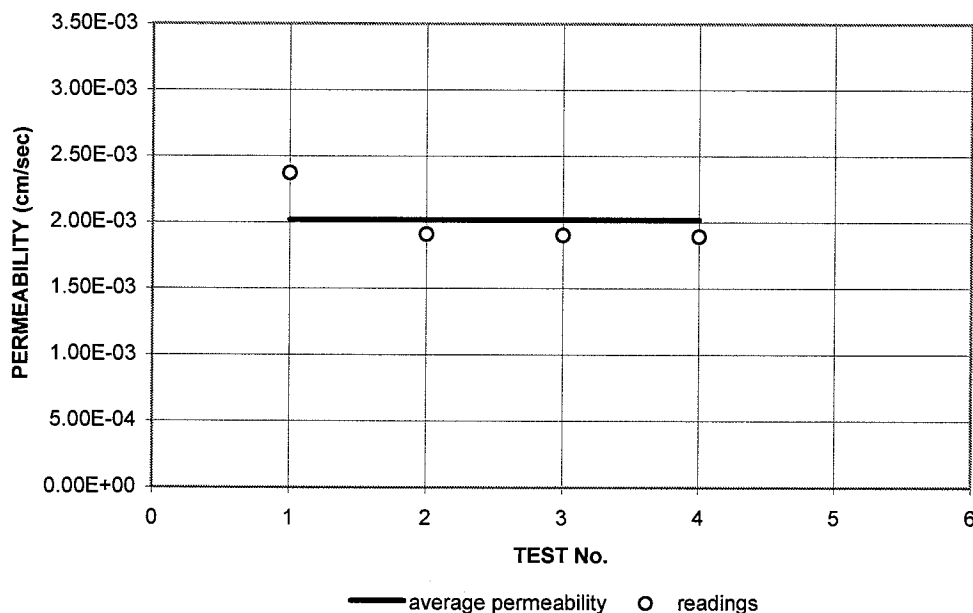
H. C. NUTTING COMPANY

Client: TERRACON
Project: PLUM POINT

Project No: 35077169

Figure 7355

CONSTANT HEAD PERMEABILITY TEST



Test Specification: ASTM D 2434

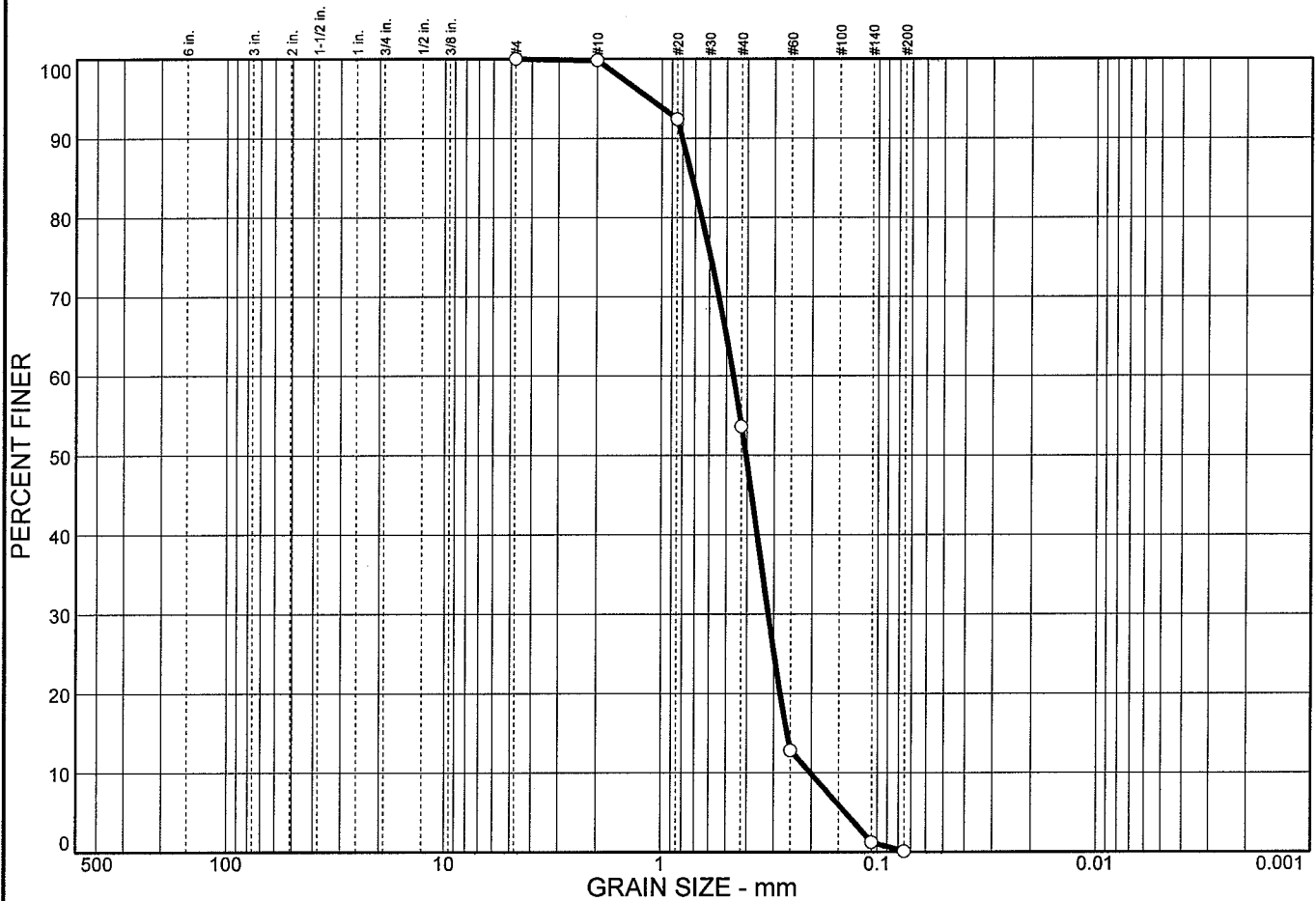
Test No.	Manometers		Water Levels		Water Head (cm)	Flow Volume (cm ³)	Elapsed Time (s)	Calculated Permeability (cm/s)
	H1 (cm)	H2 (cm)	L1 (cm)	L2 (cm)				
1	20.9	15.5	50		5.4	50	435	2.37E-03
2	21.1	15.5	50		5.6	50	521	1.91E-03
3	21.1	15.5	50		5.6	50	523	1.90E-03
4	21.1	15.5	50		5.6	50	526	1.89E-03
Average								2.02E-03

Specimen Conditions			
Diameter D (in)	4.5	Weight of Specimen (gms)	2545.0
Length of Specimen (in)	7.5	Density of Specimen (pcf)	81.3
Length of Flow (in)	4.5	Approximate Porosity(%)	51.8

Material Description	Remarks
Carbonate Content (%)	
USCS	
Water Content (%)	

Project Name	Plum Point-Cell 1			Tested by	ARC	Review by	TGG
Client	Dynegy	W.O.#	35077169	CONSTANT HEAD PERMEABILITY TEST			
Sample Number	S-7355						
Sample Location	S-1						
Date	7-Aug-08	Lab No.	7355	 H. C. NUTTING COMPANY			

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	99.9	0.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	92.4		
#40	53.6		
#60	12.8		
#140	1.2		
#200	0.1		

* (no specification provided)

Material Description
 BROWN SAND
 (Poorly graded sand)

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₈₅= 0.725 D₆₀= 0.464 D₅₀= 0.406
 D₃₀= 0.319 D₁₅= 0.260 D₁₀= 0.203
 C_u= 2.28 C_c= 1.08

Classification
 USCS= SP AASHTO=

Remarks

Sample No.: S-02
Location:

Source of Sample: 8226

Date: 8-28-08
Elev./Depth:

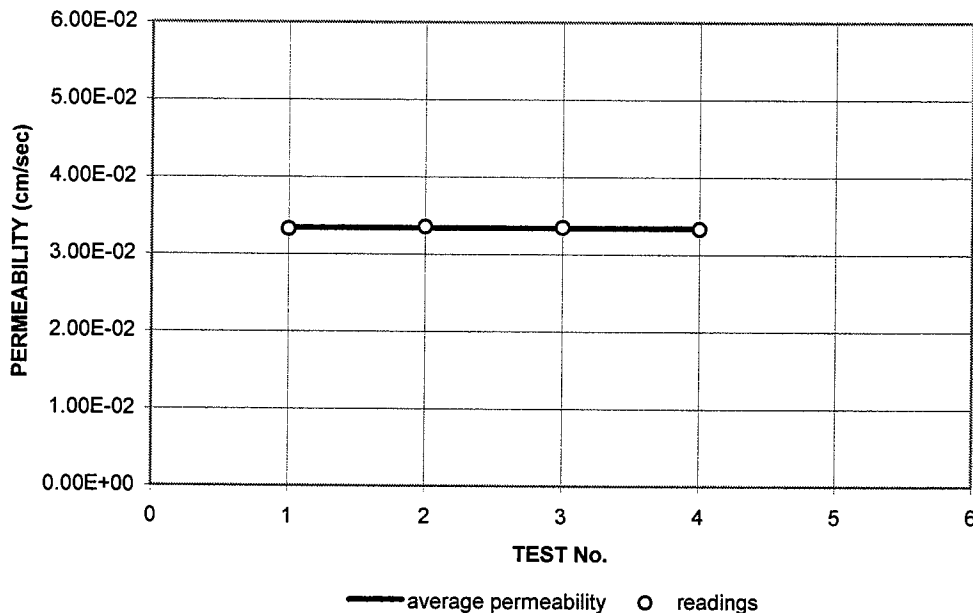
H. C. NUTTING COMPANY

Client: TERRACON
Project: PLUM POINT

Project No: 35077169

Figure 8226

CONSTANT HEAD PERMEABILITY TEST



Test Specification: ASTM D 2434

Test No.	Manometers		Water Levels		Water Head (cm)	Flow Volume (cm ³)	Elapsed Time (s)	Calculated Permeability (cm/s)
	H1 (cm)	H2 (cm)	L1 (cm)	L2 (cm)				
1	22.5	14.9	100		7.6	100	44.1	3.33E-02
2	22.5	14.9	100		7.6	100	43.7	3.36E-02
3	22.5	14.9	100		7.6	100	43.8	3.35E-02
4	22.5	14.9	100		7.6	100	44	3.33E-02
Average								3.34E-02

Specimen Conditions

Diameter D (in)	4.5	Weight of Specimen (gms)	3005.0
Length of Specimen (in)	7.5	Density of Specimen (pcf)	96.0
Length of Flow (in)	4.5	Approximate Porosity(%)	43.0

Material Description	Remarks
Carbonate Content (%)	
USCS	
Water Content (%)	

Project Name	Plum Point-Cell 1			Tested by	ARC	Review by	TGG
Client	Dynegy	W.O.#	35077169	CONSTANT HEAD PERMEABILITY TEST			
Sample Number	S-8226						
Sample Location	S-02						
Date	26-Aug-08	Lab No.	8226	 H. C. NUTTING COMPANY			

APPENDIX U

CONTRACTOR MATERIAL SUBMITTALS

PLASTIC FUSION FABRICATORS, INC.

**3455 STANWOOD BLVD.
HUNTSVILLE, AL 35811
PH: (256) 852-0378**

Submittals

TO

Gray Corp.

**24551 Hwy 370 W
Falkner, MS 38629
Attn: Shawn Gray
Ph # 662-837-4330**

FOR

**Plum Point Landfill
2732 A South County Road 623
Osceola, AR 72370**

HDPE Pipe & Structures

F 74485

November 2007



WE SOLVE CONTAINMENT PROBLEMS !

HDPE EHMW PE3408 Pipe



High Density Polyethylene, Extra High Molecular Weight PolyPipe® can be manufactured in accordance with one or more of the following standards:
ASTM D2513 - D3035 – F714 – API 15LE and/or AWWA C901/C906

Meets NSF Standard 61 for potable water and is approved for Factory Mutual class 150 and class 200. Other dimensional standards or custom requirements are available.

TYPICAL PHYSICAL PROPERTIES			
PROPERTY	ASTM TEST METHOD	*NOMINAL VALUES	
		SI UNITS	ENGLISH UNITS
Density Natural	D1505	0.946 gm/cc	--
Density Black	D1505	0.955 gm/cc	--
Melt Index (190°C/2.16 kg)	D1238	0.07 gm/10 min.	--
Flow Rate (190°C/21.6 kg)	D1238	8.5 gm/10 min.	--
Tensile Strength @ Ultimate	D638	34.5 MPa	5,000 psi
Tensile Strength @ Yield	D638	24.1 MPa	3,500 psi
Ultimate Elongation	D638	>800%	>800%
Flexural Modulus 2% Secant	D790	938 MPa	136,000 psi
Environmental Stress Crack Resistance (ESCR)			
F ₀ , Condition C	D1693	>10,000 hrs.	>10,000 hrs.
PENT	F1473	>100 hrs.	>100 hrs.
Brittleness Temperature	D746	<-117°C	<-180°F
Hardness, Shore D	D2240	64	64
Vicat Softening Temperature	D1525	124°C	255°F
Izod Impact Strength (Notched)	D256	0.37 KJ/m	7 ft - lb/in
Volume Resistivity	D991	>10 ¹⁵ ohm-cm	--
Thermal Expansion Coefficient	D696	2x10 ⁻⁴ cm/cm/°C	1.0x10 ⁻⁴ in/in/°F
CELL CLASSIFICATION:	D3350	345464C	Grade PE34
MATERIAL CLASSIFICATION:	D1248	Type III Category 5	Class C
PPI HYDROSTATIC DESIGN BASIS: (As listed in PPI TR-4)	D2837	11.0 MPa @ 23°C 5.5 MPa @ 60°C	1,600 psi @ 73.4°F 800 psi @ 140°F

*Nominal values are intended to be guides only, and not as specification limit.

Rinker Materials™
PolyPipe Division
2706 N. I-35 (76240)
P.O. Box 390
Gainesville, Texas 76241-0390

(940) 665-1721, (800) 433-5632
Fax (940) 668-8612
Sales Fax (940) 668-2704
www.rinkerpolypipe.com

HDPE EHMW PE3408 Rinker Materials™ PolyPipe Division

Pipe Data and Pressure Ratings - IPS

Pressure Rating		Class 265 DR 7		Class 200 DR 9		Class 160 DR 11		Class 130 DR 13.5		Class 100 DR 17		Class 80 DR 21		Class 65 DR 26		Class 50 DR 32.5	
Nominal Pipe Size	OD Size (Inches)	Min. Wall	Weight Lb./Ft.	Min. Wall	Weight Lb./Ft.	Min. Wall	Weight Lb./Ft.	Min. Wall	Weight Lb./Ft.	Min. Wall	Weight Lb./Ft.	Min. Wall	Weight Lb./Ft.	Min. Wall	Weight Lb./Ft.	Min. Wall	Weight Lb./Ft.
→ 2"	2.375	0.339	0.94	0.264	0.76	0.216	0.64	0.176	0.53	0.140	0.43	--	--	--	--	--	--
3"	3.500	0.500	2.05	0.389	1.66	0.318	1.39	0.259	1.15	0.206	0.93	0.167	0.76	0.135	0.62	--	--
4"	4.500	0.643	3.38	0.500	2.74	0.409	2.29	0.333	1.91	0.265	1.54	0.214	1.26	0.173	1.03	0.138	0.83
5"	5.375	0.768	4.83	0.597	3.91	0.489	3.27	0.398	2.72	0.316	2.20	0.256	1.80	0.207	1.47	0.165	1.19
→ 5"	5.563	0.795	5.17	0.618	4.18	0.506	3.51	0.412	2.91	0.327	2.35	0.265	1.93	0.214	1.57	0.171	1.27
→ 6"	6.625	0.946	7.34	0.736	5.93	0.602	4.97	0.491	4.13	0.390	3.34	0.315	2.74	0.255	2.23	0.204	1.80
7"	7.125	1.018	8.49	0.792	6.86	0.648	5.75	0.528	4.78	0.419	3.86	0.339	3.17	0.274	2.58	0.219	2.08
8"	8.625	1.232	12.43	0.958	10.05	0.784	8.43	0.639	7.00	0.507	5.66	0.411	4.64	0.332	3.78	0.265	3.05
10"	10.750	1.536	19.31	1.194	15.62	0.977	13.09	0.796	10.88	0.632	8.79	0.512	7.20	0.413	5.88	0.331	4.74
12"	12.750	1.821	27.17	1.417	21.97	1.159	18.41	0.944	15.30	0.750	12.36	0.607	10.13	0.490	8.27	0.392	6.67
14"	14.00	2.000	32.76	1.556	26.49	1.273	22.20	1.037	18.45	0.824	14.91	0.667	12.22	0.538	9.97	0.431	8.04
16"	16.00	2.286	42.79	1.778	34.60	1.455	28.99	1.185	24.09	0.941	19.47	0.762	15.96	0.615	13.02	0.492	10.51
→ 18"	18.00	2.571	54.15	2.000	43.79	1.636	36.70	1.333	30.49	1.059	24.64	0.857	20.20	0.692	16.48	0.554	13.30
20"	20.00	2.857	66.85	2.222	54.06	1.818	45.30	1.481	37.64	1.176	30.42	0.952	24.94	0.769	20.35	0.615	16.42
22"	22.00	--	--	2.444	65.41	2.000	54.82	1.630	45.55	1.294	36.81	1.048	30.17	0.846	24.62	0.677	19.86
24"	24.00	--	--	2.667	77.85	2.182	65.24	1.778	54.21	1.412	43.80	1.143	35.99	0.923	29.30	0.738	23.64
28"	28.00	--	--	--	--	2.545	88.80	2.074	73.78	1.647	59.62	1.333	48.87	1.077	39.88	0.862	32.17
30"	30.00	--	--	--	--	2.727	101.93	2.222	84.70	1.765	68.44	1.429	56.11	1.154	45.78	0.923	36.93
32"	32.00	--	--	--	--	--	--	2.370	96.37	1.882	77.87	1.524	63.84	1.231	52.09	0.985	42.02
36"	36.00	--	--	--	--	--	--	2.667	121.96	2.118	98.55	1.714	80.79	1.385	65.92	1.108	53.19
42"	42.00	--	--	--	--	--	--	--	--	2.471	134.14	2.000	109.97	1.615	89.73	1.292	72.39
48"	48.00	--	--	--	--	--	--	--	--	--	--	2.286	143.63	1.846	117.19	1.477	94.55
54"	54.00	--	--	--	--	--	--	--	--	--	--	2.571	181.78	2.077	148.32	1.662	119.67

NOTE: Pressures are based on using water 23°C and are determined by using ASTM F714.

Service factors should be utilized to compensate for the effect of substances other than water, and for other temperatures.

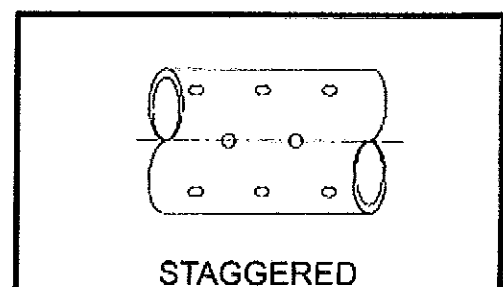
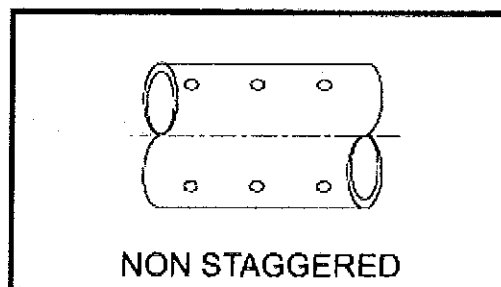
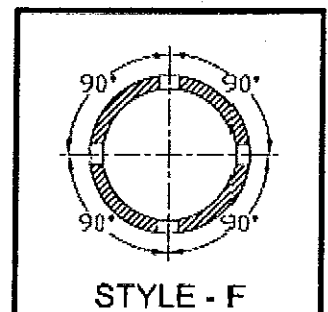
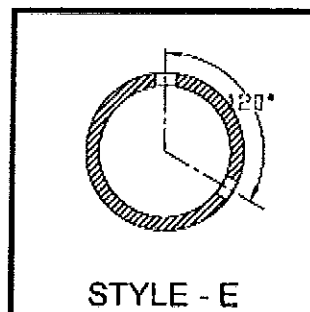
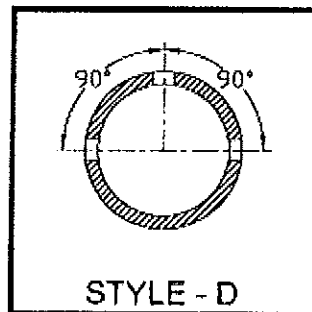
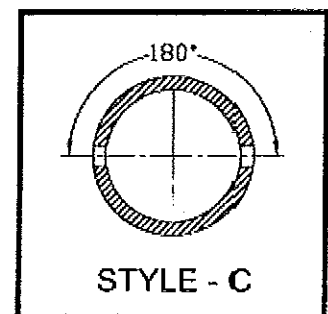
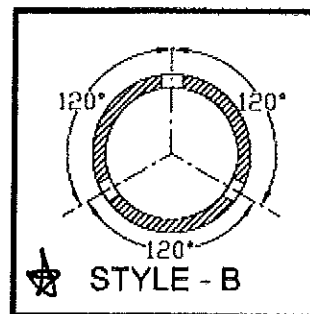
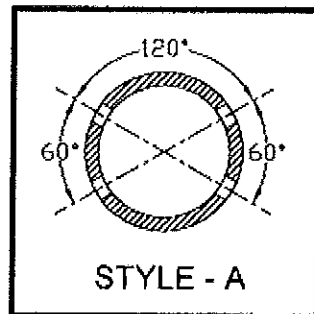
Some sizes are special order. Call for availability.

Call for availability on sizes or DR's not shown.

The above weights are calculated per PPI TR-7, using a density of 0.955.

PolyPipe® Perforated Pipe

PolyPipe® is one of the largest manufacturers of continuous extruded, solid wall, high density, extra high molecular weight and medium density polyethylene pipe in North America.

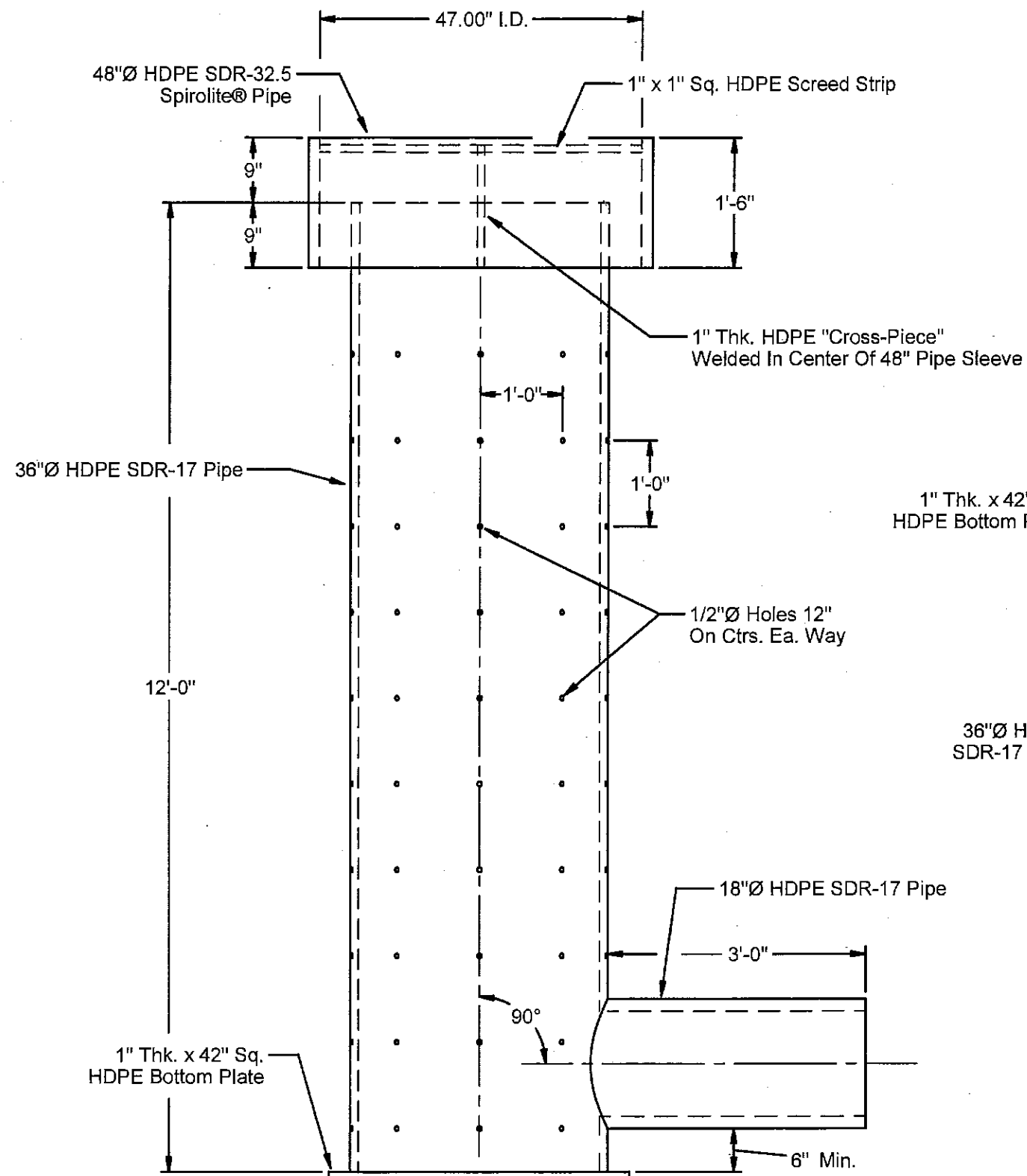


Perforations are available on sizes 4" IPS to 12" IPS. Hole sizes may vary from 1/4" to 5/8" diameter. Spacing ranges from 3" to 24" centers and can be staggered upon request. Plant capabilities should be verified prior to ordering.

