Parkhill

February 26, 2025

Ms. Leigh Barr
Environmental Permitting Group Supervisor
Oil Conservation Division
NM Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: OWL Landfill Services, LLC Engineering Certification Report
Landfill Cell 1B/2B Construction (4203523)

Dear Mr. Griswold:

This submittal is provided as engineering certification for the construction of Landfill Cell 1B/2B at OWL Landfill Services, LLC (OWL), located in Lea County, New Mexico. Specifically, this Certification Report demonstrates the double containment liner and leak detection system for Cell 1B/2B have been installed in compliance with the following applicable documents and regulatory requirements:

- Approved Construction Quality Assurance (CQA) Plan October 2016.
- Construction Plans and Project Technical Specifications for Landfill Cell 1B/2B Construction, OWL Landfill Services, LLC.
- New Mexico Energy, Minerals and Natural Resources Department Regulations (19.15.36.1-19.15.36.20).
- Approved Permit and Permit Conditions (August 2017).
- Geosynthetic Research Institute (GRI) and American Society of Testing Materials (ASTM) and Industry Standards.

The following Certification Report describes the activities and procedures performed during the construction of Cell 1B/2B to document compliance with the approved Engineering Design Plans, Project Specifications, and the CQA Plan. We appreciate the opportunity to work with the OCD regarding the construction quality assurance for the construction of Cell 1B/2B at OWL Landfill Services, LLC. Please contact us with your questions and comments regarding this Engineering Certification Report (tkrueger@parkhill.com; 325.227.0111).

Sincerely,

PARKHILL

By _____
Tyler S. Krueger, PE
Project Engineer

TSK/jg/*pp*
Enclosures

cc: Zach Ramos, OWL Landfill Services, LLC
Dr. Richardson, PhD, PE, BCEE, New Mexico Tech

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ENGINEERING CERTIFICATION REPORT LANDFILL CELL 1B/2B CONSTRUCTION

Oilfield Water Logistics Landfill Services, LLC

TYLER S. KRUEGER
NEW MEXICO
24922
PROFESSIONAL ENGINEER

2/26/2025

Submitted to:
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Dr. #3
Santa Fe, New Mexico 87505

Prepared for:
OWL Landfill Services, LLC
Lea County, New Mexico

January | 2025
Parkhill Project # 4203523

Parkhill

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TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 EMNRD OCD NOTIFICATION 1
1.2 PROJECT DESCRIPTION 1
1.3 PROJECT OVERVIEW 1
1.4 REPORT ORGANIZATION 2
1.5 QUALIFICATIONS 3
1.5.1 Mr. Tyler S. Krueger, PE, Engineer-Of-Record, Site CQA Engineer/Manager 3
1.5.2 Mr. Matt Kingsley, PE, Senior Project Manager 3
1.5.3 Mr. Max White, RPR, Construction Phase Services, Site CQA Manager 3

2.0 LANDFILL CELL 1B/2B CONSTRUCTION 3
2.1 SUMMARY 3
2.2 SUBGRADE PREPARATION 5
2.2.1 Clearing, Grubbing, and Mass Excavation 5
2.2.2 Coordinate System 5
2.2.3 Subgrade and Berm Compaction 5
2.2.4 Subgrade Acceptance 5
2.3 GEOSYNTHETIC CLAY LINER 6
2.3.1 Geosynthetic Clay Liner Product 6
2.3.2 Geosynthetic Clay Liner Installation 6
2.3.3 Geosynthetic Clay Liner Testing 6
2.3.3.1 Geosynthetic Clay Liner Manufacturing Quality Control (MQC) and Manufacturing Quality Assurance (MQA) 7
2.3.3.2 Conformance Testing 7
2.3.3.3 Construction Quality Control (CQC) for Geosynthetic Clay Liner 8
2.3.3.4 Construction Quality Assurance (CQA) for Geosynthetic Clay Liner 8
2.3.4 Geosynthetic Clay Liner Deployment Records 8
2.4 60-MIL SECONDARY FLEXIBLE MEMBRANE LINER 8
2.4.1 Flexible Membrane Liner Product 8
2.4.2 Flexible Membrane Liner Installation 9
2.4.3 Flexible Membrane Liner Testing 9
2.4.3.1 Manufacturer's Quality Control (MQC) 9
2.4.3.2 Manufacturer's Quality Assurance (MQA) 9

2.4.3.3 Conformance Testing 10
2.4.3.4 Construction Quality Control (CQC) 11
2.4.3.5 Construction Quality Assurance (CQA) 11
2.4.3.6 Seam Testing 12
2.4.3.7 Destructive Seam Testing 12
2.4.3.8 Non-Destructive Seam Testing 12
2.4.4 FML Deployment Records 13
2.5 LEAK-DETECTION ZONE 13
2.5.1 Leak-Detection Zone Product 13
2.5.2 Leak-Detection Zone Material Installation 14
2.5.3 Leak-Detection Zone Testing 14
2.5.3.1 Manufacturer's Quality Control (MQC) 14
2.5.3.2 Manufacturer's Quality Assurance (MQA) 14
2.5.3.3 Conformance Testing 15
2.5.3.4 Construction Quality Control (CQC) 15
2.5.3.5 Construction Quality Assurance (CQA) 15
2.5.4 Leak Detection Zone Deployment Records 16
2.6 60-MIL PRIMARY FLEXIBLE MEMBRANE LINER 16
2.6.1 Flexible Membrane Liner Product 16
2.6.2 Flexible Membrane Liner Installation 16
2.6.3 Flexible Membrane Liner Testing 17
2.6.3.1 Manufacturer's Quality Control (MQC) 17
2.6.3.2 Manufacturer's Quality Assurance (MQA) 17
2.6.3.3 Conformance Testing 18
2.6.3.4 Construction Quality Control (CQC) 18
2.6.3.5 Construction Quality Assurance (CQA) 19
2.6.3.6 Seam Testing 19
2.6.3.6.1 Destructive Seam Testing 19
2.6.3.6.2 Non-Destructive Seam Testing 20
2.6.4 FML Deployment Records 20
2.7 GEOSYNTHETIC CUSHION/DRAINAGE LAYER 20
2.7.1 Geosynthetic Cushion/Drainage Layer Product 21
2.7.2 Geosynthetic Cushion/Drainage Layer Material Installation 21
2.7.3 Geosynthetic Cushion/Drainage Layer Testing 21
2.7.3.1 Manufacturer's Quality Control (MQC) 21
2.7.3.2 Manufacturer's Quality Assurance (MQA) 22
2.7.3.3 Conformance Testing 22
2.7.3.4 Construction Quality Control (CQC) 23
2.7.3.5 Construction Quality Assurance (CQA) 23
2.7.4 Geosynthetic Cushion/Drainage Layer Deployment Records 23

2.8 LEACHATE COLLECTION SYSTEM 23
2.9 PROTECTIVE SOIL LAYER 23
2.10 FUTURE LINER TIE-IN DETAILS, STORMWATER AND LINER PROTECTION BERM 24

3.0 ENGINEERING CERTIFICATION 24

TABLES

TABLE 1: PRIMARY CONSTRUCTION ACTIVITIES
TABLE 2: PARKHILL CQA ACTIVITIES
TABLE 3: 4X CONSTRUCTION GROUP, CONSTRUCTION ACTIVITIES
TABLE 4: MUSTANG EXTREME ENVIRONMENTAL SERVICES, CONSTRUCTION ACTIVITIES
TABLE 5: SURVEYING SUPPORT ACTIVITIES
TABLE 6: SOLMAX BENTOLINER NSL GCL – MQC/MQA TESTING
TABLE 7: SOLMAX BENTOLINER NSL GCL – CONFORMANCE TESTING
TABLE 8: SKAPS HDPE FML – MQA TESTING
TABLE 9: SKAPS HDPE FML – CONFORMANCE TESTING
TABLE 10 HDPE FML DEPLOYMENT CQA DOCUMENTATION
TABLE 11: SKAPS GEOCOMPOSITE AND GEONET – MQC TESTING
TABLE 12: SKAPS GEONET – CONFORMANCE TESTING
TABLE 13: SKAPS HDPE FML – MQC TESTING
TABLE 14: SKAPS HDPE FML – CONFORMANCE TESTING
TABLE 15: HDPE PRIMARY FML DEPLOYMENT CQA DOCUMENTATION
TABLE 16: SKAPS GEOCOMPSITE – MQC TESTING
TABLE 17: SKAPS GEOCOMPOSITE – CONFORMANCE TESTING

FIGURES

FIGURE 1: SITE LOCATION MAP
FIGURE 2: SUBGRADE DESIGN GRADES
FIGURE 3: 2B SUBGRADE AS-BUILT
FIGURE 4: 1B SUBGRADE AS-BUILT
FIGURE 5: 2B GCL AS-BUILT
FIGURE 6: 1B GCL AS-BUILT
FIGURE 7: 2B SECONDARY FML AS-BUILT
FIGURE 8: 1B SECONDARY FML AS-BUILT
FIGURE 9: 2B GEONET AS-BUILT
FIGURE 10: 1B GEONET AS-BUILT
FIGURE 11: 2B PRIMARY FML AS-BUILT
FIGURE 12: 1B PRIMARY FML AS-BUILT
FIGURE 13: 2B GEOCOMPOSITE AS-BUILT
FIGURE 14: 1B GEOCOMPOSITE AS-BUILT
FIGURE 15: 2B PROTECTIVE SOIL LAYER AS-BUILT
FIGURE 16: 1B PROTECTIVE SOIL LAYER AS-BUILT

FIELD LOGS AND PHOTOGRAPHS

1 SUBGRADE ACCEPTANCE FORMS
2 PROJECT PHOTOGRAPHS

APPENDICES

APPENDIX A GEOTECHNICAL SOILS TESTING
A.1 MOISTURE/DENSITY RELATIONSHIPS
A.2 SUBGRADE (CELL 1B/2B FLOOR) TEST RESULTS
A.3 BERM DENSITY TEST RESULTS
A.4 ANCHOR TRENCH DENSITY TEST RESULTS
A.5 PSL HYDRAULIC CONDUCTIVITY
A.6 PSL GRAIN SIZE DISTRIBUTION TEST RESULTS

APPENDIX B MATERIAL MANUFACTURER CERTIFICATION AND CONFORMANCE TESTING RESULTS
B.1 GCL CERTIFICATIONS
B.2 GCL CONFORMANCE TESTING RESULTS
B.3 FML CERTIFICATIONS
B.4 FML CONFORMANCE TESTING RESULTS
B.5 GEONET CERTIFICATIONS
B.6 GEONET CONFORMANCE TESTING RESULTS
B.7 GEOCOMPOSITE CERTIFICATIONS
B.8 GEOCOMPOSITE TEST RESULTS

APPENDIX C CELL 1B/2B LINER INSTALLATION DOCUMENTATION
C.1 GCL INVENTORY CONTROL LOG
C.2 GEONET INVENTORY CONTROL LOG
C.3 FML INVENTORY CONTROL LOG
C.4 GEOCOMPOSITE INVENTORY CONTROL LOG
C.5 LEACHATE PIPE AND RISER PIPE INVENTORY CONTROL LOG
C.6 GCL DEPLOYMENT LOG
C.7 SECONDARY FML DEPLOYMENT LOG
C.8 SECONDARY AND PRIMARY FML PRE-WELD QUALIFICATION TEST LOGS
C.9 SECONDARY FML SEAMING LOG
C.10 SECONDARY FML SEAM PRESSURE TEST LOG
C.11 FML SEAM FIELD DESTRUCTIVE TEST RECORDS
C.12 LEAK DETECTION LAYER
C.13 PRIMARY FML DEPLOYMENT LOG
C.14 PRIMARY FML SEAMING LOG
C.15 PRIMARY FML SEAM PRESSURE TEST LOG
C.16 FML SEAM VACUUM TEST AND DEFECT-REPAIR LOG
C.17 GEOCOMPOSITE DEPLOYMENT LOG
C.18 DEMTECH TENSIONMETER CALIBRATION CERTIFICATE

APPENDIX D INDEPENDENT QUALITY ASSURANCE LABORATORY FML DESTRUCTIVE TESTING RESULTS
D.1 CELL 1B PRIMARY AND SECONDARY FML DESTRUCTIVE TEST RESULTS
D.2 CELL 2B PRIMARY AND SECONDARY FML DESTRUCTIVE TEST RESULTS

APPENDIX E LEACHATE PIPE AND RISER PIPE PARTS CERTIFICATION

APPENDIX F CONFORMATION OF COMPLIANCE: OWL LANDFILL SERVICES, INC., SURFACE WASTE MANAGEMENT FACILITY; CONSTRUCTION UPDATE.

APPENDIX G RESUMÉS
G.1 TYLER S. KRUEGER, PE, PROJECT ENGINEER, SITE CQA ENGINEER/MANAGER
G.2 MATT KINGSLEY, PE, SENIOR PROJECT MANAGER
G.3 MAX WHITE, RPR, CONSTRUCTION PHASE SERVICES, SITE CQA MANAGER

1.0 INTRODUCTION

This Engineering Certification Report describes the Construction Quality Assurance (CQA) activities and procedures applied during the construction of Landfill Cell 1B/2B at OWL Landfill Services, LLC (OWL) located in Lea County, New Mexico. The CQA activities performed document shows Cell 1B/2B was constructed in accordance with the approved Construction Plans, Project Technical Specifications, 2016 CQA Plan, Geosynthetic Research Institute (GRI) and American Society of Testing Materials (ASTM) Industry Standards, and New Mexico Energy, Minerals and Natural Resources Department (EMNRD), Oil Conservation Division (OCD) regulatory standards.

1.1 EMNRD OCD Notification

The EMNRD OCD was notified prior to Cell 1B/2B liner installation included in this Report in Appendix F. Site development activities and landfill clearing initially began in February 2024 with initial landfill perimeter berm construction continuing into August 2024**.** This Engineering Certification Report satisfies the requirements of the applicable Permit Conditions.

1.2 Project Description

The OWL Landfill is located approximately 1.5 miles east of the intersection of Delaware Basin Road and NM Highway 128 at mile marker 31, as shown on the Site Location Map **(Figure 1)**. Mass excavation was performed by 4X Construction Group (4XCG) with the excavation of soils, placement, and compaction of perimeter berm soils and subgrade fine grading and compaction, and anchor trench excavation, backfill, and compaction performed from February 5, 2024 through July 22, 2024. Geosynthetic Clay Liner (GCL), Secondary Flexible Membrane Liner (FML), geonet, leak detection system, primary FML, and geosynthetic cushion/drainage layer installation activities were performed by Mustang Extreme Environmental Services (MEES) from May 7, 2024 through May 23, 2024 and July 23, 2024 through August 24, 2024. Leachate system installation and protective soil layer (PSL) placement were performed by 4XCG from May 23, 2024 through June 10, 2024, and August 20, 2024 through September 4, 2024.

1.3 Project Overview

Landfill Cell 1B/2B was constructed at Oilfield Water Logistics Services, LLC, (OWL), located in Lea County, New Mexico. Parkhill developed Cell 1B/2B, Project Technical Specifications, and the CQA Plan (October 2016); and performed on-site CQA activities. Primary construction activities for Cell 1B/2B are as listed in **Table 1**.

TABLE 1 - Primary Construction Activities

Activity #	Construction Activity
1	Mass Excavation.
2	Construction of perimeter berm.
3	Fine grading.
4	Compaction.
5	Installation of Geosynthetic Clay Liner (GCL).
6	Installation of the Secondary Flexible Membrane Liner (FML).
7	Installation of geonet and geocomposite leak detection system.
8	Installation of primary Flexible Membrane Liner (FML).
9	Installation of geocomposite cushion/drainage layer.
10	Installation of leachate collection system.
11	Installation of Protective Soil Layer (PSL).
12	Construction of landfill stormwater management system.

Mass excavation, placement, and compaction of structural fill soils for the perimeter berm, and fine grading and compaction to the design base grades were completed by 4XCG under observation and soil density testing of Parkhill Site CQA Engineer (**Figure 2**). Upon review and approval of the subgrade by the Parkhill Site CQA Engineer and the geosynthetic installation contractor, the Parkhill Site CQA Engineer or manager was on-site during geosynthetics installation to observe, inspect, and record GCL, secondary FML (HDPE), geosynthetic leak detection (geonet and geocomposite), primary FML (HDPE), geosynthetic cushion/drainage (geocomposite), leachate collection system, protective soils (PSL), and rain flap stormwater management system (HDPE) installation procedures. The purpose of the CQA work is to document that construction activities performed at OWL comply with the Cell 1B/2B Construction Plans, Project Technical Specifications, 2016 CQA Plan, Geosynthetic Research Institute (GRI) and American Society of Testing Materials (ASTM) Industry Standards, and EMNRD OCD regulatory requirements. The OWL Cell 1B/2B Construction Plans, Project Technical Specifications, 2016 CQA Plan, field observations, and tests were used to provide quantitative criteria with which to evaluate construction.

Parkhill personnel were responsible for the full range of CQA activities as listed in **Table 2.**

TABLE 2 – Parkhill CQA Activities

Activity #	Parkhill CQA Activity
1	Collect select on-site soils to perform laboratory moisture/density tests, hydraulic conductivity tests, and grain size analyses.
2	Review surveying results to confirm that the subgrade met design elevations and slope.
3	Provide field density testing of compacted berm soil fill and subgrade soils.
4	Review manufacturer's quality assurance and manufacturer's quality control testing results for geosynthetics.
5	Review conformance testing results for FML, GCL, geonet, and geocomposite.
6	Inspect delivered FML, GCL, geonet, geocomposite, and leachate collection pipe.
7	Observe GCL, secondary FML, leak detection system, primary FML, and geocomposite installation procedures.
8	Observe GCL, secondary FML, leak detection system, primary FML, and geocomposite material seaming and testing procedures.
9	Review documentation, including laboratory and field test results.
10	Complete and submit this Engineering Certification Report of completed construction to OCD.

1.4 Report Organization

This Certification Report describes the CQA activities and procedures performed during the construction of Cell 1B/2B at OWL. The attached figures, appendices, photographs, and subgrade acceptance forms provide appropriate quantitative and qualitative documentation. Cross-reference to the figures and attachments are in **bold** type to facilitate the Division's review.

1.5 Qualifications

1.5.1 Mr. Tyler S. Krueger, PE, Engineer of Record, Site CQA Engineer/Manager

Mr. Tyler Krueger is a Site CQA Engineer/Manager for the OWL Cell 1B/2B project. He serves as the Site CQA Engineer/Manager for Parkhill, and is trained and certified on field instrumentation, industry standards, health and safety, etc. Krueger is a professional engineer and has served as a Site CQA Engineer/Manager at various Subtitle D municipal solid waste landfills. Mr. Krueger's duties included assessment and equivalency evaluation and calculations for liner and leak detection system components in compliance with Construction Plans, CQA Plan, and Project Technical Specifications. The current resumé for Mr. Krueger is included in the **Appendix G Resumés** (**G.1**).

1.5.2 Mr. Matt Kingsley, PE, Senior Project Manager

Mr. Matt Kingsley is a Professional Engineer with Parkhill's Environmental Sector. His focus is on landfill operations, design, and construction. He has developed, expanded, and operated over 25 landfills from Phoenix to Philadelphia. Through Matt's diverse engineering design and operational experience, he has provided valuable insight. Mr. Kinsley's current resumé is included in **Appendix G Resumés (G.2)**.

1.5.3 Mr. Max White, RPR, Construction Phase Services, Site CQA Manager

Mr. Max White is the CQA manager for OWL Cell 1B/2B. He serves as a Site CQA Manager for Parkhill and is trained and certified in field instrumentation, industry standards, health and safety, etc. His primary duties are field CQA for cell subgrade soil testing and certification, observation and documentation for geosynthetics installation, leachate collection system installation, and PSL testing and installation. View Mr. White's resumé in **Appendix G Resumés (G.3)**.

2.0 LANDFILL CELL 1B/2B CONSTRUCTION

2.1 Summary

The OWL Landfill is an existing facility located in Lea County, New Mexico, and is complemented with process equipment, administrative offices, drying pads, evaporation ponds, and additional landfill cells. The total double-lined project area of Cell 1B/2B, is approximately 14.5 acres in size as shown on the Subgrade Design Grades (**Figure 2**).

Mass excavation, berm construction, and fine-grading were conducted by 4XCG; and MEES performed the installation of the GCL, Secondary FML, leak detection system, primary FML, and a geocomposite cushion/drainage. Conformance testing of geosynthetics was performed by TRI Environmental, while documentation and quality assurance were performed by Parkhill. **Tables 3 and 4** summarize these construction activities.

4XCG of Mansfield, Texas, performed the construction activities listed in **Table 3.**

TABLE 3 – 4XCG Construction Activities	
Activity #	**4XCG Construction Activity**
1	Mass excavation to overall design grades.
2	Installation of perimeter berm.
3	Fine grading of the cell floor, transition zone, and berm.
4	Compaction of the landfill cell, surrounding areas, and berm.
5	Construction of the Site stormwater management system and Site protection berm.
6	Installation of leachate collection system (HDPE pipe, drainage aggregate, and geocomposite).
7	Installation of protective soil layer.
8	Excavation, backfill, and compaction of liner anchor trenches.

Mustang Extreme Environmental Services of Midland, Texas, performed the construction activities listed in **Table 4**.

TABLE 4 – MEES Construction Activities	
Activity #	**MEES Construction Activity**
1	Installation of Geosynthetic Clay Liner (GCL).
2	Installation of 60-mil secondary HDPE FML.
3	Installation of HDPE geonet and geocomposite material (leak detection layer).
4	Installation of 60-mil primary HDPE FML.
5	Installation of the geocomposite material (geosynthetic cushion/drainage layer).
6	Installation of 40-mil smooth HDPE FML stormwater flap.

Surveying services for the Contractor, as defined in the Contract Documents, were provided by WTC, Inc. (WTC) of Andrews, Texas, and survey support activities are listed in **Table 5**.

TABLE 5 - Surveying Support Activities	
Licensed Land Surveyor	**Support Activity**
WTC, Inc.	Final grades of the Landfill Cell 1B/2B. Top of all berm surrounding the project. Leachate extraction line. Edge of liner system. Thickness conformation of PSL (Protective Soil Layer).

2.2 Subgrade Preparation

The following sections describe the activities performed during mass excavation, compacted berm soil fill placement, subgrade preparation, and CQA soil testing.

2.2.1 Clearing, Grubbing, and Mass Excavation

4XCG performed the clearing and grubbing, mass excavation, subgrade fine grading and compaction, in addition to placing and compacting perimeter berm soils using select materials from excavation activities. Perimeter berm located on the north was constructed to the design grades shown on the Construction Plans. Once design grades were attained and density testing was complete, WTC performed record certification surveys to document that the subgrade, berm elevations, and slopes met design requirements shown on the Construction Plans and as set forth in the Project Technical Specifications and 2016 CQA Plan.

2.2.2 Coordinate System

Project area was surveyed in a grid pattern so that the locations of sample and testing points used during construction were readily discernible by the Site CQA Engineer/Manager. The survey grid, shown in **Figures 3 and 4**, was established by WTC for use during construction and testing.

2.2.3 Subgrade and Berm Compaction

During excavation, a perimeter berm was constructed to contain Cell 1B/2B on the permanent north perimeter using excavated soils. Soils were placed in maximum one-foot-thick lifts and compacted to 90% of standard proctor dry density as verified by field density tests. After berm construction, mass excavation, and fine grading to the elevations shown on **Figure 2** were completed, floor soils were compacted using a vibratory roller. The in-place density was measured at a minimum frequency of 4 tests per acre, using a InstroTek 3500 Xplorer®, requiring 60 tests for the ±14.5-acre footprint of Cell 1B/2B, and approximately five tests for berm construction. All results passed the required specification of 90%, or higher, of the reference standard proctor. The results for the standard proctor laboratory tests used as references are provided in **Appendix A.1**, and field compaction testing results are tabulated in **Appendix A.2** for Cell 1B/2B subgrade, and **Appendix A.3** for Cell 1B/2B berm and anchor trench. Moisture/density relationships are given in **Appendix A**. The type of soil encountered and stockpiled produced a composite soil that was placed for initial berm construction. As the project continued, berm was constructed either from the stockpile composite or direct placement from subgrade excavation. The maximum density references are labeled in **Appendices A.2 and A.3**.

2.2.4 Subgrade Acceptance

Upon completion of subgrade construction, Cell 1B/2B was surveyed by WTC. The topography of the subgrade was then verified and accepted by the Parkhill CQA Engineer/Manager prior to geosynthetic liner deployment. **Figure 2** shows the design grades, and **Figures 3 and 4** provide the as-built grades for the finished subgrade surface.

Parkhill Site CQA Engineer/Manager and MEES Field Installation Superintendent (FIS) conducted daily inspections of the subgrade surface prior to liner installation activities for the anticipated liner deployment area. The subgrade surface was found to be in good condition and free from sticks, sharp stones, vegetation, and other deleterious material after each daily inspection. Parkhill CQA Engineer/Manager and FIS continued to inspect the subgrade surface during liner installation in areas immediately ahead of deployment to identify and remove any large or angular particles, sharp objects, etc. 4XCG provided continual moisture conditioning and rolling of the subgrade ahead of the liner installation as requested by MEES' FIS and Parkhill Site CQA Engineer/Manager.

2.3 Geosynthetic Clay Liner

In accordance with the Construction Plans, Project Technical Specifications, and 2016 CQA Plan, the Geosynthetic Clay Liner (GCL) was placed in direct contact with the prepared subgrade. The following sections describe the procedures and activities performed during the GCL installation, observation, and CQA testing to confirm compliance with the Project Specifications.

2.3.1 Geosynthetic Clay Liner Product

Approximately 704,205 ft^2 of Bentoliner NS, the reinforced GCL material manufactured by Solmax, was used in the construction of Cell 1B/2B. Per Project Technical Specifications, granular bentonite was required to be placed between horizontal and longitudinal seams of deployed GCL panels. Copies of the manufacturer's quality assurance (MQA) and manufacturer's quality control (MQC) test results and certifications are included in **Appendix B.1** for the delivered Solmax Bentoliner NS GCL.

2.3.2 Geosynthetic Clay Liner Installation

The guidelines specified in the Project Technical Specifications, 2016 CQA Plan, Construction Plans, and industry standards for GCL installation procedures were strictly followed during lining of Cell 1B/2B. Each roll of GCL was carefully transported from the contractor's staging area to Cell 1B/2B using a rubber-tired forklift, as verified by the Parkhill Site CQA Engineer/Manager. As each roll was moved, the manufacturer's identification label was removed and submitted to the Parkhill Site CQA Engineer/Manager for documentation in the *GCL Deployment Log* (**Appendix C.6**) and the GCL Layout Drawing (**Figures 5 and 6**). These labels were compared with the shipping invoice to verify that the GCL delivered to OWL corresponded with GCL subjected to MQC and MQA (manufacturer) testing (see Section 2.3.3). Each GCL roll was placed in direct contact with the prepared subgrade with the nonwoven geotextile facing upward. GCL was not placed in standing water or deployed during rainfall.

After each roll had been deployed, adjoining rolls were positioned maintaining the minimum overlap used for the on-site GCL of nine inches on the longitudinal seams and 12 inches on the end seams as specified in the Project Technical Specifications and 2016 CQA Plan. Free bentonite was applied on each longitudinal and perpendicular seam at a minimum of 0.25-pound per linear foot of seam. Material placement was observed by the Parkhill Site CQA Engineer/Manager and FIS for potential damage due to handling or installation.

2.3.3 Geosynthetic Clay Liner Testing

GCL testing included manufacturing quality control (MQC), manufacturing quality assurance (MQA), third-party conformance testing, construction quality control (CQC), and construction quality assurance (CQA). Each type of testing is described in the following sections.

2.3.3.1 Geosynthetic Clay Liner Manufacturing Quality Control (MQC) and Manufacturing Quality Assurance (MQA)

MQC and MQA testing of the bentonite and geotextile components (**Table 6**), as well as the finished GCL, were performed by the manufacturer prior to shipment of the GCL to OWL.

TABLE 6 – Solmax Bentoliner NS GCL - MQC/MQA Testing	
Bentoliner NSL GCL Property	**ASTM Method**
Free swell	ASTM D5890
TabFluid loss	ASTM D5891
Mass per unit area	ASTM D5993
Grab strength	ASTM D6768 and ASTM D4632, Modified
Peel strength	ASTM D6496 and ASTM D4632, Modified
Moisture content	ASTM D4643
Nonwoven and Woven Geotextile Encapsulating Bentonite	**ASTM Method**
Grab strength	ASTM D4632
Mass per unit area	ASTM D5261

GCL quality control certification and GCL property values and testing frequencies for the on-site material delivered to OWL are provided in **Appendix B.1**.

2.3.3.2 Conformance Testing

Conformance sampling for GCL material was performed by TRI/Environmental, Inc. (TRI), Austin, Texas. TRI or Parkhill collected samples approximately two feet long from the entire roll width and performed conformance testing at the TRI laboratory in Austin, Texas. Conformance samples were collected at a frequency of at least one per 100,000 ft^2 of GCL installed to verify that the GCL delivered to OWL met the minimum properties listed in the Project Technical Specifications and 2016 CQA Plan. Approximately 704,205 ft^2 of GCL material was deployed within the landfill Cell 1B/2B, requiring a minimum of eight samples. Eight samples were tested by TRI for the properties listed in **Table 7**; as specified in the Project Technical Specifications and 2016 CQA Plan.

TABLE 7 - Solmax Bentoliner NS GCL - Conformance Testing	
Bentoliner NSL GCL Property	**ASTM Method**
Mass per unit area	ASTM D5993
Index Flux	ASTM D5887
Bentonite- Fluid Loss	ASTM D5891
Bentonite - Swell Index	ASTM D5890

Conformance test results were reviewed by the Parkhill CQA Engineer and accepted in accordance with Project Technical Specifications and 2016 CQA Plan. The conformance test results indicate that the GCL meets the minimum property requirements specified in the Project Technical Specifications and 2016 CQA Plan. The conformance test results for the four samples are included in **Appendix B.2**.

2.3.3.3 Construction Quality Control (CQC) for Geosynthetic Clay Liner

CQC procedures specified in the Project Technical Specifications and 2016 CQA Plan were strictly followed to provide a method to measure and regulate the quality of GCL installation. Parkhill Site CQA Engineer/Manager and FIS observed and documented GCL panel placement activities to verify that the deployment and seaming procedures were performed in accordance with Project Technical Specifications and 2016 CQA Plan, including subgrade inspection, seam overlap, application of free bentonite, and precautions against potential GCL damage.

2.3.3.4 Construction Quality Assurance (CQA) for Geosynthetic Clay Liner

Parkhill Site CQA Engineer/Manager and the FIS inspected each roll of GCL transported to Cell 1B/2B from the staging area. GCL was inspected for potential damage and uniformity. The roll identification labels were compared with the shipping invoice to verify that the GCL delivered to OWL corresponded with GCL subjected to manufacturers' quality control and quality assurance testing (see Sections 2.3.3.1.).

Parkhill Site CQA Engineer/Manager and the FIS visually inspected GCL rolls for potential damage during deployment. Any damaged portions of the GCL deployed were repaired by covering the defect with a GCL patch that provided a minimum twelve-inch overlap on all sides of the defect with bentonite powder applied to the edges of the patch as specified in the Project Technical Specifications and 2016 CQA Plan.

2.3.4 Geosynthetic Clay Liner Deployment Records

Documentation of the GCL deployment and inspection of each panel for damage was required prior to approval and acceptance. GCL installation was not accepted until the deployment records (**Appendix C.6**), manufacturer's certification reports (**Appendix B.1**), and conformance test results (**Appendix B.2**) were submitted to and approved by Parkhill Site CQA Engineer. Cell 1B/2B GCL Layout is shown on **Figures 5 and 6**. Subgrade Acceptance Forms and documentation of GCL panel placement were recorded throughout each construction day. Copies of Subgrade Acceptance Forms, and photographs documenting GCL panel placement activities are provided in the **Subgrade Acceptance Forms and Project Photographs** section of this Report.

2.4 60-MIL SECONDARY FLEXIBLE MEMBRANE LINER

Secondary FML was installed in direct contact above the GCL in accordance with the Engineering Design Drawings, Project Specifications, and 2016 CQA Plan. The following sections describe the procedures and activities performed during FML installation, observation, and CQA testing.

2.4.1 Flexible Membrane Liner Product

FML utilized in Cell 1B/2B construction was 60-mil, high-density polyethylene (HDPE), manufactured by Skaps. Textured FML was designated for the berm/side slopes and smooth FML was designated for the cell floor lining of Cell 1B/1B and was delivered to OWL in rolls 24 feet wide by 540 feet long and 500 feet long for smooth and textured liner, respectively. FML was stored in the contractor's staging area and in accordance with the Project Technical Specifications and the 2016 CQA Plan. The stored FML was not stacked more than two rolls high. Parkhill Site CQA Engineer/Manager compared roll identification labels with shipping invoices to verify that FML delivered to OWL corresponded with FML subjected to manufacturer's quality control and quality assurance testing (Section 2.4.3).

2.4.2 Flexible Membrane Liner Installation

FML installation activities were performed in accordance with the guidelines specified in the Construction Plans, Project Technical Specifications and 2016 CQA Plan; and industry standards for FML handling, placement, and testing. Each roll of FML was carefully moved from the contractor's staging area south of Cell 1B/2B using a rubber-tired forklift and FML was not placed in standing water or deployed during rainfall. Upon deployment, each roll identification label was removed and submitted to Parkhill Site CQA Engineer/Manager and then compared with the shipping invoices to verify that the FML delivered to OWL corresponds with FML subjected to manufacturer's quality control and quality assurance testing. FML being deployed was documented in the *Secondary FML Deployment Log* (**Appendix C.7**) and the Secondary 60-Mil Liner Panel Layout Drawing (**Figures 7 and 8**).

After each FML panel had been deployed, adjoining panels were positioned with a four- to six-inch longitudinal overlap required for hot-wedge fusion welding. The overlap distance is required for proper seaming, and to allow peel and shear tests to be performed on the seams. Seams were oriented at approximately 45 degrees to the line of prevailing base grade slope on the Cell 1B/2B floor, and parallel to the Cell 1B/2B side slopes, per Project Technical Specifications and 2016 CQA Plan (see Secondary 60-Mil Liner Panel Layout, **Figures 7 and 8**).

2.4.3 Flexible Membrane Liner Testing

FML testing included manufacturer's quality control (MQC) and manufacturer's quality assurance (MQA), conformance testing, construction quality control (CQC), CQA, and seam testing. Each type of testing methodology is discussed in the following sections.

2.4.3.1 Manufacturer's Quality Control (MQC)

Formosa Plastics Corporation, Texas, performed resin testing on the raw materials used in the manufacturing of the FML. These test results and written certifications verified that FML delivered to OWL has been extruded from an acceptable resin meeting the properties specified in GRI-GM 13, "*Test Methods, Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes*," are included in **Appendix B.3**.

2.4.3.2 Manufacturer's Quality Assurance (MQA)

As a part of MQA testing, specific performance and characterization properties were evaluated on random samples collected from the manufactured FML rolls prior to their delivery to OWL as listed in **Table 8**.

TABLE 8 - Skaps HDPE FML - MQA Testing	
60-mil HDPE Smooth/Textured HDPE FML Property	**ASTM Method**
Thickness	ASTM D5994
Asperity Height (Textured)	ASTM D7466
Density	ASTM D1505
Melt Flow Index	ASTM D1238, Condition E
Tensile Properties	ASTM D6693 and ASTM D 6693, Modified
Tear Resistance	ASTM D1004, Modified
Puncture Resistance	ASTM D4833, Modified
Carbon Black Content	ASTM D4218
Carbon Black Dispersion	ASTM D5596
Environmental Stress Crack Resistance using Notched Constant Tensile Load	ASTM D5397

MQA test results are included in **Appendix B.3**. These results were reviewed by Parkhill Site CQA Engineer and confirmed against Project Technical Specifications and 2016 CQA Plan requirements. MQA testing results met the requirements set forth in Project Technical Specifications and 2016 CQA Plan.

2.4.3.3 Conformance Testing

Conformance sampling for FML material was performed by TRI, Austin, Texas. TRI or Parkhill collected samples approximately two feet long from the entire roll width and performed conformance testing at the TRI laboratory in Austin, Texas. Conformance samples were collected at a frequency of at least one per 100,000 ft^2 of FML installed to verify that the FML delivered to OWL met the minimum properties listed in Project Technical Specifications and 2016 CQA Plan. Approximately 583,275 ft^2 of smooth FML and 135,336 ft^2 of textured FML was installed in the secondary FML layer requiring a minimum of 6 smooth FML and 2 textured FML conformance samples. A total of 13 samples of smooth FML and 3 samples of textured FML were tested by TRI for conformance.

TRI tested the 16 FML samples for the properties listed in **Table 9**; as specified in Project Technical Specifications and 2016 CQA Plan.

TABLE 9 - Skaps HDPE FML - Conformance Testing	
60-mil HDPE (Smooth/Textured) FML Property	**ASTM Method**
Thickness	ASTM D5994
Density	ASTM D1505
Tensile Properties	ASTM D6693 and ASTM D6693, Modified
Tear Resistance	ASTM D1004, Modified
Carbon Black Content	ASTM D6693, Modified 4218
Carbon Black Dispersion	ASTM D5596
Puncture Strength	ASTM D4833

Conformance test results were reviewed by Parkhill Site CQA Engineer and accepted in accordance with Project Technical Specifications and 2016 CQA Plan. Conformance test results indicated that the FML met the minimum property requirements specified in Project Technical Specifications and 2016 CQA Plan. Conformance testing results for the 10 samples are included in **Appendix B.4**.

2.4.3.4 Construction Quality Control (CQC)

Quality control procedures specified in Project Technical Specifications, 2016 CQA Plan, and industry standards were strictly followed to provide a method to measure and regulate the quality of secondary FML installation. These procedures included such activities as start-up trial welds, destructive and non-destructive seam testing, and verification that the deployment and seaming procedures were performed in accordance with Project Technical Specifications, 2016 CQA Plan, and industry standards.

Trial welds were performed at the start and midpoint of each workday, after each break in seaming for one hour or more, and after any equipment shutdown. Trial welds were a minimum of 10 feet in length for fusion welders and a minimum of three feet in length for extrusion fillet welders. One-inch-wide cutouts of the trial welds were field-tested for shear and peel strength using an on-site tensiometer (MEES's tensiometer calibration certificate is provided in **Appendix C.18**) and testing was performed in the presence of Parkhill Site CQA Engineer/Manager. If the results of the trial weld testing did not comply with Project Technical Specifications and 2016 CQA Plan, the welder was not permitted to continue seaming until the deficiencies were corrected and an additional trial weld was performed which passed the field-testing requirements. Trial weld documentation is included in **Appendix C.8**.

Seam testing protocol for Cell 1B/2B deployed FML included peel and shear testing on mathematically random samples cut from the installed FML (destructive samples) and non-destructive testing (air pressure and/or vacuum box testing) on field seams. The seam-testing program is detailed in Section 2.4.3.5 of this Report.

Parkhill Site CQA Engineer/Manager and FIS observed FML placement activities to verify that the deployment and seaming procedures were performed in accordance with Project Technical Specifications and 2016 CQA Plan, which included the underlying GCL inspection and approval, seam cleaning, and precautions against potential FML damage during deployment and seaming.

2.4.3.5 Construction Quality Assurance (CQA)

Parkhill Site CQA Engineer/Manager and FIS visually inspected FML material for manufacturing and installation defects as the FML was deployed. No manufacturing flaws were observed in the deployed FML. Parkhill Site CQA Engineer/Manager inspected seamed and non-seamed areas of the FML for wrinkles, defects, holes, blisters, etc. After each panel was deployed, Parkhill Site CQA Engineer/Manager and FIS walked the length of each panel and identified any suspect areas (e.g., defects or blemishes) by marking these areas for repair with highly visible paint.

2.4.3.6 Seam Testing

In accordance with Project Technical Specifications and 2016 CQA Plan, the field seam verification program consisted of both destructive and non-destructive testing. Sampling and field-testing were performed by FML installer (MEES) in the presence of Parkhill Site CQA Engineer/Manager. In addition to field-testing, destructive samples were sent to an independent quality assurance laboratory (TRI/Environmental, Inc., Austin, Texas) for peel and shear strength testing.

2.4.3.7 Destructive Seam Testing

In accordance with Project Technical Specifications and 2016 CQA Plan, a minimum of one destructive test for every 500 linear feet of welded seam (an average taken throughout the entire project) was performed on the FML. Records of the FML weld-seam lengths are included in **Appendix C.9**.

Each destructive test sample was divided into three segments. The first segment was tested in the field for peel and shear strength by the installer using an on-site tensiometer. The second segment was shipped to an independent quality assurance laboratory for laboratory testing. The third sample segment was retained by Parkhill Site CQA Engineer/Manager and delivered to OWL to be archived in the facility operating record. Results of the field destructive tests are provided in **Appendix C.11**; and the independent quality assurance laboratory test results are included in **Appendix D.1**. The field destructive test results, and the independent quality assurance laboratory test results were reviewed by Parkhill Site CQA Engineer/Manager for conformance with Project Technical Specifications and 2016 CQA Plan. All peel and shear test results met the requirements of Project Technical Specifications and 2016 CQA Plan.

2.4.3.8 Non-Destructive Seam Testing

Air pressure testing was performed on double-wedge fusion welded seams except where a channel blockage occurred. Where channel blockages occurred, the seam was air tested on either side of the area that was extrusion-welded and vacuum box tested. An additional patch was extrusion welded over the repaired area and vacuum box tested. Vacuum box testing was performed on all extrusion-welded portions of seams and patches. Test results are documented on the Secondary FML Seam Pressure Test Log (**Appendix C.10**) and *FML Seam Vacuum Test and Defect-Repair Log* (**Appendix C.16**). Seams and repairs were required to pass the non-destructive testing specifications outlined in Project Technical Specifications, GRI test method GM-6, and 2016 CQA Plan before being accepted by the Parkhill Site CQA Engineer/Manager.

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2.4.4 FML Deployment Records

Documentation for Secondary FML deployment and testing for each panel deployed was required prior to FML approval and acceptance. CQA documentation for FML deployed in Cell 1B/2B is listed in **Table 10**.

TABLE 10 - HDPE FML Deployment CQA Documentation

HDPE FML Deployment CQA Documentation	Certification Report Appendix Location
Secondary FML Deployment Log	Appendix C.7
Secondary and Primary FML Pre-Weld Qualification Test Record	Appendix C.8
Secondary FML Seaming Log	Appendix C.9
Secondary FML Seam Pressure Test Log	Appendix C.10
FML Seam Field Destructive Test Log	Appendix C.11
FML Seam Vacuum Test and Defect-Repair Log	Appendix C.16
Demtech Tensiometer Calibration Certification	Appendix C.18

FML installation was accepted after the data listed in **Table 10** was submitted to, reviewed by, and approved by Parkhill Site CQA Engineer. Cell 1B/2B As-Built Secondary FML Panel Layout is included as **Figures 7 and 8.** Photo documentation recorded FML placement activity on landfill floor and side slopes. Project photographs are provided in the Project Photographs section.

2.5 LEAK-DETECTION ZONE

Leak-detection zone material was installed directly above the Secondary FML in accordance with the engineering design Drawings, Project Specifications, and 2016 CQA Plan. This zone consists of a double-sided geocomposite for side slopes and a geonet for the floor. The following sections describe the procedures and activities performed during the drainage layer installation, observation, and CQA testing.

2.5.1 Leak-Detection Zone Product

Geocomposite utilized in Cell 1B/2B construction is a 200-mil, high-density polytheylene (HDPE) encapsulated by nonwoven geotextile manufactured by Skaps.

Geonet utilized in Cell 1B/2B construction is a 200-mil (HDPE) manufactured by Skaps. The leak-detection zone is specified to encompass the entire double-lined system and materials were delivered on-site in rolls 14.5 feet wide by 300 feet long for geonet and 14.5 feet wide by 200 feet long double-sided geocomposite. Rolls were staged along the southern perimeter of Cell 1B/2B to provide easy access, and to minimize handling of the material. In accordance with CQA Plan and Project Specifications, material was not stacked more than two rolls high. Labels were compared with shipping invoices to verify that the materials received corresponded with materials subjected to manufacturer's quality control/manufacturer's quality assurance testing (see Section 2.6.3). The material was also inspected for damage during off-loading and staging.

2.5.2 Leak-Detection Zone Material Installation

Leak detection zone material installation activities were performed in accordance with guidelines stipulated in 2016 CQA Plan, Project Specifications, the engineering design Drawings, and industry standards for handling and placement. Each roll was carefully moved from staging area to Cell 1B/2B using a rubber-tired extendable forklift. The forklift was not permitted on Secondary FML, and the material was placed by hand. Upon deployment, each roll label was removed and submitted to Parkhill Site CQA Engineer/Manager and panel location documented (see **Figures 9 and 10**).

After each panel had been placed, adjoining panels were positioned with a four- to six-inch overlap. The overlap distance is required for proper attachment using zip ties placed at five feet six inches longitudinally and end-to-end seams respectively. Geotextile encapsulating the geonet core of the geocomposite was then fused together from panel to panel using industry standard heat tacking methods. Seams were oriented at approximately 45 degrees to the line of prevailing base grade slope and perpendicular to the side slopes.

2.5.3 Leak-Detection Zone Testing

Material testing included manufacturer's quality control (MQC) and quality assurance (MQA), conformance testing, construction quality control (CQC), CQA, and seam testing. Each type of testing is discussed in the following sections.

2.5.3.1 Manufacturer's Quality Control (MQC)

Formosa Plastics Corporation, Texas performed resin testing on the raw materials used in the manufacturing of the geocomposite and geonet. These test results and written certifications that the product delivered has been extruded from an acceptable resin are included in **Appendices B.5 and B.7**.

2.5.3.2 Manufacturer's Quality Assurance (MQA)

As required by Project Technical Specifications and 2016 CQA Plan, the manufacturer (GSE) performed the geocomposite and geonet property testing listed in Table 11 prior to delivery of the materials to the Site.

TABLE 11 – Skaps Geocomposite and Geonet – MQC Testing

Geocomposite	Geonet	Test Property	ASTM Method
✓	✓	Thickness	ASTM D5199
✓	✓	Density	ASTM D1505
	✓	Melt Index	ASTM D1238
✓	✓	Carbon Black Content	ASTM D4218
✓	✓	Tensile Strength	ASTM D7179
✓		Peel Strength	ASTM D7005
✓		Mass Per Unit Area	ASTM D5261
✓	✓	Transmissivity (loaded)	ASTM D4716

Geocomposite and geonet quality control certifications, property values, and testing frequencies for the on-site material delivered to OWL are provided in **Appendices B.5 and B.7**.

2.5.3.3 *Conformance Testing*

Conformance sampling for the geocomposite and geonet material was performed by TRI, Austin, Texas. TRI or Parkhill collected a sample approximately two feet long from the entire roll width and performed conformance testing at the TRI laboratory in Austin, Texas. Conformance samples were collected at a frequency of at least one per 100,000 ft^2 of material installed to verify that the geocomposite and geonet delivered to the OWL met the minimum properties listed in the Project Technical Specifications and 2016 CQA Plan. Approximately 574,578 ft^2 of geonet and 134,792 ft^2 of double-sided geocomposite material was installed in the Cell 1B/2B leak detection layer requiring a minimum of six geonet and two double-sided geocomposite samples. TRI tested seven geonet conformances samples and three of the geocomposite samples for the properties listed in **Table 12**, as specified in Project Technical Specifications and 2016 CQA Plan.

Table 12 – Skaps Geocomposite and Geonet – Conformance Testing

Geocomposite	Geonet	Test Property	ASTM Method
	✓	Thickness	ASTM D1777
✓	✓	Density	ASTM D1505
	✓	Wide Width Tensile Properties	ASTM D4595
	✓	Mass Per Unit Area	ASTM D3776
	✓	Carbon Black	ASTM D1603
✓		Melt Index	ASTM D1238
✓		Transmissivity	ASTM D4716
✓		Peel Strength	ASTM D7005
✓		Tensile Strength	ASTM D7179

Appendices B.6 and B.8 provide independent quality assurance laboratory test results. The results were reviewed by Parkhill CQA Engineer and compared with Project Technical Specifications and 2016 CQA Plan for geonet. The properties of the geocomposite and geonet meet or exceed Project Technical Specifications and 2016 CQA Plan requirements.

2.5.3.4 *Construction Quality Control (CQC)*

Quality control procedures specified in the project documents were strictly followed to provide a method to measure and regulate the quality of geocomposite and geonet installation. These procedures included such activities as proper overlap and correct zip-tie spacing on the floor and slopes.

Both Parkhill Site CQA Engineer/Manager and FIS observed placement activities to verify that deployment and seaming procedures were performed in accordance with CQA Plan and Project Specifications.

2.5.3.5 *Construction Quality Assurance (CQA)*

Parkhill Site CQA Engineer/Manager and FIM visually inspected all material for manufacturing and installation defects. No manufacturing flaws were observed in the installed geocomposite and geonet. Parkhill Site CQA Engineer/Manager inspected all seamed and non-seamed areas of the material for wrinkles, defects, etc. After each panel was deployed, Parkhill Site CQA Engineer/Manager and FIS walked the length of each panel to identify any suspect areas (e.g., defects or tears) by marking these areas for repair with a highly visible paint. No suspect areas were found.

2.5.4 Leak Detection Zone Deployment Records

Documentation for leak detection zone material deployment was required prior to approval and acceptance. Deployment documentation for the materials deployed in Cell 1B/2B are provided in **Appendices C.12 and C.17.**

Leak detection zone material installation was accepted after the above-listed data was submitted to, reviewed, and approved by Parkhill CQA Engineer. Leak Detection Zone Panel As-Built for Cell 1B/2B is included as **Figures 9 and 10**. Photo documentation recorded leak detection zone placement activity on landfill floor and side slopes. Project photographs are provided in the Project Photographs section.

2.6 60-MIL PRIMARY FLEXIBLE MEMBRANE LINER

Primary FML was installed in direct contact above leak detection zone materials in accordance with the Construction Plans, Project Technical Specifications, and 2016 CQA Plan. The following sections describe the procedures and activities performed during primary FML installation, observation, and CQA testing.

2.6.1 Flexible Membrane Liner Product

Primary FML utilized in Cell 1B/2B construction was 60-mil high-density polyethylene (HDPE) manufactured by Skaps. Smooth FML was designated for the floor and textured FML was designated for the side slopes of Cell 1B/2B. The material was delivered to OWL in rolls 24 feet wide by 540 feet long for the smooth and 500 feet long for the textured FML. FML was stored in contractor's staging area and in accordance with Project Technical Specifications and 2016 CQA Plan. The stored FML was not stacked more than two rolls high. Parkhill Site CQA Engineer/Manager compared roll identification labels with shipping invoices to verify that the FML delivered to OWL corresponded with FML subjected to manufacturer's quality control and quality assurance testing (Section 2.6.3).

2.6.2 Flexible Membrane Liner Installation

FML installation activities were performed in accordance with the guidelines specified in Construction Plans, Project Technical Specifications, and 2016 CQA Plan; and industry standards for FML handling, placement, and testing. Each roll of FML was carefully moved from contractor's staging area at the south end of Cell 1B/2B using a rubber-tired forklift; and FML was not placed in standing water or deployed during rainfall. The forklift was not allowed on leak detection zone materials, the primary HDPE liner was placed by hand and aided with the use of wire rope and pulling equipment. Upon deployment, each role identification label was removed and submitted to Parkhill Site CQA Engineer/Manager and were compared with the shipping invoices to verify that the FML delivered to OWL corresponded with FML subjected to manufacturer's quality control and quality assurance testing. FML being deployed was documented in Primary FML Deployment Log (**Appendix C.13**) and Cell 1B/2B 60-Mil Primary Liner Panel Layout Drawing (**Figures 11 and 12**). After each FML panel had been deployed, adjoining panels were positioned with a four- to six-inch longitudinal overlap required for hot-wedge fusion welding. The overlap distance is required for proper seaming, and to allow peel and shear tests to be performed on the seams. Seams were oriented at approximately 45 degrees to the line of prevailing base grade slope on the Cell 1B/2B floor, and parallel to the Cell 1B/2B side slopes, per the Project Technical Specifications and 2016 CQA Plan (see 60-Mil Primary Liner Panel Layout (**Figures 11 and 12**).

2.6.3 Flexible Membrane Liner Testing

FML testing included manufacturer's quality control (MQC) and manufacturer's quality assurance (MQA), conformance testing, construction quality control (CQC), CQA, and seam testing. Each type of testing methodology is discussed in the following sections.

2.6.3.1 Manufacturer's Quality Control (MQC)

Formosa Plastics Corp, Texas performed resin testing on the raw materials used in the manufacturing of the smooth and textured FML. These test results and written certifications verified that the FML delivered to OWL has been extruded from an acceptable resin meeting the properties specified in GRI-GM 13, "*Test Methods, Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes*," are included in **Appendix B.4**.

2.6.3.2 Manufacturer's Quality Assurance (MQA)

As a part of the MQA testing, specific performance and characterization properties were evaluated on random samples collected from the manufactured FML rolls prior to their delivery to OWL as listed in **Table 13**.

TABLE 13 - Skaps HDPE FML - MQA Testing

60-mil HDPE Double-Sided Textured and Smooth HDPE FML Property	ASTM Method
Thickness	ASTM D5994
Asperity Height (Textured)	ASTM D7466
Density	ASTM D1505
Melt Flow Index	ASTM D1238, Condition E
Tensile Properties	ASTM D6693 and ASTM D6693, Modified
Tear Resistance	ASTM D1004, Modified
Puncture Resistance	ASTM D4833, Modified
Carbon Black Content	ASTM D4218
Carbon Black Dispersion	ASTM D5596
Environmental Stress Crack Resistance using Notched Constant Tensile Load	ASTM D5397

MQA test results are included in **Appendix B.3**. These results were reviewed by Parkhill Site CQA Engineer and confirmed against Project Technical Specifications and 2016 CQA Plan requirements. MQA testing results met the requirements set forth in Project Technical Specifications and 2016 CQA Plan.

2.6.3.3 *Conformance Testing*

Conformance sampling for FML material was performed by TRI, Austin, Texas. TRI or Parkhill collected samples approximately two feet long from the entire roll width and performed conformance testing at the TRI laboratory in Austin, Texas. Conformance samples were collected at a frequency of at least one per 100,000 ft^2 of FML installed to verify that the FML delivered to the OWL met the minimum properties listed in Project Technical Specifications and 2016 CQA Plan. Approximately 579,554 ft^2 of smooth FML and 130,343. ft^2 were installed in the primary FML layer requiring a minimum of six smooth FML and 2 textured FML conformance samples. A total of 13 samples of smooth FML and 3 samples of textured FML were tested by TRI for conformance.

TRI tested the FML samples for the properties listed in **Table 14**, as specified in Project Technical Specifications and 2016 CQA Plan.

TABLE 14 – Skaps HDPE FML – Conformance Testing

60-mil HDPE Smooth and Double-sided Textured FML Property	ASTM Method
Thickness	ASTM D5994
Density	ASTM D1505
Mass per unit area	ASTM D5993
Tensile Properties	ASTM D6693 and ASTM D 6693, Modified
Tear Resistance	ASTM D1004, Modified
Carbon Black Content	ASTM D4218
Carbon Black Dispersion	ASTM D5596
Puncture Strength	ASTM D4833

Conformance test results were reviewed by Parkhill Site CQA Engineer and accepted in accordance with Project Technical Specifications and 2016 CQA Plan. Conformance test results indicated that the FML met the minimum property requirements specified in Project Technical Specifications and 2016 CQA Plan. Conformance testing results for the sixteen samples are included in **Appendix B.4**.

2.6.3.4 *Construction Quality Control (CQC)*

Quality control procedures specified in Project Technical Specifications, 2016 CQA Plan; and industry standards were strictly followed to provide a method to measure and regulate the quality of FML installation. These procedures included such activities as start-up trial welds, destructive and non-destructive seam testing, and verification that deployment and seaming procedures were performed in accordance with Project Technical Specifications, 2016 CQA Plan, and industry standards.

Trial welds were performed at the start and midpoint of each workday, after each break in seaming of one hour or more, and after any equipment shutdown. Trial welds were a minimum of ten feet in length for fusion welders; and a minimum of three feet in length for extrusion fillet welders. One-inch-wide cutouts of the trial welds were field-tested for shear and peel strength using an on-site tensiometer (MEES's tensiometer calibration certificate is provided in **Appendix C.18**) and testing was performed in the presence of Parkhill Site CQA Engineer/Manager. If results of trial weld testing did not comply with Project Technical Specifications and 2016 CQA Plan, the welder was not permitted to continue seaming until the deficiencies were corrected and an additional trial weld was performed which passed the field-testing requirements. Primary trial weld documentation is included in **Appendix C.8**.

Seam testing protocol for the deployed FML included peel and shear testing on mathematically random samples cut from the installed FML (destructive samples) and non-destructive testing (air pressure and/or vacuum box testing) on field seams. The seam-testing program is detailed in Section 2.7.3.6 of this Report.

Parkhill Site CQA Engineer/Manager and FIS observed FML placement activities to verify that deployment and seaming procedures were performed in accordance with Project Technical Specifications and 2016 CQA Plan, which included the underlying leak detection zone materials inspection and approval, seam cleaning, and precautions against potential FML damage during deployment and seaming.

2.6.3.5. Construction Quality Assurance (CQA)

Parkhill Site CQA Engineer/Manager and FIS visually inspected FML material for manufacturing and installation defects as the FML was deployed. No manufacturing flaws were observed in the deployed FML. Parkhill Site CQA Engineer/Manager inspected seamed and non-seamed areas of the FML for wrinkles, defects, holes, blisters, etc. After each panel was deployed, Parkhill Site CQA Engineer/Manager and FIS walked the length of each panel and identified any suspect areas (e.g., defects or blemishes) by marking these areas for repair with a highly visible paint.

2.6.3.6 Seam Testing

In accordance with Project Technical Specifications and 2016 CQA Plan, the field seam verification program consisted of both destructive and non-destructive testing. Sampling and field-testing were performed by the FML installer (MEES) in the presence of Parkhill Site CQA Engineer/Manager. In addition to field-testing, destructive samples were sent to an independent quality assurance laboratory for peel and shear strength testing.

2.6.3.6.1 Destructive Seam Testing

In accordance with Project Technical Specifications and 2016 CQA Plan, a minimum of one destructive test for every 500 linear feet of welded seam (an average taken throughout the entire project) was performed on the FML. Records of the FML weld-seam lengths are included in **Appendix C.9**.

Each destructive test sample was divided into three segments. The first segment was tested in the field for peel and shear strength by the installer using an on-site tensiometer. The second segment was shipped to an independent quality assurance laboratory for laboratory testing. The third sample segment was retained by Parkhill Site CQA Engineer/Manager and delivered to OWL to be archived in the facility operating record. Results of the field destructive tests are provided in **Appendix C.11**; and the independent quality assurance laboratory test results are included in **Appendix D.2**. The field destructive test results and the independent quality assurance laboratory test results were reviewed by Parkhill Site CQA Engineer/Manager for conformance with Project Technical Specifications and 2016 CQA Plan. All peel and shear test results met the requirements of Project Technical Specifications and 2016 CQA Plan.

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2.6.3.6.2 Non-Destructive Seam Testing

Air pressure testing was performed on all double-wedge fusion welded seams in accordance with GRI GM6 "*Practice for Pressurized Air Channel Test for Dual Seamed Geomembranes*," except where a channel blockage occurred. Where channel blockages occurred, the seam was air tested on either side of the area was extrusion-welded and vacuum box tested. An additional patch was extrusion welded over the repaired area and vacuum box tested. Vacuum box testing was performed on all extrusion-welded portions of seams and patches. Test results are documented on the Primary FML Seam Pressure Test Log (**Appendix C.15**) and the FML Seam Vacuum Test and Defect-Repair Log (**Appendix C.16**). Seams and repairs were required to pass the non-destructive testing specifications outlined in Project Technical Specifications, GRI Test Method GM-6, and 2016 CQA Plan before being accepted by Parkhill Site CQA Engineer/Manager.

2.6.4 FML Deployment Records

Documentation for FML deployment and testing for each panel deployed was required prior to FML approval and acceptance. CQA documentation for the FML deployed in Cell 1B/2B are listed in **Table 15**.

TABLE 15 - HDPE Primary FML Deployment CQA Documentation

HDPE FML Deployment CQA Documentation	Certification Report Appendix Location
Secondary and Primary FML Pre-Weld Qualification Test Log	Appendix C.8
Primary FML Deployment Log	Appendix C.13
Primary FML Seaming Log	Appendix C.14
Primary FML Seam Pressure Test Log	Appendix C.15
FML Seam Vacuum Test and Defect-Repair Log	Appendix C.16
Demtech Tensiometer Calibration Certification	Appendix C.18

FML installation was accepted after the data listed in **Table 15** was submitted to, reviewed by, and approved by Parkhill Site CQA Engineer. Cell 1B/2B as-built FML panel layout is included as **Figures 11 and 12**. Photo documentation recorded FML placement activity on landfill floor and side slopes. Project photographs are provided in the Project Photographs section.

2.7 GEOSYNTHETIC CUSHION/DRAINAGE LAYER

Geosynthetic Cushion/Drainage Layer was installed directly above the primary FML in accordance with engineering design Drawings, Project Specifications, and 2016 CQA Plan. This layer consists of a double-sided geocomposite for the side slopes and a single-sided geocomposite for the floor. The following sections describe the procedures and activities performed during the drainage layer installation, observation, and CQA testing.

2.7.1 Geosynthetic Cushion/Drainage Layer Product

Geocomposite utilized in Cell 1B/2B construction is a 200-mil high-density polyethylene (HDPE) encapsulated on both sides for double-sided and one side for a single-sided geocomposite manufactured by Skaps. Cushion/drainage layer material is specified to encompass the entire double-lined system and was delivered on-site in rolls 14.5 feet wide by 250 feet long for single-sided geocomposite and 14.5 feet wide by 200 feet long for double-sided geocomposite. Rolls were staged along the southern perimeter of Cell 1B/2B to provide easy access and to minimize handling of the material. In accordance with CQA Plan and Project Specifications, material was not stacked more than two rolls high. Labels were compared with shipping invoice to verify that the materials received corresponded with materials subjected to manufactures quality control/manufactures quality assurance testing (see Section 2.7.3). The material was also inspected for damage during off-loading and staging.

2.7.2 Geosynthetic Cushion/Drainage Layer Material Installation

Cushion/Drainage Layer material installation activities were performed in accordance with the guidelines stipulated in 2016 CQA Plan, Project Specifications, the engineering design Drawings, and industry standards for handling, and placement. Each roll was carefully moved from the staging area to Cell 1B/2B using a rubber-tired extendable forklift. The forklift was not permitted on primary FML, and the material was placed by hand. Upon deployment, each roll label was removed and submitted to Parkhill Site CQA Engineer/Manager and panel location documented (see **Figure 13 and Figure 14**).

After each panel had been placed, adjoining panels were positioned with a four- to six-inch overlap. The overlap distance is required for proper attachment using zip ties placed at five feet six inches longitudinally and end-to-end seams respectively. The geotextile encapsulating the geonet core of the geocomposite were then fused together using industry standard heat tacking methods. Seams were oriented at approximately 45 degrees to the line of prevailing base grade slope and perpendicular to the side slopes.

2.7.3 Geosynthetic Cushion/Drainage Layer Testing

Geocomposite testing included manufacturer's quality control (MQC) and quality assurance (MQA), conformance testing, construction quality control (CQC), CQA, and seam testing. Each type of testing is discussed in the following sections.

2.7.3.1 Manufacturer's Quality Control (MQC)

Formosa Plastics Corp, Texas performed resin testing on the raw materials used in the manufacturing of the Geocomposite. These test results and written certifications that the product delivered has been extruded from an acceptable resin are included in **Appendix B.7**.

2.7.3.2 Manufacturer's Quality Assurance (MQA)

As required by Project Technical Specifications and 2016 CQA Plan, the manufacturer performed the geocomposite property testing listed in **Table 16** prior to delivery of the materials to the Site.

TABLE 16 – Skaps Geocomposite - MQC Testing	
Geocomposite Property	**ASTM Method**
Thickness	ASTM D5199
Density	ASTM D792
Carbon Black Content	ASTM D4218
Tensile Strength	ASTM D7179
Peel Strength	ASTM D7005
Mass Per Unit Area	ASTM D5261
Transmissivity (loaded)	ASTM D4716

Geocomposite quality control certifications, property values, and testing frequencies for on-site material delivered to OWL are provided in **Appendix B.8**.

2.7.3.3 Conformance Testing

Conformance sampling for the geocomposite material was performed by TRI, Austin, Texas. TRI or Parkhill collected a sample approximately two feet long from the entire roll width and performed conformance testing at the TRI laboratory in Austin, Texas. Conformance samples were collected at a frequency of at least one per 100,000 ft^2 installed to verify that the geocomposite delivered to the OWL met the minimum properties listed in the Project Technical Specifications and 2016 CQA Plan. Approximately 135,822 ft^2 of double-sided geocomposite and approximately 590,044 ft^2 of single-sided geocomposite material was installed in the Cell 1B/2B geocomposite layer requiring a minimum of two double-sided geocomposite and six single-sided geocomposite samples. TRI tested seven single-sided and three double-sided geocomposite conformance samples for the properties listed in **Table 17**; as specified in Project Technical Specifications and 2016 CQA Plan.

TABLE 17 - GSE Environmental Geocomposite - Conformance Testing	
Geocomposite Property	**ASTM Method**
Density	ASTM D1505
Transmissivity	ASTM D4716
Peel Strength	ASTM D7005
Tensile Strength	ASTM D7179

Appendix B.8. provides independent quality assurance laboratory test results. The results were reviewed by Parkhill CQA Engineer and compared with Project Technical Specifications and 2016 CQA Plan for Geocomposite. The properties of the geocomposite meet or exceed Project Technical Specifications and 2016 CQA Plan requirements.

2.7.3.4 *Construction Quality Control (CQC)*

Quality control procedures specified in the project documents were strictly followed to provide a method to measure and regulate the quality of geocomposite installation. These procedures included such activities as proper overlapping and correct zip-tie spacing on the floor and side slopes.

Both the Parkhill Site CQA Engineer/Manager and FIS observed placement activities to verify that deployment and seaming procedures were performed in accordance with the CQA Plan and Project Specifications.

2.7.3.5 *Construction Quality Assurance (CQA)*

Parkhill Site CQA Engineer/Manager and FIM visually inspected all material for manufacturing and installation defects. No manufacturing flaws were observed in the installed geocomposite. Parkhill Site CQA Engineer/Manager inspected all seamed and non-seamed areas of the geocomposite for wrinkles, defects, etc. After each panel was deployed, Parkhill Site CQA Engineer/Manager and FIS walked the length of each panel to identify any suspect areas (e.g., defects or tears) by marking these areas for repair with a highly visible paint. No suspect areas were found.

2.7.4 Geosynthetic Cushion/Drainage Layer Deployment Records

Documentation for cushion/drainage layer material deployment was required prior to approval and acceptance. CQA documentation for geocomposite deployed in Cell 1B/2B is provided in **Appendix C.17.**

Drainage/cushion layer material installation was accepted after above-listed data was submitted to, reviewed, and approved by Parkhill CQA Officer. Geosynthetic cushion/drainage layer panel as-built for Cell 1B/2B B is included as **Figures 13 and 14**. Photo documentation recorded geocomposite placement activity on the landfill floor and side slopes. Project photographs are provided in the Project Photograph section. Upon installation of Drainage/cushion layer, anchor trench was backfilled and compacted to Design Specifications (**Appendix A.4**).

2.8 LEACHATE COLLECTION SYSTEM

Upon completion of liner system installation, and confirming that all repairs were adequately addressed, 4XCG began installation of the leachate collection system which included placement of aggregate, pipe, and geocomposite.

Parkhill observed placement of the leachate collection system ensure the methods and material used during construction did not damage the installed liner system.

2.9 PROTECTIVE SOIL LAYER

Upon completion of liner system installation, and after confirming that all repairs were adequately addressed, 4XCG began placing a minimum two-foot thickness of PSL on the cell floor and side slope. Material for the PSL is comprised of on-site soil material pre-qualified by Parkhill Site CQA Engineer/Manager.

Parkhill observed placement of the PSL to ensure that the methods and material used during construction did not damage the installed liner system. The thickness of the PSL was verified by field survey measurements on August 2, 2023, conducted by WTC (**Figure 10**). The survey indicates that a minimum of two feet of PSL was placed over the top of the cell floor and side slope liner systems (**Figures 15 and 16**).

2.10 FUTURE LINER TIE-IN DETAILS, STORMWATER AND LINER PROTECTION BERM

Future liner tie-in will be to Cell 1C/2C directly to the south, Cell 3B directly to the west of Cell 1B/2B. The design for the stormwater and liner protection berm constructed in the perimeter transition zones of Cell 1B/2B, as shown on **Figure 2**, serves the intended purpose to control stormwater run-on and to protect the installed liner system.

Contractor constructed the stormwater and liner protection berm by placing soil along the floor and side slope of the cell until design grades were achieved. The stormwater and liner protection berm as-built is shown on **Figures 3 and 4**.

3.0 ENGINEERING CERTIFICATION

This Engineering Certification Report demonstrates that the composite liner and leak detection system for Cell 1B/2B has been installed in accordance with New Mexico Energy, Minerals, and Natural Resources Department Regulations (19.15.36.11 – 19.15.36.112 NMAC). This Certification is sealed by Tyler S. Krueger, a New Mexico Professional Engineer with extensive applicable experience with waste engineering and geosynthetic liner systems (**Appendix G**).