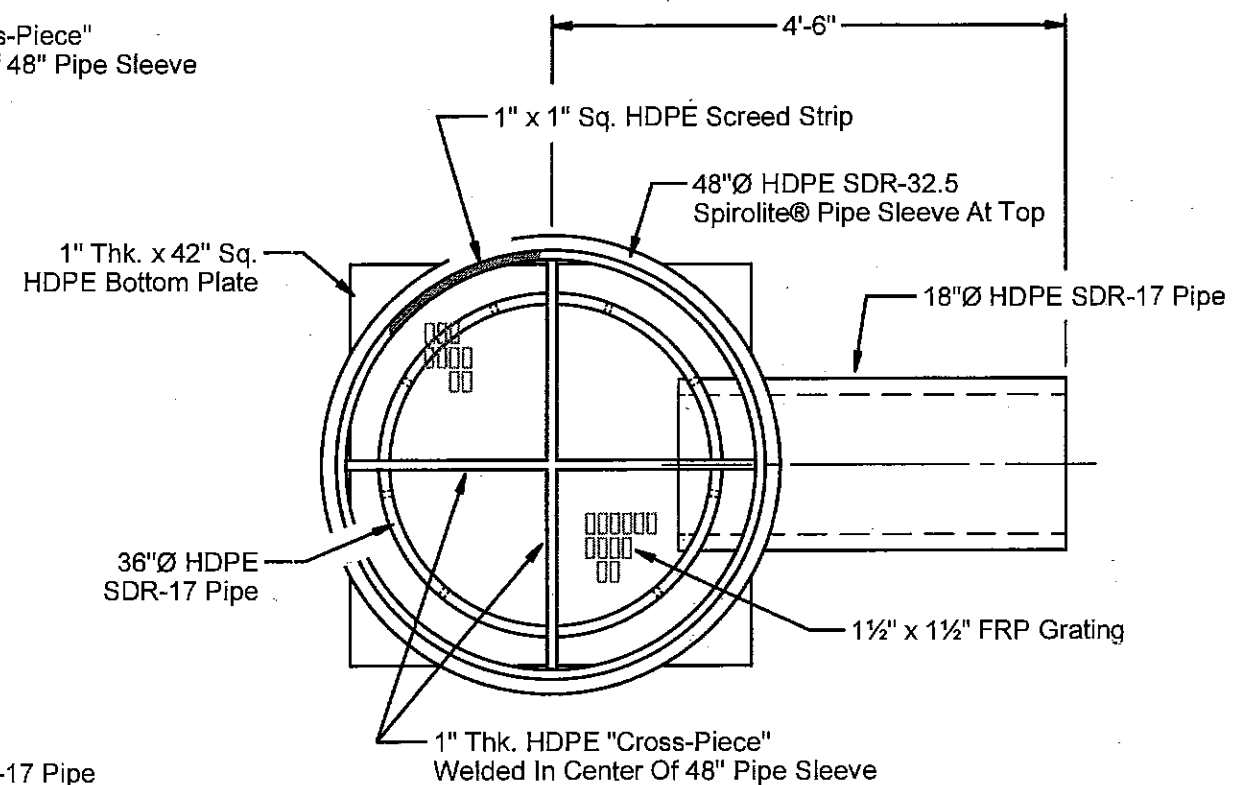
STYLE "B", 3/8" Ø Holes, 6" CTR. STAG.

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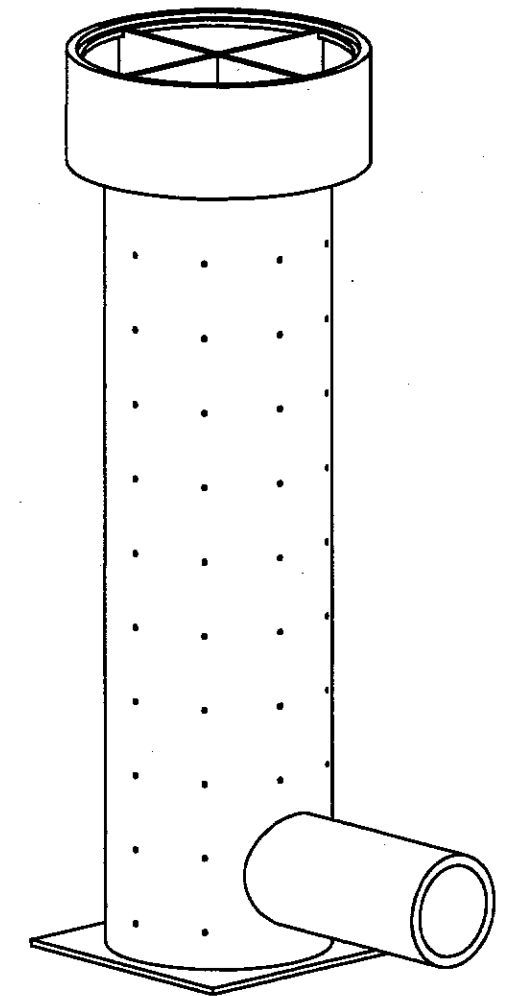
Qty. (1) Req'd.



Elevation View



Plan View



Iso View
(Reduced Scale)

NO.	DATE	BY
REVISIONS		
Drawn By:	J. Yoder	Date: 10-31-07
Technician:		Date:
PFF Estimator:		Date:
Q/C:		Date:
Customer Approval:		Date:



Plastic Fusion Fabricators, Inc.
Your Total Containment Resource

3455 Stanwood Blvd. - Huntsville Alabama 35811
Tel: 256-852-0378 / Fax: 256-852-0388 / <http://www.plasticfusion.com>

Plum Point Energy Station - Gray Co. / Osceola, Arkansas

36"Ø HDPE Sediment Basin Outlet Structure Layout Details
For - Cell 1 And Stormwater Pond Construction

PFF Drawing No: 02294-485 c

Scale 1 : 20

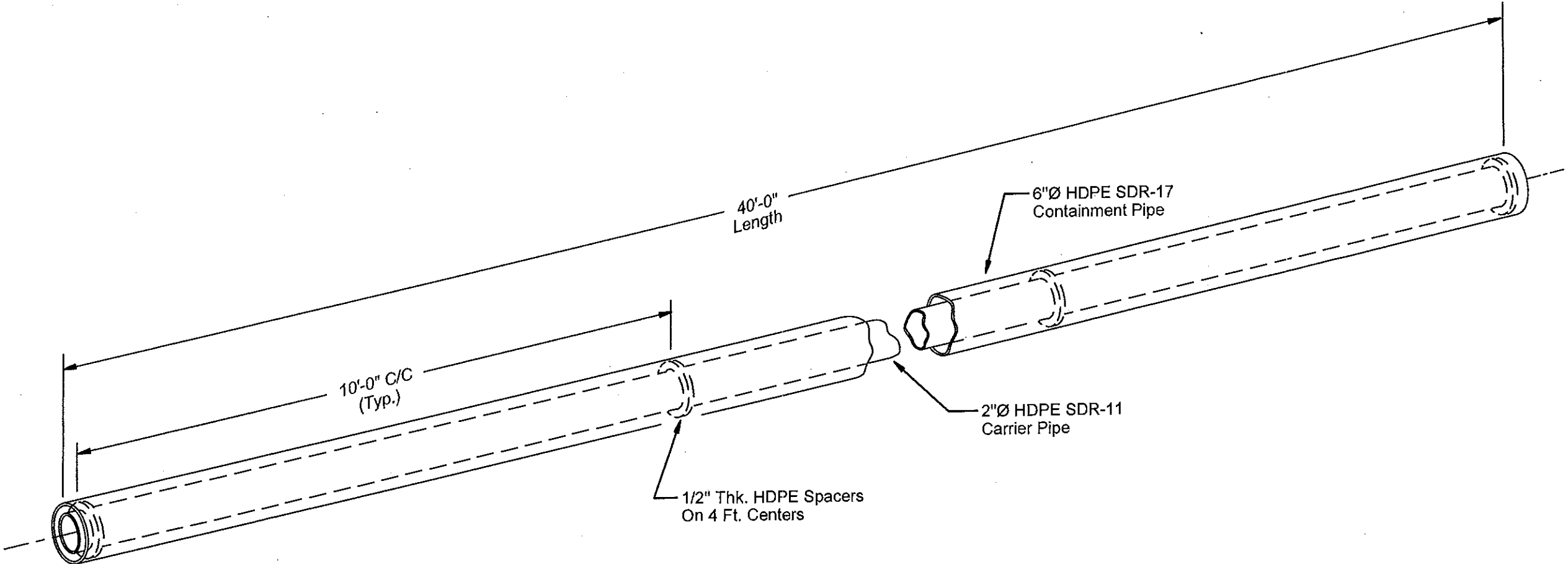
PFF Job No: F - 7485

Sheet: 3 of 3

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2" SDR-11 x 6" SDR-17
HDPE Dual Containment Pipe Profile Detail

NO.	DATE	BY
REVISIONS		
Drawn By:	J. Yoder	Date: 10-31-07
Technician:		Date:
PFF Estimator:		Date:
Q/C:		Date:
Customer Approval:		Date:



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Plum Point Energy Station - Gray Co. / Osceola, Arkansas
2" x 6" HDPE Dual Containment Piping Profile Layout Details
For - Cell 1 And Stormwater Pond Construction

PFF Drawing No: 02294-485 a

Scale: NTS

PFF Job No: F - 7485

Sheet: 1 of 3

REV.
0

Diagram illustrating a trenchless installation method. The diagram shows a cross-section of a structure with a 6'-0" wide and 3'-0" high opening. A 2" Thk. HDPE Sheet Stock is shown surrounding the opening. A 18"Ø HDPE Perforated Sump Riser Pipe is shown being installed through the opening. The pipe is connected to a Force Main Hook-Up (Field Installed).

PFF Drawing Form B

EPG Companies Inc.

Operations & Maintenance Manual

FOR

**The Reich Company
Plum Point Energy Station**

EPG Job #08-8749

EPG Companies Inc.

Operations and Maintenance Index

The Reich Company – Plum Point Energy Station

EPG Job # 08-8749

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Drawing	05775-0000	Series 12 SurePump™
Drawing	05775-0010	Series 12 Size 5 Sump Drainer
Bulletin	0335g	Engineer's Specification EPG WSDPT SurePump™ Wheeled Sump Drainer for side slope riser installations with built-in level sensor
Bulletin	0480e	Materials of Construction
Bulletin	0130c	EPG Sump Drainer Vent Tube / Check Valve Installation Instructions
Bulletin	0680a	EPG SurePump™ with LevelMaster™ Level Sensor Disassembly / Assembly Operation & Maintenance Instructions
Bulletin	0691	EPG SurePump™ with LevelMaster™ Level Sensor Replacement Instructions for Level Sensor in Wheeled Sump Drainer
Bulletin	0790	Test Equipment
Bulletin	0780a	Troubleshooting Guide
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Bulletin	0380d	SurePump™ Installation Record
Form	200	SurePump™ Installation Record
Bulletin	0610	Installation Guide EPG SurePump™ Pumping System
Bulletin	0620	Start Up Checklist EPG SurePump™ Pumping System
Bulletin	0050b	Engineer's Specification EPG Series L925PT PumpMaster™ Controller
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Information	1 Page	Meter Default Settings
Bulletin	3360	Caution
Bulletin	8000	EPG Controllers With Intrinsically Safe Circuit(s) Field Installation Instructions
Bulletin	0121c	Engineer's Specification EPG LevelMaster™ Submersible Level Sensor
Bulletin	0690c	EPG LevelMaster™ Level Sensor Operation & Maintenance Instructions
Bulletin	0580	EPG LevelMaster™ Level Meter Model CH1000-SDHH Operations & Set Up Instructions
Bulletin	6160	S3070-PT Transducer Simulator Operation

EPG Companies Inc.

Bulletin	6165	S3070-PT Transducer Simulator Test Procedure
Bulletin	0285a	Model NW Stainless Steel Discharge Adapter
Drawing	02523-0605	BJBL600B Breakout Junction Box for Level Sensor
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Bulletin	3465c	Sensor Data Sheet EPG Tank Full Level Sensor
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Photo	A	Front Panel Layout
Photo	B	Inner Door Layout
Photo	C	Back of Inner Door Layout
Photo	D	Back Panel Layout
Bulletin	0200c	Limited Warranty

EPG Companies Inc.

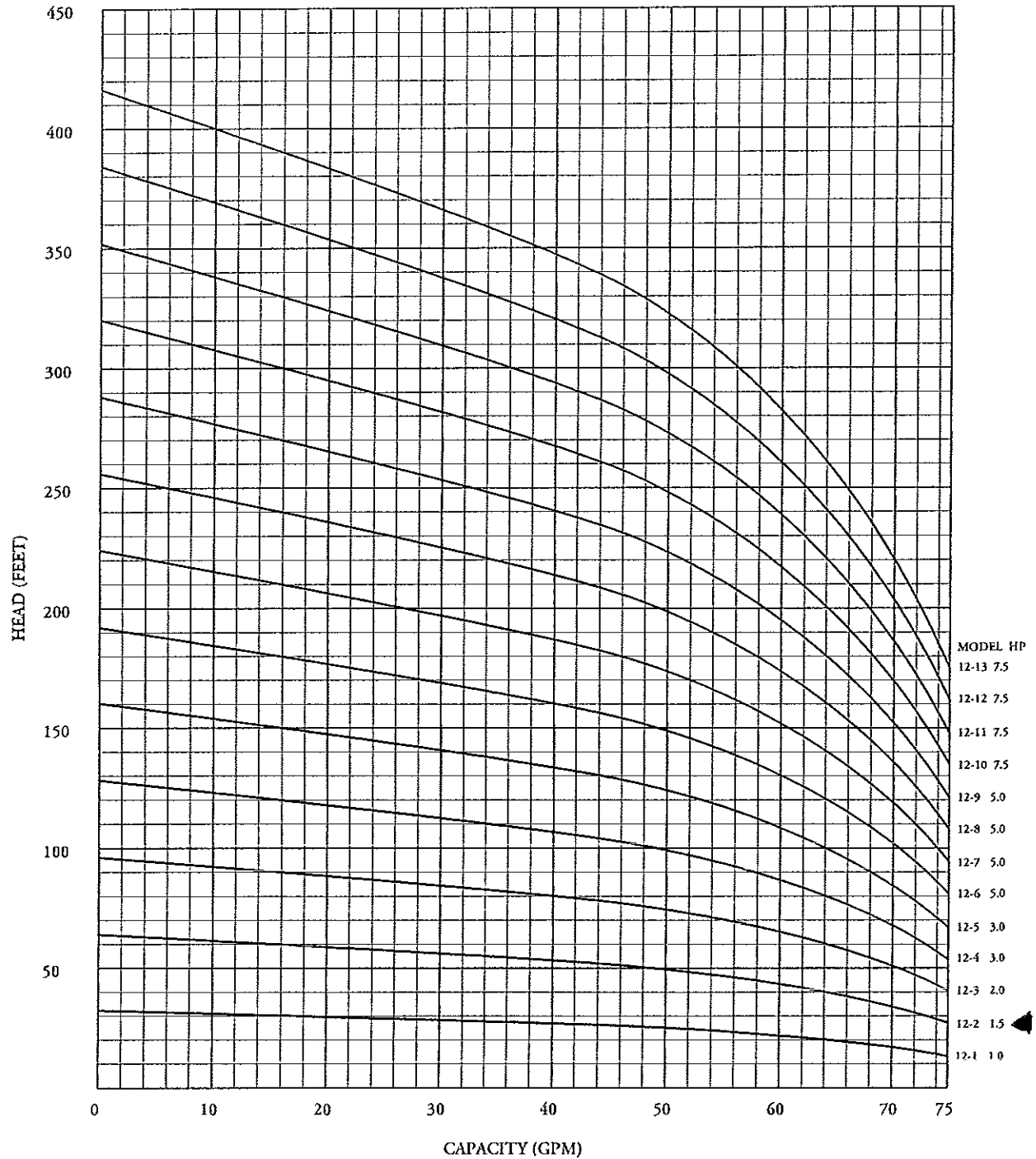
List of Equipment

The Reich Company – Plum Point Energy Station

EPG Job # 08-8749

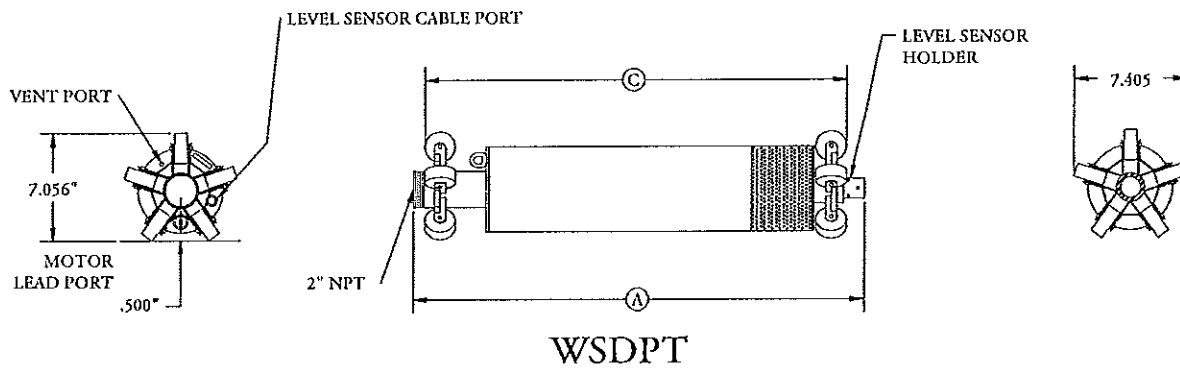
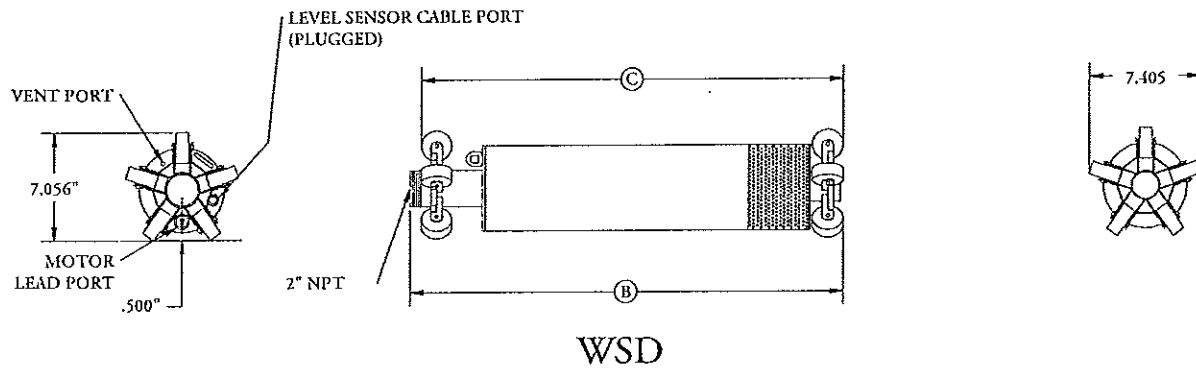
- | | |
|--------|---|
| 1 each | L925PT
EPG PumpMaster control panel to operate 1ea. 1.5 HP 230 VAC 1 phase motor. Includes 1ea. LevelMaster level control meter, and a top mounted high level alarm light, tank full shut down with pass along and inner door mounted light. All indicator and top light to have push to test buttons. Enclosure is rated NEMA 4X stainless steel. |
| 1 each | WSDPT 12-2
EPG SurePump patented, wheeled, stainless steel sump drainer with a 1.5 HP 230 VAC 1 phase motor. Includes 100' of 14 AWG jacketed motor lead, submersible level sensor with 100' lead, and a 100' length of 3/16" stainless steel suspension cable with clamps. |
| 1 each | NW2SS
EPG Discharge Adapter, 2" 316 stainless steel Cast disconnect. |
| 1 each | BJBL600B
EPG Breakout Box, NEMA 4X non-metallic enclosure, junction box for 1 ea. level sensor. Includes desiccant dryer, bellows, and connection terminals. |
| 1 each | BJBP500
EPG Breakout Box, NEMA 4X non-metallic enclosure for 1 ea. motor lead, includes connection terminals. |
| 1 each | TFS-SJ40P-SS-SP
Tank Full Sensor, 2" MNPT, with 12" stainless steel stem and a stainless steel float with 40' of SJ cord. |
| 1 each | Spare Parts
Spare parts for control panel: To include a complete set of fuses, spare bulbs. |
| 1 each | BJBF400
EPG Breakout Box, NEMA 4X non-metallic enclosure for 1 ea. float with connection terminals. |

SERIES 12 SurePump™
Flow Range 35-75 GPM
60 Hz



DATA SUBJECT TO CHANGE WITHOUT NOTICE

SERIES 12 SIZE 5 WHEELED SUMP DRAINER



MODEL	HP	PHASE	A	B	C	*APPROX. SHIPPING WEIGHT	
						WSD	WSDPT
12-1	1.00	1	36.01	34.89	34.14	77.26	82.26
12-1	1.00	3	36.01	34.89	34.14	77.26	82.26
12-2	1.50	1	40.48	39.36	38.61	87.64	92.64
12-2	1.50	3	38.61	37.49	36.74	80.80	85.80
12-3	2.00	1	44.58	43.46	42.71	95.65	100.65
12-3	2.00	3	43.08	41.96	41.21	91.18	96.18
12-4	3.00	1	55.68	54.56	53.81	130.52	135.52
12-4	3.00	3	52.68	51.56	50.81	116.58	121.58
12-5	3.00	1	58.28	57.16	56.41	149.06	154.06
12-5	3.00	3	55.28	54.16	53.41	131.12	136.12
12-6	5.00	1	66.88	65.76	65.01	158.48	163.48
12-6	5.00	3	60.88	59.76	59.01	137.61	142.61

MODEL	HP	PHASE	A	B	C	*APPROX. SHIPPING WEIGHT	
						WSD	WSDPT
12-7	5.00	1	69.48	68.36	67.61	162.03	167.03
12-7	5.00	3	63.48	62.36	61.61	141.15	146.15
12-8	5.00	1	72.08	70.96	70.21	165.57	170.57
12-8	5.00	3	66.08	64.96	64.21	144.70	149.70
12-9	5.00	1	74.68	73.56	72.81	169.12	174.12
12-9	5.00	3	68.68	67.56	66.81	148.24	153.24

NOTE: ALL DIMENSIONS ARE IN INCHES.

*SHIPPING WEIGHT INCLUDES
WSD: CRATE, 50' OF 12-4 MOTOR LEAD, 50' OF 3/16" SS CABLE.
WSDPT: CRATE, 50' OF 12-4 MOTOR LEAD, 50' OF 3/16" SS CABLE,
LEVEL SENSOR AND CABLE.

ENGINEER'S SPECIFICATION

EPG WSDPT SurePump™ Wheeled Sump Drainer

for side slope riser installations
with built-in level sensor

Furnish 1 centrifugal submersible EPG WSDPT SurePump Wheeled Sump Drainer(s) (U.S. patented), Model WSDPT 12 - 2 with 2 impeller stages. Each unit shall be suitable for side slope riser installation. Each unit shall be equipped with a 1 ½ HP, submersible electric motor for operation on 230 Volts, 1 phase, 60 Hertz service with 100 feet of power cable. Each SurePump Wheeled Sump Drainer shall have a 2 inch MNPT threaded discharge nozzle and be capable of delivering 60 GPM at 43 feet of TDH. Each SurePump will be fitted with 100 feet of stainless steel lifting cable of sufficient strength to permit removal of the unit.

DESIGN

Each SurePump Wheeled Sump Drainer shall be capable of pumping contaminated ground water for spill recovery, leachate, condensate, and purge applications. A removable transmitter mount (patent pending) shall be installed at the center bottom of the Sump Drainer for liquid level control. The Sump Drainer shall permit the unit to "pump down" to within 9 inches of the sump bottom without any loss of performance or damage to the pump. External "priming" shall not be required nor allowed. The Sump Drainer shall be equipped with a vent valve to assist with the evacuation of air from the Sump Drainer.

MATERIALS

Major components shall be made of 304 stainless steel, seal rings are to be made of E-Glide™, and bearings are to be E-Glide. In addition, all fasteners shall be 304 stainless steel.

CHECK VALVE

Each unit shall include a built-in check valve with non-metallic seat, and housing and disc of 304 stainless steel.

SHAFT

The shaft shall be of 304 stainless steel and rotate on E-Glide bearings that are fluid lubricated.

DIFFUSER CHAMBER

The diffuser chambers for each impeller shall be 304 stainless steel and fitted with E-Glide impeller seal rings.

IMPELLERS

The impeller(s) shall be closed and consist of 304 stainless steel.

MOTOR

The motor shall be a submersible, hermetically sealed Franklin motor in Pollution Recovery construction. The motor shall be designed for continuous duty, capable of sustaining up to 100 starts per day. The motor shall be connected to the pump via a motor adaptor and coupling in 304 stainless steel. Single phase motors in ½ HP to 1 HP only shall have thermal protection in the motor windings to protect the windings from overload. The unit will restart automatically after the motor cools down. Larger horsepower single phase motors and three phase motors shall have thermal protection located in the control panel that is manually reset.

MOTOR LEAD WIRE

The lead wire shall be no-splice with EPG's "CP" waterproof and chemically resistant jacket over 600 Volt insulation and be of the length specified.

Materials of Construction

EPG SurePump™

	STANDARD
Check Valve Housing	304 Stainless Steel
Check Valve	304 Stainless Steel
Check Valve Seat	E-Glide™
Diffuser Chamber	304 Stainless Steel
Impeller Seal Ring	E-Glide™
Impeller	304 Stainless Steel
Motor Adapter	304 Stainless Steel
Inlet Screen	304 Stainless Steel
Pump Shaft	304 Stainless Steel
Coupling	329/420/431 Stainless Steel
Fasteners	304 Stainless Steel
Bearings	E-Glide™

FRANKLIN ELECTRIC MOTORS

	1/3 to 2 HORSEPOWER	3 to 5 HORSEPOWER	5 to 10 HORSEPOWER
End Bell Castings	304 Stainless Steel over Iron	304 Stainless Steel over Iron	304 Stainless Steel over Iron
Stator Shell	301 Stainless Steel	301 Stainless Steel	301 Stainless Steel
Shaft Extension	303 Stainless Steel	303 Stainless steel	303 Stainless Steel
Fasteners	316 Stainless Steel	300 Stainless Steel	316 Stainless Steel
Seal Cover	Tefzel	Sintered Bronze	Tefzel
Shaft Seal	Viton	Viton, Carbon, Ceramic Face Seal	Viton
Diaphragm	Viton	Nitrile Rubber	Viton
Diaphragm Plate	304 Stainless Steel	304 Stainless Steel	304 Stainless Steel
Diaphragm Spring	302 Stainless Steel	302 Stainless Steel	302 Stainless Steel
Diaphragm Cover	316 Stainless Steel	304 Stainless Steel	316 Stainless Steel
Slinger	Viton	Nitrile Rubber	Viton
Lead Sleeve	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Lead Jam Nut	316 Stainless Steel	N/A	316 Stainless Steel
Lead Jam Clamp	N/A	300 Stainless Steel	N/A
Lead Potting	Epoxy	Epoxy	Epoxy
Lead Bushing	Viton	Viton	Viton

EPG Sump Drainer Vent Tube / Check Valve

INSTALLATION INSTRUCTIONS

EPG's patented sump drainer* enables a submersible pump to pump down and restart in applications that would normally cause the pump to air lock.

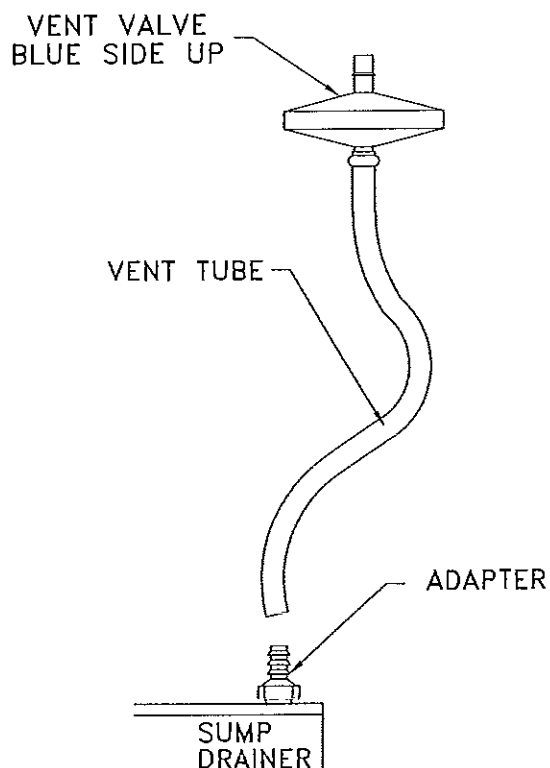
Critical to the operation of the sump drainer is the installation of the vent tube and air check valve. The vent tube / check valve assembly has two functions. First, as the sump drainer fills with fluid the vent tube assembly allows air trapped inside of the sump drainer to escape, allowing the sump drainer to completely fill with fluid. When the sump drainer pump starts the vent assembly then closes, allowing the pump to draw liquid through the screen at the opposite end of the sump drainer. The closed check valve enables the pump to continue pumping even though the fluid level in the sump is below the normal intake of the pump.

The vent tube may be tied off to the pump discharge line. The vent check valve will operate correctly even if submerged.

INSTALLATION

Refer to Figure 1 for help in completing this procedure.

1. Slip the free end of the plastic vent tube onto the adapter on the top of the sump drainer.
2. Verify the open end of the check valve is labeled "VAC".
3. As you lower the sump drainer into the sump, uncoil the vent tube and fasten it to the discharge pipe. We recommend you keep the check valve above the fluid level. The check valve will work if it is submerged, but can foul with particles in the fluid.



* U.S. Patent #4,966,534 and 4,992,030

Figure 1. Vent Tube / Check Valve Assembly

EPG SurePump™ with LevelMaster™ Level Sensor Disassembly / Assembly

OPERATION & MAINTENANCE INSTRUCTIONS

NOTE: Refer to Table B for list of tools needed for disassembly, assembly, and testing.

1. Place the pump on a suitable work surface with blocks to prevent the pump from rolling. Remove the vent tube by pulling straight out from the top. In cold weather it is better to unscrew the vent hose barb adaptor with tube attached rather than trying to pull the tube off the hose barb.
2. Unscrew the cord restraint nuts and pull inserts out about two (2) feet along the motor lead and level sensor lead. Loosen the insert from the wires so they are free to move through the cord restraint.
3. Mark the alignment of the tube and top (check for factory alignment marks). Center punch new marks in top and tube if factory marks can not be found. The alignment marks will make reassembly easier.
4. Remove the three (3) cap screws that secure the tube to the top and carefully pull the top, with pump and motor attached, out of the tube. Do not hammer, pry, or pound on tube or top. Allow the sensor lead wire to slide through the cord restraint.
5. Remove the three (3) socket head setscrews from the level sensor housing on the bottom of the tube. Carefully pull the level sensor up and out from the bottom of the tube. Carefully remove the sensor lead wire by pulling the controller end back through the top. Cover the end of the sensor lead wire with tape to prevent moisture and dirt from entering. If the sensor is unused or put into storage, remove the dryer from the controller and install on end of vent tube during storage period.
6. Remove the nuts (4) that secure the motor to the pump and pull the motor from the pump. Do not remove the motor lead from the motor unless it will be replaced with a new lead. It is recommended that a new motor lead be used whenever the old lead is removed from the motor because of possible damage to the lead or distortion of the rubber seal that may prevent resealing.
7. Unscrew the motor lead nut from the motor. Work the lead back and forth to loosen seal and unplug the lead from the motor connector. Remove the lead by pulling the controller end back through the top.
8. Unscrew the pump assembly from the top using cloth strap wrenches to prevent damage to the metal surfaces.

CAUTION

Do not attempt to disassemble level sensor or pump motor. Any disassembly will void the warranty.

ASSEMBLY

1. Apply pipe sealing compound to the top threads and screw the pump to the top. To prevent damage to the top sealing surface or the pump bowls, tighten pump to top using cloth strap wrenches.
2. Slide motor and pump together and align motor shaft splines to pump splines by turning the motor shaft. Align the motor lead connector with the cutaway in the pump flange. Secure motor to pump with four (4) nuts.
3. Slide the long end of the motor lead through the cord restraint cap and nut in the top. Insert plug into the motor connector. Tighten motor lead connector nut to secure lead to motor.
4. Inspect upper and inside surface of tube and remove any sharp edges or burrs. Wipe surface of tube and top to remove any dirt, sand, or metal filings. Remove the O-ring and clean sealing groove in the top. If original O-ring installation used a spacer / shim between the top and O-ring, clean the shim and reinstall into the sealing groove in the top.
5. Carefully slide level sensor lead wire through the top cord restraint and nut.

CAUTION

Use care while handling the level sensor lead wire to prevent damage to the conductors and center vent tube.

6. Slide the level sensor and center it within the sensor housing at the bottom of the tube. Secure it with the three (3) socket head setscrews. To prevent damage to the sensor case, do not over tighten the setscrews.
7. Position the tube vertically and carefully slide the pump and motor assembly into the tube. Guide the assembly past the sensor lead wire to prevent crushing or cutting the lead wire. Remove slack from the sensor lead wire by pulling the lead wire out through the top.
8. Install a new top O-ring and liberally apply white petroleum jelly (Vaseline or equivalent) to the O-ring and cover sealing surfaces. Align the screw holes in the top with the holes in the tube and carefully slide the top into the tube making sure that the O-ring is not damaged.
9. Remove the slack from the motor lead and sensor lead wire. Secure the top to the tube with three (3) cap screws. Tighten cap screws until sealing grease starts to bead out from the top-to-tube joint. Do not over tighten.
10. Secure motor lead and sensor lead wire with the cord restraint nuts. Tighten the nut until the edge of the insert can be seen on the inside edge. Install vent hose.

SEAL TEST PROCEDURE

NOTE: Refer to Figure 2.

1. Install mechanical plug into the discharge pipe connection located in pump top. Tighten to recommended specifications. Refer to Table A.
2. Connect gage tubing to vent fitting.
3. Connect magnehelic gage to gage tubing.
4. Fill five gallon pail with water to the rim.
5. Place pump assembly, as depicted on Figure 2, in the filled five gallon pail.
6. Observe the magnehelic gage. The pressure should read about 5" W.C. and hold steady.
 - a. If the pressure holds steady, the pump is ready to be installed. Remove the gauge tubing and the mechanical plug.
 - b. If the gauge pressure does not hold steady, there is an air leak in the top assembly.
 - b.1. Remove the pump assembly from the five gallon pail and refill the pail with water.
 - b.2. Mix a solution of soap and water in a hand pump spray application bottle and spray the top assembly.
 - b.3. Place the pump assembly in the five gallon pail and observe the top assembly for bubbles to determine point of the seal leak.
 - b.4. Make necessary adjustments to the pump assembly and repeat items b.1. through b.3. until the leak has been corrected and the gauge pressure holds steady.

INSTALLATION

1. Remove the gage tubing and the mechanical plug and install the vent tube with vent valve.
2. Run the level sensor lead wire to the PumpMaster™ control panel or breakout box and connect the sensor RED wire to the (-) terminal and BLACK wire to the (+) terminal. Connect the level sensor vent tube to the dryer and check for kinks and crushed areas in the tube connection area. The vent tube must be open to allow atmospheric pressure change compensation in the sensor.
3. Repeat bucket test to verify level sensor operation.
4. Install pump into place.
5. Check the level sensor readings before running pump. The LevelMaster meter should indicate the proper depth of the sensor when immersed in liquid. If the meter shows -34.7 the lead wires connections are reversed, not connected or damaged. Be certain to check correct voltages at the controller and measure the resistance of the motor lead and motor to assure proper wiring.

Table A**MECHANICAL PLUG SPECIFICATION**

Nominal Pipe Size	Maximum Allowable Back Pressure PSIG		Tightening Torque
	Air	Water	
1"	5	110	20 in. lbs.
1.25"	5	100	30 in. lbs.
1.5"	5	70	5 ft. lbs.
2"	5	40	10 ft. lbs.
3"	5	30	12 ft. lbs.

Table B**TOOLS AND ITEMS REQUIRED FOR
MAINTENANCE OF EPG SUREPUMP**

- * 0-32 Screw with 5/16" hex head
- * 5/16" Nut driver
- * 10-32 x 5/16" long stainless steel set screw
- * 3/32" Allen wrench
- * .0005" Shim stock (blue)
- * O-ring set 4, 5, and 6
- * White petroleum jelly (Vaseline)
- * Anti-seize compound
- * Small channel lock pliers
- * Magnehelic gage (Model 2010)
- * Scissors to cut shim stock
- * Flat blade screwdriver
- * 1/2" Open end wrench
- * 24" of 1/4" OD nylon tubing
- * Mechanical plug set -- 1", 1.25", 1.5", 2", and 3"
- * Torque wrench

Figure 1

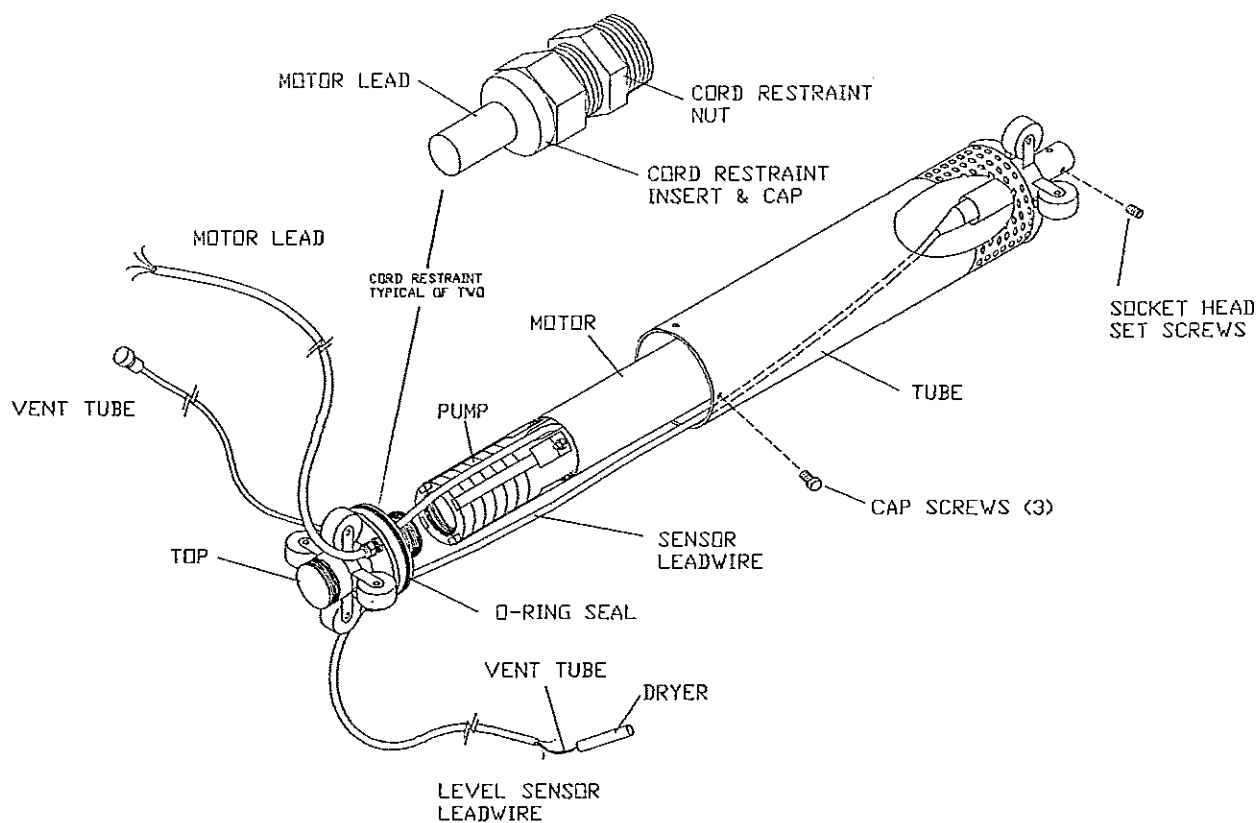
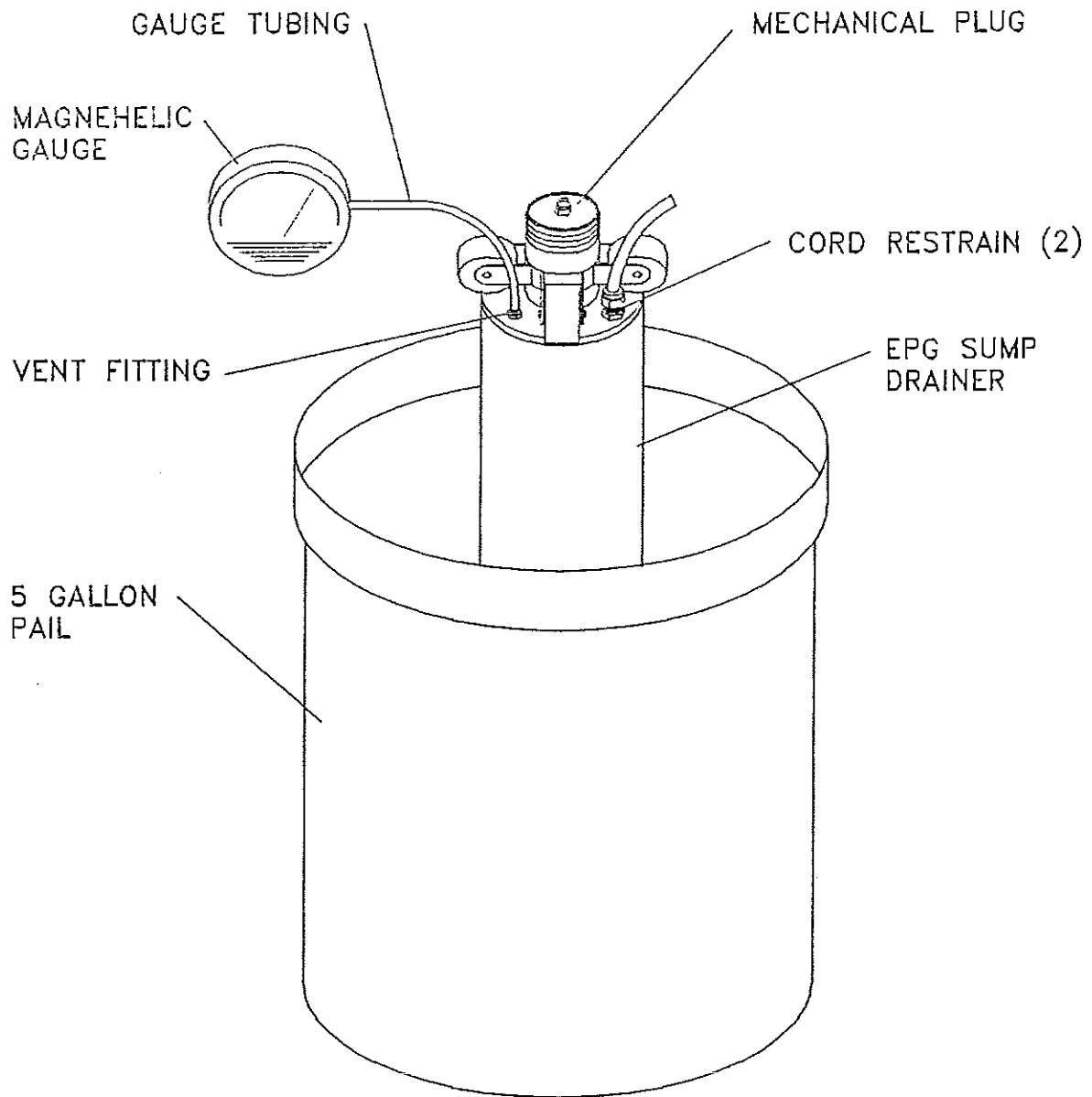


Figure 2



EPG SurePump™ with LevelMaster™ Level Sensor

REPLACEMENT INSTRUCTIONS FOR LEVEL SENSOR IN WHEELED SUMP DRAINER

1. Use a 15/16 open end wrench to loosen and then remove the cord restraint nut (2).
2. Slide the cord restraint nut (2) and the grommet (3) off of the level sensor cable (1).
3. Use a 3/32" hex key to loosen the three set screws (4) from the locking collar.
4. Tie a string to the top end of the level sensor cable (1) and use electrician's tape to secure the string. Remove desiccant dryer from vent tube and close vent tube with tape.
5. Push several inches of the level sensor cable (1) into the sump drainer. Pull the level sensor holder (8) and the level sensor (6) out of the locking collar (5).
6. Pull the level sensor cable (1) through the sump drainer to a point where the electrician's tape can be removed.

CAUTION: Do not pull the string through the sump drainer, it will be used to assist installation of the new level sensor.

7. Use the 3/32" hex key to loosen the four set screws (7) in the level sensor holder (8) and remove the level sensor.
8. Remove the string from the level sensor cable (1).
9. Remove the foam protective cover from the new level sensor.

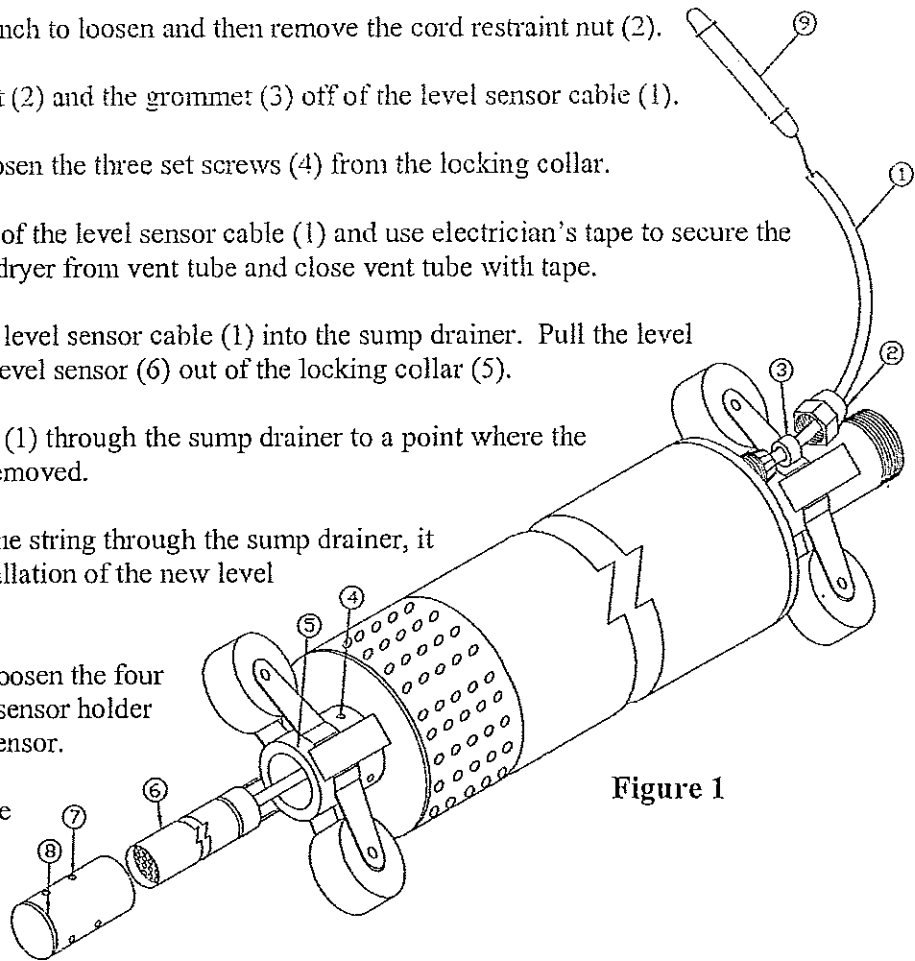


Figure 1

10. Remove the desiccant dryer tube (9) and seal the vent tube with electrician's tape.

CAUTION: The vent tube must have a dessicant dryer installed at all times or be sealed with electrician's tape. It is very important not to allow any dirt or moisture to enter the vent tube.