FIGURES

Figure 1 Site Location Map

Figure 2 Subgrade Design Grades

Figure 3 2B Subgrade As-Built Locations

Figure 4 1B Subgrade As-Built Locations

Figure 5 2B GCL As-Built

Figure 6 1B GCL As-Built

Figure 7 2B Secondary FML As-Built

Figure 8 1B Secondary FML As-Built

Figure 9 2B Geonet As-Built

Figure 10 1B Geonet As-Built

Figure 11 2B Primary FML As-Built

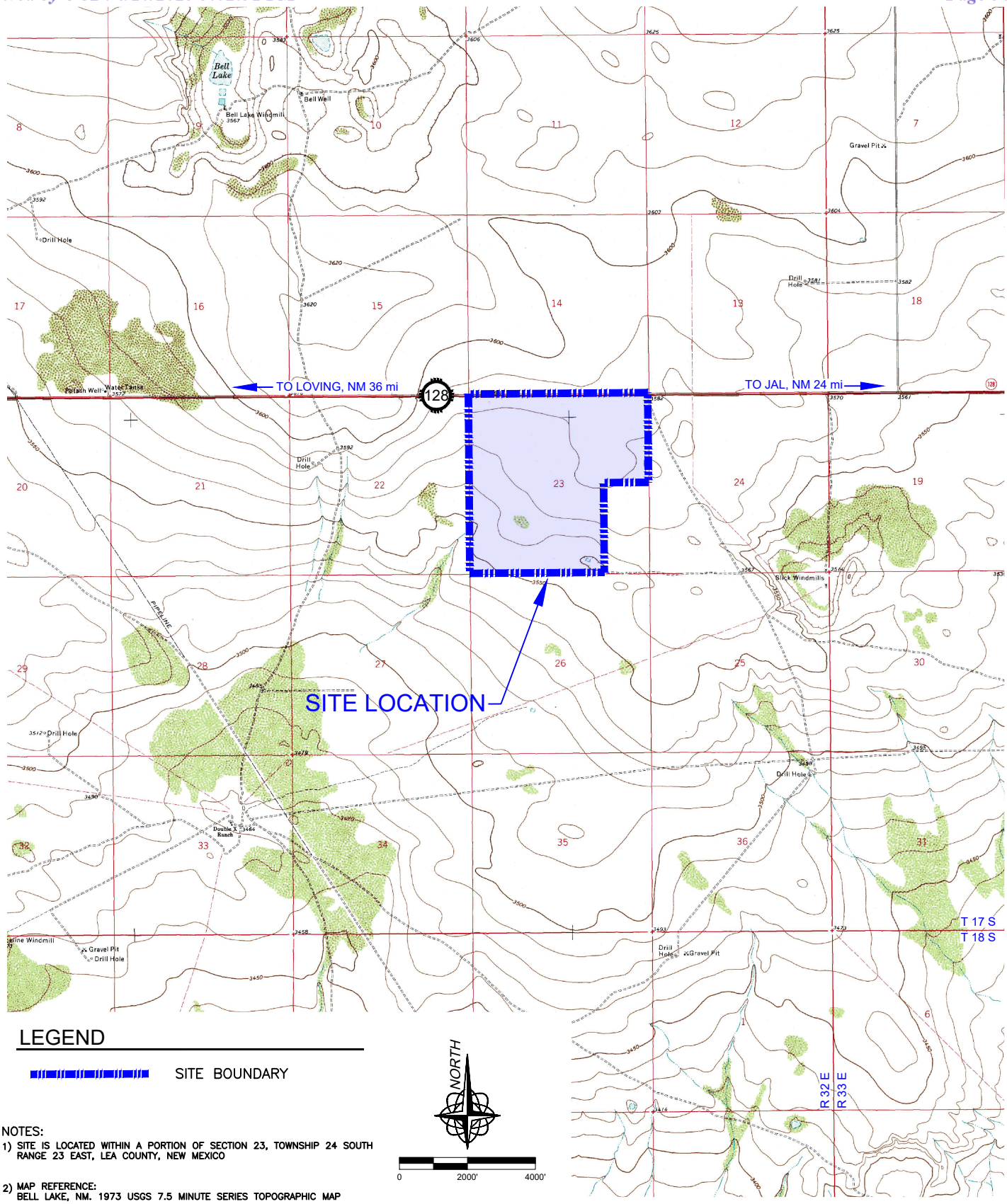
Figure 12 1B Primary FML As-Built

Figure 13 2B Geocomposite As-Built

Figure 14 1B Geocomposite As-Built

Figure 15 2B Protective Soil Layer As-Built

Figure 16 1B Protective Soil Layer As-Built



LEGEND

SITE BOUNDARY

NOTES:

1) SITE IS LOCATED WITHIN A PORTION OF SECTION 23, TOWNSHIP 24 SOUTH RANGE 23 EAST, LEA COUNTY, NEW MEXICO

2) MAP REFERENCE:
BELL LAKE, NM. 1973 USGS 7.5 MINUTE SERIES TOPOGRAPHIC MAP

\\PROJECTS-DFS\PROJECTS\2023\42035.23\03_DSGN\01_DWG\050_CIVIL\02_CONTENT\LER\FIGURE 1 SITE LOCATION.DWG, 12/10/2024 1:56:24 PM, jgonzales

OWL LANDFILL SERVICES

ENGINEERING CERTIFICATION REPORT

OILFIELD WATER LOGISTICS
JAL, NEW MEXICO
LEA COUNTY, NEW MEXICO

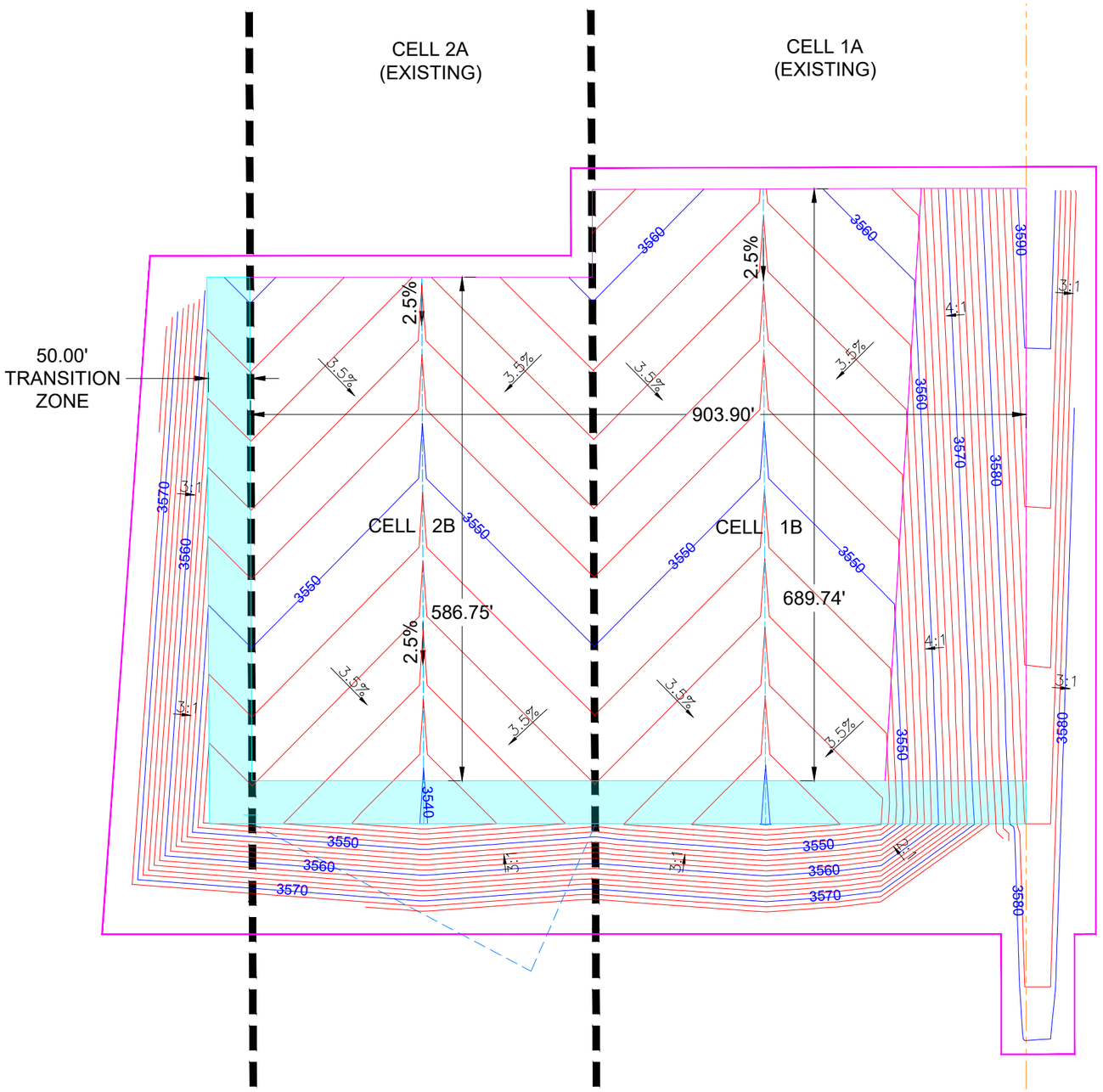
Parkhill

Parkhill.com

SITE LOCATION MAP

Issue:	00
Date:	12/10/2024
Project No:	42035.23
Sheet:	FIGURE 1

\\PROJECTS-DFS\PROJECTS\2023\42035.23\03_DSGN\01_DWG\050_CIVIL\02_CONTENT\LER\FIGURE 2 SUBGRADE DESIGN.DWG, 12/11/2024 4:44:00 PM, jgonzales



LEGEND

- SOLID WASTE DISPOSAL BOUNDARY
- CELL BOUNDARY
- PROJECT BOUNDARY
- 3400 PROPOSED GRADE CONTOUR - 10'
- PROPOSED GRADE CONTOUR - 2'
- PROPOSED LEACHATE LINE
- TRANSITION ZONE

OWL LANDFILL SERVICES
CELL 1B/2B ENGINEERING CERTIFICATION REPORT

OILFIELD WATER LOGISTICS
JAL, NEW MEXICO
LEA COUNTY, NEW MEXICO

Parkhill
Parkhill.com

SUBGRADE DESIGN GRADES

Issue:	00
Date:	12/10/2024
Project No:	42035.23
Sheet:	FIGURE 2

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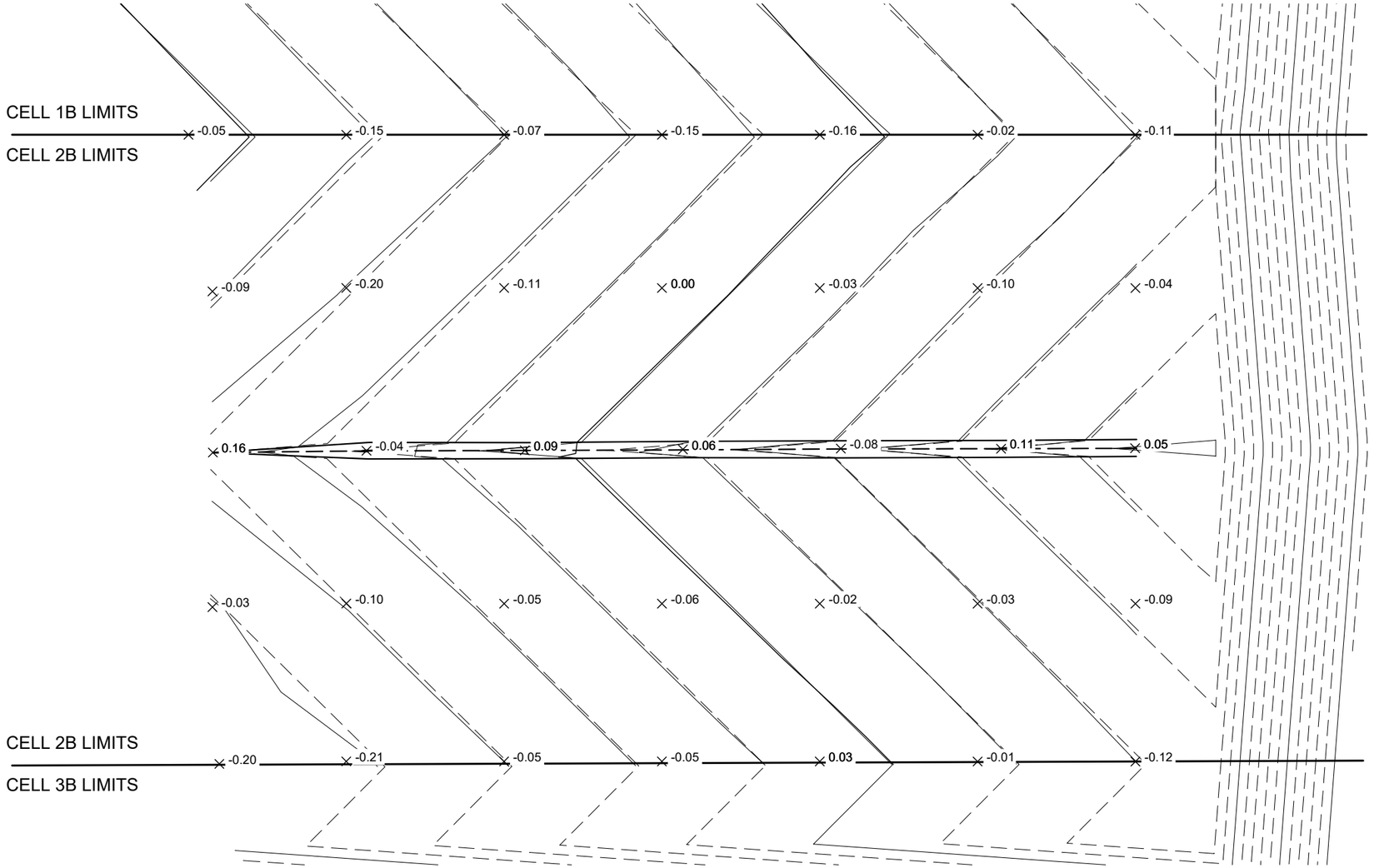
NOTES:

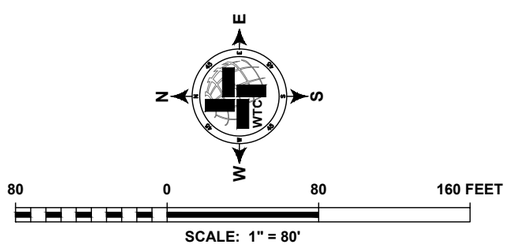
1. BASIS OF BEARING, COORDINATES AND DISTANCES ARE A LAMBERT CONICAL PROJECTION OF THE TEXAS COORDINATE SYSTEM, STATE PLANE GRID, NAD 83, NEW MEXICO EAST, WITH A CONVERGENCE ANGLE OF −000° 53' 22.66" AND A COMBINED SCALE FACTOR OF 1.000244819075, BASED ON CONTROL POINT "206" LOCATED AT COORDINATES: N: 438531.77'; E: 783105.77'.

3. CONTOUR INTERVAL 2 FOOT NORTH AMERICAN VERTICAL DATUM 1988



LEGEND

- CELL BOUNDARY
- OBSERVED SLOPE TOE
- OBSERVED SLOPE TOP
- EXISTING SG LAYER MAJOR/MINOR CONTOUR LINE
- PROP. SG MAJOR/MINOR CONTOUR LINE



WTC ENGINEERS I SURVEYORS

WEST TEXAS CONSULTANTS, INC.
ENGINEERS PLANNERS SURVEYORS
405 S.W. 1st. Street
Andrews, TX 79714
(432) 523-2181
TEXAS REGISTERED ENGINEERING FIRM F-2746
TEXAS REGISTERED SURVEYOR FIRM #100792-00

JAMES C. TOMPKINS NEW MEXICO 27177 PROFESSIONAL SURVEYOR

02/09/2025

JAMES C. TOMPKINS, N.M. P.L.S. No.27177

SURVEY DATE: 05/06/2024

OWL NDBL SWMF
CELL 2B

FIGURE 3

SUBGRADE VERIFICATION SURVEY

DESIGN	DRAWN	DATE	PROJECT NO.	SCALE	SHEET #
N/A	OV	2/9/25	55999	N/A	1

Z:\Projects\Construction Surveying\55999-Parkhill, OWL Cell 5&6 Construction, Lea Co. NM\Drawings\CELL 1B 2B subgrade VERIFICATION.dwg

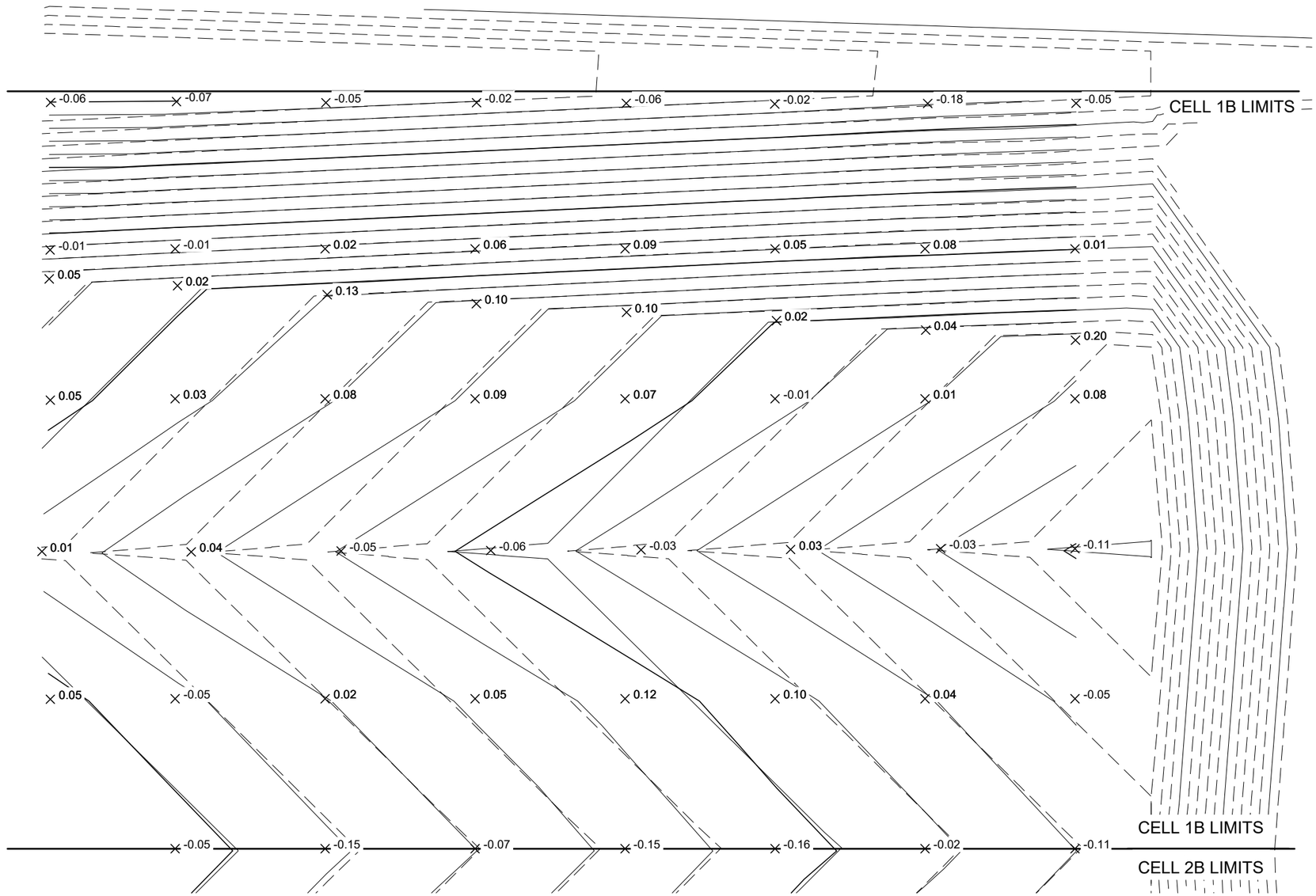
NOTES:

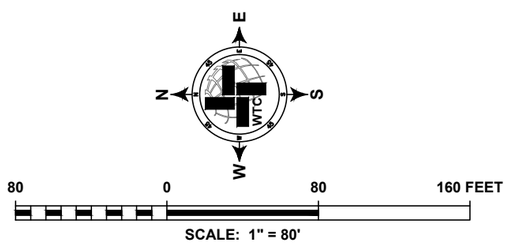
1. BASIS OF BEARING, COORDINATES AND DISTANCES ARE A LAMBERT CONICAL PROJECTION OF THE TEXAS COORDINATE SYSTEM, STATE PLANE GRID, NAD 83, NEW MEXICO EAST, WITH A CONVERGENCE ANGLE OF −000° 53' 22.66" AND A COMBINED SCALE FACTOR OF 1.000244819075, BASED ON CONTROL POINT "206" LOCATED AT COORDINATES: N: 438531.77'; E: 783105.77'.

3. CONTOUR INTERVAL 2 FOOT NORTH AMERICAN VERTICAL DATUM 1988

LEGEND

- CELL BOUNDARY
- OBSERVED SLOPE TOE
- OBSERVED SLOPE TOP
- EXISTING SG LAYER MAJOR/MINOR CONTOUR LINE
- PROP. SG MAJOR/MINOR CONTOUR LINE





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JAMES C. TOMPKINS NEW MEXICO 27177 PROFESSIONAL SURVEYOR

02/09/2025

JAMES C. TOMPKINS, N.M. P.L.S. No.27177

SURVEY DATE: 07/22/2024

OWL NDBL SWMF
CELL 1B

FIGURE 4

PROTECTIVE SOIL LAYER VERIFICATION SURVEY

DESIGN	DRAWN	DATE	PROJECT NO.	SCALE	SHEET #
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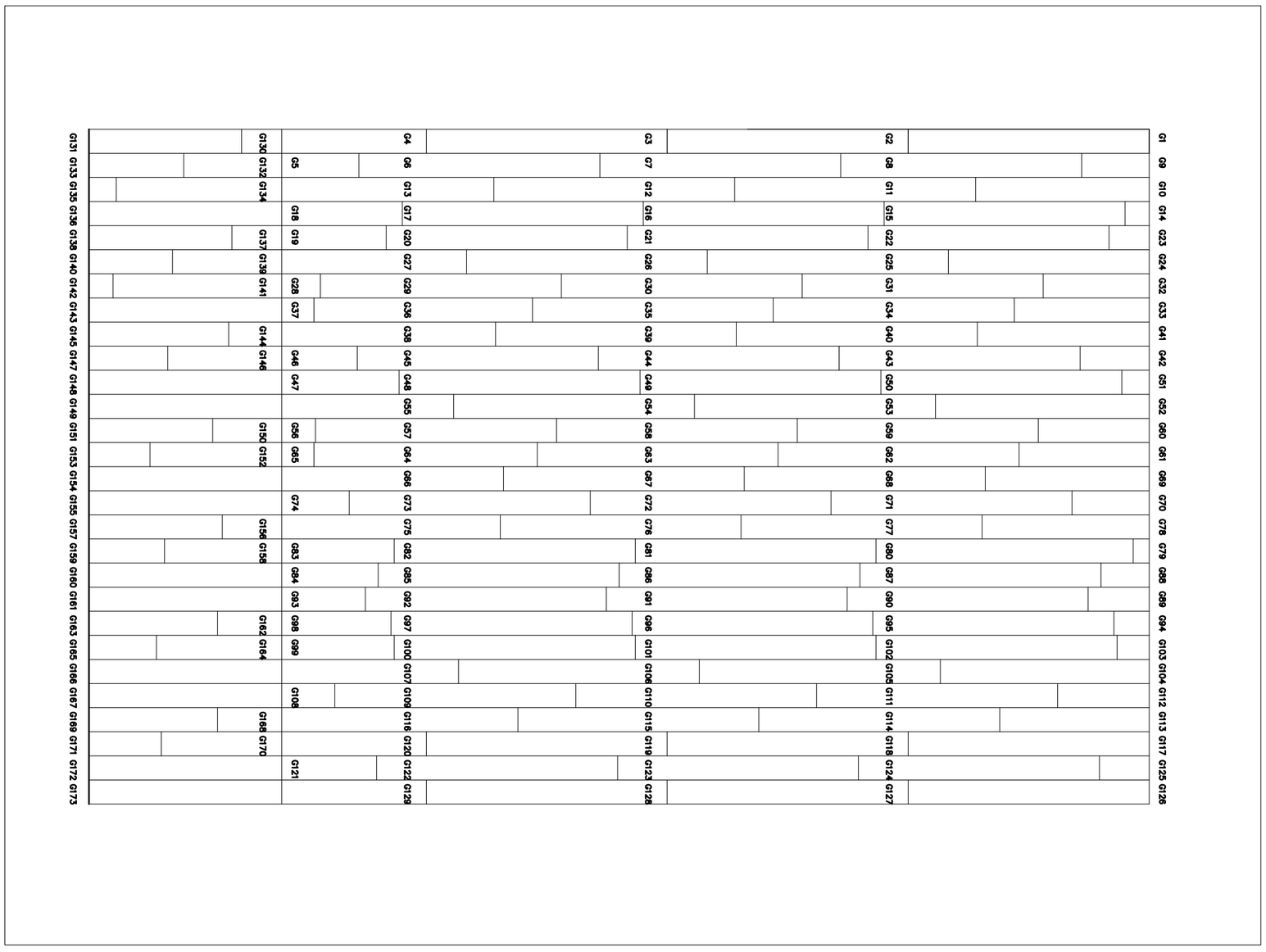
Page 38 of 536



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LINER SEAMS —— REPAIR PATCH R-22 R-33 PANEL # P-97 DESTRUCT DS-20

N W E S

SHEET NO. 1 OF 1

MUSTANG extreme environmental services

GCL LINER LAYOUT

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Cell 2B & 1B

FIGURE 5

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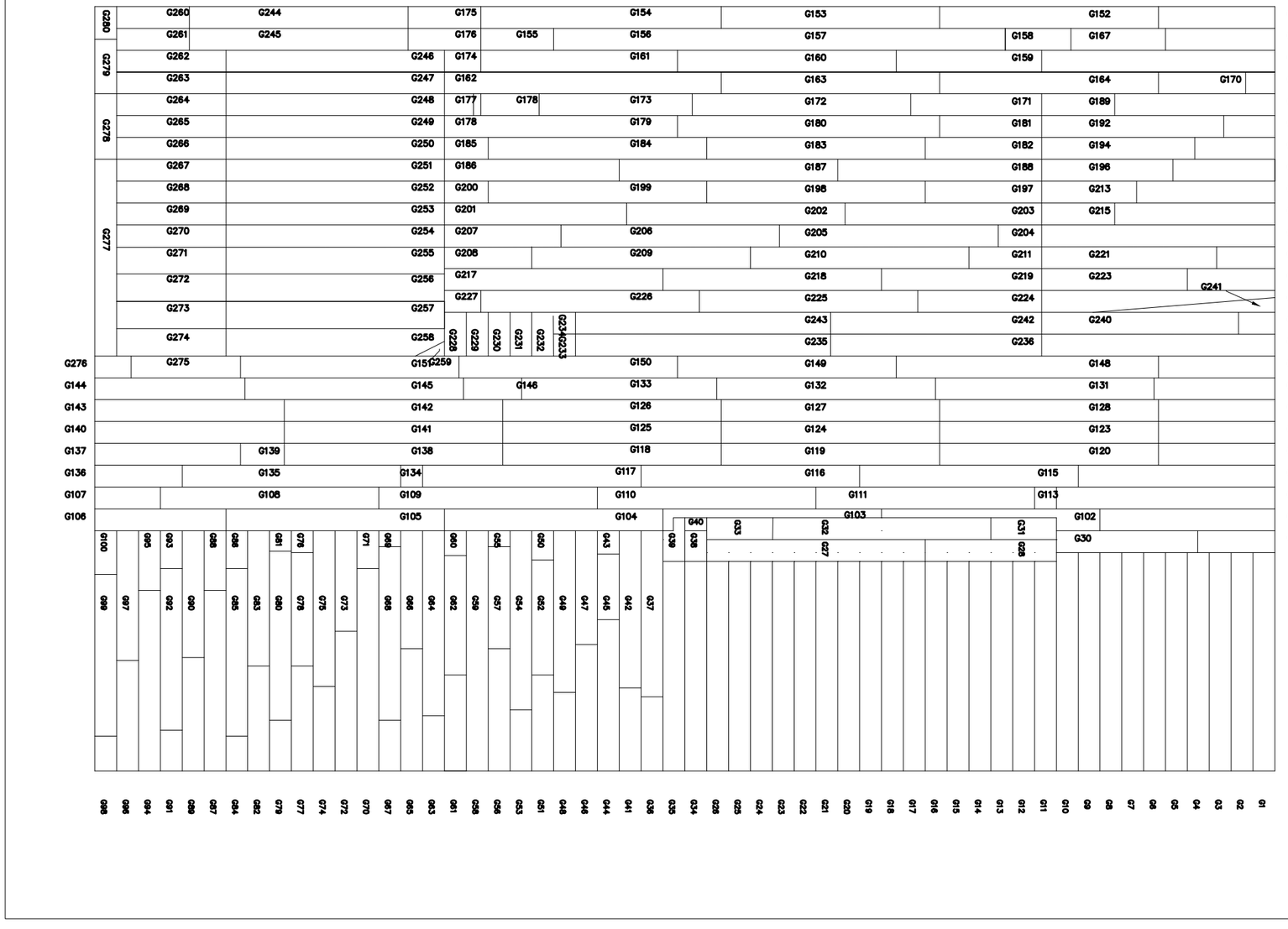
Page 39 of 536



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LINER SEAMS ——— REPAIR PATCH R-22 R-33 PANEL # DESTRUCT P-97 DS-20

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GCL

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FIGURE 6

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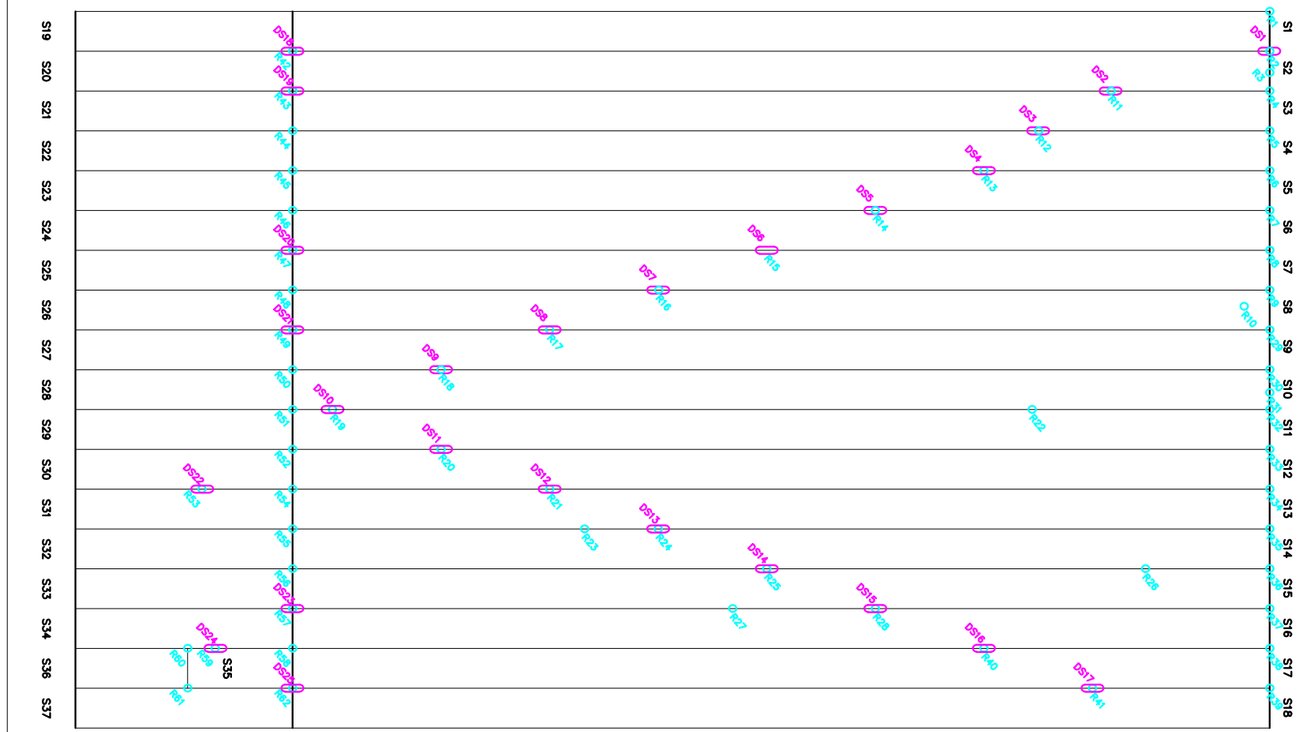

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LINER SEAMS —— REPAIR PATCH R-22 R-33 PANEL # DESTRUCT P-97 DS-20

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SECONDARY LINER LAYOUT

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Oilfield Water Logistics (OWL)
Cell 2B & 1B
60 Mil HDPE Smooth Black

FIGURE 7

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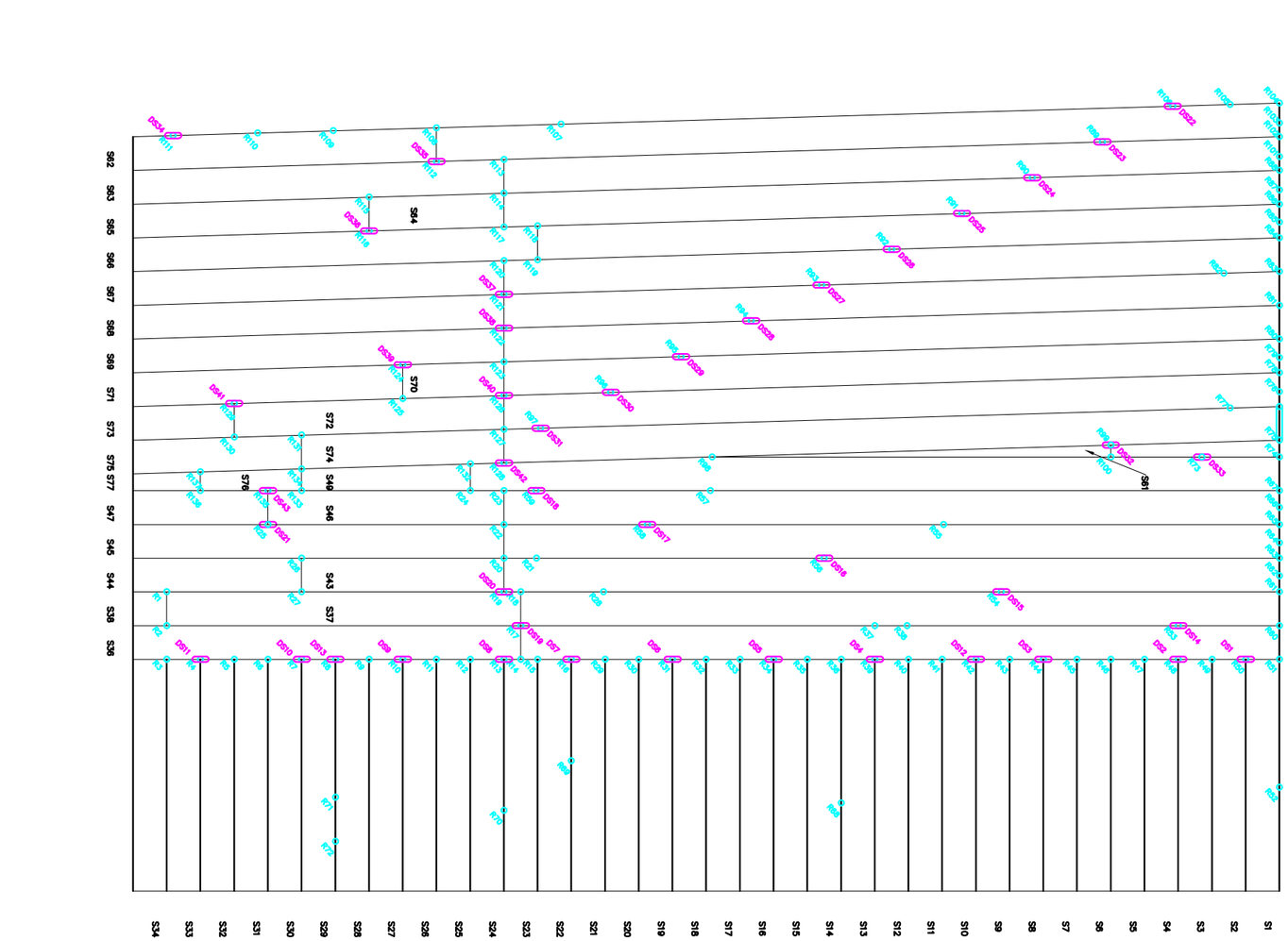
Page 41 of 536



LINER SEAMS —— REPAIR PATCH R-22 R-33 PANEL # DESTRUCT P-97 DS-20

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SECONDARY LAYER

Oilfield Water Logistics (OWL)
Cell 1B 60 mil Smooth and Textured
Layer 2

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FIGURE 8

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Page 42 of 536

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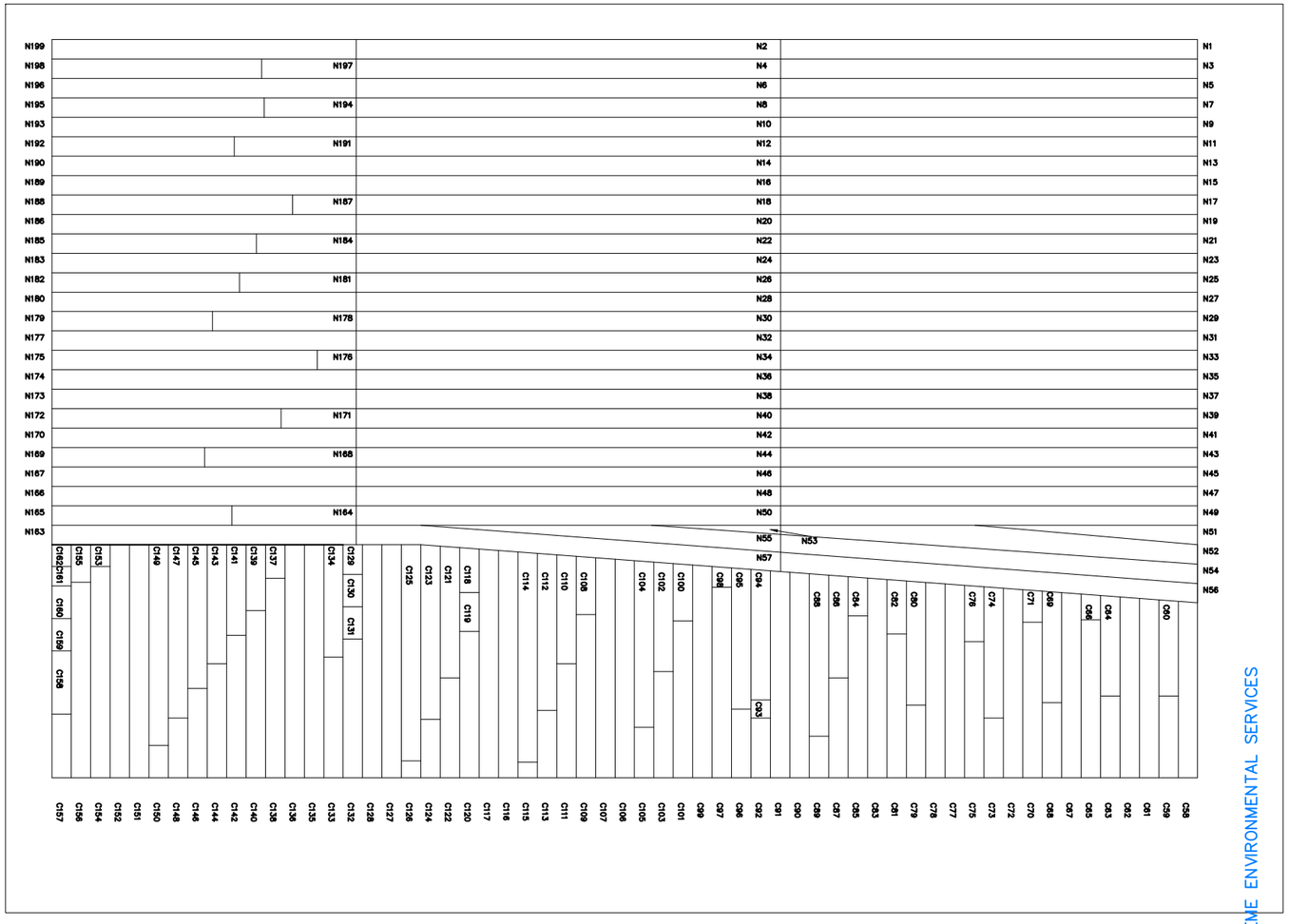

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LINER SEAMS —— REPAIR PATCH R-22 R-33 PANEL # DESTRUCT P-97 DS-20

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Net and Composite

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Oilfield Water Logistics (OWL)
Cell 1B
Layer 3

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FIGURE 10

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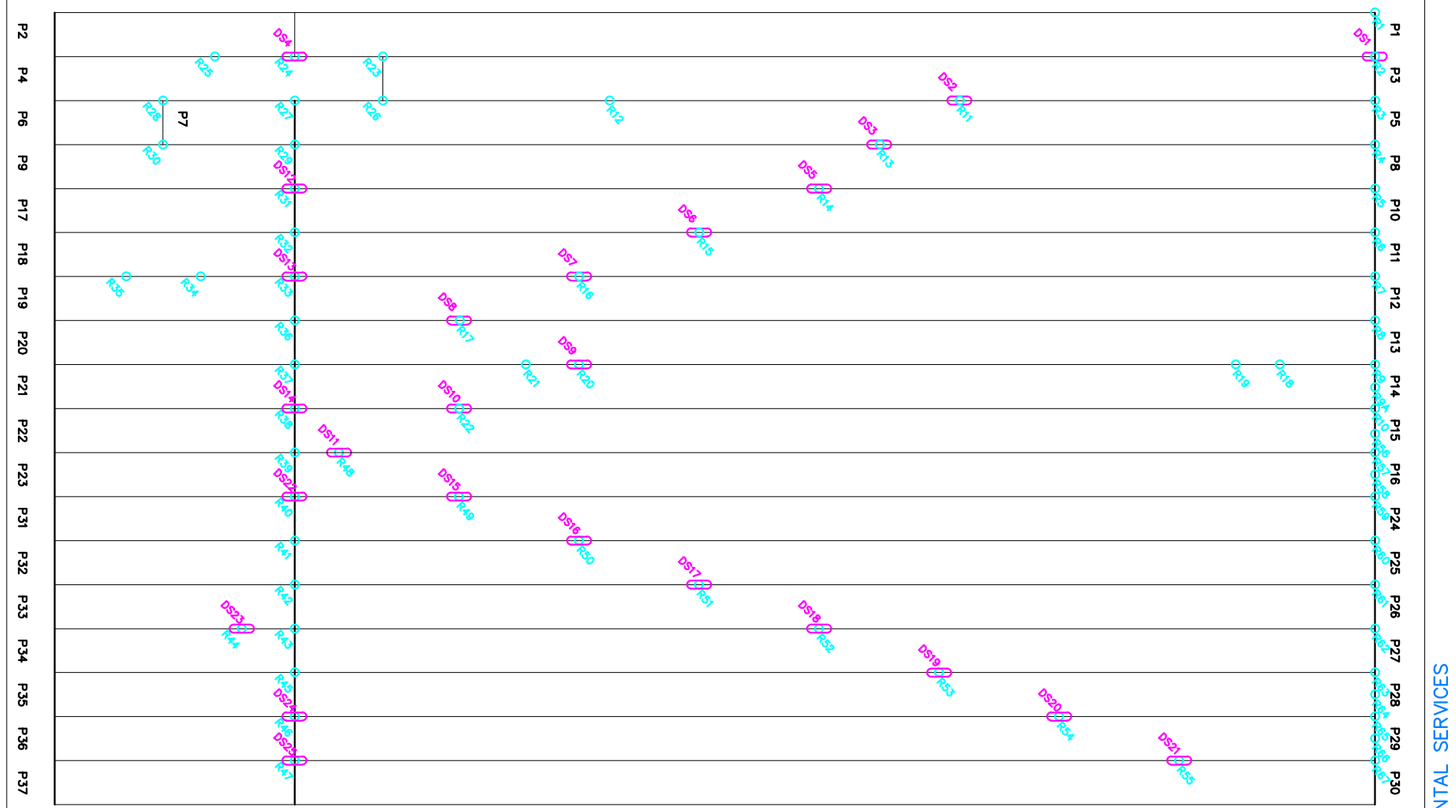

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LINER SEAMS —— REPAIR PATCH R-33

PANEL # P-97
DESTRUCT DS-20

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PRIMARY LINER LAYOUT

Oilfield Water Logistics (OWL)
Cell 2B & 1B
60 Mil HDPE Smooth Black

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FIGURE 11

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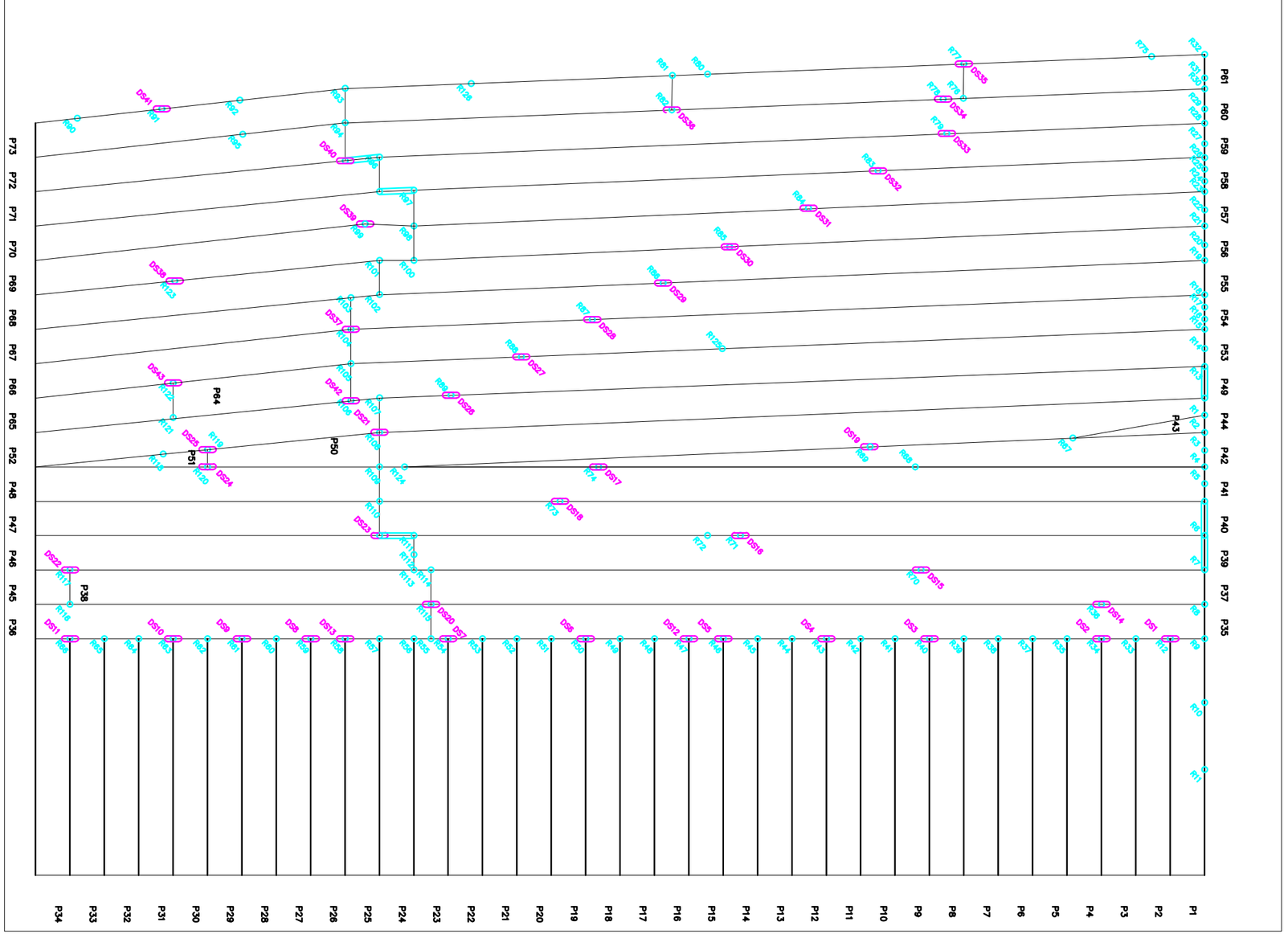
Page 45 of 536



LINER SEAMS

REPAIR PATCH R-22 R-33

PANEL # DESTRUCT P-97 DS-20

N W E S

SHEET NO. 1 OF 1

MUSTANG extreme environmental services

PRIMARY LINER LAYOUT

REVISION: 0
DATE: AUG 2024
NOT TO SCALE
DRAWN BY: TR

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Oilfield Water Logistics (OWL)
Cell 1B 60 mil Smooth and Textured
Layer 4

FIGURE 12

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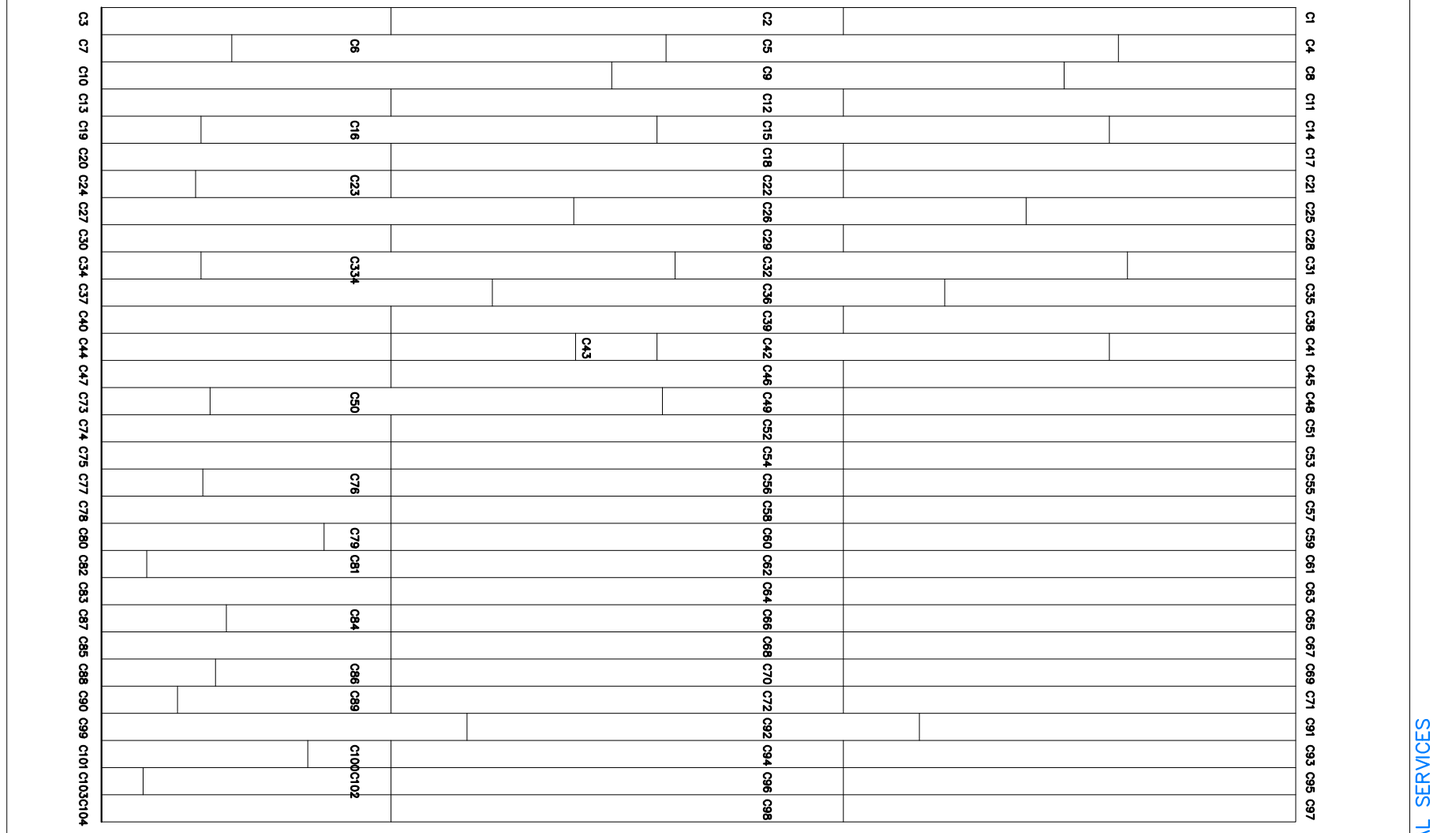
Page 46 of 536



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LINER SEAMS —— REPAIR PATCH R-22 R-33

PANEL # P-97
DESTRUCT DS-20

N W E S

SHEET NO. 1 OF 1

MUSTANG extreme environmental services

COMPOSITE LINER LAYOUT

REVISION: 0
DATE: MAY 2024
NOT TO SCALE
DRAWN BY: TR

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Oilfield Water Logistics (OWL)
Cell 2B & 1B

FIGURE 13

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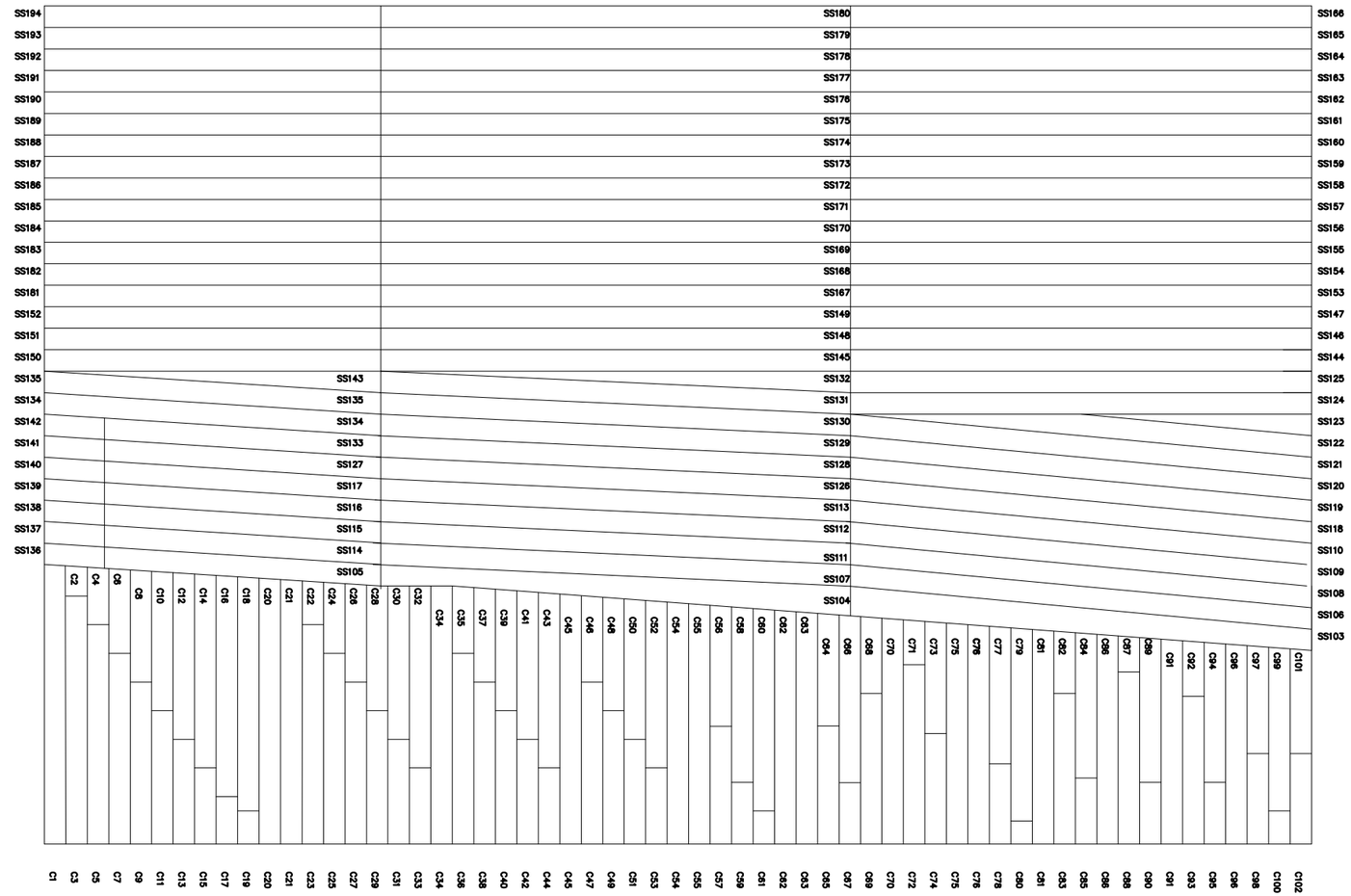
Page 47 of 536



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LINER SEAMS —— REPAIR PATCH R-22 R-33

PANEL # P-97

DESTRUCT DS-20

N W E S

SHEET NO. 1 OF 1

MUSTANG extreme environmental services

Composite

5049 EDWARDS RANCH RD STE 240
FORT WORTH TX 76109

PHONE: 817-441-1235
WWW.MUSTANGEXTREME.COM

Oilfield Water Logistics (OWL)
Cell 1B
Layer 5

REVISION: 0
DATE: AUG 2024
NOT TO SCALE
DRAWN BY: TR

FIGURE 14

Received by OCD: 4/10/2025 3:02:31 PM

Released to Imaging: 4/22/2025 11:02:49 AM

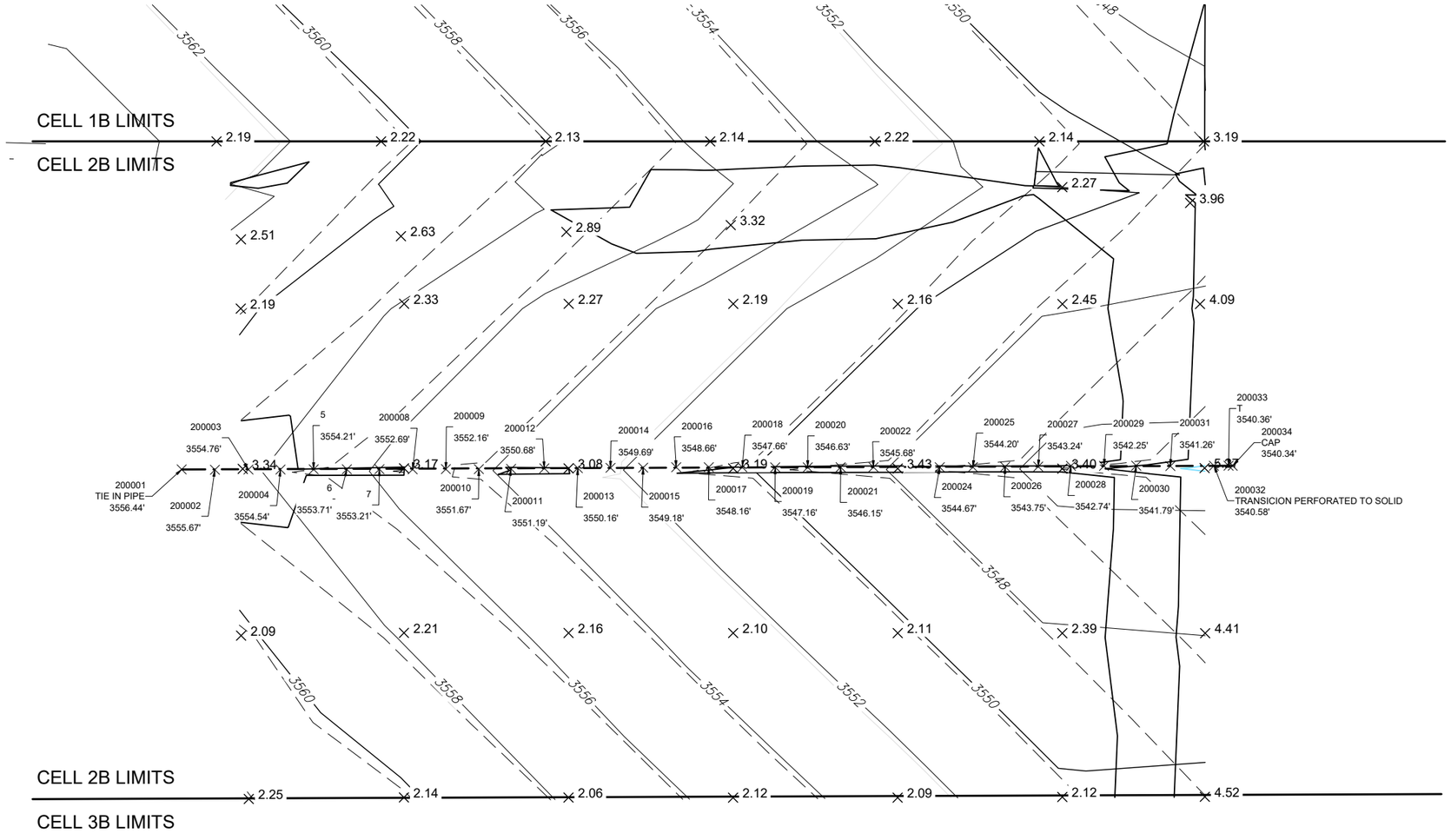
NOTES:

1. BASIS OF BEARING, COORDINATES AND DISTANCES ARE A LAMBERT CONICAL PROJECTION OF THE TEXAS COORDINATE SYSTEM, STATE PLANE GRID, NAD 83, NEW MEXICO EAST, WITH A CONVERGENCE ANGLE OF −000° 53' 22.66" AND A COMBINED SCALE FACTOR OF 1.000244819075, BASED ON CONTROL POINT "206" LOCATED AT COORDINATES: N: 438531.77'; E: 783105.77'.

2. CONTOUR INTERVAL 2 FOOT NORTH AMERICAN VERTICAL DATUM 1988.

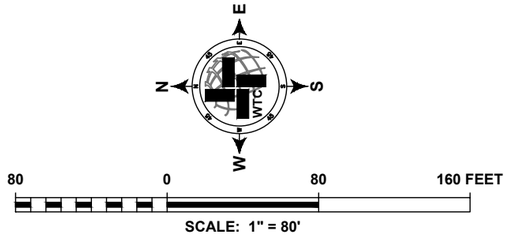
3. SPOT ELEVATIONS SHOWN ON THIS DRAWING ARE OBTAINED BY COMPARING PSL ELEVATIONS WITH SUBGRADE ELEVATIONS

4. DATA FOR LEACHATE PIPE HAS BEEN PROVIDED BY THE CONTRACTOR



LEGEND

- CELL BOUNDARY
- OBSERVED SLOPE TOE
- OBSERVED SLOPE TOP
- PROTECTIVE SOIL LAYER MAJOR/MINOR CONTOUR LINE
- SUBGRADE MAJOR/MINOR CONTOUR LINE
- EXISTING LEACHATE PIPE



WTC
ENGINEERS I SURVEYORS
WEST TEXAS CONSULTANTS, INC.
ENGINEERS PLANNERS SURVEYORS
405 S.W. 1st. Street
Andrews, TX 79714
(432) 523-2181
TEXAS REGISTERED ENGINEERING FIRM F-2746
TEXAS REGISTERED SURVEYOR FIRM #100792-00

JAMES C. TOMPKINS NEW MEXICO 27177 PROFESSIONAL SURVEYOR

02/20/2025

JAMES C. TOMPKINS, N.M. P.L.S. No.27177

SURVEY DATE: 06/10/2024

OWL NDBL SWMF
CELL 2B

FIGURE 15

PROTECTIVE SOIL LAYER VERIFICATION SURVEY

DESIGN	DRAWN	DATE	PROJECT NO.	SCALE	SHEET #
N/A	OV	2/20/25	55999	N/A	1

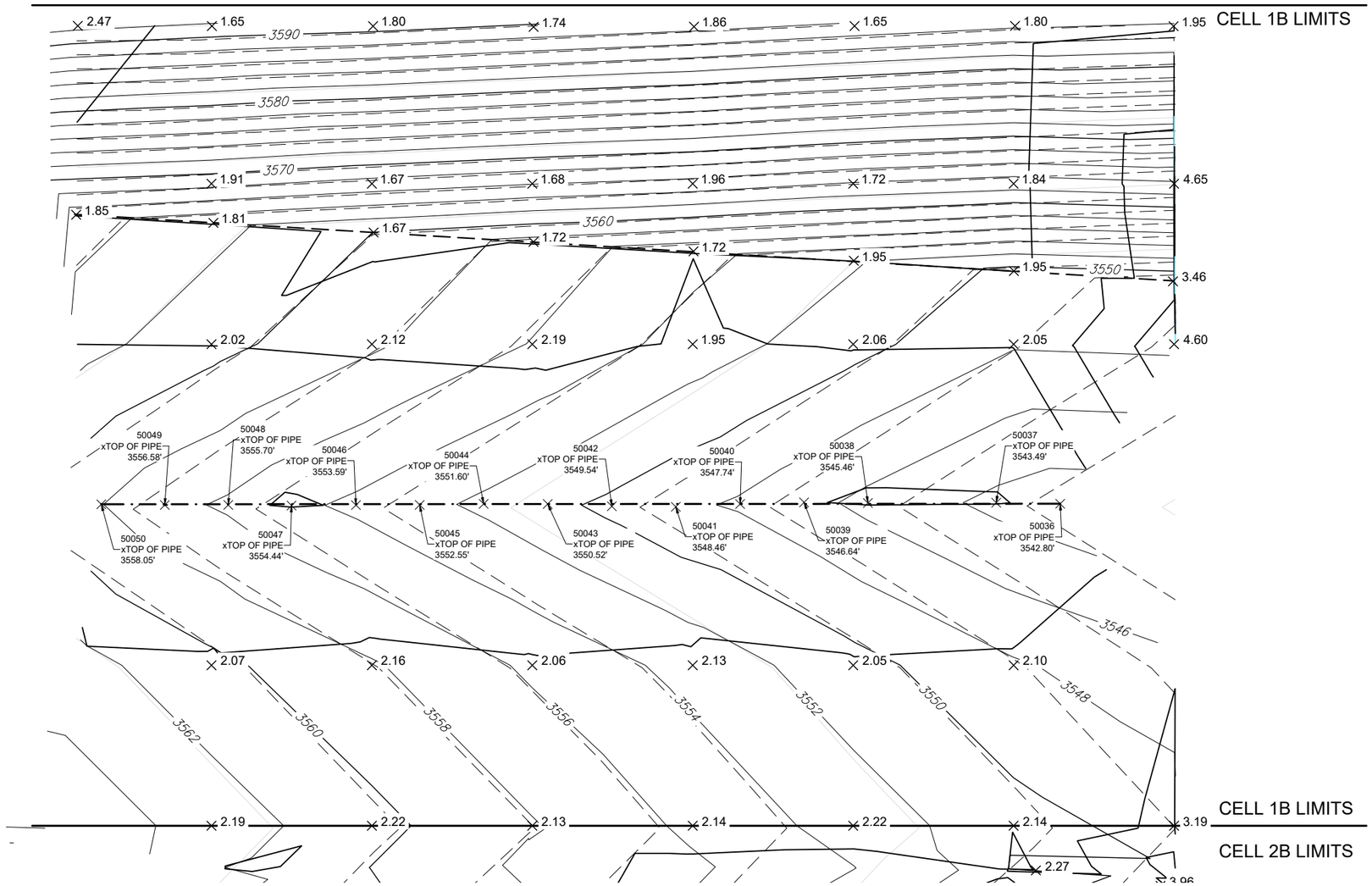
Z:\Projects\Construction Surveying\55999-Portehill, OWL Cell 5&B Construction, Lea Co., NM\Drawings\CELL 2B PSL VERIFICATION.dwg

NOTES:

1. BASIS OF BEARING, COORDINATES AND DISTANCES ARE A LAMBERT CONICAL PROJECTION OF THE TEXAS COORDINATE SYSTEM, STATE PLANE GRID, NAD 83, NEW MEXICO EAST, WITH A CONVERGENCE ANGLE OF −000° 53' 22.66" AND A COMBINED SCALE FACTOR OF 1.000244819075, BASED ON CONTROL POINT "206" LOCATED AT COORDINATES:
N: 438531.77'; E: 783105.77'.

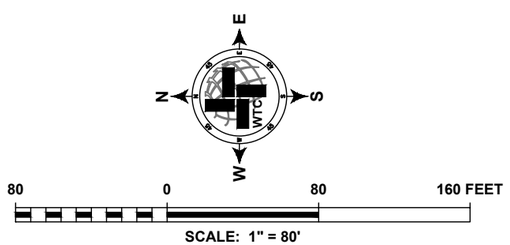
2. CONTOUR INTERVAL 2 FOOT NORTH AMERICAN VERTICAL DATUM 1988.

3. SPOT ELEVATIONS SHOWN ON THIS DRAWING ARE OBTAINED BY COMPARING PSL ELEVATIONS WITH SUBGRADE ELEVATIONS



LEGEND

- CELL BOUNDARY
- OBSERVED SLOPE TOE
- OBSERVED SLOPE TOP
- PROTECTIVE SOIL LAYER MAJOR/MINOR CONTOUR LINE
- SUBGRADE MAJOR/MINOR CONTOUR LINE
- EXISTING LEACHATE PIPE



WEST TEXAS CONSULTANTS, INC.
ENGINEERS PLANNERS SURVEYORS
405 S.W. 1st. Street
Andrews, TX 79714
(432) 523-2181
TEXAS REGISTERED ENGINEERING FIRM F-2746
TEXAS REGISTERED SURVEYOR FIRM #100792-00

JAMES C. TOMPKINS NEW MEXICO 27177 PROFESSIONAL SURVEYOR

02/20/2025

JAMES C. TOMPKINS, N.M. P.L.S. No.27177

SURVEY DATE: 09/06/2024

OWL NDBL SWMF
CELL 1B

FIGURE 16

PROTECTIVE SOIL LAYER VERIFICATION SURVEY

DESIGN	DRAWN	DATE	PROJECT NO.	SCALE	SHEET #
N/A	OV	2/19/25	55999	N/A	1

Z:\Projects\Construction Surveying\55999-Fortehill, OWL Cell 5AB Construction, Lea Co., NM\Drawings\CELL 2B PSL VERIFICATION.dwg

SUBGRADE ACCEPTANCE FORMS

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO: File
FROM: Max White
PROJECT NAME: OWL - Cell 2B
PROJECT NO.: 04-2035-23
DATE: 5/7/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓
4. Protective Soil Layer (PSL)

LOCATION: GCL - Panels 1 to 13
Secondary FML Panels 1 to 2

REMARKS: Total SF. = 2 Rolls x 540' x 24' = 25,920 SF ±

Authorized By: Curtis Duong
(Liner Contractor Representative)
(Authorized Signature)
5-7-24
(Date)

Accepted By: Max White
(CQA Manager)
Max White
(Authorized Signature)
5/7/24
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO: File
FROM: Max White
PROJECT NAME: OWL - Cell 2B
PROJECT NO.: 04 - 2035 - 23
DATE: 5/6/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓
4. Protective Soil Layer (PSL)

LOCATION: GCL Panels 14 to 60
Secondary FML Panels 3 to 9

REMARKS: 6 Rolls x 540' x 24 = 77,760 SF ±

Total to Date = 103,680 SF

Authorized By: Cuong Duong
(Liner Contractor Representative)

(Authorized Signature)

5-8-24
(Date)

Accepted By: Max White
(CQA Manager)

Max White
(Authorized Signature)

5/6/24
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Received by OCD: 4/10/2025 3:02:31 PM

Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO: File

FROM: Max White

PROJECT NAME: OWL - Cell 2B

PROJECT NO.: 04-2035-13

DATE: 5/10/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:

1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓
4. Protective Soil Layer (PSL)

LOCATION: GCL Panels 61 to 93

Secondary FML 9 to 13

REMARKS: 5 Rolls x 540 x 24 = 64,900 SF.

Total to Date = 169,498 SF ±

Authorized By: Curtis Duong
(Liner Contractor Representative)

(Authorized Signature)

5-10-24
(Date)

Accepted By: Max White
(CQA Manager)

Max White
(Authorized Signature)

5/10/24
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO: File
FROM: Max White
PROJECT NAME: OWL - Cell 2B
PROJECT NO.: 04. 2035-23
DATE: 5/11/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓
4. Protective Soil Layer (PSL)

LOCATION: GCL. Panels 94 to 116
Secondary FML 14 to 16

REMARKS: 3 - Rolls x 540 x 24 = 34,840 SF

Total to Date = 207,360 SF ±

Authorized By: Curtis Duong
(Liner Contractor Representative)

(Authorized Signature)

5-11-24
(Date)

Accepted By: Max White
(CQA Manager)

Max White
(Authorized Signature)

5/11/24
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO: File
FROM: Max White
PROJECT NAME: OWL. C.11 2B
PROJECT NO.: 94-2935-23
DATE: 5/13/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓
4. Protective Soil Layer (PSL)

LOCATION: GCL Panels 117 to 129
Secondary FML 17 to 16

REMARKS: 2 Rolls - 540 x 24 = 25,920 SF.