11. Place the new level sensor (6) in the level sensor holder (8). Secure the two setscrews with the 3/32 hex key and torque to a maximum of seven-inch pounds.

CAUTION: Do not over tighten the setscrews. Over tightening can damage the level sensor. Seven-inch pounds torque will secure the level sensor (6) in place.

12. Tie the string to the new level sensor cable end (1) and use electrician's tape to secure the string.
13. At the sump drainer's discharge end, pull the string and level sensor cable (1) through the sump drainer until the level sensor holder (8) is seated in the locking collar (5).

CAUTION: Do not pull the cable tight. Allow two to three inches of slack in the sump drainer.

14. Insure the level sensor holder (8) is securely seated in the locking collar (5) and tighten the three set screws (4). Torque to 15-inch pounds.
15. Remove the electrician's tape and string from the level sensor cable.
16. Reinstall the grommet (3) and the cord restraint nut (2). Tighten with the 15/16 open end wrench
17. Remove the tape from the vent tube and reinstall the dryer (9).

Tools/Equipment needed:

- 15/16 open end wrench
- 3/32 hex key
- String-2 or 3 feet longer than the sump drainer
- Electrician's tape
- Torque wrench with inch pound scale

TEST EQUIPMENT

To insure proper installation, EPG recommends the following instruments. When working with electrical circuits, use caution to avoid electrical shock.

- Megohmmeter:** To measure insulation value of motor and motor leads to ground. The higher the reading, the better.
- Ohmmeter:** (Must be able to read less than 1 ohm) To measure resistance winding to winding in motor, check quality of any connections made in motor circuit to test coils of relays and continuity of circuits.
- Volt Meter:** To verify correct supply voltage and measure system requirements when running.
- Clamp on Amp Meter:** To measure current draw in system.

TROUBLESHOOTING GUIDE

FAULT	POSSIBLE CAUSE	HOW TO CHECK	HOW TO CORRECT
Pump or blower does not run.	No electricity at controller.	Check for voltage at controller.	If no voltage at controller, check for cause. Contact power company if voltage is incorrect.
	Fuses are blown or circuit breakers are tripped.	Check fuses for correct size and check for loose, dirty, or corroded connections in fuse receptacle, terminal strip and at splice points.	Replace with proper fuse or reset circuit breaker. If new fuses blow or circuit breaker trips, the electrical installation, motor and leads must be checked.
	Motor starter overloads have tripped out.	Check for voltage on line and load side of starter. Check megohm value of motor and lead.	Reset heaters or replace. Inspect starter for other damage. If heater trips again, check the supply voltage. Replace motor or lead as needed.
	Motor and/or cable are defective.	Turn off voltage, disconnect drop leads from controller to the motor. Measure the lead-to-lead resistances with ohmmeter (RX-1). Measure lead-to-ground values with megohm meter. Record measured values.	If open winding or ground is found, remove pump and recheck values at the surface. Repair or replace motor or cable.

FAULT	POSSIBLE CAUSE	HOW TO CHECK	HOW TO CORRECT
	Starter does not energize.	Energize control circuit and check for voltage at the holding coil.	If no voltage, check control circuit. If voltage, check holding coil for shorts. Replace bad coil.
	Defective controls.	Check all sensors and safety switches for operation. Inspect contact in control devices.	Replace worn or defective parts.
	Defective capacitor. (Single phase only.)	Turn off voltage, discharge capacitor. Check with megohm meter. Record measured values.	Replace if defective.
Pump runs but does not deliver liquid.	Liquid level in sump is too low or sump infiltration rate is reduced or intruded gas.	Check sump draw down.	See pump data sheet for minimum submergence values.
	Vent valve not installed or improperly installed.	Make sure valve is attached to the top of the sump drainer and that it is not installed backward.	Replace valve if missing. Reverse valve if installed upside down.
	Inlet strainer is clogged.	Install pressure gauge, start pump, gradually close the discharge valve and read pressure at shutoff.	Remove pump and inspect for blockage. Clean screen as needed. Inspect check valve for blockage. Rinse out pump and reinstall.

FAULT	POSSIBLE CAUSE	HOW TO CHECK	HOW TO CORRECT
	Pump is defective or worn.	Same as description above.	Convert PSI to feet (PSI x 2.31 ft/PSI = ____ ft.), add elevation from pressure gauge to liquid level to the converted pressure reading. Refer to specific pump curve for shutoff head for that pump model. If calculated value is close to curve, pump is probably OK. If not, remove pump & inspect.
Pump runs continuously.	Leak in system.	Check system for leaks.	Replace damaged pipes or repair leaks.
	Worn pump.	Install pressure gauge, start pump, gradually close the discharge valve and read pressure at shut-off.	Pull pump and inspect. Replace worn impellers, bearings or other close fitting parts.
	Loose or broken motor shaft.	Little or no liquid will be delivered if the pump/motor coupling is loose or if the motor shaft has sheared off.	Check for damaged shafts if coupling is loose and replace worn or defective units.
	Pump intake or impellers blocked.	Restricted flow may indicate a clogged intake screen or partially blocked impellers. Pump may be installed in mud or sand.	Clean screen and reset pump. It may be necessary to clean impellers.

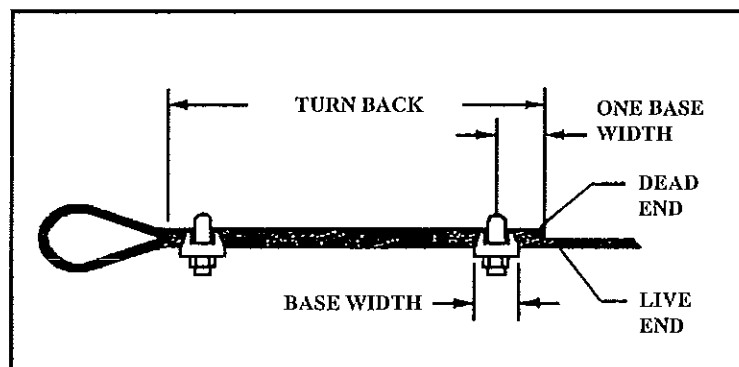
FAULT	POSSIBLE CAUSE	HOW TO CHECK	HOW TO CORRECT
Pump runs but at reduced capacity.	Wrong rotation.	Check for proper electrical connection in control box.	Correct wiring and change leads as required.
	Leak in system.	Check system for leaks.	Replace damaged pipes or repair leaks.
	Pump strainer or check valve is clogged.	Remove pump and inspect.	Clean, repair, rinse out and re-install pump. It may be necessary to take pump apart and clean impellers. Check discharge line for any obstructions.

Wire Cable Clamp

INSTALLATION INSTRUCTIONS

Recommended Method of Applying Clamps to get Maximum Holding Power

1. *Turn back* the specified amount of cable from the loop. Apply the first clamp one base width from the dead end of the wire cable (U-bolt over dead end - live end rests in clamp saddle). Tighten nuts evenly to recommended torque.
2. *Apply the next clamp* as near the loop as possible. Turn on nuts firm, take up rope slack, and tighten nuts evenly to recommended torque.
3. Do not use clamps on plastic coated wire rope.
4. Never use clamps to connect two straight lengths of wire rope.



Attaching Clamps

A termination made in accordance with instruction and using the number of clamps shown has an approximate 80% efficiency rating. This rating is based upon the catalog breaking strength of wire rope.

Number of Clamps Recommended

Clamp Size Inches	Minimum No. of Clamps	Amount of Cable to Turn Back in Inches	Breaking Strength FT/LBS	Clamp Torque FT/LBS	Cable Strength with Clamps FT/LBS
1/8	2	3 1/4	1,760	4.5	1400
3/16	2	3 3/4	3,700	7.5	2960
1/4	2	4 3/4	6,400	15	5120

STORAGE INFORMATION

SUREPUMP™

1. The ideal storage condition for SurePump is in a warm dry location. Although SurePump will tolerate a light freeze, temperatures should not fall below -3°C (27°F). Repeated freezing and thawing should be avoided to prevent possible loss of motor fluid.
2. Limit storage time to less than two years if storage area temperatures exceed 100°F. Limit storage time to one year or less if storage area temperatures exceed 130°F.
3. To prevent motor seal damage and/or fluid loss, always store SurePump vertically.

LEVELMASTER™

1. IMPORTANT: During any short or long term storage, to prevent moisture damage to internal components, the desiccant dryer must be installed on the vent tube of the submersible level sensor signal cable. Store in a warm dry location to prevent internal condensation in the meter enclosure.
2. If the level sensor is installed in a SurePump, pump must be stored in a vertical position. Coil the sensor signal cable and place in a box or protected area to prevent damage to the signal cable. Do not stack heavy items on top of level sensor signal cable.
3. Make certain that the desiccant dryer is attached to the end of the level sensor vent tube. Inspect dryer periodically and replace if crystals are pink or white.

PUMPMASTER™ CONTROLS

1. To prevent condensation/moisture damage within the control cabinet, store the PumpMaster in a warm dry location.
2. Check that the corrosion inhibitor cartridge is installed in the interior of the cabinet. If the PumpMaster control will be stored for over six months, contact EPG Companies Inc. for additional corrosion inhibitor cartridges

NOTE

The non-volatile memory of level and flow meters may deteriorate if left without power for periods greater than one year. If storage times are expected to exceed one year contact EPG Companies Inc. for special precautions.

SurePump™ Installation Record

Form Completed by: _____ Installation Date: _____

Company: _____ EPG Serial #: _____

PUMPS, CONTROLS AND POWER SUPPLY

Installer:	Address:	Installation Location:
Motor Model HP	Volts: Max Amps Rating:	Pump Model:
Power Supply Transformers: Number Used: KVA Each:	Hertz:	Comments:
Pump Control Panel: Mfg. & Model #:	Motor Starter Size:	Overload Heater Part or setting range:
Lightning Arrestors: Mfg. & Model:	Surge Capacitors: Yes _____ No _____	IEC Starters: Disconnect Fuse or Circuit Breaker Amp Rating:
Primary Flow Control Devices: (Low Level Control, Flow Control, Valve, System Back Pressure, etc.)		

OPERATING DATA (Measurements at Control Panel)

PUMP CONDITIONS:	GPM	VOLTS	AMPS
Pump Not Running	0	R-Y _____ R-B _____ B-Y _____	
Open Discharge		R-Y _____ R-B _____ B-Y _____	R _____ Y _____ B _____
Normal Operation		R-Y _____ R-B _____ B-Y _____	R _____ Y _____ B _____
Run Time _____			
Off Time _____			

EPG Companies Inc.

INSTALLATION DATA

Discharge Line Size:	Discharge Pressure:	Pump Submergence:	Fluid Temp: _____°F _____°C
External Check Valve Used?	Location:	Cable Length & Size:	Ground Resistance
Insulation Megohm Readings:	Before Installation:	After Installation:	After 30 min. Run:

SENSORS

Type of Level Sensor: Pressure Transmitter _____ Load Monitor _____ Floats _____ Other _____	Transmitter Serial Number:
Length of Sensor Lead:	Ohm Readings Across I.S. Barrier:
mA Readings on Transmitter Lead:	Voltage Reading Entering Level Meter: _____ VAC Voltage Leaving Level Meter: _____ VAC
Are Flow Sensors Used: Yes _____ No _____	Flow Spool Made of: PVC _____ Stainless Steel _____

Comments: _____

Place one copy of this record in the control panel, return one copy to EPG, and retain original for your records.

In case of problems or questions, contact EPG Companies Inc., 19900 County Road 81, Maple Grove, MN 55311. Phone: 800-762-8418 FAX: 763-493-4812

EPG SurePump™ Installation Record

EPG Job No. _____

Installer's Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Contact name _____

Owner's Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Contact name _____

Sump Name/ ID _____ Date Installed _____

Leachate or Condensate Temp _____ °F Or °C

Pump:

Model No. _____

Rating: _____ GPM@ _____ Ft. TDH

HP _____ Voltage _____ Phase _____

Actual Pump Delivery _____ GPM@ _____ PSI

Operating Cycle _____ ON (Min/Hr) _____ OFF (Min/Hr)

(Circle Min. or Hr. as appropriate)

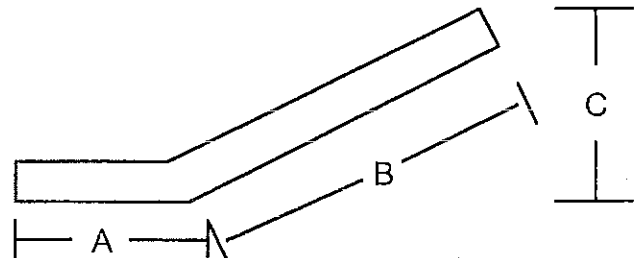
Side Slope Riser Information:

Slope _____ :1

Length of riser Pipe (A+B) _____ ft.

Vertical Distance = Sump to
Top of Riser Pipe (C) _____ ft.

Riser ID _____ SDR _____

Distance From Top of Riser
Pipe to Controller _____ ft.

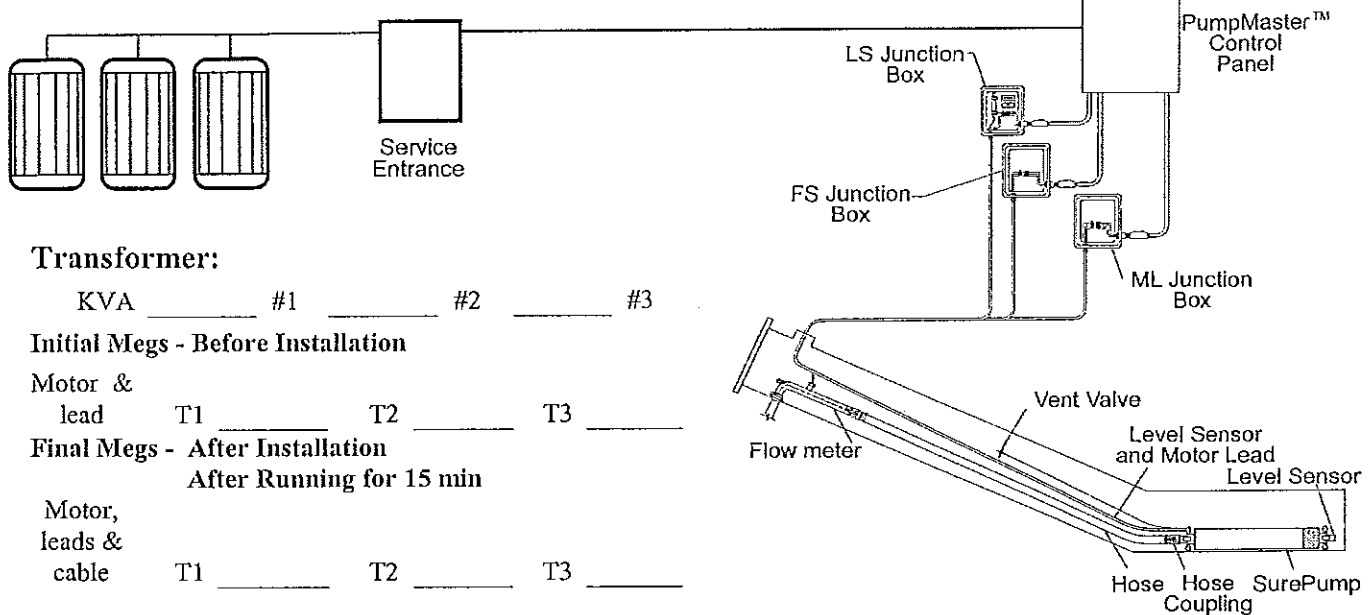
Power Supply:

Cable: Service Entrance to Control Distance _____ ft Wire Size _____ AWG/MCM

Copper _____ Jacketed _____ Aluminum _____ Individual conductors _____

Cable: Control to Motor _____ ft _____ AWG/MCM

Copper _____ Jacketed _____



Transformer:

KVA _____ #1 _____ #2 _____ #3 _____

Initial Megs - Before Installation

Motor & lead T1 _____ T2 _____ T3 _____

Final Megs - After Installation After Running for 15 min

Motor, leads & cable T1 _____ T2 _____ T3 _____

Incoming Voltage:

No Load	L1-L2 _____	L2-L3 _____	L1-L3 _____
Full Load	L1-L2 _____	L2-L3 _____	L1-L3 _____

Running Amps:

Hookup:1

Full Load	L1 _____	L2 _____	L3 _____	% unbalanced _____
-----------	----------	----------	----------	--------------------

Hookup:2

Full Load	L1 _____	L2 _____	L3 _____	% unbalanced _____
-----------	----------	----------	----------	--------------------

Hookup:3

Full Load	L1 _____	L2 _____	L3 _____	% unbalanced _____
-----------	----------	----------	----------	--------------------

Ground wire size _____ AWG/MCM

DC Ground Current _____ mA Ground Test _____ Ohms

Motor Surge Protection _____ Yes _____ No

Control Panel:

Model # _____

Short Circuit Device

Circuit Breaker	Rating _____	Setting _____
Fuses	Type _____	Rating _____
	Standard _____	Time Delay _____

Controls are Grounded to:

_____	Motor
_____	Rod
_____	Power Supply

Start Overloads:

Name: _____

Set at _____ amps

Company _____

Date _____

INSTALLATION GUIDE

EPG SurePump™ Pumping System

- ☐ 1. Verify that equipment and supply voltage match.
- ☐ 2. Inspect equipment, look for shipping damage, dirt, and rough handling
- ☐ 3. Control panel should be mounted in a secure way at least 15' from riser or sump and 36" above grade to bottom of control panel.
- ☐ 4. Inspect inside of control panel. Look for items which might have come loose during shipping
- ☐ 5. Test level sensor in bucket of water. Does it return back to zero? Control panel needs to be installed and have power to it.
- ☐ 6. Install vent valve and tubing. See Bulletin 0130c.
- ☐ 7. Install suspension cable. See Bulletin 6090a.
- ☐ 8. Fasten motor lead and sensor cable to discharge line every 5' to 7' with straps or plastic wire ties. It's best if they are on separate sides of line; use padding between cables and any metal straps.
- ☐ 9. Run pump down riser slowly using stainless steel suspension cable as hold back. Make sure motor lead and sensor cable are slack as you lower pump.
- ☐ 10. Take ohm reading of each motor lead wire to wire and compare the values in Table 13 of the Franklin Electric motor manual for 1Ø and Table 21 for 3Ø. Be sure to add wire resistance value to value from table 13& 21. See page 39 for wire resistance.
- ☐ 11. Check insulation resistance as pump is lowered down riser. Resistance may drop gradually as pump and cable enter the liquid, but any sudden drop indicates a problem.
- ☐ 12. Run sensor leads and power cables in separated conduits to control panel. It is a good idea to use breakout junction boxes. See Design Guide 05644.
- ☐ 13. If you have to remove dryer from end of transducer cable to pull cable through fittings or conduit. Seal end of the vent tube with a piece of tape. Reinstall dryer as soon as possible. See Bulletin 0550a.
- ☐ 14. Megger motor leads. Resistance must be 1 megohm or greater.
- ☐ 15. Connect pump to control panel complying with local and national codes. Controller terminal strips, motor leads, and sensor leads are all labeled and/or color coded to simplify connections.
- ☐ 16. Inspect wire connections. Are they the correct colors? Are they tight?
- ☐ 17. If color-coded wires were not continued from sump or riser you need to ohm out each circuit.
- ☐ 18. Measure resistance to ground. It must be less than 25 ohms. If greater stop work and report to owner. It should be 1 ohm or less to protect electronic equipment.

- ☐ 19. Measure voltage prior to control panel or at entrances to control panel. Measure and record voltage line to line and line to ground.
- ☐ 20. Compare these reading to voltage listed on drawing and label in control panel.
- ☐ 21. Review equipment list and drawings for any accessory circuits. If present, run volt and ohm test.
- ☐ 22. Check and make sure all hand switches are in the off position. If you have a water level indicator verify leachate level in sump or riser.
- ☐ 23. Turn on power at panel main disconnect.
- ☐ 24. Level meters display should light up. Record displayed reading. How does this reading compare to your measured level reading?
- ☐ 25. If level and flow meter do not light up check GFCI, reset if necessary.
- ☐ 26. Are any indicator lights on?
- ☐ 27. Should they be on?
- ☐ 28. Make sure pump is turned off. Using built in or hand held simulator, verify level meter settings are correct for this site. See meter data sheet for factory settings and meter instructions.
- ☐ 29. Bump pump by turning switch to hand two or three times to make sure pump has reached its resting point. You should have minimum of 3' of slack in the cables.
- ☐ 30. To verify correct rotation place hand around discharge line. It will torque right if the rotation is correct.
- ☐ 31. When pump is running measure and record amperage and voltage. Check 3Ø systems for current balance within 5% of average.
- ☐ 32. Verify that starting, running and stopping causes no significant vibration or hydraulic shocks.
- ☐ 33. After 15 minutes of running time measure volts and amperage to see if they are stable. Are they as specified?
- ☐ 34. After pump and level sensor have been tested pot seal offs.
- ☐ 35. Complete Form 200. Note: If this form is not completed and returned to EPG it will impact system warranty.

START UP CHECKLIST

EPG SurePump™ Pumping System

QUESTIONS FOR CONTRACTOR OR INSTALLER

- ☐ A: Were sensor and power cable tied or strapped to discharge line?
- ☐ B: On what kind of spacing?
- ☐ C: What is the as built length of riser and sump? Were cables long enough? There should be 3 or more feet of slack in the cables.
- ☐ D: What size cable was run for supply power?
- ☐ E: What is the distance from power supply transformer to pump control panel?
- ☐ F: How did they verify that pump is down into sump?
- ☐ G: Did they test level sensor prior to installing?
- ☐ H: Did they test pump prior to installing or prior to your arrival?
- ☐ I: Do they have any questions or concerns?
- ☐ J: Complete form 200

PHYSICAL INSPECTION OF CONTROL PANEL

- ☐ A: Is the control panel located 15' from sump or riser and 36" above grade to bottom of panel.
- ☐ B: Are power and sensor cable run in separate conduit? If not, stop work and have this corrected.
- ☐ C: Are seal offs installed in both sensor and power runs? If not, suggest breakout junction boxes or have seal off installed.
- ☐ D: Are seal offs potted? If not, stop work and have them potted.
- ☐ E: Will inner and outer door of enclosure open and close freely? If not loosen enclosure mounting bolts and shim until it is level and square. Then retighten mounting bolts.
- ☐ F: Make sure ground wire is in place between outer door and enclosure.

PRIOR TO ENERGIZING CONTROL PANEL

- ☐ A: Measure resistance to ground. It must be less than 25 ohms. If greater stop work and report to owner. It should be 1 ohm or less to protect electronic equipment.
- ☐ B: Measure voltage prior to control panel or at entrances to control panel. Measure and record voltage line to line and line to ground.
- ☐ C: Compare these reading to voltage listed on drawing and label in control panel.
- ☐ D: Megger motor leads resistance must be 1 megohm or greater.
- ☐ E: Take ohm reading of each motor lead wire to wire and compare these to values in Table 13 of the Franklin Electric motor manual for 1Ø and Table 21 for 3Ø. Be sure to add wire resistance value to value from table 13& 21. See page 39 for wire resistance.
- ☐ F: Inspect inside of control panel. Look for items which may have come loose during shipping
- ☐ G: Inspect wire connections. Are they the correct colors? Are they tight?
- ☐ H: If color-coded wires were not continued from sump or riser you need to ohm out each circuit.
- ☐ I: Review equipment list and drawings from any accessory circuits. If present, run volt and ohm test.
- ☐ J: Check and make sure all hand switches are in off position. If you have a water level indicator verify leachate level in sump or riser.