Total to Date = 233,280 SF ±

Authorized By: Cuong Duong
(Liner Contractor Representative)

(Authorized Signature)

5-13-24
(Date)

Accepted By: Max White
(CQA Manager)

(Authorized Signature)

5/13/24
(Date)

☐ Attachments

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APPROVAL/ AUTHORIZATION TO PROCEED

TO: File
FROM: Max White
PROJECT NAME: OWL. C.1/2B
PROJECT NO.: 04-2035.23
DATE: 5/14/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓
4. Protective Soil Layer (PSL)

LOCATION: GCL Panels 130 to 173
Secondary FML 19 to 37

REMARKS: Total SF. today = 51,504. ±
Total +/- date = 284,784 ±

Authorized By: Curtis Duong
(Liner Contractor Representative)
(Authorized Signature)
5-14-24
(Date)

Accepted By: Max White
(CQA Manager)
Max White
(Authorized Signature)
5/14/24
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO: File
FROM: Max White
PROJECT NAME: OWL - Cell 1B
PROJECT NO.: 04-2035-23
DATE: 7/23/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓ Secondary -
4. Protective Soil Layer (PSL)

LOCATION: FML - Panels 1 to 16
GCL Panels 1 to 33

REMARKS: 5 - Rolls FML - 500'X24' = 60,000 + 3984 = 63,984SF ±

Authorized By: Cuong Duong
(Liner Contractor Representative)
(Authorized Signature)
7-23-24
(Date)

Accepted By: Max White
(CQA Manager)
(Authorized Signature)
7/23/24
(Date)

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO: File
FROM: Max White
PROJECT NAME: OWL Cell 1B
PROJECT NO.: 04-2035-23
DATE: 7/24/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓ Secondary
4. Protective Soil Layer (PSL)

LOCATION: FML - Panels 17 to 34
GCL Panels 34 to 100

REMARKS: ± 79,646 SF. on east slope
Total 135,916 SF

Authorized By: Curtis Duong
(Liner Contractor Representative)
(Authorized Signature)
7-24-24
(Date)

Accepted By: Max White
(CQA Manager)
(Authorized Signature)
7/24/24
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Received by OCD: 4/10/2025 3:02:31 PM

Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO: File
FROM: Max White
PROJECT NAME: OWL - Cell 1B
PROJECT NO.: 04-2035-23
DATE: 7/25/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:

1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓ Secondary
4. Protective Soil Layer (PSL)

LOCATION: FML - Panels 35 to 42
GCL Panels 101 to 133

REMARKS: 79,164 SF ± Cell 1B Floor
Total = 24,964 ±

Authorized By: Cuong Duong
(Liner Contractor Representative)
(Authorized Signature)
7-25-24
(Date)

Accepted By: Max White
(CQA Manager)
(Authorized Signature)
7/25/24
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO: File
FROM: Max White
PROJECT NAME: OWL - Cell 1B
PROJECT NO.: 04-2035-23
DATE: 7/24/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓ Secondary
4. Protective Soil Layer (PSL)

LOCATION: FML - Panels 43 to 49
GCL - Panels 134 to 151

REMARKS: 34,448 Cell 1B - Floor
Total = 249,424

Authorized By: Curtis Duong
(Liner Contractor Representative)

(Authorized Signature)

7-26-24
(Date)

Accepted By: Max White
(CQA Manager)

Max White
(Authorized Signature)

7/26/24
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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APPROVAL/ AUTHORIZATION TO PROCEED

TO: File
FROM: Max White
PROJECT NAME: OWL - Cell 1B
PROJECT NO.: 04-2035-23
DATE: 7/29/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓ Secondary
4. Protective Soil Layer (PSL)

LOCATION: FML Panels 50 to 54
GCL Panels 152 to 196

REMARKS: 64,640 SF. Cell 1B Floor
Total = 314,104

Authorized By: Curtis Duong
(Liner Contractor Representative)
(Authorized Signature)
7-29-24
(Date)

Accepted By: Max White
(CQA Manager)
Max White
(Authorized Signature)
7/29/24
(Date)

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO: F.I.a

FROM: Max White

PROJECT NAME: OWL - Cell 1B

PROJECT NO.: 04-2035-23

DATE: 7/30/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:

1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓ Secondary
4. Protective Soil Layer (PSL)

LOCATION: FML Panels 56 to 61
GCL Panels 197 to 243

REMARKS: 67,504 SF. Cell 1B Floor ±
Total 381,612

Authorized By: Cuong Duong
(Liner Contractor Representative)
(Authorized Signature)
7-30-24
(Date)

Accepted By: Max White
(CQA Manager)
Max White
(Authorized Signature)
7/30/24
(Date)

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO: File
FROM: Max White
PROJECT NAME: OWL C-11 1B
PROJECT NO.: 04-2035-23
DATE: 6/1/24

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade ✓
2. Geosynthetic Clay Liner (GCL) ✓
3. HDPE Geomembrane (FML) ✓ Secondary
4. Protective Soil Layer (PSL)

LOCATION: FML Panels 42 to 77
GCL Panels 244 to 260

REMARKS: 51,620 SF C-11 1B Floor - ±

Complete GCL & FML - C-11 1B - Secondary

Authorized By: Cuong Duong
(Liner Contractor Representative)

(Authorized Signature)

8-1-24
(Date)

Accepted By: Max White
(CQA Manager)

(Authorized Signature)

6/1/24
(Date)

☐ Attachments

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PROJECT PHOTOGRAPHS

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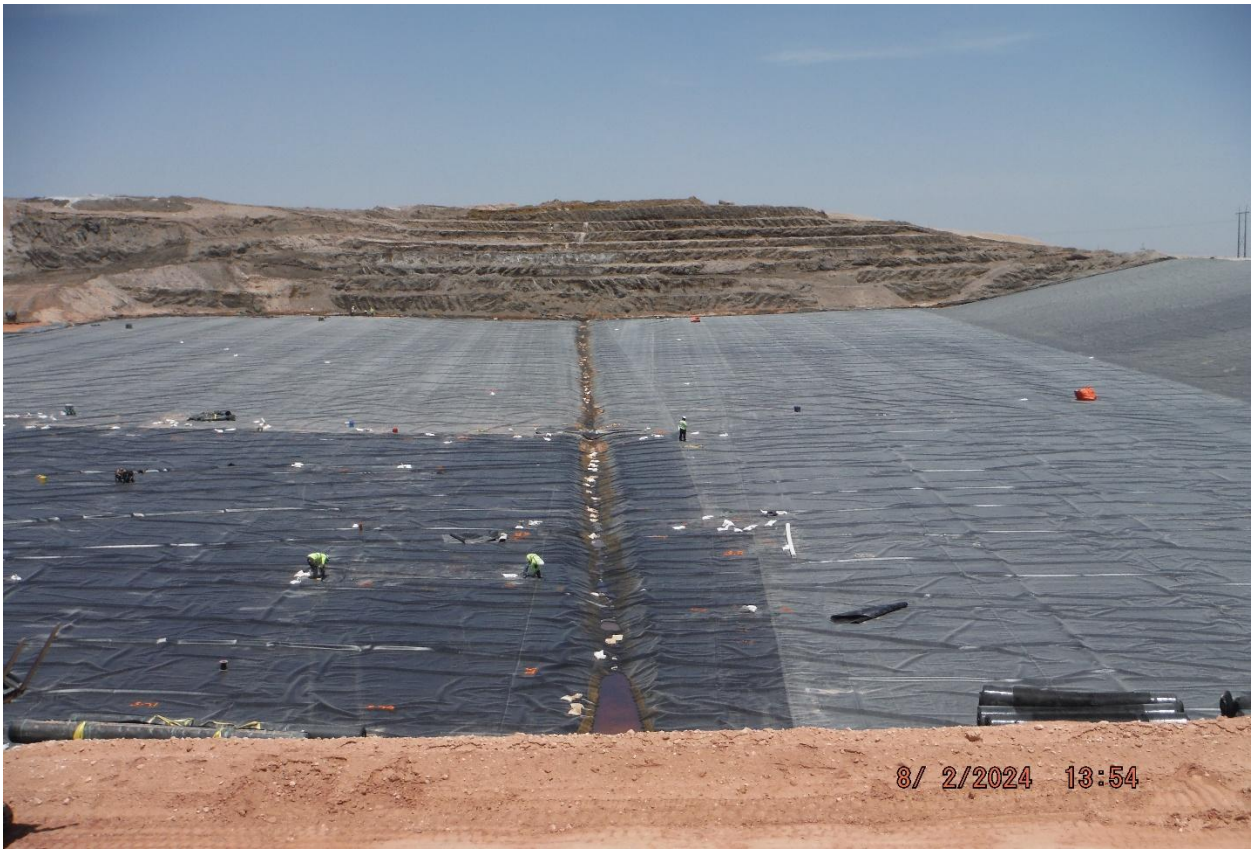
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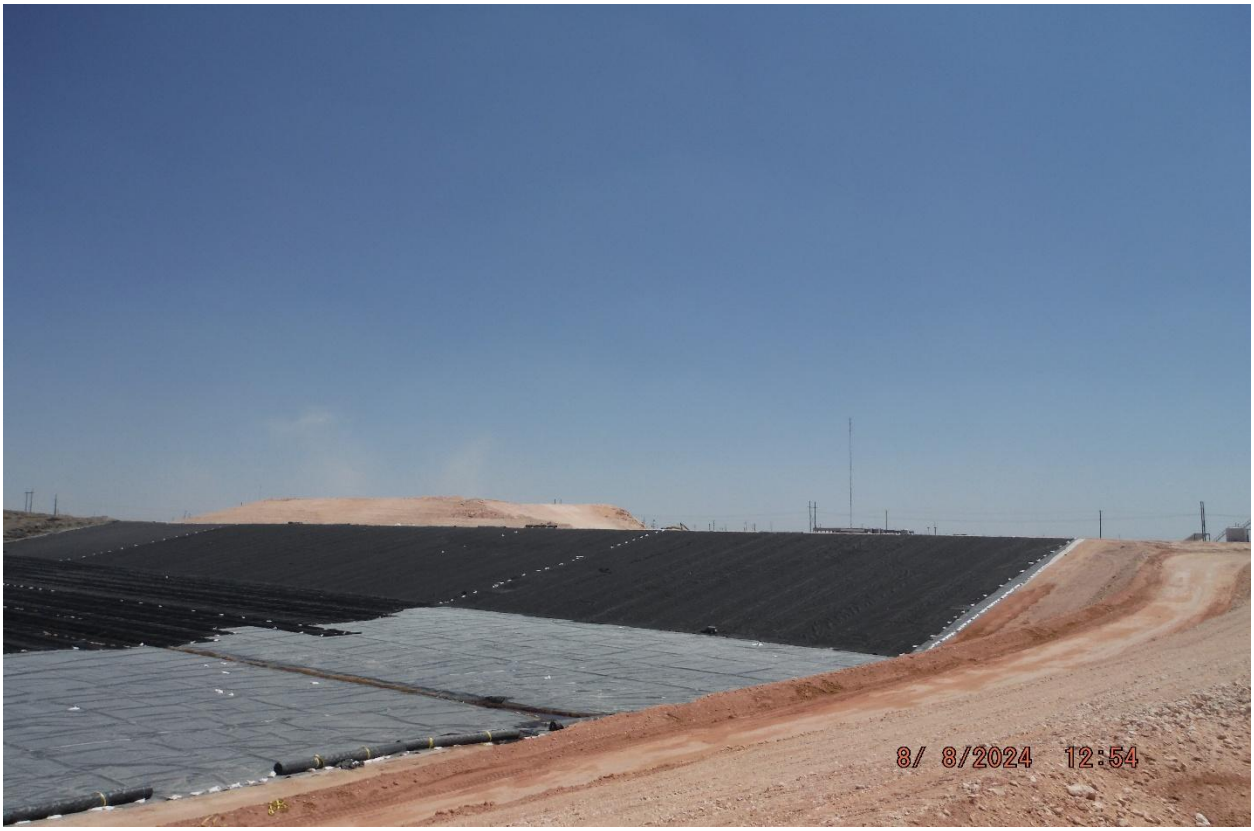
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8/15/2024 16:01

APPENDIX A: GEOTECHNICAL SOILS TESTING

A.1: Moisture/Density Relationships

GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
Suite 400
Rio Rancho, NM 87124

Job No.:3-40419
Lab No.: 6661

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cells 1B & 2B

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

MOISTURE-DENSITY RELATIONSHIP ASTM-D-698		
Maximum Density	115.4	pcf
Optimum Moisture	12.0	percent

SIEVE ANALYSIS	
Sieve Size	**Percent Passing**
⅜"	100
No. 4	98
No. 10	97
No. 40	88
No. 80	38
No. 200	9.4

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

GEO-TEST, INC.
3204 RICHARDS LANE
SANTA FE,
NEW MEXICO
87507
(505) 471-1101
FAX (505) 471-2245

8528 CALLE ALAMEDA
ALBUQUERQUE,
NEW MEXICO
87113
(505) 857-0933
FAX (505) 857-0803

2805-A LAS VEGAS CT
LAS CRUCES,
NEW MEXICO
88007
(575) 526-6260
FAX (575) 526-1660

Soils / Aggregates

Report Date: April 23, 2019

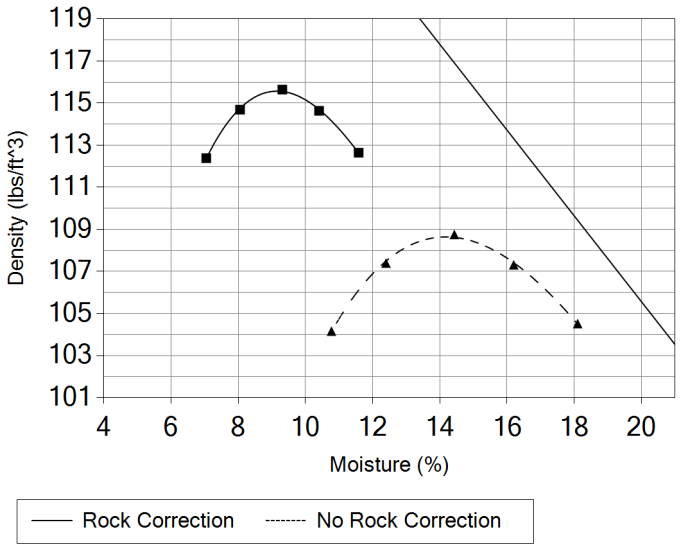
Client		Project	
Name:	ParkHill Smith & Cooper	**Name:**	(19-519-02232) OWL PSC #56018
Address:	4222 85th Street Lubbock, TX 79423	**Address:**	Jal, NM
Attention:	Don Gray	**Phase:**	**Task:**
PO Number:		**Manager:**	Roberto Balderrama
Sample Date:	4/17/2019 by Client	**Lab/Ref. #:**	2232-02L
Source:	Onsite native, blend of -5' and -8' over-ex	**Description:**	Field description: Tan/white silty sand with caliche ASTM D2487 lab description: Poorly graded gravel with silt and sand, Coarse to Fine grain, No PI

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

	Sieve Size	Passing	Specification Min	Specification Max
Coarse Portion:	4in.	100%		
	3in.	98%		
	2in.	90%		
	1 1/2in.	83%		
	1in.	70%		
	3/4in.	62%		
	1/2in.	50%		
	3/8in.	44%		
	#4	32%		
Fine Portion:	#8	25%		
	#10	23%		
	#16	20%		
	#30	17%		
	#40	16%		
	#50	14%		
	#100	9%		
	#200	5.3%		



Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11) GP-GM

		Specification Min	Specification Max
Liquid Limit:	NV		
Plastic Limit:	NV		
Plasticity Index:	NP		

Correction Soil Containing Oversize Particles (ASTM D4718-15)

Moisture Density Relationship: (ASTM D698-12) Method: C

Preparation Method: Dry **Rammer Type:** Mechanical

Specific Gravity: 2.551 Assumed **Coarse Specific Gravity:** 2.065

Maximum Density (lbs/ft^3): 108.6 Rock Corrected: 115.6

Optimum Moisture (%): 14.2 Rock Corrected: 9.2

Remarks:

Distribution: Carl King, Don Gray

Reviewed By: Roberto Balderrama

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Wood Environment & Infrastructure Solutions, Inc. - 1104 Main Street Eunice, NM 88231 phone: (575) 394-0424 fax: (505) 821-7371

Soils / Aggregates

Report Date: October 11, 2019

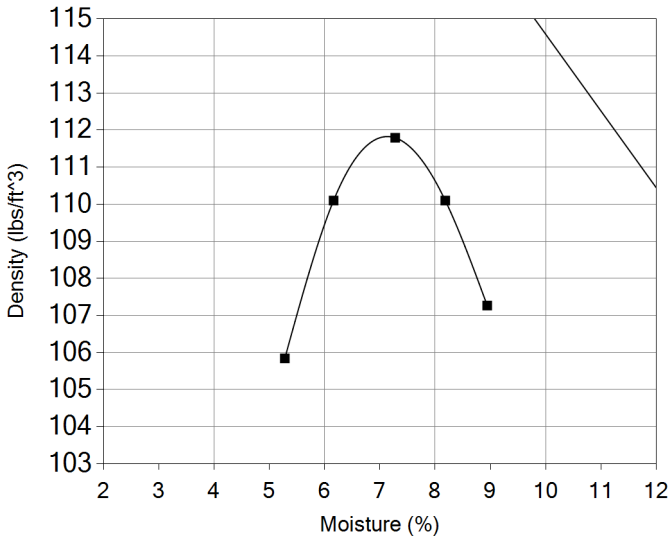
Client		Project	
Name:	ParkHill Smith & Cooper	**Name:**	(19-519-02368) Owl Landfill Services
Address:	4222 85th Street Lubbock, TX 79423	**Address:**	Hobbs, NM
Attention:	Carl King P.E.	**Phase:**	**Task:**
PO Number:	560.19.001.01	**Manager:**	Hugo Carreon
Sample Date:	10/4/2019 by Client / Contractor (Constructor's Inc.)	**Lab/Ref. #:**	2368-01L
Source:	Landfill berm material (current processed)	**Description:**	Tan Poorly Graded Gravel (durable caliche) w/Silt and Sand (Job 560-19), No PI

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

	Sieve Size	Passing	Specification Min	Specification Max
Coarse Portion:	4in.	100%		
	3in.	96%		
	2in.	84%		
	1 1/2in.	73%		
	1in.	56%		
	3/4in.	49%		
	1/2in.	41%		
	3/8in.	36%		
	#4	28%		
Fine Portion:	#8	24%		
	#10	24%		
	#16	22%		
	#30	20%		
	#40	19%		
	#50	17%		
	#100	11%		
	#200	6.8%		



Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11) GP-GM

		Specification Min	Specification Max
Liquid Limit:	31		
Plastic Limit:	NV		
Plasticity Index:	NP		

Correction Soil Containing Oversize Particles (ASTM D4718-15)

Moisture Density Relationship: (ASTM D698-12) Method: C

Preparation Method: Moist **Rammer Type:** Manual

Specific Gravity: 2.251 **Coarse Specific Gravity:** 1.973

Rock Corrected Maximum Density (lbs/ft^3): 111.8

Rock Corrected Optimum Moisture (%): 7.1

Remarks: Material would not roll, flattens. Sandy non-plastic.

Distribution: Don Gray, Carl King P.E.

Reviewed By: Hugo Carreon

Hugo Carreon

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Wood Environment & Infrastructure Solutions, Inc. - 1104 Main Street Eunice, NM 88231 phone: (575) 394-0424 fax: (505) 821-7371

Soils / Aggregates

Report Date: April 18, 2019

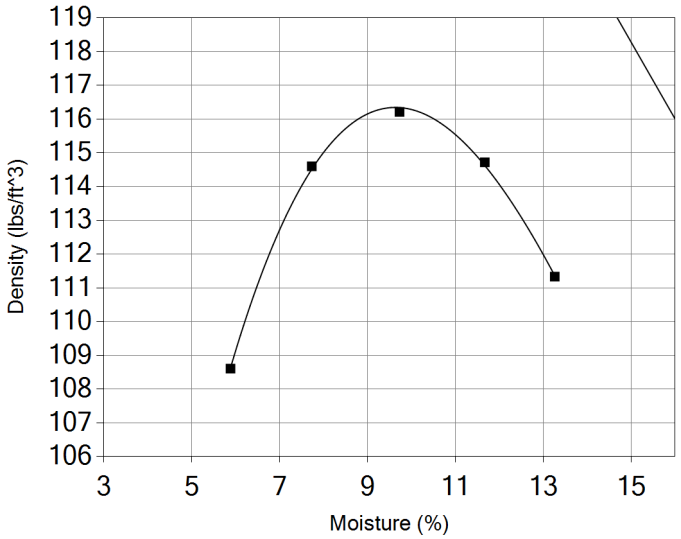
Client		Project	
Name:	ParkHill Smith & Cooper	**Name:**	(19-519-02232) OWL PSC #56018
Address:	4222 85th Street Lubbock, TX 79423	**Address:**	Jal, NM
Attention:	Don Gray	**Phase:**	**Task:**
PO Number:		**Manager:**	Roberto Balderrama
Sample Date:	4/17/2019 by Client	**Lab/Ref. #:**	2232-01L
Source:	Onsite native	**Description:**	Field description: Red silty sand ASTM D2487 lab description: Silty sand, Fine grain, No PI

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
#4	100%		
#8	100%		
#10	100%		
#16	100%		
#30	100%		
#40	98%		
#50	88%		
#100	42%		
#200	15%		



Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11) SM

		Specification Min	Specification Max
Liquid Limit:	NV		
Plastic Limit:	NV		
Plasticity Index:	NP		

Moisture Density Relationship: (ASTM D698-12) Method: A

Preparation Method: Dry **Rammer Type:** Mechanical

Specific Gravity: 2.651 Assumed

Maximum Density (lbs/ft^3): 116.3

Optimum Moisture (%): 9.6

Remarks:

Distribution: Wood

Reviewed By: Roberto Balderrama

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APPENDIX A: GEOTECHNICAL SOILS TESTING

A.2: Subgrade (Cell 1B/2B Floor) Test Results

Parkhill

CELL 2B SUBGRADE - FIELD COMPACTION TESTING FORM

PROJECT NAME:	OWL Landfill Cell 1B/2B	**LOCATION:**	Cell 2B Subgrade
OWNER:	Oilfield Water Logistics	**PROJECT NO.:**	42035.23
PROJECT LOCATION:	Lea County, New Mexico	**PAGE NO.:**	1
TESTING INSTRUMENT:	IntroTek 3500 Xplorer®	**TECHNICIAN:**	Max White

SOIL CLASSIFICATION		DESCRIPTION	REF STD PROCTOR		90% (PCF)	OPTIMAL MOISTURE
A	GP-GM	Caliche	108.6 pcf	90% optimum	97.7	14.2 % Moisture
B	GP-GM	Poorly Graded Gravel w/ Silt and Sand	111.8 pcf	90% optimum	100.6	7.1 % Moisture
C	SM	Silty Sand	116.3 pcf	90% optimum	104.7	9.6 % Moisture

Soil Type	TEST NUMBER	% RSP	DRY DENSGITY (PCF)	% MOISTURE	DATE COMPLETED	NOTES
A	1	99.8%	108.4	5.5%	5/2/24	Floor
A	2	97.1%	105.4	6.1%	5/2/24	Floor
A	3	97.3%	105.6	6.6%	5/2/24	Floor
A	4	97.2%	105.6	6.7%	5/2/24	Floor
A	5	96.5%	104.9	5.6%	5/2/24	Floor
A	6	102.4%	111.2	6.7%	5/2/24	Floor
A	7	98.1%	106.6	6.3%	5/2/24	Floor
A	8	97.7%	106.1	6.9%	5/2/24	Floor
A	9	100.8%	109.4	4.5%	5/2/24	Floor
A	10	99.4%	107.9	4.4%	5/2/24	Floor
A	11	99.5%	108.0	5.3%	5/2/24	Floor
A	12	101.5%	115.6	5.5%	5/2/24	Floor
A	13	99.5%	108.0	5.3%	5/2/24	Floor
A	14	103.9%	112.9	6.5%	5/2/24	Floor
A	15	100.6%	109.2	4.4%	5/2/24	Floor
A	16	100.6%	109.2	5.4%	5/2/24	Floor
A	17	100.3%	108.9	4.4%	5/2/24	Floor
A	18	102.5%	111.3	4.3%	5/2/24	Floor
A	19	101.2%	109.9	4.2%	5/2/24	Floor
A	20	100.6%	109.2	5.6%	5/2/24	Floor
A	21	105.3%	114.3	6.1%	5/2/24	Floor
A	22	100.2%	108.8	4.0%	5/2/24	Floor
A	23	98.5%	107.0	4.3%	5/2/24	Floor
A	24	100.9%	109.6	9.1%	5/2/24	Floor
A	25	94.2%	102.3	5.6%	5/2/24	Floor
A	26	107.2%	116.4	10.7%	5/2/24	Floor
A	27	104.5%	113.5	12.0%	5/2/24	Floor
A	28	109.1%	118.5	6.9%	5/2/24	Floor

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Parkhill

CELL 1B SUBGRADE - FIELD COMPACTION TESTING FORM

PROJECT NAME: OWL Landfill Cell 1B/2B
OWNER: Oilfield Water Logistics
PROJECT LOCATION: Lea County, New Mexico

LOCATION: Cell 1B Subgrade
PROJECT NO.: 42035.23
PAGE NO.: 1

TESTING INSTRUMENT: IntroTek 3500 Xplorer®

TECHNICIAN: Max White

SOIL CLASSIFICATION		DESCRIPTION	REF STD PROCTOR		90% (PCF)	OPTIMAL MOISTURE
A	GP-GM	Caliche	108.6 pcf	90% optimum	97.7	14.2 % Moisture
B	GP-GM	Poorly Graded Gravel w/ Silt and Sand	111.8 pcf	90% optimum	100.6	7.1 % Moisture
C	SM	Silty Sand	116.3 pcf	90% optimum	104.7	9.6 % Moisture

Soil Type	TEST NUMBER	% RSP	DRY DENSGITY (PCF)	% MOISTURE	DATE COMPLETED	NOTES
A	1	102.0%	110.7	7.4%	7/17/24	Floor
A	2	103.6%	112.5	5.9%	7/17/24	Floor
A	3	99.8%	108.3	5.0%	7/17/24	Floor
A	4	101.6%	110.4	4.3%	7/17/24	Floor
A	5	93.9%	101.9	6.4%	7/17/24	Floor
A	6	93.7%	101.8	4.8%	7/17/24	Floor
A	7	96.3%	104.6	5.3%	7/17/24	Floor
A	8	97.9%	106.3	5.5%	7/17/24	Floor
A	9	96.3%	104.6	8.0%	7/17/24	Floor
A	10	99.4%	107.9	8.6%	7/17/24	Floor
A	11	98.3%	106.7	6.7%	7/17/24	Floor
A	12	100.8%	109.4	8.0%	7/17/24	Floor
A	13	97.4%	105.8	4.6%	7/17/24	Floor
A	14	93.5%	101.5	3.7%	7/17/24	Floor
A	15	96.7%	105.0	5.1%	7/17/24	Floor
A	16	93.3%	101.3	5.5%	7/17/24	Floor
A	17	98.6%	107.0	9.0%	7/17/24	Floor
A	18	92.3%	100.2	5.0%	7/17/24	Floor
A	19	104.5%	113.5	5.5%	7/17/24	Floor
A	20	92.2%	100.1	8.5%	7/17/24	Floor
A	21	104.9%	113.9	9.0%	7/17/24	Floor
A	22	103.0%	111.8	9.1%	7/17/24	Floor
A	23	90.5%	98.3	11.5%	7/17/24	Floor
A	24	96.7%	105.0	6.8%	7/17/24	Floor
A	25	92.2%	100.2	16.7%	7/17/24	Floor
A	26	102.6%	111.4	7.0%	7/17/24	Floor
A	27	101.8%	109.7	8.1%	7/17/24	Floor
A	28	94.9%	103.0	5.5%	7/17/24	Floor
A	29	100.2%	109.8	5.1%	7/17/24	Floor
A	30	102.3%	111.1	8.9%	7/17/24	Floor
A	31	101.3%	110.0	6.7%	7/17/24	Floor
A	32	97.4%	105.8	6.6%	7/17/24	Floor
A	33	104.7%	113.7	8.9%	7/17/24	Floor
A	34	90.5%	98.3	10.7%	7/17/24	Floor

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APPENDIX A: GEOTECHNICAL SOILS TESTING

A.3: Berm Density Test Results

Parkhill

CELL 1B EAST SLOPE & BERM - FIELD COMPACTION TESTING FORM

PROJECT NAME:	OWL Landfill Cell 1B/2B	**LOCATION:**	Cell 1B East Slope & Berm
OWNER:	Oilfield Water Logistics	**PROJECT NO.:**	42035.23
PROJECT LOCATION:	Lea County, New Mexico	**PAGE NO.:**	1
TESTING INSTRUMENT:	IntroTek 3500 Xplorer®	**TECHNICIAN:**	Max White

SOIL CLASSIFICATION		DESCRIPTION	REF STD PROCTOR		90% (PCF)	OPTIMAL MOISTURE
A	GP-GM	Caliche	108.6 pcf	90% optimum	97.7	14.2 % Moisture
B	GP-GM	Poorly Graded Gravel w/ Silt and Sand	111.8 pcf	90% optimum	100.6	7.1 % Moisture
C	SM	Silty Sand	116.3 pcf	90% optimum	104.7	9.6 % Moisture

Soil Type	TEST NUMBER	% RSP	DRY DENSGITY (PCF)	% MOISTURE	DATE COMPLETED	NOTES
A	1	91.5%	99.3	8.0%	5/9/24	LIFT 1
A	2	90.5%	98.3	9.2%	5/9/24	LIFT 1
A	3	96.5%	104.8	9.1%	5/9/24	LIFT 1
A	4	92.9%	100.9	8.7%	5/9/24	LIFT 1
A	5	97.5%	105.9	8.0%	5/9/24	LIFT 1
A	1	94.4%	102.6	10.8%	5/10/24	LIFT 2
A	2	96.0%	104.3	10.2%	5/10/24	LIFT 2
A	3	98.2%	106.6	7.6%	5/10/24	LIFT 2
A	4	93.5%	101.6	8.9%	5/10/24	LIFT 2
A	5	93.0%	101.0	11.1%	5/10/24	LIFT 2
A	1	95.7%	104.0	9.6%	5/13/24	LIFT 3
A	2	95.6%	103.8	8.7%	5/13/24	LIFT 3
A	3	95.3%	103.5	8.4%	5/13/24	LIFT 3
A	4	94.4%	102.5	6.3%	5/13/24	LIFT 3
A	5	93.8%	101.8	8.0%	5/13/24	LIFT 3
A	1	98.3%	106.7	8.2%	5/14/24	LIFT 4
A	2	107.5%	116.7	7.8%	5/14/24	LIFT 4
A	3	101.6%	110.4	7.9%	5/14/24	LIFT 4
A	4	96.1%	104.4	9.7%	5/14/24	LIFT 4
A	5	94.9%	103.1	11.4%	5/14/24	LIFT 4
A	1	104.7%	113.7	7.0%	5/15/24	LIFT 5
A	2	100.8%	109.5	9.3%	5/15/24	LIFT 5
A	3	101.7%	110.4	10.4%	5/15/24	LIFT 5
A	4	99.7%	108.5	6.8%	5/15/24	LIFT 5
A	5	104.0%	112.9	6.5%	5/15/24	LIFT 5
A	1	100.0%	108.6	9.3%	5/16/24	LIFT 6
A	2	97.2%	105.6	6.8%	5/16/24	LIFT 6
A	3	97.8%	106.2	6.3%	5/16/24	LIFT 6
A	4	97.4%	105.8	7.8%	5/16/24	LIFT 6
A	5	97.0%	105.3	9.6%	5/16/24	LIFT 6
A	1	104.3%	113.2	11.2%	5/17/24	LIFT 7
A	2	99.7%	108.3	11.2%	5/17/24	LIFT 7
A	3	100.3%	108.9	10.1%	5/17/24	LIFT 7
A	4	98.5%	107.0	7.9%	5/17/24	LIFT 7
A	5	101.0%	109.7	9.8%	5/17/24	LIFT 7
A	1	96.5%	104.5	9.5%	6/17/24	FINAL LIFT
A	2	96.4%	104.7	5.8%	6/17/24	FINAL LIFT
A	3	103.5%	112.4	5.5%	6/17/24	FINAL LIFT
A	4	102.7%	111.5	9.1%	6/17/24	FINAL LIFT
A	5	107.3%	116.5	5.1%	6/17/24	FINAL LIFT
A	6	103.4%	112.3	5.0%	6/17/24	FINAL LIFT
A	7	104.3%	113.2	7.5%	6/17/24	FINAL LIFT
A	8	97.6%	106.0	9.8%	6/17/24	FINAL LIFT
A	9	103.2%	112.0	8.2%	6/17/24	FINAL LIFT

APPENDIX A: GEOTECHNICAL SOILS TESTING

A.4: Anchor Trench Density Test Results

Parkhill

CELL 1B ANCHOR TRENCH - FIELD COMPACTION TESTING FORM

PROJECT NAME: OWL Landfill Cell 1B/2B
OWNER: Oilfield Water Logistics
PROJECT LOCATION: Lea County, New Mexico

LOCATION: Cell 1B Anchor Trench
PROJECT NO.: 42035.23
PAGE NO.: 1

TESTING INSTRUMENT: IntroTek 3500 Xplorer®

TECHNICIAN: Max White

SOIL CLASSIFICATION		DESCRIPTION	REF STD PROCTOR		90% (PCF)	OPTIMAL MOISTURE
A	GP-GM	Caliche	108.6 pcf	90% optimum	97.7	14.2 % Moisture
B	GP-GM	Poorly Graded Gravel w/ Silt and Sand	111.8 pcf	90% optimum	100.6	7.1 % Moisture
C	SM	Silty Sand	116.3 pcf	90% optimum	104.7	9.6 % Moisture

Soil Type	TEST NUMBER	% RSP	DRY DENSGITY (PCF)	% MOISTURE	DATE COMPLETED	NOTES
A	1	97.9%	106.3	7.3%	8/29/24	Floor
A	2	97.2%	105.6	7.8%	8/29/24	Floor
A	3	94.4%	102.5	10.2%	8/29/24	Floor
A	4	97.5%	105.2	9.0%	8/29/24	Floor
A	5	93.7%	101.8	10.2%	8/29/24	Floor
A	6	99.5%	108.2	7.1%	8/29/24	Floor
A	7	101.8%	110.3	7.4%	8/29/24	Floor

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APPENDIX A: GEOTECHNICAL SOILS TESTING

A.5: PSL Hydraulic Conductivity

Rigid Wall Falling-Head Remold Permeability

GEO-TEST

Project:	OWL NDBL Landfill
Job #:	3-40419
Lab #:	6661
Location:	Cell 1B, Sample 1
Soil Description:	Sand
Remolded to:	Remolded to 80% of Standard Proctor (D-698)

Aparatus Weight Empty:	257.2	grams	Weight of Sample:	375.1	grams
Apparartus Weight + Soil:	632.3	grams	Weight of Sample:	0.82694	lb
Mold Diameter:	6.413	cm	Mold Area:	32.30073	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.99	cm	Area Factor:	0.039218	
Pressure Head Applied:	0	cm	Volume of Sample:	225.7821	cm^3
Can #:			Volume of Sample:	0.007973	ft^3
Wet Weight:	298.7	grams	**Unit Weight:**	**103.7**	**lb/ft^3**
Dry Weight:	266.9	grams	**Moisture Content:**	**11.9**	**%**
			Dry Unit Weight:	**92.7**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	1	1	1
Second	8	12	11
Total (hr)	0.018889	0.02	0.019722
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.99 cm	71.99 cm	71.99 cm
$Head_1$	16.99 cm	16.99 cm	16.99 cm
Ks (cm/hour)	20.96 cm/hr	19.79 cm/hr	20.07 cm/hr
Ks (cm/sec)	5.82E-03 cm/s	5.50E-03 cm/s	5.57E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**20.27 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**5.63E-03 cm/s**

Rigid Wall Falling-Head Remold Permeability

GEO-TEST

Project:	OWL NDBL Landfill
Job #:	3-40419
Lab #:	6665
Location:	Cell 1B, Sample 5
Soil Description:	Sand
Remolded to:	Remolded to 80% of Standard Proctor (D-698)

Aparatus Weight Empty:	257.2	grams	Weight of Sample:	374.4	grams
Apparartus Weight + Soil:	631.6	grams	Weight of Sample:	0.825397	lb
Mold Diameter:	6.413	cm	Mold Area:	32.30073	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.99	cm	Area Factor:	0.039218	
Pressure Head Applied:	0	cm	Volume of Sample:	225.7821	cm^3
Can #:			Volume of Sample:	0.007973	ft^3
Wet Weight:	233.0	grams	**Unit Weight:**	**103.5**	**lb/ft^3**
Dry Weight:	208.5	grams	**Moisture Content:**	**11.8**	**%**
			Dry Unit Weight:	**92.6**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	1	1	1
Second	18	19	18
Total (hr)	0.021667	0.021944	0.021667
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.99 cm	71.99 cm	71.99 cm
$Head_1$	16.99 cm	16.99 cm	16.99 cm
Ks (cm/hour)	18.27 cm/hr	18.04 cm/hr	18.27 cm/hr
Ks (cm/sec)	5.07E-03 cm/s	5.01E-03 cm/s	5.07E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**18.19 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**5.05E-03 cm/s**

Rigid Wall Falling-Head Remold Permeability

GEO-TEST

Project:	OWL NDBL Landfill
Job #:	3-40419
Lab #:	6669
Location:	Cell 1B, Sample 9
Soil Description:	Sand
Remolded to:	Remolded to 80% of Standard Proctor (D-698)

Aparatus Weight Empty:	253.0	grams	Weight of Sample:	365.2	grams
Apparartus Weight + Soil:	618.2	grams	Weight of Sample:	0.805115	lb
Mold Diameter:	6.395	cm	Mold Area:	32.11966	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.84	cm	Area Factor:	0.039439	
Pressure Head Applied:	0	cm	Volume of Sample:	219.6985	cm^3
Can #:			Volume of Sample:	0.007759	ft^3
Wet Weight:	278.4	grams	**Unit Weight:**	**103.8**	**lb/ft^3**
Dry Weight:	248.8	grams	**Moisture Content:**	**11.9**	**%**
			Dry Unit Weight:	**92.7**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	1	1	1
Second	41	39	39
Total (hr)	0.028056	0.0275	0.0275
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.84 cm	71.84 cm	71.84 cm
$Head_1$	16.84 cm	16.84 cm	16.84 cm
Ks (cm/hour)	13.95 cm/hr	14.23 cm/hr	14.23 cm/hr
Ks (cm/sec)	3.87E-03 cm/s	3.95E-03 cm/s	3.95E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**14.14 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**3.93E-03 cm/s**

Rigid Wall Falling-Head Remold Permeability

GEO-TEST

Project:	OWL NDBL Landfill
Job #:	3-40419
Lab #:	6673
Location:	Cell 1B, Sample 13
Soil Description:	Sand
Remolded to:	Remolded to 80% of Standard Proctor (D-698)

Aparatus Weight Empty:	253.1	grams	Weight of Sample:	364.6	grams
Apparartus Weight + Soil:	617.7	grams	Weight of Sample:	0.803792	lb
Mold Diameter:	6.395	cm	Mold Area:	32.11966	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.84	cm	Area Factor:	0.039439	
Pressure Head Applied:	0	cm	Volume of Sample:	219.6985	cm^3
Can #:			Volume of Sample:	0.007759	ft^3
Wet Weight:	266.1	grams	**Unit Weight:**	**103.6**	**lb/ft^3**
Dry Weight:	238.0	grams	**Moisture Content:**	**11.8**	**%**
			Dry Unit Weight:	**92.7**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	0	0	0
Second	58	58	58
Total (hr)	0.016111	0.016111	0.016111
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.84 cm	71.84 cm	71.84 cm
$Head_1$	16.84 cm	16.84 cm	16.84 cm
Ks (cm/hour)	24.29 cm/hr	24.29 cm/hr	24.29 cm/hr
Ks (cm/sec)	6.75E-03 cm/s	6.75E-03 cm/s	6.75E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**24.29 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**6.75E-03 cm/s**

Rigid Wall Falling-Head Remold Permeability

GEO-TEST

Project:	OWL NDBL Landfill
Job #:	3-40419
Lab #:	6678
Location:	Cell 2B, Sample 2
Soil Description:	Sand
Remolded to:	Remolded to 80% of Standard Proctor (D-698)

Aparatus Weight Empty:	257.1	grams	Weight of Sample:	375.0	grams
Apparartus Weight + Soil:	632.1	grams	Weight of Sample:	0.82672	lb
Mold Diameter:	6.413	cm	Mold Area:	32.30073	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.99	cm	Area Factor:	0.039218	
Pressure Head Applied:	0	cm	Volume of Sample:	225.7821	cm^3
Can #:			Volume of Sample:	0.007973	ft^3
Wet Weight:	263.2	grams	**Unit Weight:**	**103.7**	**lb/ft^3**
Dry Weight:	235.6	grams	**Moisture Content:**	**11.7**	**%**
			Dry Unit Weight:	**92.8**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	0	0	0
Second	45	43	44
Total (hr)	0.0125	0.011944	0.012222
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.99 cm	71.99 cm	71.99 cm
$Head_1$	16.99 cm	16.99 cm	16.99 cm
Ks (cm/hour)	31.67 cm/hr	33.14 cm/hr	32.39 cm/hr
Ks (cm/sec)	8.80E-03 cm/s	9.21E-03 cm/s	9.00E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**32.40 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**9.00E-03 cm/s**

Rigid Wall Falling-Head Remold Permeability

GEO-TEST

Project:	OWL NDBL Landfill
Job #:	3-40419
Lab #:	6683
Location:	Cell 2B, Sample 7
Soil Description:	Sand
Remolded to:	Remolded to 80% of Standard Proctor (D-698)

Aparatus Weight Empty:	253.0	grams	Weight of Sample:	365.5	grams
Aparartus Weight + Soil:	618.5	grams	Weight of Sample:	0.805776	lb
Mold Diameter:	6.395	cm	Mold Area:	32.11966	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.84	cm	Area Factor:	0.039439	
Pressure Head Applied:	0	cm	Volume of Sample:	219.6985	cm^3
Can #:			Volume of Sample:	0.007759	ft^3
Wet Weight:	252.7	grams	**Unit Weight:**	**103.9**	**lb/ft^3**
Dry Weight:	226.0	grams	**Moisture Content:**	**11.8**	**%**
			Dry Unit Weight:	**92.9**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	2	2	2
Second	10	7	6
Total (hr)	0.036111	0.035278	0.035
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.84 cm	71.84 cm	71.84 cm
$Head_1$	16.84 cm	16.84 cm	16.84 cm
Ks (cm/hour)	10.84 cm/hr	11.09 cm/hr	11.18 cm/hr
Ks (cm/sec)	3.01E-03 cm/s	3.08E-03 cm/s	3.11E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**11.04 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**3.07E-03 cm/s**

Rigid Wall Falling-Head
Remold Permeability

GEO-TEST

Project:	OWL NDBL Landfill
Job #:	3-40419
Lab #:	6687
Location:	Cell 2B, Sample 11
Soil Description:	Sand
Remolded to:	Remolded to 80% of Standard Proctor (D-698)

Aparatus Weight Empty:	257.2	grams	Weight of Sample:	375.1	grams
Apparartus Weight + Soil:	632.3	grams	Weight of Sample:	0.82694	lb
Mold Diameter:	6.413	cm	Mold Area:	32.30073	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.99	cm	Area Factor:	0.039218	
Pressure Head Applied:	0	cm	Volume of Sample:	225.7821	cm^3
Can #:			Volume of Sample:	0.007973	ft^3
Wet Weight:	285.8	grams	**Unit Weight:**	**103.7**	**lb/ft^3**
Dry Weight:	255.0	grams	**Moisture Content:**	**12.1**	**%**
			Dry Unit Weight:	**92.5**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	1	1	1
Second	36	38	39
Total (hr)	0.026667	0.027222	0.0275
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.99 cm	71.99 cm	71.99 cm
$Head_1$	16.99 cm	16.99 cm	16.99 cm
Ks (cm/hour)	14.84 cm/hr	14.54 cm/hr	14.39 cm/hr
Ks (cm/sec)	4.12E-03 cm/s	4.04E-03 cm/s	4.00E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**14.59 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**4.05E-03 cm/s**

Rigid Wall Falling-Head
Remold Permeability

GEO-TEST

Project:	OWL NDBL Landfill
Job #:	3-40419
Lab #:	6691
Location:	Cell 2B, Sample 15
Soil Description:	Sand
Remolded to:	Remolded to 80% of Standard Proctor (D-698)

Aparatus Weight Empty:	253.1	grams	Weight of Sample:	364.9	grams
Apparartus Weight + Soil:	618.0	grams	Weight of Sample:	0.804453	lb
Mold Diameter:	6.395	cm	Mold Area:	32.11966	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.84	cm	Area Factor:	0.039439	
Pressure Head Applied:	0	cm	Volume of Sample:	219.6985	cm^3
Can #:			Volume of Sample:	0.007759	ft^3
Wet Weight:	262.0	grams	**Unit Weight:**	**103.7**	**lb/ft^3**
Dry Weight:	233.8	grams	**Moisture Content:**	**12.1**	**%**
			Dry Unit Weight:	**92.5**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	2	2	2
Second	0	0	0
Total (hr)	0.033333	0.033333	0.033333
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.84 cm	71.84 cm	71.84 cm
$Head_1$	16.84 cm	16.84 cm	16.84 cm
Ks (cm/hour)	11.74 cm/hr	11.74 cm/hr	11.74 cm/hr
Ks (cm/sec)	3.26E-03 cm/s	3.26E-03 cm/s	3.26E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**11.74 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**3.26E-03 cm/s**

APPENDIX A: GEOTECHNICAL SOILS TESTING

A.6: Grain Size Distribution Test Results

GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
Suite 400
Rio Rancho, NM 87124

Job No.:3-40419
Lab No.: 6662

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 2

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	99
No. 10	97
No. 40	89
No. 80	39
No. 200	9.8

Submitted by:

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June 14, 2024

Parkhill
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Job No.:3-40419
Lab No.: 6663

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 3

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
2”	100
1 ½”	95
¾”	94
½”	92
⅜"	92
No. 4	89
No. 10	86
No. 40	79
No. 80	29
No. 200	7.4

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June 14, 2024

Parkhill
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Job No.:3-40419
Lab No.: 6664

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 4

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
1 ½"	100
1"	96
½"	96
⅜"	96
No. 4	95
No. 10	93
No. 40	85
No. 80	37
No. 200	8.7

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June 14, 2024

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Job No.:3-40419
Lab No.: 6665

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 5

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	99
No. 10	97
No. 40	89
No. 80	37
No. 200	7.7

Submitted by:

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June 14, 2024

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Job No.:3-40419
Lab No.: 6666

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 6

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	99
No. 10	96
No. 40	87
No. 80	36
No. 200	8.2

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Job No.:3-40419
Lab No.: 6667

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 7

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	99
No. 10	96
No. 40	86
No. 80	37
No. 200	8.3

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Job No.:3-40419
Lab No.: 6668

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 8

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
1”	100
¾”	99
½”	98
⅜"	98
No. 4	97
No. 10	94
No. 40	84
No. 80	37
No. 200	7.9

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June 14, 2024

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Job No.:3-40419
Lab No.: 6669

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 9

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
1”	100
¾”	94
½”	92
⅜"	92
No. 4	91
No. 10	88
No. 40	78
No. 80	35
No. 200	8.3

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June 14, 2024

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Job No.:3-40419
Lab No.: 6670

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 10

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
¾"	100
½"	99
⅜"	99
No. 4	98
No. 10	96
No. 40	88
No. 80	40
No. 200	10.4

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GEO-TEST

June 14, 2024

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Job No.:3-40419
Lab No.: 6671

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 11

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	99
No. 10	98
No. 40	89
No. 80	38
No. 200	7.7

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GEO-TEST

June 14, 2024

Parkhill
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Job No.:3-40419
Lab No.: 6672

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 12

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
¾"	100
½"	99
⅜"	98
No. 4	96
No. 10	94
No. 40	85
No. 80	41
No. 200	8.8

Submitted by:

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GEO-TEST

June 14, 2024

Parkhill
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Job No.:3-40419
Lab No.: 6673

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 13

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
½"	100
⅜"	99
No. 4	99
No. 10	97
No. 40	87
No. 80	40
No. 200	9.4

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
Suite 400
Rio Rancho, NM 87124

Job No.:3-40419
Lab No.: 6674

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 14

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	99
No. 10	97
No. 40	88
No. 80	40
No. 200	8.3

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
Suite 400
Rio Rancho, NM 87124

Job No.:3-40419
Lab No.: 6675

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 15

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
1”	100
¾”	99
½”	97
⅜"	96
No. 4	95
No. 10	93
No. 40	83
No. 80	40
No. 200	7.7

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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FAX (505) 857-0803

2805-A LAS VEGAS CT
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FAX (575) 526-1660

GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
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Job No.:3-40419
Lab No.: 6676

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 1B, Sample 16

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
2”	100
1 ½”	94
1”	94
¾”	93
½”	91
⅜"	91
No. 4	89
No. 10	87
No. 40	79
No. 80	36
No. 200	7.0

Submitted by:

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Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
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Job No.:3-40419
Lab No.: 6677

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 1

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	98
No. 10	94
No. 40	84
No. 80	37
No. 200	9.7

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
Suite 400
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Job No.:3-40419
Lab No.: 6678

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 2

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	99
No. 10	97
No. 40	89
No. 80	39
No. 200	10.0

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
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Job No.:3-40419
Lab No.: 6679

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 3

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	98
No. 10	96
No. 40	87
No. 80	40
No. 200	10.6

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
Suite 400
Rio Rancho, NM 87124

Job No.:3-40419
Lab No.: 6692

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 16

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	99
No. 10	96
No. 40	87
No. 80	38
No. 200	8.3

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
Suite 400
Rio Rancho, NM 87124

Job No.:3-40419
Lab No.: 6680

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 4

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
½"	100
⅜"	99
No. 4	97
No. 10	95
No. 40	86
No. 80	38
No. 200	7.9

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
Suite 400
Rio Rancho, NM 87124

Job No.:3-40419
Lab No.: 6681

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 5

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
1”	100
¾”	98
½”	98
⅜"	97
No. 4	96
No. 10	93
No. 40	85
No. 80	37
No. 200	7.5

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
Suite 400
Rio Rancho, NM 87124

Job No.:3-40419
Lab No.: 6682

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 6

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	98
No. 10	96
No. 40	86
No. 80	42
No. 200	10.5

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
Suite 400
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Job No.:3-40419
Lab No.: 6683

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 7

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	98
No. 10	95
No. 40	87
No. 80	40
No. 200	6.4

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
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Job No.:3-40419
Lab No.: 6684

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 8

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
1”	100
¾”	97
½”	97
⅜"	97
No. 4	97
No. 10	95
No. 40	86
No. 80	39
No. 200	9.4

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
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Job No.:3-40419
Lab No.: 6685

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 9

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	99
No. 10	97
No. 40	89
No. 80	41
No. 200	9.6

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
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Job No.:3-40419
Lab No.: 6686

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 10

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	99
No. 10	97
No. 40	88
No. 80	38
No. 200	11.8

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
Suite 400
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Job No.:3-40419
Lab No.: 6687

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 11

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
¾"	100
½"	99
⅜"	99
No. 4	98
No. 10	95
No. 40	87
No. 80	38
No. 200	7.0

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
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Job No.:3-40419
Lab No.: 6688

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 12

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
No. 4	100
No. 10	98
No. 40	89
No. 80	42
No. 200	9.7

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
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Job No.:3-40419
Lab No.: 6689

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 13

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
½"	100
⅜"	99
No. 4	98
No. 10	96
No. 40	87
No. 80	41
No. 200	9.9

Submitted by:

GEO-TEST, INC.

Tim Byres, SET

cc: Tzack@parkhill.com

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GEO-TEST

June 14, 2024

Parkhill
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Job No.:3-40419
Lab No.: 6690

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 14

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
No. 4	100
No. 10	96
No. 40	87
No. 80	36
No. 200	6.3

Submitted by:

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GEO-TEST

June 14, 2024

Parkhill
333 Rio Rancho Blvd NE
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Job No.:3-40419
Lab No.: 6691

PROJECT: **OWL NDBL Landfill**

LOCATION OF SAMPLE: Cell 2B, Sample 15

DATE SAMPLED: April 25, 2024

SAMPLE: Sampled and Delivered by Client

SIEVE ANALYSIS

Sieve Size	Percent Passing
⅜"	100
No. 4	98
No. 10	95
No. 40	85
No. 80	39
No. 200	9.8

Submitted by:

GEO-TEST, INC.

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cc: Tzack@parkhill.com

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APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.1: GCL Certifications

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637
SALES ORDER: SO-096625
PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

ROLL NUMBER	MANUFACT. DATE	BENTONITE LOT NUMBER	TOP LAYER 1	BOTTOM LAYER 1	
Product Code : 1109263-52918-4					
Bentoliner 0.75 lbs/ft² - 3.66 kg/m², NS, Peel 35					
TRI Austin Pickup - Kendall Villarreal **1 ft x RW, 1/100,000 sf, min 1/Lot** **1 bag (500 gr) of loose bentonite** **Email roll list to <sampling@tri-env.com> and <klvillarreal@tri-env.com>**					
0242-410074	2024-02-06	1012624C	2027719671	2012831752	
0242-410075	2024-02-06	1012624C	2027719671	2012831752	
0242-410076	2024-02-06	1012624C	2027719671	2012831752	
0242-410077	2024-02-06	1012624C	2027719671	2012831752	
0242-410078	2024-02-06	1012624C	2027719671	2012831752	
0242-410079	2024-02-06	1012624C	2027719671	2012831737	
0242-410080	2024-02-06	1012624C	2027719671	2012831737	
0242-410081	2024-02-06	1012624C	2027719671	2012831737	500 g. bentonite
0242-410082	2024-02-06	1012624C	2027719671	2012831737	1' conformance
0242-410083	2024-02-06	1012624C	2027719659	2012831737	
0242-410084	2024-02-06	1012624C	2027719659	2012831737	
0242-410085	2024-02-06	1012624C	2027719659	2012831737	
0242-410086	2024-02-06	1012624C	2027719659	2012831737	
0242-410087	2024-02-06	1012624C	2027719659	2012831737	
0242-410088	2024-02-06	1012624C	2027719659	2012831737	
0242-410089	2024-02-06	1012624C	2027719659	2012831737	
0242-410090	2024-02-06	1012624C	2027719659	2012831737	

The GCL supplied to this project has been continuously inspected for the presence of needles and is certified to be needle free.

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

SOLMAX.COM

13 Feb 2024

SOLMAX MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

0242-410091	2024-02-06	1012624C	2027719659	2012831737
0242-410092	2024-02-06	1012624C	2027719659	2012831737
0242-410093	2024-02-06	1012624C	2027719660	2012831737
0242-410094	2024-02-06	1012624C	2027719660	2012831737
0242-410095	2024-02-06	1012624D	2027719660	2012831737
0242-410096	2024-02-06	1012624D	2027719660	2012831737
0242-410097	2024-02-06	1012624D	2027719660	2012831737
0242-410098	2024-02-06	1012624D	2027719660	2012831737
0242-410099	2024-02-06	1012624D	2027719660	2012831737
0242-410100	2024-02-06	1012624D	2027719660	2012831737
0242-410101	2024-02-06	1012624D	2027719660	2012831737
0242-410102	2024-02-07	1012624D	2027719660	F3WE03338-004
0242-410103	2024-02-07	1012624D	2027719628	F3WE03338-004
0242-410104	2024-02-07	1012624D	2027719628	F3WE03338-004
0242-410105	2024-02-07	1012624D	2027719628	F3WE03338-004
0242-410106	2024-02-07	1012624D	2027719628	F3WE03338-004
0242-410107	2024-02-07	1012624D	2027719628	F3WE03338-004
0242-410108	2024-02-07	1012624D	2027719628	F3WE03338-004
0242-410109	2024-02-07	1012624D	2027719628	F3WE03338-004
0242-410110	2024-02-07	1012624D	2027719628	F3WE03338-004
0242-410111	2024-02-07	1012624D	2027719628	F3WE03338-004
0242-410112	2024-02-07	1012624D	2027719628	F3WE03338-004
0242-410113	2024-02-07	1012624D	2027719649	F3WE03338-004
0242-410114	2024-02-07	1012624D	2027719649	F3WE03338-004
0242-410115	2024-02-07	1012624D	2027719649	F3WE03338-004
0242-410116	2024-02-07	1012624D	2027719649	F3WE03338-004
0242-410117	2024-02-07	1012624D	2027719649	F3WE03338-004
0242-410118	2024-02-07	1012624D	2027719649	F3WE03338-004

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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SOLMAX MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

0242-410119	2024-02-07	1012624D	2027719649	F3WE03338-004	
0242-410120	2024-02-07	1012624D	2027719649	F3WE03338-004	
0242-410121	2024-02-07	1012624D	2027719649	F3WE03338-004	
0242-410122	2024-02-07	1012624D	2027719649	F3WE03338-004	
0242-410123	2024-02-07	1012624D	2027719646	F3WE03338-004	
0242-410124	2024-02-07	1012624D	2027719646	F3WE03338-004	
0242-410125	2024-02-07	1012924A	2027719646	F3WE03338-004	
0242-410126	2024-02-07	1012924A	2027719646	F3WE03338-004	1' conformance
0242-410127	2024-02-07	1012924A	2027719646	F3WE03338-004	
0242-410128	2024-02-07	1012924A	2027719646	F3WE03417-013	
0242-410129	2024-02-07	1012924A	2027719646	F3WE03417-013	
0242-410130	2024-02-07	1012924A	2027719646	F3WE03417-013	
0242-410131	2024-02-07	1012924A	2027719646	F3WE03417-013	
0242-410132	2024-02-07	1012924A	2027719646	F3WE03417-013	
0242-410133	2024-02-07	1012924A	2027719645	F3WE03417-013	
0242-410134	2024-02-07	1012924A	2027719645	F3WE03417-013	
0242-410135	2024-02-07	1012924A	2027719645	F3WE03417-013	
0242-410136	2024-02-07	1012924A	2027719645	F3WE03417-013	
0242-410137	2024-02-07	1012924A	2027719645	F3WE03417-013	
0242-410138	2024-02-07	1012924A	2027719645	F3WE03417-013	
0242-410139	2024-02-07	1012924A	2027719645	F3WE03417-013	
0242-410140	2024-02-07	1012924A	2027719645	F3WE03417-013	
0242-410141	2024-02-07	1012924A	2027719645	F3WE03417-013	
0242-410142	2024-02-07	1012924A	2027719645	F3WE03417-013	
0242-410143	2024-02-07	1012924A	2027719688	F3WE03417-013	
0242-410144	2024-02-07	1012924A	2027719688	F3WE03417-013	
0242-410145	2024-02-07	1012924A	2027719688	F3WE03417-013	
0242-410146	2024-02-07	1012924A	2027719688	F3WE03417-013	

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SOLMAX MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

0242-410147	2024-02-07	1012924A	2027719688	F3WE03417-013	
0242-410148	2024-02-07	1012924A	2027719688	F3WE03417-013	
0242-410149	2024-02-07	1012924A	2027719688	F3WE03417-013	
0242-410150	2024-02-07	1012924A	2027719688	F3WE03417-013	
0242-410151	2024-02-07	1012924A	2027719688	F3WE03417-013	
0242-410152	2024-02-07	1012924A	2027719688	F3WE03417-013	
0242-410153	2024-02-07	1012924A	2027719688	F3WE03417-013	
0242-410154	2024-02-07	1012924A	2027719644	F3WE03498-017	
0242-410155	2024-02-07	1012924B	2027719644	F3WE03498-017	
0242-410156	2024-02-07	1012924B	2027719644	F3WE03498-017	
0242-410157	2024-02-07	1012924B	2027719644	F3WE03498-017	
0242-410158	2024-02-07	1012924B	2027719644	F3WE03498-017	
0242-410159	2024-02-07	1012924B	2027719644	F3WE03498-017	
0242-410160	2024-02-07	1012924B	2027719644	F3WE03498-017	
0242-410161	2024-02-07	1012924B	2027719644	F3WE03498-017	
0242-410162	2024-02-07	1012924B	2027719644	F3WE03498-017	
0242-410163	2024-02-07	1012924B	2027719644	F3WE03498-017	
0242-410164	2024-02-07	1012924B	2027734984	F3WE03498-017	
0242-410165	2024-02-07	1012924B	2027734984	F3WE03498-017	
0242-410166	2024-02-07	1012924B	2027734984	F3WE03498-017	
0242-410167	2024-02-07	1012924B	2027734984	F3WE03498-017	
0242-410168	2024-02-07	1012924B	2027734984	F3WE03498-017	
0242-410169	2024-02-07	1012924B	2027734984	F3WE03498-017	
0242-410170	2024-02-07	1012924B	2027734984	F3WE03498-017	1' conformance
0242-410171	2024-02-07	1012924B	2027734984	F3WE03498-017	
0242-410172	2024-02-07	1012924B	2027734984	F3WE03498-017	
0242-410173	2024-02-07	1012924B	2027734984	F3WE03498-017	
0242-410174	2024-02-07	1012924B	2027734973	F3WE03498-017	

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SOLMAX MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

0242-410175	2024-02-07	1012924B	2027734973	F3WE03498-017
0242-410176	2024-02-07	1012924B	2027734973	F3WE03498-017
0242-410177	2024-02-07	1012924B	2027734973	F3WE03498-017
0242-410178	2024-02-07	1012924B	2027734973	F3WE03498-017
0242-410179	2024-02-07	1012924B	2027734973	F3WE03520-013
0242-410180	2024-02-07	1012924B	2027734973	F3WE03520-013
0242-410181	2024-02-07	1012924B	2027734973	F3WE03520-013
0242-410182	2024-02-07	1012924B	2027734973	F3WE03520-013
0242-410183	2024-02-07	1012924B	2027734973	F3WE03520-013
0242-410184	2024-02-07	1012924B	2027734972	F3WE03520-013
0242-410185	2024-02-07	1012924C	2027734972	F3WE03520-013
0242-410186	2024-02-07	1012924C	2027734972	F3WE03520-013
0242-410187	2024-02-07	1012924C	2027734972	F3WE03520-013
0242-410188	2024-02-07	1012924C	2027734972	F3WE03520-013
0242-410189	2024-02-07	1012924C	2027734972	F3WE03520-013
0242-410190	2024-02-07	1012924C	2027734972	F3WE03520-013
0242-410191	2024-02-07	1012924C	2027734972	F3WE03520-013
0242-410192	2024-02-07	1012924C	2027734972	F3WE03520-013
0242-410193	2024-02-07	1012924C	2027734972	F3WE03520-013
0242-410194	2024-02-07	1012924C	2027734997	F3WE03520-013
0242-410195	2024-02-07	1012924C	2027734997	F3WE03520-013
0242-410196	2024-02-07	1012924C	2027734997	F3WE03520-013
0242-410197	2024-02-07	1012924C	2027734997	F3WE03520-013
0242-410198	2024-02-07	1012924C	2027734997	F3WE03520-013
0242-410199	2024-02-07	1012924C	2027734997	F3WE03520-013
0242-410200	2024-02-07	1012924C	2027734997	F3WE03520-013
0242-410201	2024-02-07	1012924C	2027734997	F3WE03520-013
0242-410202	2024-02-07	1012924C	2027734997	F3WE03520-013

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SOLMAX MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

0242-410203	2024-02-07	1012924C	2027734997	F3WE03520-013	
0242-410204	2024-02-07	1012924C	2027735004	F3WE03520-013	
0242-410205	2024-02-08	1012924C	2027735004	F3WE03498-012	
0242-410206	2024-02-08	1012924C	2027735004	F3WE03498-012	
0242-410207	2024-02-08	1012924C	2027735004	F3WE03498-012	
0242-410208	2024-02-08	1012924C	2027735004	F3WE03498-012	
0242-410209	2024-02-08	1012924C	2027735004	F3WE03498-012	
0242-410210	2024-02-08	1012924C	2027735004	F3WE03498-012	
0242-410211	2024-02-08	1012924C	2027735004	F3WE03498-012	
0242-410212	2024-02-08	1012924C	2027735004	F3WE03498-012	
0242-410213	2024-02-08	1012924C	2027735004	F3WE03498-012	
0242-410214	2024-02-08	1012924C	2027735035	F3WE03498-012	1' conformance
0242-410215	2024-02-08	1012924D	2027735035	F3WE03498-012	
0242-410216	2024-02-08	1012924D	2027735035	F3WE03498-012	
0242-410217	2024-02-08	1012924D	2027735035	F3WE03498-012	
0242-410218	2024-02-08	1012924D	2027735035	F3WE03498-012	
0242-410219	2024-02-08	1012924D	2027735035	F3WE03498-012	
0242-410220	2024-02-08	1012924D	2027735035	F3WE03498-012	
0242-410221	2024-02-08	1012924D	2027735035	F3WE03498-012	
0242-410222	2024-02-08	1012924D	2027735035	F3WE03498-012	
0242-410223	2024-02-08	1012924D	2027735035	F3WE03498-012	
0242-410224	2024-02-08	1012924D	2027735032	F3WE03498-012	
0242-410225	2024-02-08	1012924D	2027735032	F3WE03498-012	
0242-410226	2024-02-08	1012924D	2027735032	F3WE03498-012	
0242-410227	2024-02-08	1012924D	2027735032	F3WE03498-012	
0242-410228	2024-02-08	1012924D	2027735032	F3WE03498-012	
0242-410229	2024-02-08	1012924D	2027735032	F3WE03498-012	
0242-410230	2024-02-08	1012924D	2027735032	F3WE03498-012	

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SOLMAX MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637
SALES ORDER: SO-096625
PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

0242-410231	2024-02-08	1012924D	2027735032	F3WE03521-001	
0242-410232	2024-02-08	1012924D	2027735032	F3WE03521-001	
0242-410233	2024-02-08	1012924D	2027735032	F3WE03521-001	
0242-410234	2024-02-08	1012924D	2027735034	F3WE03521-001	
0242-410235	2024-02-08	1012924D	2027735034	F3WE03521-001	
0242-410236	2024-02-08	1012924D	2027735034	F3WE03521-001	
0242-410237	2024-02-08	1012924D	2027735034	F3WE03521-001	
0242-410238	2024-02-08	1012924D	2027735034	F3WE03521-001	
0242-410239	2024-02-08	1012924D	2027735034	F3WE03521-001	
0242-410240	2024-02-08	1012924D	2027735034	F3WE03521-001	
0242-410241	2024-02-08	1012924D	2027735034	F3WE03521-001	
0242-410242	2024-02-08	1012924D	2027735034	F3WE03521-001	
0242-410243	2024-02-08	1012924D	2027735034	F3WE03521-001	
0242-410244	2024-02-08	1012924D	2027735034	F3WE03521-001	
0242-410245	2024-02-08	1013024A	2027734971	F3WE03521-001	
0242-410246	2024-02-08	1013024A	2027734971	F3WE03521-001	
0242-410247	2024-02-08	1013024A	2027734971	F3WE03521-001	
0242-410248	2024-02-08	1013024A	2027734971	F3WE03521-001	
0242-410249	2024-02-08	1013024A	2027734971	F3WE03521-001	
0242-410250	2024-02-08	1013024A	2027734971	F3WE03521-001	
0242-410251	2024-02-08	1013024A	2027734971	F3WE03521-001	
0242-410252	2024-02-08	1013024A	2027734971	F3WE03521-001	
0242-410253	2024-02-08	1013024A	2027734971	F3WE03521-001	
0242-410254	2024-02-08	1013024A	2027734971	F3WE03521-001	
0242-410255	2024-02-08	1013024A	2027734970	F3WE03521-001	
0242-410256	2024-02-08	1013024A	2027734970	F3WE03521-001	
0242-410257	2024-02-08	1013024A	2027734970	F3WE03498-015	
0242-410258	2024-02-08	1013024A	2027734970	F3WE03498-015	1' conformance

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SOLMAX MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

0242-410259	2024-02-08	1013024A	2027734970	F3WE03498-015
0242-410260	2024-02-08	1013024A	2027734970	F3WE03498-015
0242-410261	2024-02-08	1013024A	2027734970	F3WE03498-015
0242-410262	2024-02-08	1013024A	2027734970	F3WE03498-015
0242-410263	2024-02-08	1013024A	2027734970	F3WE03498-015
0242-410264	2024-02-08	1013024A	2027734970	F3WE03498-015
0242-410265	2024-02-08	1013024A	2027735033	F3WE03498-015
0242-410266	2024-02-08	1013024A	2027735033	F3WE03498-015
0242-410267	2024-02-08	1013024A	2027735033	F3WE03498-015
0242-410268	2024-02-08	1013024A	2027735033	F3WE03498-015
0242-410269	2024-02-08	1013024A	2027735033	F3WE03498-015
0242-410270	2024-02-08	1013024A	2027735033	F3WE03498-015
0242-410271	2024-02-08	1013024A	2027735033	F3WE03498-015
0242-410272	2024-02-08	1013024A	2027735033	F3WE03498-015
0242-410273	2024-02-08	1013024A	2027735033	F3WE03498-015
0242-410274	2024-02-08	1013024A	2027735033	F3WE03498-015
0242-410275	2024-02-08	1013024A	2027735014	F3WE03498-015
0242-410276	2024-02-08	1013024B	2027735014	F3WE03498-015
0242-410277	2024-02-08	1013024B	2027735014	F3WE03498-015
0242-410278	2024-02-08	1013024B	2027735014	F3WE03498-015
0242-410279	2024-02-08	1013024B	2027735014	F3WE03498-015
0242-410280	2024-02-08	1013024B	2027735014	F3WE03498-015
0242-410281	2024-02-08	1013024B	2027735014	F3WE03498-015
0242-410282	2024-02-08	1013024B	2027735014	F3WE03498-015
0242-410283	2024-02-08	1013024B	2027735014	F3WE03520-015
0242-410284	2024-02-08	1013024B	2027735014	F3WE03520-015
0242-410285	2024-02-08	1013024B	2027735036	F3WE03520-015
0242-410286	2024-02-08	1013024B	2027735036	F3WE03520-015

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SOLMAX MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637
SALES ORDER: SO-096625
PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

0242-410287	2024-02-08	1013024B	2027735036	F3WE03520-015	
0242-410288	2024-02-08	1013024B	2027735036	F3WE03520-015	
0242-410289	2024-02-08	1013024B	2027735036	F3WE03520-015	
0242-410290	2024-02-08	1013024B	2027735036	F3WE03520-015	
0242-410291	2024-02-08	1013024B	2027735036	F3WE03520-015	
0242-410292	2024-02-08	1013024B	2027735036	F3WE03520-015	
0242-410293	2024-02-08	1013024B	2027735036	F3WE03520-015	
0242-410294	2024-02-08	1013024B	2027735036	F3WE03520-015	
0242-410295	2024-02-08	1013024B	2027735006	F3WE03520-015	
0242-410296	2024-02-08	1013024B	2027735006	F3WE03520-015	
0242-410297	2024-02-08	1013024B	2027735006	F3WE03520-015	
0242-410298	2024-02-08	1013024C	2027735006	F3WE03520-015	
0242-410299	2024-02-08	1013024C	2027735006	F3WE03520-015	
0242-410300	2024-02-08	1013024C	2027735006	F3WE03520-015	
0242-410301	2024-02-08	1013024C	2027735006	F3WE03520-015	
0242-410302	2024-02-08	1013024C	2027735006	F3WE03520-015	1' conformance
0242-410303	2024-02-08	1013024C	2027735006	F3WE03520-015	
0242-410304	2024-02-08	1013024C	2027735006	F3WE03520-015	
0242-410305	2024-02-08	1013024C	2027735013	F3WE03520-015	
0242-410306	2024-02-08	1013024C	2027735013	F3WE03520-015	
0242-410307	2024-02-09	1013024C	2027735013	F3WE03520-015	
0242-410308	2024-02-09	1013024C	2027735013	F3WE03520-010	
0242-410309	2024-02-09	1013024C	2027735013	F3WE03520-010	
0242-410310	2024-02-09	1013024C	2027735013	F3WE03520-010	
0242-410311	2024-02-09	1013024C	2027735013	F3WE03520-010	
0242-410312	2024-02-09	1013024C	2027735013	F3WE03520-010	
0242-410313	2024-02-09	1013024C	2027735013	F3WE03520-010	
0242-410314	2024-02-09	1013024C	2027735013	F3WE03520-010	

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SOLMAX MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

0242-410315	2024-02-09	1013024C	2027735017	F3WE03520-010
0242-410316	2024-02-09	1013024C	2027735017	F3WE03520-010
0242-410317	2024-02-09	1013024C	2027735017	F3WE03520-010
0242-410318	2024-02-09	1013024C	2027735017	F3WE03520-010
0242-410319	2024-02-09	1013024C	2027735017	F3WE03520-010
0242-410320	2024-02-09	1013024C	2027735017	F3WE03520-010
0242-410321	2024-02-09	1013024C	2027735017	F3WE03520-010
0242-410322	2024-02-09	1013024C	2027735017	F3WE03520-010
0242-410323	2024-02-09	1013024C	2027735017	F3WE03520-010
0242-410324	2024-02-09	1013024C	2027735017	F3WE03520-010
0242-410325	2024-02-09	1013024C	2027735019	F3WE03520-010
0242-410326	2024-02-09	1013024C	2027735019	F3WE03520-010
0242-410327	2024-02-09	1013024D	2027735019	F3WE03520-010
0242-410328	2024-02-09	1013024D	2027735019	F3WE03520-010
0242-410329	2024-02-09	1013024D	2027735019	F3WE03520-010
0242-410330	2024-02-09	1013024D	2027735019	F3WE03520-010
0242-410331	2024-02-12	1013024D	2027735019	F3WE03520-010
0242-410332	2024-02-12	1013024D	2027735019	F3WE03520-010
0242-410333	2024-02-12	1013024D	2027735019	F3WE03160-020
0242-410334	2024-02-12	1013024D	2027735019	F3WE03160-020
0242-410335	2024-02-12	1013024D	2027735023	F3WE03160-020
0242-410336	2024-02-12	1013024D	2027735023	F3WE03160-020
0242-410337	2024-02-12	1013024D	2027735023	F3WE03160-020
0242-410338	2024-02-12	1013024D	2027735023	F3WE03160-020
0242-410339	2024-02-12	1013024D	2027735023	F3WE03160-020
0242-410340	2024-02-12	1013024D	2027735023	F3WE03160-020
0242-410341	2024-02-12	1013024D	2027735023	F3WE03160-020
0242-410342	2024-02-12	1013024D	2027735023	F3WE03160-020

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SOLMAX MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637
SALES ORDER: SO-096625
PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

0242-410343	2024-02-12	1013024D	2027735023	F3WE03160-020	
0242-410344	2024-02-12	1013024D	2027735023	F3WE03160-020	
0242-410346	2024-02-12	1013024D	2027735021	F3WE03160-020	1' conformance
0242-410347	2024-02-12	1013024D	2027735021	F3WE03160-020	
0242-410348	2024-02-12	1013024D	2027735021	F3WE03160-020	
0242-410349	2024-02-12	1013024D	2027735021	F3WE03160-020	
0242-410350	2024-02-12	1013024D	2027735021	F3WE03160-020	
0242-410351	2024-02-12	1013024D	2027735021	F3WE03160-020	
0242-410352	2024-02-12	1013024D	2027735021	F3WE03160-020	
0242-410353	2024-02-12	1013024D	2027735021	F3WE03160-020	
0242-410354	2024-02-12	1013024D	2027734975	F3WE03160-020	
0242-410355	2024-02-12	1013024D	2027734975	F3WE03160-020	
0242-410356	2024-02-12	1013024D	2027734975	F3WE03160-020	
0242-410357	2024-02-12	1020224A	2027734975	F3WE03160-020	
0242-410358	2024-02-12	1020224A	2027734975	FJWE14045-009	
0242-410359	2024-02-12	1020224A	2027734975	FJWE14045-009	
0242-410360	2024-02-12	1020224A	2027734975	FJWE14045-009	
0242-410361	2024-02-12	1020224A	2027734975	FJWE14045-009	
0242-410362	2024-02-12	1020224A	2027734975	FJWE14045-009	
0242-410363	2024-02-12	1020224A	2027734975	FJWE14045-009	
0242-410364	2024-02-12	1020224A	2027734980	FJWE14045-009	
0242-410365	2024-02-12	1020224A	2027734980	FJWE14045-009	
0242-410366	2024-02-12	1020224A	2027734980	FJWE14045-009	
0242-410367	2024-02-12	1020224A	2027734980	FJWE14045-009	
0242-410368	2024-02-12	1020224A	2027734980	FJWE14045-009	
0242-410369	2024-02-12	1020224A	2027734980	FJWE14045-009	
0242-410370	2024-02-12	1020224A	2027734980	FJWE14045-009	
0242-410371	2024-02-12	1020224A	2027734980	FJWE14045-009	

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SOLMAX MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME: OWL LF CELL 1B/2B

0242-410372	2024-02-12	1020224A	2027734980	FJWE14045-009	
0242-410373	2024-02-12	1020224A	2027734980	FJWE14045-009	
0242-410374	2024-02-12	1020224A	2027734977	FJWE14045-009	
0242-410375	2024-02-12	1020224A	2027734977	FJWE14045-009	
0242-410376	2024-02-12	1020224A	2027734977	FJWE14045-009	
0242-410377	2024-02-12	1020224A	2027734977	FJWE14045-009	
0242-410378	2024-02-12	1020224A	2027734977	FJWE14045-009	1' conformance
0242-410379	2024-02-12	1020224A	2027734977	FJWE14045-009	
0242-410380	2024-02-12	1020224A	2027734977	FJWE14045-009	
0242-410381	2024-02-12	1020224A	2027734977	FJWE14045-009	
0242-410382	2024-02-12	1020224A	2027734977	FJWE14045-009	
0242-410383	2024-02-12	1020224A	2027734977	F3WE03520-014	
0242-410384	2024-02-12	1020224A	2027734976	F3WE03520-014	
0242-410385	2024-02-12	1020224A	2027734976	F3WE03520-014	
0242-410386	2024-02-12	1020224A	2027734976	F3WE03520-014	
0242-410387	2024-02-12	1020224A	2027734976	F3WE03520-014	
0242-410388	2024-02-12	1020224A	2027734976	F3WE03520-014	
0242-410389	2024-02-12	1020224B	2027734976	F3WE03520-014	
0242-410390	2024-02-12	1020224B	2027734976	F3WE03520-014	
0242-410391	2024-02-12	1020224B	2027734976	F3WE03520-014	
0242-410392	2024-02-12	1020224B	2027734976	F3WE03520-014	
0242-410393	2024-02-12	1020224B	2027734976	F3WE03520-014	

QUANTITY (ROLLS): 319

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Solmax Geosynthetics LLC
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13 Feb 2024

SOLMAX

MANUFACTURING QUALITY CONTROL

TEST RESULTS

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

PRODUCT: 1109263-52918-4
Bentoliner 0.75 lbs/ft² - 3.66 kg/m², NS, Peel 35

Test	Property	Direction	Test Method	Frequency	Rolls Unit
1	Bentonite Mass (0% moisture)		ASTM D5993	40,000 ft²	lbs/ft²
2	Peel Strength (min. avg.)	MD	ASTM D4632	40,000 ft²	lbf
3	Peel Strength (min.avg.)	MD	ASTM D6496	40,000 ft²	lbf/in
4	Tensile Strength MD (min. avg.)	MD	ASTM D6768	40,000 ft²	lbf/in
5	Grab Strength (min. avg)	MD	ASTM D4632	40,000 ft²	lbf
6	Puncture Resistance (min. avg.)		ASTM D4833	200,000 ft²	lbf
7	Moisture Content (Max.)		ASTM D5993	40,000 ft²	%
8	Finished Good Mass (0% moisture)		ASTM D5993	40,000 ft²	lbs/ft²

Test	1	2	3	4	5	6	7	8
SPECIFICATIONS	**0.75**	**35**	**5.3**	**30**	**90**	**90**	**12**	**0.81**
0242-410074	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410075	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410076	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410077	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410078	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410079	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410080	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410081	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410082	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410083	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410084	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410085	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410086	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410087	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410088	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410089	0.84	48.0	9.7	48	158	136	11.0	0.92
0242-410090	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410091	0.84	63.0	13.7	43	156	136	10.2	0.92

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	1	2	3	4	5	6	7	8
0242-410092	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410093	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410094	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410095	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410096	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410097	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410098	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410099	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410100	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410101	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410102	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410103	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410104	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410105	0.84	63.0	13.7	43	156	136	10.2	0.92
0242-410106	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410107	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410108	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410109	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410110	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410111	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410112	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410113	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410114	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410115	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410116	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410117	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410118	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410119	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410120	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410121	0.80	50.0	9.9	44	151	136	11.5	0.88
0242-410122	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410123	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410124	0.83	68.0	12.1	45	124	136	12.0	0.90