POWER UP

- ☐ A: Turn on power at panel main disconnect.
- ☐ B: Level meters display should light up. Record displayed reading. How does this reading compare to your measured level reading?
- ☐ C: If level and flow meter do not light up check GFCI, reset if necessary.
- ☐ D: Are any indicator lights on?
- ☐ E: Should they be on?
- ☐ F: Make sure pump is turned off. Using built in or hand held simulator, verify level meter settings are correct for this site.
- ☐ G: Bump pump by turning hand switch two or three times to make sure pump has reached its resting point. You should have minimum of 3' of slack in the cables.

- ☐ H: To verify correct rotation place hand around discharge line. It will torque right if the rotation is correct.
- ☐ I: If there is liquid in sump with level about pump start set point and below 150". Then turn pump selector switch to AUTO. Run pump through one complete cycle.
- ☐ J: When pump is running measure and record amperage and voltage. Check 3Ø systems for current balance within 5% of average.
- ☐ K: Verify that starting, running and stopping causes no significant vibration or hydraulic shocks.

ENGINEER'S SPECIFICATION

EPG Series L925PT PumpMaster™ Controller 1Ø CONTROL PANEL

Furnish one EPG Companies Inc., UL listed 509A/698A, Series L925PT controller to operate a pump motor and auxiliary equipment in manual or automatic mode. The control panel enclosure shall be NEMA type 4X Stainless Steel.

The enclosure shall be equipped with a window in the outer door, an inner door, a stainless steel drip shield, and a tamper resistant latch. The NEMA 4 (standard) enclosure is finished with polyester urethane paint. The NEMA 4X (optional) enclosure can be either stainless steel or non-metallic.

The control system will operate from a 230 Volt, 60 Hertz, single phase power supply. Pump control components will be sized to operate a pump motor of specified horsepower.

The control panel shall include the following as standard features:

- * Main Disconnect Switch: The main disconnect switch shall be 40 Amp rated and will prevent opening of the control panel while the power is on, and includes 230 Volt, 15 Amp dual element fuses.
- * "Hand-Off-Auto" Selector Switch: Allows manual or automatic operation of the pump motor. The selector switch shall be a heavy duty, oil tight, NEMA 4 rated switch mounted on the inner door. The hand position shall be momentary with a spring return.
- * Motor Contactor: The motor contactor shall be sized to the pump motor horsepower.
- * Motor Start Winding Control with Start Capacitor and Start Winding Relay: A capacitor is used to start the motor, and a relay is used to remove the start winding from the circuit when the motor reaches operating speed.
- * Control Transformer: A transformer with fused primary and secondary shall isolate the control circuit from the power circuit and provide easier and safer field wiring of accessories. It shall lower incoming voltage to 120 Volts.
- * Run Light: Indicates energization of motor circuit. It shall be heavy duty, oil tight, NEMA 4 rated and shall have a voltage surge suppressor built in to prolong lamp life. The light shall be mounted on the inner door and will be green in color.
- * LevelMaster™ Level Control: The LevelMaster level control meter shall be mounted on the inner door. The meter shall have a digital readout and the capability to monitor and maintain liquid levels as well as output a high level alarm. It shall also provide a high-high level alarm fail safe feature that shuts off the pump motor. The high-high alarm may indicate level sensor failure or a problem with the pump. Level control shall be accurate to within 0.1 inch.
- * Level Simulator: The level simulator shall be mounted on the inner door. The level simulator is a built-in test circuit designed to simulate a 4-20 mA load to assist in level meter setup and troubleshooting.
- * Intrinsically Safe Barrier: The level sensor circuit shall be protected by an intrinsically safe barrier.
- * Heater with Adjustable Thermostat: A heater with adjustable thermostat shall promote even distribution of heat and elimination of hot spots and condensation. It shall also maintain the minimum temperature required for the operation of the LevelMaster level control meter. The heater element shall be mounted in space between the sub-panel and the back of the enclosure and provide a minimum of 100 inches square of heating area.
- * Lightning Arrestor: Shall be grounded, metal-to-metal, to water strata. When properly grounded, the lightning arrestor will protect electrical equipment against lightning induced surges.
- * Terminal Strip: A labeled and numbered terminal strip provides easy connection of external components.

- * Corrosion Inhibitor Emitter: Inclusion of an industrial corrosion inhibitor emitter shall protect internal components of control panel from corrosion for up to one year and shall be replaceable.
- * Options are available to meet specific needs.

SYSTEM LOGIC AND FUNCTION

The controller is designed to start and stop a pump using the LevelMaster level control meter with a submersible pressure transmitter. The pump starts at the pump start level set point and continues to run until the liquid level decreases to the pump stop level set point as programmed in the LevelMaster level control meter. If the liquid level rises to the high level alarm set point, a high level alarm will be annunciated. If the liquid level rises to the high-high level fail-safe set point, the pump motor will shut off. The pressure transmitter level sensor shall have a range of 0 to 11.5 feet with a 4-20 mA output signal.

ATTACHMENT TO BULLETIN 0050b

ENGINEER'S SPECIFICATION

EPG L925PT Controller

1Ø Control Panel

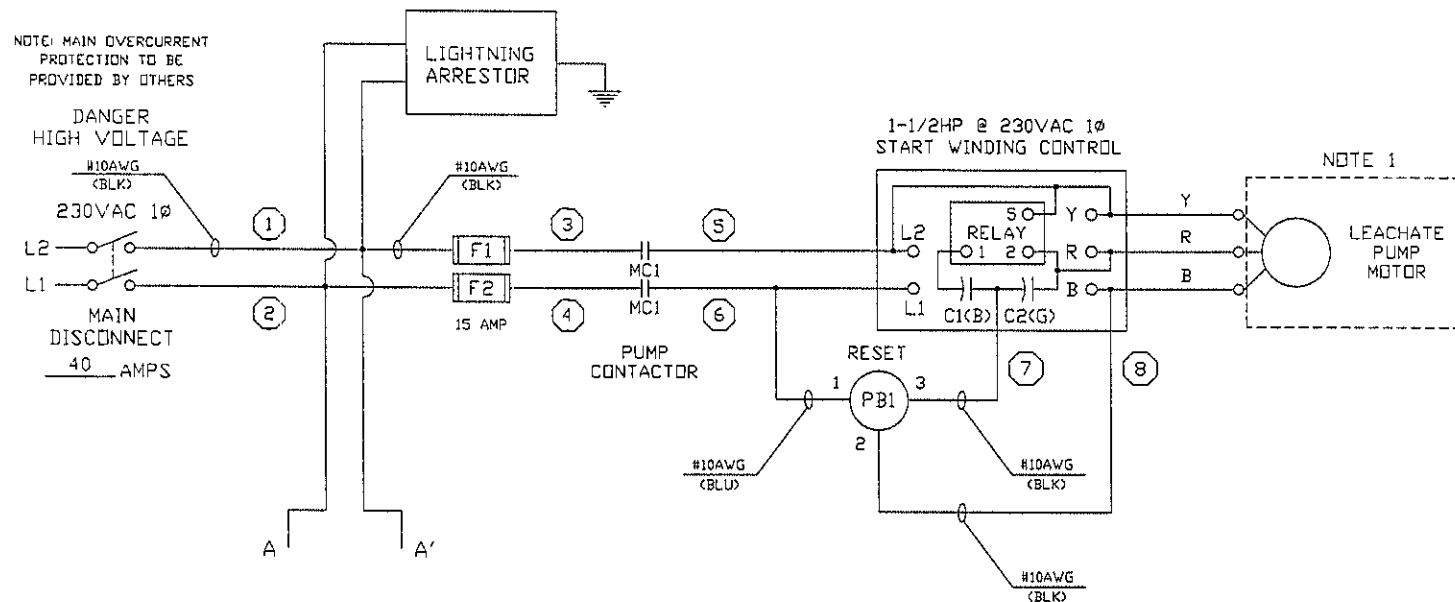
EPG Job #08-8749

This controller includes the following optional features:

- Top mounted high level alarm light.
- Tank full shut down with pass along.
- Inner door mounted light.
- All indicator and top light to have push to test buttons.

MOTOR	HP	VOLTAGE	FLA	FUSE SIZE
LEACHATE PUMP	1-1/2	230	10.0	15A

PLUM POINT ENERGY STATION



FIELD WIRING TERMINALS

LINE

L1	}	230VAC 1Ø 60Hz 12.14 AMPS
L2		

	— GROUND
--	----------

LOAD (230VAC)

Y	}	LEACHATE PUMP MOTOR
R		
B		
GND		

FOR NOTES AND REVISIONS SEE SHEET 6

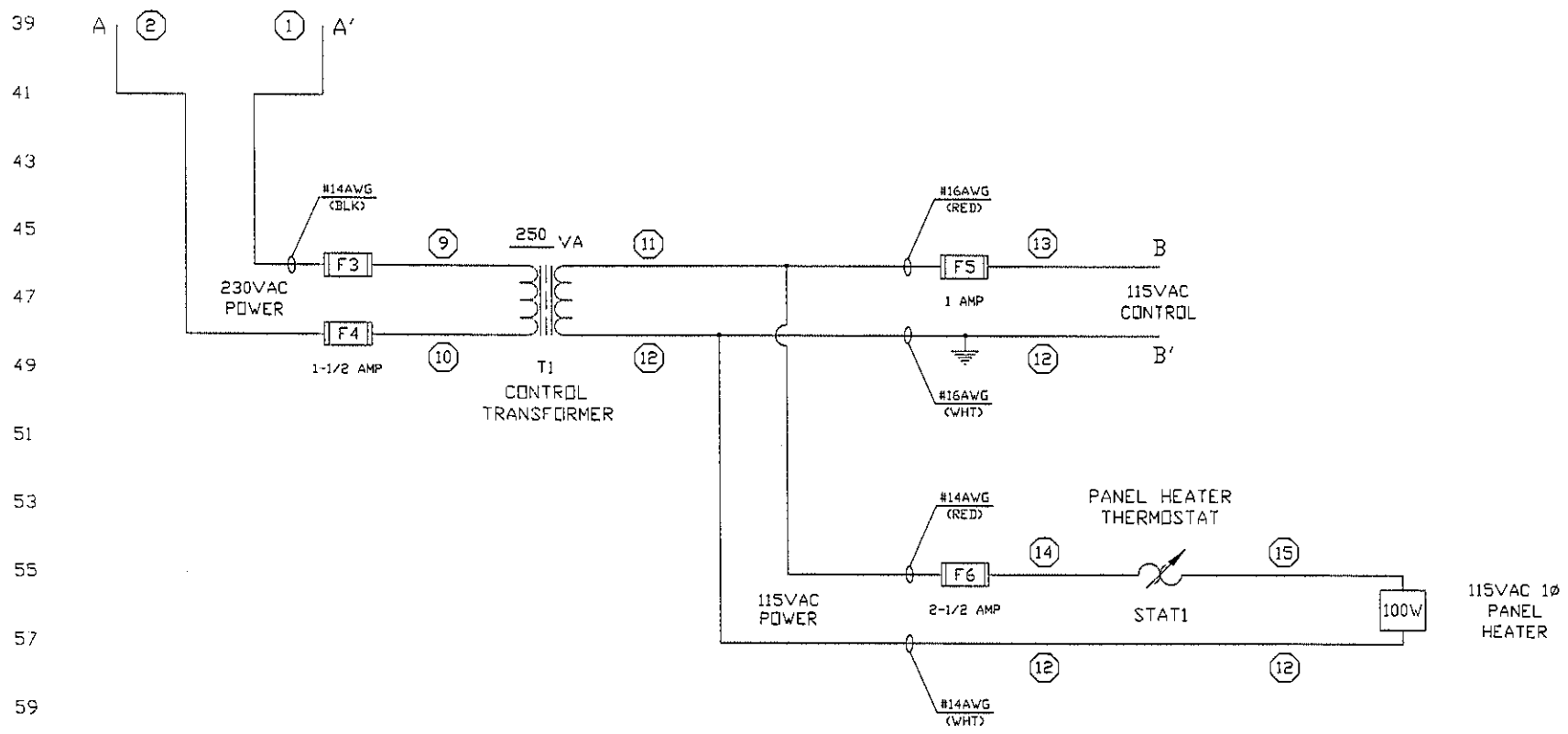
AS BUILT

FUSE	TYPE	RATING
F1-F2	FRN-R	15
F3-F4	FRN-R	1-1/2
F5	FNM	1
F6	FNM	2-1/2
F7	MDL	1/4

JOB No. 08-8749

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TOLERANCES		REVISIONS	
DECIMAL	CONFORM AS NOTED	NO.	DATE
FRACTIONAL		1	
ANGULAR		2	
		3	
		4	
		5	
DESIGN RCK		SCALE	DRAWING NO.
DATE 01-22-08		08137-0250	



FOR NOTES AND REVISIONS SEE SHEET 6

AS BUILT

JOB No. 08-8749

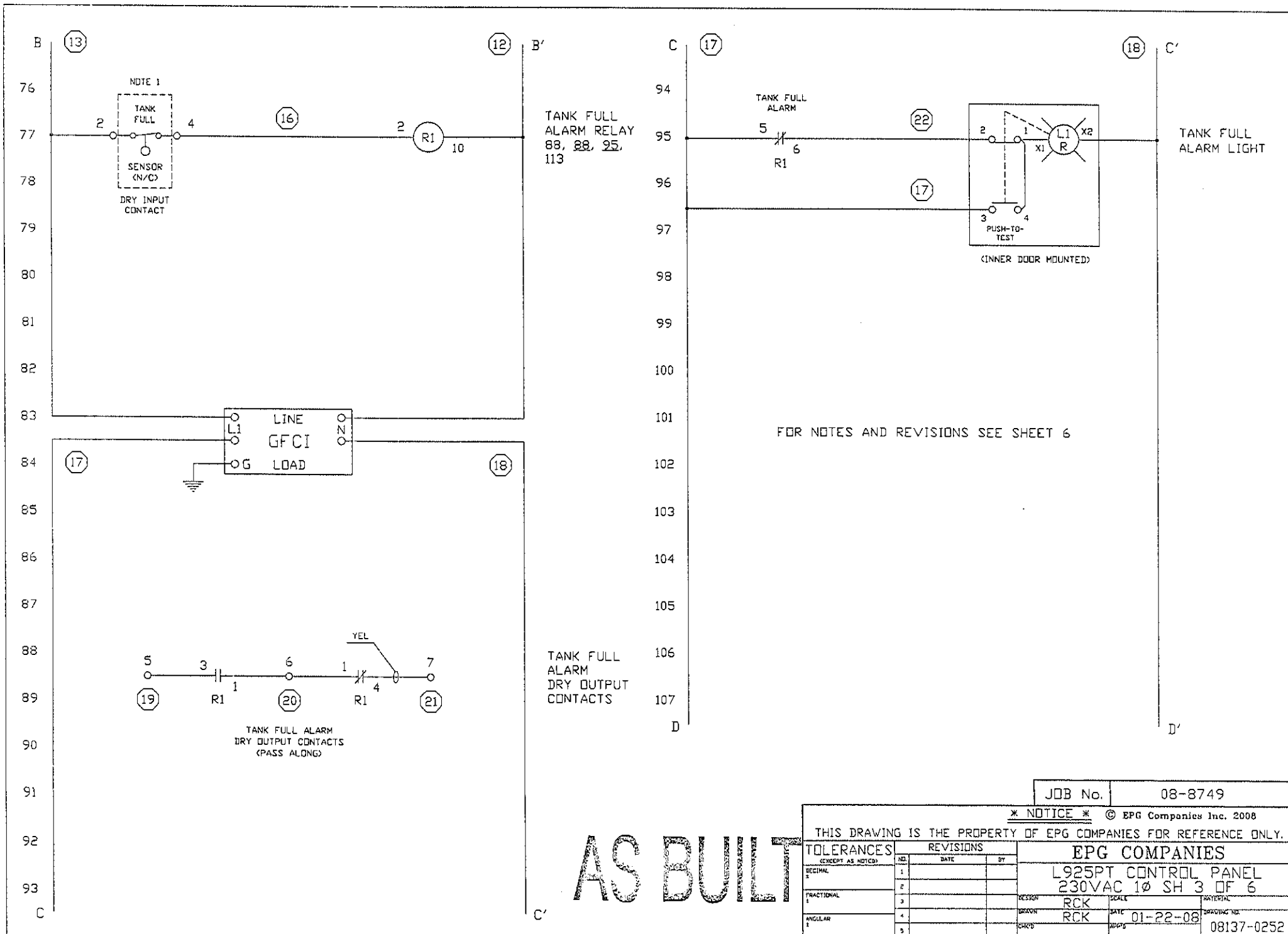
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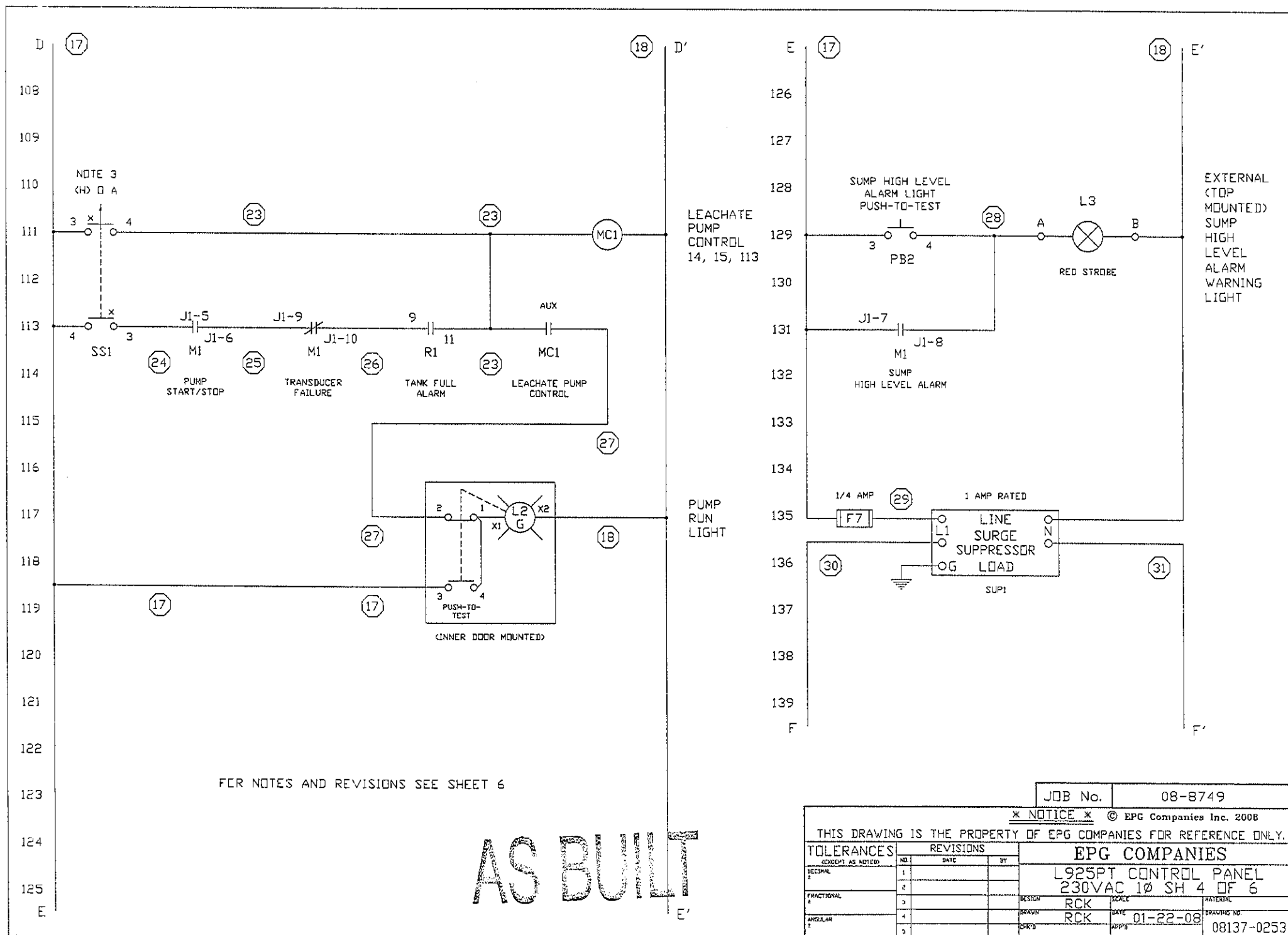
TOLERANCES			REVISIONS			EPG COMPANIES		
CONCEPT AS NOTED	NO	DATE	BY					
DECIMAL	1							
FRACTIONAL	2							
ANGULAR	3					DESIGN	RCK	SCALE
	4					DRAWN	RCK	DATE
	5					CHECKED		DATE
						APPROVED		DATE

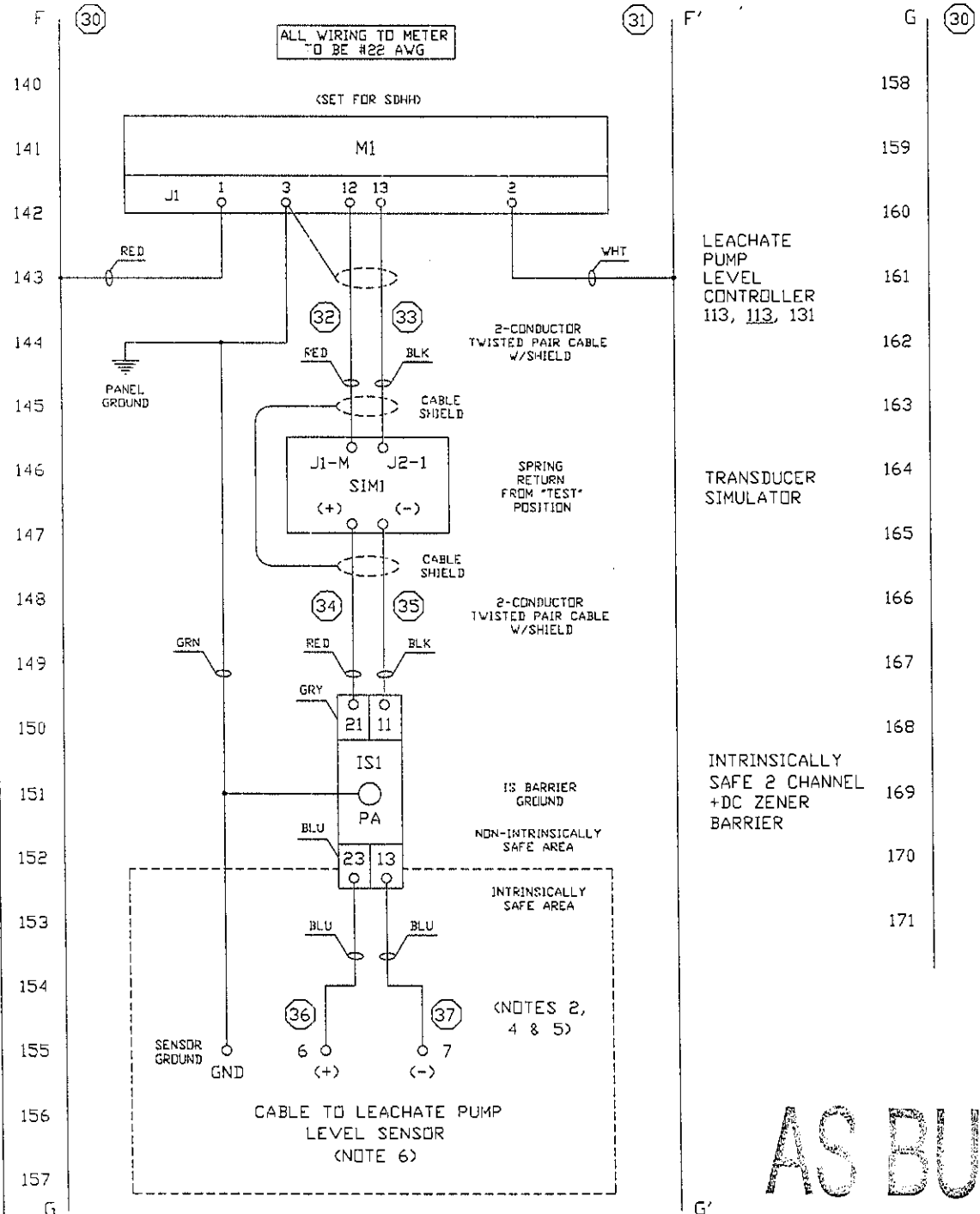
L925PT CONTROL PANEL
230VAC 1Ø SH 2 OF 6

01-22-08
08137-0251



JOB No.		08-8749	
NOTICE * © EPG Companies Inc. 2008			
OF EPG COMPANIES FOR REFERENCE ONLY.			
EPG COMPANIES			
L925PT CONTROL PANEL			
230VAC 1Ø SH 3 OF 6			
DESIGN	RCK	SCALE	MATERIAL
DRAWN	RCK	DATE	DRAWING NO.
CHECKED		01-22-08	
		08137-0252	





FOR NOTES AND REVISIONS SEE SHEET 6
LAST WIRE NUMBER USED: 37

AS BUILT

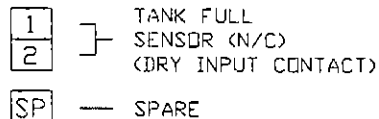
JOB No. 08-8749

* NOTICE * © EPG Companies Inc. 2008

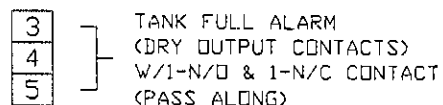
TOLERANCES				REVISIONS				EPG COMPANIES			
(EXCEPT AS NOTED)				NO.	DATE	BY		L925PT CONTROL PANEL			
DECIMAL	1			1				230VAC 1Ø SH 5 OF 6			
FRACTIONAL	2			2							
ANGULAR	3			3				DESIGN	RCK	SCALE	MATERIAL
	4			4				DRAWN	RCK	DATE	DRAWING NO.
	5			5				CHECKED		01-22-08	08137-0254

FIELD WIRING TERMINALS

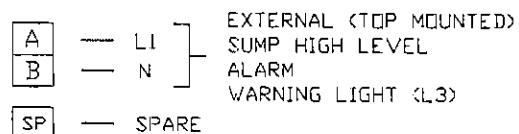
ALARM (DRY INPUT CONTACT)



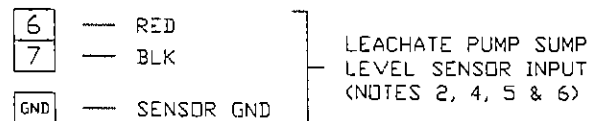
ALARM (DRY OUTPUT CONTACTS)



LOAD (115VAC)



LEVEL SENSOR (INTRINSICALLY SAFE TERMINALS)



NOTE:

1. NOT PART OF CONTROLLER
2. REFERENCE INSTALLATION OF INTRINSICALLY SAFE INSTRUMENT SYSTEMS IN CLASS I HAZARDOUS LOCATIONS, ANSI/ISA-RP 12.6-1987, SECTION 4.5.4
3. SELECTOR SWITCH, (SS1) WILL SPRING RETURN FROM THE "HAND" POSITION
4. WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY
5. INSTALL IN ACCORDANCE WITH ARTICLE 504 OF THE NATIONAL ELECTRIC CODE
6. MAXIMUM CABLE LENGTH TO LEVEL SENSOR IS 3000 FEET

AS BUILT

JOB No. 08-8749

* NOTICE * © EPG Companies Inc. 2008

THIS DRAWING IS THE PROPERTY OF EPG COMPANIES FOR REFERENCE ONLY.

TOLERANCES		REVISIONS		EPG COMPANIES		
(EXCEPT AS NOTED)		NO.	DATE	BY	L925PT CONTROL PANEL	
DIMENSIONAL	1				230VAC 1Ø SH 6 OF 6	
FRACTIONAL	2				DESIGN	RCK
ANGULAR	3				DRAWN	RCK
	4				DATE	01-22-08
	5				APPRO	08137-0255

EPG LevelMaster Pump controller

Panel S/N: 08-8749

Meter S/N: xx-xxxx**Leachate Meter**

Default setting - Operating Parameters - Setup Code 35

Meter Designation(s): M1

<u>Parameter</u>	<u>Value</u>	<u>Operation</u>
Pr Hi	34	Turns Pump on when level on meter reads <u>34</u> ".
Pr Lo	17	Turns Pump off when level on meter reads <u>17</u> ".
AL H1	40	Turns High Level Light on when meter reads <u>40</u> ".
Hy Hi	1	Keeps High Level Light on until level drops <u>1</u> " below AL Hi.
AL H2	150	Turns Pumps off if meter reads 150" or greater. Indicates a possible sensor failure.
Hy H2	0	Not used.

Default Settings - Sensor Parameters - Setup Code 25

<u>Parameter</u>	<u>Value</u>	<u>Operation</u>
dp	8888.8	Sets Meter to read in 0.1"
OFFSET	-34.6	Provides a "0" reading when sensor inputs 4.0ma
SCALE	0.8656	Converts current input into inches - 1.0ma = 8.656 inches.

AS BUILT

CAUTION

EPG submersible level sensors are designed for rugged use. However, care should be taken to protect these devices from over pressure and sudden impact. When lowering the level sensor into a liquid, penetrate the surface slowly and only to the depth that the unit is designed for. Do not drop or wash with high pressure since this may damage the unit.

EPG Controllers With Intrinsically Safe Circuit(s)

Field Installation Instructions

PURPOSE: Provide instructions to install EPG control panels with Intrinsically Safe (IS) Circuits wired to EPG Level Sensors, EPG Flow Sensors, and Single and Dual Level Float Sensors.

PROCEDURE:

Familiarize yourself with the electrical components and the panel electrical schematics. Read these instructions thoroughly before attempting installation of intrinsically safe circuits. Reference: Installation of intrinsically safe instrument systems in CLASS I HAZARDOUS LOCATIONS, ANSI/ISA-RP 12.6-1987, SECTION 4.5.4.

Install in accordance with Article 504 of the National Electrical Code.

This control panel and its intrinsically safe circuit(s) must be connected to a ground system with very low impedance (1 OHM or less) per NEC 504-50 and 250-50.

See control panel drawings for device wiring. Only simple apparatus (NEC 504-2) and those specifically called out in the controller drawing are to be connected to the intrinsically safe circuit(s). The attached drawings show specific device wiring for level, flow, single level float and dual level float sensors

Where intrinsically safe circuits enter or exit a hazardous (classified) area, a means must be provided to prevent the passage of gases or vapors per NEC 501-5. A seal device must be installed to conduit entering the enclosure and then filled with appropriate sealant.

Wiring of intrinsically safe circuits shall be physically separated from non-intrinsically safe circuits per NEC 504. Do not run intrinsically safe and non-intrinsically safe circuits in the same conduit.

Do not exceed maximum cable lengths stated in the control panel drawings.

Field wiring supplied by others is to have 600 Volt insulation rating.

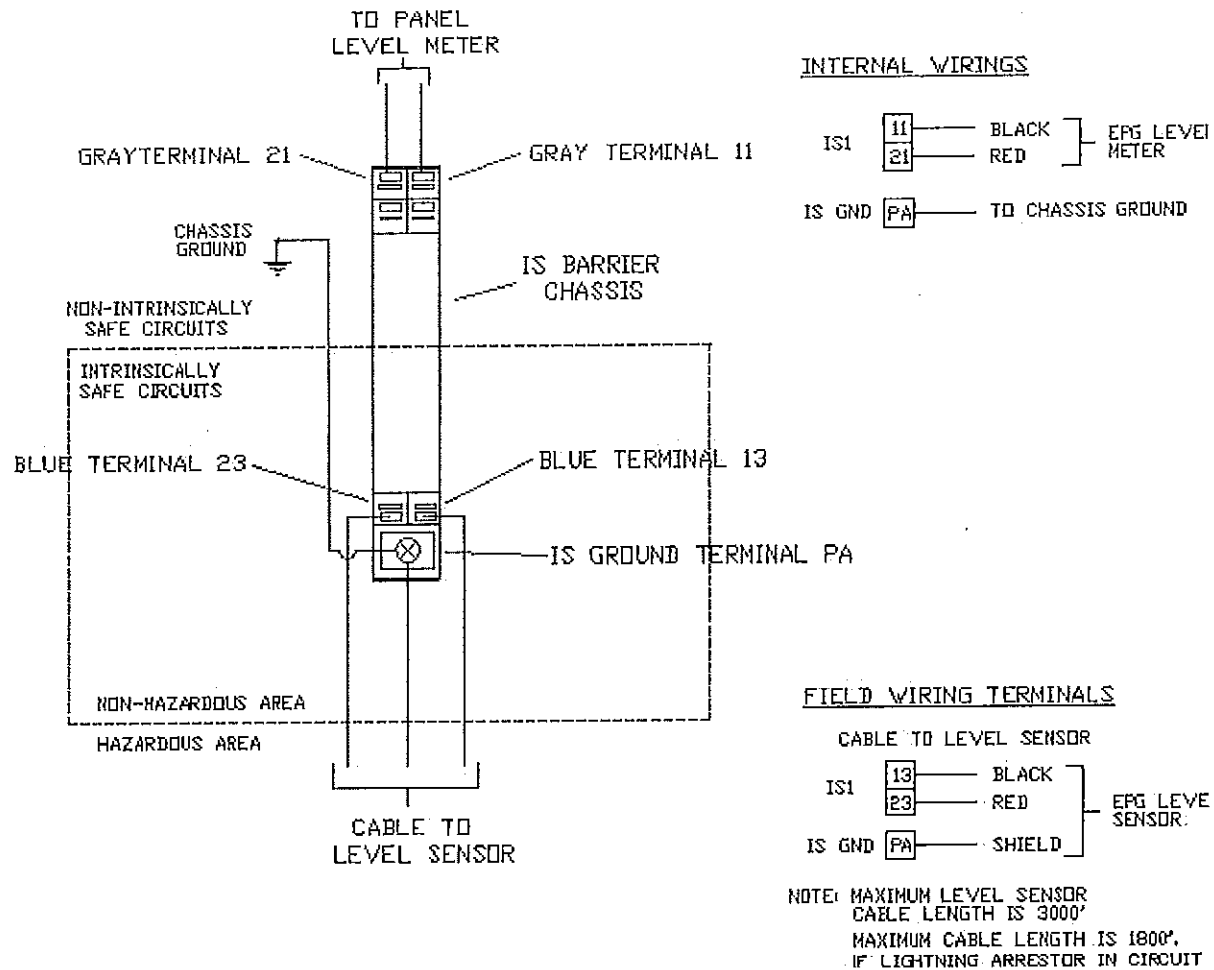
Conductors of intrinsically safe circuits must be separated by at least 5" from conductors of any non-intrinsically safe circuits

If field wiring is terminated in field supplied junction boxes there must be a minimum of 8" between intrinsically safe and non-intrinsically safe field wiring terminals.

Do not substitute parts. Use only the same make, model and part number as originally supplied.

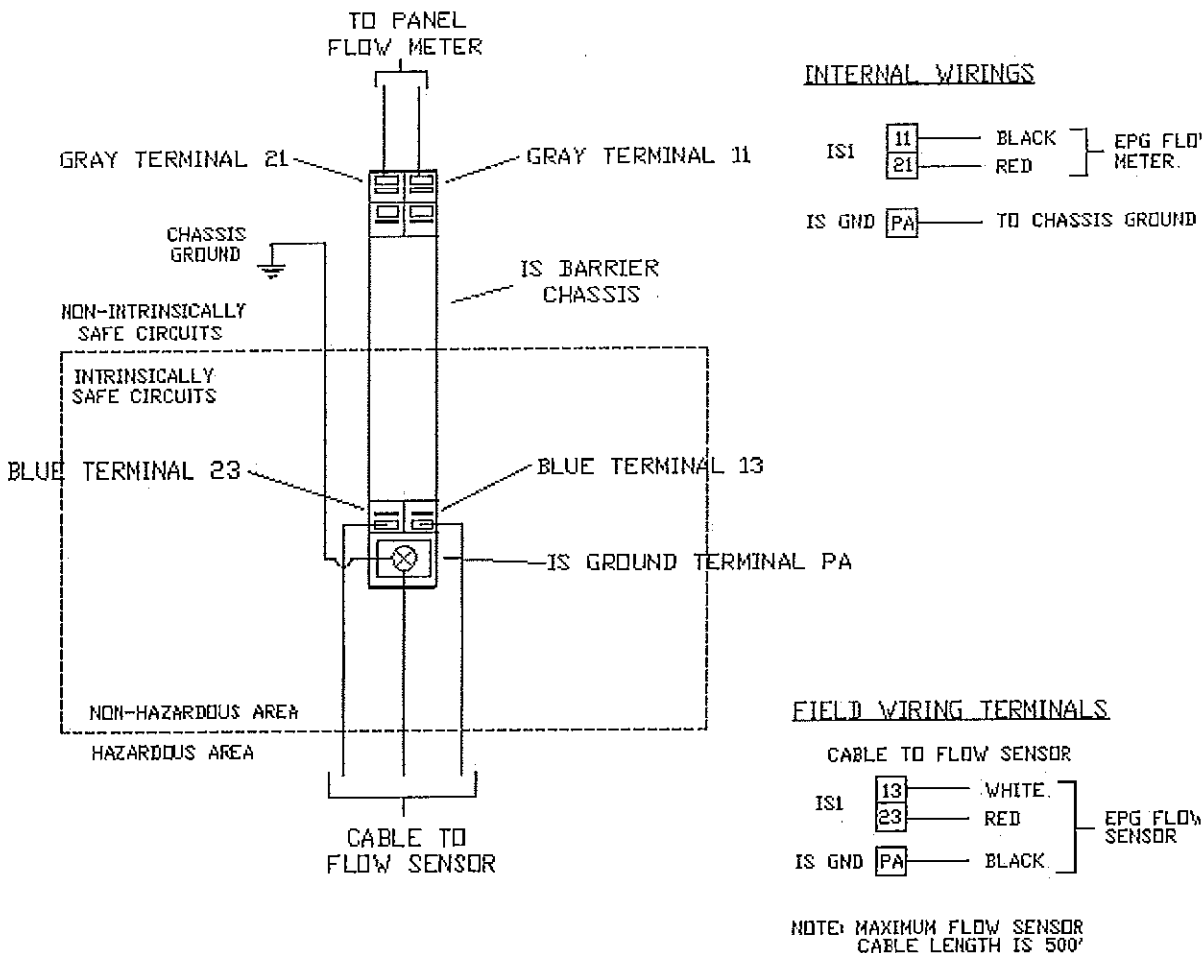
Replace fuses only with fuses of same type and rating.

I.S. BARRIER - LEVEL SENSOR



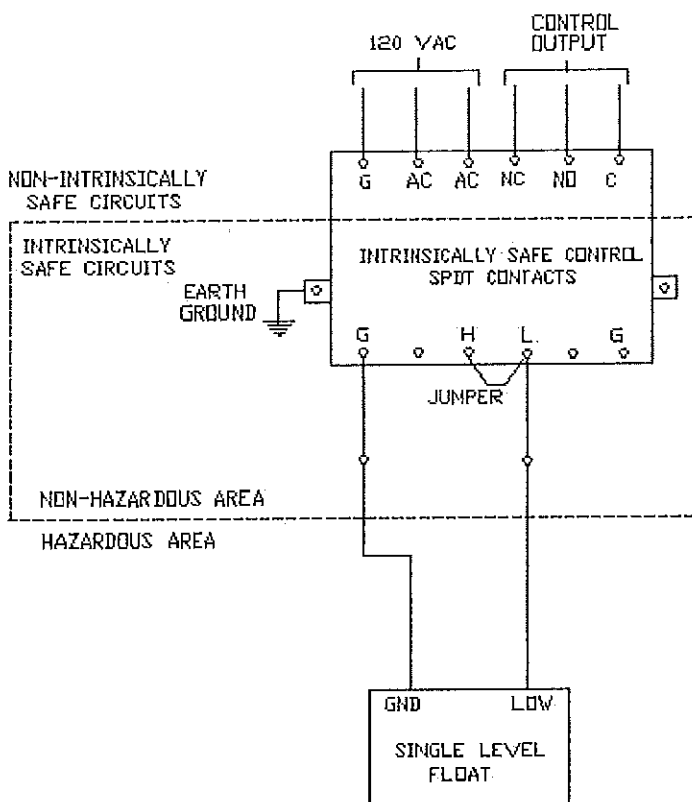
- NOTE: 1. PROVIDES INTRINSICALLY SAFE CIRCUIT EXTENSIONS FOR USE IN CLASS 1 GROUPS C & D HAZARDOUS LOCATIONS WHEN CONNECTED PER EPG BULLETIN 8000.
2. REFERENCE INSTALLATION OF INTRINSICALLY SAFE SYSTEMS IN CLASS 1 HAZARDOUS LOCATIONS, ANSI/ISA-RP 12.6-1987, SECTION 4.5.4.
3. WARNING SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
4. INSTALL IN ACCORDANCE WITH ARTICLE 504 OF THE NATIONAL ELECTRICAL CODE.
5. MAXIMUM CABLE LENGTH TO EPG LEVEL SENSOR IS 3000 FEET. MAXIMUM LENGTH IS 1800 FEET IF LIGHTNING ARRESTOR IN CIRCUIT.

I.S. BARRIER - FLOW SENSOR

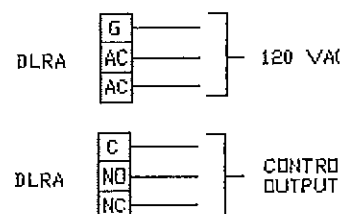


- NOTE: 1. PROVIDES INTRINSICALLY SAFE CIRCUIT EXTENSIONS FOR USE IN CLASS 1 GROUPS C & D HAZARDOUS LOCATIONS WHEN CONNECTED PER EPG BULLETIN 8000.
2. REFERENCE INSTALLATION OF INTRINSICALLY SAFE SYSTEMS IN CLASS 1 HAZARDOUS LOCATIONS, ANSI/ISA-RP 12.6-1987, SECTION 4.5.4.
3. WARNING SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
4. INSTALL IN ACCORDANCE WITH ARTICLE 504 OF THE NATIONAL ELECTRICAL CODE.
5. MAXIMUM CABLE LENGTH TO EPG FLOW SENSOR IS 500 FEET.

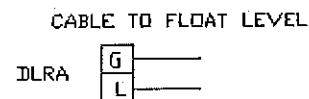
I.S. RELAY BARRIER - SINGLE LEVEL



INTERNAL WIRINGS



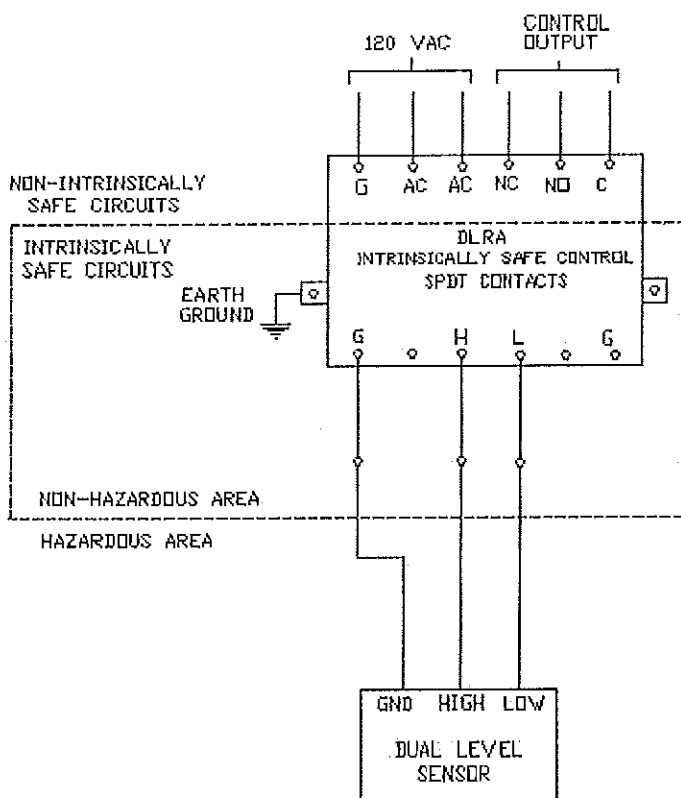
FIELD WIRING TERMINALS



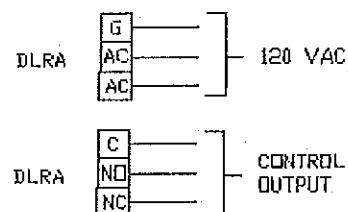
NOTE: MAXIMUM CABLE LENGTH TO LEVEL FLOAT IS 901

- NOTE: 1. PROVIDES INTRINSICALLY SAFE CIRCUIT EXTENSIONS FOR USE IN CLASS 1 GROUPS A, B, C, & D HAZARDOUS LOCATIONS WHEN CONNECTED PER EPG BULLETIN 8000.
2. REFERENCE INSTALLATION OF INTRINSICALLY SAFE SYSTEMS IN CLASS 1 HAZARDOUS LOCATIONS, ANSI/ISA-RP 12.6-1987, SECTION 4.5.4.
3. WARNING SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
4. INSTALL IN ACCORDANCE WITH ARTICLE 504 OF THE NATIONAL ELECTRICAL CODE.
5. MAXIMUM CABLE LENGTH TO LEVEL FLOAT SENSOR IS 900 FEET.

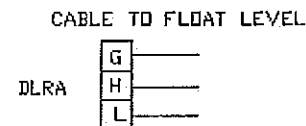
I.S. RELAY BARRIER - DUAL LEVEL



INTERNAL WIRINGS



FIELD WIRING TERMINALS

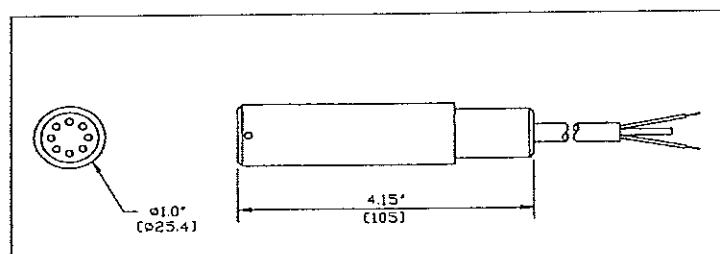


NOTE: MAXIMUM CABLE LENGTH TO LEVEL FLOAT IS 900'

- NOTE: 1. PROVIDES INTRINSICALLY SAFE CIRCUIT EXTENSIONS FOR USE IN CLASS 1 GROUPS A, B, C, & D HAZARDOUS LOCATIONS WHEN CONNECTED PER EPG BULLETIN 8000.
2. REFERENCE INSTALLATION OF INTRINSICALLY SAFE SYSTEMS IN CLASS 1 HAZARDOUS LOCATIONS, ANSI/ISA-RP 12.6-1987, SECTION 4.5.4.
3. WARNING SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
4. INSTALL IN ACCORDANCE WITH ARTICLE 504 OF THE NATIONAL ELECTRICAL CODE.
5. MAXIMUM CABLE LENGTH TO LEVEL FLOAT SENSOR IS 900 FEET.

ENGINEER'S SPECIFICATION

EPG LevelMaster™ PT Submersible Level Sensor



GENERAL FEATURES

- * **Application:** The LevelMaster sensor is designed specifically to work with the EPG SurePump™, but its durability, accuracy and weight make it the logical choice for stand alone level applications. The chemical resistant jacketed cable with water block contains a vent tube for atmospheric pressure compensation.
- * **Ranges Available:** 0-55" through 0-690' models are standard. Call EPG for other available ranges.
- * **Accuracy:** The LevelMaster sensor has built-in temperature compensation as well as precise calibration giving an accuracy of $\pm 1.0\%$ at ambient temperature and a combined repeatability and hysteresis error of $\pm .125\%$.
- * **Fully Submersible:** The LevelMaster sensor is fully submersible in any liquid compatible with 316 stainless steel and the chemical resistant polyurethane cable jacket. It is designed for submergence at depths greater than operating level without sustaining damage. Call EPG for more severe service.
- * **Self-Sealing Cable:** If a cut occurs in the outer jacket of the cable, a water block feature just inside the outer jacket will self-seal in most cases guarding against the incursion of water.
- * **Superior Noise Immunity:** Designed for heavy duty use in hostile environments, the LevelMaster sensor gives outstanding noise immunity. Unlike transducers, whose signals may be distorted by outside interference, the LevelMaster sensor utilizes a conditioned compensated 4-20 mA output to maximize signal strength and accuracy. The sensor also features a shielded lead to help prevent signal disruption from outside sources.

PERFORMANCE

- * **Depth Range:** 0-55" thru 0-690' (0-2 PSI thru 0-300 PSI)
 - * **Static Accuracy¹:** $\pm 1.0\%$ BFS/LSL maximum
 - * **Thermal Error²:** 0.05% FSO/°C worst case
 - * **Proof Depth:** 1.5 X rated depth
 - * **Burst Depth:** 2.0 X rated depth
 - * **Resolution:** Infinitesimal
1. Static accuracy includes the combined errors due to nonlinearity, hysteresis and non-repeatability on a Best Fit Straight Line basis, at 25°C per ISA S51.1.
 2. Thermal error is the maximum allowable deviation from the Best Fit Straight Line due to a change in temperature, per ISA S51.1.