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	1	2	3	4	5	6	7	8
0242-410125	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410126	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410127	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410128	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410129	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410130	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410131	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410132	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410133	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410134	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410135	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410136	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410137	0.83	68.0	12.1	45	124	136	12.0	0.90
0242-410138	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410139	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410140	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410141	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410142	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410143	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410144	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410145	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410146	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410147	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410148	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410149	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410150	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410151	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410152	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410153	0.79	78.0	17.8	44	155	136	12.0	0.86
0242-410154	0.86	59.0	12.2	41	111	136	11.4	0.93
0242-410155	0.86	59.0	12.2	41	111	136	11.4	0.93
0242-410156	0.86	59.0	12.2	41	111	136	11.4	0.93
0242-410157	0.86	59.0	12.2	41	111	136	11.4	0.93

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	1	2	3	4	5	6	7	8
0242-410158	0.86	59.0	12.2	41	111	136	11.4	0.93
0242-410159	0.86	59.0	12.2	41	111	136	11.4	0.93
0242-410160	0.86	59.0	12.2	41	111	111	11.4	0.93
0242-410161	0.86	59.0	12.2	41	111	111	11.4	0.93
0242-410162	0.86	59.0	12.2	41	111	111	11.4	0.93
0242-410163	0.86	59.0	12.2	41	111	111	11.4	0.93
0242-410164	0.86	59.0	12.2	41	111	111	11.4	0.93
0242-410165	0.86	59.0	12.2	41	111	111	11.4	0.93
0242-410166	0.86	59.0	12.2	41	111	111	11.4	0.93
0242-410167	0.86	59.0	12.2	41	111	111	11.4	0.93
0242-410168	0.86	59.0	12.2	41	111	111	11.4	0.93
0242-410169	0.86	59.0	12.2	41	111	111	11.4	0.93
0242-410170	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410171	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410172	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410173	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410174	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410175	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410176	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410177	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410178	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410179	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410180	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410181	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410182	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410183	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410184	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410185	0.82	46.0	8.8	48	124	111	11.9	0.90
0242-410186	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410187	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410188	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410189	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410190	0.92	52.0	10.7	42	120	111	11.4	1.00

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	1	2	3	4	5	6	7	8
0242-410191	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410192	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410193	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410194	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410195	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410196	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410197	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410198	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410199	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410200	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410201	0.92	52.0	10.7	42	120	111	11.4	1.00
0242-410202	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410203	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410204	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410205	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410206	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410207	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410208	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410209	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410210	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410211	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410212	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410213	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410214	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410215	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410216	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410217	0.84	65.0	13.8	38	128	111	11.7	0.91
0242-410218	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410219	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410220	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410221	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410222	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410223	0.79	63.0	12.5	46	140	111	12.0	0.86

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	1	2	3	4	5	6	7	8
0242-410224	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410225	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410226	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410227	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410228	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410229	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410230	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410231	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410232	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410233	0.79	63.0	12.5	46	140	111	12.0	0.86
0242-410234	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410235	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410236	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410237	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410238	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410239	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410240	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410241	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410242	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410243	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410244	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410245	0.84	53.0	11.0	41	134	111	11.9	0.91
0242-410246	0.84	53.0	11.0	41	134	128	11.9	0.91
0242-410247	0.84	53.0	11.0	41	134	128	11.9	0.91
0242-410248	0.84	53.0	11.0	41	134	128	11.9	0.91
0242-410249	0.84	53.0	11.0	41	134	128	11.9	0.91
0242-410250	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410251	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410252	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410253	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410254	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410255	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410256	0.85	41.0	8.2	46	181	128	11.1	0.91

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	1	2	3	4	5	6	7	8
0242-410257	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410258	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410259	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410260	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410261	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410262	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410263	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410264	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410265	0.85	41.0	8.2	46	181	128	11.1	0.91
0242-410266	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410267	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410268	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410269	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410270	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410271	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410272	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410273	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410274	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410275	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410276	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410277	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410278	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410279	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410280	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410281	0.89	50.0	9.6	46	108	128	11.6	0.96
0242-410282	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410283	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410284	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410285	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410286	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410287	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410288	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410289	0.84	56.0	7.6	41	123	128	11.9	0.91

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	1	2	3	4	5	6	7	8
0242-410290	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410291	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410292	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410293	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410294	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410295	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410296	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410297	0.84	56.0	7.6	41	123	128	11.9	0.91
0242-410298	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410299	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410300	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410301	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410302	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410303	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410304	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410305	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410306	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410307	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410308	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410309	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410310	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410311	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410312	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410313	0.88	41.0	8.3	47	142	128	11.7	0.96
0242-410314	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410315	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410316	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410317	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410318	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410319	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410320	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410321	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410322	0.81	58.0	11.5	47	131	128	10.4	0.88

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	1	2	3	4	5	6	7	8
0242-410323	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410324	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410325	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410326	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410327	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410328	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410329	0.81	58.0	11.5	47	131	128	10.4	0.88
0242-410330	0.79	63.0	11.6	52	131	128	10.7	0.87
0242-410331	0.79	63.0	11.6	52	131	128	10.7	0.87
0242-410332	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410333	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410334	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410335	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410336	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410337	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410338	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410339	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410340	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410341	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410342	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410343	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410344	0.79	63.0	11.6	52	131	120	10.7	0.87
0242-410346	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410347	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410348	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410349	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410350	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410351	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410352	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410353	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410354	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410355	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410356	0.81	50.0	8.7	45	133	120	10.7	0.88

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	1	2	3	4	5	6	7	8
0242-410357	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410358	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410359	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410360	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410361	0.81	50.0	8.7	45	133	120	10.7	0.88
0242-410362	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410363	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410364	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410365	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410366	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410367	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410368	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410369	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410370	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410371	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410372	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410373	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410374	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410375	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410376	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410377	0.89	56.0	9.3	41	100	120	10.7	0.96
0242-410378	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410379	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410380	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410381	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410382	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410383	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410384	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410385	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410386	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410387	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410388	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410389	0.86	68.0	14.7	49	128	120	11.2	0.93

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SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	1	2	3	4	5	6	7	8
0242-410390	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410391	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410392	0.86	68.0	14.7	49	128	120	11.2	0.93
0242-410393	0.86	68.0	14.7	49	128	120	11.2	0.93

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

PRODUCT: 1109263-52918-4
Bentoliner 0.75 lbs/ft² - 3.66 kg/m², NS, Peel 35

Test	Property	Direction	Test Method	Frequency	Unit
1	Swell Index (min.)		ASTM D5890	100,000 lb	ml/2 g
2	Moisture Content (max.)		ASTM D4643	100,000 lb	%
3	Fluid Loss (max.)		ASTM D5891	100,000 lb	ml

Test	1	2	3
Specification	**24**	**12**	**18**
1012624C	31.0	11.9	12
1012624D	29.0	11.2	12
1012924A	31.0	11.9	11
1012924B	30.0	11.0	12
1012924C	32.0	11.3	13
1012924D	32.0	10.9	12
1013024A	31.0	11.8	12
1013024B	30.0	11.1	13
1013024C	27.0	10.7	14
1013024D	30.0	10.6	15
1020224A	29.0	10.1	15
1020224B	31.0	10.9	14

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TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	Property	Direction	Test Method	Frequency	Unit
1	Mass per Unit Area (min. avg.)		ASTM D5261	200,000 ft²	oz/yd²
2	Strength (MD)				lbf
3	Strength (CMD)				lbf
4	Elongation (MD)				%
5	Elongation (CMD)				%

Test	1	2	3	4	5
Specification	**6**	**22**	**22**	**100**	**100**
2027719628	7.3	88	157	162	137
2027719644	6.9	74	134	182	126
2027719645	7.1	82	155	188	137
2027719646	7.1	82	155	188	137
2027719649	6.8	74	136	183	130
2027719659	6.7	73	138	159	129
2027719660	7.2	87	150	158	131
2027719671	7.2	76	113	152	144
2027719688	6.9	80	113	160	124
2027734970	7.7	81	127	169	110
2027734971	7.7	81	127	169	110
2027734972	7.7	81	127	169	110
2027734973	6.9	50	125	165	145
2027734975	6.9	50	125	165	145
2027734976	7.0	59	92	198	130
2027734977	7.0	59	92	198	130
2027734980	6.8	79	122	177	127
2027734984	7.6	76	139	183	122
2027734997	6.1	50	92	171	123

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TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	1	2	3	4	5
2027735004	7.0	69	143	170	129
2027735006	7.3	72	142	172	136
2027735013	6.8	66	143	169	121
2027735014	6.8	66	143	169	121
2027735017	7.0	59	114	162	118
2027735019	7.0	72	118	187	134
2027735021	6.8	68	117	166	111
2027735023	6.8	68	117	166	111
2027735032	7.2	79	122	161	108
2027735033	6.3	54	106	183	141
2027735034	6.3	54	106	183	141
2027735035	6.3	54	106	183	141
2027735036	6.1	53	93	175	126

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TEST RESULTS

PROJECT NUMBER: 314637

SALES ORDER: SO-096625

PACKING SLIP NUMBER: Pre-SO-096625-1

PROJECT NAME : OWL LF CELL 1B/2B

Test	Property	Direction	Test Method	Frequency	Unit
1	Mass per Unit Area (min. avg.)		ASTM D5261	200,000 ft²	oz/yd²
	Grab Tensile Properties (min. avg)		ASTM D4632	200,000 ft²	
2	Strength (MD)				lbf
3	Strength (CMD)				lbf
4	Elongation (MD)				%
5	Elongation (CMD)				%

Test	1	2	3	4	5
Specification	**3**	**135**	**135**	**15**	**15**
2012831737	3.4	201	193	25	22
2012831752	3.6	199	171	26	18

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PROJECT NAME : OWL LF CELL 1B/2B

Test	Property	Direction	Test Method	Frequency	Unit
1	Mass per Unit Area (min. avg.)		ASTM D5261	200,000 ft²	oz/yd²
	Grab Tensile Properties (min. avg)		ASTM D4632	200,000 ft²	
2	Strength (MD)				lbf
3	Strength (CMD)				lbf
4	Elongation (MD)				%
5	Elongation (CMD)				%

Test	1	2	3	4	5
Specification	**3**	**135**	**100**	**10**	**10**
F3WE03160-020	3.2	170	124	18	12
F3WE03338-004	3.2	180	132	18	14
F3WE03417-013	3.2	174	118	18	12
F3WE03498-012	3.2	177	137	19	14
F3WE03498-015	3.2	182	118	19	13
F3WE03498-017	3.2	183	124	19	13
F3WE03520-010	3.2	178	115	19	13
F3WE03520-013	3.3	181	127	18	13
F3WE03520-014	3.3	181	127	18	13
F3WE03520-015	3.3	181	127	18	13
F3WE03521-001	3.3	179	127	18	12
FJWE14045-009	3.2	165	122	20	15

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SOLMAX BENTOLINER

CERTIFICATE OF ANALYSIS 2024

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004968796	**01-29-24**	**1012624B**	**9.5**	**0.89**	**1.87**	**14.2**	**110**	**31**	**865**
B0004975083	**01-29-24**	**1012624C**	**11.5**	**0.76**	**2.22**	**13.8**	**114**	**29**	**892**

JANUARY		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.09**	**0.12**	**4.43**	**14.59**	**113.39**	**31.80**	**887.78**
44	STD DEV	**0.62**	**0.16**	**1.64**	**0.77**	**2.70**	**1.73**	**45.96**

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YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.09**	**0.12**	**4.43**	**14.59**	**113.39**	**31.80**	**887.78**
44	STD DEV	**0.62**	**0.16**	**1.64**	**0.77**	**2.70**	**1.73**	**45.96**

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Prepared by: TO
01/29/24

SOLMAX BENTOLINER

CERTIFICATE OF ANALYSIS 2024

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004975084	**01-29-24**	**1012624D**	**10.3**	**0.93**	**2.40**	**13.2**	**108**	**30**	**844**

JANUARY		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS **45**	M AVG	**9.11**	**0.14**	**4.38**	**14.56**	**113.28**	**31.77**	**886.85**
	STD DEV	**0.64**	**0.20**	**1.65**	**0.79**	**2.78**	**1.73**	**45.91**

YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS **45**	M AVG	**9.11**	**0.14**	**4.38**	**14.56**	**113.28**	**31.77**	**886.85**
	STD DEV	**0.64**	**0.20**	**1.65**	**0.79**	**2.78**	**1.73**	**45.91**

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BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004975086	**01-29-24**	**1012924A**	**10.6**	**0.68**	**2.17**	**13.4**	**110**	**30**	**960**

JANUARY		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.15**	**0.15**	**4.34**	**14.54**	**113.21**	**31.73**	**888.38**
46	STD DEV	**0.66**	**0.21**	**1.66**	**0.80**	**2.79**	**1.73**	**46.61**

YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.15**	**0.15**	**4.34**	**14.54**	**113.21**	**31.73**	**888.38**
46	STD DEV	**0.66**	**0.21**	**1.66**	**0.80**	**2.79**	**1.73**	**46.61**

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BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004975089	**01-29-24**	**1012924B**	**10.2**	**0.51**	**1.24**	**14.0**	**116**	**32**	**876**

JANUARY		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS								
47	M AVG	**9.17**	**0.16**	**4.27**	**14.53**	**113.27**	**31.73**	**888.12**
47	STD DEV	**0.67**	**0.21**	**1.70**	**0.79**	**2.79**	**1.71**	**46.17**

YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS								
47	M AVG	**9.17**	**0.16**	**4.27**	**14.53**	**113.27**	**31.73**	**888.12**
47	STD DEV	**0.67**	**0.21**	**1.70**	**0.79**	**2.79**	**1.71**	**46.17**

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BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004975090	**01-30-24**	**1012924C**	**10.0**	**0.19**	**1.66**	**13.2**	**112**	**39**	**884**

JANUARY		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.18**	**0.16**	**4.22**	**14.50**	**113.24**	**31.88**	**888.04**
48	STD DEV	**0.68**	**0.21**	**1.72**	**0.81**	**2.77**	**1.98**	**45.71**

YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.18**	**0.16**	**4.22**	**14.50**	**113.24**	**31.88**	**888.04**
48	STD DEV	**0.68**	**0.21**	**1.72**	**0.81**	**2.77**	**1.98**	**45.71**

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BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004975091	**01-30-24**	**1012924D**	**9.7**	**0.16**	**0.80**	**13.8**	**116**	**30**	**845**

JANUARY		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.19**	**0.16**	**4.16**	**14.49**	**113.29**	**31.84**	**887.20**
49	STD DEV	**0.67**	**0.21**	**1.77**	**0.81**	**2.77**	**1.97**	**45.65**

YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.19**	**0.16**	**4.16**	**14.49**	**113.29**	**31.84**	**887.20**
49	STD DEV	**0.67**	**0.21**	**1.77**	**0.81**	**2.77**	**1.97**	**45.65**

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SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
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BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004975092	**01-30-24**	**1013024A**	**11.1**	**1.59**	**1.13**	**14.0**	**114**	**28**	**810**

JANUARY		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.23**	**0.18**	**4.10**	**14.48**	**113.31**	**31.77**	**885.71**
50	STD DEV	**0.72**	**0.29**	**1.80**	**0.80**	**2.74**	**2.02**	**46.43**

YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.23**	**0.18**	**4.10**	**14.48**	**113.31**	**31.77**	**885.71**
50	STD DEV	**0.72**	**0.29**	**1.80**	**0.80**	**2.74**	**2.02**	**46.43**

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01/31/24

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CERTIFICATE OF ANALYSIS 2024

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004975093	**01-31-24**	**1013024B**	**9.9**	**0.98**	**3.15**	**12.6**	**112**	**31**	**902**

JANUARY		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS								
51	M AVG	**9.24**	**0.20**	**4.08**	**14.44**	**113.28**	**31.75**	**886.02**
51	STD DEV	**0.72**	**0.30**	**1.79**	**0.83**	**2.72**	**2.01**	**46.05**

YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS								
51	M AVG	**9.24**	**0.20**	**4.08**	**14.44**	**113.28**	**31.75**	**886.02**
51	STD DEV	**0.72**	**0.30**	**1.79**	**0.83**	**2.72**	**2.01**	**46.05**

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COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004975094	**01-31-24**	**1013024C**	**9.5**	**0.18**	**4.60**	**13.0**	**116**	**33**	**946**

JANUARY		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS								
52	M AVG	**9.25**	**0.20**	**4.09**	**14.41**	**113.33**	**31.78**	**887.13**
52	STD DEV	**0.71**	**0.30**	**1.77**	**0.85**	**2.72**	**2.00**	**46.33**

YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS								
52	M AVG	**9.25**	**0.20**	**4.09**	**14.41**	**113.33**	**31.78**	**887.13**
52	STD DEV	**0.71**	**0.30**	**1.77**	**0.85**	**2.72**	**2.00**	**46.33**

DATE
01-*

SOLD TO: **Solmax**
19103 Gundle RD
Houston, TX 77073

Attn: **rstadler@solmax.com**
chofer@solmax.com
ctaylor@solmax.com

For any questions contact.
Q.A. SUPERVISOR
Tucker Goodvin

SHIPPED TO: **Solmax**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC:
File

Prepared by: TO
02/01/24

SOLMAX BENTOLINER

CERTIFICATE OF ANALYSIS 2024

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004975095	**02-02-24**	**1013024D**	**9.6**	**5.39**	**5.11**	**13.2**	**114**	**32**	**901**

FEBRUARY

No. of CARS		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
1	M AVG	**9.60**	**5.39**	**5.11**	**13.20**	**114.00**	**32.00**	**901.00**
	STD DEV	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

DATE
02-*

YTD

No. of CARS		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
53	M AVG	**9.25**	**0.29**	**4.11**	**14.39**	**113.35**	**31.78**	**887.38**
	STD DEV	**0.71**	**0.75**	**1.76**	**0.86**	**2.70**	**1.98**	**45.94**

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Prepared by: TO
02/02/24

SOLMAX BENTOLINER

CERTIFICATE OF ANALYSIS 2024

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
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COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004975096	**02-02-24**	**1020224A**	**9.6**	**0.13**	**7.17**	**13.2**	**118**	**32**	**908**

FEBRUARY

No. of CARS		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
2	M AVG	**9.60**	**2.76**	**6.14**	**13.20**	**116.00**	**32.00**	**904.50**
	STD DEV	**0.00**	**2.63**	**1.03**	**0.00**	**2.00**	**0.00**	**3.50**

DATE
02-*

YTD

No. of CARS		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
54	M AVG	**9.26**	**0.29**	**4.16**	**14.37**	**113.43**	**31.79**	**887.75**
	STD DEV	**0.70**	**0.75**	**1.79**	**0.86**	**2.74**	**1.96**	**45.61**

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Prepared by: TO
02/02/24

SOLMAX BENTOLINER

CERTIFICATE OF ANALYSIS 2024

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004975097	**02-05-24**	**1020224B**	**9.9**	**0.13**	**6.60**	**14.0**	**120**	**32**	**873**

FEBRUARY

No. of CARS		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
3	M AVG	**9.70**	**1.88**	**6.29**	**13.47**	**117.33**	**32.00**	**894.00**
	STD DEV	**0.14**	**2.48**	**0.87**	**0.38**	**2.49**	**0.00**	**15.12**

DATE
02-*

YTD

No. of CARS		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
55	M AVG	**9.27**	**0.29**	**4.20**	**14.36**	**113.54**	**31.79**	**887.49**
	STD DEV	**0.70**	**0.74**	**1.81**	**0.86**	**2.85**	**1.94**	**45.25**

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Prepared by: TO
02/05/24

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.2: GCL Conformance Testing Results

TRI ENVIRONMENTAL

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

March 13, 2024 Update

Mail To:

Steven Roeder
Mustang Extreme Environmental Services

sroeder@mustangenergyservices.com

Bill To:

<= Same

Greetings,

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

Project:	**OWL NDBLF Cell 1B 2B**
TRI Job Reference Number:	24-000629
Material(s) Tested:	Four, Solmax BentoLiner NS
Test(s) Requested:	Mass Per Unit Area (ASTM D5993) Bentonite - Fluid Loss (ASTM D5891) Bentonite - Swell Index (ASTM D5890) Peel Strength (ASTM D6496) Index Flux (ASTM D5887)

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

Sincerely,

Mansukh Patel, Ph.D.

Geosynthetic Services Division

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GCL TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: GCL
Sample Identification: 0242-401258
TRI Log #: 24-000629

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	MEAN	STD. DEV.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)							
Mass/unit area (lbs/ft^2)							
GCL (ω = 0%)	0.86	1.04	0.98	0.99	0.91	**0.96**	0.07
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)					
Bentonite (ω = 0%)	0.80	0.98	0.92	0.93	0.85	**0.89**	0.07
Moisture Content (%)	10.7	10.9	10.9	10.9	10.8	**10.8**	0.1
Bentonite - Fluid Loss (ASTM D5891)							
Slurry temperature at test intiation:		21.9 ° C		Slurry temperature at test completion:	22.3 ° C		
Fluid Loss (mL)		12.0				**12.0**	
Note: Bentonite sample tested is taken from finished GCL product.							
Bentonite - Swell Index (ASTM D5890)							
Swell index (mL/2g)		38.0				**38.0**	
Note: Bentonite sample tested is taken from finished GCL product.							
Peel Strength (ASTM D6496)							
MD - Peel Strength (lbs/in)	9.8	12.1	7.9	12.7	7.7	**10.0**	2.3
Index Flux (ASTM D5887)							
Index Flux (m^3/m^2/sec)		3.0E-09				**3.0E-09**	
Hydraulic Conductivity (cm/sec)		1.3E-09				**1.3E-09**	

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GCL TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: GCL
Sample Identification: 0242-410302
TRI Log #: 24-000629

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	MEAN	STD. DEV.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)							
Mass/unit area (lbs/ft^2)							
GCL (ω = 0%)	0.92	0.74	0.82	0.90	0.88	**0.85**	0.07
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)					
Bentonite (ω = 0%)	0.86	0.68	0.75	0.83	0.81	**0.79**	0.07
Moisture Content (%)	11.1	10.5	10.4	10.5	10.4	**10.6**	0.3
Bentonite - Fluid Loss (ASTM D5891)							
Slurry temperature at test intiation:		21.9 ° C		Slurry temperature at test completion:	22.3 ° C		
Fluid Loss (mL)		12.0				**12.0**	
Note: Bentonite sample tested is taken from finished GCL product.							
Bentonite - Swell Index (ASTM D5890)							
Swell index (mL/2g)		30.0				**30.0**	
Note: Bentonite sample tested is taken from finished GCL product.							
Peel Strength (ASTM D6496)							
MD - Peel Strength (lbs/in)	12.9	8.3	11.2	13.2	11.1	**11.3**	2.0
Index Flux (ASTM D5887)							
Index Flux (m^3/m^2/sec)		2.8E-09				**2.8E-09**	
Hydraulic Conductivity (cm/sec)		1.2E-09				**1.2E-09**	

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GCL TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: GCL
Sample Identification: 0242-410346
TRI Log #: 24-000629

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	MEAN	STD. DEV.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)							
Mass/unit area (lbs/ft^2)							
GCL (ω = 0%)	0.95	0.83	0.87	0.89	0.89	**0.89**	0.04
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)					
Bentonite (ω = 0%)	0.89	0.77	0.81	0.83	0.83	**0.83**	0.04
Moisture Content (%)	10.0	10.0	10.1	10.2	10.1	**10.1**	0.1
Bentonite - Fluid Loss (ASTM D5891)							
Slurry temperature at test intiation:		21.9 ° C		Slurry temperature at test completion:	22.3 ° C		
Fluid Loss (mL)		12.0				**12.0**	
Note: Bentonite sample tested is taken from finished GCL product.							
Bentonite - Swell Index (ASTM D5890)							
Swell index (mL/2g)		30.0				**30.0**	
Note: Bentonite sample tested is taken from finished GCL product.							
Peel Strength (ASTM D6496)							
MD - Peel Strength (lbs/in)	9.9	9.5	8.1	9.5	10.2	**9.4**	0.8
Index Flux (ASTM D5887)							
Index Flux (m^3/m^2/sec)		1.4E-09				**1.4E-09**	
Hydraulic Conductivity (cm/sec)		4.9E-10				**4.9E-10**	

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GCL TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: GCL
Sample Identification: 0242-410378
TRI Log #: 24-000629

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	MEAN	STD. DEV.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)							
Mass/unit area (lbs/ft^2)							
GCL (ω = 0%)	1.04	1.02	0.98	0.99	0.92	**0.99**	0.05
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)					
Bentonite (ω = 0%)	0.98	0.96	0.92	0.93	0.85	**0.93**	0.05
Moisture Content (%)	11.1	11.1	11.1	11.2	11.2	**11.1**	0.1
Bentonite - Fluid Loss (ASTM D5891)							
Slurry temperature at test intiation:		21.9 ° C		Slurry temperature at test completion:	20.1 ° C		
Fluid Loss (mL)		12.0				**12.0**	
Note: Bentonite sample tested is taken from finished GCL product.							
Bentonite - Swell Index (ASTM D5890)							
Swell index (mL/2g)		39.0				**39.0**	
Note: Bentonite sample tested is taken from finished GCL product.							
Peel Strength (ASTM D6496)							
MD - Peel Strength (lbs/in)	7.2	5.1	6.4	8.4	10.5	**7.5**	2.1
Index Flux (ASTM D5887)							
Index Flux (m^3/m^2/sec)		3.9E-09				**3.9E-09**	
Hydraulic Conductivity (cm/sec)		2.0E-09				**2.0E-09**	

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March 13, 2024

Updated-Added D5887
Updated
Updated-Added remaining test

Mail To:

Steven Roeder
Mustang Extreme Environmental Services

sroeder@mustangenergyservices.com

Bill To:

<= Same

Greetings,

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

Project:	**OWL NDBLF Cell 1B 2B**
TRI Job Reference Number:	24-000586
Material(s) Tested:	Four, Solmax BentoLiner NS
Test(s) Requested:	Mass Per Unit Area (ASTM D5993) Bentonite - Fluid Loss (ASTM D5891) Bentonite - Swell Index (ASTM D5890) Peel Strength (ASTM D6496) Index Flux (ASTM D5887)

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

Sincerely,

Mansukh Patel, Ph.D.

Geosynthetic Services Division

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GCL TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: GCL
Sample Identification: GCL-SOLMAX R# 0242-410082
TRI Log #: 24-000586

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	MEAN	STD. DEV.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)							
Mass/unit area (lbs/ft^2)							
GCL (ω = 0%)	0.87	0.91	0.92	0.85	0.77	**0.87**	0.06
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)					
Bentonite (ω = 0%)	0.81	0.85	0.86	0.79	0.70	**0.80**	0.06
Moisture Content (%)	10.6	10.8	10.7	10.4	10.7	**10.6**	0.2
Bentonite - Fluid Loss (ASTM D5891)							
Slurry temperature at test intiation:		21.8 ° C		Slurry temperature at test completion:	19.6 ° C		
Fluid Loss (mL)		13.6				**13.6**	
Note: Bentonite sample tested is taken from finished GCL product.							
Bentonite - Swell Index (ASTM D5890)							
Swell index (mL/2g)		30.1				**30.1**	
Note: Bentonite sample tested is taken from finished GCL product.							
Peel Strength (ASTM D6496)							
MD - Peel Strength (lbs/in)	12.7	12.1	15.1	11.7	14.0	**13.1**	1.4
Index Flux (ASTM D5887)							
Index Flux (m^3/m^2/sec)		4.3E-09				**4.3E-09**	
Hydraulic Conductivity (cm/sec)		1.5E-09				**1.5E-09**	

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GCL TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: GCL
Sample Identification: GCL-SOLMAX R# 0242-410126
TRI Log #: 24-000586

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	MEAN	STD. DEV.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)							
Mass/unit area (lbs/ft^2)							
GCL (ω = 0%)	1.00	0.92	0.90	0.82	0.91	**0.91**	0.06
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)					
Bentonite (ω = 0%)	0.94	0.86	0.83	0.76	0.85	**0.85**	0.06
Moisture Content (%)	10.7	10.8	10.4	11.2	10.0	**10.6**	0.4
Bentonite - Fluid Loss (ASTM D5891)							
Slurry temperature at test intiation:		21.8 ° C		Slurry temperature at test completion:	19.6 ° C		
Fluid Loss (mL)		11.2				**11.2**	
Note: Bentonite sample tested is taken from finished GCL product.							
Bentonite - Swell Index (ASTM D5890)							
Swell index (mL/2g)		28.0				**28.0**	
Note: Bentonite sample tested is taken from finished GCL product.							
Peel Strength (ASTM D6496)							
MD - Peel Strength (lbs/in)	14.7	9.3	16.1	15.7	13.4	**13.8**	2.8
Index Flux (ASTM D5887)							
Index Flux (m^3/m^2/sec)		2.0E-09				**2.0E-09**	
Hydraulic Conductivity (cm/sec)		8.5E-10				**8.5E-10**	

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GCL TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: GCL
Sample Identification: GCL-SOLMAX R# 0242-410170
TRI Log #: 24-000586

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	MEAN	STD. DEV.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)							
Mass/unit area (lbs/ft^2)							
GCL (ω = 0%)	0.79	1.12	0.79	0.81	0.80	**0.86**	0.14
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)					
Bentonite (ω = 0%)	0.73	1.05	0.73	0.75	0.74	**0.80**	0.14
Moisture Content (%)	10.9	9.0	11.0	11.0	11.2	**10.6**	0.9
Bentonite - Fluid Loss (ASTM D5891)							
Slurry temperature at test intiation:		23.1 ° C		Slurry temperature at test completion:	22.0 ° C		
Fluid Loss (mL)		12.8				**12.8**	
Note: Bentonite sample tested is taken from finished GCL product.							
Bentonite - Swell Index (ASTM D5890)							
Swell index (mL/2g)		30.1				**30.1**	
Note: Bentonite sample tested is taken from finished GCL product.							
Peel Strength (ASTM D6496)							
MD - Peel Strength (lbs/in)	9.5	9.5	8.8	9.5	9.5	**9.3**	0.3
Index Flux (ASTM D5887)							
Index Flux (m^3/m^2/sec)		3.7E-09				**3.7E-09**	
Hydraulic Conductivity (cm/sec)		1.6E-09				**1.6E-09**	

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

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TRI ENVIRONMENTAL

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

GCL TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: GCL
Sample Identification: GCL-SOLMAX R# 0242-410214
TRI Log #: 24-000586

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	MEAN	STD. DEV.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)							
Mass/unit area (lbs/ft^2)							
GCL (ω = 0%)	0.87	0.72	0.93	0.86	0.85	**0.85**	0.08
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)					
Bentonite (ω = 0%)	0.81	0.66	0.87	0.80	0.79	**0.78**	0.08
Moisture Content (%)	8.7	11.6	11.6	11.4	14.2	**11.5**	1.9
Bentonite - Fluid Loss (ASTM D5891)							
Slurry temperature at test intiation:		23.1 ° C		Slurry temperature at test completion:	22.0 ° C		
Fluid Loss (mL)		12.0				**12.0**	
Note: Bentonite sample tested is taken from finished GCL product.							
Bentonite - Swell Index (ASTM D5890)							
Swell index (mL/2g)		30.1				**30.1**	
Note: Bentonite sample tested is taken from finished GCL product.							
Peel Strength (ASTM D6496)							
MD - Peel Strength (lbs/in)	12.0	13.4	10.2	9.0	12.0	**11.3**	1.7
Index Flux (ASTM D5887)							
Index Flux (m^3/m^2/sec)		5.2E-09				**5.2E-09**	
Hydraulic Conductivity (cm/sec)		1.9E-09				**1.9E-09**	

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

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APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.3: FML Certifications

Product: 60-HD-00-BLK-BLK-AVG-STD-24.00
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM
Customer: Mustang Extreme Environmental Services
Cust PO: 314636

QC'd By: Malkesh Patel
Date: February 28, 2024

We hereby certify the following test results for the above referenced product/project :

Count	Roll Number	Area (sq ft)	Gross Weight (lb)	Thickness MAV (mil)	Thickness MIN (mil)	Tensile at Yield (ppi)		Elong at Yield (%)		Tensile at Break (ppi)		Elong at Break (%)		Tear Resistance (lb)		Punct Resist (lb)	Density (g/cc)	Carbon Black (%)	CB Disp (Views in Cat 1 or 2)	Resin OIT (Minute)	Resin Lot #
				ASTM D 5199	ASTM D 5199	ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
						MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
01	3111022119	12,960.00	4036	63	61	162	166	19	18	294	301	802	881	50	55	147	0.947	2.4	10	248	23J1088
02	3111022120	12,960.00	4030	62	60	164	171	20	18	290	294	814	876	50	50	151	0.947	2.5	10	248	23J1088
03	3111022121	12,960.00	4018	62	61	164	171	20	18	290	294	814	876	50	50	151	0.947	2.5	10	248	23J1088
04	3111022122	12,960.00	3998	62	60	164	171	20	18	290	294	814	876	50	50	151	0.947	2.5	10	248	23J1088
05	3111022123	12,960.00	3964	62	61	164	171	20	18	290	294	814	876	50	50	151	0.947	2.5	10	248	23J1088
06	3111022124	12,960.00	3964	62	59	155	153	20	19	293	289	822	857	50	50	151	0.947	2.5	10	248	23J1088
07	3111022125	12,960.00	3954	63	60	155	153	20	19	293	289	822	857	50	50	151	0.947	2.5	10	248	23J1088
08	3111022126	12,960.00	3966	62	60	155	153	20	19	293	289	822	857	50	50	151	0.947	2.5	10	248	23J1088
09	3111022127	12,960.00	3956	62	60	155	153	20	19	293	289	822	857	50	50	151	0.947	2.5	10	248	23J1088
10	3111022128	12,960.00	3958	61	60	155	153	20	19	293	289	822	857	50	50	151	0.947	2.5	10	248	23J1088
11	3111022129	12,960.00	3944	61	60	157	158	20	19	266	286	745	858	50	52	148	0.948	2.4	10	248	23J1088
12	3111022130	12,960.00	3946	61	60	157	158	20	19	266	286	745	858	50	52	148	0.948	2.4	10	248	23J1088

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Product: 60-HD-00-BLK-BLK-AVG-STD-24.00
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM
Customer: Mustang Extreme Environmental Services
Cust PO: 314636

QC'd By: Malkesh Patel
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We hereby certify the following test results for the above referenced product/project :

Count	Roll Number	Area (sq ft)	Gross Weight (lb)	Thickness MAV (mil)	Thickness MIN (mil)	Tensile at Yield (ppi)		Elong at Yield (%)		Tensile at Break (ppi)		Elong at Break (%)		Tear Resistance (lb)		Punct Resist (lb)	Density (g/cc)	Carbon Black (%)	CB Disp (Views in Cat 1 or 2)	Resin OIT (Minute)	Resin Lot #
				ASTM D 5199	ASTM D 5199	ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
						MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
13	3111022131	12,960.00	3936	62	60	157	158	20	19	266	286	745	858	50	52	148	0.948	2.4	10	248	23J1088
14	3111022132	12,960.00	3938	61	60	157	158	20	19	266	286	745	858	50	52	148	0.948	2.4	10	248	23J1088
15	3111022133	12,960.00	3958	61	60	151	160	20	18	279	288	791	864	50	52	148	0.948	2.5	10	248	23J1088
16	3111022134	12,960.00	3944	61	60	151	160	20	18	279	288	791	864	50	52	148	0.948	2.5	10	243	22L1090
17	3111022135	12,960.00	3942	61	60	151	160	20	18	279	288	791	864	50	52	148	0.948	2.5	10	243	22L1090
18	3111022136	12,960.00	3,934	61	60	151	160	20	18	279	288	791	864	50	52	148	0.948	2.5	10	243	22L1090
19	3111022137	12,960.00	3,936	62	60	151	160	20	18	279	288	791	864	50	52	148	0.948	2.5	10	243	22L1090
20	3111022138	12,960.00	3,952	61	60	157	150	19	18	282	290	809	886	49	52	147	0.945	2.2	10	243	22L1090
21	3111022139	12,960.00	3,906	61	59	157	150	19	18	282	290	809	886	49	52	147	0.945	2.2	10	243	22L1090
22	3111022140	12,960.00	3,912	61	59	157	150	19	18	282	290	809	886	49	52	147	0.945	2.2	10	243	22L1090
23	3111022141	12,960.00	3,895	61	59	157	150	19	18	282	290	809	886	49	52	147	0.945	2.2	10	243	22L1090
24	3111022142	12,960.00	3,890	62	59	148	155	20	18	269	296	762	890	49	52	147	0.945	2.4	10	243	22L1090

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Count	Roll Number	Area (sq ft)	Gross Weight (lb)	Thickness MAV (mil)	Thickness MIN (mil)	Tensile at Yield (ppi)		Elong at Yield (%)		Tensile at Break (ppi)		Elong at Break (%)		Tear Resistance (lb)		Punct Resist (lb)	Density (g/cc)	Carbon Black (%)	CB Disp (Views in Cat 1 or 2)	Resin OIT (Minute)	Resin Lot #
				ASTM D 5199	ASTM D 5199	ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
						MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
25	3111022143	12,960.00	3,888	60	56	148	155	20	18	269	296	762	890	49	52	147	0.945	2.4	10	243	22L1090
26	3111022144	12,960.00	3,890	61	59	148	155	20	18	269	296	762	890	49	52	147	0.945	2.4	10	243	22L1090
27	3111022145	12,960.00	3,894	60	56	148	155	20	18	269	296	762	890	49	52	147	0.945	2.4	10	243	22L1090
28	3111022146	12,960.00	3,902	61	58	148	155	20	18	269	296	762	890	49	52	147	0.945	2.4	10	243	22L1090
29	3111022147	12,960.00	3,906	61	58	147	162	19	18	285	292	816	864	48	51	149	0.948	2.5	10	243	22L1090
30	3111022148	12,960.00	3,906	61	59	147	162	19	18	285	292	816	864	48	51	149	0.948	2.5	10	243	22L1090
31	3111022149	12,960.00	3,904	60	59	147	162	19	18	285	292	816	864	48	51	149	0.948	2.5	10	243	22L1090
32	3111022150	12,960.00	3,922	61	58	147	162	19	18	285	292	816	864	48	51	149	0.948	2.5	10	243	22L1090
33	3111022151	12,960.00	3,896	60	58	148	153	20	19	284	287	806	869	48	51	149	0.948	2.4	10	243	22L1090
34	3111022152	12,960.00	3,898	62	58	148	153	20	19	284	287	806	869	48	51	149	0.948	2.4	10	243	22L1090
35	3111022153	12,960.00	3,896	60	58	148	153	20	19	284	287	806	869	48	51	149	0.948	2.4	10	243	22L1090
36	3111022154	12,960.00	3,898	60	58	148	153	20	19	284	287	806	869	48	51	149	0.948	2.4	10	243	22L1090

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				ASTM D 5199	ASTM D 5199	ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
						MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
37	3111022155	12,960.00	3,884	61	60	148	153	20	19	284	287	806	869	48	51	149	0.948	2.4	10	243	22L1090
38	3111022156	12,960.00	3,896	61	59	147	156	19	19	292	288	875	816	50	53	147	0.948	2.4	10	243	22L1090
39	3111022157	12,960.00	3,886	61	59	147	156	19	19	292	288	875	816	50	53	147	0.948	2.4	10	243	22L1090
40	3111022158	12,960.00	3,915	61	58	147	156	19	19	292	288	875	816	50	53	147	0.948	2.4	10	243	22L1090
41	3111022159	12,960.00	3,906	61	60	147	156	19	19	292	288	875	816	50	53	147	0.948	2.4	10	243	22L1090
42	3111022160	12,960.00	3,906	61	59	154	155	20	19	290	293	816	877	50	53	147	0.948	2.6	10	243	22L1090
43	3111022161	12,960.00	3,904	62	59	154	155	20	19	290	293	816	877	50	53	147	0.948	2.6	10	243	22L1090
44	3111022162	12,960.00	3,908	61	59	154	155	20	19	290	293	816	877	50	53	147	0.948	2.6	10	243	22L1090
45	3111022163	12,960.00	3,906	61	60	154	155	20	19	290	293	816	877	50	53	147	0.948	2.6	10	243	22L1090
46	3111022164	12,960.00	3,908	61	59	154	155	20	19	290	293	816	877	50	53	147	0.948	2.6	10	243	22L1090
47	3111022165	12,960.00	3,914	61	57	152	156	20	19	289	299	827	916	47	51	145	0.948	2.5	10	243	22L1090
48	3111022167	12,960.00	3,898	60	59	152	156	20	19	289	299	827	916	47	51	145	0.948	2.5	10	243	22L1090

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Count	Roll Number	Area (sq ft)	Gross Weight (lb)	Thickness MAV (mil)	Thickness MIN (mil)	Tensile at Yield (ppi)		Elong at Yield (%)		Tensile at Break (ppi)		Elong at Break (%)		Tear Resistance (lb)		Punct Resist (lb)	Density (g/cc)	Carbon Black (%)	CB Disp (Views in Cat 1 or 2)	Resin OIT (Minute)	Resin Lot #
				ASTM D 5199	ASTM D 5199	ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
						MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
49	3111022169	12,960.00	3,845	60	58	141	150	20	18	284	294	828	896	47	51	145	0.948	2.4	10	243	22L1090
50	3111022170	12,960.00	3,895	61	59	141	150	20	18	284	294	828	896	47	51	145	0.948	2.4	10	243	22L1090
51	3111022171	12,960.00	3,890	61	59	141	150	20	18	284	294	828	896	47	51	145	0.948	2.4	10	243	22L1090
52	3111022172	12,960.00	3,904	61	58	141	150	20	18	284	294	828	896	47	51	145	0.948	2.4	10	243	22L1090
53	3111022173	12,960.00	3,905	60	59	141	150	20	18	284	294	828	896	47	51	145	0.948	2.4	10	243	22L1090
54	3111022174	12,960.00	3,906	61	58	147	152	20	19	277	294	805	905	48	52	146	0.948	2.6	10	243	22L1090
55	3111022175	12,960.00	3,910	61	58	147	152	20	19	277	294	805	905	48	52	146	0.948	2.6	10	243	22L1090
56	3111022176	12,960.00	3,926	61	60	147	152	20	19	277	294	805	905	48	52	146	0.948	2.6	10	243	22L1090
57	3111022177	12,960.00	3,904	60	58	147	152	20	19	277	294	805	905	48	52	146	0.948	2.6	10	243	22L1090
58	3111022178	12,960.00	3,902	61	58	141	151	20	19	274	298	784	913	48	52	146	0.948	2.6	10	243	22L1090
59	3111022179	12,960.00	3,914	60	58	141	151	20	19	274	298	784	913	48	52	146	0.948	2.6	10	243	22L1090
60	3111022219	12,960.00	4,090	63	59	154	167	20	16	295	309	810	891	52	55	150	0.947	2.3	10	255	23K1102

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				ASTM D 5199	ASTM D 5199	ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
						MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
61	3111022222	12,960.00	4,058	63	60	151	154	20	18	291	307	816	911	50	50	149	0.947	2.3	10	255	23K1102
62	3111022224	12,960.00	4,030	62	60	155	163	20	18	289	301	831	911	50	50	149	0.947	2.4	10	255	23K1102
63	3111022225	12,960.00	4,010	61	59	155	163	20	18	289	301	831	911	50	50	149	0.947	2.4	10	255	23K1102
64	3111022226	12,960.00	3,964	62	60	155	163	20	18	289	301	831	911	50	50	149	0.947	2.4	10	255	23K1102
65	3111022227	12,960.00	3,954	61	58	155	163	20	18	289	301	831	911	50	50	149	0.947	2.4	10	255	23K1102
66	3111022228	12,960.00	3,950	61	58	155	163	20	18	289	301	831	911	50	50	149	0.947	2.4	10	255	23K1102
67	3111022229	12,960.00	3,955	61	58	149	158	20	18	297	297	860	911	49	51	146	0.947	2.4	10	255	23K1102
68	3111022230	12,960.00	3,952	61	58	149	158	20	18	297	297	860	911	49	51	146	0.947	2.4	10	255	23K1102
69	3111022231	12,960.00	3,946	60	58	149	158	20	18	297	297	860	911	49	51	146	0.947	2.4	10	255	23K1102
70	3111022232	12,960.00	3,956	60	56	149	158	20	18	297	297	860	911	49	51	146	0.947	2.4	10	255	23K1102
71	3111022233	12,960.00	3,960	61	57	163	159	17	18	290	295	823	906	49	51	146	0.947	2.5	10	255	23K1102
72	3111022234	12,960.00	3,962	62	61	163	159	17	18	290	295	823	906	49	51	146	0.947	2.5	10	255	23K1102

SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529

Phone: 706-336-7000
Fax: 706-336-7007
E-Mail:contact@skaps.com

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Product: 60-HD-00-BLK-BLK-AVG-STD-24.00
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM
Customer: Mustang Extreme Environmental Services
Cust PO: 314636

QC'd By: Malkesh Patel
Date: February 28, 2024

We hereby certify the following test results for the above referenced product/project :

Count	Roll Number	Area (sq ft)	Gross Weight (lb)	Thickness MAV (mil)	Thickness MIN (mil)	Tensile at Yield (ppi)		Elong at Yield (%)		Tensile at Break (ppi)		Elong at Break (%)		Tear Resistance (lb)		Punct Resist (lb)	Density (g/cc)	Carbon Black (%)	CB Disp (Views in Cat 1 or 2)	Resin OIT (Minute)	Resin Lot #
				ASTM D 5199	ASTM D 5199	ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
						MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
73	3111022236	12,960.00	3,970	61	59	163	159	17	18	290	295	823	906	49	51	146	0.947	2.5	10	255	23K1102
74	3111022237	12,960.00	3,964	61	59	163	159	17	18	290	295	823	906	49	51	146	0.947	2.5	10	255	23K1102
75	3111022238	12,960.00	3,990	61	59	155	165	20	19	284	298	813	900	49	52	147	0.948	2.5	10	255	23K1102
76	3111022239	12,960.00	3,978	61	59	155	165	20	19	284	298	813	900	49	52	147	0.948	2.5	10	255	23K1102
77	3111022240	12,960.00	3,964	60	56	155	165	20	19	284	298	813	900	49	52	147	0.948	2.5	10	255	23K1102
78	3111022241	12,960.00	3,966	61	59	155	165	20	19	284	298	813	900	49	52	147	0.948	2.5	10	255	23K1102
79	3111022242	12,960.00	3,968	63	59	143	147	20	19	284	285	827	871	49	52	147	0.948	2.7	10	255	23K1102
80	3111022243	12,960.00	3,960	62	58	143	147	20	19	284	285	827	871	49	52	147	0.948	2.7	10	255	23K1102
81	3111022244	12,960.00	3,962	61	58	143	147	20	19	284	285	827	871	49	52	147	0.948	2.7	10	255	23K1102
82	3111022245	12,960.00	3,950	61	59	143	147	20	19	284	285	827	871	49	52	147	0.948	2.7	10	255	23K1102
83	3111022246	12,960.00	3,962	60	57	143	147	20	19	284	285	827	871	49	52	147	0.948	2.7	10	255	23K1102
84	3111022247	12,960.00	3,972	61	58	156	168	19	18	275	293	788	889	50	53	145	0.946	2.5	10	255	23K1102

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Product: 60-HD-00-BLK-BLK-AVG-STD-24.00
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM
Customer: Mustang Extreme Environmental Services
Cust PO: 314636

QC'd By: Malkesh Patel
Date: February 28, 2024

We hereby certify the following test results for the above referenced product/project :

Count	Roll Number	Area (sq ft)	Gross Weight (lb)	Thickness MAV (mil)	Thickness MIN (mil)	Tensile at Yield (ppi)		Elong at Yield (%)		Tensile at Break (ppi)		Elong at Break (%)		Tear Resistance (lb)		Punct Resist (lb)	Density (g/cc)	Carbon Black (%)	CB Disp (Views in Cat 1 or 2)	Resin OIT (Minute)	Resin Lot #
				ASTM D 5199	ASTM D 5199	ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
						MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
85	3111022248	12,960.00	3,968	60	59	156	168	19	18	275	293	788	889	50	53	145	0.946	2.5	10	255	23K1102
86	3111022249	12,960.00	3,996	61	60	156	168	19	18	275	293	788	889	50	53	145	0.946	2.5	10	255	23K1102
87	3111022250	12,960.00	3,978	61	58	156	168	19	18	275	293	788	889	50	53	145	0.946	2.5	10	255	23K1102
88	3111022251	12,960.00	3,980	61	57	153	159	20	19	280	291	821	905	50	53	145	0.946	2.5	10	255	23K1102
89	3111022252	12,960.00	3,966	61	58	153	159	20	19	280	291	821	905	50	53	145	0.946	2.5	10	255	23K1102
90	3111022253	12,960.00	3,962	61	59	153	159	20	19	280	291	821	905	50	53	145	0.946	2.5	10	255	23K1102
91	3111022254	12,960.00	3,956	61	58	153	159	20	19	280	291	821	905	50	53	145	0.946	2.5	10	255	23K1102
92	3111022255	12,960.00	3,970	61	59	153	159	20	19	280	291	821	905	50	53	145	0.946	2.5	10	255	23K1102
93	3111022256	12,960.00	3,960	61	59	145	151	19	18	273	282	802	873	49	52	147	0.946	2.3	10	255	23K1102
94	3111022257	12,960.00	3,952	60	58	145	151	19	18	273	282	802	873	49	52	147	0.946	2.3	10	255	23K1102
95	3111022258	12,960.00	3,948	61	58	145	151	19	18	273	282	802	873	49	52	147	0.946	2.3	10	255	23K1102

SKAPS Industries
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Commerce, GA 30529

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Formosa Plastics

FORMOSA PLASTICS CORPORATION, TEXAS

201 FORMOSA DRIVE PHONE:(888)FPCUSA3
PO BOX 700
POINT COMFORT TX 77978

Certificate of Analysis
(CONFIDENTAL)

CUSTOMER:SKAPS INC.
571 INDUSTRIAL PARKWAY
COMMERCE GA 30529
PRODUCT :HL3812
RAILCAR FPAX940154
CLEANING/INSPECTION NO: 940154100723

S/O NO : E3CA013
CUSTOMER PO : 30131230220
DATE SHIPPED: 12/06/23
LOT NO : 23J1088
WEIGHT (LB) : 186,800.00
CUSTID:FT04342 SPIDM1

DATE OF PROD: 10/08/23

Test	Method	Spec Min	Spec Max	Actual
Melt Index,g/10min	ASTM D1238	0	.1	.073
HLMI, g/10 min.	ASTM D1238	9	15	10.6
Density, g/cm3	ASTM D1505	.935	.939	.9373

Linda Kao

QC SUPERVISOR

Formosa Plastics

FORMOSA PLASTICS CORPORATION, TEXAS
201 FORMOSA DRIVE PHONE:(888)FPCUSA3
PO BOX 700
POINT COMFORT TX 77978

Certificate of Analysis
(CONFIDENTAL)

CUSTOMER:SKAPS INC.
571 INDUSTRIAL PARKWAY
COMMERCE GA 30529
PRODUCT :HL3812
RAILCAR FPAX200848
CLEANING/INSPECTION NO: 20084811072023

S/O NO : E3CA014
CUSTOMER PO : 30131230220
DATE SHIPPED: 12/06/23
LOT NO : 22L1090
WEIGHT (LB) : 191,200.00
CUSTID:FT04342 SPIDM1

DATE OF PROD: 11/07/23

Test	Method	Spec Min	Spec Max	Actual
Melt Index,g/10min	ASTM D1238	0	.1	.067
HLMI, g/10 min.	ASTM D1238	9	15	11.8
Density, g/cm3	ASTM D1505	.935	.939	.9373

Linda Kao

QC SUPERVISOR

Formosa Plastics

FORMOSA PLASTICS CORPORATION, TEXAS
201 FORMOSA DRIVE PHONE:(888)FPCUSA3
PO BOX 700
POINT COMFORT TX 77978

Certificate of Analysis
(CONFIDENTAL)

CUSTOMER:SKAPS INC.
571 INDUSTRIAL PARKWAY
COMMERCE GA 30529
PRODUCT :HL3812
RAILCAR FPAX215129
CLEANING/INSPECTION NO: 215129111023

S/O NO : E3CA017
CUSTOMER PO : 30131230220
DATE SHIPPED: 12/30/23
LOT NO : 23K1102
WEIGHT (LB) : 192,400.00
CUSTID:FT04342 SPIDM1

DATE OF PROD: 11/10/23

Test	Method	Spec Min	Spec Max	Actual
Melt Index,g/10min	ASTM D1238	0	.1	.068
HLMI, g/10 min.	ASTM D1238	9	15	11.1
Density, g/cm3	ASTM D1505	.935	.939	.9375

Linda Kao

QC SUPERVISOR

Product: 60-HD-11-BLK-BLK-GRI-STD-24.00
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM
Customer: Mustang Extreme Environmental Services
Cust PO: 314636

QC'd By: Malkesh Patel
Date: February 28, 2024

We hereby certify the following test results for the above referenced product/project :

Count	Roll Number	Area (sq ft)	Gross Weight (lb)	Thickness MAV (mil)	Thickness MIN (mil)	Asperity Height (mil)		Tensile at Yield (ppi)		Elong at Yield (%)		Tensile at Break (ppi)		Elong at Break (%)		Tear Resistance (lb)		Punct Resist (lb)	Density (g/cc)	Carbon Black (%)	CB Disp (Views in Cat 1 or 2)	Resin OIT (Minute)	Resin Lot #
				ASTM D 5994	ASTM D 5994	ASTM D 7466		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
						Side A	Side B	MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
01	3119001510	12,000.00	3780	57	55	23	22	150	154	19	16	196	162	552	499	44	46	143	0.946	2.3	10	224	PQM821290
02	3119001511	12,000.00	3796	58	55	22	22	150	168	17	17	189	161	540	456	44	46	143	0.946	2.6	10	224	PQM821290
03	3119001512	12,000.00	3780	59	57	22	22	148	156	19	17	196	174	554	534	44	46	143	0.946	2.4	10	224	PQM821290
04	3119001513	12,000.00	3792	57	54	22	23	148	156	19	17	196	174	554	534	44	46	143	0.946	2.4	10	224	PQM821290
05	3119001514	12,000.00	3800	58	55	22	23	148	156	19	17	196	174	554	534	44	46	143	0.946	2.4	10	224	PQM821290
06	3119001515	12,000.00	3810	58	55	23	23	148	156	19	17	196	174	554	534	44	46	143	0.946	2.4	10	224	PQM821290
07	3119001516	12,000.00	3844	57	54	23	23	148	156	19	17	196	174	554	534	44	46	143	0.946	2.4	10	224	PQM821290
08	3119001517	12,000.00	3840	59	58	25	25	150	152	18	17	185	159	528	416	52	54	150	0.947	2.5	10	224	PQM821290
09	3119001518	12,000.00	3828	58	55	23	24	150	152	18	17	185	159	528	416	52	54	150	0.947	2.5	10	224	PQM821290
10	3119001519	12,000.00	3830	58	55	22	24	150	152	18	17	185	159	528	416	52	54	150	0.947	2.5	10	224	PQM821290
11	3119001520	12,000.00	3838	57	53	21	21	150	152	18	17	185	159	528	416	52	54	150	0.947	2.5	10	224	PQM821290
12	3119001521	12,000.00	3844	59	55	22	23	159	162	18	17	200	177	530	519	52	54	150	0.947	2.5	10	224	PQM821290

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SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529

Phone: 706-336-7000
Fax: 706-336-7007
E-Mail:contact@skaps.com

Product: 60-HD-11-BLK-BLK-GRI-STD-24.00
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM
Customer: Mustang Extreme Environmental Services
Cust PO: 314636

QC'd By: Malkesh Patel
Date: February 28, 2024

We hereby certify the following test results for the above referenced product/project :

Count	Roll Number	Area (sq ft)	Gross Weight (lb)	Thickness MAV (mil)	Thickness MIN (mil)	Asperity Height (mil)		Tensile at Yield (ppi)		Elong at Yield (%)		Tensile at Break (ppi)		Elong at Break (%)		Tear Resistance (lb)		Punct Resist (lb)	Density (g/cc)	Carbon Black (%)	CB Disp (Views in Cat 1 or 2)	Resin OIT (Minute)	Resin Lot #
				ASTM D 5994	ASTM D 5994	ASTM D 7466		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
						Side A	Side B	MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
13	3119001522	12,000.00	3912	60	59	22	21	159	162	18	17	200	177	530	519	52	54	150	0.947	2.5	10	224	PQM821290
14	3119001523	12,000.00	3920	60	59	22	21	159	162	18	17	200	177	530	519	52	54	150	0.947	2.5	10	224	PQM821290
15	3119001524	12,000.00	3918	60	59	21	21	159	162	18	17	200	177	530	519	52	54	150	0.947	2.5	10	224	PQM821290
16	3119001525	12,000.00	3920	60	58	20	20	159	162	18	17	200	177	530	519	52	54	150	0.947	2.5	10	224	PQM821290
17	3119001526	12,000.00	3916	60	58	21	22	154	155	19	17	197	174	541	522	51	55	144	0.946	2.4	10	224	PQM821290
18	3119001527	12,000.00	3,930	61	59	22	23	154	155	19	17	197	174	541	522	51	55	144	0.946	2.4	10	224	PQM821290
19	3119001530	12,000.00	3,950	62	59	23	22	154	155	19	17	197	174	541	522	51	55	144	0.946	2.4	10	224	PQM821290
20	3119001531	12,000.00	3,938	60	59	23	23	148	156	18	17	183	157	503	464	51	55	144	0.946	2.6	10	224	PQM821290
21	3119001532	12,000.00	3,952	59	54	24	24	148	156	18	17	183	157	503	464	51	55	144	0.946	2.6	10	224	PQM821290
22	3119001533	12,000.00	3,932	60	58	25	22	148	156	18	17	183	157	503	464	51	55	144	0.946	2.6	10	224	PQM821290
23	3119001534	12,000.00	3,920	60	56	23	24	148	156	18	17	183	157	503	464	51	55	144	0.946	2.6	10	224	PQM821290

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SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529

Phone: 706-336-7000
Fax: 706-336-7007
E-Mail:contact@skaps.com

Chevron Phillips Chemical Company LP

CoA Date: 12/29/2023

Certificate of Analysis

Shipped To: SKAPS
571 Industrial Park Way
COMMERCE GA 30529-1326
USA

Recipient: ARORA
Fax:

Delivery #: 81055261
PO #: 30131230218
Weight: 184200.000 LB
Ship Date: 12/29/2023
Package: BULK
Mode: Hopper Car
Car #: CPCX815362
Seal No: 365063

Product:
MARLEX K306 POLYETHYLENE in Bulk

Lot Number: PQM821290

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.080	g/10min
HLMI Flow Rate	ASTM D1238	12.50	g/10min
Density	D1505 or D4883	0.9380	g/cm3

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

Steven Beck

Steven Beck
Quality Systems Coordinator

For CoA questions contact Leslie Dziamara at +1-832-813-4806

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.4: FML Conformance Testing Results

TRI ENVIRONMENTAL
TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

March 20, 2024
April 2, 2024 Updated-RT Tensile per client request

Mail To:

Steven Roeder
Mustang Extreme Environmental Services

email: sroeder@mustangenergyservices.com
cc email: pzabaleta@mustangextreme.com

Bill To:

<= Same (P.O. #314937)

Dear Mr. Roeder:

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

Project:	**OWL NDBLF Cell 1B 2B**
TRI Job Reference Number:	24-000975
Material(s) Tested:	Thirteen, Skaps 60 mil Smooth HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D5199) Density (ASTM D1505) Carbon Black Content (ASTM D1603, mod.) Carbon Dispersion (ASTM D5596) Tensile Properties (ASTM D6693) Puncture Strength (ASTM D4833) Tear Resistance (ASTM D1004)

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

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

TRI ENVIRONMENTAL
TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022119
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D5199)												
Thickness (mils)	70	61	61	60	59	62	61	62	64	66	**63**	3
											59	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.949	0.949	0.949								**0.949**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.52	2.89									**2.71**	0.26
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	161	159	159	160	156						**159**	2
TD Yield Strength (ppi)	164	165	162	165	163						**164**	1
MD Break Strength (ppi)	311	299	304	302	303						**304**	4
TD Break Strength (ppi)	279	256	277	301	118						**246**	73
MD Yield Elongation (%)	18	21	21	19	21						**20**	1
TD Yield Elongation (%)	18	18	18	19	18						**18**	0
MD Break Elongation (%)	818	809	803	794	797						**804**	10
TD Break Elongation (%)	784	726	785	851	349						**699**	201
Tensile Properties (ASTM D6693, 2 ipm strain rate)				**RETEST**								
MD Yield Strength (ppi)	164	161	152	161	160						**160**	5
TD Yield Strength (ppi)	164	170	163	162	162						**164**	3
MD Break Strength (ppi)	276	301	267	214	290						**270**	34
TD Break Strength (ppi)	303	279	281	279	287						**286**	10
MD Yield Elongation (%)	19	22	22	21	22						**21**	1
TD Yield Elongation (%)	18	23	21	22	23						**21**	2
MD Break Elongation (%)	766	840	797	605	813						**764**	93
TD Break Elongation (%)	905	816	844	846	858						**854**	32
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	145	148	145	141	140						**144**	3
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	52	53	58	52	53	53	54	59	54	55	**54**	2
TD Tear Strength (lbs)	50	50	55	50	50	50	50	55	50	50	**51**	2

MD Machine Direction TD Transverse Direction

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

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022126
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	61	62	60	65	62	63	62	58	61	61	**61**	2
											58	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.947	0.947	0.947								**0.947**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.54	2.56									**2.55**	0.01
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	158	163	159	156	162						**160**	3
TD Yield Strength (ppi)	173	160	165	163	165						**165**	5
MD Break Strength (ppi)	297	292	276	254	285						**281**	17
TD Break Strength (ppi)	295	222	260	243	287						**261**	30
MD Yield Elongation (%)	18	21	21	20	21						**20**	1
TD Yield Elongation (%)	18	20	19	19	17						**19**	1
MD Break Elongation (%)	836	813	787	737	795						**794**	37
TD Break Elongation (%)	854	692	777	734	845						**780**	70
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	144	141	140	145	149						**144**	3
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	54	52	59	56	52	54	55	57	54	54	**55**	2
TD Tear Strength (lbs)	49	54	57	49	53	52	52	57	51	51	**53**	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022134
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	61	61	61	61	62	61	60	60	61	63	**61** **60**	1 << min
Density (ASTM D1505)												
Density (g/cm3)	0.948	0.948	0.948								**0.948**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.49	2.58									**2.54**	0.06
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	2	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	166	172	161	159	166						**165**	5
TD Yield Strength (ppi)	168	169	171	170	167						**169**	2
MD Break Strength (ppi)	294	311	268	252	269						**279**	23
TD Break Strength (ppi)	286	307	284	303	280						**292**	12
MD Yield Elongation (%)	17	22	22	21	22						**21**	2
TD Yield Elongation (%)	18	18	17	19	18						**18**	1
MD Break Elongation (%)	814	835	772	741	747						**782**	41
TD Break Elongation (%)	849	900	818	891	815						**855**	40
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	151	146	143	141	139						**144**	5
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	54	54	62	55	56	56	54	61	54	55	**56**	3
TD Tear Strength (lbs)	51	50	57	51	51	49	52	57	51	52	**52**	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022141
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	60	58	61	60	59	60	60	63	61	61	**60** **58**	1 << min
Density (ASTM D1505)												
Density (g/cm3)	0.946	0.947	0.947								**0.947**	0.001
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.50	2.54									**2.52**	0.03
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	157	162	164	154	157						**159**	4
TD Yield Strength (ppi)	167	164	169	162	157						**164**	5
MD Break Strength (ppi)	272	311	211	276	287						**271**	37
TD Break Strength (ppi)	263	283	249	276	295						**273**	18
MD Yield Elongation (%)	18	23	22	20	23						**21**	2
TD Yield Elongation (%)	18	21	18	17	19						**19**	2
MD Break Elongation (%)	767	833	585	775	796						**751**	96
TD Break Elongation (%)	763	817	718	796	871						**793**	57
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	139	137	136	135	135						**137**	2
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	54	51	55	51	52	53	52	57	54	54	**53**	2
TD Tear Strength (lbs)	50	48	57	50	51	53	51	54	48	51	**51**	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022149
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	61	59	61	62	66	60	62	60	62	62	**61**	2
											59	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.947	0.947	0.947								**0.947**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.54	2.48									**2.51**	0.04
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	149	158	160	166	156						**158**	6
TD Yield Strength (ppi)	161	169	154	156	157						**159**	6
MD Break Strength (ppi)	246	280	266	276	268						**267**	13
TD Break Strength (ppi)	294	267	248	278	303						**278**	22
MD Yield Elongation (%)	19	22	22	22	22						**21**	1
TD Yield Elongation (%)	17	18	17	19	17						**18**	1
MD Break Elongation (%)	710	784	736	741	756						**745**	27
TD Break Elongation (%)	860	749	736	821	880						**809**	65
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	149	145	141	140	139						**143**	4
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	52	57	61	53	52	53	53	58	54	54	**55**	3
TD Tear Strength (lbs)	48	50	59	52	50	50	50	54	49	51	**51**	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022156
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	62	62	61	60	60	62	63	61	63	60	**61**	1
											60	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.948	0.948	0.948								**0.948**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.43	2.58									**2.51**	0.11
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	2	1	1	1							
Rating - 2nd field view	1	2	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	159	162	161	158	158						**160**	2
TD Yield Strength (ppi)	167	168	166	170	162						**167**	3
MD Break Strength (ppi)	291	282	296	255	289						**283**	16
TD Break Strength (ppi)	254	290	292	279	305						**284**	19
MD Yield Elongation (%)	18	24	21	19	22						**21**	2
TD Yield Elongation (%)	17	20	19	18	17						**18**	1
MD Break Elongation (%)	818	791	827	720	818						**795**	44
TD Break Elongation (%)	765	864	876	830	904						**848**	53
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	138	135	135	134	134						**135**	2
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	53	54	59	53	53	54	53	60	54	54	**55**	2
TD Tear Strength (lbs)	50	50	56	50	50	51	50	57	50	50	**51**	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022164
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	60	60	61	60	60	63	61	61	61	59	**61**	1
											59	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.948	0.948	0.948								**0.948**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.54	2.58									**2.56**	0.03
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	2	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	144	155	150	154	154						**151**	5
TD Yield Strength (ppi)	158	156	151	156	147						**154**	5
MD Break Strength (ppi)	265	279	272	295	286						**279**	12
TD Break Strength (ppi)	283	235	213	189	286						**241**	43
MD Yield Elongation (%)	19	24	23	21	21						**22**	2
TD Yield Elongation (%)	17	16	18	19	18						**18**	1
MD Break Elongation (%)	769	782	783	818	798						**790**	19
TD Break Elongation (%)	835	697	662	572	855						**724**	120
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	146	140	138	137	135						**139**	4
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	53	51	57	54	55	52	52	56	49	52	**53**	3
TD Tear Strength (lbs)	49	51	52	50	51	47	49	54	50	49	**50**	2

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022173
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	62	62	60	60	61	61	60	63	60	60	**61**	1
											60	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.947	0.947	0.947								**0.947**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.52	2.52									**2.52**	0.00
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	154	155	156	155	156						**155**	1
TD Yield Strength (ppi)	160	158	156	155	153						**156**	3
MD Break Strength (ppi)	267	270	252	303	296						**278**	21
TD Break Strength (ppi)	279	260	286	282	300						**281**	14
MD Yield Elongation (%)	18	24	22	21	23						**22**	2
TD Yield Elongation (%)	17	19	18	19	18						**18**	1
MD Break Elongation (%)	730	746	701	831	795						**761**	52
TD Break Elongation (%)	817	768	845	824	870						**825**	38
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	138	137	136	135	134						**136**	2
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	52	54	59	53	54	53	54	60	53	53	**54**	3
TD Tear Strength (lbs)	49	50	55	49	51	49	50	56	50	50	**51**	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022222
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	61	61	62	61	61	61	62	59	61	62	**61**	1
											59	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.948	0.947	0.947								**0.947**	0.001
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.53	2.59									**2.56**	0.04
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	2	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	155	157	158	150	154						**155**	3
TD Yield Strength (ppi)	163	159	158	158	153						**158**	4
MD Break Strength (ppi)	283	296	238	283	295						**279**	24
TD Break Strength (ppi)	299	275	268	290	298						**286**	14
MD Yield Elongation (%)	18	25	21	20	23						**21**	3
TD Yield Elongation (%)	18	18	18	18	16						**18**	1
MD Break Elongation (%)	789	822	657	796	818						**776**	68
TD Break Elongation (%)	871	819	803	852	884						**846**	34
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	132	131	142	137	135						**135**	4
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	53	53	60	54	54	52	54	58	55	53	**55**	2
TD Tear Strength (lbs)	49	51	55	49	51	49	51	55	49	49	**51**	2

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022230
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	62	63	61	59	62	61	60	62	60	60	**61**	1
											59	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.947	0.947	0.947								**0.947**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.55	2.53									**2.54**	0.01
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	151	152	155	157	148						**153**	4
TD Yield Strength (ppi)	161	164	157	154	159						**159**	4
MD Break Strength (ppi)	277	304	269	215	244						**262**	34
TD Break Strength (ppi)	298	295	303	275	259						**286**	18
MD Yield Elongation (%)	19	22	21	21	22						**21**	1
TD Yield Elongation (%)	19	17	16	17	18						**17**	1
MD Break Elongation (%)	782	843	739	598	675						**727**	95
TD Break Elongation (%)	876	848	890	826	770						**842**	47
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	136	133	133	131	131						**133**	2
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	52	55	60	54	53	52	54	57	53	54	**55**	2
TD Tear Strength (lbs)	50	49	57	49	52	49	50	55	50	50	**51**	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022239
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	62	62	61	61	62	60	61	61	59	60	**61**	1
											59	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.947	0.947	0.947								**0.947**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.54	2.55									**2.55**	0.01
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	149	152	157	151	150						**152**	3
TD Yield Strength (ppi)	159	163	162	161	153						**160**	4
MD Break Strength (ppi)	282	262	284	281	257						**273**	13
TD Break Strength (ppi)	255	295	289	303	255						**279**	23
MD Yield Elongation (%)	19	23	22	20	23						**21**	2
TD Yield Elongation (%)	18	18	17	19	17						**18**	1
MD Break Elongation (%)	797	729	773	784	725						**762**	33
TD Break Elongation (%)	755	862	848	894	771						**826**	60
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	132	129	130	126	130						**130**	2
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	53	55	57	53	54	54	53	60	52	53	**54**	2
TD Tear Strength (lbs)	48	50	55	50	49	50	48	55	50	50	**51**	2

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022246
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	60	60	61	61	60	60	58	61	62	62	**60**	1
											58	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.947	0.947	0.947								**0.947**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.53	2.56									**2.55**	0.02
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	2	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	159	155	154	159	153						**156**	3
TD Yield Strength (ppi)	160	164	167	165	155						**162**	5
MD Break Strength (ppi)	282	260	282	287	257						**274**	14
TD Break Strength (ppi)	255	273	300	283	222						**267**	30
MD Yield Elongation (%)	18	22	21	18	22						**20**	2
TD Yield Elongation (%)	18	17	18	19	16						**18**	1
MD Break Elongation (%)	778	739	802	790	734						**769**	31
TD Break Elongation (%)	760	805	877	829	676						**789**	76
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	132	133	138	135	133						**134**	2
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	53	52	59	51	55	52	53	59	53	52	**54**	3
TD Tear Strength (lbs)	51	49	54	50	50	50	50	55	48	50	**51**	2

MD Machine Direction TD Transverse Direction

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

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Smooth HDPE Geomembrane
Sample Identification: Roll# 3111022254
TRI Log #: 24-000975

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5199)												
Thickness (mils)	61	62	59	62	61	62	62	63	61	61	**61**	1
											59	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.948	0.948	0.948								**0.948**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.49	2.48									**2.49**	0.01
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	155	158	155	160	153						**156**	3
TD Yield Strength (ppi)	166	158	159	162	156						**160**	4
MD Break Strength (ppi)	255	268	215	254	272						**253**	23
TD Break Strength (ppi)	282	259	138	290	234						**241**	61
MD Yield Elongation (%)	19	24	21	20	22						**21**	2
TD Yield Elongation (%)	18	16	19	18	17						**18**	1
MD Break Elongation (%)	724	750	614	700	762						**710**	59
TD Break Elongation (%)	826	776	412	854	699						**713**	178
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	138	134	132	131	132						**133**	3
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	54	53	60	54	53	55	54	58	54	54	**55**	2
TD Tear Strength (lbs)	50	49	54	51	50	50	49	56	49	51	**51**	2

MD Machine Direction TD Transverse Direction

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

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

March 18, 2024

Mail To:

Steven Roeder
Mustang Extreme Environmental Services

email: sroeder@mustangenergyservices.com

Bill To:

<= Same (P.O. #314937)

Dear Mr. Roeder:

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

Project:	**OWL NDBLF Cell 1B 2B**
TRI Job Reference Number:	24-000976
Material(s) Tested:	Three, Skaps 60 mil Textured HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D5994) Asperity Height (ASTM D7466) Density (ASTM D1505) Carbon Black Content (ASTM D1603, mod.) Carbon Dispersion (ASTM D5596) Tensile Properties (ASTM D6693) Puncture Strength (ASTM D4833) Tear Resistance (ASTM D1004)

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

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

GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Textured HDPE Geomembrane
Sample Identification: Roll# 3119001510
TRI Log #: 24-000976

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5994)												
Thickness (mils)	57	60	60	58	60	59	59	60	57	60	**59**	1
											57	<< min
Asperity Height (ASTM D7466)												
Asperity Height (mils) - Side A	29	25	27	34	28	25	28	30	31	26	**28**	3
Asperity Height (mils) - Side B	23	31	27	26	31	28	30	19	26	25	**27**	4
Density (ASTM D1505)												
Density (g/cm3)	0.948	0.946	0.946								**0.947**	0.001
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.54	2.51									**2.53**	0.02
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	176	163	168	166	168						**168**	5
TD Yield Strength (ppi)	176	171	172	175	180						**175**	4
MD Break Strength (ppi)	153	198	213	210	190						**193**	24
TD Break Strength (ppi)	190	176	128	180	142						**163**	27
MD Yield Elongation (%)	18	18	18	19	21						**19**	1
TD Yield Elongation (%)	17	16	15	17	16						**16**	1
MD Break Elongation (%)	314	477	528	534	465						**464**	89
TD Break Elongation (%)	539	481	185	491	421						**423**	140
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	149	151	151	146	147						**149**	2
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	52	55	59	53	52	55	51	59	53	50	**54**	3
TD Tear Strength (lbs)	57	57	65	57	56	57	55	67	55	57	**58**	4

MD Machine Direction TD Transverse Direction

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

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Textured HDPE Geomembrane
Sample Identification: Roll# 3119001518
TRI Log #: 24-000976

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5994)												
Thickness (mils)	74	72	67	69	65	64	68	67	64	69	**68**	3
											64	<< min
Asperity Height (ASTM D7466)												
Asperity Height (mils) - Side A	27	26	27	27	26	22	26	26	25	29	**26**	2
Asperity Height (mils) - Side B	28	27	26	26	28	27	26	28	24	23	**26**	2
Density (ASTM D1505)												
Density (g/cm3)	0.947	0.948	0.948								**0.948**	0.001
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.57	2.63									**2.60**	0.04
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	2	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	189	191	188	200	190						**192**	5
TD Yield Strength (ppi)	189	186	193	178	176						**184**	7
MD Break Strength (ppi)	215	190	252	181	231						**214**	29
TD Break Strength (ppi)	144	183	208	195	210						**188**	27
MD Yield Elongation (%)	19	23	18	19	20						**20**	2
TD Yield Elongation (%)	16	17	15	15	16						**16**	1
MD Break Elongation (%)	486	430	610	410	553						**498**	84
TD Break Elongation (%)	285	447	502	487	544						**453**	100
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	159	150	151	155	156						**154**	4
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	58	59	64	59	60	58	58	63	59	58	**60**	2
TD Tear Strength (lbs)	58	63	72	62	61	61	64	67	60	65	**63**	4

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps 60 mil Textured HDPE Geomembrane
Sample Identification: Roll# 3119001526
TRI Log #: 24-000976

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5994)												
Thickness (mils)	60	60	67	63	63	62	63	58	63	60	**62**	2
											58	<< min
Asperity Height (ASTM D7466)												
Asperity Height (mils) - Side A	25	28	27	23	24	37	26	28	26	25	**27**	4
Asperity Height (mils) - Side B	23	27	24	28	26	23	24	23	25	25	**25**	2
Density (ASTM D1505)												
Density (g/cm3)	0.947	0.947	0.947								**0.947**	0.000
Carbon Black Content (ASTM D4218)												
% Carbon Black	2.42	2.56									**2.49**	0.10
Carbon Black Dispersion (ASTM D5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	158	164	158	157	155						**158**	3
TD Yield Strength (ppi)	169	167	169	161	158						**165**	5
MD Break Strength (ppi)	144	217	203	189	199						**190**	28
TD Break Strength (ppi)	123	178	183	127	178						**158**	30
MD Yield Elongation (%)	17	20	20	18	22						**19**	2
TD Yield Elongation (%)	18	17	15	16	15						**16**	1
MD Break Elongation (%)	317	581	546	477	530						**490**	104
TD Break Elongation (%)	225	502	516	321	496						**412**	132
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	138	135	142	143	148						**141**	5
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	50	54	54	51	50	52	51	56	50	52	**52**	2
TD Tear Strength (lbs)	54	58	59	53	54	54	56	63	54	59	**56**	3

MD Machine Direction TD Transverse Direction

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APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.5: Geonet Certifications

March 29, 2024

Customer: Mustang Extreme Environmental Services
Customer P.O.#: 314636
Project: Northern Delaware Basin Landfill Cell 1B & 2B, NM
Product: TN 220

We hereby certify that the TN 220 drainage geonet, meets or exceeds the project requirements as stated in the specifications. The properties listed in this section are:

Property	Test Method	Unit	Value	Qualifier
Geonet				
Mass per Unit Area	ASTM D 5261	lbs/ft^2	0.160	MAV[3]
Thickness	ASTM D 5199	mil	200	MAV
Carbon Black	ASTM D 4218	%	2.0	MAV
Tensile Strength	ASTM D 7179	lbs/in	42	MAV
Melt Flow	ASTM D 1238[2]	g/10 min	1.0	Maximum
Density	ASTM D 1505	g/cm^3	0.940	MAV
Transmissivity[1]	ASTM D 4716	m^2/sec	1.0×10^{-3}	MAV

Notes:

1. *Transmissivity measured using water at 21 ± 2 ° C (70 ± 4 ° F) with a gradient of 0.1 and a confining pressure of 10000 psf between steel plates after 15 minutes.*
2. *Condition 190/2.16*
3. *Minium average value*

Quality Approval

Malkesh Patel

APPROVED 5 QA

Product: **TN 220**
Project : **Northern Delaware Basin Landfill Cell 1B & 2B, NM**

We hereby certify the following test results for the above referenced product/project :

Geonet Roll Number	Geonet						
	Resin Lot Number	Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411030001	EQUX 018404	0.9550	0.177	223	2.44	56	3.09×10^{-3}
139411030002	EQUX 018404	0.9550					
139411030003	EQUX 018404	0.9550					
139411030004	EQUX 018404	0.9550					
139411030005	EQUX 018404	0.9550					
139411030006	EQUX 018404	0.9550					
139411030007	EQUX 018404	0.9550					
139411030008	EQUX 018404	0.9550					
139411030009	EQUX 018404	0.9550					
139411030010	EQUX 018404	0.9554	0.169	215	2.69	59	
139411030011	EQUX 018404	0.9554					
139411030012	EQUX 018404	0.9554					
139411030013	EQUX 018404	0.9554					
139411030014	EQUX 018404	0.9554					
139411030015	EQUX 018404	0.9554					
139411030016	EQUX 018404	0.9554					
139411030017	EQUX 018404	0.9554					
139411030018	EQUX 018404	0.9554					
139411030019	EQUX 018404	0.9554					
139411030020	EQUX 018404	0.9551	0.173	220	2.40	64	
139411030021	EQUX 018404	0.9551					
139411030022	EQUX 018404	0.9551					
139411030023	EQUX 018404	0.9551					
139411030024	EQUX 018404	0.9551					

SKAPS Industries, 1315 Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

Product: TN 220
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geonet Roll Number	Geonet						
	Resin Lot Number	Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411030025	EQUX 018404	0.9551					
139411030026	EQUX 018404	0.9551					
139411030027	EQUX 018404	0.9551					
139411030028	EQUX 018404	0.9551					
139411030029	EQUX 018404	0.9551					
139411030030	EQUX 018404	0.9552	0.176	208	2.41	66	
139411030031	EQUX 018404	0.9552					
139411030032	EQUX 018404	0.9552					
139411030033	EQUX 018404	0.9552					
139411030034	EQUX 018404	0.9552					
139411030035	EQUX 018404	0.9552					
139411030036	EQUX 018404	0.9552					
139411030037	EQUX 018404	0.9552					
139411030038	EQUX 018404	0.9552					
139411030039	EQUX 018404	0.9552					
139411030040	EQUX 018404	0.9553	0.172	219	2.43	62	
139411030041	EQUX 018404	0.9553					
139411030042	EQUX 018404	0.9553					
139411030043	EQUX 018404	0.9553					
139411030044	EQUX 018404	0.9553					
139411030045	EQUX 018404	0.9553					
139411030046	EQUX 018404	0.9553					
139411030047	EQUX 018404	0.9553					
139411030048	EQUX 018404	0.9553					

SKAPS Industries, 1315 Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

Product: TN 220
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geonet Roll Number	Geonet						
	Resin Lot Number	Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411030049	EQUX 018404	0.9553					
139411030050	EQUX 018404	0.9555	0.173	211	2.71	67	
139411030051	EQUX 018404	0.9555					
139411030052	EQUX 018404	0.9555					
139411030053	EQUX 018404	0.9555					
139411030054	EQUX 018404	0.9555					
139411030055	EQUX 018404	0.9555					
139411030056	EQUX 018404	0.9555					
139411030057	EQUX 018404	0.9555					
139411030058	EQUX 018404	0.9555					
139411030059	EQUX 018404	0.9555					
139411030060	EQUX 018404	0.9552	0.167	214	2.65	69	2.83×10^{-3}
139411030061	EQUX 018404	0.9552					
139411030062	EQUX 018404	0.9552					
139411030063	EQUX 018404	0.9552					
139411030064	EQUX 018404	0.9552					
139411030065	EQUX 018404	0.9552					
139411030066	EQUX 018404	0.9552					
139411030067	EQUX 018404	0.9552					
139411030068	EQUX 018404	0.9552					
139411030069	EQUX 018404	0.9552					
139411030070	EQUX 018404	0.9554	0.166	225	2.52	58	
139411030071	EQUX 018404	0.9554					
139411030072	EQUX 018404	0.9554					

SKAPS Industries, 1 Skaps Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

Product: **TN 220**
Project : **Northern Delaware Basin Landfill Cell 1B & 2B, NM**

We hereby certify the following test results for the above referenced product/project :

Geonet Roll Number	Geonet						
	Resin Lot Number	Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411030073	EQUX 018404	0.9554					
139411030074	EQUX 018404	0.9554					
139411030075	EQUX 018404	0.9554					
139411030076	EQUX 018404	0.9554					
139411030077	EQUX 018404	0.9554					
139411030078	EQUX 018404	0.9554					
139411030079	EQUX 018404	0.9554					
139411030080	EQUX 018404	0.9551	0.175	221	2.42	68	
139411030081	EQUX 018404	0.9551					
139411030082	EQUX 018404	0.9551					
139411030083	EQUX 018404	0.9551					
139411030084	EQUX 018404	0.9551					
139411030085	EQUX 018404	0.9551					
139411030086	EQUX 018404	0.9551					
139411030087	EQUX 018404	0.9551					
139411030088	EQUX 018404	0.9551					
139411030089	EQUX 018404	0.9551					
139411030090	EQUX 018404	0.9550	0.169	209	2.68	60	
139411030091	EQUX 018404	0.9550					
139411030092	EQUX 018404	0.9550					
139411030093	EQUX 018404	0.9550					
139411030094	EQUX 018404	0.9550					
139411030095	EQUX 018404	0.9550					
139411030096	EQUX 018404	0.9550					

SKAPS Industries, 1315 Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

Product: **TN 220**
Project : **Northern Delaware Basin Landfill Cell 1B & 2B, NM**

We hereby certify the following test results for the above referenced product/project :

Geonet Roll Number	Geonet						
	Resin Lot Number	Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411030097	EQUX 018404	0.9550					
139411030098	EQUX 018404	0.9550					
139411030099	EQUX 018404	0.9550					
139411030100	EQUX 018404	0.9555	0.170	217	2.63	57	
139411030101	EQUX 018404	0.9555					
139411030102	EQUX 018404	0.9555					
139411030103	EQUX 018404	0.9555					
139411030104	EQUX 018404	0.9555					
139411030105	EQUX 018404	0.9555					
139411030106	EQUX 018404	0.9555					
139411030107	EQUX 018404	0.9555					
139411030108	EQUX 018404	0.9555					
139411030109	EQUX 018404	0.9555					
139411030110	EQUX 018404	0.9555	0.168	216	2.64	63	
139411030111	EQUX 018404	0.9555					
139411030112	EQUX 018404	0.9555					
139411030113	EQUX 018404	0.9555					
139411030114	EQUX 018404	0.9555					
139411030115	EQUX 018404	0.9555					
139411030116	EQUX 018404	0.9555					
139411030117	EQUX 018404	0.9555					
139411030118	EQUX 018404	0.9555					
139411030119	EQUX 018404	0.9555					
139411030120	EQUX 018404	0.9555	0.177	212	2.39	65	2.56×10^{-3}

Skaps Industries, 1765 Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

Product: TN 220
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geonet Roll Number	Geonet						
	Resin Lot Number	Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411030121	EQUX 018404	0.9555					
139411030122	EQUX 018404	0.9555					
139411030123	EQUX 018404	0.9555					
139411030124	EQUX 018404	0.9555					
139411030125	EQUX 018404	0.9555					
139411030126	EQUX 018404	0.9555					
139411030127	EQUX 018404	0.9555					
139411030128	EQUX 018404	0.9555					
139411030129	EQUX 018404	0.9555					
139411030130	EQUX 018404	0.9555	0.172	222	2.62	61	
139411030131	EQUX 018404	0.9555					
139411030132	EQUX 018404	0.9555					
139411030133	EQUX 018404	0.9555					
139411030134	EQUX 018404	0.9555					
139411030135	EQUX 018404	0.9555					
139411030136	EQUX 018404	0.9555					
139411030137	EQUX 018404	0.9555					
139411030138	EQUX 018404	0.9555					
139411030139	EQUX 018404	0.9555					
139411030140	EQUX 018404	0.9555	0.170	224	2.66	61	
139411030141	EQUX 018404	0.9555					

SKAPS Industries, 1315 Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

POLYETHYLENE RESIN CERTIFICATION

Customer Name : Mustang Extreme Environmental Services
Project Name : Northern Delaware Basin Landfill Cell 1B & 2B, NM
Geocomposite Manufacturer : SKAPS Industries
Geocomposite Production Plant : Commerce, GA
Geocomposite Brand Name : TN 220

We hereby certify the following test results for the above referenced product/project:

Resin Manufacturer	Resin Lot Number	Property	Test Method	Units	Resin Manufacturer Value	Tested Value*
Trademark Plastics Corporation	EQUX 018404	Density	ASTM D1505	gm/cc	0.9500	0.9477
		Melt flow Index	ASTM D1238[(a)]	gm/10 min	0.25	0.18

(a) Condition 190/2.16

* Data from SKAPS Quality Control

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.6: Geonet Conformance Testing Results

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
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March 18, 2024

Mail To:

Steven Roeder
Mustang Extreme Environmental Services

email: sroeder@mustangenergyservices.com

Bill To:

<= Same (P.O. # 314937)

Dear Mr. Roeder:

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

Project:	**OWL NDBLF Cell 1B 2B**
TRI Job Reference Number:	24-000903
Material(s) Tested:	Seven, Skaps TN220 Geonet(s)
Test(s) Requested:	Thickness (ASTM D5199) - GN Mass/Unit Area (ASTM D3776) - GN Density (ASTM D1505) - GN Carbon Black Content (ASTM D1603, mod.) - GN Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg) Tensile Properties (ASTM D7179, 12 ipm strain rate) - GN

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

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

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GEONET TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220 Geonet
Sample Identification: 0139411030001
TRI Log #: 24-000903

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	232	213	234	234	235	210	218	207	237	240	**226**	13
											207	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	11.50	11.69	9.13	9.23	9.25	10.76	11.00	10.60	9.23	10.30		
Mass/unit area (lbs./sq.ft)	0.19	0.19	0.15	0.15	0.15	0.17	0.18	0.17	0.15	0.17	**0.17**	0.02
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.945	0.946	0.946								**0.946**	0.001
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.57	2.58									**2.58**	0.01
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT							
Melt Flow Index (g/10 min)	0.1303	0.1404									**0.1354**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	51	63	58	67	51						**58**	7
MD Elong. @ Max. Strength (%)	27	24	24	22	30						**25**	3

MD Machine Direction

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GEONET TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220 Geonet
Sample Identification: 0139411030024
TRI Log #: 24-000903

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	236	222	234	219	231	224	232	230	220	225	**227**	6
											219	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	10.61	10.33	10.61	10.92	10.10	11.02	9.64	11.52	9.77	10.69		
Mass/unit area (lbs./sq.ft)	0.17	0.17	0.17	0.18	0.16	0.18	0.16	0.19	0.16	0.17	**0.17**	0.01
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.944	0.945	0.945								**0.945**	0.001
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.52	2.57									**2.55**	0.04
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT							
Melt Flow Index (g/10 min)	0.1268	0.1433									**0.1351**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	66	60	72	53	60						**62**	7
MD Elong. @ Max. Strength (%)	29	28	27	26	27						**27**	1

MD Machine Direction

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GEONET TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220 Geonet
Sample Identification: 0139411030047
TRI Log #: 24-000903

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	226	231	221	233	226	230	229	227	230	231	**228**	4
											221	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	10.88	10.34	10.31	10.49	10.55	10.08	11.21	9.90	10.70	9.79		
Mass/unit area (lbs./sq.ft)	0.18	0.17	0.17	0.17	0.17	0.16	0.18	0.16	0.17	0.16	**0.17**	0.01
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.945	0.946	0.946								**0.946**	0.001
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.50	2.56									**2.53**	0.04
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT							
Melt Flow Index (g/10 min)	0.1314	0.1356									**0.1335**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	68	60	61	62	50						**60**	6
MD Elong. @ Max. Strength (%)	31	25	27	24	23						**26**	3

MD Machine Direction

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GEONET TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220 Geonet
Sample Identification: 0139411030070
TRI Log #: 24-000903

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	230	233	230	226	228	218	230	216	238	229	**228**	7
											216	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	10.46	11.22	11.03	10.07	10.90	9.00	10.53	9.23	11.03	10.94		
Mass/unit area (lbs./sq.ft)	0.17	0.18	0.18	0.16	0.18	0.15	0.17	0.15	0.18	0.18	**0.17**	0.01
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.946	0.946	0.947								**0.946**	0.001
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.57	2.56									**2.57**	0.01
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT							
Melt Flow Index (g/10 min)	0.1236	0.1376									**0.1306**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	61	54	48	63	54						**56**	6
MD Elong. @ Max. Strength (%)	25	17	31	25	26						**25**	5

MD Machine Direction

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GEONET TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220 Geonet
Sample Identification: 0139411030093
TRI Log #: 24-000903

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	215	217	230	225	232	223	234	231	233	234	**227**	7
											215	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	9.15	9.36	11.08	10.77	10.90	9.74	10.84	10.44	11.03	11.10		
Mass/unit area (lbs./sq.ft)	0.15	0.15	0.18	0.17	0.18	0.16	0.18	0.17	0.18	0.18	**0.17**	0.01
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.946	0.947	0.947								**0.947**	0.001
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.54	2.54									**2.54**	0.00
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT							
Melt Flow Index (g/10 min)	0.1315	0.1280									**0.1298**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	55	64	50	67	64						**60**	7
MD Elong. @ Max. Strength (%)	30	25	20	26	26						**25**	4

MD Machine Direction

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GEONET TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220 Geonet
Sample Identification: 0139411030116
TRI Log #: 24-000903

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	236	211	216	211	212	231	226	225	228	237	**223**	10
											211	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	11.32	9.14	9.25	9.03	9.40	11.40	10.30	10.45	10.70	11.79		
Mass/unit area (lbs./sq.ft)	0.18	0.15	0.15	0.15	0.15	0.18	0.17	0.17	0.17	0.19	**0.17**	0.02
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.945	0.946	0.946								**0.946**	0.001
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.58	2.60									**2.59**	0.01
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT							
Melt Flow Index (g/10 min)	0.1359	0.1350									**0.1355**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	55	61	69	64	49						**60**	8
MD Elong. @ Max. Strength (%)	29	21	22	22	27						**24**	4

MD Machine Direction

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GEONET TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220 Geonet
Sample Identification: 0139411030139
TRI Log #: 24-000903

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	211	211	227	228	221	221	221	230	230	226	**223**	7
											211	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	11.31	9.26	9.90	10.76	11.16	10.79	9.00	8.75	10.30	11.07		
Mass/unit area (lbs./sq.ft)	0.18	0.15	0.16	0.17	0.18	0.17	0.15	0.14	0.17	0.18	**0.17**	0.02
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.945	0.945	0.945								**0.945**	0.000
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.59	2.58									**2.59**	0.01
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT							
Melt Flow Index (g/10 min)	0.1314	0.1326									**0.1320**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	51	62	55	61	65						**59**	6
MD Elong. @ Max. Strength (%)	27	24	24	25	24						**25**	1

MD Machine Direction

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APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.7: Geocomposite Certifications

August 2, 2024

Customer: Mustang Extreme Environmental Services
Customer P.O.#: 314636
Project: Northern Delaware Basin Landfill Cell 1B & 2B, NM
Product: TN 220-1-10

We hereby certify that the TN 220-1-10 drainage geocomposite, meets or exceeds the project requirements as stated in the specifications. The properties listed in this section are:

Property	Test Method	Unit	Value	Qualifier
Geonet[3]				
Mass per Unit Area	ASTM D 5261	lbs/ft^2	0.160	MAV[6]
Thickness	ASTM D 5199	mil	200	MAV
Carbon Black	ASTM D 4218	%	2.0	Range
Tensile Strength	ASTM D 7179	lbs/in	42	MAV
Melt Flow	ASTM D 1238[2]	g/10 min	1.0	Maximum
Density	ASTM D 1505	g/cm^3	0.94	MAV
Transmissivity[1a]	ASTM D 4716	m^2/sec	1.0×10^{-3}	MAV
Composite				
Ply Adhesion	ASTM D 7005	lb/in	1.0	MAV
Transmissivity[1b]	ASTM D 4716	m^2/sec	9.0×10^{-4}	MAV
Geotextile[3 & 4]				
Fabric Weight	ASTM D 5261	oz/yd^2	9.1	MARV[5]
Grab Strength	ASTM D 4632	lbs	230	MARV
Grab Elongation	ASTM D 4632	%	50	MARV
Trap Tear Strength	ASTM D 4533	lbs	100	MARV
Puncture Resistance	ASTM D 4833	lbs	120	MARV
CBR Puncture	ASTM D 6241	lbs	725	MARV
Mullen Burst	ASTM D 3786	psi	520	MARV
Water Flow Rate	ASTM D 4491	gpm/ft^2	95	MARV
Permittivity	ASTM D 4491	sec^{-1}	0.9	MARV
AOS	ASTM D 4751	US Sieve	80	MaxARV
UV Resistance (Certify Only)	ASTM D 4355	%/hrs	70/500	MARV

Notes:

1a. *Transmissivity measured using water at 21 ± 2 ° C (70 ± 4 ° F) with a gradient of 0.1 and a confining pressure of 10,000 psf between steel plates after 15 minutes.*
1b. *Transmissivity measured using water at 21 ± 2 ° C (70 ± 4 ° F) with a gradient of 0.1 and a confining pressure of 10,000 psf between steel plates after 15 minutes.*
2. *Condition 190/2.16*
3. *Geotextile and Geonet properties are prior to lamination.*
4. *Geotextile data is provided by the supplier.*
5. *MARV is statistically defined as mean minus two standard deviations and it is the value which is exceeded by 97.5% of all the test data.*
6. *Minium average value*

Quality Approval

Malkesh Patel

APPROVED 5 QA

Product: TN 220-1-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite			Geonet						
Roll Number	Ply Adhesion (lb/in) Side "A"	Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411020001	2.25	1.39×10^{-3}	EQUX 018404	0.9524	0.184	223	2.41	55	3.24×10^{-3}
139411020002			EQUX 018404	0.9524					
139411020003			EQUX 018404	0.9524					
139411020004			EQUX 018404	0.9524					
139411020005			EQUX 018404	0.9524					
139411020006			EQUX 018404	0.9524					
139411020007			EQUX 018404	0.9524					
139411020008			EQUX 018404	0.9524					
139411020009			EQUX 018404	0.9524					
139411020010	3.86		EQUX 018404	0.9526	0.175	220	2.48	67	
139411020011			EQUX 018404	0.9526					
139411020012			EQUX 018404	0.9526					
139411020013			EQUX 018404	0.9526					
139411020014			EQUX 018404	0.9526					
139411020015			EQUX 018404	0.9526					
139411020016			EQUX 018404	0.9526					
139411020017			EQUX 018404	0.9526					
139411020018			EQUX 018404	0.9526					
139411020019			EQUX 018404	0.9526					
139411020020	3.36		EQUX 018404	0.9523	0.177	215	2.63	60	
139411020021			EQUX 018404	0.9523					
139411020022			EQUX 018404	0.9523					
139411020023			EQUX 018404	0.9523					
139411020024			EQUX 018404	0.9523					

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Product: TN 220-1-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite			Geonet						
Roll Number	Ply Adhesion (lb/in) Side "A"	Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411020025			EQUX 018404	0.9523					
139411020026			EQUX 018404	0.9523					
139411020027			EQUX 018404	0.9523					
139411020028			EQUX 018404	0.9523					
139411020029			EQUX 018404	0.9523					
139411020030	3.22		EQUX 018404	0.9527	0.183	219	2.66	66	
139411020031			EQUX 018404	0.9527					
139411020032			EQUX 018404	0.9527					
139411020033			EQUX 018404	0.9527					
139411020034			EQUX 018404	0.9527					
139411020035			EQUX 018404	0.9527					
139411020036			EQUX 018404	0.9527					
139411020037			EQUX 018404	0.9527					
139411020038			EQUX 018404	0.9527					
139411020039			EQUX 018404	0.9527					
139411020040	3.43		EQUX 018404	0.9522	0.182	213	2.56	58	
139411020041			EQUX 018404	0.9522					
139411020042			EQUX 018404	0.9522					
139411020043			EQUX 018404	0.9522					
139411020044			EQUX 018404	0.9522					
139411020045			EQUX 018404	0.9522					
139411020046			EQUX 018404	0.9522					
139411020047			EQUX 018404	0.9522					
139411020048			EQUX 018404	0.9522					

SKAPS Industries, 1315 Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

Product: TN 220-1-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite			Geonet						
Roll Number	Ply Adhesion (lb/in) Side "A"	Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411020049			EQUX 018404	0.9522					
139411020050	2.34		EQUX 018404	0.9525	0.176	212	2.52	65	
139411020051			EQUX 018404	0.9525					
139411020052			EQUX 018404	0.9525					
139411020053			EQUX 018404	0.9525					
139411020054			EQUX 018404	0.9525					
139411020055			EQUX 018404	0.9525					
139411020056			EQUX 018404	0.9525					
139411020057			EQUX 018404	0.9525					
139411020058			EQUX 018404	0.9525					
139411020059			EQUX 018404	0.9525					
139411020060	2.43	1.11×10^{-3}	EQUX 018404	0.9522	0.181	222	2.59	56	2.94×10^{-3}
139411020061			EQUX 018404	0.9522					
139411020062			EQUX 018404	0.9522					
139411020063			EQUX 018404	0.9522					
139411020064			EQUX 018404	0.9522					
139411020065			EQUX 018404	0.9522					
139411020066			EQUX 018404	0.9522					
139411020067			EQUX 018404	0.9522					
139411020068			EQUX 018404	0.9522					
139411020069			EQUX 018404	0.9522					
139411020070	3.14		EQUX 018404	0.9526	0.179	214	2.61	69	
139411020071			EQUX 018404	0.9526					
139411020072			EQUX 018404	0.9526					

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Product: TN 220-1-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite			Geonet						
Roll Number	Ply Adhesion (lb/in) Side "A"	Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411020073			EQUX 018404	0.9526					
139411020074			EQUX 018404	0.9526					
139411020075			EQUX 018404	0.9526					
139411020076			EQUX 018404	0.9526					
139411020077			EQUX 018404	0.9526					
139411020078			EQUX 018404	0.9526					
139411020079			EQUX 018404	0.9526					
139411020080	3.28		EQUX 018404	0.9523	0.180	216	2.47	57	
139411020081			EQUX 018404	0.9523					
139411020082			EQUX 018404	0.9523					
139411020083			EQUX 018404	0.9523					
139411020084			EQUX 018404	0.9523					
139411020085			EQUX 018404	0.9523					
139411020086			EQUX 018404	0.9523					
139411020087			EQUX 018404	0.9523					
139411020088			EQUX 018404	0.9523					
139411020089			EQUX 018404	0.9523					
139411020090	2.36		EQUX 018404	0.9525	0.186	218	2.39	64	
139411020091			EQUX 018404	0.9525					
139411020092			EQUX 018404	0.9525					
139411020093			EQUX 018404	0.9525					
139411020094			EQUX 018404	0.9525					
139411020095			EQUX 018404	0.9525					
139411020096			EQUX 018404	0.9525					

3771 Atlanta Highway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

Product: TN 220-1-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite			Geonet						
Roll Number	Ply Adhesion (lb/in) Side "A"	Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411020097			EQUX 018404	0.9525					
139411020098			EQUX 018404	0.9525					
139411020099			EQUX 018404	0.9525					
139411020100	3.10		EQUX 018404	0.9524	0.185	221	2.70	61	
139411020101			EQUX 018404	0.9524					
139411020102			EQUX 018404	0.9524					
139411020103			EQUX 018404	0.9524					
139411020104			EQUX 018404	0.9524					
139411020105			EQUX 018404	0.9524					
139411020106			EQUX 018404	0.9524					
139411020107			EQUX 018404	0.9524					
139411020108			EQUX 018404	0.9524					
139411020109			EQUX 018404	0.9524					
139411020110	2.50		EQUX 018404	0.9527	0.178	225	2.62	59	
139411020111			EQUX 018404	0.9527					
139411020112			EQUX 018404	0.9527					
139411020113			EQUX 018404	0.9527					
139411020114			EQUX 018404	0.9527					
139411020115			EQUX 018404	0.9527					
139411020116			EQUX 018404	0.9527					
139411020117			EQUX 018404	0.9527					
139411020118			EQUX 018404	0.9527					
139411020119			EQUX 018404	0.9527					
139411020120	3.08	1.54×10^{-3}	EQUX 018404	0.9522	0.176	224	2.42	68	2.93×10^{-3}

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Product: TN 220-1-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite			Geonet						
Roll Number	Ply Adhesion (lb/in) Side "A"	Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411020121			EQUX 018404	0.9522					
139411020122			EQUX 018404	0.9522					
139411020123			EQUX 018404	0.9522					
139411020124			EQUX 018404	0.9522					
139411020125			EQUX 018404	0.9522					
139411020126			EQUX 018404	0.9522					
139411020127			EQUX 018404	0.9522					
139411020128			EQUX 018404	0.9522					
139411020129			EQUX 018404	0.9522					
139411020130	2.42		EQUX 018404	0.9526	0.184	217	2.44	62	
139411020131			EQUX 018404	0.9526					
139411020132			EQUX 018404	0.9526					
139411020133			EQUX 018404	0.9526					
139411020134			EQUX 018404	0.9526					
139411020135			EQUX 018404	0.9526					
139411020136			EQUX 018404	0.9526					
139411020137			EQUX 018404	0.9526					
139411020138			EQUX 018404	0.9526					
139411020139			EQUX 018404	0.9526					
139411020140	3.93		EQUX 018404	0.9523	0.178	212	2.38	63	
139411020141			EQUX 018404	0.9523					
139411020142			EQUX 018404	0.9523					
139411020143			EQUX 018404	0.9523					
139411020144			EQUX 018404	0.9523					

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Product: TN 220-1-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite			Geonet						
Roll Number	Ply Adhesion (lb/in) Side "A"	Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411020145			EQUX 018404	0.9523					
139411020146			EQUX 018404	0.9523					
139411020147			EQUX 018404	0.9523					
139411020148			EQUX 018404	0.9523					
139411020149			EQUX 018404	0.9523					
139411020150	2.67		EQUX 018404	0.9524	0.181	215	2.57	59	
139411020151			EQUX 018404	0.9524					
139411020152			EQUX 018404	0.9524					
139411020153			EQUX 018404	0.9524					
139411020154			EQUX 018404	0.9524					
139411020155			EQUX 018404	0.9524					
139411020156			EQUX 018404	0.9524					
139411020157			EQUX 018404	0.9524					
139411020158			EQUX 018404	0.9524					
139411020159			EQUX 018404	0.9524					
139411020160	2.54		EQUX 018404	0.9525	0.180	220	2.49	58	
139411020161			EQUX 018404	0.9525					
139411020162			EQUX 018404	0.9525					
139411020163			EQUX 018404	0.9525					
139411020164			EQUX 018404	0.9525					
139411020165			EQUX 018404	0.9525					
139411020166			EQUX 018404	0.9525					
139411020167			EQUX 018404	0.9525					
139411020168			EQUX 018404	0.9525					

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Product: TN 220-1-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite			Geonet						
Roll Number	Ply Adhesion (lb/in) Side "A"	Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
139411020169			EQUX 018404	0.9525					
139411020170	2.64		EQUX 018404	0.9527	0.177	222	2.68	64	
139411020171			EQUX 018404	0.9527					
139411020172			EQUX 018404	0.9527					
139411020173			EQUX 018404	0.9527					

POLYETHYLENE RESIN CERTIFICATION

Customer Name : Mustang Extreme Environmental Services
Project Name : Northern Delaware Basin Landfill Cell 1B & 2B, NM
Geocomposite Manufacturer : SKAPS Industries
Geocomposite Production Plant : Commerce, GA
Geocomposite Brand Name : TN 220-1-10

We hereby certify the following test results for the above referenced product/project:

Resin Manufacturer	Resin Lot Number	Property	Test Method	Units	Resin Manufacturer Value	Tested Value*
Trademark Plastics Corporation	EQUX 018404	Density	ASTM D1505	g/cm^3	0.9500	0.9477
		Melt flow Index	ASTM D1238[(a)]	g/10 min	0.25	0.18

(a) Condition 190/2.16

* Data from SKAPS Quality Control

Geotextile Certification

Product: TN 220-1-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

GEOCOMP ROLL#	FABRIC SIDE	WEIGHT oz/yd^2	GRAB lbs. (MD)	GRAB ELG % (MD)	GRAB lbs. (XMD)	GRAB ELG % (XMD)	TRAP lbs. (MD)	TRAP lbs. (XMD)	PUNCTURE lbs.	CBR PUNCTURE lbs	MULLEN psi	AOS us sieve	WATER-FLOW gpm/ft^2	PERM-ITY sec^{-1}
139411020001	Side A	10.25	276	74	289	83	109	133	175	867	535	100	96	1.28
139411020020	Side A	10.25	276	74	289	83	109	133	175	867	535	100	96	1.28
139411020040	Side A	10.49	278	80	280	85	114	127	165	859	526	100	96	1.28
139411020060	Side A	10.25	276	74	289	83	109	133	175	867	535	100	96	1.28
139411020080	Side A	10.42	284	70	294	81	107	122	173	847	531	100	96	1.28
139411020100	Side A	10.66	285	75	286	89	113	135	169	844	532	100	96	1.28
139411020120	Side A	10.49	278	80	280	85	114	127	165	859	526	100	96	1.28
139411020140	Side A	10.59	282	79	292	86	106	128	171	830	528	100	96	1.28
139411020160	Side A	10.59	282	79	292	86	106	128	171	830	528	100	96	1.28

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July 25, 2024

Customer: **Mustang Extreme Environmental Services**
Customer P.O.#: **314636**
Project: **Northern Delaware Basin Landfill Cell 1B & 2B, NM**
Product: **TN 220-2-10**

We hereby certify that the TN 220-2-10 drainage geocomposite, meets or exceeds the project requirements as stated in the specifications. The properties listed in this section are:

Property	Test Method	Unit	Value	Qualifier
Geonet[3]				
Mass per Unit Area	ASTM D 5261	lbs/ft^2	0.160	MAV[6]
Thickness	ASTM D 5199	mil	200	MAV
Carbon Black	ASTM D 4218	%	2.0	Range
Tensile Strength	ASTM D 7179	lbs/in	42	MAV
Melt Flow	ASTM D 1238[2]	g/10 min	1.0	Maximum
Density	ASTM D 1505	g/cm^3	0.94	MAV
Transmissivity[1a]	ASTM D 4716	m^2/sec	1.0×10^{-3}	MAV
Composite				
Ply Adhesion	ASTM D 7005	lb/in	1.0	MAV
Transmissivity[1b]	ASTM D 4716	m^2/sec	1.0×10^{-4}	MAV
Geotextile[3 & 4]				
Fabric Weight	ASTM D 5261	oz/yd^2	9.1	MARV[5]
Grab Strength	ASTM D 4632	lbs	230	MARV
Grab Elongation	ASTM D 4632	%	50	MARV
Trap Tear Strength	ASTM D 4533	lbs	100	MARV
CBR Puncture	ASTM D 6241	lbs	725	MARV
Water Flow Rate	ASTM D 4491	gpm/ft^2	95	MARV
Permittivity	ASTM D 4491	sec^{-1}	0.9	MARV
AOS	ASTM D 4751	US Sieve	80	MaxARV
UV Resistance (Certify Only)	ASTM D 4355	%/hrs	70/500	MARV

Notes:

1a. Transmissivity measured using water at 21 ± 2 ° C (70 ± 4 ° F) with a gradient of 0.1 and a confining pressure of 10,000 psf between steel plates after 15 minutes.

1b. Transmissivity measured using water at 21 ± 2 ° C (70 ± 4 ° F) with a gradient of 0.1 and a confining pressure of 10,000 psf between steel plates after 15 minutes.

2. Condition 190/2.16

3. Geotextile and Geonet properties are prior to lamination.

4. Geotextile data is provided by the supplier.

5. MARV is statistically defined as mean minus two standard deviations and it is the value which is exceeded by 97.5% of all the test data.

6. Minium average value

Quality Approval

Malkesh Patel

APPROVED 5 QA

Released to Imaging: 4/22/2025 11:02:49 AM

Product: TN 220-2-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet						
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"								
139411010001	2.64	2.97	1.58×10^{-4}	EQUX 018404	0.9526	0.184	220	2.37	66	2.74×10^{-3}
139411010002				EQUX 018404	0.9526					
139411010003				EQUX 018404	0.9526					
139411010004				EQUX 018404	0.9526					
139411010005				EQUX 018404	0.9526					
139411010006				EQUX 018404	0.9526					
139411010007				EQUX 018404	0.9526					
139411010008				EQUX 018404	0.9526					
139411010009				EQUX 018404	0.9526					
139411010010				EQUX 018404	0.9526					
139411010011				EQUX 018404	0.9526					
139411010012				EQUX 018404	0.9526					
139411010013				EQUX 018404	0.9526					
139411010014				EQUX 018404	0.9526					
139411010015	1.69	1.89		EQUX 018404	0.9523	0.180	211	2.39	60	
139411010016				EQUX 018404	0.9523					
139411010017				EQUX 018404	0.9523					
139411010018				EQUX 018404	0.9523					
139411010019				EQUX 018404	0.9523					
139411010020				EQUX 018404	0.9523					
139411010021				EQUX 018404	0.9523					
139411010022				EQUX 018404	0.9523					
139411010023				EQUX 018404	0.9523					
139411010024				EQUX 018404	0.9523					

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Product: TN 220-2-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet						
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"								
139411010025				EQUX 018404	0.9523					
139411010026				EQUX 018404	0.9523					
139411010027				EQUX 018404	0.9523					
139411010028				EQUX 018404	0.9523					
139411010029				EQUX 018404	0.9523					
139411010030	2.07	2.55		EQUX 018404	0.9525	0.177	213	2.40	56	
139411010031				EQUX 018404	0.9525					
139411010032				EQUX 018404	0.9525					
139411010033				EQUX 018404	0.9525					
139411010034				EQUX 018404	0.9525					
139411010035				EQUX 018404	0.9525					
139411010036				EQUX 018404	0.9525					
139411010037				EQUX 018404	0.9525					
139411010038				EQUX 018404	0.9525					
139411010039				EQUX 018404	0.9525					
139411010040				EQUX 018404	0.9525					
139411010041				EQUX 018404	0.9525					
139411010042				EQUX 018404	0.9525					
139411010043				EQUX 018404	0.9525					
139411010044				EQUX 018404	0.9525					
139411010045	2.92	1.98		EQUX 018404	0.9522	0.182	218	2.52	58	
139411010046				EQUX 018404	0.9522					
139411010047				EQUX 018404	0.9522					
139411010048				EQUX 018404	0.9522					

SKAPS Industries, 1315 Jefferson Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

Product: TN 220-2-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet						
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"								
139411010049				EQUX 018404	0.9522					
139411010050				EQUX 018404	0.9522					
139411010051				EQUX 018404	0.9522					
139411010052				EQUX 018404	0.9522					
139411010053				EQUX 018404	0.9522					
139411010054				EQUX 018404	0.9522					
139411010055				EQUX 018404	0.9522					
139411010056				EQUX 018404	0.9522					
139411010057				EQUX 018404	0.9522					
139411010058				EQUX 018404	0.9522					
139411010059				EQUX 018404	0.9522					
139411010060	3.42	3.23		EQUX 018404	0.9524	0.175	221	2.63	57	
139411010061				EQUX 018404	0.9524					
139411010062				EQUX 018404	0.9524					
139411010063				EQUX 018404	0.9524					
139411010064				EQUX 018404	0.9524					
139411010065				EQUX 018404	0.9524					
139411010066				EQUX 018404	0.9524					
139411010067				EQUX 018404	0.9524					
139411010068				EQUX 018404	0.9524					
139411010069				EQUX 018404	0.9524					
139411010070				EQUX 018404	0.9524					
139411010071				EQUX 018404	0.9524					
139411010072				EQUX 018404	0.9524					

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Product: TN 220-2-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet						
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"								
139411010073				EQUX 018404	0.9524					
139411010074				EQUX 018404	0.9524					
139411010075	3.11	2.79	1.63×10^{-4}	EQUX 018404	0.9527	0.178	215	2.70	69	2.77×10^{-3}
139411010076				EQUX 018404	0.9527					
139411010077				EQUX 018404	0.9527					
139411010078				EQUX 018404	0.9527					
139411010079				EQUX 018404	0.9527					
139411010080				EQUX 018404	0.9527					
139411010081				EQUX 018404	0.9527					
139411010082				EQUX 018404	0.9527					
139411010083				EQUX 018404	0.9527					
139411010084				EQUX 018404	0.9527					
139411010085				EQUX 018404	0.9527					
139411010086				EQUX 018404	0.9527					
139411010087				EQUX 018404	0.9527					
139411010088				EQUX 018404	0.9527					
139411010089				EQUX 018404	0.9527					
139411010090	3.61	1.71		EQUX 018404	0.9523	0.176	219	2.61	59	
139411010091				EQUX 018404	0.9523					
139411010092				EQUX 018404	0.9523					
139411010093				EQUX 018404	0.9523					
139411010094				EQUX 018404	0.9523					
139411010095				EQUX 018404	0.9523					
139411010096				EQUX 018404	0.9523					

SKAPS Industries, 1315 Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

POLYETHYLENE RESIN CERTIFICATION

Customer Name : Mustang Extreme Environmental Services
Project Name : Northern Delaware Basin Landfill Cell 1B & 2B, NM
Geocomposite Manufacturer : SKAPS Industries
Geocomposite Production Plant : Commerce, GA
Geocomposite Brand Name : TN 220-2-10

We hereby certify the following test results for the above referenced product/project:

Resin Manufacturer	Resin Lot Number	Property	Test Method	Units	Resin Manufacturer Value	Tested Value*
Trademark Plastics Corporation	EQUX 018404	Density	ASTM D1505	g/cm^3	0.9500	0.9477
		Melt flow Index	ASTM D1238[(a)]	g/10 min	0.25	0.18

(a) Condition 190/2.16

* Data from SKAPS Quality Control

Geotextile Certification

Product: TN 220-2-10
Project : Northern Delaware Basin Landfill Cell 1B & 2B, NM

We hereby certify the following test results for the above referenced product/project :

GEOCOMP ROLL#	FABRIC SIDE	WEIGHT oz/yd^2	GRAB lbs. (MD)	GRAB ELG % (MD)	GRAB lbs. (XMD)	GRAB ELG % (XMD)	TRAP lbs. (MD)	TRAP lbs. (XMD)	CBR PUNCTURE lbs	AOS us sieve	WATER-FLOW gpm/ft^2	PERM-ITY sec^{-1}
139411010001	Side A	10.60	281	78	292	90	108	120	827	100	97	1.29
	Side B	10.24	284	70	295	88	111	122	869	100	97	1.29
139411010030	Side A	10.23	277	73	289	81	115	124	843	100	97	1.29
	Side B	10.23	277	73	289	81	115	124	843	100	97	1.29
139411010060	Side A	10.16	280	79	283	85	106	133	863	100	97	1.29
	Side B	10.57	276	76	286	83	114	135	847	100	97	1.29
139411010090	Side A	10.24	284	70	295	88	111	122	869	100	97	1.29
	Side B	10.24	284	70	295	88	111	122	869	100	97	1.29

571 Industrial Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.8: Geocomposite Test Results

TRI ENVIRONMENTAL

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

March 20, 2024

Mail To:

Steven Roeder
Mustang Extreme Environmental Services

email: sroeder@mustangenergyservices.com
cc email: pzabaleta@mustangextreme.com

Bill To:

<= Same (P.O. # 314937)

Dear Mr. Roeder:

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

Project:	**OWL NDBLF Cell 1B 2B**
TRI Job Reference Number:	24-000901
Material(s) Tested:	Three, Skaps TN220-2-10 Double Sided Geocomposite(s)
Test(s) Requested:	Transmissivity (ASTM D4716) - GC Peel Strength (ASTM D7005) - GC Thickness (ASTM D5199) - GC Mass/Unit Area (ASTM D3776) - GN Mass/Unit Area (ASTM D5261) - GT Density (ASTM D1505) - GN Carbon Black Content (ASTM D1603, mod.) - GN Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg) Tensile Properties (ASTM D7179, 12 ipm strain rate) - GN Grab Tensile (ASTM D4632) - GT Puncture Strength (ASTM D4833) - GT Trapezoidal Tear (ASTM D4533) - GT Apparent Opening Size (ASTM D 4751) - GT Permittivity (ASTM D4491) - GT

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

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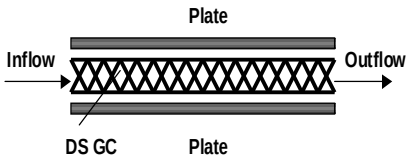
GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-2-10 Double Sided Geocomposite
Sample Identification: 0139411010001
TRI Log #: 24-000901

PARAMETER		TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Hydraulic Transmissivity (ASTM D4716)													
Direction Tested: Machine Direction													
Normal Load (psf):	10,000												
Hydraulic Gradient:	0.1												
Test Length (in)	12												
Test Width (in)	12												
Plate / Sample / Plate													
Seat Time (hours)		Specimen		1			2						
0.25	Volume (cc)		590	585	585	552	555	540					
	Time (s)		35.65	35.46	35.33	50.50	50.59	50.12					
	Flow Rate (GPM/ft width)		0.25	0.25	0.25	0.17	0.17	0.17				**0.21**	0.05
	Transmissivity (m^2/s)		5.27E-04	5.26E-04	5.28E-04	3.49E-04	3.50E-04	3.43E-04				**4.37E-04**	9.85E-05
	Test Temp (C)			21.4			21.4						
	Temp. Corr. Factor			0.972			0.972						
Peel Strength (ASTM D7005)													
A - MD Average Peel Strength (ppi)		2.01	0.62	1.00	1.77	1.53						**1.39**	0.57
A - MD Average Peel Strength (g/in)		913	281	454	804	695						**629**	258
B - MD Average Peel Strength (ppi)		4.07	0.94	1.60	2.37	4.25						**2.65**	1.47
B - MD Average Peel Strength (g/in)		1848	426	726	1076	1930						**1201**	669
Note: A and B represent a randomly assigned top and bottom of the sample													
Thickness (ASTM D5199)					GEONET COMPONENT								
Thickness (mils)		218	221	220	221	216	222	224	217	223	220	**220**	3
												216	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT								
5" diameter Circle - Mass (g)		10.14	10.46	9.90	10.42	9.23	10.99	9.16	11.54	9.40	9.51		
Mass/unit area (lbs./sq.ft)		0.16	0.17	0.16	0.17	0.15	0.18	0.15	0.19	0.15	0.15	**0.16**	0.01
Density (ASTM D1505)					GEONET COMPONENT								
Density (g/cm3)		0.949	0.949	0.949								**0.949**	0.000
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT								
% Carbon Black		2.53	2.54									**2.54**	0.01
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)													
Melt Flow Index (g/10 min)		0.1292	0.1262									**0.1277**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT								
MD Max. Strength (ppi)		61	60	54	61	51						**57**	5
MD Elong. @ Max. Strength (%)		26	25	26	26	26						**26**	1



MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-2-10 Double Sided Geocomposite
Sample Identification: 0139411010001
TRI Log #: 24-000901

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.97	4.95	4.52	4.69	4.33	4.72	4.59	4.90	4.92	4.73	**4.73**	0.21
Mass/Unit Area (oz/sq.yd)	11.56	11.51	10.51	10.91	10.07	10.98	10.68	11.40	11.44	11.00	**11.01**	0.49
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	316	278	264	284	277	238	231	294	303	296	**278**	27
TD - Tensile Strength (lbs)	317	325	332	277	328	326	335	314	321	329	**320**	16
MD - Elong. @ Max. Load (%)	91	88	84	83	83	89	94	95	95	99	**90**	6
TD - Elong. @ Max. Load (%)	108	96	95	99	103	107	94	94	96	93	**99**	5
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	164	163	180	154	180						**168**	11
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	129	116	119	127	120	106	122	130	147	136	**125**	11
TD - Tear Strength (lbs)	168	193	174	151	164	169	151	140	169	118	**160**	21
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.162	0.160	0.162	0.152	0.157						**0.159**	0.004
Sieve No.	70	70	70	70	70						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	173	176	177	158	173	164	173	194	180	182	**175**	10
Thickness (mm)	4.40	4.48	4.49	4.02	4.39	4.15	4.40	4.92	4.58	4.62	**4.44**	0.25
Permittivity (Sec-1)	1.29	1.23	1.08	1.17	1.29	1.27	1.37	1.32	1.06	1.22	**1.23**	0.10
Permittivity (GPM/ft2)	96	92	81	88	96	95	102	99	79	91	**92.0**	7.5
Flow rate (LPM/m2)	3932	3749	3292	3566	3932	3871	4175	4023	3231	3718	**3749**	307
Permittivity (cm/sec)	0.568	0.550	0.484	0.470	0.566	0.527	0.603	0.649	0.486	0.564	**0.547**	0.056

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-2-10 Double Sided Geocomposite
Sample Identification: 0139411010001
TRI Log #: 24-000901

GEOTEXTILE - SIDE B

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.28	4.72	4.76	4.86	5.01	4.90	4.89	4.73	4.84	4.28	**4.73**	0.25
Mass/Unit Area (oz/sq.yd)	9.96	10.98	11.07	11.30	11.65	11.40	11.37	11.00	11.26	9.96	**11.00**	0.58
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	291	278	240	315	301	267	297	272	245	262	**277**	24
TD - Tensile Strength (lbs)	266	329	347	339	316	326	343	338	325	278	**321**	28
MD - Elong. @ Max. Load (%)	87	84	76	87	80	87	93	84	79	85	**84**	5
TD - Elong. @ Max. Load (%)	102	93	100	103	99	101	101	104	101	106	**101**	4
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	172	180	162	153	202						**174**	19
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	128	120	131	111	126	125	144	131	136	132	**128**	9
TD - Tear Strength (lbs)	167	187	176	162	163	174	213	164	160	145	**171**	18
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.157	0.169	0.162	0.154	0.154						**0.159**	0.006
Sieve No.	70	70	70	70	70						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	168	154	147	165	181	196	179	177	176	179	**172**	14
Thickness (mm)	4.28	3.92	3.72	4.18	4.59	4.97	4.55	4.49	4.46	4.54	**4.37**	0.36
Permittivity (Sec-1)	1.30	1.33	1.19	1.19	1.02	1.10	1.29	1.34	1.38	1.39	**1.25**	0.12
Permittivity (GPM/ft2)	97	99	89	89	76	82	96	100	103	104	**93.7**	9.2
Flow rate (LPM/m2)	3962	4053	3627	3627	3109	3352	3932	4084	4206	4236	**3819**	377
Permittivity (cm/sec)	0.556	0.522	0.443	0.497	0.468	0.547	0.587	0.601	0.616	0.632	**0.547**	0.064

MD Machine Direction TD Transverse Direction

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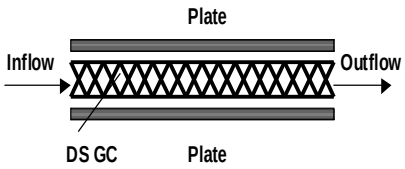
GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-2-10 Double Sided Geocomposite
Sample Identification: 0139411010036
TRI Log #: 24-000901

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Hydraulic Transmissivity (ASTM D4716)												
Direction Tested: Machine Direction												
Normal Load (psf): 10,000												
Hydraulic Gradient: 0.1												
Test Length (in) 12												
Test Width (in) 12												
Plate / Sample / Plate												
Seat Time (hours)	Specimen		1			2						
	Volume (cc)	559	554	538	525	528	519					
	Time (s)	30.84	30.68	30.40	35.55	35.62	35.56					
0.25	Flow Rate (GPM/ft width)	0.28	0.28	0.27	0.23	0.23	0.23				**0.25**	0.03
	Transmissivity (m^2/s)	5.78E-04	5.76E-04	5.64E-04	4.75E-04	4.76E-04	4.69E-04				**5.23E-04**	5.48E-05
	Test Temp (C)		21.4			21.1						
	Temp. Corr. Factor		0.972			0.979						
Peel Strength (ASTM D7005)												
A - MD Average Peel Strength (ppi)	0.62	1.88	2.04	3.98	0.84						**1.87**	1.33
A - MD Average Peel Strength (g/in)	282	854	926	1807	382						**850**	605
B - MD Average Peel Strength (ppi)	0.55	2.72	2.14	0.92	1.09						**1.49**	0.91
B - MD Average Peel Strength (g/in)	252	1235	972	419	495						**674**	412
Note: A and B represent a randomly assigned top and bottom of the sample												
Thickness (ASTM D5199)	GEONET COMPONENT											
Thickness (mils)	220	226	230	236	228	230	227	228	223	230	**228**	4
											220	<< min
Mass/Unit Area (ASTM D3776)	GEONET COMPONENT											
5" diameter Circle - Mass (g)	10.37	10.00	10.39	9.67	10.36	10.00	10.88	10.05	11.19	10.70		
Mass/unit area (lbs./sq.ft)	0.17	0.16	0.17	0.16	0.17	0.16	0.18	0.16	0.18	0.17	**0.17**	0.01
Density (ASTM D1505)	GEONET COMPONENT											
Density (g/cm3)	0.949	0.949	0.949								**0.949**	0.000
Carbon Black Content (ASTM D1603, mod.)	GEONET COMPONENT											
% Carbon Black	2.57	2.58									**2.58**	0.01
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)												
Melt Flow Index (g/10 min)	0.1287	0.1317									**0.1302**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)	GEONET COMPONENT											
MD Max. Strength (ppi)	57	59	57	60	57						**58**	2
MD Elong. @ Max. Strength (%)	25	24	28	26	27						**26**	2

MD Machine Direction



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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-2-10 Double Sided Geocomposite
Sample Identification: 0139411010036
TRI Log #: 24-000901

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	5.54	4.47	5.07	4.71	4.93	5.20	5.11	4.73	5.02	4.13	**4.89**	0.40
Mass/Unit Area (oz/sq.yd)	12.89	10.40	11.79	10.96	11.47	12.10	11.89	11.00	11.68	9.61	**11.38**	0.93
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	300	238	262	270	271	306	319	297	250	254	**277**	27
TD - Tensile Strength (lbs)	350	319	344	310	333	323	364	330	344	287	**330**	22
MD - Elong. @ Max. Load (%)	95	78	86	87	89	84	96	92	81	85	**87**	6
TD - Elong. @ Max. Load (%)	111	97	101	100	99	95	100	91	97	103	**99**	5
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	179	229	202	175	191						**195**	22
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	125	142	140	146	107	143	138	133	122	118	**131**	13
TD - Tear Strength (lbs)	159	161	164	167	150	159	160	146	171	151	**159**	8
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.157	0.144	0.137	0.153	0.152						**0.149**	0.008
Sieve No.	70	100	100	70	70						**100**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	160	171	167	179	201	186	183	183	179	175	**178**	11
Thickness (mm)	4.06	4.34	4.25	4.55	5.11	4.72	4.64	4.65	4.55	4.43	**4.53**	0.29
Permittivity (Sec-1)	1.30	1.03	1.03	1.24	1.21	1.10	1.30	1.44	1.16	1.44	**1.23**	0.15
Permittivity (GPM/ft2)	97	77	77	93	91	82	97	108	87	108	**91.6**	11.2
Flow rate (LPM/m2)	3962	3139	3139	3779	3688	3352	3962	4389	3535	4389	**3733**	454
Permittivity (cm/sec)	0.528	0.447	0.438	0.564	0.618	0.519	0.603	0.670	0.528	0.638	**0.555**	0.078

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-2-10 Double Sided Geocomposite
Sample Identification: 0139411010036
TRI Log #: 24-000901

GEOTEXTILE - SIDE B

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.53	4.77	4.40	4.67	4.73	4.77	5.22	4.94	4.78	4.32	**4.71**	0.26
Mass/Unit Area (oz/sq.yd)	10.54	11.10	10.23	10.86	11.00	11.10	12.14	11.49	11.12	10.05	**10.96**	0.60
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	286	270	282	271	260	313	285	279	306	269	**282**	17
TD - Tensile Strength (lbs)	274	318	354	334	357	308	333	308	326	339	**325**	25
MD - Elong. @ Max. Load (%)	90	85	89	89	87	91	85	87	89	86	**88**	2
TD - Elong. @ Max. Load (%)	121	95	106	100	100	102	101	99	93	103	**102**	7
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	179	160	178	156	183						**171**	12
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	118	120	138	120	127	122	121	108	120	138	**123**	9
TD - Tear Strength (lbs)	146	166	144	194	177	154	135	153	158	203	**163**	22
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.148	0.150	0.164	0.163	0.163						**0.158**	0.008
Sieve No.	100	70	70	70	70						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	173	169	171	179	177	169	185	158	186	175	**174**	8
Thickness (mm)	4.40	4.30	4.35	4.54	4.49	4.28	4.70	4.01	4.72	4.45	**4.42**	0.21
Permittivity (Sec-1)	1.15	1.08	1.42	1.23	1.28	1.28	1.18	1.23	1.23	1.23	**1.23**	0.09
Permittivity (GPM/ft2)	86	81	106	92	96	96	88	92	92	92	**92.1**	6.7
Flow rate (LPM/m2)	3505	3292	4328	3749	3901	3901	3596	3749	3749	3749	**3752**	274
Permittivity (cm/sec)	0.506	0.464	0.618	0.559	0.574	0.548	0.555	0.494	0.581	0.547	**0.545**	0.045

MD Machine Direction TD Transverse Direction

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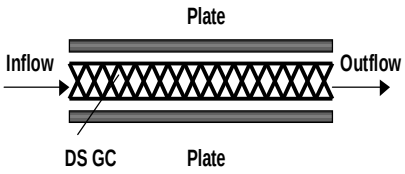
GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-2-10 Double Sided Geocomposite
Sample Identification: 0139411010071
TRI Log #: 24-000901

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Hydraulic Transmissivity (ASTM D4716)												
Direction Tested: Machine Direction												
Normal Load (psf): 10,000												
Hydraulic Gradient: 0.1												
Test Length (in) 12												
Test Width (in) 12												
Plate / Sample / Plate												
Seat Time (hours)	Specimen		1			2						
Volume (cc)		518	510	504	548	541	544					
Time (s)		35.77	35.27	35.09	35.70	35.28	35.43					
0.25 Flow Rate (GPM/ft width)		0.22	0.22	0.22	0.24	0.24	0.24				**0.23**	0.01
Transmissivity (m^2/s)		4.65E-04	4.64E-04	4.61E-04	4.92E-04	4.93E-04	4.93E-04				**4.78E-04**	1.63E-05
Test Temp (C)			21.1			21.1						
Temp. Corr. Factor			0.979			0.979						
Peel Strength (ASTM D7005)												
A - MD Average Peel Strength (ppi)	2.86	2.38	3.09	1.30	4.98						**2.92**	1.34
A - MD Average Peel Strength (g/in)	1298	1081	1403	590	2261						**1327**	609
B - MD Average Peel Strength (ppi)	4.73	1.11	3.20	6.72	6.21						**4.39**	2.29
B - MD Average Peel Strength (g/in)	2147	504	1453	3051	2819						**1995**	1041
Note: A and B represent a randomly assigned top and bottom of the sample												
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	227	216	219	225	225	216	219	220	219	228	**221**	4
											216	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	10.01	10.91	9.55	11.34	10.43	10.18	10.29	10.21	9.66	9.74		
Mass/unit area (lbs./sq.ft)	0.16	0.18	0.15	0.18	0.17	0.16	0.17	0.17	0.16	0.16	**0.17**	0.01
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.948	0.948	0.948								**0.948**	0.000
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.47	2.89									**2.68**	0.30
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)												
Melt Flow Index (g/10 min)	0.1409	0.1427									**0.1418**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	54	59	64	60	60						**59**	3
MD Elong. @ Max. Strength (%)	26	24	25	20	24						**23**	2



MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-2-10 Double Sided Geocomposite
Sample Identification: 0139411010071
TRI Log #: 24-000901

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.99	4.73	4.67	4.70	4.11	4.22	4.32	4.61	4.80	4.89	**4.60**	0.29
Mass/Unit Area (oz/sq.yd)	11.61	11.00	10.86	10.93	9.56	9.82	10.05	10.72	11.16	11.37	**10.71**	0.68
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	283	286	246	298	279	251	264	260	281	296	**274**	18
TD - Tensile Strength (lbs)	332	337	321	280	283	296	290	307	325	258	**303**	26
MD - Elong. @ Max. Load (%)	88	91	83	88	83	86	85	80	84	87	**86**	3
TD - Elong. @ Max. Load (%)	103	99	95	105	101	95	109	95	102	87	**99**	6
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	154	142	196	178	170						**168**	21
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	134	141	133	126	118	136	160	112	110	101	**127**	17
TD - Tear Strength (lbs)	158	167	190	173	208	189	181	161	157	189	**177**	17
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.160	0.166	0.166	0.159	0.147						**0.160**	0.008
Sieve No.	70	70	70	70	100						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	172	162	169	172	155	161	167	175	160	177	**167**	7
Thickness (mm)	4.38	4.12	4.29	4.37	3.94	4.10	4.24	4.44	4.07	4.50	**4.24**	0.18
Permittivity (Sec-1)	1.18	1.33	1.23	1.17	1.08	1.41	1.17	1.14	1.29	1.27	**1.23**	0.10
Permittivity (GPM/ft2)	88	99	92	88	81	105	88	85	96	95	**91.8**	7.4
Flow rate (LPM/m2)	3596	4053	3749	3566	3292	4297	3566	3474	3932	3871	**3740**	301
Permittivity (cm/sec)	0.516	0.548	0.528	0.511	0.425	0.578	0.496	0.506	0.525	0.571	**0.520**	0.043

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-2-10 Double Sided Geocomposite
Sample Identification: 0139411010071
TRI Log #: 24-000901

GEOTEXTILE - SIDE B

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.55	4.35	4.39	4.20	4.31	4.26	4.29	4.62	4.67	4.61	**4.43**	0.17
Mass/Unit Area (oz/sq.yd)	10.58	10.12	10.21	9.77	10.03	9.91	9.98	10.75	10.86	10.72	**10.29**	0.40
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	263	269	257	251	224	263	237	252	274	242	**253**	16
TD - Tensile Strength (lbs)	303	315	332	297	275	271	344	352	339	342	**317**	29
MD - Elong. @ Max. Load (%)	84	85	84	93	83	87	81	97	85	81	**86**	5
TD - Elong. @ Max. Load (%)	114	95	102	106	96	105	105	97	102	103	**102**	6
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	159	159	156	173	173						**164**	9
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	133	118	98	124	129	126	126	136	110	133	**123**	12
TD - Tear Strength (lbs)	137	158	137	199	145	185	159	172	176	142	**161**	21
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.160	0.171	0.155	0.160	0.164						**0.162**	0.006
Sieve No.	70	70	70	70	70						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	177	174	146	176	172	178	172	178	160	168	**170**	10
Thickness (mm)	4.50	4.41	3.70	4.47	4.36	4.53	4.38	4.53	4.07	4.27	**4.32**	0.26
Permittivity (Sec-1)	1.29	1.42	1.13	1.23	1.18	1.22	1.28	1.58	1.18	1.13	**1.26**	0.14
Permittivity (GPM/ft2)	96	106	85	92	88	91	96	118	88	85	**94.5**	10.5
Flow rate (LPM/m2)	3932	4328	3444	3749	3596	3718	3901	4815	3596	3444	**3852**	429
Permittivity (cm/sec)	0.581	0.626	0.418	0.550	0.514	0.552	0.560	0.715	0.480	0.482	**0.548**	0.083

MD Machine Direction TD Transverse Direction

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March 20, 2024
March 25, 2024 Updated-Added Transmissivity test

Mail To:

Steven Roeder
Mustang Extreme Environmental Services

email: sroeder@mustangenergyservices.com
cc email: pzabaleta@mustangextreme.com

Bill To:

<= Same (P.O. # 314937)

Dear Mr. Roeder:

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

Project:	**OWL NDBLF Cell 1B 2B**
TRI Job Reference Number:	24-000900
Material(s) Tested:	Seven, Skaps TN220-1-10 Single Sided Geocomposite(s)
Test(s) Requested:	Transmissivity (ASTM D4716) - GC Peel Strength (ASTM D7005) - GC Thickness (ASTM D5199) - GC Mass/Unit Area (ASTM D3776) - GN Mass/Unit Area (ASTM D5261) - GT Density (ASTM D1505) - GN Carbon Black Content (ASTM D1603, mod.) - GN Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg) Tensile Properties (ASTM D7179, 12 ipm strain rate) - GN Grab Tensile (ASTM D4632) - GT Puncture Strength (ASTM D4833) - GT Trapezoidal Tear (ASTM D4533) - GT Apparent Opening Size (ASTM D 4751) - GT Permittivity (ASTM D4491) - GT

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020002
TRI Log #: 24-000900

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Hydraulic Transmissivity (ASTM D4716)												
Direction Tested: Machine Direction												
Normal Load (psf): 10,000												
Hydraulic Gradient: 0.1												
Test Length (in) 12												
Test Width (in) 12												
Plate / Sample / Plate												
Seat Time (hours)	Specimen		1			2						
Volume (cc)		676	687	690	687	650	664					
Time (s)		10.35	10.47	10.56	10.66	10.22	10.43					
0.25 Flow Rate (GPM/ft width)		1.04	1.05	1.04	1.03	1.01	1.02				**1.03**	0.01
Transmissivity (m^2/s)		2.16E-03	2.17E-03	2.16E-03	2.13E-03	2.10E-03	2.10E-03				**2.13E-03**	2.96E-05
Test Temp (C)			19.9			19.9						
Temp. Corr. Factor			1.006			1.006						
Peel Strength (ASTM D7005)												
A - MD Average Peel Strength (ppi)	2.33	1.41	3.72	2.34	5.98						**3.16**	1.78
A - MD Average Peel Strength (g/in)	1058	640	1689	1062	2715						**1433**	809
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	228	224	233	227	230	228	233	235	232	235	**230**	4
											224	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	9.92	9.76	10.91	10.44	10.82	10.27	10.86	10.90	10.74	10.96		
Mass/unit area (lbs./sq.ft)	0.16	0.16	0.18	0.17	0.18	0.17	0.18	0.18	0.17	0.18	**0.17**	0.01
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.949	0.949	0.949								**0.949**	0.000
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.46	2.52									**2.49**	0.04
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)												
Melt Flow Index (g/10 min)	0.1247	0.1312									**0.1280**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	55	62	53	58	51						**56**	5
MD Elong. @ Max. Strength (%)	25	27	23	24	25						**25**	1

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020002
TRI Log #: 24-000900

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.24	4.86	4.38	4.54	4.57	4.87	4.55	4.87	4.15	4.75	**4.58**	0.26
Mass/Unit Area (oz/sq.yd)	9.86	11.30	10.19	10.56	10.63	11.33	10.58	11.33	9.65	11.05	**10.65**	0.61
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	269	281	249	239	286	257	283	283	289	250	**269**	18
TD - Tensile Strength (lbs)	259	341	337	360	338	349	325	314	321	306	**325**	28
MD - Elong. @ Max. Load (%)	84	85	83	87	95	87	89	89	89	96	**88**	4
TD - Elong. @ Max. Load (%)	99	101	95	101	97	93	94	103	106	90	**98**	5
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	181	197	169	175	163						**177**	13
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	111	118	122	119	118	127	108	90	121	82	**112**	15
TD - Tear Strength (lbs)	162	161	159	173	143	180	152	165	136	143	**157**	14
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.167	0.155	0.163	0.170	0.160						**0.163**	0.006
Sieve No.	70	70	70	70	70						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	159	165	177	183	188	181	176	167	169	177	**174**	9
Thickness (mm)	4.03	4.19	4.50	4.64	4.78	4.59	4.47	4.25	4.28	4.50	**4.42**	0.23
Permittivity (Sec-1)	1.37	1.23	1.38	1.33	1.22	1.18	1.28	1.27	1.47	1.49	**1.32**	0.11
Permittivity (GPM/ft2)	102	92	103	99	91	88	96	95	110	111	**98.9**	7.9
Flow rate (LPM/m2)	4175	3749	4206	4053	3718	3596	3901	3871	4480	4541	**4029**	320
Permittivity (cm/sec)	0.552	0.515	0.621	0.617	0.584	0.542	0.572	0.540	0.630	0.670	**0.584**	0.049

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020029
TRI Log #: 24-000900

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Hydraulic Transmissivity (ASTM D4716)												
Direction Tested: Machine Direction												
Normal Load (psf): 10,000												
Hydraulic Gradient: 0.1												
Test Length (in) 12												
Test Width (in) 12												
Plate / Sample / Plate												
Seat Time (hours)	Specimen		1			2						
Volume (cc)		689	681	688	658	651	643					
Time (s)		10.74	10.48	10.69	10.80	10.56	10.45					
0.25 Flow Rate (GPM/ft width)		1.02	1.03	1.02	0.97	0.98	0.98				**1.00**	0.03
Transmissivity (m^2/s)		2.11E-03	2.14E-03	2.12E-03	2.00E-03	2.02E-03	2.02E-03				**2.07E-03**	6.07E-05
Test Temp (C)			20.0			20.1						
Temp. Corr. Factor			1.004			1.001						
Peel Strength (ASTM D7005)												
A - MD Average Peel Strength (ppi)	3.52	7.78	5.48	5.95	1.20						**4.79**	2.51
A - MD Average Peel Strength (g/in)	1598	3532	2488	2701	545						**2173**	1141
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	221	216	222	224	224	221	227	223	228	224	**223**	3
											216	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	10.17	9.47	9.60	9.54	9.40	9.37	10.31	9.53	10.44	9.79		
Mass/unit area (lbs./sq.ft)	0.16	0.15	0.16	0.15	0.15	0.15	0.17	0.15	0.17	0.16	**0.16**	0.01
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.949	0.949	0.949								**0.949**	0.000
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.53	2.48									**2.51**	0.04
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)												
Melt Flow Index (g/10 min)	0.1297	0.1327									**0.1312**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	48	55	48	51	62						**53**	6
MD Elong. @ Max. Strength (%)	24	26	25	27	28						**26**	2

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020029
TRI Log #: 24-000900

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.36	4.67	4.33	4.62	4.55	4.41	4.56	4.70	4.89	5.20	**4.63**	0.26
Mass/Unit Area (oz/sq.yd)	10.14	10.86	10.07	10.75	10.58	10.26	10.61	10.93	11.37	12.10	**10.77**	0.61
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	309	265	244	271	266	292	260	309	288	282	**279**	21
TD - Tensile Strength (lbs)	318	341	339	312	334	328	276	328	309	316	**320**	19
MD - Elong. @ Max. Load (%)	83	83	79	90	89	82	87	87	86	96	**86**	5
TD - Elong. @ Max. Load (%)	97	94	95	97	97	96	109	100	94	97	**98**	4
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	195	166	167	153	192						**174**	18
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	122	130	112	111	113	134	118	124	105	109	**118**	10
TD - Tear Strength (lbs)	133	149	168	118	122	134	123	150	139	160	**140**	17
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.164	0.151	0.153	0.157	0.162						**0.157**	0.006
Sieve No.	70	70	70	70	70						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	178	168	158	159	181	181	184	179	175	162	**172**	10
Thickness (mm)	4.52	4.26	4.00	4.03	4.59	4.60	4.66	4.55	4.45	4.11	**4.38**	0.25
Permittivity (Sec-1)	1.38	1.18	1.15	1.18	1.23	1.27	1.50	1.50	1.32	1.23	**1.29**	0.13
Permittivity (GPM/ft2)	103	88	86	88	92	95	112	112	99	92	**96.8**	9.6
Flow rate (LPM/m2)	4206	3596	3505	3596	3749	3871	4572	4572	4023	3749	**3944**	391
Permittivity (cm/sec)	0.624	0.503	0.460	0.475	0.564	0.585	0.700	0.683	0.588	0.505	**0.569**	0.083

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020056
TRI Log #: 24-000900

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Hydraulic Transmissivity (ASTM D4716)												
Direction Tested: Machine Direction												
Normal Load (psf): 10,000												
Hydraulic Gradient: 0.1												
Test Length (in) 12												
Test Width (in) 12												
Plate / Sample / Plate												
Seat Time (hours)	Specimen		1			2						
Volume (cc)		566	538	577	675	683	658					
Time (s)		10.58	10.17	10.81	10.74	10.86	10.47					
0.25 Flow Rate (GPM/ft width)		0.84	0.84	0.84	0.99	0.99	0.99				**0.92**	0.08
Transmissivity (m^2/s)		1.75E-03	1.73E-03	1.74E-03	2.05E-03	2.06E-03	2.05E-03				**1.90E-03**	1.73E-04
Test Temp (C)			20.4			20.3						
Temp. Corr. Factor			0.996			0.997						
Peel Strength (ASTM D7005)												
A - MD Average Peel Strength (ppi)	2.97	3.49	2.09	4.91	1.76						**3.04**	1.25
A - MD Average Peel Strength (g/in)	1348	1584	949	2229	799						**1382**	567
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	231	230	230	229	225	229	226	224	226	220	**227**	3
											220	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	10.10	10.41	10.16	10.35	10.19	10.49	10.13	9.40	9.64	10.22		
Mass/unit area (lbs./sq.ft)	0.16	0.17	0.16	0.17	0.17	0.17	0.16	0.15	0.16	0.17	**0.16**	0.01
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.948	0.948	0.948								**0.948**	0.000
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.45	2.50									**2.48**	0.04
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)												
Melt Flow Index (g/10 min)	0.1265	0.1280									**0.1273**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	52	54	56	55	59						**55**	2
MD Elong. @ Max. Strength (%)	26	24	27	26	28						**26**	1