ELECTRICAL

- * Excitation: 10 to 40 VDC, Red = (+) excitation, Black = (-) excitation
- * Input Current: 20 mA maximum
- * Output: 4-20 mA (2 wire)
- * Zero offset (max): 4-20 mA, ± 12 mA
- * Output impedance: <10 ohms
- * Insulation resistance: 100 megohms at 50VDC
- * Circuit protection: Polarity, surge & shorted output
- * Power supply rejection: $<\pm 0.05\%$ FSO/VDC (mA output)
- * Electrical termination: 2-24 AWG conductors in a shielded cable with sensor breather and polyurethane jacket

ENVIRONMENTAL

- * Compensated temp range: 0° to 50°C
- * Operating temp range: -20° to 70°C

PHYSICAL

- * Dimensions: Nominal diameter of 1.0" X 4.15" length
- * Weight: 7 oz. (not including cable)
- * Cable: Polyurethane jacketed shielded cable with polyethylene vent tube and Kevlar tension members
- * Wetted materials: 316 SS, Viton
- * Mounting provision: Suspended by cable
- * Lightning Protection: Increases length to 8.15"

MODEL {Call EPG for other ranges available – specify length (---)}

PART #	DESCRIPTION	RANGE
PT05X---	Submersible Pressure Transmitter	0-11'
PT07X---	" " "	0-16'
PT10X---	" " "	0-23'
PT20X---	" " "	0-46'
PT25X---	" " "	0-57'

OPTIONS

- * Tefzel® Cable: Used for highly corrosive environments
- * Titanium Housing: Used for highly corrosive environments
- * Lightning Protection: Protects against transient voltages and lightning associated surges up to 20,000 amperes with proper grounding
- * Temperature Sensor: A sensor with 4-20 mA output for temperature (0-50°C) is available –
Excitation: 9-30 VDC, White = (+) excitation, Green = (-) excitation

EPG LevelMaster™ Level Sensor

OPERATION & MAINTENANCE INSTRUCTIONS

Characteristics of the LevelMaster Level Sensor

EPG Companies Inc. LevelMaster level sensor is a submersible pressure transmitter. The pressure transmitter is a precision measurement device that incorporates isolated diaphragm sensors that are specifically designed for use with hostile fluids and gases. The sensor utilizes a silicon pressure cell that has been fitted into a stainless steel package with a stainless steel barrier diaphragm. The sensor assembly is housed in a rugged 316 stainless steel case.

The device features a high performance internal signal conditioning. Standard output is 4 to 20 mA. All units have surge and reverse polarity protection.

All EPG transmitters are permanently etched with wiring information, part number (P/N), serial number (S/N), date of manufacture (DOM), range, excitation, and output.

All EPG transmitters are designed for rugged use. However, care should be taken to protect these devices from overpressure and sharp impact. When lowering submersible pressure transmitters into a liquid, penetrate the surface slowly and only to the depth necessary. Do not drop the unit from above the surface. All transmitters can be cleaned by rinsing them in mild detergent. Do not pressure wash.

Vent Filter / Water Vapor Trap

The vent filter and water vapor trap is a replaceable vent tube dehumidifier intended for use with the submersible pressure transmitters. This device is specifically designed to protect sensitive electronic components from mildew, corrosion, rust, and other forms of deterioration while at the same time preventing the formation of a liquid column.

Vent filters should be changed when they are 85% spent. Do not remove the old filter until a new one is available. The number one failure mode is moisture and corrosion damage due to lack of maintenance of the vent filter. The vent filter connects to the existing vent tube as it exits the cable at the junction box via a tube.

Replacement vent filters can be ordered by calling EPG at 800-443-7426. The vent filter and water vapor trap can be exposed to air, industrial gases, refrigerants, organic liquids, and solvents. However, they should not be used when ammonia is present.

Specifications

Most installations of submersible pressure transmitters connect the cable directly to the control panel or to a breakout box (junction box). From this breakout box, end users must run cable to the required instrumentation. Specifications for the polyurethane or Tefzel jacketed cable is as follows:

- * Excitation: 10 to 40 VDC, Red = (+) excitation, Black = (-) excitation
- * Input Current: 20 mA maximum
- * Output: 4-20 mA (2 wire)
- * Zero offset (max): 4-20 mA, ± 12 mA
- * Output impedance: <10 ohms
- * Insulation resistance: 100 megohms at 50VDC
- * Circuit protection: Polarity, surge & shorted output
- * Power supply rejection: < $\pm 0.05\%$ FSO/VDC (mA output)
- * Electrical termination: 2-24 AWG conductors in a shielded cable with sensor breather, water block, and polyurethane jacket
- * Compensated temp range: 0° to 50°C
- * Operating temp range: -20° to 70°C
- * Dimensions: Nominal diameter of 1.0" X 4.15" length
- * Weight: 7 oz. (not including cable)
- * Cable: Polyurethane jacketed shielded cable with polyethylene vent tube and Kevlar tension members
- * Wetted materials: 316 SS, Viton
- * Mounting provision: Suspended by cable

Polyurethane Cable

The standard cable is polyurethane and will handle most environments and has a self-sealing feature. If a cut occurs in the outer jacket of the cable, a water block feature below the outer jacket will self-seal in most cases to guard against the incursion of water.

Chemical Resistance of Polyurethane

Potable Water, Waste Water, Borax, Butane, Animal Fat, Carbonic Acid, Citric Acid, Cod Liver Oil, Corn Oil, Glycerin, Glycol, Mineral Oils, Potassium Nitrate, Potassium Sulfate, Silicone Oils, Stoddard Solvent, Tannic Acid (10), Tartaric Acid, Turbine Oil, and most Leachate.

Tefzel® Cable

Optional Tefzel cable is recommended for use in highly corrosive environments. It offers additional resistance in corrosive environments over the standard polyurethane cable.

Chemical Resistance of Tefzel

Acetic Acid (Glacial), Acetic Anhydride, Acetone, Aluminum Chloride, Anti-Freeze, Bromine, Calcium Chloride, Calcium Hydroxide, Chlorine, Copper Chloride, Ferrous Chloride, Hydrochloric Acid, Ketones, Lacquer Thinners, Leachate, and Sulfuric Acid.

Cable Lengths

The maximum length of cable to be used with the submersible pressure transmitter is up to 10,000 feet.

OPTIONS

- * Titanium Housing: Used for highly corrosive environments
- * Lightning Protection: Protects against transient voltages and lightning associated surges up to 20,000 amperes
- * Temperature Sensor: A sensor with 4-20 mA output for temperature (0-50°C) is available –
Excitation: 9-30 VDC, White = (+) excitation, Green = (-) excitation.

EPG LevelMaster™ Level Meter

Model CH1000-SDHH

OPERATION & SET UP INSTRUCTIONS

The EPG LevelMaster system uses a submersible pressure transmitter to detect changes in fluid levels and a programmable meter featuring a digital LED display and front panel keypad to monitor and control fluid levels. The user can program the desired control parameters for a single pump and one other high level levels. The LevelMaster display is in inches unless otherwise programmed. During a pumping and/or an alarm condition, the display alternates between the message and the current liquid level reading. The message indicates which function is active (see below).

GENERAL SETUP OPERATIONS

IMPORTANT: During setup, if three (3) minutes elapse without a keypad entry the meter automatically returns to the run mode without the entered changes being stored. **DO NOT USE FINGERNAIL OR OTHER SHARP OBJECT TO PROGRAM METER. DAMAGE TO KEYPAD MAY RESULT.**

DISPLAY	INSTRUCTION
SETUP	At this prompt, enter the lockout code (35) in order to enter the set point setup mode.
Pr HI	At this prompt, followed by the current setting, select the Pump Relay High set point. This is the pump ON set point.
Pr Lo	At this prompt, followed by the current setting, select the Pump Relay Low set point. This is the pump OFF set point.
AL HI	At this prompt, followed by the current setting, select the Alarm High Relay set point. This is the high level alarm set point.
Hy HI	At this prompt, followed by the current setting, select the hysteresis for the Alarm High Relay set point. This value, when subtracted from the high level alarm set point, sets the shut off point for the high level alarm .
AL H2	At this prompt, followed by the current setting, select the Alarm High-High Relay set point. This is the high-high alarm level set point and is factory set.
Hy H2	At this prompt, followed by the current setting, select the hysteresis for the Alarm High-High Relay set point. This value, when subtracted from the high-high level alarm set point, sets the shut off point for the high-high level alarm and is factory set.

DISPLAY	MESSAGE
P	Pump activated. "P" and the current level reading will alternate on the display.
HiP	High alarm & pump activated. "HiP" and the current level reading will alternate on the display.
HiPH2	High-High alarm & pump deactivated. "HiPH2" and the current level reading will alternate on the display.

SET UP PROCEDURES FOR SIMPLEX OPERATION – SDHH METER

STEP NO.	ACTION
1	Push SETUP/ENTER button. Wait for the meter to display 0.
2	Push arrow buttons to set a value of 35 on meter display. Push SETUP/ENTER.
3	Meter shows Pr Hi (pump ON set point) followed by current value.
4	Push arrow buttons to set the desired level for pump ON. Push SETUP/ENTER button.
5	Meter shows Pr Lo (pump OFF set point) followed by current value.
6	Push arrow buttons to set the desired pump OFF level. Push SETUP/ENTER button.
7	Meter shows AL Hi (High Level Alarm) followed by current value.
8	Press arrow buttons to set desired high level alarm point. Push SETUP/ENTER button.
9	Meter shows Hy Hi . Press arrow buttons to select how far below the high level point the alarm will shut off. Push SETUP/ENTER button.
10	Meter shows AL H2 (High-High level alarm set point) followed by current value. Factory setting is 150.0". NOTE: This fail safe feature shuts off the pump if the level sensor fails and <u>should not be changed in the field.</u>
11	Meter shows Hy H2 . Press arrow buttons to select value of 0.0". Not used.
12	Push SETUP/ENTER button. Meter returns to normal operation.

EXAMPLE:

If the desired levels for the pump were:

Pump ON	18.0"
Pump OFF	12.0"
High Level Alarm	30.0"
High Level Alarm Hys.	1.0"

Complete steps 1 – 3 above.

Select **18.0** with arrow buttons for the **Pr Hi** value. Push SETUP/ENTER.

Pr Lo is displayed, select **12.0** with the arrow buttons for the Pump OFF value. Push SETUP/ENTER.

AL Hi is displayed, select **30.0** with the arrow buttons for the High Alarm value. Push SETUP/ENTER.

Hy Hi is displayed, select **1.0** with the arrow buttons for the High Level Alarm OFF value (value determined by subtracting from high-level-alarm set-point). Push SETUP/ENTER.

INSTALLATION NOTES AND TROUBLESHOOTING

BACKGROUND: Numerous installations of the EPG LevelMaster system have proven its long-term reliability. The majority of malfunctions of the LevelMaster system are the result of improper installation and handling of the pressure transmitter sensor. During new installations, be certain to check for any shipping damage, loose controller connections or parts that may have come loose during shipment.

CAUTION

Do not use any other programming codes other than setup code (35).

SYMPTOM / DISPLAY	PROBABLE CAUSES	HOW TO CORRECT
Continuous above full scale reading (above 139"), or Continuous reading.	If pump has been off for a long period of time, liquid level may actually be quite high. Loose connections in circuit. Short circuit in sensor lead wire or connector or circuit. Faulty sensor.	Reprogram meter if above 150" or pull pump up slightly to initiate pump start. Repair connections in controller. Inspect for shorted connections at breakout box (junction box) and at controller. If connections are good, replace sensor. Replace sensor.
-34.6 reading.	Lead wire damaged or reversed connections. Open circuit in sensor lead wire or controller connections. Faulty power supply in meter.	Check schematic, repair connections. Replace sensor and lead wire. Test IS barrier and meter with simulator. Replace meter.
Erratic readings.	Damaged sensor lead wire. Improper connections. Faulty meter.	Check schematic, repair connections. Replace sensor and lead wire. Test meter with simulator. If faulty meter, replace meter.

Pump starts at normal reading, runs for a few seconds and stops.	Low liquid recovery rate. Screen on pump may be clogged.	Remove pump and clean screen. May also need to disassemble pump and clean pump impellers.
	Sump clogged or plugged.	Remove pump and clean out sump.

FACTORY SETTINGS

LevelMaster Model SDHH Meter

Panel S/N: _____

Meter S/N: _____

Meter Designation: _____

Operating Parameters – Setup Code 35

PARAMETER	VALUE	OPERATION
Pr HI	inches	Turns Pump ON when level on meter reads ____
Pr Lo	"	Turns Pump OFF when level on meter reads ____
AL HI	"	Turns High Level Light ON when level on meter reads ____
Hy HI	"	Keeps High Level Light ON until level drops ____ below AL HI
AL H2	150.0	Turns Pump OFF when level meter reads 150.0". Greater indicates a probable level sensor failure.
Hy H2	0.0	Not used

NOTE: If the up arrow is pressed any time that the meter is operating, the highest level that the meter has observed since power was applied will be displayed.

S3070-PT TRANSDUCER SIMULATOR

Operation

The model 3070-PT Transducer Simulator is a device designed for testing an EPG LevelMaster™ level controller circuit while temporarily bypassing the existing level sensor.

In the “Run” (normal operation) mode liquid level in the sump applies pressure on the level sensor. The sensor converts that force into an electrical signal. The electrical signal is transmitted by the sensor cable to the level meter where it is converted into a liquid level display.

The “Test” mode simulates a level sensor signal. Rotating the potentiometer changes the electrical signal forcing the system to function as if a level sensor were in the circuit. Varying the electrical signal changes the level meter display in the same manner in which the level sensor signal would effect the system. By turning the simulator knob slowly clockwise from top to bottom the meter will display each set point such as start, stop and alarms. With the toggle switch turned back to the “Run” position the potentiometer is removed from the circuit and the level sensor controls according to the set points. Meter values register actual liquid level.

“CAUTION”, care must be taken when using this device in “Test” mode to avoid damaging the motor by running it dry. In normal test mode the pump switch should be turned to OFF.

S3070-PT TRANSDUCER SIMULATOR

Test Procedure

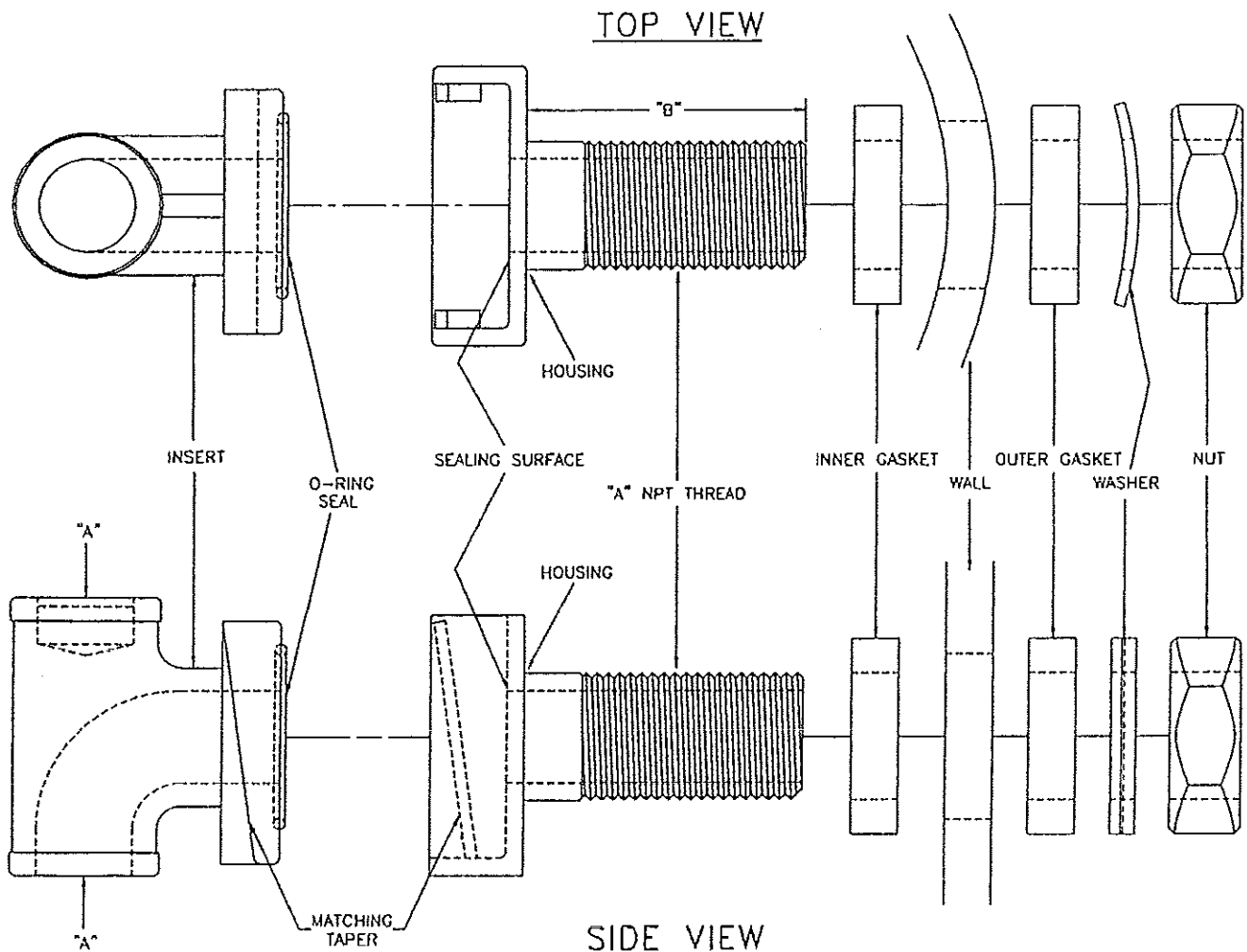
1. When the toggle switch is in the "Run" position the controls should function normally.
2. When the toggle switch is in the "Test" position (pressure transducer temporarily removed from the control circuit) the level meter should display the liquid level. By turning the simulator knob slowly clockwise from top to bottom the meter will display each set point such as start, stop, and alarms. Care must be taken when using this device in the "Test" mode to avoid damaging the motor by running it dry. In normal test mode the pump switches should be off.
3. Make sure that the potentiometer has full travel (270 degrees maximum) in both clockwise and counter-clockwise directions.
4. Make sure that all of the wires on the rear of the simulator (wires 200, 201, 202, 203) are connected in the proper position.
5. Replace the transducer simulator if it does not function as described above.

Model NW Stainless Steel Discharge Adapter

**For Leachate, Monitoring, and
Remediation Piping
Applications**

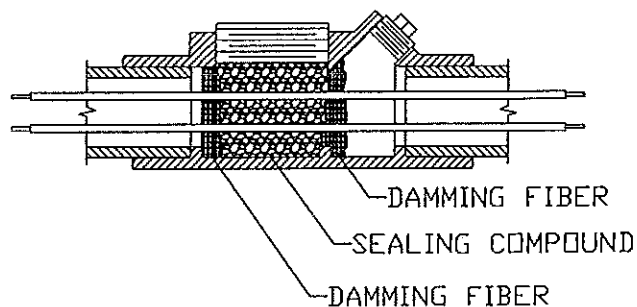
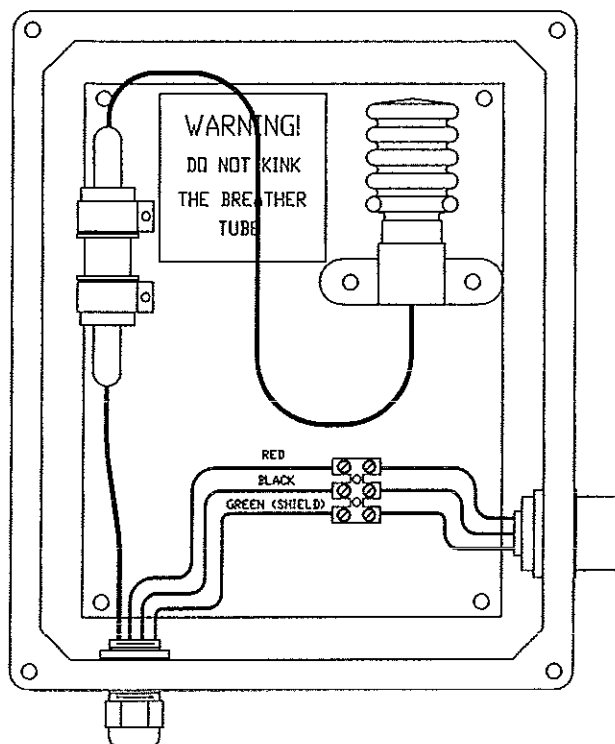
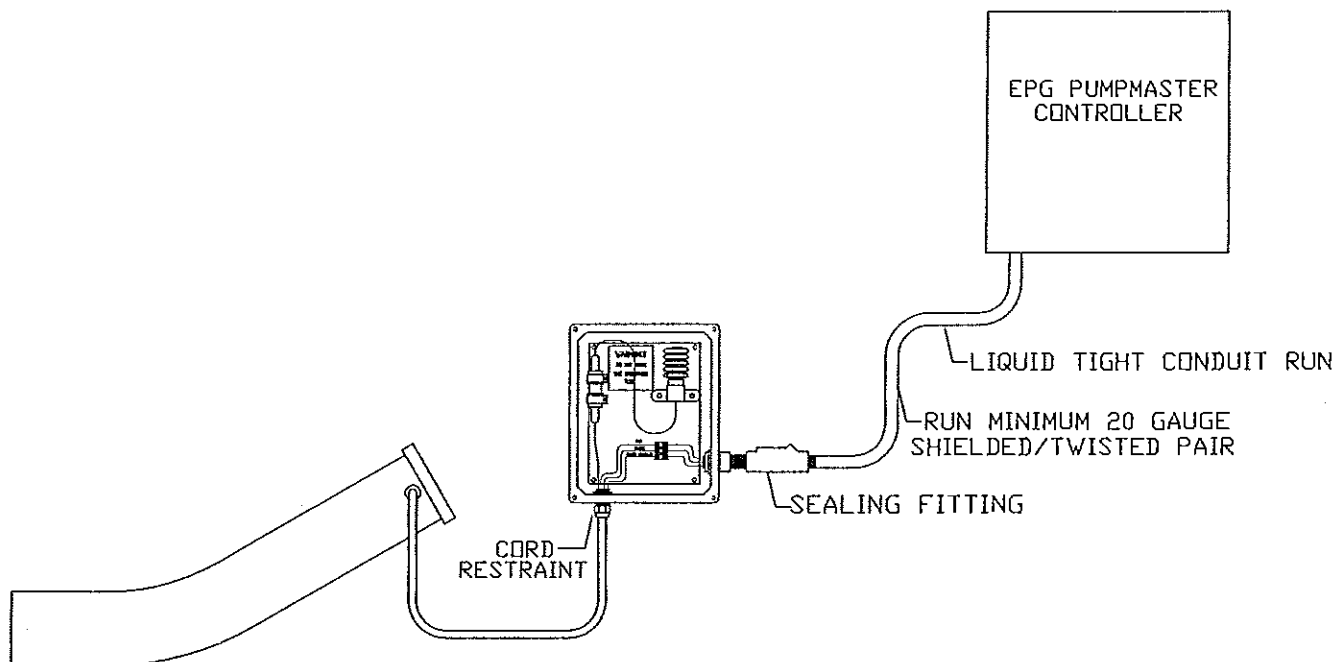
MODEL	"A"	"B"	Minimum I.D.	Weight (lbs.)
NW1SS	1" NPT	4"	8"	6
NW1.25SS	1.25" NPT	4"	8"	7
NW1.5SS-C	1.5" NPT	4"	8"	8
NW2SS-C	2" NPT	5"	8"	12
NW3SS	3" NPT	6.25"	12"	26
NW4SS	4" NPT	8.125"	12"	33

- 316 stainless steel construction for "C" models. All others are 304 Stainless Steel
- Insert and housing are tapered for easy installation and removal
- O-Ring seal
- EPDM gasket for inner and outer wall seal
- Extended length nipple on housing allows adapter to fit from 1/4" to 4" thick wall pipe
- 1", 1.25", 1.5", 2", 3", 4" NPT sized fittings for pump pipe, lift out pipe and discharge pipe



BJBL 600B

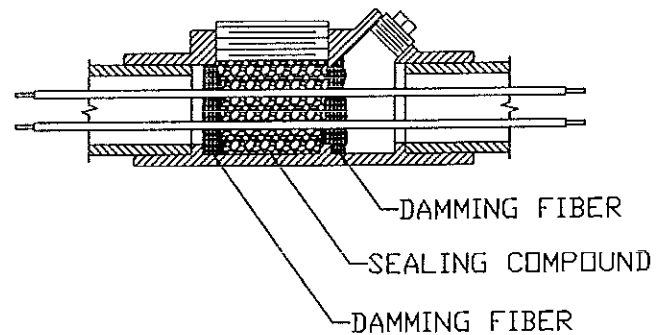
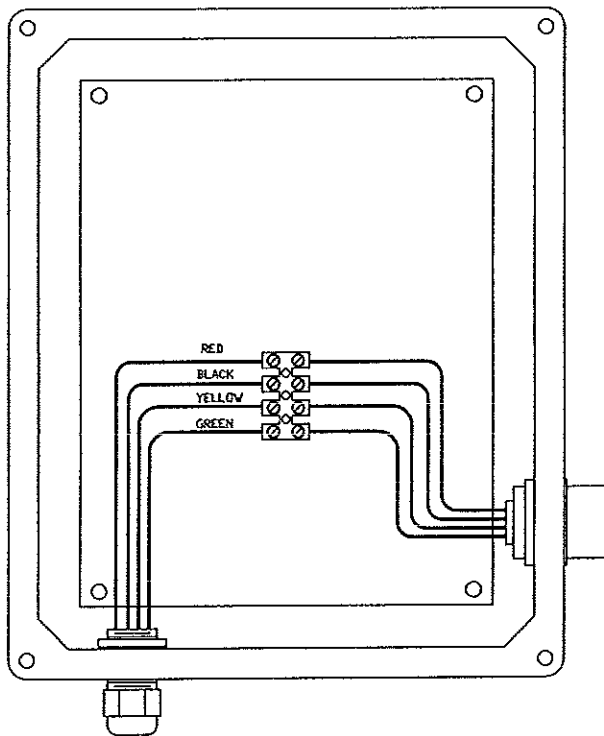
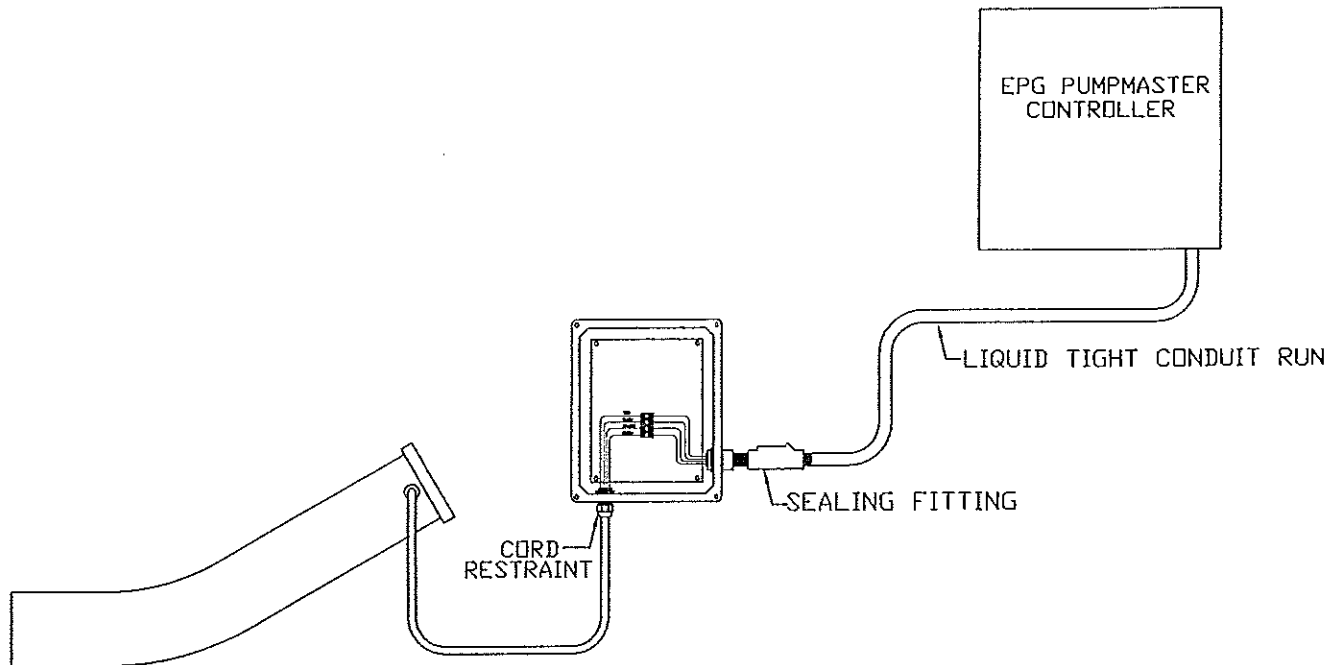
BREAKOUT JUNCTION BOX FOR LEVEL SENSOR



* NOTICE * © EPG Companies Inc. 2002				
REFERENCE				
EPG COMPANIES				
TYPICAL INSTALLATION				
TOLERANCES	REVISIONS			
DECIMAL	NO.	DATE	BY	
FRACTIONAL	1			
ANGULAR	2			
	3			
	4			
	5			
DRAWN		DATE		DRAWING NO.
C.A.S.		05/07/02		02523-0605
CHK'D		APP'D		

BJBP 500

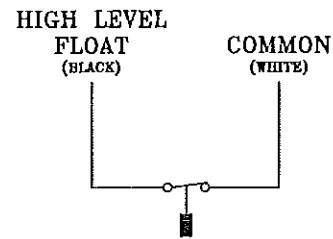
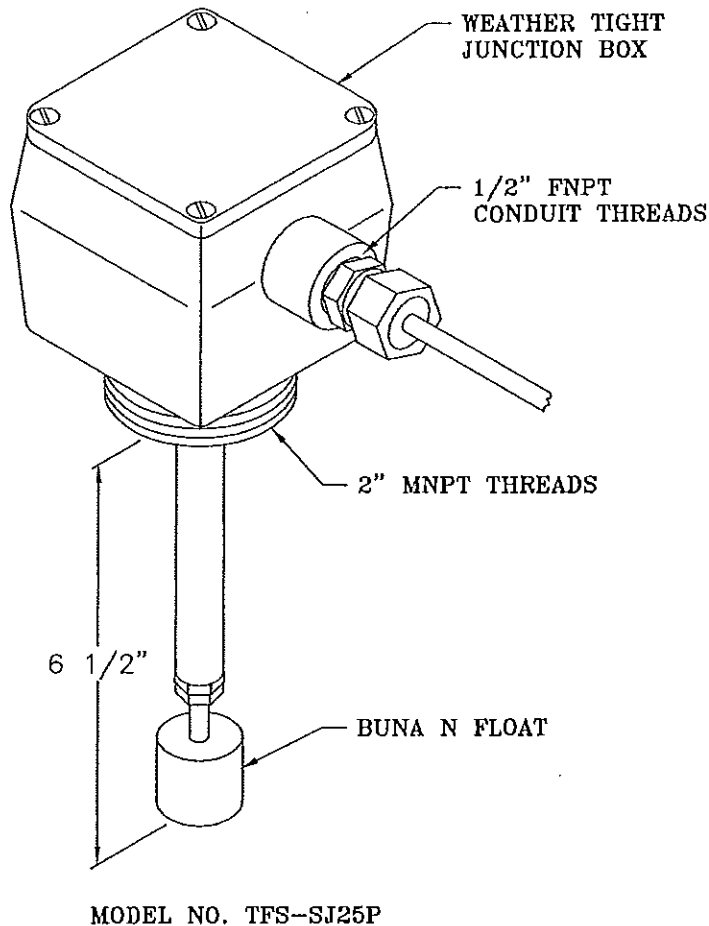
BREAKOUT JUNCTION BOX FOR MOTOR LEAD



* NOTICE *					
© EPG Companies Inc. 2002					
REFERENCE					
TOLERANCES		REVISIONS		EPG COMPANIES	
EXCEPT AS NOTED		NO.	DATE	BY	
DECIMAL	1				
	2				
FRACTIONAL	3				
	4				
ANGULAR	5				
		REVISION	C.A.S.	SCALE	NONE
		DATE	C.A.S.	DATE	05/07/02
		APP'D		APP'D	03626-0500

SENSOR DATA SHEET

EPG Tank Full Level Sensor



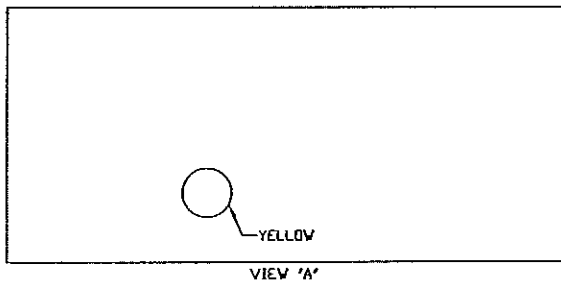
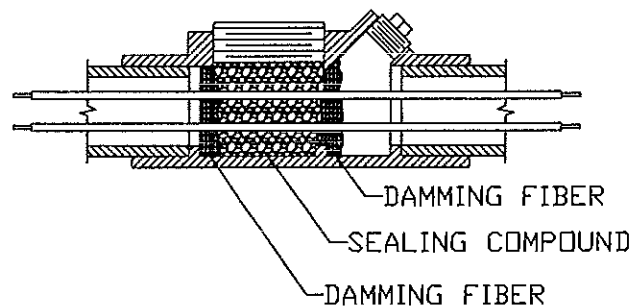
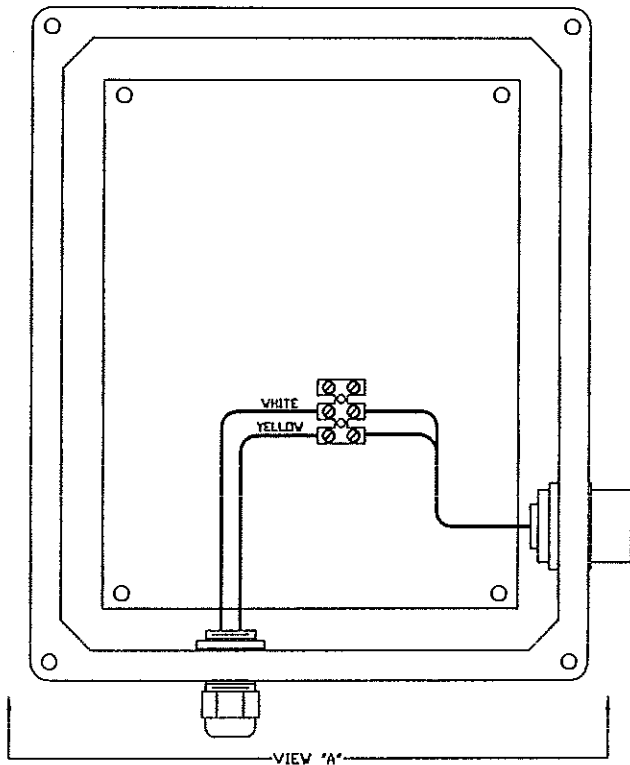
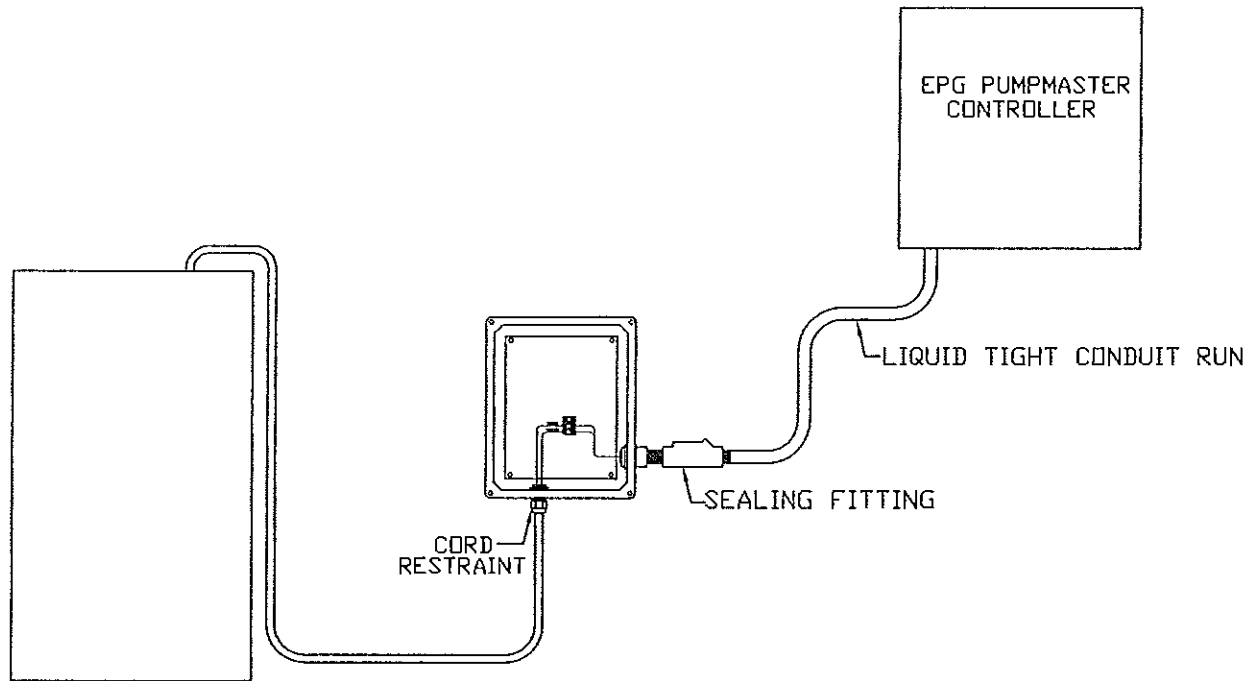
TYPICAL WIRING DIAGRAM

SENSOR LOGIC AND FUNCTION

EPG's tank full sensor is a level displacement sensor (float) that is used to monitor a tank liquid level. The sensor is normally closed (N.C.) and includes 25' of SJ cord and a weathertight junction box with two inch male pipe threads (2" MNPT) as standard. The tank full sensor is commonly used to monitor the liquid level in a water or product storage tank. It is installed into the top of the tank and will float when submerged in water or petroleum products. When the fluid level rises to the point where the float is submerged, signal status will change. The tank full sensor can be used to send a signal to enable or disable the influent pump, and to annunciate a tank high level alarm. This prevents tank overfilling. When used as a product tank full level sensor, the sensor typically sends a signal to an intrinsically safe relay, which outputs an alarm condition. This control circuit has an energy potential so low that it is incapable of causing ignition of flammable or combustible materials. Maximum load of sensor is one (1) Amp and maximum voltage is 240 VAC.

BJBF 400

BREAKOUT JUNCTION BOX FOR ONE FLOAT

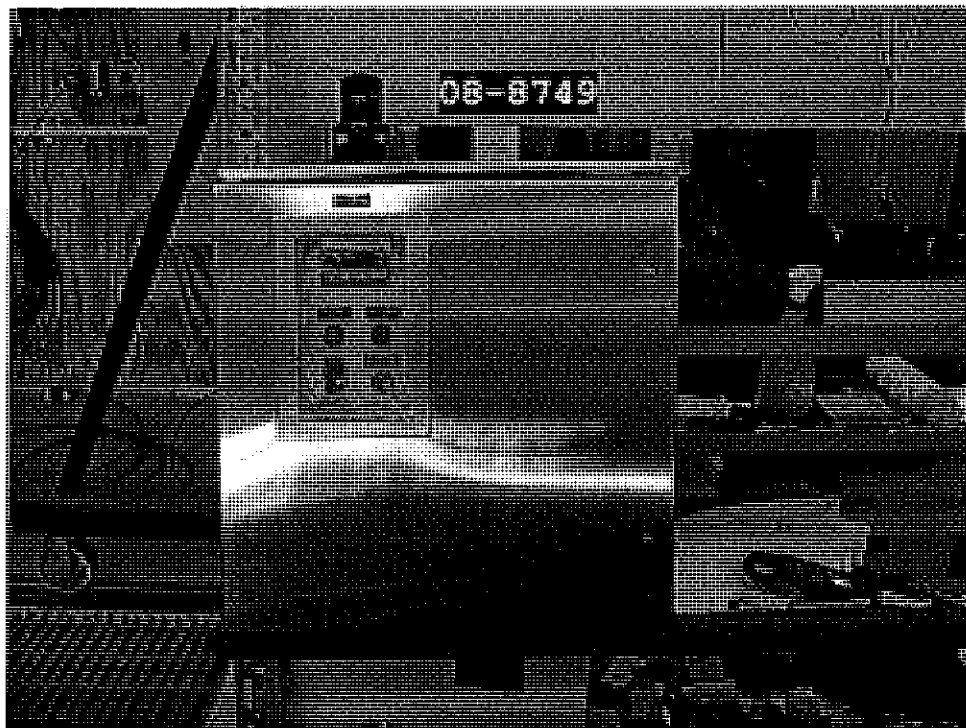


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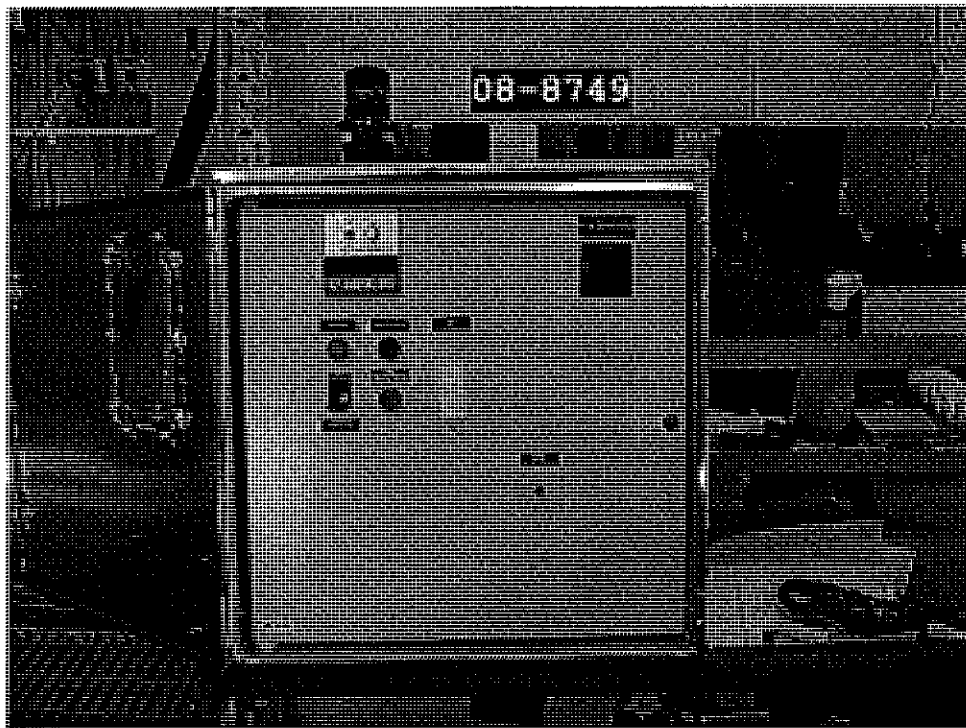
REFERENCE

TOLERANCES EXCEPT AS NOTED	REVISIONS			EPG COMPANIES			
	NO.	DATE	BY	TYPICAL INSTALLATION			
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FRACTIONAL ±	2			DRAWN	A.L.D.	DATE	05/01/03
ANGULAR ±	3			CHECKED	W.P.D.	DRAWING NO.	04078-0400

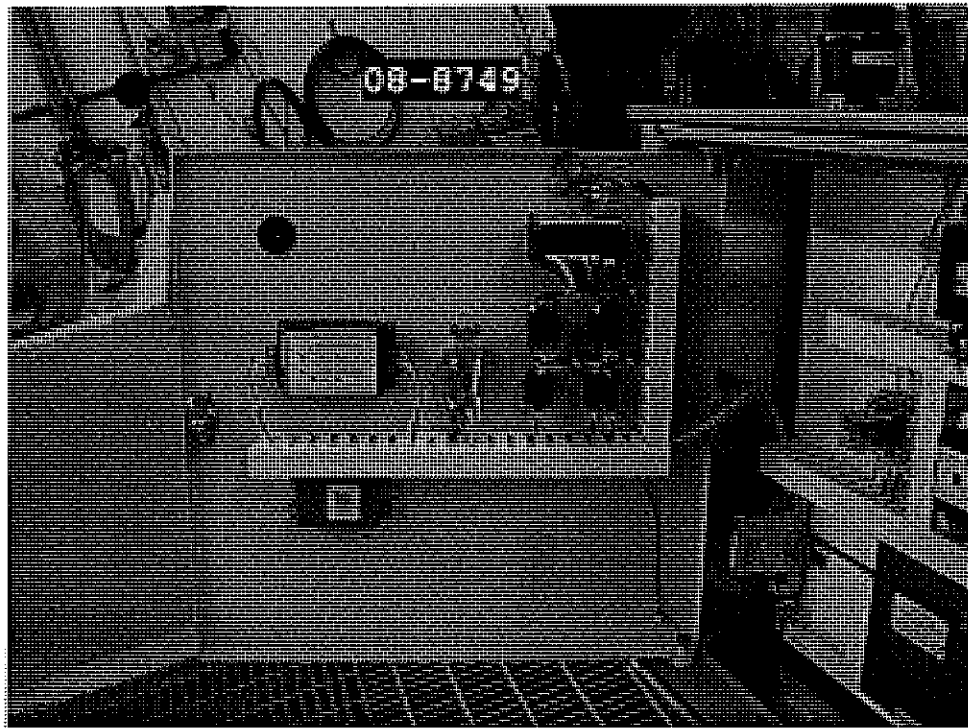
EPG Companies Inc.



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LIMITED WARRANTY

This agreement shall be deemed to have been entered into in the State of Minnesota, and shall be construed in accordance with the laws of the State of Minnesota, including Minnesota's enactment of the Uniform Commercial Code. Buyer hereby stipulates and agrees that Hennepin County, Minnesota shall be the proper jurisdiction for adjudicating all claims and controversies arising from this agreement.

Products manufactured by EPG Companies Inc. are warranted for a period of 12 months from date of installation or eighteen (18) months from date of manufacture* to be free from defects of materials and workmanship. It is expressly agreed that the exclusive remedy under this warranty is limited solely to the repair or replacement, at the sole discretion of EPG, of the part that failed. The cost of labor for any field repairs is not covered by this warranty. EPG Companies will not be liable for any damage or wear due to abnormal conditions or improper installation.

Products not manufactured by EPG Companies Inc. are covered by the original manufacturer's warranty, which EPG Companies passes through to the purchaser. The actual manufacturer will make warranty determination.

To have a defective part repaired or replaced, you must return the defective product to EPG Companies. Please call (800) 443-7426 or (763) 424-2613 to obtain a Return Goods Authorization (RGA) number. Send defective product (freight prepaid) with RGA #, description of installation, installation data and failure date to EPG Companies Inc., 19900 County Rd. 81, Maple Grove, MN 55311.

EPG Companies will not be held liable for any incidental or consequential damages, losses or expenses incurred from installation, use or any other reason. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF EITHER FITNESS FOR A PARTICULAR PURPOSE OR OF MERCHANTABILITY, WHICH EXTEND BEYOND THOSE SPECIFICALLY LISTED HERE.

If equipment is to be stored for a period greater than six months, proper storage precautions must be taken if the warranty is to be maintained. Please call EPG Companies for specific requirements regarding product storage.

The following is a partial list of items, which will void the warranty:

- Opening the motor for any reason.
- Using undersized electrical wire.
- Making unauthorized circuit changes. Please call EPG Companies before making any changes.
- Operating a three phase submersible motor from single phase power through a phase converter unless 3-leg ambient-compensated quick trip overload protectors are used and complete details are sent in writing to EPG Companies.

* To qualify for the delayed installation warranty you must contact EPG Companies Inc., at (800) 443-7426 or (763) 424-2613 within 60 days of purchase.

APPENDIX V

PROJECT PHOTOGRAPHIC LOG



Looking west at excavation of Cell 1



Looking southwest at excavation of north end of Cell 1



Installation of subgrade on south end of Cell 1



Looking south at installation of compacted clay liner



Looking south at completed clay liner



Installation of sump at north end of Cell 1



Looking northwest at 60-mil geomembrane liner installation in Cell 1



Looking south at completed 60-mil geomembrane liner installation in Cell 1



Looking south east at installation of protective cover layer



Looking west at construction of north perimeter road