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020056
TRI Log #: 24-000900

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.71	4.75	4.70	4.76	4.87	4.90	4.83	4.67	4.70	4.68	**4.76**	0.08
Mass/Unit Area (oz/sq.yd)	10.96	11.05	10.93	11.07	11.33	11.40	11.23	10.86	10.93	10.89	**11.06**	0.19
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	248	298	261	293	286	254	271	242	271	281	**271**	19
TD - Tensile Strength (lbs)	302	323	310	354	331	333	326	328	367	321	**330**	19
MD - Elong. @ Max. Load (%)	84	90	85	83	82	83	92	83	87	87	**86**	3
TD - Elong. @ Max. Load (%)	97	99	89	99	98	104	97	95	103	95	**98**	4
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	163	167	151	152	141						**155**	10
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	124	118	118	150	129	148	147	125	138	138	**133**	12
TD - Tear Strength (lbs)	136	175	161	133	165	193	174	142	166	158	**160**	19
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.159	0.160	0.153	0.151	0.151						**0.155**	0.004
Sieve No.	70	70	70	70	70						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	178	167	177	182	175	185	175	182	183	178	**178**	5
Thickness (mm)	4.51	4.24	4.50	4.62	4.44	4.70	4.45	4.62	4.65	4.51	**4.52**	0.13
Permittivity (Sec-1)	1.28	1.23	1.18	1.17	1.12	1.18	1.12	1.17	1.22	1.21	**1.19**	0.05
Permittivity (GPM/ft2)	95.7	92.0	88.3	87.5	83.8	88.3	83.8	87.5	91.3	90.5	**88.9**	3.7
Flow rate (LPM/m2)	3901	3749	3596	3566	3413	3596	3413	3566	3718	3688	**3621**	150
Permittivity (cm/sec)	0.577	0.521	0.531	0.541	0.498	0.554	0.498	0.541	0.567	0.546	**0.537**	0.026

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020083
TRI Log #: 24-000900

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Hydraulic Transmissivity (ASTM D4716)												
Direction Tested: Machine Direction												
Normal Load (psf): 10,000												
Hydraulic Gradient: 0.1												
Test Length (in) 12												
Test Width (in) 12												
Plate / Sample / Plate												
Seat Time (hours)	Specimen		1			2						
Volume (cc)		626	624	606	588	604	602					
Time (s)		10.72	10.68	10.45	10.60	10.84	10.81					
0.25 Flow Rate (GPM/ft width)		0.93	0.93	0.92	0.88	0.89	0.89				**0.91**	0.02
Transmissivity (m^2/s)		1.92E-03	1.92E-03	1.91E-03	1.83E-03	1.84E-03	1.84E-03				**1.88E-03**	4.77E-05
Test Temp (C)			20.0			20.0						
Temp. Corr. Factor			1.004			1.004						
Peel Strength (ASTM D7005)												
A - MD Average Peel Strength (ppi)	7.56	3.60	2.72	2.07	2.34						**3.66**	2.26
A - MD Average Peel Strength (g/in)	3432	1634	1235	940	1062						**1661**	1024
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	223	222	222	227	227	227	236	237	233	233	**229**	6
											222	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	10.75	10.12	10.11	10.29	10.35	9.85	10.34	10.96	10.44	10.55		
Mass/unit area (lbs./sq.ft)	0.17	0.16	0.16	0.17	0.17	0.16	0.17	0.18	0.17	0.17	**0.17**	0.01
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.947	0.947	0.947								**0.947**	0.000
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.54	2.55									**2.55**	0.01
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)												
Melt Flow Index (g/10 min)	0.1312	0.1265									**0.1289**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	58	64	57	62	60						**60**	3
MD Elong. @ Max. Strength (%)	25	26	27	27	26						**26**	1

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020083
TRI Log #: 24-000900

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.90	4.75	4.86	4.86	4.92	4.81	4.71	4.70	4.71	4.58	**4.78**	0.11
Mass/Unit Area (oz/sq.yd)	11.40	11.05	11.30	11.30	11.44	11.19	10.96	10.93	10.96	10.65	**11.12**	0.25
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	256	290	237	254	251	258	304	267	301	293	**271**	24
TD - Tensile Strength (lbs)	271	322	329	324	344	309	342	332	338	319	**323**	21
MD - Elong. @ Max. Load (%)	77	94	81	87	87	81	88	79	93	89	**86**	6
TD - Elong. @ Max. Load (%)	108	105	95	95	98	95	104	95	106	108	**101**	6
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	145	156	138	156	176						**154**	15
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	119	128	114	114	98	139	120	125	146	124	**123**	13
TD - Tear Strength (lbs)	115	130	145	189	175	181	150	187	165	118	**155**	28
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.163	0.148	0.152	0.164	0.163						**0.158**	0.007
Sieve No.	70	100	70	70	70						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	174	180	187	175	181	176	174	176	160	169	**175**	7
Thickness (mm)	4.42	4.58	4.74	4.45	4.61	4.46	4.42	4.47	4.07	4.30	**4.45**	0.18
Permittivity (Sec-1)	1.27	1.13	1.09	1.29	1.29	1.25	1.29	0.98	1.35	1.27	**1.22**	0.12
Permittivity (GPM/ft2)	95.0	84.5	81.5	96.5	96.5	93.5	96.5	73.3	101.0	95.0	**91.3**	8.6
Flow rate (LPM/m2)	3871	3444	3322	3932	3932	3810	3932	2987	4114	3871	**3721**	352
Permittivity (cm/sec)	0.562	0.518	0.517	0.573	0.594	0.558	0.570	0.438	0.550	0.545	**0.543**	0.044

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020110
TRI Log #: 24-000900

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Hydraulic Transmissivity (ASTM D4716)												
Direction Tested: Machine Direction												
Normal Load (psf): 10,000												
Hydraulic Gradient: 0.1												
Test Length (in) 12												
Test Width (in) 12												
Plate / Sample / Plate												
Seat Time (hours)	Specimen		1			2						
Volume (cc)		567	571	564	680	704	684					
Time (s)		10.58	10.64	10.53	10.40	10.76	10.44					
0.25 Flow Rate (GPM/ft width)		0.85	0.85	0.85	1.04	1.04	1.04				**0.94**	0.10
Transmissivity (m^2/s)		1.76E-03	1.76E-03	1.75E-03	2.14E-03	2.15E-03	2.15E-03				**1.95E-03**	2.13E-04
Test Temp (C)			20.2			20.2						
Temp. Corr. Factor			0.999			0.999						
Peel Strength (ASTM D7005)												
A - MD Average Peel Strength (ppi)	2.19	1.86	5.58	3.18	4.21						**3.40**	1.52
A - MD Average Peel Strength (g/in)	994	844	2533	1444	1911						**1545**	692
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	220	220	221	230	224	226	221	220	222	224	**223**	3
											220	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	10.64	10.05	10.55	10.10	10.31	10.47	10.26	10.36	10.06	10.18		
Mass/unit area (lbs./sq.ft)	0.17	0.16	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.16	**0.17**	0.00
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.947	0.948	0.948								**0.948**	0.001
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.55	2.51									**2.53**	0.03
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)												
Melt Flow Index (g/10 min)	0.1374	0.1362									**0.1368**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	62	60	62	58	61						**61**	2
MD Elong. @ Max. Strength (%)	26	25	26	22	27						**25**	2

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020110
TRI Log #: 24-000900

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.47	4.12	4.86	4.74	4.90	4.70	4.84	4.60	4.71	4.31	**4.63**	0.25
Mass/Unit Area (oz/sq.yd)	10.40	9.58	11.30	11.03	11.40	10.93	11.26	10.70	10.96	10.03	**10.76**	0.59
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	250	287	267	241	273	305	296	271	265	257	**271**	20
TD - Tensile Strength (lbs)	270	329	307	369	343	281	324	284	339	335	**318**	32
MD - Elong. @ Max. Load (%)	79	85	80	82	94	78	105	84	87	91	**86**	8
TD - Elong. @ Max. Load (%)	102	107	93	102	101	89	97	91	96	107	**99**	6
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	167	177	190	165	157						**171**	13
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	107	130	137	156	108	138	112	130	123	120	**126**	16
TD - Tear Strength (lbs)	155	147	182	181	186	151	151	179	160	144	**164**	17
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.155	0.147	0.169	0.163	0.166						**0.160**	0.009
Sieve No.	70	100	70	70	70						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	174	161	167	183	179	171	187	160	184	176	**174**	9
Thickness (mm)	4.43	4.10	4.25	4.66	4.55	4.33	4.75	4.07	4.67	4.47	**4.43**	0.24
Permittivity (Sec-1)	1.18	1.07	1.38	1.17	1.27	1.27	1.22	1.33	1.33	1.27	**1.25**	0.09
Permittivity (GPM/ft2)	88.3	80.0	103	87.5	95.0	95.0	91.3	99.5	99.5	95.0	**93.4**	6.9
Flow rate (LPM/m2)	3596	3261	4206	3566	3871	3871	3718	4053	4053	3871	**3807**	279
Permittivity (cm/sec)	0.523	0.439	0.586	0.545	0.577	0.550	0.580	0.541	0.622	0.567	**0.553**	0.049

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020137
TRI Log #: 24-000900

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Hydraulic Transmissivity (ASTM D4716)												
Direction Tested: Machine Direction												
Normal Load (psf): 10,000												
Hydraulic Gradient: 0.1												
Test Length (in) 12												
Test Width (in) 12												
Plate / Sample / Plate												
Seat Time (hours)	Specimen		1			2						
Volume (cc)		730	744	714	754	739	741					
Time (s)		10.53	10.71	10.31	10.80	10.56	10.63					
0.25 Flow Rate (GPM/ft width)		1.10	1.10	1.09	1.10	1.11	1.10				**1.10**	0.00
Transmissivity (m^2/s)		2.27E-03	2.27E-03	2.27E-03	2.28E-03	2.29E-03	2.28E-03				**2.28E-03**	9.31E-06
Test Temp (C)			20.3			20.3						
Temp. Corr. Factor			0.997			0.997						
Peel Strength (ASTM D7005)												
A - MD Average Peel Strength (ppi)	5.28	6.47	6.06	6.51	2.63						**5.39**	1.62
A - MD Average Peel Strength (g/in)	2397	2937	2751	2956	1194						**2447**	736
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	222	226	220	228	228	225	229	227	224	225	**225**	3
											220	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	10.01	10.34	10.00	11.04	10.83	10.42	11.26	11.09	10.66	10.77		
Mass/unit area (lbs./sq.ft)	0.16	0.17	0.16	0.18	0.18	0.17	0.18	0.18	0.17	0.17	**0.17**	0.01
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.948	0.948	0.948								**0.948**	0.000
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.59	2.67									**2.63**	0.06
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)												
Melt Flow Index (g/10 min)	0.1341	0.1364									**0.1353**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	63	65	62	68	54						**62**	5
MD Elong. @ Max. Strength (%)	25	26	22	24	23						**24**	1

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020137
TRI Log #: 24-000900

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.83	5.07	5.05	4.45	4.59	4.48	4.55	4.29	4.28	4.68	**4.63**	0.28
Mass/Unit Area (oz/sq.yd)	11.23	11.79	11.75	10.35	10.68	10.42	10.58	9.98	9.96	10.89	**10.76**	0.65
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	259	283	269	259	268	232	277	214	254	272	**259**	21
TD - Tensile Strength (lbs)	293	368	364	297	293	339	319	324	249	299	**315**	36
MD - Elong. @ Max. Load (%)	73	102	81	83	90	102	83	74	77	80	**85**	10
TD - Elong. @ Max. Load (%)	99	102	97	95	93	95	100	94	100	102	**98**	3
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	169	155	162	159	148						**159**	8
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	128	124	115	111	128	116	108	118	121	111	**118**	7
TD - Tear Strength (lbs)	131	138	153	143	139	103	136	171	158	162	**144**	19
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.150	0.150	0.154	0.164	0.157						**0.155**	0.006
Sieve No.	70	70	70	70	70						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	166	171	163	172	179	180	177	188	174	183	**175**	7
Thickness (mm)	4.23	4.35	4.15	4.37	4.54	4.58	4.49	4.77	4.43	4.64	**4.45**	0.19
Permittivity (Sec-1)	1.19	1.23	1.14	1.29	1.15	1.29	1.25	1.34	1.18	1.28	**1.23**	0.07
Permittivity (GPM/ft2)	89	92	85	96	86	96	94	100	88	96	**92.3**	5.0
Flow rate (LPM/m2)	3627	3749	3474	3932	3505	3932	3810	4084	3596	3901	**3761**	205
Permittivity (cm/sec)	0.503	0.535	0.473	0.564	0.522	0.591	0.561	0.639	0.522	0.593	**0.550**	0.049

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020164
TRI Log #: 24-000900

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Hydraulic Transmissivity (ASTM D4716)												
Direction Tested: Machine Direction												
Normal Load (psf): 10,000												
Hydraulic Gradient: 0.1												
Test Length (in) 12												
Test Width (in) 12												
Plate / Sample / Plate												
Seat Time (hours)	Specimen		1			2						
Volume (cc)		661	671	678	589	578	598					
Time (s)		10.48	10.56	10.69	10.46	10.36	10.59					
0.25 Flow Rate (GPM/ft width)		0.99	1.00	1.00	0.88	0.88	0.89				**0.94**	0.06
Transmissivity (m^2/s)		2.05E-03	2.06E-03	2.06E-03	1.83E-03	1.81E-03	1.83E-03				**1.94E-03**	1.28E-04
Test Temp (C)			20.6			20.6						
Temp. Corr. Factor			0.990			0.990						
Peel Strength (ASTM D7005)												
A - MD Average Peel Strength (ppi)	4.89	4.47	4.37	5.33	3.04						**4.42**	0.86
A - MD Average Peel Strength (g/in)	2220	2029	1984	2420	1380						**2007**	390
Thickness (ASTM D5199)					GEONET COMPONENT							
Thickness (mils)	233	234	234	235	231	228	218	223	229	221	**228**	6
											218	<< min
Mass/Unit Area (ASTM D3776)					GEONET COMPONENT							
5" diameter Circle - Mass (g)	9.38	9.27	9.63	9.52	10.49	10.57	10.72	10.79	10.76	11.20		
Mass/unit area (lbs./sq.ft)	0.15	0.15	0.16	0.15	0.17	0.17	0.17	0.17	0.17	0.18	**0.17**	0.01
Density (ASTM D1505)					GEONET COMPONENT							
Density (g/cm3)	0.948	0.948	0.948								**0.948**	0.000
Carbon Black Content (ASTM D1603, mod.)					GEONET COMPONENT							
% Carbon Black	2.59	2.59									**2.59**	0.00
Melt Flow Index (ASTM D1238, Method A, 190°C / 2.16 kg)												
Melt Flow Index (g/10 min)	0.1317	0.1337									**0.1327**	
Tensile Properties (ASTM D7179, 12 ipm strain rate)					GEONET COMPONENT							
MD Max. Strength (ppi)	52	54	56	52	57						**54**	2
MD Elong. @ Max. Strength (%)	23	28	22	21	28						**24**	3

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Mustang Extreme Environmental Services
Project: OWL NDBLF Cell 1B 2B

Material: Skaps TN220-1-10 Single Sided Geocomposite
Sample Identification: 0139411020164
TRI Log #: 24-000900

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter Circle - Mass (g)	4.60	4.70	4.90	4.97	4.66	4.85	5.05	4.92	4.81	4.44	**4.79**	0.19
Mass/Unit Area (oz/sq.yd)	10.70	10.93	11.40	11.56	10.84	11.28	11.75	11.44	11.19	10.33	**11.14**	0.44
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	275	283	275	226	255	293	304	257	297	279	**274**	23
TD - Tensile Strength (lbs)	298	356	373	316	349	314	333	322	332	340	**333**	22
MD - Elong. @ Max. Load (%)	79	86	83	81	95	80	89	83	87	85	**85**	5
TD - Elong. @ Max. Load (%)	109	106	101	95	94	93	107	95	99	98	**100**	6
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	167	159	172	148	162						**161**	9
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	109	115	130	126	115	108	116	120	136	111	**119**	9
TD - Tear Strength (lbs)	128	143	142	154	145	161	159	163	151	158	**150**	11
Apparent Opening Size (ASTM D4751)												
Opening Size Diameter (mm)	0.152	0.150	0.154	0.161	0.160						**0.155**	0.005
Sieve No.	70	70	70	70	70						**70**	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	154	159	166	175	186	184	180	185	178	155	**172**	13
Thickness (mm)	3.92	4.04	4.20	4.43	4.73	4.66	4.57	4.70	4.52	3.94	**4.37**	0.32
Permittivity (Sec-1)	1.50	1.18	1.16	1.26	1.25	1.15	1.26	1.30	1.39	1.43	**1.29**	0.12
Permittivity (GPM/ft2)	112	88	87	94	94	86	94	97	104	107	**96.3**	8.8
Flow rate (LPM/m2)	4572	3596	3535	3840	3810	3505	3840	3962	4236	4358	**3925**	360
Permittivity (cm/sec)	0.588	0.476	0.488	0.559	0.592	0.536	0.576	0.611	0.628	0.564	**0.562**	0.050

MD Machine Direction TD Transverse Direction

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APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.1: GCL Inventory Control Log

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GCL INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
MATERIAL TYPE:	GCL		
MATERIAL IDENTIFICATION:	1109263-52918-4, Bentoliner 0.75lbs/ft^2, NS, Peel 35		
MATERIAL MANUFACTURER:	Solmax		

	ROLL NUMBER	BENTONITE LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
1	0074	1012624C	150	15.0	2,250	Y		2/6/2024
2	0075	1012624C	150	15.0	2,250	Y		2/6/2024
3	0076	1012624C	150	15.0	2,250	Y		2/6/2024
4	0077	1012624C	150	15.0	2,250	Y		2/6/2024
5	0078	1012624C	150	15.0	2,250	Y		2/6/2024
6	0079	1012624C	150	15.0	2,250	Y		2/6/2024
7	0080	1012624C	150	15.0	2,250	Y		2/6/2024
8	0081	1012624C	150	15.0	2,250	Y		2/6/2024
9	0082	1012624C	150	15.0	2,250	Y	Y	2/6/2024
10	0083	1012624C	150	15.0	2,250	Y		2/6/2024
11	0084	1012624C	150	15.0	2,250	Y		2/6/2024
12	0085	1012624C	150	15.0	2,250	Y		2/6/2024
13	0086	1012624C	150	15.0	2,250	Y		2/6/2024
14	0087	1012624C	150	15.0	2,250	Y		2/6/2024
15	0088	1012624C	150	15.0	2,250	Y		2/6/2024
16	0089	1012624C	150	15.0	2,250	Y		2/6/2024
17	0090	1012624C	150	15.0	2,250	Y		2/6/2024
18	0091	1012624C	150	15.0	2,250	Y		2/6/2024
19	0092	1012624C	150	15.0	2,250	Y		2/6/2024
20	0093	1012624C	150	15.0	2,250	Y		2/6/2024
21	0094	1012624C	150	15.0	2,250	Y		2/6/2024
22	0095	1012624D	150	15.0	2,250	Y		2/6/2024
23	0096	1012624D	150	15.0	2,250	Y		2/6/2024
24	0097	1012624D	150	15.0	2,250	Y		2/6/2024
25	0098	1012624D	150	15.0	2,250	Y		2/6/2024
26	0099	1012624D	150	15.0	2,250	Y		2/6/2024
27	0100	1012624D	150	15.0	2,250	Y		2/6/2024
28	0101	1012624D	150	15.0	2,250	Y		2/6/2024
29	0102	1012624D	150	15.0	2,250	Y		2/7/2024
30	0103	1012624D	150	15.0	2,250	Y		2/7/2024
31	0104	1012624D	150	15.0	2,250	Y		2/7/2024
32	0105	1012624D	150	15.0	2,250	Y		2/7/2024
33	0106	1012624D	150	15.0	2,250	Y		2/7/2024
34	0107	1012624D	150	15.0	2,250	Y		2/7/2024
35	0108	1012624D	150	15.0	2,250	Y		2/7/2024
36	0109	1012624D	150	15.0	2,250	Y		2/7/2024
37	0110	1012624D	150	15.0	2,250	Y		2/7/2024
38	0111	1012624D	150	15.0	2,250	Y		2/7/2024
39	0112	1012624D	150	15.0	2,250	Y		2/7/2024
40	0113	1012624D	150	15.0	2,250	Y		2/7/2024

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GCL INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
MATERIAL TYPE:	GCL		
MATERIAL IDENTIFICATION:	1109263-52918-4, Bentoliner 0.75lbs/ft^2, NS, Peel 35		
MATERIAL MANUFACTURER:	Solmax		

	ROLL NUMBER	BENTONITE LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
41	0114	1012624D	150	15.0	2,250	Y		2/7/2024
42	0115	1012624D	150	15.0	2,250	Y		2/7/2024
43	0116	1012624D	150	15.0	2,250	Y		2/7/2024
44	0117	1012624D	150	15.0	2,250	Y		2/7/2024
45	0118	1012624D	150	15.0	2,250	Y		2/7/2024
46	0119	1012624D	150	15.0	2,250	Y		2/7/2024
47	0120	1012624D	150	15.0	2,250	Y		2/7/2024
48	0121	1012624D	150	15.0	2,250	Y		2/7/2024
49	0122	1012624D	150	15.0	2,250	Y		2/7/2024
50	0123	1012624D	150	15.0	2,250	Y		2/7/2024
51	0124	1012624D	150	15.0	2,250	Y		2/7/2024
52	0125	1012924A	150	15.0	2,250	Y		2/7/2024
53	0126	1012924A	150	15.0	2,250	Y	Y	2/7/2024
54	0127	1012924A	150	15.0	2,250	Y		2/7/2024
55	0128	1012924A	150	15.0	2,250	Y		2/7/2024
56	0129	1012924A	150	15.0	2,250	Y		2/7/2024
57	0130	1012924A	150	15.0	2,250	Y		2/7/2024
58	0131	1012924A	150	15.0	2,250	Y		2/7/2024
59	0132	1012924A	150	15.0	2,250	Y		2/7/2024
60	0133	1012924A	150	15.0	2,250	Y		2/7/2024
61	0134	1012924A	150	15.0	2,250	Y		2/7/2024
62	0135	1012924A	150	15.0	2,250	Y		2/7/2024
63	0136	1012924A	150	15.0	2,250	Y		2/7/2024
64	0137	1012924A	150	15.0	2,250	Y		2/7/2024
65	0138	1012924A	150	15.0	2,250	Y		2/7/2024
66	0139	1012924A	150	15.0	2,250	Y		2/7/2024
67	0140	1012924A	150	15.0	2,250	Y		2/7/2024
68	0141	1012924A	150	15.0	2,250	Y		2/7/2024
69	0142	1012924A	150	15.0	2,250	Y		2/7/2024
70	0143	1012924A	150	15.0	2,250	Y		2/7/2024
71	0144	1012924A	150	15.0	2,250	Y		2/7/2024
72	0145	1012924A	150	15.0	2,250	Y		2/7/2024
73	0146	1012924A	150	15.0	2,250	Y		2/7/2024
74	0147	1012924A	150	15.0	2,250	Y		2/7/2024
75	0148	1012924A	150	15.0	2,250	Y		2/7/2024
76	0149	1012924A	150	15.0	2,250	Y		2/7/2024
77	0150	1012924A	150	15.0	2,250	Y		2/7/2024
78	0151	1012924A	150	15.0	2,250	Y		2/7/2024
79	0152	1012924A	150	15.0	2,250	Y		2/7/2024
80	0153	1012924A	150	15.0	2,250	Y		2/7/2024

Parkhill

GCL INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3

MATERIAL TYPE: GCL

MATERIAL IDENTIFICATION: 1109263-52918-4, Bentoliner 0.75lbs/ft^2, NS, Peel 35

MATERIAL MANUFACTURER: Solmax

	ROLL NUMBER	BENTONITE LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
81	0154	1012924A	150	15.0	2,250	Y		2/7/2024
82	0155	1012924B	150	15.0	2,250	Y		2/7/2024
83	0156	1012924B	150	15.0	2,250	Y		2/7/2024
84	0157	1012924B	150	15.0	2,250	Y		2/7/2024
85	0158	1012924B	150	15.0	2,250	Y		2/7/2024
86	0159	1012924B	150	15.0	2,250	Y		2/7/2024
87	0160	1012924B	150	15.0	2,250	Y		2/7/2024
88	0161	1012924B	150	15.0	2,250	Y		2/7/2024
89	0162	1012924B	150	15.0	2,250	Y		2/7/2024
90	0163	1012924B	150	15.0	2,250	Y		2/7/2024
91	0164	1012924B	150	15.0	2,250	Y		2/7/2024
92	0165	1012924B	150	15.0	2,250	Y		2/7/2024
93	0166	1012924B	150	15.0	2,250	Y		2/7/2024
94	0167	1012924B	150	15.0	2,250	Y		2/7/2024
95	0168	1012924B	150	15.0	2,250	Y		2/7/2024
96	0169	1012924B	150	15.0	2,250	Y		2/7/2024
97	0170	1012924B	150	15.0	2,250	Y	Y	2/7/2024
98	0171	1012924B	150	15.0	2,250	Y		2/7/2024
99	0172	1012924B	150	15.0	2,250	Y		2/7/2024
100	0173	1012924B	150	15.0	2,250	Y		2/7/2024
101	0174	1012924B	150	15.0	2,250	Y		2/7/2024
102	0175	1012924B	150	15.0	2,250	Y		2/7/2024
103	0176	1012924B	150	15.0	2,250	Y		2/7/2024
104	0177	1012924B	150	15.0	2,250	Y		2/7/2024
105	0178	1012924B	150	15.0	2,250	Y		2/7/2024
106	0179	1012924B	150	15.0	2,250	Y		2/7/2024
107	0180	1012924B	150	15.0	2,250	Y		2/7/2024
108	0181	1012924B	150	15.0	2,250	Y		2/7/2024
109	0182	1012924B	150	15.0	2,250	Y		2/7/2024
110	0183	1012924B	150	15.0	2,250	Y		2/7/2024
111	0184	1012924B	150	15.0	2,250	Y		2/7/2024
112	0185	1012924C	150	15.0	2,250	Y		2/7/2024
113	0186	1012924C	150	15.0	2,250	Y		2/7/2024
114	0187	1012924C	150	15.0	2,250	Y		2/7/2024
115	0188	1012924C	150	15.0	2,250	Y		2/7/2024
116	0189	1012924C	150	15.0	2,250	Y		2/7/2024
117	0190	1012924C	150	15.0	2,250	Y		2/7/2024
118	0191	1012924C	150	15.0	2,250	Y		2/7/2024
119	0192	1012924C	150	15.0	2,250	Y		2/7/2024
120	0193	1012924C	150	15.0	2,250	Y		2/7/2024

Parkhill

GCL INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	4
MATERIAL TYPE:	GCL		
MATERIAL IDENTIFICATION:	1109263-52918-4, Bentoliner 0.75lbs/ft^2, NS, Peel 35		
MATERIAL MANUFACTURER:	Solmax		

	ROLL NUMBER	BENTONITE LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
121	0194	1012924C	150	15.0	2,250	Y		2/7/2024
122	0195	1012924C	150	15.0	2,250	Y		2/7/2024
123	0196	1012924C	150	15.0	2,250	Y		2/7/2024
124	0197	1012924C	150	15.0	2,250	Y		2/7/2024
125	0198	1012924C	150	15.0	2,250	Y		2/7/2024
126	0199	1012924C	150	15.0	2,250	Y		2/7/2024
127	0200	1012924C	150	15.0	2,250	Y		2/7/2024
128	0201	1012924C	150	15.0	2,250	Y		2/7/2024
129	0202	1012924C	150	15.0	2,250	Y		2/7/2024
130	0203	1012924C	150	15.0	2,250	Y		2/7/2024
131	0204	1012924C	150	15.0	2,250	Y		2/7/2024
132	0205	1012924C	150	15.0	2,250	Y		2/8/2024
133	0206	1012924C	150	15.0	2,250	Y		2/8/2024
134	0207	1012924C	150	15.0	2,250	Y		2/8/2024
135	0208	1012924C	150	15.0	2,250	Y		2/8/2024
136	0209	1012924C	150	15.0	2,250	Y		2/8/2024
137	0210	1012924C	150	15.0	2,250	Y		2/8/2024
138	0211	1012924C	150	15.0	2,250	Y		2/8/2024
139	0212	1012924C	150	15.0	2,250	Y		2/8/2024
140	0213	1012924C	150	15.0	2,250	Y		2/8/2024
141	0214	1012924C	150	15.0	2,250	Y	Y	2/8/2024
142	0215	1012924D	150	15.0	2,250	Y		2/8/2024
143	0216	1012924D	150	15.0	2,250	Y		2/8/2024
144	0217	1012924D	150	15.0	2,250	Y		2/8/2024
145	0218	1012924D	150	15.0	2,250	Y		2/8/2024
146	0219	1012924D	150	15.0	2,250	Y		2/8/2024
147	0220	1012924D	150	15.0	2,250	Y		2/8/2024
148	0221	1012924D	150	15.0	2,250	Y		2/8/2024
149	0222	1012924D	150	15.0	2,250	Y		2/8/2024
150	0223	1012924D	150	15.0	2,250	Y		2/8/2024
151	0224	1012924D	150	15.0	2,250	Y		2/8/2024
152	0225	1012924D	150	15.0	2,250	Y		2/8/2024
153	0226	1012924D	150	15.0	2,250	Y		2/8/2024
154	0227	1012924D	150	15.0	2,250	Y		2/8/2024
155	0228	1012924D	150	15.0	2,250	Y		2/8/2024
156	0229	1012924D	150	15.0	2,250	Y		2/8/2024
157	0230	1012924D	150	15.0	2,250	Y		2/8/2024
158	0231	1012924D	150	15.0	2,250	Y		2/8/2024
159	0232	1012924D	150	15.0	2,250	Y		2/8/2024
160	0233	1012924D	150	15.0	2,250	Y		2/8/2024

Parkhill

GCL INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	5
MATERIAL TYPE:	GCL		
MATERIAL IDENTIFICATION:	1109263-52918-4, Bentoliner 0.75lbs/ft^2, NS, Peel 35		
MATERIAL MANUFACTURER:	Solmax		

	ROLL NUMBER	BENTONITE LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
161	0234	1012924D	150	15.0	2,250	Y		2/8/2024
162	0235	1012924D	150	15.0	2,250	Y		2/8/2024
163	0236	1012924D	150	15.0	2,250	Y		2/8/2024
164	0237	1012924D	150	15.0	2,250	Y		2/8/2024
165	0238	1012924D	150	15.0	2,250	Y		2/8/2024
166	0239	1012924D	150	15.0	2,250	Y		2/8/2024
167	0240	1012924D	150	15.0	2,250	Y		2/8/2024
168	0241	1012924D	150	15.0	2,250	Y		2/8/2024
169	0242	1012924D	150	15.0	2,250	Y		2/8/2024
170	0243	1012924D	150	15.0	2,250	Y		2/8/2024
171	0244	1012924D	150	15.0	2,250	Y		2/8/2024
172	0245	1013024A	150	15.0	2,250	Y		2/8/2024
173	0246	1013024A	150	15.0	2,250	Y		2/8/2024
174	0247	1013024A	150	15.0	2,250	Y		2/8/2024
175	0248	1013024A	150	15.0	2,250	Y		2/8/2024
176	0249	1013024A	150	15.0	2,250	Y		2/8/2024
177	0250	1013024A	150	15.0	2,250	Y		2/8/2024
178	0251	1013024A	150	15.0	2,250	Y		2/8/2024
179	0252	1013024A	150	15.0	2,250	Y		2/8/2024
180	0253	1013024A	150	15.0	2,250	Y		2/8/2024
181	0254	1013024A	150	15.0	2,250	Y		2/8/2024
182	0255	1013024A	150	15.0	2,250	Y		2/8/2024
183	0256	1013024A	150	15.0	2,250	Y		2/8/2024
184	0257	1013024A	150	15.0	2,250	Y		2/8/2024
185	0258	1013024A	150	15.0	2,250	Y	Y	2/8/2024
186	0259	1013024A	150	15.0	2,250	Y		2/8/2024
187	0260	1013024A	150	15.0	2,250	Y		2/8/2024
188	0261	1013024A	150	15.0	2,250	Y		2/8/2024
189	0262	1013024A	150	15.0	2,250	Y		2/8/2024
190	0263	1013024A	150	15.0	2,250	Y		2/8/2024
191	0264	1013024A	150	15.0	2,250	Y		2/8/2024
192	0265	1013024A	150	15.0	2,250	Y		2/8/2024
193	0266	1013024A	150	15.0	2,250	Y		2/8/2024
194	0267	1013024A	150	15.0	2,250	Y		2/8/2024
195	0268	1013024A	150	15.0	2,250	Y		2/8/2024
196	0269	1013024A	150	15.0	2,250	Y		2/8/2024
197	0270	1013024A	150	15.0	2,250	Y		2/8/2024
198	0271	1013024A	150	15.0	2,250	Y		2/8/2024
199	0272	1013024A	150	15.0	2,250	Y		2/8/2024
200	0273	1013024A	150	15.0	2,250	Y		2/8/2024

Parkhill

GCL INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	6
MATERIAL TYPE:	GCL		
MATERIAL IDENTIFICATION:	1109263-52918-4, Bentoliner 0.75lbs/ft^2, NS, Peel 35		
MATERIAL MANUFACTURER:	Solmax		

	ROLL NUMBER	BENTONITE LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
201	0274	1013024A	150	15.0	2,250	Y		2/8/2024
202	0275	1013024A	150	15.0	2,250	Y		2/8/2024
203	0276	1013024B	150	15.0	2,250	Y		2/8/2024
204	0277	1013024B	150	15.0	2,250	Y		2/8/2024
205	0278	1013024B	150	15.0	2,250	Y		2/8/2024
206	0279	1013024B	150	15.0	2,250	Y		2/8/2024
207	0280	1013024B	150	15.0	2,250	Y		2/8/2024
208	0281	1013024B	150	15.0	2,250	Y		2/8/2024
209	0282	1013024B	150	15.0	2,250	Y		2/8/2024
210	0283	1013024B	150	15.0	2,250	Y		2/8/2024
211	0284	1013024B	150	15.0	2,250	Y		2/8/2024
212	0285	1013024B	150	15.0	2,250	Y		2/8/2024
213	0286	1013024B	150	15.0	2,250	Y		2/8/2024
214	0287	1013024B	150	15.0	2,250	Y		2/8/2024
215	0288	1013024B	150	15.0	2,250	Y		2/8/2024
216	0289	1013024B	150	15.0	2,250	Y		2/8/2024
217	0290	1013024B	150	15.0	2,250	Y		2/8/2024
218	0291	1013024B	150	15.0	2,250	Y		2/8/2024
219	0292	1013024B	150	15.0	2,250	Y		2/8/2024
220	0293	1013024B	150	15.0	2,250	Y		2/8/2024
221	0294	1013024B	150	15.0	2,250	Y		2/8/2024
222	0295	1013024B	150	15.0	2,250	Y		2/8/2024
223	0296	1013024B	150	15.0	2,250	Y		2/8/2024
224	0297	1013024B	150	15.0	2,250	Y		2/8/2024
225	0298	1013024C	150	15.0	2,250	Y		2/8/2024
226	0299	1013024C	150	15.0	2,250	Y		2/8/2024
227	0300	1013024C	150	15.0	2,250	Y		2/8/2024
228	0301	1013024C	150	15.0	2,250	Y		2/8/2024
229	0302	1013024C	150	15.0	2,250	Y	Y	2/8/2024
230	0303	1013024C	150	15.0	2,250	Y		2/8/2024
231	0304	1013024C	150	15.0	2,250	Y		2/8/2024
232	0305	1013024C	150	15.0	2,250	Y		2/8/2024
233	0306	1013024C	150	15.0	2,250	Y		2/8/2024
234	0307	1013024C	150	15.0	2,250	Y		2/9/2024
235	0308	1013024C	150	15.0	2,250	Y		2/9/2024
236	0309	1013024C	150	15.0	2,250	Y		2/9/2024
237	0310	1013024C	150	15.0	2,250	Y		2/9/2024
238	0311	1013024C	150	15.0	2,250	Y		2/9/2024
239	0312	1013024C	150	15.0	2,250	Y		2/9/2024
240	0313	1013024C	150	15.0	2,250	Y		2/9/2024

Parkhill

GCL INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	7
MATERIAL TYPE:	GCL		
MATERIAL IDENTIFICATION:	1109263-52918-4, Bentoliner 0.75lbs/ft^2, NS, Peel 35		
MATERIAL MANUFACTURER:	Solmax		

	ROLL NUMBER	BENTONITE LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
241	0314	1013024C	150	15.0	2,250	Y		2/9/2024
242	0315	1013024C	150	15.0	2,250	Y		2/9/2024
243	0316	1013024C	150	15.0	2,250	Y		2/9/2024
244	0317	1013024C	150	15.0	2,250	Y		2/9/2024
245	0318	1013024C	150	15.0	2,250	Y		2/9/2024
246	0319	1013024C	150	15.0	2,250	Y		2/9/2024
247	0320	1013024C	150	15.0	2,250	Y		2/9/2024
248	0321	1013024C	150	15.0	2,250	Y		2/9/2024
249	0322	1013024C	150	15.0	2,250	Y		2/9/2024
250	0323	1013024C	150	15.0	2,250	Y		2/9/2024
251	0324	1013024C	150	15.0	2,250	Y		2/9/2024
252	0325	1013024C	150	15.0	2,250	Y		2/9/2024
253	0326	1013024C	150	15.0	2,250	Y		2/9/2024
254	0327	1013024D	150	15.0	2,250	Y		2/9/2024
255	0328	1013024D	150	15.0	2,250	Y		2/9/2024
256	0329	1013024D	150	15.0	2,250	Y		2/9/2024
257	0330	1013024D	150	15.0	2,250	Y		2/9/2024
258	0331	1013024D	150	15.0	2,250	Y		2/12/2024
259	0332	1013024D	150	15.0	2,250	Y		2/12/2024
260	0333	1013024D	150	15.0	2,250	Y		2/12/2024
261	0334	1013024D	150	15.0	2,250	Y		2/12/2024
262	0335	1013024D	150	15.0	2,250	Y		2/12/2024
263	0336	1013024D	150	15.0	2,250	Y		2/12/2024
264	0337	1013024D	150	15.0	2,250	Y		2/12/2024
265	0338	1013024D	150	15.0	2,250	Y		2/12/2024
266	0339	1013024D	150	15.0	2,250	Y		2/12/2024
267	0340	1013024D	150	15.0	2,250	Y		2/12/2024
268	0341	1013024D	150	15.0	2,250	Y		2/12/2024
269	0342	1013024D	150	15.0	2,250	Y		2/12/2024
270	0343	1013024D	150	15.0	2,250	Y		2/12/2024
271	0344	1013024D	150	15.0	2,250	Y		2/12/2024
272	0345	1013024D	150	15.0	2,250	Y		2/12/2024
273	0346	1013024D	150	15.0	2,250	Y	Y	2/12/2024
274	0347	1013024D	150	15.0	2,250	Y		2/12/2024
275	0348	1013024D	150	15.0	2,250	Y		2/12/2024
276	0349	1013024D	150	15.0	2,250	Y		2/12/2024
277	0350	1013024D	150	15.0	2,250	Y		2/12/2024
278	0351	1013024D	150	15.0	2,250	Y		2/12/2024
279	0352	1013024D	150	15.0	2,250	Y		2/12/2024
280	0353	1013024D	150	15.0	2,250	Y		2/12/2024

Parkhill

GCL INVENTORY CONTROL LOG

PROJECT NAME: OWL Landfill Cell 1B/2B
PROJECT NUMBER: 42035.23
CLIENT: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 8

MATERIAL TYPE: GCL
MATERIAL IDENTIFICATION: 1109263-52918-4, Bentoliner 0.75lbs/ft^2, NS, Peel 35
MATERIAL MANUFACTURER: Solmax

	ROLL NUMBER	BENTONITE LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
281	0355	1013024D	150	15.0	2,250	Y		2/12/2024
282	0356	1013024D	150	15.0	2,250	Y		2/12/2024
283	0357	1020224A	150	15.0	2,250	Y		2/12/2024
284	0358	1020224A	150	15.0	2,250	Y		2/12/2024
285	0359	1020224A	150	15.0	2,250	Y		2/12/2024
286	0360	1020224A	150	15.0	2,250	Y		2/12/2024
287	0361	1020224A	150	15.0	2,250	Y		2/12/2024
288	0362	1020224A	150	15.0	2,250	Y		2/12/2024
289	0363	1020224A	150	15.0	2,250	Y		2/12/2024
290	0364	1020224A	150	15.0	2,250	Y		2/12/2024
291	0365	1020224A	150	15.0	2,250	Y		2/12/2024
292	0366	1020224A	150	15.0	2,250	Y		2/12/2024
293	0367	1020224A	150	15.0	2,250	Y		2/12/2024
294	0368	1020224A	150	15.0	2,250	Y		2/12/2024
295	0369	1020224A	150	15.0	2,250	Y		2/12/2024
296	0370	1020224A	150	15.0	2,250	Y		2/12/2024
297	0371	1020224A	150	15.0	2,250	Y		2/12/2024
298	0372	1020224A	150	15.0	2,250	Y		2/12/2024
299	0373	1020224A	150	15.0	2,250	Y		2/12/2024
300	0374	1020224A	150	15.0	2,250	Y		2/12/2024
301	0375	1020224A	150	15.0	2,250	Y		2/12/2024
302	0376	1020224A	150	15.0	2,250	Y		2/12/2024
303	0377	1020224A	150	15.0	2,250	Y		2/12/2024
304	0378	1020224A	150	15.0	2,250	Y	Y	2/12/2024
305	0379	1020224A	150	15.0	2,250	Y		2/12/2024
306	0380	1020224A	150	15.0	2,250	Y		2/12/2024
307	0381	1020224A	150	15.0	2,250	Y		2/12/2024
308	0382	1020224A	150	15.0	2,250	Y		2/12/2024
309	0383	1020224A	150	15.0	2,250	Y		2/12/2024
310	0384	1020224A	150	15.0	2,250	Y		2/12/2024
311	0385	1020224A	150	15.0	2,250	Y		2/12/2024
312	0386	1020224A	150	15.0	2,250	Y		2/12/2024
313	0387	1020224A	150	15.0	2,250	Y		2/12/2024
314	0388	1020224A	150	15.0	2,250	Y		2/12/2024
315	0389	1020224B	150	15.0	2,250	Y		2/12/2024
316	0390	1020224B	150	15.0	2,250	Y		2/12/2024
317	0391	1020224B	150	15.0	2,250	Y		2/12/2024
318	0392	1020224B	150	15.0	2,250	Y		2/12/2024
319	0393	1020224B	150	15.0	2,250	Y		2/12/2024

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.2: Geonet Inventory Control Log

Parkhill

GEONET INVENTORY CONTROL LOG

PROJECT NAME: OWL Landfill Cell 1B/2B
PROJECT NUMBER: 42035.23
CLIENT: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

MATERIAL TYPE: Geonet (200mil)

MATERIAL IDENTIFICATION: TN 220
MATERIAL MANUFACTURER: Skaps

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
1	30001	EQUX 018404	300	14.5	4,350	Y	Y	3/29/2024
2	30002	EQUX 018404	300	14.5	4,350	Y		3/29/2024
3	30003	EQUX 018404	300	14.5	4,350	Y		3/29/2024
4	30004	EQUX 018404	300	14.5	4,350	Y		3/29/2024
5	30005	EQUX 018404	300	14.5	4,350	Y		3/29/2024
6	30006	EQUX 018404	300	14.5	4,350	Y		3/29/2024
7	30007	EQUX 018404	300	14.5	4,350	Y		3/29/2024
8	30008	EQUX 018404	300	14.5	4,350	Y		3/29/2024
9	30009	EQUX 018404	300	14.5	4,350	Y		3/29/2024
10	30010	EQUX 018404	300	14.5	4,350	Y		3/29/2024
11	30011	EQUX 018404	300	14.5	4,350	Y		3/29/2024
12	30012	EQUX 018404	300	14.5	4,350	Y		3/29/2024
13	30013	EQUX 018404	300	14.5	4,350	Y		3/29/2024
14	30014	EQUX 018404	300	14.5	4,350	Y		3/29/2024
15	30015	EQUX 018404	300	14.5	4,350	Y		3/29/2024
16	30016	EQUX 018404	300	14.5	4,350	Y		3/29/2024
17	30017	EQUX 018404	300	14.5	4,350	Y		3/29/2024
18	30018	EQUX 018404	300	14.5	4,350	Y		3/29/2024
19	30019	EQUX 018404	300	14.5	4,350	Y		3/29/2024
20	30020	EQUX 018404	300	14.5	4,350	Y		3/29/2024
21	30021	EQUX 018404	300	14.5	4,350	Y		3/29/2024
22	30022	EQUX 018404	300	14.5	4,350	Y		3/29/2024
23	30023	EQUX 018404	300	14.5	4,350	Y		3/29/2024
24	30024	EQUX 018404	300	14.5	4,350	Y	Y	3/29/2024
25	30025	EQUX 018404	300	14.5	4,350	Y		3/29/2024
26	30026	EQUX 018404	300	14.5	4,350	Y		3/29/2024
27	30027	EQUX 018404	300	14.5	4,350	Y		3/29/2024
28	30028	EQUX 018404	300	14.5	4,350	Y		3/29/2024
29	30029	EQUX 018404	300	14.5	4,350	Y		3/29/2024
30	30030	EQUX 018404	300	14.5	4,350	Y		3/29/2024
31	30031	EQUX 018404	300	14.5	4,350	Y		3/29/2024
32	30032	EQUX 018404	300	14.5	4,350	Y		3/29/2024
33	30033	EQUX 018404	300	14.5	4,350	Y		3/29/2024
34	30034	EQUX 018404	300	14.5	4,350	Y		3/29/2024
35	30035	EQUX 018404	300	14.5	4,350	Y		3/29/2024
36	30036	EQUX 018404	300	14.5	4,350	Y		3/29/2024
37	30037	EQUX 018404	300	14.5	4,350	Y		3/29/2024
38	30038	EQUX 018404	300	14.5	4,350	Y		3/29/2024
39	30039	EQUX 018404	300	14.5	4,350	Y		3/29/2024
40	30040	EQUX 018404	300	14.5	4,350	Y		3/29/2024

Parkhill

GEONET INVENTORY CONTROL LOG

PROJECT NAME: OWL Landfill Cell 1B/2B
PROJECT NUMBER: 42035.23
CLIENT: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 2

MATERIAL TYPE: Geonet (200mil)

MATERIAL IDENTIFICATION: TN 220
MATERIAL MANUFACTURER: Skaps

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
41	30041	EQUX 018404	300	14.5	4,350	Y		3/29/2024
42	30042	EQUX 018404	300	14.5	4,350	Y		3/29/2024
43	30043	EQUX 018404	300	14.5	4,350	Y		3/29/2024
44	30044	EQUX 018404	300	14.5	4,350	Y		3/29/2024
45	30045	EQUX 018404	300	14.5	4,350	Y		3/29/2024
46	30046	EQUX 018404	300	14.5	4,350	Y		3/29/2024
47	30047	EQUX 018404	300	14.5	4,350	Y	Y	3/29/2024
48	30048	EQUX 018404	300	14.5	4,350	Y		3/29/2024
49	30049	EQUX 018404	300	14.5	4,350	Y		3/29/2024
50	30050	EQUX 018404	300	14.5	4,350	Y		3/29/2024
51	30051	EQUX 018404	300	14.5	4,350	Y		3/29/2024
52	30052	EQUX 018404	300	14.5	4,350	Y		3/29/2024
53	30053	EQUX 018404	300	14.5	4,350	Y		3/29/2024
54	30054	EQUX 018404	300	14.5	4,350	Y		3/29/2024
55	30055	EQUX 018404	300	14.5	4,350	Y		3/29/2024
56	30056	EQUX 018404	300	14.5	4,350	Y		3/29/2024
57	30057	EQUX 018404	300	14.5	4,350	Y		3/29/2024
58	30058	EQUX 018404	300	14.5	4,350	Y		3/29/2024
59	30059	EQUX 018404	300	14.5	4,350	Y		3/29/2024
60	30060	EQUX 018404	300	14.5	4,350	Y		3/29/2024
61	30061	EQUX 018404	300	14.5	4,350	Y		3/29/2024
62	30062	EQUX 018404	300	14.5	4,350	Y		3/29/2024
63	30063	EQUX 018404	300	14.5	4,350	Y		3/29/2024
64	30064	EQUX 018404	300	14.5	4,350	Y		3/29/2024
65	30065	EQUX 018404	300	14.5	4,350	Y		3/29/2024
66	30066	EQUX 018404	300	14.5	4,350	Y		3/29/2024
67	30067	EQUX 018404	300	14.5	4,350	Y		3/29/2024
68	30068	EQUX 018404	300	14.5	4,350	Y		3/29/2024
69	30069	EQUX 018404	300	14.5	4,350	Y		3/29/2024
70	30070	EQUX 018404	300	14.5	4,350	Y	Y	3/29/2024
71	30071	EQUX 018404	300	14.5	4,350	Y		3/29/2024
72	30072	EQUX 018404	300	14.5	4,350	Y		3/29/2024
73	30073	EQUX 018404	300	14.5	4,350	Y		3/29/2024
74	30074	EQUX 018404	300	14.5	4,350	Y		3/29/2024
75	30075	EQUX 018404	300	14.5	4,350	Y		3/29/2024
76	30076	EQUX 018404	300	14.5	4,350	Y		3/29/2024
77	30077	EQUX 018404	300	14.5	4,350	Y		3/29/2024
78	30078	EQUX 018404	300	14.5	4,350	Y		3/29/2024
79	30079	EQUX 018404	300	14.5	4,350	Y		3/29/2024
80	30080	EQUX 018404	300	14.5	4,350	Y		3/29/2024

Parkhill

GEONET INVENTORY CONTROL LOG

PROJECT NAME: OWL Landfill Cell 1B/2B
PROJECT NUMBER: 42035.23
CLIENT: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 3

MATERIAL TYPE: Geonet (200mil)

MATERIAL IDENTIFICATION: TN 220
MATERIAL MANUFACTURER: Skaps

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
81	30081	EQUX 018404	300	14.5	4,350	Y		3/29/2024
82	30082	EQUX 018404	300	14.5	4,350	Y		3/29/2024
83	30083	EQUX 018404	300	14.5	4,350	Y		3/29/2024
84	30084	EQUX 018404	300	14.5	4,350	Y		3/29/2024
85	30085	EQUX 018404	300	14.5	4,350	Y		3/29/2024
86	30086	EQUX 018404	300	14.5	4,350	Y		3/29/2024
87	30087	EQUX 018404	300	14.5	4,350	Y		3/29/2024
88	30088	EQUX 018404	300	14.5	4,350	Y		3/29/2024
89	30089	EQUX 018404	300	14.5	4,350	Y		3/29/2024
90	30090	EQUX 018404	300	14.5	4,350	Y		3/29/2024
91	30091	EQUX 018404	300	14.5	4,350	Y		3/29/2024
92	30092	EQUX 018404	300	14.5	4,350	Y		3/29/2024
93	30093	EQUX 018404	300	14.5	4,350	Y	Y	3/29/2024
94	30094	EQUX 018404	300	14.5	4,350	Y		3/29/2024
95	30095	EQUX 018404	300	14.5	4,350	Y		3/29/2024
96	30096	EQUX 018404	300	14.5	4,350	Y		3/29/2024
97	30097	EQUX 018404	300	14.5	4,350	Y		3/29/2024
98	30098	EQUX 018404	300	14.5	4,350	Y		3/29/2024
99	30099	EQUX 018404	300	14.5	4,350	Y		3/29/2024
100	30100	EQUX 018404	300	14.5	4,350	Y		3/29/2024
101	30101	EQUX 018404	300	14.5	4,350	Y		3/29/2024
102	30102	EQUX 018404	300	14.5	4,350	Y		3/29/2024
103	30103	EQUX 018404	300	14.5	4,350	Y		3/29/2024
104	30104	EQUX 018404	300	14.5	4,350	Y		3/29/2024
105	30105	EQUX 018404	300	14.5	4,350	Y		3/29/2024
106	30106	EQUX 018404	300	14.5	4,350	Y		3/29/2024
107	30107	EQUX 018404	300	14.5	4,350	Y		3/29/2024
108	30108	EQUX 018404	300	14.5	4,350	Y		3/29/2024
109	30109	EQUX 018404	300	14.5	4,350	Y		3/29/2024
110	30110	EQUX 018404	300	14.5	4,350	Y		3/29/2024
111	30111	EQUX 018404	300	14.5	4,350	Y		3/29/2024
112	30112	EQUX 018404	300	14.5	4,350	Y		3/29/2024
113	30113	EQUX 018404	300	14.5	4,350	Y		3/29/2024
114	30114	EQUX 018404	300	14.5	4,350	Y		3/29/2024
115	30115	EQUX 018404	300	14.5	4,350	Y		3/29/2024
116	30116	EQUX 018404	300	14.5	4,350	Y	Y	3/29/2024
117	30117	EQUX 018404	300	14.5	4,350	Y		3/29/2024
118	30118	EQUX 018404	300	14.5	4,350	Y		3/29/2024
119	30119	EQUX 018404	300	14.5	4,350	Y		3/29/2024
120	30120	EQUX 018404	300	14.5	4,350	Y		3/29/2024

Parkhill

GEONET INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	4
MATERIAL TYPE:	Geonet (200mil)		
MATERIAL IDENTIFICATION:	TN 220		
MATERIAL MANUFACTURER:	Skaps		

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
121	30121	EQUX 018404	300	14.5	4,350	Y		3/29/2024
122	30122	EQUX 018404	300	14.5	4,350	Y		3/29/2024
123	30123	EQUX 018404	300	14.5	4,350	Y		3/29/2024
124	30124	EQUX 018404	300	14.5	4,350	Y		3/29/2024
125	30125	EQUX 018404	300	14.5	4,350	Y		3/29/2024
126	30126	EQUX 018404	300	14.5	4,350	Y		3/29/2024
127	30127	EQUX 018404	300	14.5	4,350	Y		3/29/2024
128	30128	EQUX 018404	300	14.5	4,350	Y		3/29/2024
129	30129	EQUX 018404	300	14.5	4,350	Y		3/29/2024
130	30130	EQUX 018404	300	14.5	4,350	Y		3/29/2024
131	30131	EQUX 018404	300	14.5	4,350	Y		3/29/2024
132	30132	EQUX 018404	300	14.5	4,350	Y		3/29/2024
133	30133	EQUX 018404	300	14.5	4,350	Y		3/29/2024
134	30134	EQUX 018404	300	14.5	4,350	Y		3/29/2024
135	30135	EQUX 018404	300	14.5	4,350	Y		3/29/2024
136	30136	EQUX 018404	300	14.5	4,350	Y		3/29/2024
137	30137	EQUX 018404	300	14.5	4,350	Y		3/29/2024
138	30138	EQUX 018404	300	14.5	4,350	Y		3/29/2024
139	30139	EQUX 018404	300	14.5	4,350	Y	Y	3/29/2024
140	30140	EQUX 018404	300	14.5	4,350	Y		3/29/2024
141	30141	EQUX 018404	300	14.5	4,350	Y		3/29/2024

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.3: FML Inventory Control Log

Parkhill

SMOOTH FML - INVENTORY CONTROL LOG

PROJECT NAME: OWL Landfill Cell 1B/2B
PROJECT NUMBER: 42035.23
CLIENT: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

MATERIAL TYPE: Smooth FML (60mil)

MATERIAL IDENTIFICATION: 60-HD-00-BLK-AVG-STD-24.00
MATERIAL MANUFACTURER: Skaps

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
1	2119	23J1088	540	24.0	12,960	Y	Y	2/28/2024
2	2120	23J1088	540	24.0	12,960	Y		2/28/2024
3	2121	23J1088	540	24.0	12,960	Y		2/28/2024
4	2122	23J1088	540	24.0	12,960	Y		2/28/2024
5	2123	23J1088	540	24.0	12,960	Y		2/28/2024
6	2124	23J1088	540	24.0	12,960	Y		2/28/2024
7	2125	23J1088	540	24.0	12,960	Y		2/28/2024
8	2126	23J1088	540	24.0	12,960	Y	Y	2/28/2024
9	2127	23J1088	540	24.0	12,960	Y		2/28/2024
10	2128	23J1088	540	24.0	12,960	Y		2/28/2024
11	2129	23J1088	540	24.0	12,960	Y		2/28/2024
12	2130	23J1088	540	24.0	12,960	Y		2/28/2024
13	2131	23J1088	540	24.0	12,960	Y		2/28/2024
14	2132	23J1088	540	24.0	12,960	Y		2/28/2024
15	2133	23J1088	540	24.0	12,960	Y		2/28/2024
16	2134	22L1090	540	24.0	12,960	Y	Y	2/28/2024
17	2135	22L1090	540	24.0	12,960	Y		2/28/2024
18	2136	22L1090	540	24.0	12,960	Y		2/28/2024
19	2137	22L1090	540	24.0	12,960	Y		2/28/2024
20	2138	22L1090	540	24.0	12,960	Y		2/28/2024
21	2139	22L1090	540	24.0	12,960	Y		2/28/2024
22	2140	22L1090	540	24.0	12,960	Y		2/28/2024
23	2141	22L1090	540	24.0	12,960	Y	Y	2/28/2024
24	2142	22L1090	540	24.0	12,960	Y		2/28/2024
25	2143	22L1090	540	24.0	12,960	Y		2/28/2024
26	2144	22L1090	540	24.0	12,960	Y		2/28/2024
27	2145	22L1090	540	24.0	12,960	Y		2/28/2024
28	2146	22L1090	540	24.0	12,960	Y		2/28/2024
29	2147	22L1090	540	24.0	12,960	Y		2/28/2024
30	2148	22L1090	540	24.0	12,960	Y		2/28/2024
31	2149	22L1090	540	24.0	12,960	Y	Y	2/28/2024
32	2150	22L1090	540	24.0	12,960	Y		2/28/2024
33	2151	22L1090	540	24.0	12,960	Y		2/28/2024
34	2152	22L1090	540	24.0	12,960	Y		2/28/2024
35	2153	22L1090	540	24.0	12,960	Y		2/28/2024
36	2154	22L1090	540	24.0	12,960	Y		2/28/2024
37	2155	22L1090	540	24.0	12,960	Y		2/28/2024
38	2156	22L1090	540	24.0	12,960	Y	Y	2/28/2024
39	2157	22L1090	540	24.0	12,960	Y		2/28/2024
40	2158	22L1090	540	24.0	12,960	Y		2/28/2024

Parkhill

SMOOTH FML - INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
MATERIAL TYPE:	Smooth FML (60mil)		
MATERIAL IDENTIFICATION:	60-HD-00-BLK-AVG-STD-24.00		
MATERIAL MANUFACTURER:	Skaps		

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
41	2159	22L1090	540	24.0	12,960	Y		2/28/2024
42	2160	22L1090	540	24.0	12,960	Y		2/28/2024
43	2161	22L1090	540	24.0	12,960	Y		2/28/2024
44	2162	22L1090	540	24.0	12,960	Y		2/28/2024
45	2163	22L1090	540	24.0	12,960	Y		2/28/2024
46	2164	22L1090	540	24.0	12,960	Y	Y	2/28/2024
47	2165	22L1090	540	24.0	12,960	Y		2/28/2024
48	2167	22L1090	540	24.0	12,960	Y		2/28/2024
49	2169	22L1090	540	24.0	12,960	Y		2/28/2024
50	2170	22L1090	540	24.0	12,960	Y		2/28/2024
51	2171	22L1090	540	24.0	12,960	Y		2/28/2024
52	2172	22L1090	540	24.0	12,960	Y		2/28/2024
53	2173	22L1090	540	24.0	12,960	Y	Y	2/28/2024
54	2174	22L1090	540	24.0	12,960	Y		2/28/2024
55	2175	22L1090	540	24.0	12,960	Y		2/28/2024
56	2176	22L1090	540	24.0	12,960	Y		2/28/2024
57	2177	22L1090	540	24.0	12,960	Y		2/28/2024
58	2178	22L1090	540	24.0	12,960	Y		2/28/2024
59	2179	22L1090	540	24.0	12,960	Y		2/28/2024
60	2219	23K1102	540	24.0	12,960	Y		2/28/2024
61	2222	23K1102	540	24.0	12,960	Y	Y	2/28/2024
62	2224	23K1102	540	24.0	12,960	Y		2/28/2024
63	2225	23K1102	540	24.0	12,960	Y		2/28/2024
64	2226	23K1102	540	24.0	12,960	Y		2/28/2024
65	2227	23K1102	540	24.0	12,960	Y		2/28/2024
66	2228	23K1102	540	24.0	12,960	Y		2/28/2024
67	2229	23K1102	540	24.0	12,960	Y		2/28/2024
68	2230	23K1102	540	24.0	12,960	Y	Y	2/28/2024
69	2231	23K1102	540	24.0	12,960	Y		2/28/2024
70	2232	23K1102	540	24.0	12,960	Y		2/28/2024
71	2233	23K1102	540	24.0	12,960	Y		2/28/2024
72	2234	23K1102	540	24.0	12,960	Y		2/28/2024
73	2236	23K1102	540	24.0	12,960	Y		2/28/2024
74	2237	23K1102	540	24.0	12,960	Y		2/28/2024
75	2238	23K1102	540	24.0	12,960	Y		2/28/2024
76	2239	23K1102	540	24.0	12,960	Y	Y	2/28/2024
77	2240	23K1102	540	24.0	12,960	Y		2/28/2024
78	2241	23K1102	540	24.0	12,960	Y		2/28/2024
79	2242	23K1102	540	24.0	12,960	Y		2/28/2024
80	2243	23K1102	540	24.0	12,960	Y		2/28/2024

Parkhill

SMOOTH FML - INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3
MATERIAL TYPE:	Smooth FML (60mil)		
MATERIAL IDENTIFICATION:	60-HD-00-BLK-AVG-STD-24.00		
MATERIAL MANUFACTURER:	Skaps		

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
81	2244	23K1102	540	24.0	12,960	Y		2/28/2024
82	2245	23K1102	540	24.0	12,960	Y		2/28/2024
83	2246	23K1102	540	24.0	12,960	Y	Y	2/28/2024
84	2247	23K1102	540	24.0	12,960	Y		2/28/2024
85	2248	23K1102	540	24.0	12,960	Y		2/28/2024
86	2249	23K1102	540	24.0	12,960	Y		2/28/2024
87	2250	23K1102	540	24.0	12,960	Y		2/28/2024
88	2251	23K1102	540	24.0	12,960	Y		2/28/2024
89	2252	23K1102	540	24.0	12,960	Y		2/28/2024
90	2253	23K1102	540	24.0	12,960	Y		2/28/2024
91	2254	23K1102	540	24.0	12,960	Y	Y	2/28/2024
92	2255	23K1102	540	24.0	12,960	Y		2/28/2024
93	2256	23K1102	540	24.0	12,960	Y		2/28/2024
94	2257	23K1102	540	24.0	12,960	Y		2/28/2024
95	2258	23K1102	540	24.0	12,960	Y		2/28/2024

Parkhill

TEXTURED FML - INVENTORY CONTROL LOG

PROJECT NAME: OWL Landfill Cell 1B/2B
CLIENT: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

MATERIAL TYPE: Textured FML (60mil)

MATERIAL IDENTIFICATION: 60-HD-11-BLK-BLK-GRI-STD-24.00
MATERIAL MANUFACTURER: Skaps

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
1	1510	PQM821290	500	24.0	12,000	Y	Y	2/28/2024
2	1511	PQM821290	500	24.0	12,000	Y		2/28/2024
3	1512	PQM821290	500	24.0	12,000	Y		2/28/2024
4	1513	PQM821290	500	24.0	12,000	Y		2/28/2024
5	1514	PQM821290	500	24.0	12,000	Y		2/28/2024
6	1515	PQM821290	500	24.0	12,000	Y		2/28/2024
7	1516	PQM821290	500	24.0	12,000	Y		2/28/2024
8	1517	PQM821290	500	24.0	12,000	Y		2/28/2024
9	1518	PQM821290	500	24.0	12,000	Y	Y	2/28/2024
10	1519	PQM821290	500	24.0	12,000	Y		2/28/2024
11	1520	PQM821290	500	24.0	12,000	Y		2/28/2024
12	1521	PQM821290	500	24.0	12,000	Y		2/28/2024
13	1522	PQM821290	500	24.0	12,000	Y		2/28/2024
14	1523	PQM821290	500	24.0	12,000	Y		2/28/2024
15	1524	PQM821290	500	24.0	12,000	Y		2/28/2024
16	1525	PQM821290	500	24.0	12,000	Y		2/28/2024
17	1526	PQM821290	500	24.0	12,000	Y	Y	2/28/2024
18	1527	PQM821290	500	24.0	12,000	Y		2/28/2024
19	1530	PQM821290	500	24.0	12,000	Y		2/28/2024
20	1531	PQM821290	500	24.0	12,000	Y		2/28/2024
21	1532	PQM821290	500	24.0	12,000	Y		2/28/2024
22	1533	PQM821290	500	24.0	12,000	Y		2/28/2024
23	1534	PQM821290	500	24.0	12,000	Y		2/28/2024

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.4: Geocomposite Inventory Control Log

Parkhill

DOUBLE-SIDED GEOCOMPOSITE - INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1

MATERIAL TYPE: Double-Sided Geocomposite

MATERIAL IDENTIFICATION: TN 220-2-10
MATERIAL MANUFACTURER: Skaps

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
1	10001	EQUX 018404	200	14.50	2,900	Y	Y	7/25/2024
2	10002	EQUX 018404	200	14.50	2,900			7/25/2024
3	10003	EQUX 018404	200	14.50	2,900			7/25/2024
4	10004	EQUX 018404	200	14.50	2,900			7/25/2024
5	10005	EQUX 018404	200	14.50	2,900			7/25/2024
6	10006	EQUX 018404	200	14.50	2,900			7/25/2024
7	10007	EQUX 018404	200	14.50	2,900			7/25/2024
8	10008	EQUX 018404	200	14.50	2,900			7/25/2024
9	10009	EQUX 018404	200	14.50	2,900			7/25/2024
10	10010	EQUX 018404	200	14.50	2,900			7/25/2024
11	10011	EQUX 018404	200	14.50	2,900			7/25/2024
12	10012	EQUX 018404	200	14.50	2,900			7/25/2024
13	10013	EQUX 018404	200	14.50	2,900			7/25/2024
14	10014	EQUX 018404	200	14.50	2,900			7/25/2024
15	10015	EQUX 018404	200	14.50	2,900			7/25/2024
16	10016	EQUX 018404	200	14.50	2,900			7/25/2024
17	10017	EQUX 018404	200	14.50	2,900			7/25/2024
18	10018	EQUX 018404	200	14.50	2,900			7/25/2024
19	10019	EQUX 018404	200	14.50	2,900			7/25/2024
20	10020	EQUX 018404	200	14.50	2,900			7/25/2024
21	10021	EQUX 018404	200	14.50	2,900			7/25/2024
22	10022	EQUX 018404	200	14.50	2,900			7/25/2024
23	10023	EQUX 018404	200	14.50	2,900			7/25/2024
24	10024	EQUX 018404	200	14.50	2,900			7/25/2024
25	10025	EQUX 018404	200	14.50	2,900			7/25/2024
26	10026	EQUX 018404	200	14.50	2,900			7/25/2024
27	10027	EQUX 018404	200	14.50	2,900			7/25/2024
28	10028	EQUX 018404	200	14.50	2,900			7/25/2024
29	10029	EQUX 018404	200	14.50	2,900			7/25/2024
30	10030	EQUX 018404	200	14.50	2,900	Y		7/25/2024
31	10031	EQUX 018404	200	14.50	2,900			7/25/2024
32	10032	EQUX 018404	200	14.50	2,900			7/25/2024
33	10033	EQUX 018404	200	14.50	2,900			7/25/2024
34	10034	EQUX 018404	200	14.50	2,900			7/25/2024
35	10035	EQUX 018404	200	14.50	2,900			7/25/2024
36	10036	EQUX 018404	200	14.50	2,900		Y	7/25/2024
37	10037	EQUX 018404	200	14.50	2,900			7/25/2024
38	10038	EQUX 018404	200	14.50	2,900			7/25/2024
39	10039	EQUX 018404	200	14.50	2,900			7/25/2024
40	10040	EQUX 018404	200	14.50	2,900			7/25/2024

Parkhill

DOUBLE-SIDED GEOCOMPOSITE - INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2

MATERIAL TYPE: Double-Sided Geocomposite

MATERIAL IDENTIFICATION: TN 220-2-10
MATERIAL MANUFACTURER: Skaps

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
41	10041	EQUX 018404	200	14.50	2,900			7/25/2024
42	10042	EQUX 018404	200	14.50	2,900			7/25/2024
43	10043	EQUX 018404	200	14.50	2,900			7/25/2024
44	10044	EQUX 018404	200	14.50	2,900			7/25/2024
45	10045	EQUX 018404	200	14.50	2,900			7/25/2024
46	10046	EQUX 018404	200	14.50	2,900			7/25/2024
47	10047	EQUX 018404	200	14.50	2,900			7/25/2024
48	10048	EQUX 018404	200	14.50	2,900			7/25/2024
49	10049	EQUX 018404	200	14.50	2,900			7/25/2024
50	10050	EQUX 018404	200	14.50	2,900			7/25/2024
51	10051	EQUX 018404	200	14.50	2,900			7/25/2024
52	10052	EQUX 018404	200	14.50	2,900			7/25/2024
53	10053	EQUX 018404	200	14.50	2,900			7/25/2024
54	10054	EQUX 018404	200	14.50	2,900			7/25/2024
55	10055	EQUX 018404	200	14.50	2,900			7/25/2024
56	10056	EQUX 018404	200	14.50	2,900			7/25/2024
57	10057	EQUX 018404	200	14.50	2,900			7/25/2024
58	10058	EQUX 018404	200	14.50	2,900			7/25/2024
59	10059	EQUX 018404	200	14.50	2,900			7/25/2024
60	10060	EQUX 018404	200	14.50	2,900	Y		7/25/2024
61	10061	EQUX 018404	200	14.50	2,900			7/25/2024
62	10062	EQUX 018404	200	14.50	2,900			7/25/2024
63	10063	EQUX 018404	200	14.50	2,900			7/25/2024
64	10064	EQUX 018404	200	14.50	2,900			7/25/2024
65	10065	EQUX 018404	200	14.50	2,900			7/25/2024
66	10066	EQUX 018404	200	14.50	2,900			7/25/2024
67	10067	EQUX 018404	200	14.50	2,900			7/25/2024
68	10068	EQUX 018404	200	14.50	2,900			7/25/2024
69	10069	EQUX 018404	200	14.50	2,900			7/25/2024
70	10070	EQUX 018404	200	14.50	2,900			7/25/2024
71	10071	EQUX 018404	200	14.50	2,900		Y	7/25/2024
72	10072	EQUX 018404	200	14.50	2,900			7/25/2024
73	10073	EQUX 018404	200	14.50	2,900			7/25/2024
74	10074	EQUX 018404	200	14.50	2,900			7/25/2024
75	10075	EQUX 018404	200	14.50	2,900			7/25/2024
76	10076	EQUX 018404	200	14.50	2,900			7/25/2024
77	10077	EQUX 018404	200	14.50	2,900			7/25/2024
78	10078	EQUX 018404	200	14.50	2,900			7/25/2024
79	10079	EQUX 018404	200	14.50	2,900			7/25/2024
80	10080	EQUX 018404	200	14.5	2,900			7/25/2024

Parkhill

DOUBLE-SIDED GEOCOMPOSITE - INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3

MATERIAL TYPE: Double-Sided Geocomposite

MATERIAL IDENTIFICATION: TN 220-2-10
MATERIAL MANUFACTURER: Skaps

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
81	10081	EQUX 018404	200	14.50	2,900			7/25/2024
82	10082	EQUX 018404	200	14.50	2,900			7/25/2024
83	10083	EQUX 018404	200	14.50	2,900			7/25/2024
84	10084	EQUX 018404	200	14.50	2,900			7/25/2024
85	10085	EQUX 018404	200	14.50	2,900			7/25/2024
86	10086	EQUX 018404	200	14.50	2,900			7/25/2024
87	10087	EQUX 018404	200	14.50	2,900			7/25/2024
88	10088	EQUX 018404	200	14.50	2,900			7/25/2024
89	10089	EQUX 018404	200	14.50	2,900			7/25/2024
90	10090	EQUX 018404	200	14.50	2,900	Y		7/25/2024
91	10091	EQUX 018404	200	14.50	2,900			7/25/2024
92	10092	EQUX 018404	200	14.50	2,900			7/25/2024
93	10093	EQUX 018404	200	14.50	2,900			7/25/2024
94	10094	EQUX 018404	200	14.50	2,900			7/25/2024
95	10095	EQUX 018404	200	14.50	2,900			7/25/2024
96	10096	EQUX 018404	200	14.50	2,900			7/25/2024

Parkhill

SINGLE-SIDED GEOCOMPOSITE - INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1

MATERIAL TYPE: Single-Sided Geocomposite

MATERIAL IDENTIFICATION: TN 220-1-10
MATERIAL MANUFACTURER: Skaps

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
1	20001	EQUX 018404	250	14.50	3,625	Y		8/2/2024
2	20002	EQUX 018404	250	14.50	3,625		Y	8/2/2024
3	20003	EQUX 018404	250	14.50	3,625			8/2/2024
4	20004	EQUX 018404	250	14.50	3,625			8/2/2024
5	20005	EQUX 018404	250	14.50	3,625			8/2/2024
6	20006	EQUX 018404	250	14.50	3,625			8/2/2024
7	20007	EQUX 018404	250	14.50	3,625			8/2/2024
8	20008	EQUX 018404	250	14.50	3,625			8/2/2024
9	20009	EQUX 018404	250	14.50	3,625			8/2/2024
10	20010	EQUX 018404	250	14.50	3,625			8/2/2024
11	20011	EQUX 018404	250	14.50	3,625			8/2/2024
12	20012	EQUX 018404	250	14.50	3,625			8/2/2024
13	20013	EQUX 018404	250	14.50	3,625			8/2/2024
14	20014	EQUX 018404	250	14.50	3,625			8/2/2024
15	20015	EQUX 018404	250	14.50	3,625			8/2/2024
16	20016	EQUX 018404	250	14.50	3,625			8/2/2024
17	20017	EQUX 018404	250	14.50	3,625			8/2/2024
18	20018	EQUX 018404	250	14.50	3,625			8/2/2024
19	20019	EQUX 018404	250	14.50	3,625			8/2/2024
20	20020	EQUX 018404	250	14.50	3,625	Y		8/2/2024
21	20021	EQUX 018404	250	14.50	3,625			8/2/2024
22	20022	EQUX 018404	250	14.50	3,625			8/2/2024
23	20023	EQUX 018404	250	14.50	3,625			8/2/2024
24	20024	EQUX 018404	250	14.50	3,625			8/2/2024
25	20025	EQUX 018404	250	14.50	3,625			8/2/2024
26	20026	EQUX 018404	250	14.50	3,625			8/2/2024
27	20027	EQUX 018404	250	14.50	3,625			8/2/2024
28	20028	EQUX 018404	250	14.50	3,625			8/2/2024
29	20029	EQUX 018404	250	14.50	3,625		Y	8/2/2024
30	20030	EQUX 018404	250	14.50	3,625			8/2/2024
31	20031	EQUX 018404	250	14.50	3,625			8/2/2024
32	20032	EQUX 018404	250	14.50	3,625			8/2/2024
33	20033	EQUX 018404	250	14.50	3,625			8/2/2024
34	20034	EQUX 018404	250	14.50	3,625			8/2/2024
35	20035	EQUX 018404	250	14.50	3,625			8/2/2024
36	20036	EQUX 018404	250	14.50	3,625			8/2/2024
37	20037	EQUX 018404	250	14.50	3,625			8/2/2024
38	20038	EQUX 018404	250	14.50	3,625			8/2/2024
39	20039	EQUX 018404	250	14.50	3,625			8/2/2024
40	20040	EQUX 018404	250	14.50	3,625	Y		8/2/2024

Parkhill

SINGLE-SIDED GEOCOMPOSITE - INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
MATERIAL TYPE:	Single-Sided Geocomposite		
MATERIAL IDENTIFICATION:	TN 220-1-10		
MATERIAL MANUFACTURER:	Skaps		

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
41	20041	EQUX 018404	250	14.50	3,625			8/2/2024
42	20042	EQUX 018404	250	14.50	3,625			8/2/2024
43	20043	EQUX 018404	250	14.50	3,625			8/2/2024
44	20044	EQUX 018404	250	14.50	3,625			8/2/2024
45	20045	EQUX 018404	250	14.50	3,625			8/2/2024
46	20046	EQUX 018404	250	14.50	3,625			8/2/2024
47	20047	EQUX 018404	250	14.50	3,625			8/2/2024
48	20048	EQUX 018404	250	14.50	3,625			8/2/2024
49	20049	EQUX 018404	250	14.50	3,625			8/2/2024
50	20050	EQUX 018404	250	14.50	3,625			8/2/2024
51	20051	EQUX 018404	250	14.50	3,625			8/2/2024
52	20052	EQUX 018404	250	14.50	3,625			8/2/2024
53	20053	EQUX 018404	250	14.50	3,625			8/2/2024
54	20054	EQUX 018404	250	14.50	3,625			8/2/2024
55	20055	EQUX 018404	250	14.50	3,625			8/2/2024
56	20056	EQUX 018404	250	14.50	3,625		Y	8/2/2024
57	20057	EQUX 018404	250	14.50	3,625			8/2/2024
58	20058	EQUX 018404	250	14.50	3,625			8/2/2024
59	20059	EQUX 018404	250	14.50	3,625			8/2/2024
60	20060	EQUX 018404	250	14.50	3,625	Y		8/2/2024
61	20061	EQUX 018404	250	14.50	3,625			8/2/2024
62	20062	EQUX 018404	250	14.50	3,625			8/2/2024
63	20063	EQUX 018404	250	14.50	3,625			8/2/2024
64	20064	EQUX 018404	250	14.50	3,625			8/2/2024
65	20065	EQUX 018404	250	14.50	3,625			8/2/2024
66	20066	EQUX 018404	250	14.50	3,625			8/2/2024
67	20067	EQUX 018404	250	14.50	3,625			8/2/2024
68	20068	EQUX 018404	250	14.50	3,625			8/2/2024
69	20069	EQUX 018404	250	14.50	3,625			8/2/2024
70	20070	EQUX 018404	250	14.50	3,625			8/2/2024
71	20071	EQUX 018404	250	14.50	3,625			8/2/2024
72	20072	EQUX 018404	250	14.50	3,625			8/2/2024
73	20073	EQUX 018404	250	14.50	3,625			8/2/2024
74	20074	EQUX 018404	250	14.50	3,625			8/2/2024
75	20075	EQUX 018404	250	14.50	3,625			8/2/2024
76	20076	EQUX 018404	250	14.50	3,625			8/2/2024
77	20077	EQUX 018404	250	14.50	3,625			8/2/2024
78	20078	EQUX 018404	250	14.50	3,625			8/2/2024
79	20079	EQUX 018404	250	14.50	3,625			8/2/2024
80	20080	EQUX 018404	250	14.50	3,625	Y		8/2/2024

Parkhill

SINGLE-SIDED GEOCOMPOSITE - INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3
MATERIAL TYPE:	Single-Sided Geocomposite		
MATERIAL IDENTIFICATION:	TN 220-1-10		
MATERIAL MANUFACTURER:	Skaps		

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
81	20081	EQUX 018404	250	14.50	3,625			8/2/2024
82	20082	EQUX 018404	250	14.50	3,625			8/2/2024
83	20083	EQUX 018404	250	14.50	3,625		Y	8/2/2024
84	20084	EQUX 018404	250	14.50	3,625			8/2/2024
85	20085	EQUX 018404	250	14.50	3,625			8/2/2024
86	20086	EQUX 018404	250	14.50	3,625			8/2/2024
87	20087	EQUX 018404	250	14.50	3,625			8/2/2024
88	20088	EQUX 018404	250	14.50	3,625			8/2/2024
89	20089	EQUX 018404	250	14.50	3,625			8/2/2024
90	20090	EQUX 018404	250	14.50	3,625			8/2/2024
91	20091	EQUX 018404	250	14.50	3,625			8/2/2024
92	20092	EQUX 018404	250	14.50	3,625			8/2/2024
93	20093	EQUX 018404	250	14.50	3,625			8/2/2024
94	20094	EQUX 018404	250	14.50	3,625			8/2/2024
95	20095	EQUX 018404	250	14.50	3,625			8/2/2024
96	20096	EQUX 018404	250	14.50	3,625			8/2/2024
97	20097	EQUX 018404	250	14.50	3,625			8/2/2024
98	20098	EQUX 018404	250	14.50	3,625			8/2/2024
99	20099	EQUX 018404	250	14.50	3,625			8/2/2024
100	20100	EQUX 018404	250	14.50	3,625	Y		8/2/2024
101	20101	EQUX 018404	250	14.50	3,625			8/2/2024
102	20102	EQUX 018404	250	14.50	3,625			8/2/2024
103	20103	EQUX 018404	250	14.50	3,625			8/2/2024
104	20104	EQUX 018404	250	14.50	3,625			8/2/2024
105	20105	EQUX 018404	250	14.50	3,625			8/2/2024
106	20106	EQUX 018404	250	14.50	3,625			8/2/2024
107	20107	EQUX 018404	250	14.50	3,625			8/2/2024
108	20108	EQUX 018404	250	14.50	3,625			8/2/2024
109	20109	EQUX 018404	250	14.50	3,625			8/2/2024
110	20110	EQUX 018404	250	14.50	3,625		Y	8/2/2024
111	20111	EQUX 018404	250	14.50	3,625			8/2/2024
112	20112	EQUX 018404	250	14.50	3,625			8/2/2024
113	20113	EQUX 018404	250	14.50	3,625			8/2/2024
114	20114	EQUX 018404	250	14.50	3,625			8/2/2024
115	20115	EQUX 018404	250	14.50	3,625			8/2/2024
116	20116	EQUX 018404	250	14.50	3,625			8/2/2024
117	20117	EQUX 018404	250	14.50	3,625			8/2/2024
118	20118	EQUX 018404	250	14.50	3,625			8/2/2024
119	20119	EQUX 018404	250	14.50	3,625			8/2/2024
120	20120	EQUX 018404	250	14.50	3,625	Y		8/2/2024

Parkhill

SINGLE-SIDED GEOCOMPOSITE - INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	4
MATERIAL TYPE:	Single-Sided Geocomposite		
MATERIAL IDENTIFICATION:	TN 220-1-10		
MATERIAL MANUFACTURER:	Skaps		

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
121	20121	EQUX 018404	250	14.50	3,625			8/2/2024
122	20122	EQUX 018404	250	14.50	3,625			8/2/2024
123	20123	EQUX 018404	250	14.50	3,625			8/2/2024
124	20124	EQUX 018404	250	14.50	3,625			8/2/2024
125	20125	EQUX 018404	250	14.50	3,625			8/2/2024
126	20126	EQUX 018404	250	14.50	3,625			8/2/2024
127	20127	EQUX 018404	250	14.50	3,625			8/2/2024
128	20128	EQUX 018404	250	14.50	3,625			8/2/2024
129	20129	EQUX 018404	250	14.50	3,625			8/2/2024
130	20130	EQUX 018404	250	14.50	3,625			8/2/2024
131	20131	EQUX 018404	250	14.50	3,625			8/2/2024
132	20132	EQUX 018404	250	14.50	3,625			8/2/2024
133	20133	EQUX 018404	250	14.50	3,625			8/2/2024
134	20134	EQUX 018404	250	14.50	3,625			8/2/2024
135	20135	EQUX 018404	250	14.50	3,625			8/2/2024
136	20136	EQUX 018404	250	14.50	3,625			8/2/2024
137	20137	EQUX 018404	250	14.50	3,625		Y	8/2/2024
138	20138	EQUX 018404	250	14.50	3,625			8/2/2024
139	20139	EQUX 018404	250	14.50	3,625			8/2/2024
140	20140	EQUX 018404	250	14.50	3,625	Y		8/2/2024
141	20141	EQUX 018404	250	14.50	3,625			8/2/2024
142	20142	EQUX 018404	250	14.50	3,625			8/2/2024
143	20143	EQUX 018404	250	14.50	3,625			8/2/2024
144	20144	EQUX 018404	250	14.50	3,625			8/2/2024
145	20145	EQUX 018404	250	14.50	3,625			8/2/2024
146	20146	EQUX 018404	250	14.50	3,625			8/2/2024
147	20147	EQUX 018404	250	14.50	3,625			8/2/2024
148	20148	EQUX 018404	250	14.50	3,625			8/2/2024
149	20149	EQUX 018404	250	14.50	3,625			8/2/2024
150	20150	EQUX 018404	250	14.50	3,625			8/2/2024
151	20151	EQUX 018404	250	14.50	3,625			8/2/2024
152	20152	EQUX 018404	250	14.50	3,625			8/2/2024
153	20153	EQUX 018404	250	14.50	3,625			8/2/2024
154	20154	EQUX 018404	250	14.50	3,625			8/2/2024
155	20155	EQUX 018404	250	14.50	3,625			8/2/2024
156	20156	EQUX 018404	250	14.50	3,625			8/2/2024
157	20157	EQUX 018404	250	14.50	3,625			8/2/2024
158	20158	EQUX 018404	250	14.50	3,625			8/2/2024
159	20159	EQUX 018404	250	14.50	3,625			8/2/2024
160	20160	EQUX 018404	250	14.50	3,625	Y		8/2/2024

Parkhill

SINGLE-SIDED GEOCOMPOSITE - INVENTORY CONTROL LOG

PROJECT NAME:	OWL Landfill Cell 1B/2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	5

MATERIAL TYPE: Single-Sided Geocomposite

MATERIAL IDENTIFICATION: TN 220-1-10
MATERIAL MANUFACTURER: Skaps

	ROLL NUMBER	RESIN LOT NO.	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
			LENGTH (FT)	WIDTH (FT)	AREA (FT^2)			
161	20161	EQUX 018404	250	14.50	3,625			8/2/2024
162	20162	EQUX 018404	250	14.50	3,625			8/2/2024
163	20163	EQUX 018404	250	14.50	3,625			8/2/2024
164	20164	EQUX 018404	250	14.50	3,625		Y	8/2/2024
165	20165	EQUX 018404	250	14.50	3,625			8/2/2024
166	20166	EQUX 018404	250	14.50	3,625			8/2/2024
167	20167	EQUX 018404	250	14.50	3,625			8/2/2024
168	20168	EQUX 018404	250	14.50	3,625			8/2/2024
169	20169	EQUX 018404	250	14.50	3,625			8/2/2024
170	20170	EQUX 018404	250	14.50	3,625			8/2/2024
171	20171	EQUX 018404	250	14.50	3,625			8/2/2024
172	20172	EQUX 018404	250	14.50	3,625			8/2/2024
173	20173	EQUX 018404	250	14.50	3,625			8/2/2024

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.5: Leachate Pipe and Riser Pipe Inventory Control Log

Parkhill

LEACHATE COLLECTION AND RISER PIPE INVENTROY CONTROL LOG

PROJECT NAME: OWL Landfill Cell 1B/2B
CLIENT: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

MATERIAL TYPE Leachate Collection Pipe Inventory

EQUIPMENT TYPE	QUANTITY PER CELL	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	TOTAL LENGTH (FT)	DATE OF INVENTORY
		LENGTH (FT)	DIAMETER (FT)	PIPE SDR			
Solid HDPE	22	40	0.5	14.0	Y	880	6/14/2023
End Cap	1	6	0.5	14.0	N	NA	6/14/2023
Tee	1	6	0.5	14.0	N	NA	6/14/2023
HDPE Blind Flange 6" Thick	1	6	0.5	14.0	N	NA	6/14/2023
Stainless Steel Rod 36"	1	NA	0.5	NA	N	3	6/14/2023
Stainless Steel Nuts	16	NA	0.5	NA	N	NA	6/14/2023
Stainless Steel Washers	16	NA	0.5	NA	N	NA	6/14/2023
Stainless Steel Backup Ring	1	NA	0.5	NA	N	NA	6/14/2023
Neoprene Gasket	1	NA	0.5	NA	N	NA	6/14/2023
6" Rubber Cap	1	NA	0.5	NA	N	NA	6/14/2023

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.6: GCL Deployment Log

Parkhill

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
DEPLOYMENT LOCATION:	Cell 2B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	0137	150	15.0	2,250	5/7/2024
2	0193	150	15.0	2,250	5/7/2024
3	0191	150	15.0	2,250	5/7/2024
4	0391	97	15.0	1,455	5/7/2024
5	0391	53	15.0	795	5/7/2024
6	0325	150	15.0	2,250	5/7/2024
7	0190	150	15.0	2,250	5/7/2024
8	0392	150	15.0	2,250	5/7/2024
9	0319	42	15.0	630	5/7/2024
10	0319	108	15.0	1,620	5/7/2024
11	0296	150	15.0	2,250	5/7/2024
12	0189	150	15.0	2,250	5/7/2024
13	0259	135	15.0	2,025	5/7/2024
14	0259	15	15.0	225	5/8/2024
15	0262	150	15.0	2,250	5/8/2024
16	0297	150	15.0	2,250	5/8/2024
17	0213	150	15.0	2,250	5/8/2024
18	0258	80	15.0	1,200	5/8/2024
19	0258	70	15.0	1,050	5/8/2024
20	0218	150	15.0	2,250	5/8/2024
21	0214	150	15.0	2,250	5/8/2024
22	0250	150	15.0	2,250	5/8/2024
23	0179	25	15.0	375	5/8/2024
24	0179	125	15.0	1,875	5/8/2024
25	0289	150	15.0	2,250	5/8/2024
26	0216	150	15.0	2,250	5/8/2024
27	0227	119	15.0	1,785	5/8/2024
28	0227	31	15.0	465	5/8/2024
29	0139	150	15.0	2,250	5/8/2024
30	0221	150	15.0	2,250	5/8/2024
31	0284	150	15.0	2,250	5/8/2024
32	0181	66	15.0	990	5/8/2024
33	0181	84	15.0	1,260	5/8/2024
34	0252	150	15.0	2,250	5/8/2024
35	0254	150	15.0	2,250	5/8/2024
36	0324	150	15.0	2,250	5/8/2024
37	0223	10	15.0	150	5/8/2024
38	0223	140	15.0	2,100	5/8/2024
39	0121	150	15.0	2,250	5/8/2024
40	0087	150	15.0	2,250	5/8/2024
			TOTAL LINER PLACED (FT^2):	72,000	

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GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
DEPLOYMENT LOCATION:	Cell 2B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	0122	107	15.0	1,605	5/8/2024
42	0122	43	15.0	645	5/8/2024
43	0175	150	15.0	2,250	5/8/2024
44	0202	150	15.0	2,250	5/8/2024
45	0088	150	15.0	2,250	5/8/2024
46	0172	61	15.0	915	5/8/2024
47	0172	89	15.0	1,335	5/8/2024
48	0120	150	15.0	2,250	5/8/2024
49	0117	150	15.0	2,250	5/8/2024
50	0086	150	15.0	2,250	5/8/2024
51	0353	17	15.0	255	5/8/2024
52	0353	133	15.0	1,995	5/8/2024
53	0257	150	15.0	2,250	5/8/2024
54	0256	150	15.0	2,250	5/8/2024
55	0220	115	15.0	1,725	5/8/2024
56	0220	35	15.0	525	5/8/2024
57	0185	150	15.0	2,250	5/8/2024
58	0217	150	15.0	2,250	5/8/2024
59	0222	150	15.0	2,250	5/8/2024
60	0321	69	15.0	1,035	5/8/2024
61	0321	81	15.0	1,215	5/10/2024
62	0082	150	15.0	2,250	5/10/2024
63	0096	150	15.0	2,250	5/10/2024
64	0283	150	15.0	2,250	5/10/2024
65	0369	11	15.0	165	5/10/2024
66	0369	139	15.0	2,085	5/10/2024
67	0255	150	15.0	2,250	5/10/2024
68	0365	150	15.0	2,250	5/10/2024
69	0249	102	15.0	1,530	5/10/2024
70	0249	48	15.0	720	5/10/2024
71	0371	150	15.0	2,250	5/10/2024
72	0372	150	15.0	2,250	5/10/2024
73	0363	150	15.0	2,250	5/10/2024
74	0393	48	15.0	720	5/10/2024
75	0393	102	15.0	1,530	5/10/2024
76	0083	150	15.0	2,250	5/10/2024
77	0116	150	15.0	2,250	5/10/2024
78	0364	140	15.0	2,100	5/10/2024
79	0364	10	15.0	150	5/10/2024
80	0388	150	15.0	2,250	5/10/2024
			TOTAL LINER PLACED (FT^2):	69,750	

Parkhill

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3
DEPLOYMENT LOCATION:	Cell 2B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
81	0215	150	15.0	2,250	5/10/2024
82	0295	150	15.0	2,250	5/10/2024
83	0188	83	15.0	1,245	5/10/2024
84	0188	67	15.0	1,005	5/10/2024
85	0318	150	15.0	2,250	5/10/2024
86	0115	150	15.0	2,250	5/10/2024
87	0112	150	15.0	2,250	5/10/2024
88	0079	30	15.0	450	5/10/2024
89	0114	38	15.0	570	5/10/2024
90	0079	120	15.0	1,800	5/10/2024
91	0111	150	15.0	2,250	5/10/2024
92	0095	150	15.0	2,250	5/10/2024
93	0114	90	15.0	1,350	5/10/2024
94	0114	22	15.0	330	5/11/2024
95	0078	150	15.0	2,250	5/11/2024
96	0090	150	15.0	2,250	5/11/2024
97	0132	150	15.0	2,250	5/11/2024
98	0092	73	15.0	1,095	5/11/2024
99	0092	77	15.0	1,155	5/11/2024
100	0080	150	15.0	2,250	5/11/2024
101	0077	150	15.0	2,250	5/11/2024
102	0074	150	15.0	2,250	5/11/2024
103	0075	20	15.0	300	5/11/2024
104	0075	130	15.0	1,950	5/11/2024
105	0294	150	15.0	2,250	5/11/2024
106	0352	150	15.0	2,250	5/11/2024
107	0201	111	15.0	1,665	5/11/2024
108	0201	39	15.0	585	5/11/2024
109	0113	150	15.0	2,250	5/11/2024
110	0171	150	15.0	2,250	5/11/2024
111	0076	150	15.0	2,250	5/11/2024
112	0135	57	15.0	855	5/11/2024
113	0135	93	15.0	1,395	5/11/2024
114	0136	150	15.0	2,250	5/11/2024
115	0138	150	15.0	2,250	5/11/2024
116	0320	150	15.0	2,250	5/11/2024
117	0142	150	15.0	2,250	5/13/2024
118	0093	150	15.0	2,250	5/13/2024
119	0126	150	15.0	2,250	5/13/2024
120	0091	88	15.0	1,320	5/13/2024
			TOTAL LINER PLACED (FT^2):	71,070	

Parkhill

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	4
DEPLOYMENT LOCATION:	Cell 2B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
121	0091	62	15.0	930	5/13/2024
122	0291	150	15.0	2,250	5/13/2024
123	0293	150	15.0	2,250	5/13/2024
124	0081	150	15.0	2,250	5/13/2024
125	0124	31	15.0	465	5/13/2024
126	0124	119	15.0	1,785	5/13/2024
127	0108	150	15.0	2,250	5/13/2024
128	0133	150	15.0	2,250	5/13/2024
129	0131	125	15.0	1,875	5/13/2024
130	0131	25	15.0	375	5/14/2024
131	0378	89	15.0	1,335	5/14/2024
132	0378	61	15.0	915	5/14/2024
133	0377	47	15.0	705	5/14/2024
134	0377	103	15.0	1,545	5/14/2024
135	0351	7	15.0	105	5/14/2024
136	0351	112	15.0	1,680	5/14/2024
137	0351	31	15.0	465	5/14/2024
138	0379	82	15.0	1,230	5/14/2024
139	0379	68	15.0	1,020	5/14/2024
140	0376	45	15.0	675	5/14/2024
141	0376	105	15.0	1,575	5/14/2024
142	0375	6	15.0	90	5/14/2024
143	0375	111	15.0	1,665	5/14/2024
144	0375	33	15.0	495	5/14/2024
145	0101	79	15.0	1,185	5/14/2024
146	0101	71	15.0	1,065	5/14/2024
147	0155	40	15.0	600	5/14/2024
148	0155	110	15.0	1,650	5/14/2024
149	0097	107	15.0	1,605	5/14/2024
150	0097	43	15.0	645	5/14/2024
151	0127	68	15.0	1,020	5/14/2024
152	0127	82	15.0	1,230	5/14/2024
153	0099	34	15.0	510	5/14/2024
154	0099	116	15.0	1,740	5/14/2024
155	0153	113	15.0	1,695	5/14/2024
156	0153	37	15.0	555	5/14/2024
157	0129	77	15.0	1,155	5/14/2024
158	0129	73	15.0	1,095	5/14/2024
159	0094	39	15.0	585	5/14/2024
160	0094	111	15.0	1,665	5/14/2024
			TOTAL LINER PLACED (FT^2):	48,180	

Parkhill

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	5
DEPLOYMENT LOCATION:	Cell 2B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
161	0107	110	15.0	1,650	5/14/2024
162	0107	40	15.0	600	5/14/2024
163	0104	72	15.0	1,080	5/14/2024
164	0104	78	15.0	1,170	5/14/2024
165	0105	35	15.0	525	5/14/2024
166	0105	115	15.0	1,725	5/14/2024
167	0109	110	15.0	1,650	5/14/2024
168	0109	40	15.0	600	5/14/2024
169	0261	75	15.0	1,125	5/14/2024
170	0261	75	15.0	1,125	5/14/2024
171	0290	39	15.0	585	5/14/2024
172	0290	111	15.0	1,665	5/14/2024
173	0260	112	15.0	1,680	5/14/2024

Parkhill

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	0226	150	15.0	2,250	7/23/2024
2	0219	150	15.0	2,250	7/23/2024
3	0228	150	15.0	2,250	7/23/2024
4	0186	150	15.0	2,250	7/23/2024
5	0084	150	15.0	2,250	7/23/2024
6	0224	150	15.0	2,250	7/23/2024
7	0187	150	15.0	2,250	7/23/2024
8	0173	150	15.0	2,250	7/23/2024
9	0123	150	15.0	2,250	7/23/2024
10	0089	150	15.0	2,250	7/23/2024
11	0164	150	15.0	2,250	7/23/2024
12	0165	150	15.0	2,250	7/23/2024
13	0199	150	15.0	2,250	7/23/2024
14	0166	150	15.0	2,250	7/23/2024
15	0205	150	15.0	2,250	7/23/2024
16	0167	150	15.0	2,250	7/23/2024
17	0170	150	15.0	2,250	7/23/2024
18	0204	150	15.0	2,250	7/23/2024
19	0206	150	15.0	2,250	7/23/2024
20	0207	150	15.0	2,250	7/23/2024
21	0163	150	15.0	2,250	7/23/2024
22	0200	150	15.0	2,250	7/23/2024
23	0188	150	15.0	2,250	7/23/2024
24	0168	150	15.0	2,250	7/23/2024
25	0145	150	15.0	2,250	7/23/2024
26	0169	150	15.0	2,250	7/23/2024
27	0146	150	15.0	2,250	7/23/2024
28	0144	95	15.0	1,425	7/23/2024
29	0144	55	15.0	825	7/23/2024
30	0286	99	15.0	1,485	7/23/2024
31	0286	51	15.0	765	7/23/2024
32	0282	150	15.0	2,250	7/23/2024
33	0183	45	15.0	675	7/23/2024
34	0176	150	15.0	2,250	7/24/2024
35	0148	150	15.0	2,250	7/24/2024
36	0279	51	15.0	765	7/24/2024
37	0184	129	15.0	1,935	7/24/2024
38	0184	21	15.0	315	7/24/2024
39	0279	33	15.0	495	7/24/2024
40	0279	9	15.0	135	7/24/2024
			TOTAL LINER PLACED (FT^2):	76,320	

Parkhill

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	0279	57	15.0	855	7/24/2024
42	0265	134	15.0	2,010	7/24/2024
43	0265	16	15.0	240	7/24/2024
44	0183	105	15.0	1,575	7/24/2024
45	0177	63	15.0	945	7/24/2024
46	0177	87	15.0	1,305	7/24/2024
47	0373	96	15.0	1,440	7/24/2024
48	0373	54	15.0	810	7/24/2024
49	0281	130	15.0	1,950	7/24/2024
50	0281	20	15.0	300	7/24/2024
51	0335	66	15.0	990	7/24/2024
52	0287	102	15.0	1,530	7/24/2024
53	0287	48	15.0	720	7/24/2024
54	0280	139	15.0	2,085	7/24/2024
55	0280	11	15.0	165	7/24/2024
56	0335	84	15.0	1,260	7/24/2024
57	0285	94	15.0	1,410	7/24/2024
58	0285	56	15.0	840	7/24/2024
59	0288	133	15.0	1,995	7/24/2024
60	0288	17	15.0	255	7/24/2024
61	0367	66	15.0	990	7/24/2024
62	0248	112	15.0	1,680	7/24/2024
63	0248	38	15.0	570	7/24/2024
64	0243	150	15.0	2,250	7/24/2024
65	0367	84	15.0	1,260	7/24/2024
66	0366	115	15.0	1,725	7/24/2024
67	0366	35	15.0	525	7/24/2024
68	0241	150	15.0	2,250	7/24/2024
69	0370	11	15.0	165	7/24/2024
70	0370	139	15.0	2,085	7/24/2024
71	0337	54	15.0	810	7/24/2024
72	0337	96	15.0	1,440	7/24/2024
73	0149	92	15.0	1,380	7/24/2024
74	0149	58	15.0	870	7/24/2024
75	0339	135	15.0	2,025	7/24/2024
76	0339	15	15.0	225	7/24/2024
77	0338	64	15.0	960	7/24/2024
78	0374	115	15.0	1,725	7/24/2024
79	0374	35	15.0	525	7/24/2024
80	0196	150	15.0	2,250	7/24/2024
			TOTAL LINER PLACED (FT^2):	48,390	

Parkhill

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
81	0338	14	15.0	210	7/24/2024
82	0338	72	15.0	1,080	7/24/2024
83	0340	126	15.0	1,890	7/24/2024
84	0340	24	15.0	360	7/24/2024
85	0195	150	15.0	2,250	7/24/2024
86	0150	26	15.0	390	7/24/2024
87	0150	124	15.0	1,860	7/24/2024
88	0240	72	15.0	1,080	7/24/2024
89	0240	78	15.0	1,170	7/24/2024
90	0275	122	15.0	1,830	7/24/2024
91	0275	28	15.0	420	7/24/2024
92	0231	150	15.0	2,250	7/24/2024
93	0229	26	15.0	390	7/24/2024
94	0229	124	15.0	1,860	7/24/2024
95	0268	74	15.0	1,110	7/24/2024
96	0268	76	15.0	1,140	7/24/2024
97	0232	124	15.0	1,860	7/24/2024
98	0232	26	15.0	390	7/24/2024
99	0247	150	15.0	2,250	7/24/2024
100	0198	30	15.0	450	7/24/2024
101	0198	120	15.0	1,800	7/25/2024
102	0174	150	15.0	2,250	7/25/2024
103	0368	150	15.0	2,250	7/25/2024
104	0147	150	15.0	2,250	7/25/2024
105	0238	150	15.0	2,250	7/25/2024
106	0230	99	15.0	1,485	7/25/2024
107	0230	51	15.0	765	7/25/2024
108	0197	150	15.0	2,250	7/25/2024
109	0273	150	15.0	2,250	7/25/2024
110	0208	150	15.0	2,250	7/25/2024
111	0301	150	15.0	2,250	7/25/2024
112	0336	150	15.0	2,250	7/25/2024
113	0203	15	15.0	225	7/25/2024
114	0203	135	15.0	2,025	7/25/2024
115	0251	150	15.0	2,250	7/25/2024
116	0143	150	15.0	2,250	7/25/2024
117	0276	150	15.0	2,250	7/25/2024
118	0239	150	15.0	2,250	7/25/2024
119	0210	150	15.0	2,250	7/25/2024
120	0182	150	15.0	2,250	7/25/2024
			TOTAL LINER PLACED (FT^2):	64,290	

Parkhill

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	4
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
121	0119	78	15.0	1,170	7/25/2024
122	0119	72	15.0	1,080	7/25/2024
123	0253	150	15.0	2,250	7/25/2024
124	0162	150	15.0	2,250	7/25/2024
125	0237	150	15.0	2,250	7/25/2024
126	0310	150	15.0	2,250	7/25/2024
127	0178	150	15.0	2,250	7/25/2024
128	0118	150	15.0	2,250	7/25/2024
129	0221	67	15.0	1,005	7/25/2024
130	0221	83	15.0	1,245	7/25/2024
131	0085	150	15.0	2,250	7/25/2024
132	0323	150	15.0	2,250	7/25/2024
133	0244	134	15.0	2,010	7/25/2024
134	0244	16	15.0	240	7/26/2024
135	0212	150	15.0	2,250	7/26/2024
136	0209	62	15.0	930	7/26/2024
137	0209	88	15.0	1,320	7/26/2024
138	0390	150	15.0	2,250	7/26/2024
139	0152	31	15.0	465	7/26/2024
140	0152	119	15.0	1,785	7/26/2024
141	0235	150	15.0	2,250	7/26/2024
142	0266	150	15.0	2,250	7/26/2024
143	0299	119	15.0	1,785	7/26/2024
144	0299	31	15.0	465	7/26/2024
145	0211	150	15.0	2,250	7/26/2024
146	0298	90	15.0	1,350	7/26/2024
147	0298	60	15.0	900	7/26/2024
148	0245	150	15.0	2,250	7/26/2024
149	0300	150	15.0	2,250	7/26/2024
150	0246	150	15.0	2,250	7/26/2024
151	0330	150	15.0	2,250	7/26/2024
152	0271	150	15.0	2,250	7/29/2024
153	0334	150	15.0	2,250	7/29/2024
154	0264	102	15.0	1,530	7/29/2024
155	0264	48	15.0	720	7/29/2024
156	0307	150	15.0	2,250	7/29/2024
157	0270	150	15.0	2,250	7/29/2024
158	0347	54	15.0	810	7/29/2024
159	0347	96	15.0	1,440	7/29/2024
160	0277	150	15.0	2,250	7/29/2024
			TOTAL LINER PLACED (FT^2):	69,750	

Parkhill

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	5
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
161	0234	150	15.0	2,250	7/29/2024
162	0315	150	15.0	2,250	7/29/2024
163	0233	150	15.0	2,250	7/29/2024
164	0317	150	15.0	2,250	7/29/2024
165	0194	77	15.0	1,155	7/29/2024
166	0194	73	15.0	1,095	7/29/2024
167	0314	24	15.0	360	7/29/2024
168	0314	108	15.0	1,620	7/29/2024
169	0314	18	15.0	270	7/29/2024
170	0313	62	15.0	930	7/29/2024
171	0313	88	15.0	1,320	7/29/2024
172	0236	150	15.0	2,250	7/29/2024
173	0311	150	15.0	2,250	7/29/2024
174	0309	17	15.0	255	7/29/2024
175	0309	36	15.0	540	7/29/2024
176	0309	36	15.0	540	7/29/2024
177	0309	17	15.0	255	7/29/2024
178	0309	44	15.0	660	7/29/2024
179	0326	150	15.0	2,250	7/29/2024
180	0316	150	15.0	2,250	7/29/2024
181	0346	70	15.0	1,050	7/29/2024
182	0346	80	15.0	1,200	7/29/2024
183	0378	150	15.0	2,250	7/29/2024
184	0360	150	15.0	2,250	7/29/2024
185	0312	30	15.0	450	7/29/2024
186	0312	120	15.0	1,800	7/29/2024
187	0356	150	15.0	2,250	7/29/2024
188	0361	139	15.0	2,085	7/29/2024
189	0361	11	15.0	165	7/29/2024
190	0385	115	15.0	1,725	7/29/2024
191	0385	35	15.0	525	7/29/2024
192	0354	94	15.0	1,410	7/29/2024
193	0354	56	15.0	840	7/29/2024
194	0384	81	15.0	1,215	7/29/2024
195	0384	69	15.0	1,035	7/29/2024
196	0355	69	15.0	1,035	7/30/2024
197	0355	81	15.0	1,215	7/30/2024
198	0359	150	15.0	2,250	7/30/2024
199	0160	150	15.0	2,250	7/30/2024
200	0350	28	15.0	420	7/30/2024
			TOTAL LINER PLACED (FT^2):	54,420	

Parkhill

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	6
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
201	0350	122	15.0	1,830	7/30/2024
202	0322	150	15.0	2,250	7/30/2024
203	0380	135	15.0	2,025	7/30/2024
204	0380	15	15.0	225	7/30/2024
205	0159	150	15.0	2,250	7/30/2024
206	0158	150	15.0	2,250	7/30/2024
207	0154	95	15.0	1,425	7/30/2024
208	0154	55	15.0	825	7/30/2024
209	0348	150	15.0	2,250	7/30/2024
210	0128	150	15.0	2,250	7/30/2024
211	0327	54	15.0	810	7/30/2024
212	0327	96	15.0	1,440	7/30/2024
213	0349	41	15.0	615	7/30/2024
214	0349	109	15.0	1,635	7/30/2024
215	0292	23	15.0	345	7/30/2024
216	0292	127	15.0	1,905	7/30/2024
217	0156	150	15.0	2,250	7/30/2024
218	0134	150	15.0	2,250	7/30/2024
219	0332	111	15.0	1,665	7/30/2024
220	0332	39	15.0	585	7/30/2024
221	0141	89	15.0	1,335	7/30/2024
222	0141	61	15.0	915	7/30/2024
223	0140	67	15.0	1,005	7/30/2024
224	0140	83	15.0	1,245	7/30/2024
225	0308	150	15.0	2,250	7/30/2024
226	0106	150	15.0	2,250	7/30/2024
227	0130	25	15.0	375	7/30/2024
228	0130	21	15.0	315	7/30/2024
229	0130	22	15.0	330	7/30/2024
230	0130	22	15.0	330	7/30/2024
231	0130	23	15.0	345	7/30/2024
232	0130	23	15.0	345	7/30/2024
233	0130	14	15.0	210	7/30/2024
234	0125	10	15.0	150	7/30/2024
235	0125	140	15.0	2,100	7/30/2024
236	0110	150	15.0	2,250	7/30/2024
237	0157	150	15.0	2,250	7/30/2024
238	0161	125	15.0	1,875	7/30/2024
239	0161	25	15.0	375	7/30/2024
240	0098	150	15.0	2,250	7/30/2024
			TOTAL LINER PLACED (FT^2):	53,580	

Parkhill

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	7
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
241	0102	125	15.0	1,875	7/30/2024
242	0274	150	15.0	2,250	7/30/2024
243	0381	135	15.0	2,025	7/30/2024
244	0387	150	15.0	2,250	8/1/2024
245	0333	150	15.0	2,250	8/1/2024
246	0302	150	15.0	2,250	8/1/2024
247	0267	150	15.0	2,250	8/1/2024
248	0331	150	15.0	2,250	8/1/2024
249	0151	150	15.0	2,250	8/1/2024
250	0305	150	15.0	2,250	8/1/2024
251	0329	150	15.0	2,250	8/1/2024
252	0357	150	15.0	2,250	8/1/2024
253	0383	150	15.0	2,250	8/1/2024
254	0358	150	15.0	2,250	8/1/2024
255	0362	150	15.0	2,250	8/1/2024
256	0382	150	15.0	2,250	8/1/2024
257	0386	150	15.0	2,250	8/1/2024
258	0328	150	15.0	2,250	8/1/2024
259	0381	15	15.0	225	8/1/2024
260	0100	50	15.0	750	8/1/2024
261	0100	49	15.0	735	8/1/2024
262	0103	75	15.0	1,125	8/1/2024
263	0103	75	15.0	1,125	8/1/2024
264	0306	75	15.0	1,125	8/1/2024
265	0306	75	15.0	1,125	8/1/2024
266	0389	75	15.0	1,125	8/1/2024
267	0389	75	15.0	1,125	8/1/2024
268	0272	75	15.0	1,125	8/1/2024
269	0272	75	15.0	1,125	8/1/2024
270	0269	75	15.0	1,125	8/1/2024
271	0269	75	15.0	1,125	8/1/2024
272	0342	75	15.0	1,125	8/1/2024
273	0342	75	15.0	1,125	8/1/2024
274	0304	75	15.0	1,125	8/1/2024
275	0304	75	15.0	1,125	8/1/2024
276	0192	27	15.0	405	8/1/2024
277	0192	123	15.0	1,845	8/1/2024
278	0100	51	15.0	765	8/1/2024
279	0260	35	15.0	525	8/1/2024
280	0102	25	15.0	375	8/1/2024
			TOTAL LINER PLACED (FT^2):	61,275	

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.7: Secondary FML Deployment Log

Parkhill

SECONDARY FML - DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
DEPLOYMENT LOCATION:	Secondary - Cell 2B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	2152	540	24	12,960	5/7/2024
2	2140	540	24	12,960	5/7/2024
3	2133	540	24	12,960	5/8/2024
4	2173	540	24	12,960	5/8/2024
5	2142	540	24	12,960	5/8/2024
6	2141	540	24	12,960	5/8/2024
7	2150	540	24	12,960	5/8/2024
8	2146	540	24	12,960	5/8/2024
9	2242	540	24	12,960	5/10/2024
10	2258	540	24	12,960	5/10/2024
11	2256	540	24	12,960	5/10/2024
12	2238	540	24	12,960	5/10/2024
13	2234	540	24	12,960	5/10/2024
14	2228	540	24	12,960	5/11/2024
15	2224	540	24	12,960	5/11/2024
16	2160	540	24	12,960	5/11/2024
17	2241	540	24	12,960	5/13/2024
18	2219	540	24	12,960	5/13/2024
19	2244	120	24	2,880	5/14/2024
20	2244	120	24	2,880	5/14/2024
21	2244	120	24	2,880	5/14/2024
22	2244	120	24	2,880	5/14/2024
23	2135	120	24	2,880	5/14/2024
24	2135	120	24	2,880	5/14/2024
25	2135	120	24	2,880	5/14/2024
26	2135	120	24	2,880	5/14/2024
27	2144	120	24	2,880	5/14/2024
28	2144	120	24	2,880	5/14/2024
29	2144	120	24	2,880	5/14/2024
30	2144	118	24	2,832	5/14/2024
31	2229	118	24	2,832	5/14/2024
32	2229	118	24	2,832	5/14/2024
33	2229	118	24	2,832	5/14/2024
34	2229	118	24	2,832	5/14/2024
35	2229	53	24	1,272	5/14/2024
36	2124	65	24	1,560	5/14/2024
37	2124	118	24	2,832	5/14/2024
			TOTAL LINER PLACED (FT^2):	284,784	

Parkhill

SECONDARY FML - DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
DEPLOYMENT LOCATION:	Secondary - Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	1522	150	24	3,600	7/23/2024
2	1522	150	24	3,600	7/23/2024
3	1522	150	24	3,600	7/23/2024
4	1525	150	24	3,600	7/23/2024
5	1525	150	24	3,600	7/23/2024
6	1525	150	24	3,600	7/23/2024
7	1531	153	24	3,672	7/23/2024
8	1531	153	24	3,672	7/23/2024
9	1531	155	24	3,720	7/23/2024
10	1511	157	24	3,768	7/23/2024
11	1511	160	24	3,840	7/23/2024
12	1511	162	24	3,888	7/23/2024
13	1533	162	24	3,888	7/23/2024
14	1533	162	24	3,888	7/23/2024
15	1533	164	24	3,936	7/23/2024
16	1524	166	24	3,984	7/23/2024
17	1524	167	24	4,008	7/24/2024
18	1534	167	24	4,008	7/24/2024
19	1534	169	24	4,056	7/24/2024
20	1534	170	24	4,080	7/24/2024
21	1513	169	24	4,056	7/24/2024
22	1513	168	24	4,032	7/24/2024
23	1513	168	24	4,032	7/24/2024
24	1514	170	24	4,080	7/24/2024
25	1514	172	24	4,128	7/24/2024
26	1517	173	24	4,152	7/24/2024
27	1517	175	24	4,200	7/24/2024
28	1516	177	24	4,248	7/24/2024
29	1516	178	24	4,272	7/24/2024
30	1527	180	24	4,320	7/24/2024
31	1527	183	24	4,392	7/24/2024
32	1532	185	24	4,440	7/24/2024
33	1532	187	24	4,488	7/24/2024
34	1510	187	24	4,488	7/24/2024
35	2154	535	24	12,840	7/25/2024
36	2131	278	24	6,672	7/25/2024
37	2131	262	24	6,288	7/25/2024
38	2124	30	24	720	7/25/2024
39	2179	532	24	12,768	7/25/2024
40	2250	540	24	12,960	7/25/2024
			TOTAL LINER PLACED (FT^2):	187,584	

Parkhill

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SECONDARY FML - DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
DEPLOYMENT LOCATION:	Secondary - Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	2137	540	24	12,960	7/25/2024
42	2226	540	24	12,960	7/25/2024
43	2128	141	24	3,384	7/26/2024
44	2252	120	24	2,880	7/26/2024
45	2252	261	24	6,264	7/26/2024
46	2252	156	24	3,744	7/26/2024
47	2255	102	24	2,448	7/26/2024
48	2222	540	24	12,960	7/26/2024
49	2255	115	24 to 6	1,725	7/26/2024
50	2239	540	24	12,960	7/29/2024
51	2227	540	24	12,960	7/29/2024
52	2237	540	24	12,960	7/29/2024
53	2123	535	24	12,840	7/29/2024
54	2232	540	24	12,960	7/29/2024
55	2119	540	24	12,960	7/30/2024
56	2128	540	24	12,960	7/30/2024
57	2125	540	20	10,800	7/30/2024
58	2178	540	24	12,960	7/30/2024
59	2251	540	24	12,960	7/30/2024
60	2222	114	17 to 10	1,539	7/30/2024
61	2255	211	10 to 0	1,055	7/30/2024
62	2121	216	24	5,184	8/1/2024
63	2121	240	24	5,760	8/1/2024
64	2121	77	24	1,848	8/1/2024
65	2255	163	24	3,912	8/1/2024
66	2164	255	24	6,120	8/1/2024
67	2164	241	24	5,784	8/1/2024
68	2243	241	24	5,784	8/1/2024
69	2243	236	24	5,664	8/1/2024
70	2243	56	20	1,120	8/1/2024
71	2145	180	20	3,600	8/1/2024
72	2145	161	24	3,864	8/1/2024
73	2138	79	24	1,896	8/1/2024
74	2145	123	24	2,952	8/1/2024
75	2138	116	24	2,784	8/1/2024
76	2145	64	6	384	8/1/2024
77	2145	58	6	348	8/1/2024
			TOTAL LINER PLACED (FT^2):	246,243	

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.8: Secondary and Primary FML Pre-Weld Qualification Test Logs

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SECONDARY FML - TRIAL SEAMING TEST LOG

PROJECT NAME: OWL Landfill Cell 2B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

DATE	TIME	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		EXTRUSION WELDS		FIELD TEST RESULTS								COMMENTS
					Temperature	Speed	Barrel Temp	Pre-Heat Temp	PEEL #1		PEEL #2		PEEL #3		SHEAR		
5/7/2024	3:00 PM	MW/CD	CK	6292	850	6.5			117	125	139	137	115	127	144	149	
5/8/2024	12:20 PM	MW/CD	CK	6292	850	6.0			136	135	134	120	135	121	144	141	
5/8/2024	12:25 PM	MW/CD	TK	4682	850	7.5			123	127	118	112	128	122	145	149	
5/8/2024	12:30 PM	MW/CD	RD	903	850	6.5			131	114	123	120	126	121	147	148	
5/9/2024	12:25 PM	MW/CD	TK	26			520	420	119		117		121		143	154	
5/9/2024	2:35 PM	MW/CD	RD	398			530	425	144		136		139		147	143	
5/10/2024	10:15 AM	MW/CD	CK	6292	850	5.5			128	144	145	139	159	146	175	176	
5/10/2024	10:20 AM	MW/CD	RD	903	850	6.5			125	137	127	143	123	132	170	168	
5/10/2024	3:00 PM	MW/CD	CK	6292	850	5.5			129	140	130	134	125	132	155	157	
5/10/2024	3:05 PM	MW/CD	RD	903	850	6.5			132	130	137	131	135	133	156	154	
5/11/2024	7:00 AM	MW/CD	TK	26			520	420	134		132		129		177	169	
5/11/2024	9:30 AM	MW/CD	CK	903	850	5.5			122	141	129	134	125	132	151	158	
5/11/2024	9:35 AM	MW/CD	TK	4682	850	7.5			134	137	135	133	131	137	163	160	
5/13/2024	9:10 AM	MW/CD	CK	6292	850	5.5			113	132	124	128	116	119	159	160	
5/13/2024	9:35 AM	MW/CD	TK	4682	850	7.5			136	129	133	127	135	141	153	152	
5/13/2024	10:50 AM	MW/CD	TK	26			520	440	137		145		143		155	151	
5/13/2024	2:00 PM	MW/CD	TK	26			520	400	126		126		136		145	147	
5/14/2024	9:00 AM	MW/CD	TK	4682	850	7.5			126	141	125	135	121	134	157	154	
5/14/2024	9:15 AM	MW/CD	RD	903	850	7.5			123	123	131	132	127	133	133	153	
5/14/2024	10:00 AM	MW/CD	CK	6292	850	5.5			115	127	128	108	130	131	149	150	
5/14/2024	12:50 PM	MW/CD	TK	26			520	430	115		117		121		134	137	
5/14/2024	1:30 PM	MW/CD	CK	6292	850	6.0			118	123	117	125	121	124	137	135	
5/14/2024	1:35 PM	MW/CD	RD	903	850	7.5			120	124	115	120	119	125	133	131	
5/15/2024	7:00 AM	MW/CD	TK	26			520	440	113		111		119		143	146	

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PRIMARY FML - TRIAL SEAMING TEST LOG

PROJECT NAME: OWL Landfill Cell 2B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

DATE	TIME	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		EXTRUSION WELDS		FIELD TEST RESULTS								COMMENTS
					Temperature	Speed	Barrel Temp	Pre-Heat Temp	PEEL #1		PEEL #2		PEEL #3		SHEAR		
5/17/2024	12:45 PM	MW/CD	TK	4682	850	7.5			119	114	121	146	124	133	162	170	
5/17/2024	12:50 PM	MW/CD	RD	3385	850	7.0			141	134	140	135	127	139	164	163	
5/17/2024	12:55 PM	MW/CD	CK	6292	850	5.5			149	142	144	126	135	125	165	164	
5/17/2024	1:30 PM	MW/CD	TK	903	850	7.5			122	117	123	129	115	130	147	152	
5/18/2024	7:30 AM	MW/CD	CK	6292	850	5.5			123	122	125	115	107	127	155	159	
5/18/2024	7:35 AM	MW/CD	TK	903	850	7.5			128	139	108	125	115	129	151	153	
5/18/2024	7:40 AM	MW/CD	RD	3385	850	7.0			130	123	133	126	139	115	153	157	
5/18/2024	1:55 PM	MW/CD	CK	6292	850	5.5			107	124	105	121	109	124	137	134	
5/18/2024	2:00 PM	MW/CD	TK	903	850	7.5			128	124	120	132	121	118	134	138	
5/18/2024	2:05 PM	MW/CD	RD	3385	850	7.0			115	112	116	120	119	125	135	137	
5/20/2024	7:00 AM	MW/CD	CK	6292	850	5.5			113	125	119	127	117	129	155	152	
5/20/2024	7:05 AM	MW/CD	TK	903	850	7.0			115	137	119	123	121	135	149	151	
5/20/2024	7:10 AM	MW/CD	RD	3385	850	6.0			119	115	118	131	124	142	142	150	
5/20/2024	1:05 PM	MW/CD	CK	6292	850	5.5			122	120	118	123	128	123	135	137	
5/20/2024	1:10 PM	MW/CD	TK	903	850	7.5			115	109	118	105	108	116	133	135	
5/20/2024	1:15 PM	MW/CD	RD	3385	850	6.5			119	124	109	137	127	112	137	139	
5/21/2024	7:00 AM	MW/CD	MV	398			500	500	115		117		110		135	132	
5/21/2024	7:05 AM	MW/CD	TK	26			520	440	122		126		123		137	138	
5/21/2024	7:10 AM	MW/CD	RD	471			550	525	125		123		127		137	139	
5/21/2024	1:00 PM	MW/CD	MV	398			500	450	118		123		119		142	143	
5/21/2024	1:05 PM	MW/CD	RD	471			550	500	135		137		133		147	149	

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SECONDARY FML - TRIAL SEAMING TEST LOG

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

DATE	TIME	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		EXTRUSION WELDS		FIELD TEST RESULTS								COMMENTS
					Temperature	Speed	Barrel Temp	Pre-Heat Temp	PEEL #1		PEEL #2		PEEL #3		SHEAR		
7/23/2024	12:25 PM	MW/CD	CK	3402	850	6			118	128	140	130	134	131	135	137	S/S
7/23/2024	12:30 PM	MW/CD	CK	3402	850	6			115	123	117	125	133	121	138	135	T/S
7/23/2024	12:35 PM	MW/CD	BK	903	850	8.5			119	116	110	109	114	119	139	142	S/S
7/23/2024	12:40 PM	MW/CD	RD	3385	850	7.5			127	123	125	131	121	128	147	146	S/S
7/24/2024	12:40 PM	MW/CD	CK	3402	850	7.0			137	131	135	126	135	129	141	143	S/S
7/24/2024	12:45 PM	MW/CD	BK	903	850	8.5			131	128	132	135	139	131	138	137	S/S
7/24/2024	12:50 PM	MW/CD	RD	3385	850	7.5			127	137	139	135	132	137	138	140	S/S
7/25/2024	12:05 PM	MW/CD	CK	3402	850	6.0			125	131	133	128	124	134	138	140	S/S
7/25/2024	12:00 PM	MW/CD	CK	3402	850	6.0			126	138	121	134	116	124	140	141	S/T
7/25/2024	12:10 PM	MW/CD	RD	3385	850	7.5			112	131	116	128	117	125	135	136	S/T
7/25/2024	12:15 PM	MW/CD	RD	3385	850	7.5			125	115	117	123	138	114	133	135	S/S
7/25/2024	12:15 PM	MW/CD	RD	3385	850	7.5			120	115	125	113	131	114	135	135	S/S
7/25/2024	12:20 PM	MW/CD	BK	903	850	8.5			123	119	120	125	127	131	120	141	S/S
7/25/2024	2:40 PM	MW/CD	CK	4	850	7.0			123	119	120	125	128	133	140	141	S/S
7/26/2024	9:00 AM	MW/CD	CK	5902	850	7.0			128	120	145	129	124	133	138	139	S/S
7/26/2024	9:05 AM	MW/CD	BK	903	850	8.0			109	123	111	120	108	117	135	133	S/S
7/26/2024	12:05 PM	MW/CD	CK	5902	850	7.0			131	128	116	135	126	116	141	145	S/S
7/26/2024	12:10 PM	MW/CD	BK	903	850	8.5			119	125	121	130	116	125	145	147	S/S
7/27/2024	7:05 AM	MW/CD	RD	19			550	480	110		122		119		137	140	
7/27/2024	7:00 AM	MW/CD	SL	741			550	500	117		116		109		135	133	
7/27/2024	12:05 PM	MW/CD	MV	19			550	480	109		115		104		135	137	
7/27/2024	12:10 PM	MW/CD	SL	741			550	500	115		112		106		137	135	
7/29/2024	12:10 PM	MW/CD	CK	5902	850	6.5			122	125	116	134	134	125	133	135	
7/29/2024	12:15 PM	MW/CD	BK	903	850	8.5			134	131	133	13	141	144	139	137	
7/29/2024	12:20 PM	MW/CD	RD	3385	850	7.0			115	119	116	125	114	113	164	161	
7/30/2024	7:20 AM	MW/CD	RD	19			550	500	121		118		115		145	149	
7/30/2024	2:10 PM	MW/CD	CK	5902	850	6.5			122	111	130	120	127	112	151	134	
7/30/2024	2:15 PM	MW/CD	BK	903	850	8.5			122	113	116	112	113	114	135	137	
7/30/2024	2:20 PM	MW/CD	RD	3385	850	8.0			116	125	111	119	108	117	138	139	
7/31/2024	8:30 AM	MW/CD	RD	3385	850	7.0			107	112	113	108	115	112	141	139	
7/31/2024	8:35 AM	MW/CD	MV	19			550	500	107		119		108		147	145	
7/31/2024	12:30 PM	MW/CD	MV	19			550	480	125		117		114		139	137	
8/1/2024	12:05 PM	MW/CD	CK	5902	850	7.0			130	137	121	138	135	138	142	147	
8/1/2024	12:10 PM	MW/CD	BK	903	850	8.5			121	136	135	116	131	125	144	141	
8/1/2024	12:15 PM	MW/CD	RD	3385	850	7.0			115	130	111	126	111	119	140	141	
8/2/2024	7:35 AM	MW/CD	MV	741			540	500	108		107		112		138	140	
8/2/2024	7:30 AM	MW/CD	SL	407			500	480	112		107		109		132	135	
8/2/2024	12:20 PM	MW/CD	SL	407			500	480	111		104		107		135	133	

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SECONDARY FML - TRIAL SEAMING TEST LOG

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 2

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

DATE	TIME	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		EXTRUSION WELDS		FIELD TEST RESULTS								COMMENTS
					Temperature	Speed	Barrel Temp	Pre-Heat Temp	PEEL #1		PEEL #2		PEEL #3		SHEAR		
8/2/2024	12:25 PM	MW/CD	MV	741			500	480	115		109		110		132	133	
8/3/2024	7:00 AM	MW/CD	SL	741			500	480	105		110		112		146	142	

Parkhill

PRIMARY FML - TRIAL SEAMING TEST LOG

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

DATE	TIME	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		EXTRUSION WELDS		FIELD TEST RESULTS								COMMENTS
					Temperature	Speed	Barrel Temp	Pre-Heat Temp	PEEL #1		PEEL #2		PEEL #3		SHEAR		
8/10/2024	7:00 AM	MW/CD	CK	5902	850	6.5			124	129	121	126	136	140	147	142	
8/10/2024	7:05 AM	MW/CD	RD	3385	850	7.5			137	134	128	132	129	130	141	143	
8/12/2024	7:00 AM	MW/CD	CK	5902	850	6.0			117	115	118	107	112	119	145	141	
8/12/2024	7:05 AM	MW/CD	BK	903	850	7.5			112	119	109	115	113	117	145	147	
8/12/2024	7:10 AM	MW/CD	RD	3385	850	8.0			128	124	138	128	135	135	143	141	
8/12/2024	12:05 PM	MW/CD	CK	5902	850	6.0			105	107	108	121	108	118	137	138	
8/12/2024	12:10 PM	MW/CD	BK	903	850	8.5			110	116	113	108	107	109	140	138	
8/12/2024	12:05 PM	MW/CD	RD	3385	850	7.5			110	113	112	109	107	115	141	142	
8/12/2024	12:20 PM	MW/CD	CK	5902	850	8.0			113	118	114	124	110	121	140	137	S/T
8/13/2024	7:05 AM	MW/CD	BK	903	850	8.0			127	114	120	116	121	120	147	141	
8/13/2024	7:10 AM	MW/CD	RD	3385	850	7.5			114	134	136	120	130	140	141	144	
8/13/2024	7:15 AM	MW/CD	CK	5902	850	5.0			132	139	125	145	126	139	145	141	S/T
8/13/2024	7:20 AM	MW/CD	CK	5902	850	6.0			124	129	118	123	131	123	144	140	
8/13/2024	12:05 PM	MW/CD	BK	903	850	8.5			127	124	120	123	122	115	133	131	
8/13/2024	12:10 PM	MW/CD	CK	5902	850	6.0			122	119	125	125	119	121	135	137	
8/13/2024	12:55 PM	MW/CD	RD	3385	850	7.5			124	117	130	119	131	111	136	134	
8/14/2024	6:50 AM	MW/CD	CK	5902	850	6.0			110	121	106	113	124	118	149	147	
8/14/2024	6:55 AM	MW/CD	BK	903	850	8.0			132	117	120	130	123	125	145	146	
8/14/2024	7:00 AM	MW/CD	RD	3385	850	7.5			130	119	135	130	131	123	143	147	
8/14/2024	12:05 PM	MW/CD	CK	5902	850	6.0			112	115	124	110	125	117	134	135	
8/14/2024	12:10 PM	MW/CD	BK	903	850	8.5			127	109	122	110	119	115	133	135	
8/14/2024	12:15 PM	MW/CD	RD	3385	850	7.5			116	122	124	108	118	108	136	138	
8/15/2024	7:00 AM	MW/CD	CK	5902	850	6.0			123	134	112	130	115	126	141	143	
8/15/2024	7:05 AM	MW/CD	BK	903	850	8.0			124	125	126	129	124	137	142	140	
8/15/2024	7:10 AM	MW/CD	RD	3385	850	7.0			132	130	134	129	134	128	145	143	
8/15/2024	12:05 PM	MW/CD	CK	5902	850	6.0			124	120	131	129	123	124	132	137	
8/15/2024	12:10 PM	MW/CD	BK	903	850	8.5			123	112	118	119	123	127	135	134	
8/15/2024	12:15 PM	MW/CD	RD	3385	850	8.5			125	126	123	113	129	119	139	135	
8/16/2024	7:10 AM	MW/CD	CK	5902	850	6.0			108	134	118	109	114	127	151	142	
8/16/2024	7:15 AM	MW/CD	SL	471			500		128		123		136		139	135	
8/16/2024	7:20 AM	MW/CD	MV	19			520		119		117		1		133	136	
8/16/2024	12:05 PM	MW/CD	SL	471			500		123		116		119		133	135	
8/16/2024	12:10 PM	MW/CD	MV	19			520		119		123		125		131	130	
8/17/2024	7:00 AM	MW/CD	MV	19			540		123		121		124		140	142	
8/17/2024	7:05 AM	MW/CD	SL	471			500		131		130		125		139	141	
8/17/2024	7:30 AM	MW/CD	CK	5902	850	6.0			111	116	115	119	108	121	147	149	

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.9: Secondary FML Seaming Log

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SECONDARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 2B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
SEAMING LOCATION: Secondary - Cell 2B

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	5/7/2024	1/2	539	3:30 PM	CK	6292	850	6.5	1	MW/CD
2	5/7/2024	1/Tie-In North	24	4:39 PM	CK	6292	850	6.5		MW/CD
3	5/7/2024	2/Tie-In North	24	4:37 PM	CK	6292	850	6.5		MW/CD
4	5/8/2024	2/3	539	12:38 PM	CK	6292	850	6.0	2	MW/CD
5	5/8/2024	3/4	539	12:52 PM	TK	4682	850	7.5	3	MW/CD
6	5/8/2024	4/5	539	1:12 PM	RD	903	850	6.5	4	MW/CD
7	5/8/2024	5/6	539	2:03 PM	CK	6292	850	6.0	5	MW/CD
8	5/8/2024	6/7	539	3:23 PM	RD	903	850	6.5	6	MW/CD
9	5/8/2024	7/8	539	3:50 PM	CK	6292	850	6.0	7	MW/CD
10	5/8/2024	3/Tie-In	24	4:42 PM	RD	903	850	6.5		MW/CD
11	5/8/2024	4/Tie-In	24	4:40 PM	RD	903	850	6.5		MW/CD
12	5/8/2024	5/Tie-In	24	4:59 PM	RD	903	850	6.5		MW/CD
13	5/8/2024	6/Tie-In	24	4:57 PM	RD	903	850	6.5		MW/CD
14	5/8/2024	7/Tie-In	24	4:55 PM	RD	903	850	6.5		MW/CD
15	5/8/2024	8/Tie-In	24	4:53 PM	RD	903	850	6.5		MW/CD
16	5/10/2024	8/9	539	10:27 AM	CK	6292	850	5.5	8	MW/CD
17	5/10/2024	9/10	539	10:56 AM	RD	903	850	6.5	9	MW/CD
18	5/10/2024	10/11	539	3:18 PM	CK	6292	850	5.5	10	MW/CD
19	5/10/2024	11/12	539	3:36 PM	RD	903	850	6.5	11	MW/CD
20	5/10/2024	12/13	539	4:32 PM	RD	903	850	6.5	12	MW/CD
21	5/10/2024	9/Tie-In	24	5:11 PM	CK	6292	850	6.5		MW/CD
22	5/10/2024	10/Tie-In	24	5:10 PM	CK	6292	850	6.5		MW/CD
23	5/10/2024	11/Tie-In	24	5:19 PM	CK	6292	850	6.5		MW/CD
24	5/10/2024	12/Tie-In	24	5:17 PM	CK	6292	850	6.5		MW/CD
25	5/10/2024	13/Tie-In	24	5:15 PM	CK	6292	850	6.5		MW/CD

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SECONDARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 2B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 2

SEAMING LOCATION: Secondary - Cell 2B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	5/11/2024	13/14	539	9:51 AM	CK	903	850	5.5	13	MW/CD
2	5/11/2024	14/15	539	10:10 AM	TK	4682	850	7.0	14	MW/CD
3	5/11/2024	15/16 A	266	12:04 PM	TK	4682	850	7.0		MW/CD
4	5/11/2024	15/16 B	273	12:07 PM	CK	903	850	5.5	15	MW/CD
5	5/11/2024	16/Tie-In	24	1:00 PM	CK	4682	850	5.5		MW/CD
6	5/11/2024	15/Tie-In	24	1:02 PM	CK	903	850	5.5		MW/CD
7	5/11/2024	14/Tie-In	24	1:04 PM	CK	903	850	5.5		MW/CD
8	5/13/2024	16/17	539	9:30 AM	CK	6292	850	5.5	16	MW/CD
9	5/13/2024	17/18	539	9:45 AM	TK	4682	850	7.5	17	MW/CD
10	5/13/2024	17/Tie-In	24	11:08 AM	CK	6292	850	5.5		MW/CD
11	5/13/2024	18/Tie-In	24	11:06 AM	CK	6292	850	5.5		MW/CD
12	5/14/2024	19/20	120	9:30 AM	RD	903	850	5.5		MW/CD
13	5/14/2024	20/21	120	9:08 AM	TK	4682	850	7.5	19	MW/CD
14	5/14/2024	21/22	120	9:20 AM	TK	4682	850	7.5		MW/CD
15	5/14/2024	22/23	120	9:35 AM	TK	4682	850	7.5		MW/CD
16	5/14/2024	23/24	120	9:48 AM	TK	4682	850	7.5		MW/CD
17	5/14/2024	24/25	120	9:55 AM	RD	903	850	5.5	20	MW/CD
18	5/14/2024	25/26	120	10:05 AM	TK	4682	850	7.5		MW/CD
19	5/14/2024	26/27	120	10:15 AM	RD	903	850	5.5	21	MW/CD
20	5/14/2024	27/28	120	10:25 AM	TK	4682	850	7.5		MW/CD
21	5/14/2024	9/27	24	10:17 AM	CK	6292	850	6.0		MW/CD
22	5/14/2024	8/26	24	10:19 AM	CK	6292	850	6.0		MW/CD
23	5/14/2024	7/25	24	10:21 AM	CK	6292	850	6.0		MW/CD
24	5/14/2024	6/24	24	10:23 AM	CK	6292	850	6.0		MW/CD
25	5/14/2024	5/23	24	10:25 AM	CK	6292	850	6.0		MW/CD

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SECONDARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 2B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
SEAMING LOCATION: Secondary - Cell 2B

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 3

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	5/14/2024	4/22	24	10:27 AM	CK	6292	850	6.0		MW/CD
2	5/14/2024	3/21	24	10:29 AM	CK	6292	850	6.0		MW/CD
3	5/14/2024	2/20	24	10:31 AM	CK	6292	850	6.0		MW/CD
4	5/14/2024	1/19	24	10:33 AM	CK	6292	850	6.0	18	MW/CD
5	5/14/2024	28/29	120	10:30 AM	RD	903	850	5.5		MW/CD
6	5/14/2024	11/29	24	10:45 AM	RD	903	850	5.5		MW/CD
7	5/14/2024	10/28	24	10:50 AM	RD	903	850	5.5		MW/CD
8	5/14/2024	29/30	117	1:40 PM	RD	903	850	5.5		MW/CD
9	5/14/2024	30/31	117	1:45 PM	CK	6292	850	6.0	22	MW/CD
10	5/14/2024	31/32	117	1:58 PM	RD	903	850	6.0		MW/CD
11	5/14/2024	32/33	117	2:04 PM	CK	6292	850	6.0		MW/CD
12	5/14/2024	33/34	117	2:15 PM	RD	903	850	6.0	23	MW/CD
13	5/14/2024	34/36	64	2:32 PM	RD	903	850	6.0		MW/CD
14	5/14/2024	34/35	53	2:40 PM	RD	903	850	6.0	24	MW/CD
15	5/14/2024	35/36	24	2:30 PM	CK	6292	850	6.0		MW/CD
16	5/14/2024	35/37	53	2:42 PM	CK	6292	850	6.0		MW/CD
17	5/14/2024	36/37	64	2:34 PM	RD	903	850	6.0		MW/CD
18	5/14/2024	18/37	24	2:57 PM	CK	6292	850	6.0	25	MW/CD
19	5/14/2024	17/35	24	2:59 PM	CK	6292	850	6.0		MW/CD
20	5/14/2024	16/34	24	3:01 PM	CK	6292	850	6.0		MW/CD
21	5/14/2024	15/33	24	3:03 PM	CK	6292	850	6.0		MW/CD
22	5/14/2024	14/32	24	3:05 PM	CK	6292	850	6.0		MW/CD
23	5/14/2024	13/31	24	3:07 PM	CK	6292	850	6.0		MW/CD
24	5/14/2024	12/30	24	3:09 PM	CK	6292	850	6.0		MW/CD
25										

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SECONDARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

SEAMING LOCATION: Secondary - Cell 1B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	7/23/2024	1/2	150	12:59 PM	RD	3385	860	7.5	DT#1	MW/CD
2	7/23/2024	2/3	150	1:00 PM	BK	903	850	8.5		MW/CD
3	7/23/2024	1/Existing Tie-In	150	1:00 PM	CK	3402	850	6.0		MW/CD
4	7/23/2024	3/4	150	1:21 PM	CK	3402	850	6.0	DT#2	MW/CD
5	7/23/2024	4/5	150	1:18 PM	RD	3385	860	7.5		MW/CD
6	7/23/2024	5/6	150	1:24 PM	BK	903	850	8.5		MW/CD
7	7/23/2024	6/7	150	1:40 PM	RD	3385	860	7.5		MW/CD
8	7/23/2024	7/8	153	1:45 PM	BK	903	850	8.5	DT#3	MW/CD
9	7/23/2024	8/9	155	1:50 PM	CK	3402	850	6.0		MW/CD
10	7/23/2024	9/10	155	2:03 PM	RD	3385	860	7.5		MW/CD
11	7/23/2024	10/11	157	2:11 PM	BK	903	850	8.5		MW/CD
12	7/23/2024	11/12	160	2:18 PM	CK	3402	850	6.0		MW/CD
13	7/23/2024	12/13	162	2:33 PM	RD	3385	860	7.5	DT#4	MW/CD
14	7/23/2024	13/14	162	2:45 PM	BK	903	850	8.5		MW/CD
15	7/23/2024	14/15	164	2:48 PM	CK	3402	850	6.0		MW/CD
16	7/23/2024	15/16	164	3:15 PM	RD	3385	860	7.5	DT#5	MW/CD
17	7/24/2024	16/17	166	1:10 PM	RD	3385	850	7.5		MW/CD
18	7/24/2024	17/18	167	1:18 PM	CK	3402	850	7.0		MW/CD
19	7/24/2024	18/19	169	1:27 PM	BK	903	850	8.5	DT#6	MW/CD
20	7/24/2024	19/20	169	1:40 PM	RD	3385	850	7.5		MW/CD
21	7/24/2024	20/21	170	2:00 PM	BK	903	850	8.5		MW/CD
22	7/24/2024	21/22	169	2:05 PM	RD	3385	850	7.5	DT#7	MW/CD
23	7/24/2024	22/23	169	2:25 PM	BK	903	850	8.5		MW/CD
24	7/24/2024	23/24	168	2:31 PM	CK	3402	850	7.0	DT#8	MW/CD
25	7/24/2024	24/25	170	2:45 PM	RD	3385	850	7.5		MW/CD

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SECONDARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
SEAMING LOCATION: Secondary - Cell 1B

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 2

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	7/24/2024	25/26	172	3:06 PM	BK	903	850	8.5		MW/CD
2	7/24/2024	26/27	173	3:16 PM	RD	3385	850	7.5	DT#9	MW/CD
3	7/24/2024	27/28	175	3:32 PM	BK	903	850	8.5		MW/CD
4	7/24/2024	28/29	177	3:43 PM	RD	3385	850	7.5		MW/CD
5	7/24/2024	29/30	178	3:56 PM	BK	903	850	8.5	DT#10	MW/CD
6	7/24/2024	30/31	180	4:14 PM	RD	3385	850	7.5		MW/CD
7	7/24/2024	31/32	182	4:25 PM	BK	903	850	8.5		MW/CD
8	7/24/2024	32/33	184	4:40 PM	RD	3385	850	7.5	DT#11	MW/CD
9	7/24/2024	33/34	186	4:50 PM	BK	903	850	8.5		MW/CD
10	7/25/2024	35/36	24	12:32 PM	RD	3385	850	7.5		MW/CD
11	7/25/2024	23/35	6	12:40 PM	CK	3402	850	6.0		MW/CD
12	7/25/2024	22/35	24	12:41 PM	CK	3402	850	6.0		MW/CD
13	7/25/2024	21/35	24	12:43 PM	CK	3402	850	6.0		MW/CD
14	7/25/2024	20/35	24	12:45 PM	CK	3402	850	6.0		MW/CD
15	7/25/2024	19/35	24	12:47 PM	CK	3402	850	6.0		MW/CD
16	7/25/2024	18/35	24	12:49 PM	CK	3402	850	6.0		MW/CD
17	7/25/2024	17/35	24	12:51 PM	CK	3402	850	6.0		MW/CD
18	7/25/2024	16/35	24	12:53 PM	CK	3402	850	6.0		MW/CD
19	7/25/2024	15/35	24	12:55 PM	CK	3402	850	6.0		MW/CD
20	7/25/2024	14/35	24	12:57 PM	CK	3402	850	6.0		MW/CD
21	7/25/2024	13/35	24	12:59 PM	CK	3402	850	6.0		MW/CD
22	7/25/2024	12/35	24	1:01 PM	CK	3402	850	6.0		MW/CD
23	7/25/2024	11/35	24	1:03 PM	CK	3402	850	6.0		MW/CD
24	7/25/2024	10/35	24	1:05 PM	CK	3402	850	6.0	DT#12	MW/CD
25	7/25/2024	9/35	24	1:07 PM	CK	3402	850	6.0		MW/CD

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SECONDARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
SEAMING LOCATION: Secondary - Cell 1B

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 3

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	7/25/2024	8/35	24	1:07 PM	CK	3402	850	6.0		MW/CD
2	7/25/2024	7/35	24	1:09 PM	CK	3402	850	6.0		MW/CD
3	7/25/2024	6/35	24	1:11 PM	CK	3402	850	6.0		MW/CD
4	7/25/2024	5/35	24	1:13 PM	CK	3402	850	6.0		MW/CD
5	7/25/2024	4/35	24	1:15 PM	CK	3402	850	6.0		MW/CD
6	7/25/2024	3/35	24	1:17 PM	CK	3402	850	6.0		MW/CD
7	7/25/2024	2/35	24	1:19 PM	CK	3402	850	6.0		MW/CD
8	7/25/2024	1/35	24	1:21 PM	CK	3402	850	6.0		MW/CD
9	7/25/2024	34/36	24	12:43 PM	RD	3385	850	7.5		MW/CD
10	7/25/2024	33/36	24	12:45 PM	RD	3385	850	7.5		MW/CD
11	7/25/2024	32/36	24	12:47 PM	RD	3385	850	7.5		MW/CD
12	7/25/2024	31/36	24	12:49 PM	RD	3385	850	7.5		MW/CD
13	7/25/2024	30/36	24	12:51 PM	RD	3385	850	7.5		MW/CD
14	7/25/2024	29/36	24	12:53 PM	RD	3385	850	7.5		MW/CD
15	7/25/2024	28/36	24	12:55 PM	RD	3385	850	7.5	DT#13	MW/CD
16	7/25/2024	27/36	24	12:57 PM	RD	3385	850	7.5		MW/CD
17	7/25/2024	26/36	24	12:59 PM	RD	3385	850	7.5		MW/CD
18	7/25/2024	25/36	24	1:01 PM	RD	3385	850	7.5		MW/CD
19	7/25/2024	24/36	24	1:03 PM	RD	3385	850	7.5		MW/CD
20	7/25/2024	23/36	18	1:05 PM	RD	3385	850	7.5		MW/CD
21	7/25/2024	36/37	262	1:10 PM	BK	903	850	8.5	DT#19	MW/CD
22	7/25/2024	37/39	24	2:00 PM	BK	903	850	8.5		MW/CD
23	7/25/2024	37/40	21	2:18 PM	CK	3402	850	7.0		MW/CD
24	7/25/2024	35/39	540	1:59 PM	RD	3385	850	7.5	DT#14	MW/CD
25	7/25/2024	37/38	24	1:43 PM	BK	903	850	8.5		MW/CD

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SECONDARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 4

SEAMING LOCATION: Secondary - Cell 1B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	7/25/2024	39/40	540	2:20 PM	CK	3402	850	7.0	DT#15	MW/CD
2	7/25/2024	40/41	540	3:00 PM	CK	4	850	7.0	DT#16	MW/CD
3	7/25/2024	41/42	540	3:30 PM	RD	3385	850	7.5	DT#17	MW/CD
4	7/26/2024	35/Existing Tie-In	24	12:55 PM	CK	5902	850	7.0		MW/CD
5	7/26/2024	39/Existing Tie-In	24	12:57 PM	CK	5902	850	7.0		MW/CD
6	7/26/2024	40/Existing Tie-In	24	1:00 PM	CK	5902	850	7.0		MW/CD
7	7/26/2024	41/Existing Tie-In	24	1:04 PM	CK	5902	850	7.0		MW/CD
8	7/26/2024	42/Existing Tie-In	24	1:06 PM	CK	5902	850	7.0		MW/CD
9	7/26/2024	43/44	24	9:40 AM	BK	903	850	7.0		MW/CD
10	7/26/2024	38/44	30	9:40 AM	CK	5902	850	7.0		MW/CD
11	7/26/2024	37/44	90	9:43 AM	CK	5902	850	7.0		MW/CD
12	7/26/2024	37/43	141	9:50 AM	CK	5902	850	7.0	DT#20	MW/CD
13	7/26/2024	44/45	120	9:44 AM	BK	903	850	7.0		MW/CD
14	7/26/2024	45/47	102	10:06 AM	CK	5902	850	7.0		MW/CD
15	7/26/2024	46/47	24	10:08 AM	BK	903	850	7.0		MW/CD
16	7/26/2024	45/46	156	10:12 AM	CK	5902	850	7.0	DT#21	MW/CD
17	7/26/2024	43/45	141	9:54 AM	BK	903	850	7.0		MW/CD
18	7/26/2024	42/46	24	10:35 AM	CK	5902	850	7.0		MW/CD
19	7/26/2024	41/45	24	10:37 AM	CK	5902	850	7.0		MW/CD
20	7/26/2024	43/40	24	10:39 AM	CK	5902	850	7.0		MW/CD
21	7/26/2024	42/48 A	185	1:03 PM	BK	903	850	7.0	DT#18	MW/CD
22	7/26/2024	42/48 B	365	12:35 PM	CK	5902	850	7.0		MW/CD
23	7/26/2024	46/49	115	12:45 PM	BK	903	850	7.0		MW/CD
24	7/26/2024	48/49	24	12:41 PM	BK	903	850	7.0		MW/CD
25	7/26/2024	46/48	21	1:00 PM	BK	903	850	7.0		MW/CD

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SECONDARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 5

SEAMING LOCATION: Secondary - Cell 1B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	7/26/2024	48/Existing Tie-In North	24	1:08 PM	CK	5902	850	7.0		MW/CD
2	7/29/2024	50/Existing Tie-In West	520	1:16 PM	CK	5902	850	7.0	DT#22	MW/CD
3	7/29/2024	50/51	540	1:22 PM	BK	903	850	8.5	DT#23	MW/CD
4	7/29/2024	51/52	540	1:46 PM	RD	3385	850	7.0	DT#24	MW/CD
5	7/29/2024	52/53	530	2:10 PM	BK	903	850	8.5	DT#25	MW/CD
6	7/29/2024	53/54	530	2:18 PM	CK	5902	850	6.5	DT#26	MW/CD
7	7/29/2024	50/Existing Tie-In North	26	3:03 PM	RD	3385	850	7.0		MW/CD
8	7/29/2024	51/Existing Tie-In North	26	3:01 PM	RD	3385	850	7.0		MW/CD
9	7/29/2024	52/Existing Tie-In North	26	2:56 PM	RD	3385	850	7.0		MW/CD
10	7/29/2024	53/Existing Tie-In North	24	3:18 PM	RD	3385	850	7.0		MW/CD
11	7/29/2024	54/Existing Tie-In North	24	3:16 PM	RD	3385	850	7.0		MW/CD
12	7/30/2024	54/55	540	2:53 PM	RD	3385	850	8.0	DT#27	MW/CD
13	7/30/2024	55/56	540	3:02 PM	BK	903	850	8.5	DT#28	MW/CD
14	7/30/2024	56/57	540	3:30 PM	CK	5902	850	6.5	DT#29	MW/CD
15	7/30/2024	48/60	114	3:03 PM	CK	5902	850	6.5	DT#33	MW/CD
16	7/30/2024	48/61	211	2:40 PM	CK	5902	850	6.5		MW/CD
17	7/30/2024	59/60	114	4:34 PM	BK	903	850	8.5	DT#32	MW/CD
18	7/30/2024	59/61	196	4:15 PM	BK	903	850	8.5		MW/CD
19	7/30/2024	48/59	224	4:01 PM	BK	903	850	8.5		MW/CD
20	7/30/2024	60/61	12	2:57 PM	CK	5902	850	6.5		MW/CD
21	7/30/2024	49/59	6	4:00 PM	BK	903	850	8.5		MW/CD
22	7/30/2024	57/58	540	5:02 PM	BK	903	850	8.5	DT#30	MW/CD
23	7/30/2024	58/59	540	4:42 PM	CK	5902	850	6.5	DT#31	MW/CD
24										
25										

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SECONDARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
SEAMING LOCATION: Secondary - Cell 1B

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 6

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	7/31/2024	60/Existing Tie-In North	17	9:15 AM	RD	3385	850	8.0		MW/CD
2	7/31/2024	59/Existing Tie-In North	24	10:00 AM	MV	19	850	8.0		MW/CD
3	7/31/2024	58/Existing Tie-In North	24	8:40 AM	RD	3385	850	8.0		MW/CD
4	7/31/2024	57/Existing Tie-In North	16	8:42 AM	RD	3385	850	8.0		MW/CD
5	7/31/2024	56/Existing Tie-In North	24	8:44 AM	RD	3385	850	8.0		MW/CD
6	7/31/2024	55/Existing Tie-In North	24	8:46 AM	RD	3385	850	8.0		MW/CD
7	8/1/2024	50/62	24	12:38 PM	CK	5902	850	6.5		MW/CD
8	8/1/2024	50/63	24	12:41 PM	RD	3385	850	8.0		MW/CD
9	8/1/2024	62/63	216	12:43 PM	RD	3385	850	8.0	DT#35	MW/CD
10	8/1/2024	62/Existing Tie-In West	216	12:20 PM	CK	5902	850	6.5	DT#34	MW/CD
11	8/1/2024	63/64	77	1:12 PM	CK	5902	850	6.5		MW/CD
12	8/1/2024	64/65	24	1:11 PM	BK	903	850	8.5		MW/CD
13	8/1/2024	63/65	163	1:15 PM	CK	5902	850	6.5		MW/CD
14	8/1/2024	51/63	24	1:23 PM	RD	3385	850	8.0		MW/CD
15	8/1/2024	52/64	24	1:29 PM	RD	3385	850	8.0		MW/CD
16	8/1/2024	52/66	12	1:21 PM	BK	903	850	8.5		MW/CD
17	8/1/2024	53/66	24	3:00 PM	CK	5902	850	6.5		MW/CD
18	8/1/2024	54/66	12	1:39 PM	RD	3385	850	8.0		MW/CD
19	8/1/2024	64/66	77	1:23 PM	BK	903	850	8.5		MW/CD
20	8/1/2024	65/66	163	1:30 PM	BK	903	850	8.5	DT#36	MW/CD
21	8/1/2024	66/67	241	1:42 PM	RD	3385	850	8.0		MW/CD
22	8/1/2024	67/68	241	1:43 PM	CK	5902	850	6.5	DT#37	MW/CD
23	8/1/2024	68/69	236	1:46 PM	BK	903	850	8.5	DT#38	MW/CD
24	8/1/2024	70/71	24	2:14 PM	RD	3385	850	8.0		MW/CD
25	8/1/2024	69/70	56	2:08 PM	BK	903	850	8.5		MW/CD

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SECONDARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
SEAMING LOCATION: Secondary - Cell 1B

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 7

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	8/1/2024	69/71	180	2:15 PM	BK	903	850	8.5	DT#39	MW/CD
2	8/1/2024	72/74	123	2:33 PM	RD	3385	850	8.0		MW/CD
3	8/1/2024	49/74	123	2:26 PM	CK	5902	850	6.5		MW/CD
4	8/1/2024	47/77	58	2:38 PM	BK	903	850	8.5		MW/CD
5	8/1/2024	47/76	40	2:44 PM	BK	903	850	8.5	DT#43	MW/CD
6	8/1/2024	76/77	6	2:36 PM	BK	903	850	8.5		MW/CD
7	8/1/2024	75/77	58	3:10 PM	BK	903	850	8.5		MW/CD
8	8/1/2024	75/76	64	3:15 PM	BK	903	850	8.5		MW/CD
9	8/1/2024	46/76	24	2:49 PM	BK	903	850	8.5		MW/CD
10	8/1/2024	74/75	24	3:20 PM	BK	903	850	8.5		MW/CD
11	8/1/2024	72/74	123	2:33 PM	RD	3385	850	8.0		MW/CD
12	8/1/2024	70/72	56	2:50 PM	RD	3385	850	8.0	DT#40	MW/CD
13	8/1/2024	71/72	161	3:01 PM	RD	3385	850	8.0		MW/CD
14	8/1/2024	71/73	79	3:29 PM	RD	3385	850	8.0		MW/CD
15	8/1/2024	72/73	24	3:09 PM	RD	3385	850	8.0		MW/CD
16	8/1/2024	72/75	45	3:15 PM	RD	3385	850	8.0	DT#41	MW/CD
17	8/1/2024	73/75	79	3:18 PM	RD	3385	850	8.0		MW/CD
18	8/1/2024	59/74	24	2:48 PM	CK	5902	850	6.5	DT#42	MW/CD
19	8/1/2024	58/72	24	2:50 PM	CK	5902	850	6.5		MW/CD
20	8/1/2024	57/70	20	2:52 PM	CK	5902	850	6.5		MW/CD
21	8/1/2024	56/69	24	2:54 PM	CK	5902	850	6.5		MW/CD
22	8/1/2024	55/68	24	2:56 PM	CK	5902	850	6.5		MW/CD
23	8/1/2024	54/67	24	2:58 PM	CK	5902	850	6.5		MW/CD
24										
25										

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.10: Secondary FML Seam Pressure Test Log

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SECONDARY FML - SEAMING PRESSURE TEST LOG

PROJECT NAME: OWL Landfill Cell 2B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

PRESSURE TEST LOCATION: Secondary - Cell 2B

PROJECT SPECIFICATIONS	
MIN START PSI:	35
TEST DURATION:	5 minutes
MAX PSI DROP:	30

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	5/7/2024	1/Tie-In	AS	4:45 PM	4:50 PM	35	35	MW/CD	PASS
2	5/7/2024	2/Tie-In B	AS	4:40 PM	4:45 PM	35	35	MW/CD	PASS
3	5/7/2024	2/Tie-In A	AS	4:40 PM	4:45 PM	35	35	MW/CD	PASS
4	5/7/2024	1/2	AS	4:30 PM	4:35 PM	35	35	MW/CD	PASS
5	5/8/2024	2/3	AS	1:50 PM	1:55 PM	35	35	MW/CD	PASS
6	5/8/2024	3/4	AS	1:55 PM	2:00 PM	35	35	MW/CD	PASS
7	5/8/2024	4/5	AS	2:15 PM	2:20 PM	35	35	MW/CD	PASS
8	5/8/2024	5/6	AS	3:20 PM	3:25 PM	35	35	MW/CD	PASS
9	5/8/2024	6/7	AS	4:30 PM	4:35 PM	35	35	MW/CD	PASS
10	5/8/2024	7/8	AS	5:00 PM	5:05 PM	35	35	MW/CD	PASS
11	5/9/2024	3/Tie-In	AS	7:35 AM	7:40 AM	35	35	MW/CD	PASS
12	5/9/2024	4/Tie-In	AS	7:35 AM	7:40 AM	35	35	MW/CD	PASS
13	5/9/2024	5/Tie-In	AS	7:30 AM	7:35 AM	35	35	MW/CD	PASS
14	5/9/2024	6/Tie-In	AS	7:30 AM	7:35 AM	35	35	MW/CD	PASS
15	5/9/2024	7/Tie-In	AS	7:25 AM	7:30 AM	35	35	MW/CD	PASS
16	5/9/2024	8/Tie-In	AS	7:25 AM	7:30 AM	35	35	MW/CD	PASS
17	5/10/2024	8/9	AS	1:00 PM	1:05 PM	35	35	MW/CD	PASS
18	5/10/2024	9/10	AS	1:10 PM	1:15 PM	35	35	MW/CD	PASS
19	5/10/2024	10/11 A	AS	4:45 PM	4:50 PM	35	35	MW/CD	PASS
20	5/10/2024	11/12	AS	4:35 PM	4:40 PM	35	35	MW/CD	PASS
21	5/10/2024	12/13	AS	5:35 PM	5:40 PM	35	35	MW/CD	PASS
22	5/10/2024	10/11 B	AS	4:50 PM	4:55 PM	35	35	MW/CD	PASS
23	5/10/2024	9/Tie-In A	AS	5:15 PM	5:20 PM	35	35	MW/CD	PASS
24	5/10/2024	9/Tie-In B	AS	5:20 PM	5:25 PM	35	35	MW/CD	PASS
25	5/10/2024	10/Tie-In	AS	5:30 PM	5:35 PM	35	0	MW/CD	FAIL
26									
27	5/10/2024	11/Tie-In	AS	5:45 PM	5:50 PM	35	35	MW/CD	PASS
28	5/10/2024	12/Tie-In	AS	5:50 PM	5:55 PM	35	35	MW/CD	PASS
29	5/10/2024	13/Tie-In	AS	5:55 PM	6:00 PM	35	35	MW/CD	PASS
30	5/11/2024	13/14 A	AS	10:10 AM	10:15 AM	35	35	MW/CD	PASS
31	5/11/2024	13/14 B	AS	12:10 PM	12:15 PM	35	35	MW/CD	PASS
32	5/11/2024	14/15 A	AS	12:20 PM	12:25 PM	35	35	MW/CD	PASS
33	5/11/2024	14/15 B	AS	12:00 PM	12:05 PM	35	35	MW/CD	PASS
34	5/11/2024	15/16 A	AS	12:40 PM	12:45 PM	35	35	MW/CD	PASS
35	5/11/2024	15/16 B	AS	12:35 PM	12:40 PM	35	35	MW/CD	PASS
36	5/13/2024	14/Tie-In	AS	9:10 AM	9:15 AM	35	35	MW/CD	PASS
37	5/13/2024	15/Tie-In A	AS	9:05 AM	9:10 AM	35	35	MW/CD	PASS
38	5/13/2024	16/Tie-In	AS	9:00 AM	9:05 AM	35	35	MW/CD	PASS
39	5/13/2024	16/17	AS	10:35 AM	10:40 AM	35	35	MW/CD	PASS
40	5/13/2024	17/18	AS	10:40 AM	10:45 AM	35	35	MW/CD	PASS
41	5/13/2024	17/Tie-In	AS	11:15 AM	11:20 AM	35	35	MW/CD	PASS
42	5/13/2024	18/Tie-In	AS	11:15 AM	11:20 AM	35	35	MW/CD	PASS
43	5/14/2024	19/20	AS	9:50 AM	9:55 AM	35	35	MW/CD	PASS
44	5/14/2024	20/21	AS	9:20 AM	9:25 AM	35	35	MW/CD	PASS
45	5/14/2024	21/22	AS	9:35 AM	9:40 AM	35	35	MW/CD	PASS
46	5/14/2024	22/23	AS	9:45 AM	9:50 AM	35	35	MW/CD	PASS
47	5/14/2024	23/24	AS	10:00 AM	10:05 AM	35	35	MW/CD	PASS
48	5/14/2024	24/25	AS	10:10 AM	10:15 AM	35	35	MW/CD	PASS
49	5/14/2024	25/26	AS	10:20 AM	10:25 AM	35	35	MW/CD	PASS
50	5/14/2024	26/27	AS	10:30 AM	10:35 AM	35	35	MW/CD	PASS

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SECONDARY FML - SEAMING PRESSURE TEST LOG

PROJECT NAME: OWL Landfill Cell 2B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 2

PROJECT SPECIFICATIONS	
MIN START PSI:	35
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PRESSURE TEST LOCATION: Secondary - Cell 2B

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	5/14/2024	27/28	AS	10:35 AM	10:40 AM	35	35	MW/CD	PASS
2	5/14/2024	28/29	AS	10:40 AM	10:45 AM	35	35	MW/CD	PASS
3	5/14/2024	11/29	AS	12:30 PM	12:35 PM	35	35	MW/CD	PASS
4	5/14/2024	10/28	AS	12:35 PM	12:40 PM	35	35	MW/CD	PASS
5	5/14/2024	9/27	AS	12:40 PM	12:45 PM	35	35	MW/CD	PASS
6	5/14/2024	8/26	AS	12:45 PM	12:50 PM	35	35	MW/CD	PASS
7	5/14/2024	7/25	AS	12:50 PM	12:55 PM	35	35	MW/CD	PASS
8	5/14/2024	6/24	AS	12:55 PM	1:00 PM	35	35	MW/CD	PASS
9	5/14/2024	5/23	AS	1:00 PM	1:05 PM	35	35	MW/CD	PASS
10	5/14/2024	4/22	AS	1:05 PM	1:10 PM	35	35	MW/CD	PASS
11	5/14/2024	3/21	AS	1:10 PM	1:15 PM	35	35	MW/CD	PASS
12	5/14/2024	2/20	AS	1:15 PM	1:20 PM	35	35	MW/CD	PASS
13	5/14/2024	1/19	AS	1:20 PM	1:25 PM	35	35	MW/CD	PASS
14	5/14/2024	29/30	AS	1:50 PM	1:55 PM	35	35	MW/CD	PASS
15	5/14/2024	30/31 A	AS	2:00 PM	2:05 PM	35	35	MW/CD	PASS
16	5/14/2024	30/31 B	AS	2:00 PM	2:05 PM	35	35	MW/CD	PASS
17	5/14/2024	31/32	AS	2:10 PM	2:15 PM	35	35	MW/CD	PASS
18	5/14/2024	32/33	AS	2:20 PM	2:25 PM	35	35	MW/CD	PASS
19	5/14/2024	33/34	AS	2:25 PM	2:30 PM	35	35	MW/CD	PASS
20	5/14/2024	34/35 A	AS	2:40 PM	2:45 PM	35	35	MW/CD	PASS
21	5/14/2024	34/35 B	AS	2:40 PM	2:45 PM	35	35	MW/CD	PASS
22	5/14/2024	34/36	AS	2:30 PM	2:35 PM	35	35	MW/CD	PASS
23	5/14/2024	35/36	AS	2:30 PM	2:35 PM	35	35	MW/CD	PASS
24	5/14/2024	35/37	AS	2:35 PM	2:40 PM	35	35	MW/CD	PASS
25	5/14/2024	36/37	AS	2:35 PM	2:40 PM	35	35	MW/CD	PASS
26	5/14/2024	18/37	AS	3:00 PM	3:05 PM	35	35	MW/CD	PASS
27	5/14/2024	17/35	AS	3:05 PM	3:10 PM	35	35	MW/CD	PASS
28	5/14/2024	16/34	AS	3:10 PM	3:15 PM	35	35	MW/CD	PASS
29	5/14/2024	15/33	AS	3:15 PM	3:20 PM	35	35	MW/CD	PASS
30	5/14/2024	14/32	AS	3:20 PM	3:25 PM	35	35	MW/CD	PASS
31	5/14/2024	13/31	AS	3:25 PM	3:30 PM	35	35	MW/CD	PASS
32	5/14/2024	12/30	AS	3:30 PM	3:35 PM	35	35	MW/CD	PASS
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Parkhill

SECONDARY FML - SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
OWNER:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1

PROJECT SPECIFICATIONS	
MIN START PSI:	35
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PRESSURE TEST LOCATION: Secondary - Cell 1B

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	7/23/2024	1/Existing Tie-In B	AS	1:13 PM	1:18 PM	35	35	MW/CD	PASS
2	7/23/2024	1/Existing Tie-In A	AS	1:17 PM	1:22 PM	35	35	MW/CD	PASS
3	7/23/2024	1/2	AS	1:21 PM	1:26 PM	35	35	MW/CD	PASS
4	7/23/2024	2/3	AS	1:22 PM	1:27 PM	35	35	MW/CD	PASS
5	7/23/2024	3/4	AS	1:31 PM	1:36 PM	35	35	MW/CD	PASS
6	7/23/2024	4/5	AS	1:36 PM	1:41 PM	35	35	MW/CD	PASS
7	7/23/2024	5/6	AS	1:38 PM	1:43 PM	35	35	MW/CD	PASS
8	7/23/2024	6/7	AS	1:41 PM	1:46 PM	35	35	MW/CD	PASS
9	7/23/2024	7/8	AS	2:00 PM	2:05 PM	35	35	MW/CD	PASS
10	7/23/2024	8/9	AS	2:04 PM	2:09 PM	35	35	MW/CD	PASS
11	7/23/2024	9/10	AS	2:22 PM	2:27 PM	35	35	MW/CD	PASS
12	7/23/2024	10/11	AS	2:30 PM	2:35 PM	35	35	MW/CD	PASS
13	7/23/2024	11/12	AS	2:41 PM	2:46 PM	35	35	MW/CD	PASS
14	7/23/2024	12/13	AS	2:53 PM	2:58 PM	35	35	MW/CD	PASS
15	7/23/2024	13/14 A	AS	3:05 PM	3:10 PM	35	35	MW/CD	PASS
16	7/23/2024	14/15	AS	3:15 PM	3:20 PM	35	35	MW/CD	PASS
17	7/23/2024	15/16	AS	3:45 PM	3:50 PM	35	35	MW/CD	PASS
18	7/24/2024	16/17	AS	1:24 PM	1:29 PM	35	35	MW/CD	PASS
19	7/24/2024	17/18	AS	1:42 PM	1:47 PM	35	35	MW/CD	PASS
20	7/24/2024	18/19	AS	1:44 PM	1:49 PM	35	35	MW/CD	PASS
21	7/24/2024	19/20	AS	2:00 PM	2:05 PM	35	35	MW/CD	PASS
22	7/24/2024	20/21	AS	2:23 PM	2:28 PM	35	35	MW/CD	PASS
23	7/24/2024	21/22 A	AS	2:29 PM	2:34 PM	35	35	MW/CD	PASS
24	7/24/2024	21/22 B	AS	2:35 PM	2:40 PM	35	35	MW/CD	PASS
25	7/24/2024	22/23 A	AS	2:41 PM	2:46 PM	35	35	MW/CD	PASS
26									
27	7/24/2024	23/24 A	AS	3:01 PM	3:06 PM	35	35	MW/CD	PASS
28	7/24/2024	23/24 B	AS	3:07 PM	3:12 PM	35	35	MW/CD	PASS
29	7/24/2024	24/25	AS	3:16 PM	3:21 PM	35	35	MW/CD	PASS
30	7/24/2024	25/26	AS	3:32 PM	3:37 PM	35	35	MW/CD	PASS
31	7/24/2024	26/27	AS	3:35 PM	3:40 PM	35	35	MW/CD	PASS
32	7/24/2024	27/28	AS	4:17 PM	4:22 PM	35	35	MW/CD	PASS
33	7/23/2024	13/14 B	AS	3:02 PM	3:07 PM	35	35	MW/CD	PASS
34	7/24/2024	28/29 A	AS	4:20 PM	4:25 PM	35	35	MW/CD	PASS
35	7/24/2024	29/30	AS	4:22 PM	4:27 PM	35	35	MW/CD	PASS
36	7/24/2024	30/31	AS	4:36 PM	4:41 PM	35	35	MW/CD	PASS
37	7/24/2024	331/32	AS	4:45 PM	4:50 PM	35	35	MW/CD	PASS
38	7/24/2024	32/33	AS	5:01 PM	5:06 PM	35	35	MW/CD	PASS
39	7/24/2024	33/34	AS	5:07 PM	5:12 PM	35	35	MW/CD	PASS
40	7/24/2024	28/29 B	AS	4:16 PM	4:21 PM	35	35	MW/CD	PASS
41	7/24/2024	28/29 C	AS	4:16 PM	4:21 PM	35	35	MW/CD	PASS
42	7/25/2024	35/36	AS	12:36 PM	12:41 PM	35	35	MW/CD	PASS
43	7/25/2024	23/35	AS	12:46 PM	12:51 PM	35	35	MW/CD	PASS
44	7/25/2024	22/35	AS	12:46 PM	12:51 PM	35	35	MW/CD	PASS
45	7/25/2024	21/35	AS	12:51 PM	12:56 PM	35	35	MW/CD	PASS
46	7/25/2024	20/35	AS	12:51 PM	12:56 PM	35	35	MW/CD	PASS
47	7/25/2024	19/35	AS	12:56 PM	1:01 PM	35	35	MW/CD	PASS
48	7/25/2024	18/35	AS	12:56 PM	1:01 PM	35	35	MW/CD	PASS
49	7/25/2024	17/35	AS	1:01 PM	1:06 PM	35	35	MW/CD	PASS
50	7/25/2024	16/35	AS	1:01 PM	1:06 PM	35	35	MW/CD	PASS

Parkhill

SECONDARY FML - SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
OWNER:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2

PROJECT SPECIFICATIONS	
MIN START PSI:	35
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PRESSURE TEST LOCATION: Secondary - Cell 1B

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	7/25/2024	15/35	AS	1:09 PM	1:14 PM	35	35	MW/CD	PASS
2	7/25/2024	14/35	AS	1:09 PM	1:14 PM	35	35	MW/CD	PASS
3	7/25/2024	13/35	AS	1:31 PM	1:36 PM	35	35	MW/CD	PASS
4	7/25/2024	12/35	AS	1:31 PM	1:36 PM	35	35	MW/CD	PASS
5	7/25/2024	11/35	AS	1:39 PM	1:44 PM	35	35	MW/CD	PASS
6	7/25/2024	10/35	AS	1:39 PM	1:44 PM	35	35	MW/CD	PASS
7	7/25/2024	9/35	AS	1:37 PM	1:42 PM	35	35	MW/CD	PASS
8	7/25/2024	8/35	AS	1:37 PM	1:42 PM	35	35	MW/CD	PASS
9	7/25/2024	7/35	AS	1:42 PM	1:47 PM	35	35	MW/CD	PASS
10	7/25/2024	6/35	AS	1:42 PM	1:47 PM	35	35	MW/CD	PASS
11	7/25/2024	5/35	AS	2:00 PM	2:05 PM	35	35	MW/CD	PASS
12	7/25/2024	4/35	AS	2:00 PM	2:05 PM	35	35	MW/CD	PASS
13	7/25/2024	3/35	AS	2:02 PM	2:07 PM	35	35	MW/CD	PASS
14	7/25/2024	2/35	AS	2:02 PM	2:07 PM	35	35	MW/CD	PASS
15	7/25/2024	1/35	AS	2:08 PM	2:13 PM	35	35	MW/CD	PASS
16	7/25/2024	23/36	AS	2:20 PM	2:25 PM	35	35	MW/CD	PASS
17	7/25/2024	24/36	AS	2:20 PM	2:25 PM	35	35	MW/CD	PASS
18	7/25/2024	25/36	AS	2:23 PM	2:28 PM	35	35	MW/CD	PASS
19	7/25/2024	26/36	AS	2:23 PM	2:28 PM	35	35	MW/CD	PASS
20	7/25/2024	27/36	AS	2:26 PM	2:31 PM	35	35	MW/CD	PASS
21	7/25/2024	28/36	AS	2:26 PM	2:31 PM	35	35	MW/CD	PASS
22	7/25/2024	29/36	AS	2:28 PM	2:33 PM	35	35	MW/CD	PASS
23	7/25/2024	30/36	AS	2:28 PM	2:33 PM	35	35	MW/CD	PASS
24	7/25/2024	31/36	AS	2:30 PM	2:35 PM	35	35	MW/CD	PASS
25	7/25/2024	32/36	AS	2:30 PM	2:35 PM	35	35	MW/CD	PASS
26	7/25/2024	33/36	AS	2:36 PM	2:41 PM	35	35	MW/CD	PASS
27	7/25/2024	34/36	AS	2:36 PM	2:41 PM	35	35	MW/CD	PASS
28	7/25/2024	36/38	AS	2:41 PM	2:46 PM	35	35	MW/CD	PASS
29	7/25/2024	37/38	AS	3:00 PM	3:05 PM	35	35	MW/CD	PASS
30	7/25/2024	37/39	AS	3:00 PM	3:05 PM	35	35	MW/CD	PASS
31	7/25/2024	35/39 A	AS	3:20 PM	3:25 PM	35	35	MW/CD	PASS
32	7/25/2024	35/39 B	AS	3:22 PM	3:27 PM	35	35	MW/CD	PASS
33	7/25/2024	35/39 C	AS	3:35 PM	3:40 PM	35	35	MW/CD	PASS
34	7/25/2024	35/39 D	AS	3:39 PM	3:44 PM	35	35	MW/CD	PASS
35	7/25/2024	39/40 A	AS	3:42 PM	3:47 PM	35	35	MW/CD	PASS
36	7/25/2024	39/40 B	AS	3:42 PM	3:47 PM	35	35	MW/CD	PASS
37	7/25/2024	40/41 A	AS	3:45 PM	3:50 PM	35	35	MW/CD	PASS
38	7/26/2024	41/42 A	AS	7:23 AM	7:28 AM	35	35	MW/CD	PASS
39	7/26/2024	41/42 B	AS	7:23 AM	7:28 AM	35	35	MW/CD	PASS
40	7/26/2024	38/44	AS	9:43 AM	9:48 AM	35	35	MW/CD	PASS
41	7/26/2024	43/44	AS	9:51 AM	9:56 AM	35	35	MW/CD	PASS
42	7/26/2024	37/44	AS	9:51 AM	9:56 AM	35	35	MW/CD	PASS
43	7/26/2024	37/43	AS	10:04 AM	10:09 AM	35	35	MW/CD	PASS
44	7/26/2024	45/47	AS	10:17 AM	10:22 AM	35	35	MW/CD	PASS
45	7/26/2024	46/47	AS	10:17 AM	10:22 AM	35	35	MW/CD	PASS
46	7/26/2024	44/45	AS	9:57 AM	10:02 AM	35	35	MW/CD	PASS
47	7/26/2024	43/44	AS	10:07 AM	10:12 AM	35	35	MW/CD	PASS
48	7/26/2024	40/41 B	AS	10:34 AM	10:39 AM	35	35	MW/CD	PASS
49	7/26/2024	42/46	AS	10:43 AM	10:48 AM	35	35	MW/CD	PASS
50	7/26/2024	41/45	AS	10:43 AM	10:48 AM	35	35	MW/CD	PASS

Parkhill

SECONDARY FML - SEAMING PRESSURE TEST LOG

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 3

PRESSURE TEST LOCATION: Secondary - Cell 1B

PROJECT SPECIFICATIONS	
MIN START PSI:	35
TEST DURATION:	5 minutes
MAX PSI DROP:	30

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	7/26/2024	40/43	AS	12:03 PM	12:08 PM	35	35	MW/CD	PASS
2	7/26/2024	48/49	AS	12:45 PM	12:50 PM	35	35	MW/CD	PASS
3	7/26/2024	46/48	AS	1:07 PM	1:12 PM	35	35	MW/CD	PASS
4	7/26/2024	42/48 A	AS	1:37 PM	1:42 PM	35	35	MW/CD	PASS
5	7/26/2024	42/48 B	AS	1:15 PM	1:20 PM	35	35	MW/CD	PASS
6	7/26/2024	48/Existing Tie-In	AS	1:21 PM	1:26 PM	35	35	MW/CD	PASS
7	7/26/2024	42/Existing Tie-In A	AS	1:21 PM	1:26 PM	35	35	MW/CD	PASS
8	7/26/2024	42/Existing Tie-In B	AS	1:23 PM	1:28 PM	35	35	MW/CD	PASS
9	7/26/2024	41/Existing Tie-In A	AS	1:23 PM	1:28 PM	35	35	MW/CD	PASS
10	7/26/2024	41/Existing Tie-In B	AS	1:24 PM	1:29 PM	35	35	MW/CD	PASS
11	7/26/2024	40/Existing Tie-In A	AS	1:24 PM	1:29 PM	35	35	MW/CD	PASS
12	7/26/2024	40/Existing Tie-In B	AS	1:26 PM	1:31 PM	35	35	MW/CD	PASS
13	7/27/2024	35/Existing Tie-In	AS	8:21 AM	8:26 AM	35	35	MW/CD	PASS
14	7/27/2024	39/Existing Tie-In	AS	8:23 AM	8:28 AM	35	35	MW/CD	PASS
15	7/29/2024	50/51	AS	2:12 PM	2:17 PM	35	35	MW/CD	PASS
16	7/29/2024	50/Existing Tie-In West A	AS	2:08 PM	2:13 PM	35	35	MW/CD	PASS
17	7/29/2024	50/Existing Tie-In West B	AS	2:09 PM	2:14 PM	35	35	MW/CD	PASS
18	7/29/2024	50/Existing Tie-In West C	AS	2:07 PM	2:12 PM	35	35	MW/CD	PASS
19	7/29/2024	50/Existing Tie-In West D	AS	1:43 PM	1:48 PM	35	35	MW/CD	PASS
20	7/29/2024	50/Existing Tie-In West E	AS	1:43 PM	1:48 PM	35	35	MW/CD	PASS
21	7/29/2024	51/52	AS	2:33 PM	2:38 PM	35	35	MW/CD	PASS
22	7/29/2024	52/53	AS	2:51 PM	2:56 PM	35	35	MW/CD	PASS
23	7/29/2024	53/54	AS	3:46 PM	3:51 PM	35	35	MW/CD	PASS
24	7/29/2024	50/Existing Tie-In North	AS	3:10 PM	3:15 PM	35	35	MW/CD	PASS
25	7/29/2024	51/Existing Tie-In North	AS	3:06 PM	3:11 PM	35	35	MW/CD	PASS
26	7/29/2024	52/Existing Tie-In North A	AS	3:03 PM	3:08 PM	35	35	MW/CD	PASS
27	7/29/2024	52/Existing Tie-In North B	AS	3:04 PM	3:09 PM	35	35	MW/CD	PASS
28	7/30/2024	60/61	AS	3:16 PM	3:21 PM	35	35	MW/CD	PASS
29	7/30/2024	48/60 A	AS	3:22 PM	3:27 PM	35	35	MW/CD	PASS
30	7/30/2024	48/60 B	AS	3:31 PM	3:36 PM	35	35	MW/CD	PASS
31	7/30/2024	48/61	AS	3:12 PM	3:17 PM	35	35	MW/CD	PASS
32	7/30/2024	54/55 A	AS	3:37 PM	3:42 PM	35	35	MW/CD	PASS
33	7/30/2024	54/55 B	AS	4:20 PM	4:25 PM	35	35	MW/CD	PASS
34	7/30/2024	55/56	AS	4:26 PM	4:31 PM	35	35	MW/CD	PASS
35	7/30/2024	56/57	AS	4:32 PM	4:37 PM	35	35	MW/CD	PASS
36	7/31/2024	57/58	AS	7:37 AM	7:42 AM	35	35	MW/CD	PASS
37	7/30/2024	58/59 A	AS	4:53 PM	4:58 PM	35	35	MW/CD	PASS
38	7/30/2024	48/59	AS	4:40 PM	4:45 PM	35	35	MW/CD	PASS
39	7/30/2024	59/60	AS	4:51 PM	4:56 PM	35	35	MW/CD	PASS
40	7/30/2024	59/61	AS	4:44 PM	4:49 PM	35	35	MW/CD	PASS
41	7/31/2024	58/59 B	AS	7:52 AM	7:57 AM	35	35	MW/CD	PASS
42	7/31/2024	60/Existing Tie-In North	AS	10:02 AM	10:07 AM	35	35	MW/CD	PASS
43	7/31/2024	58/Existing Tie-In North A	AS	9:02 AM	9:07 AM	35	35	MW/CD	PASS
44	7/31/2024	58/Existing Tie-In North B	AS	9:03 AM	9:08 AM	35	35	MW/CD	PASS
45	7/31/2024	57/Existing Tie-In North A	AS	9:04 AM	9:09 AM	35	35	MW/CD	PASS
46	7/31/2024	57/Existing Tie-In North B	AS	9:05 AM	9:10 AM	35	35	MW/CD	PASS
47	7/31/2024	56/Existing Tie-In North	AS	9:06 AM	9:11 AM	35	35	MW/CD	PASS
48	7/31/2024	55/Existing Tie-In North	AS	9:27 AM	9:42 AM	35	35	MW/CD	PASS
49	7/31/2024	54/Existing Tie-In North	AS	9:36 AM	9:41 AM	35	35	MW/CD	PASS
50	7/31/2024	53/Existing Tie-In North A	AS	9:31 AM	9:36 AM	35	35	MW/CD	PASS

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SECONDARY FML - SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
OWNER:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	4

PROJECT SPECIFICATIONS	
MIN START PSI:	35
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PRESSURE TEST LOCATION: Secondary - Cell 1B

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	7/31/2024	53/Existing Tie-In North B	AS	9:32 AM	9:37 AM	35	35	MW/CD	PASS
2	8/1/2024	62/Existing Tie-In West A	AS	12:54 PM	12:59 PM	35	35	MW/CD	PASS
3	8/1/2024	62/Existing Tie-In West B	AS	1:06 PM	1:11 PM	35	35	MW/CD	PASS
4	8/1/2024	62/Existing Tie-In West C	AS	1:12 PM	1:17 PM	35	35	MW/CD	PASS
5	8/1/2024	62/Existing Tie-In West D	AS	1:13 PM	1:18 PM	35	35	MW/CD	PASS
6	8/1/2024	50/62	AS	12:46 PM	12:51 PM	35	35	MW/CD	PASS
7	8/1/2024	50/63	AS	12:47 PM	12:52 PM	35	35	MW/CD	PASS
8	8/1/2024	62/63	AS	1:03 PM	1:08 PM	35	35	MW/CD	PASS
9	8/1/2024	63/65	AS	1:53 PM	1:58 PM	35	35	MW/CD	PASS
10	8/1/2024	64/65	AS	1:31 PM	1:36 PM	35	35	MW/CD	PASS
11	8/1/2024	63/64	AS	1:30 PM	1:35 PM	35	35	MW/CD	PASS
12	8/1/2024	51/63	AS	1:41 PM	1:46 PM	35	35	MW/CD	PASS
13	8/1/2024	52/64	AS	1:42 PM	1:47 PM	35	35	MW/CD	PASS
14	8/1/2024	52/66	AS	1:43 PM	1:48 PM	35	35	MW/CD	PASS
15	8/1/2024	64/66	AS	1:44 PM	1:49 PM	35	35	MW/CD	PASS
16	8/1/2024	53/66	AS	3:31 PM	3:36 PM	35	35	MW/CD	PASS
17	8/1/2024	54/66	AS	3:28 PM	3:33 PM	35	35	MW/CD	PASS
18	8/1/2024	65/66	AS	1:55 PM	2:00 PM	35	35	MW/CD	PASS
19	8/1/2024	67/68	AS	2:06 PM	2:11 PM	35	35	MW/CD	PASS
20	8/2/2024	54/67	AS	3:29 PM	3:34 PM	35	35	MW/CD	PASS
21	8/1/2024	67/68	AS	2:12 PM	2:17 PM	35	35	MW/CD	PASS
22	8/1/2024	68/69	AS	2:16 PM	2:21 PM	35	35	MW/CD	PASS
23	8/1/2024	55/68	AS	3:26 PM	3:31 PM	35	35	MW/CD	PASS
24	8/1/2024	56/69	AS	3:23 PM	3:28 PM	35	35	MW/CD	PASS
25	8/1/2024	69/70	AS	2:21 PM	2:26 PM	35	35	MW/CD	PASS
26	8/1/2024	57/70	AS	3:24 PM	3:29 PM	35	35	MW/CD	PASS
27	8/1/2024	70/72	AS	3:25 PM	3:30 PM	35	35	MW/CD	PASS
28	8/1/2024	70/71	AS	2:22 PM	2:27 PM	35	35	MW/CD	PASS
29	8/1/2024	69/71	AS	3:34 PM	3:39 PM	35	35	MW/CD	PASS
30	8/2/2024	73/75	AS	7:31 AM	7:36 AM	35	35	MW/CD	PASS
31	8/2/2024	72/73	AS	7:32 AM	7:37 AM	35	35	MW/CD	PASS
32	8/2/2024	71/73	AS	7:41 AM	7:46 AM	35	35	MW/CD	PASS
33	8/2/2024	72/75	AS	7:21 AM	7:26 AM	35	35	MW/CD	PASS
34	8/1/2024	58/72	AS	3:21 PM	3:26 PM	35	35	MW/CD	PASS
35	8/1/2024	72/74	AS	3:14 PM	3:19 PM	35	35	MW/CD	PASS
36	8/1/2024	59/74	AS	3:15 PM	3:20 PM	35	35	MW/CD	PASS
37	8/1/2024	49/74	AS	2:43 PM	2:48 PM	35	35	MW/CD	PASS
38									
39	8/2/2024	74/76	AS	8:01 AM	8:06 AM	35	35	MW/CD	PASS
40	8/1/2024	46/76	AS	3:03 PM	3:08 PM	35	35	MW/CD	PASS
41	8/1/2024	47/76	AS	3:04 PM	3:09 PM	35	35	MW/CD	PASS
42	8/2/2024	75/77	AS	7:51 AM	7:56 AM	35	35	MW/CD	PASS
43	8/2/2024	75/76	AS	7:52 AM	7:47 AM	35	35	MW/CD	PASS
44	8/1/2024	76/77	AS	2:51 PM	2:56 PM	35	35	MW/CD	PASS
45	8/1/2024	47/77	AS	2:52 PM	2:57 PM	35	35	MW/CD	PASS
46									
47									
48									
49									
50									

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.11: FML Seam Field Destructive Test Records

Parkhill

SECONDARY FML - DESTRUCTIVE FIELD TEST RECORD

PROJECT NAME: OWL Landfill Cell 2B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

SAMPLE NO.	SEAM	DATE	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		FIELD TEST RESULTS																	COMMENTS
						Temperature	Speed	PEEL #1		PEEL #2		PEEL #3		PEEL #4		PEEL #5		SHEAR							
1	1/2	5/7/2024	MW/CD	CK	6292			110	114	107	107	107	112	117	111	109	108	152	151	153	149	151			
2	2/3	5/8/2024	MW/CD	CK	6292			112	129	109	131	113	125	121	123	113	123	147	148	157	146	149			
3	3/4	5/8/2024	MW/CD	TK	4682			126	120	125	123	119	116	117	121	117	109	151	150	147	148	150			
4	4/5	5/8/2024	MW/CD	RD	903			112	135	110	114	108	116	122	114	109	126	149	147	151	148	149			
5	5/6	5/8/2024	MW/CD	CK	6292			111	125	119	109	118	132	120	135	113	109	145	146	144	153	145			
6	6/7	5/8/2024	MW/CD	RD	903			108	111	112	125	116	136	118	131	112	120	145	134	141	147	149			
7	7/8	5/8/2024	MW/CD	CK	6292			130	134	128	130	130	131	122	115	128	118	139	143	145	141	140			
8	8/9	5/10/2024	MW/CD	CK	6292			109	121	112	116	114	120	108	119	112	124	159	155	157	160	162			
9	9/10	5/10/2024	MW/CD	RD	903			111	117	119	125	109	123	115	132	115	135	135	132	157	154	156			
10	10/11	5/10/2024	MW/CD	CK	6292			127	116	130	122	123	133	11929	125	127	117	175	175	177	173	172			
11	11/12	5/10/2024	MW/CD	RD	903			116	140	110	131	117	139	119	137	113	130	171	170	168	165	167			
12	12/13	5/10/2024	MW/CD	RD	903			115	133	127	141	124	137	122	139	119	132	177	175	173	171	171			
13	13/14	5/10/2024	MW/CD	CK	903			116	125	111	121	113	117	117	117	115	123	145	145	147	149	147			
14	14/15	5/10/2024	MW/CD	TK	4682			113	115	119	127	118	114	109	115	116	119	166	148	163	145	147			
15	15/16	5/10/2024	MW/CD	CK	903			108	119	111	117	109	122	113	121	107	125	143	144	146	141	135			
16	16/17	5/13/2024	MW/CD	CK	6292			109	118	113	119	115	122	117	120	117	119	140	135	140	140	136			
17	17/18	5/13/2024	MW/CD	TK	4682			118	114	107	116	106	124	111	113	109	105	146	149	142	150	161			
18	18/19	5/14/2024	MW/CD	CK	6292			118	115	118	123	108	121	109	123	114	127	169	163	150	154	156			
19	20/21	5/14/2024	MW/CD	TK	4682			112	119	109	118	114	121	113	125	112	117	161	149	154	153	132			
20	24/25	5/14/2024	MW/CD	RD	903			114	118	119	111	110	115	111	117	112	119	142	139	141	140	140			
21	26/27	5/14/2024	MW/CD	RD	903			113	125	115	119	109	123	111	121	107	125	139	141	142	141	143			
22	30/31	5/14/2024	MW/CD	CK	6292			105	115	108	116	112	114	107	121	111	132	145	147	148	144	144			
23	33/34	5/14/2024	MW/CD	RD	903			115	111	122	114	110	108	112	117	113	121	145	139	142	144	140			
24	34/35	5/14/2024	MW/CD	RD	903			116	118	114	123	112	116	125	108	107	123	143	144	141	146	144			
25	18/37	5/14/2024	MW/CD	CK	6292			113	106	114	129	107	122	111	123	113	125	153	154	150	155	157			

Parkhill

PRIMARY FML - DESTRUCTIVE FIELD TEST RECORD

PROJECT NAME: OWL Landfill Cell 2B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

SAMPLE NO.	SEAM	DATE	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		FIELD TEST RESULTS																	COMMENTS
						Temperature	Speed	PEEL #1		PEEL #2		PEEL #3		PEEL #4		PEEL #5		SHEAR							
1	1/3	5/17/2024	MW/CD	CK	6292			112	126	116	127	117	120	121	126	111	123	149	147	149	151	148			
2	3/5	5/17/2024	MW/CD	RD	3385			113	105	107	106	102	111	105	109	108	110	152	150	151	149	150			
3	3/8	5/17/2024	MW/CD	CK	6292			97	137	96	132	98	130	101	126	99	132	151	149	150	149	152			
4	1/2	5/17/2024	MW/CD	TK	903			141	128	138	127	112	130	121	127	115	131	149	148	147	149	145			
5	5/8	5/18/2024	MW/CD	CK	6292			122	116	96	114	111	109	105	109	109	111	150	147	149	148	151			
6	10/11	5/18/2024	MW/CD	RD	3385			121	106	118	102	110	97	110	107	113	108	148	145	147	146	148			
7	11/12	5/18/2024	MW/CD	TK	903			104	118	102	11	105	99	107	108	116	102	153	150	150	149	148			
8	12/13	5/18/2024	MW/CD	CK	92			99	132	98	124	106	125	108	136	109	127	156	154	155	152	151			
9	13/14	5/18/2024	MW/CD	RD	3385			121	123	107	111	137	114	125	117	124	109	155	152	152	150	152			
10	14/15	5/18/2024	MW/CD	TK	903			114	109	128	117	116	105	117	109	121	111	149	148	147	149	145			
11	15/16	5/18/2024	MW/CD	CK	6292			99	117	97	116	96	119	95	112	99	121	146	147	145	148	144			
12	9/17	5/18/2024	MW/CD	TK	903			112	104	113	107	116	107	114	108	115	105	148	147	148	149	146			
13	18/19	5/18/2024	MW/CD	RD	3385			102	107	109	113	108	109	109	114	107	115	152	145	147	148	158			
14	21/22	5/18/2024	MW/CD	CK	6292			98	115	108	112	98	109	108	114	99	110	154	149	152	153	150			
15	16/24	5/20/2024	MW/CD	CK	6292			133	108	124	135	127	128	117	123	128	117	157	153	152	156	152			
16	14/25	5/20/2024	MW/CD	TK	903			117	102	107	118	105	115	103	112	119	108	154	151	153	154	152			
17	25/26	5/20/2024	MW/CD	RD	3385			122	103	118	128	121	125	111	103	117	112	146	147	149	148	147			
18	26/27	5/20/2024	MW/CD	TK	903			111	122	113	143	107	114	132	107	125	118	155	153	150	153	154			
19	27/28	5/20/2024	MW/CD	RD	3385			102	117	106	120	111	105	109	106	110	119	159	158	161	163	157			
20	28/29	5/20/2024	MW/CD	CK	6292			126	108	112	113	117	108	131	123	123	114	155	159	158	155	157			
21	29/30	5/20/2024	MW/CD	TK	903			138	117	132	117	118	108	131	116	135	119	156	153	153	151	152			
22	23/31	5/20/2024	MW/CD	RD	3385			107	114	105	111	99	110	110	115	108	112	149	147	146	148	151			
23	33/34	5/20/2024	MW/CD	TK	903			115	105	112	114	109	114	111	113	113	115	145	147	149	146	145			
24	35/36	5/20/2024	MW/CD	TK	903			106	110	109	112	110	99	109	116	111	117	156	153	152	155	153			
25	30/37	5/20/2024	MW/CD	CK	6292			120	137	130	132	135	118	132	125	123	135	151	150	153	149	147			

Parkhill

SECONDARY FML - DESTRUCTIVE FIELD TEST RECORD

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

SAMPLE NO.	SEAM	DATE	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		FIELD TEST RESULTS																	COMMENTS
						Temperature	Speed	PEEL #1		PEEL #2		PEEL #3		PEEL #4		PEEL #5		SHEAR							
1	1/2	7/23/2024	MW/CD	RD	3385	860	7.5	108	109	110	115	106	105	109	108	107	111	144	142	143	147	149			
2	3/4	7/23/2024	MW/CD	CK	3402	850	6.0	110	106	105	118	109	107	111	114	109	117	151	149	153	150	151			
3	7/8	7/23/2024	MW/CD	BK	903	850	8.5	106	109	107	112	104	114	108	104	106	116	145	146	148	143	144			
4	12/13	7/23/2024	MW/CD	RD	3385	860	7.5	105	113	108	104	102	102	108	109	107	112	141	145	144	140	143			
5	15/16	7/24/2024	MW/CD	RD	3385	860	7.5	119	112	105	115	105	109	107	112	112	108	145	149	141	148	142			
6	18/19	7/24/2024	MW/CD	BK	903	850	8.5	104	114	108	113	115	108	109	109	111	113	149	143	148	145	147			
7	21/22	7/24/2024	MW/CD	RD	3385	860	7.5	108	110	109	122	109	132	111	121	109	116	145	141	148	144	141			
8	23/24	7/24/2024	MW/CD	CK	3402	850	7.0	120	109	118	111	110	112	105	118	109	115	151	150	147	148	140			
9	26/27	7/24/2024	MW/CD	RD	3385	850	7.5	111	104	112	106	110	108	117	113	111	112	147	147	148	144	149			
10	29/30	7/24/2024	MW/CD	BK	903	860	7.0	107	109	111	114	106	117	112	115	108	114	144	143	141	149	148			
11	32/33	7/24/2024	MW/CD	RD	3385	850	7.5	105	110	112	108	109	104	111	102	112	110	151	153	150	145	147			
12	10/35	7/25/2024	MW/CD	CK	3402	850	6.0	119	123	111	126	134	113	127	115	135	119	144	145	142	141	144			
13	28/36	7/25/2024	MW/CD	RD	3385	850	7.5	123	111	111	112	110	135	119	126	135	129	149	147	149	151	153			
14	35/39	7/25/2024	MW/CD	RD	3385	850	7.5	103	107	113	103	108	112	106	126	108	111	151	150	147	147	145			
15	39/40	7/25/2024	MW/CD	CK	3402	850	6.0	115	109	117	107	117	103	114	108	109	113	149	145	143	144	147			
16	40/41	7/25/2024	MW/CD	CK	3402	850	6.0	124	120	132	118	124	118	120	116	127	123	149	150	152	149	148			
17	41/42	7/25/2024	MW/CD	RD	3385	850	7.5	111	115	108	108	112	119	125	119	127	110	141	143	148	142	145			
18	42/48 A	7/26/2024	MW/CD	BK	903	850	7.0	114	121	119	123	114	126	118	120	109	115	153	152	150	154	153			
19	36/37	7/25/2024	MW/CD	BK	903	850	8.5	108	120	111	112	109	110	106	125	112	114	156	154	153	150	155			
20	37/43	7/26/2024	MW/CD	CK	3402	850	7.0	123	101	114	111	119	109	115	120	117	124	141	148	145	144	147			
21	45/46	7/26/2024	MW/CD	CK	3402	850	7.0	114	118	108	118	115	111	105	113	109	111	143	144	141	146	147			
22	50/Existing	7/29/2024	MW/CD	CK	3402	850	6.5	122	110	109	111	121	110	111	104	112	108	145	149	145	141	144			
23	50/51	7/29/2024	MW/CD	BK	903	850	8.5	106	110	108	112	106	109	102	119	112	104	150	149	149	151	154			
24	51/52	7/29/2024	MW/CD	RD	3385	850	7.5	112	103	108	115	116	109	113	122	109	116	152	149	150	148	145			
25	52/53	7/29/2024	MW/CD	BK	903	850	8.5	107	114	105	118	107	115	110	119	109	112	147	149	153	150	151			
26	53/54	7/29/2024	MW/CD	CK	3402	850	6.5	108	112	114	109	107	119	111	115	112	123	154	155	152	153	159			
27	54/55	7/30/2024	MW/CD	RD	3385	850	8.0	115	120	110	123	116	117	108	119	114	122	152	154	157	154	156			
28	55/56	7/30/2024	MW/CD	BK	903	850	8.5	117	122	124	129	106	115	103	125	112	137	160	163	160	159	161			
29	56/57	7/30/2024	MW/CD	CK	3402	850	6.5	109	115	117	121	112	118	108	118	115	123	159	158	162	160	159			
30	57/58	7/30/2024	MW/CD	BK	903	850	8.0	109	134	111	120	105	125	107	114	113	127	153	156	155	158	155			
31	58/59	7/30/2024	MW/CD	CK	3402	850	6.5	107	112	122	119	108	126	116	110	115	119	149	151	154	148	152			
32	59/60	7/30/2024	MW/CD	BK	903	850	8.0	109	115	109	113	108	116	112	123	112	118	151	153	155	152	150			

Parkhill

SECONDARY FML - DESTRUCTIVE FIELD TEST RECORD

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 2

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

SAMPLE NO.	SEAM	DATE	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		FIELD TEST RESULTS																	COMMENTS
						Temperature	Speed	PEEL #1		PEEL #2		PEEL #3		PEEL #4		PEEL #5		SHEAR							
33	48/60	7/30/2024	MW/CD	CK	5902	850	6.5	108	112	110	124	107	114	113	105	110	108	140	149	150	148	147	
34	62/Existing	8/1/2024	MW/CD	CK	5902	850	6.5	109	121	113	115	112	122	112	121	113	114	141	148	149	151	153	
35	62/63	8/1/2024	MW/CD	RD	3385	850	8.0	127	108	105	112	132	110	105	134	115	135	156	152	154	150	153	
36	65/66	8/1/2024	MW/CD	BK	903	850	8.5	108	110	107	112	105	114	109	113	112	115	151	149	153	150	148	
37	67/68	8/1/2024	MW/CD	CK	5902	850	6.5	111	117	105	115	112	115	114	121	111	119	158	153	150	155	154	
38	68/69	8/1/2024	MW/CD	BK	903	850	8.5	108	116	107	116	108	112	110	114	109	112	149	148	150	149	146	
39	69/71	8/1/2024	MW/CD	BK	903	850	8.5	106	111	104	109	104	112	14	113	110	117	150	153	150	155	154	
40	70/72	8/1/2024	MW/CD	RD	3385	850	8.0	105	107	107	110	107	110	111	117	108	114	140	146	153	149	146	
41	72/75	8/1/2024	MW/CD	RD	3385	850	8.0	106	112	108	115	108	115	104	115	106	108	145	146	149	143	145	
42	59/74	8/1/2024	MW/CD	CK	5902	850	6.5	115	124	128	115	128	113	134	111	125	112	148	145	149	145	143	
43	47/76	8/1/2024	MW/CD	BK	903	850	8.5	116	119	105	113	104	124	108	117	107	125	146	149	146	148	143	

Parkhill

PRIMARY FML - DESTRUCTIVE FIELD TEST RECORD

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

SAMPLE NO.	SEAM	DATE	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		FIELD TEST RESULTS																	COMMENTS
						Temperature	Speed	PEEL #1		PEEL #2		PEEL #3		PEEL #4		PEEL #5		SHEAR							
1	1/2	8/10/2024	MW/CD	RD	3385	850	7.5	118	108	116	112	109	123	111	119	116	123	148	149	153	150	149	PASS
2	3/4	8/10/2024	MW/CD	CK	5902	850	6.5	107	113	108	115	112	105	107	118	107	116	147	145	149	143	147	PASS
3	8/9	8/10/2024	MW/CD	RD	3385	850	7.5	108	112	121	111	108	117	106	116	112	124	144	146	142	145	148	PASS
4	11/12	8/10/2024	MW/CD	CK	5902	850	6.5	111	104	116	108	114	109	112	107	115	108	148	153	150	153	154	PASS
5	14/15	8/12/2024	MW/CD	BK	903	850	7.5	113	109	115	111	108	105	106	113	105	109	143	144	148	145	149	PASS
6	18/19	8/12/2024	MW/CD	CK	5902	850	6.0	115	105	111	107	106	113	109	115	108	115	141	145	143	146	148	PASS
7	22/23	8/12/2024	MW/CD	RD	3385	850	8.0	116	105	112	115	110	114	104	117	107	112	139	137	139	141	143	PASS
8	26/27	8/12/2024	MW/CD	BK	903	850	7.5	106	113	104	109	113	111	107	114	105	115	136	138	141	139	140	PASS
9	28/29	8/12/2024	MW/CD	RD	3385	850	8.0	105	113	106	111	109	115	116	114	108	119	141	139	137	135	141	PASS
10	30/31	8/12/2024	MW/CD	CK	5902	850	8.0	109	112	120	114	110	118	109	119	109	111	142	140	139	142	139	PASS
11	33/34	8/12/2024	MW/CD	RD	3385	850	8.0	115	113	108	109	114	110	108	122	107	119	138	137	139	137	135	PASS
12	16/35	8/13/2024	MW/CD	CK	5902	850	5.0	113	111	108	107	115	112	116	109	105	114	144	148	143	145	145	PASS
13	25/36	8/13/2024	MW/CD	CK	5902	850	5.0	104	119	106	112	109	120	107	122	106	113	143	142	140	141	142	PASS
14	35/37	8/13/2024	MW/CD	RD	3385	850	7.5	112	108	115	111	109	116	106	112	115	110	144	146	147	143	148	PASS
15	37/39 B	8/13/2024	MW/CD	RD	3385	850	7.5	119	108	114	107	112	107	117	109	111	117	151	149	153	152	150	PASS
16	39/40	8/13/2024	MW/CD	CK	5902	850	6.0	109	114	119	109	115	108	118	112	110	115	140	147	145	142	143	PASS
17	41/42	8/13/2024	MW/CD	BK	903	850	7.5	108	104	115	106	109	106	111	105	112	107	139	137	141	140	142	PASS
18	40/41	8/13/2024	MW/CD	RD	3385	850	7.5	109	110	106	116	109	112	110	121	114	117	143	147	145	142	141	PASS
19	44/44 A	8/13/2024	MW/CD	CK	5902	850	6.0	111	114	113	109	114	118	105	115	108	119	145	147	148	151	150	PASS
20	36/38	8/13/2024	MW/CD	BK	903	850	8.0	106	112	110	119	104	114	111	117	105	115	140	145	139	141	143	PASS
21	44/49	8/14/2024	MW/CD	CK	5902	850	6.0	113	107	112	120	115	111	119	108	114	109	143	142	145	146	143	PASS
22	38/46	8/14/2024	MW/CD	CK	5902	850	6.0	110	106	108	122	111	110	112	119	113	107	151	149	150	148	152	PASS
23	46/47	8/14/2024	MW/CD	RD	3385	850	7.5	112	105	113	110	115	108	113	108	111	108	150	145	147	148	151	PASS
24	48/50	8/14/2024	MW/CD	BK	903	850	8.0	110	117	112	109	113	121	110	119	105	114	152	153	155	149	153	PASS
25	51/52	8/14/2024	MW/CD	BK	903	850	8.0	112	108	113	115	113	106	118	108	107	116	143	148	145	140	145	PASS
26	49/53	8/14/2024	MW/CD	CK	5902	850	6.0	114	119	115	121	116	108	121	119	125	114	144	146	147	145	148	PASS
27	53/54	8/14/2024	MW/CD	RD	3385	850	7.0	110	106	109	113	112	109	110	111	113	107	156	154	151	157	152	PASS
28	54/55	8/14/2024	MW/CD	BK	903	850	8.0	105	109	111	112	106	108	124	114	112	116	154	153	154	155	156	PASS
29	55/56	8/15/2024	MW/CD	BK	903	850	8.0	106	111	108	113	108	107	114	115	107	113	157	152	150	151	150	PASS
30	56/57	8/15/2024	MW/CD	CK	5902	850	6.0	117	108	115	110	110	116	110	110	108	117	149	147	145	148	151	PASS
31	57/58	8/15/2024	MW/CD	RD	3385	850	7.0	106	108	107	119	114	105	111	115	109	104	147	149	145	148	146	PASS
32	58/59	8/15/2024	MW/CD	BK	903	850	8.0	113	109	114	109	104	116	113	111	106	108	148	143	144	147	145	PASS

Parkhill

PRIMARY FML - DESTRUCTIVE FIELD TEST RECORD

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 2

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

SAMPLE NO.	SEAM	DATE	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		FIELD TEST RESULTS															COMMENTS
						Temperature	Speed	PEEL #1		PEEL #2		PEEL #3		PEEL #4		PEEL #5		SHEAR					
33	59/60	8/15/2024	MW/CD	CK	5902	850	6.0	106	112	117	109	121	108	114	109	118	116	152	150	149	153	152	PASS
34	60/62	8/15/2024	MW/CD	RD	3385	850	7.0	108	111	109	111	113	118	108	116	107	121	148	151	147	146	150	PASS
35	62/Existing	8/15/2024	MW/CD	RD	3385	850	7.0	105	129	107	118	119	127	118	108	121	122	149	153	151	150	147	PASS
36	60/63	8/15/2024	MW/CD	BK	903	850	8.0	111	110	109	107	110	109	111	117	114	116	144	144	149	144	145	PASS
37	66/67	8/15/2024	MW/CD	BK	903	850	8.0	109	117	111	119	115	107	110	121	109	118	144	145	142	142	146	PASS
38	68/69	8/15/2024	MW/CD	RD	3385	850	7.0	110	113	108	117	107	111	114	108	117	108	145	147	148	145	141	PASS
39	69/70 A	8/15/2024	MW/CD	BK	903	850	8.0	116	107	113	116	109	106	115	108	111	109	144	147	145	146	148	PASS
40	71/72	8/15/2024	MW/CD	CK	5902	850	6.0	111	113	107	108	106	112	112	110	105	113	149	145	149	150	151	PASS
41	73/Existing	8/15/2024	MW/CD	CK	5902	850	6.0	108	109	111	116	117	112	106	118	110	115	151	150	149	153	154	PASS
42	53/64	8/15/2024	MW/CD	RD	3385	850	8.0	115	120	114	112	113	119	116	123	112	126	150	148	149	147	149	PASS
43	65/66	8/15/2024	MW/CD	CK	5902	850	6.0	109	112	105	113	110	114	106	108	108	116	145	147	143	142	147	PASS

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.12: Leak Detection Layer

Parkhill

LEAK DETECTION LAYER DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
DEPLOYMENT LOCATION:	Cell 2B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	30138	300	14.5	4,350	5/15/2024
2	30097	300	14.5	4,350	5/15/2024
3	30139	300	14.5	4,350	5/15/2024
4	30090	300	14.5	4,350	5/15/2024
5	30103	300	14.5	4,350	5/15/2024
6	30084	300	14.5	4,350	5/15/2024
7	30099	300	14.5	4,350	5/15/2024
8	30096	300	14.5	4,350	5/15/2024
9	30087	300	14.5	4,350	5/15/2024
10	30080	300	14.5	4,350	5/15/2024
11	30102	300	14.5	4,350	5/15/2024
12	30093	300	14.5	4,350	5/15/2024
13	30086	300	14.5	4,350	5/15/2024
14	30070	300	14.5	4,350	5/15/2024
15	30106	300	14.5	4,350	5/15/2024
16	30091	300	14.5	4,350	5/15/2024
17	30095	300	14.5	4,350	5/15/2024
18	30083	300	14.5	4,350	5/15/2024
19	30104	300	14.5	4,350	5/15/2024
20	30100	300	14.5	4,350	5/15/2024
21	30082	300	14.5	4,350	5/15/2024
22	30105	300	14.5	4,350	5/15/2024
23	30098	300	14.5	4,350	5/15/2024
24	30101	300	14.5	4,350	5/15/2024
25	30088	300	14.5	4,350	5/15/2024
26	30058	300	14.5	4,350	5/15/2024
27	30068	300	14.5	4,350	5/15/2024
28	30074	300	14.5	4,350	5/15/2024
29	30094	300	14.5	4,350	5/15/2024
30	30108	300	14.5	4,350	5/15/2024
31	30089	300	14.5	4,350	5/15/2024
32	30062	300	14.5	4,350	5/15/2024
33	30092	300	14.5	4,350	5/15/2024
34	30060	300	14.5	4,350	5/15/2024
35	30072	300	14.5	4,350	5/15/2024
36	30078	300	14.5	4,350	5/15/2024
37	30061	300	14.5	4,350	5/15/2024
38	30069	300	14.5	4,350	5/16/2024
39	30067	300	14.5	4,350	5/16/2024
40	30057	300	14.5	4,350	5/16/2024
			TOTAL LINER PLACED (FT^2):	174,000	

Parkhill

LEAK DETECTION LAYER DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
DEPLOYMENT LOCATION:	Cell 2B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	30085	300	14.5	4,350	5/16/2024
42	30055	300	14.5	4,350	5/16/2024
43	30056	300	14.5	4,350	5/16/2024
44	30065	300	14.5	4,350	5/16/2024
45	30063	300	14.5	4,350	5/16/2024
46	30071	300	14.5	4,350	5/16/2024
47	30059	300	14.5	4,350	5/16/2024
48	30075	300	14.5	4,350	5/16/2024
49	30077	300	14.5	4,350	5/16/2024
50	30081	300	14.5	4,350	5/16/2024
51	30076	300	14.5	4,350	5/16/2024
52	30073	300	14.5	4,350	5/16/2024
53	30079	300	14.5	4,350	5/16/2024
54	30107	300	14.5	4,350	5/16/2024
55	30066	300	14.5	4,350	5/16/2024
56	30021	300	14.5	4,350	5/16/2024
57	30064	300	14.5	4,350	5/16/2024
58	30137	300	14.5	4,350	5/16/2024
59	30016	45	14.5	653	5/16/2024
60	30016	45	14.5	653	5/16/2024
61	30016	45	14.5	653	5/16/2024
62	30016	45	14.5	653	5/16/2024
63	30016	45	14.5	653	5/16/2024
64	30016	45	14.5	653	5/16/2024
65	30016	30	14.5	435	5/16/2024
66	30022	15	14.5	218	5/16/2024
67	30022	45	14.5	653	5/16/2024
68	30022	45	14.5	653	5/16/2024
69	30022	45	14.5	653	5/16/2024
70	30022	45	14.5	653	5/16/2024
71	30022	45	14.5	653	5/16/2024
72	30022	60	14.5	870	5/16/2024
73	30140	45	14.5	653	5/16/2024
74	30140	45	14.5	653	5/16/2024
75	30140	45	14.5	653	5/16/2024
76	30140	45	14.5	653	5/16/2024
77	30140	45	14.5	653	5/16/2024
78	30140	45	14.5	653	5/16/2024
79	30140	30	14.5	435	5/16/2024
80	30008	15	14.5	218	5/16/2024
			TOTAL LINER PLACED (FT^2):	91,568	

Parkhill

LEAK DETECTION LAYER DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3
DEPLOYMENT LOCATION:	Cell 2B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
81	30008	50	14.5	725	5/16/2024
82	30008	50	14.5	725	5/16/2024
83	30008	50	14.5	725	5/16/2024
84	30008	50	14.5	725	5/16/2024
85	30008	50	14.5	725	5/16/2024
86	30008	35	14.5	508	5/16/2024
87	30136	20	14.5	290	5/17/2024
88	30136	55	14.5	798	5/17/2024
89	30136	55	14.5	798	5/17/2024
90	30136	55	14.5	798	5/17/2024

Parkhill

LEAK DETECTION LAYER DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	30044	300	14.5	4,350	8/5/2024
2	30110	300	14.5	4,350	8/5/2024
3	30010	300	14.5	4,350	8/5/2024
4	30012	300	14.5	4,350	8/5/2024
5	30049	300	14.5	4,350	8/5/2024
6	30048	300	14.5	4,350	8/5/2024
7	30051	300	14.5	4,350	8/5/2024
8	30026	300	14.5	4,350	8/5/2024
9	30046	300	14.5	4,350	8/5/2024
10	30047	300	14.5	4,350	8/5/2024
11	30006	300	14.5	4,350	8/5/2024
12	30053	300	14.5	4,350	8/5/2024
13	30033	300	14.5	4,350	8/5/2024
14	30030	300	14.5	4,350	8/5/2024
15	30038	300	14.5	4,350	8/5/2024
16	30014	300	14.5	4,350	8/5/2024
17	30027	300	14.5	4,350	8/5/2024
18	30045	300	14.5	4,350	8/5/2024
19	30135	300	14.5	4,350	8/5/2024
20	30029	300	14.5	4,350	8/5/2024
21	30023	300	14.5	4,350	8/5/2024
22	30115	300	14.5	4,350	8/5/2024
23	30003	300	14.5	4,350	8/5/2024
24	30141	300	14.5	4,350	8/5/2024
25	30019	300	14.5	4,350	8/5/2024
26	30004	300	14.5	4,350	8/5/2024
27	30020	300	14.5	4,350	8/5/2024
28	30017	300	14.5	4,350	8/5/2024
29	30043	300	14.5	4,350	8/5/2024
30	30001	300	14.5	4,350	8/5/2024
31	30133	300	14.5	4,350	8/5/2024
32	30040	300	14.5	4,350	8/5/2024
33	30037	300	14.5	4,350	8/5/2024
34	30035	300	14.5	4,350	8/5/2024
35	30009	300	14.5	4,350	8/5/2024
36	30052	300	14.5	4,350	8/5/2024
37	30031	300	14.5	4,350	8/5/2024
38	30013	300	14.5	4,350	8/5/2024
39	30028	300	14.5	4,350	8/5/2024
40	30054	300	14.5	4,350	8/5/2024
			TOTAL LINER PLACED (FT^2):	174,000	

Parkhill

LEAK DETECTION LAYER DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	30041	300	14.5	4,350	8/6/2024
42	30018	300	14.5	4,350	8/6/2024
43	30039	300	14.5	4,350	8/6/2024
44	30025	300	14.5	4,350	8/6/2024
45	30011	300	14.5	4,350	8/6/2024
46	30028	300	14.5	4,350	8/6/2024
47	30042	300	14.5	4,350	8/6/2024
48	30002	300	14.5	4,350	8/6/2024
49	30032	300	14.5	4,350	8/6/2024
50	30024	150	14.5	2,175	8/6/2024
51	30024	150	14.5	2,175	8/6/2024
52	30005	200	14.5	2,900	8/6/2024
53	30005	100	14.5	1,450	8/6/2024
54	30124	300	14.5	4,350	8/6/2024
55	30119	300	14.5	4,350	8/6/2024
56	30036	300	14.5	4,350	8/6/2024
57	30118	300	14.5	4,350	8/6/2024
58	10022	136	14.5	1,972	8/6/2024
59	10022	64	14.5	928	8/6/2024
60	10076	71	14.5	1,030	8/6/2024
61	10076	129	14.5	1,871	8/6/2024
62	10021	135	14.5	1,958	8/6/2024
63	10021	65	14.5	943	8/6/2024
64	10003	78	14.5	1,131	8/6/2024
65	10003	132	14.5	1,914	8/6/2024
66	10011	11	14.5	160	8/6/2024
67	10011	131	14.5	1,900	8/6/2024
68	10011	58	14.5	841	8/6/2024
69	10065	80	14.5	1,160	8/6/2024
70	10065	120	14.5	1,740	8/6/2024
71	10054	16	14.5	232	8/6/2024
72	10054	138	14.5	2,001	8/6/2024
73	10054	46	14.5	667	8/6/2024
74	10024	95	14.5	1,378	8/6/2024
75	10024	105	14.5	1,523	8/6/2024
76	10004	36	14.5	522	8/6/2024
77	10004	142	14.5	2,059	8/6/2024
78	10050	144	14.5	2,088	8/6/2024
79	10050	56	14.5	812	8/7/2024
80	10079	89	14.5	1,291	8/7/2024
			TOTAL LINER PLACED (FT^2):	95,367	

Parkhill

LEAK DETECTION LAYER DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
81	10079	111	14.5	1,610	8/7/2024
82	10028	37	14.5	537	8/7/2024
83	10028	141	14.5	2,045	8/7/2024
84	10028	22	14.5	319	8/7/2024
85	10051	125	14.5	1,813	8/7/2024
86	10051	75	14.5	1,088	8/7/2024
87	10009	77	14.5	1,117	8/7/2024
88	10009	123	14.5	1,784	8/7/2024
89	10056	32	14.5	464	8/7/2024
90	10056	155	14.5	2,248	8/7/2024
91	10016	153	14.5	2,219	8/7/2024
92	10016	47	14.5	682	8/7/2024
93	10056	13	14.5	189	8/7/2024
94	10045	96	14.5	1,392	8/7/2024
95	10045	104	14.5	1,508	8/7/2024
96	10057	53	14.5	769	8/7/2024
97	10057	147	14.5	2,132	8/7/2024
98	10040	8	14.5	116	8/7/2024
99	10040	156	14.5	2,262	8/7/2024
100	10040	36	14.5	522	8/7/2024
101	10005	121	14.5	1,755	8/7/2024
102	10005	79	14.5	1,146	8/7/2024
103	10080	82	14.5	1,189	8/7/2024
104	10080	118	14.5	1,711	8/7/2024
105	10073	39	14.5	566	8/7/2024
106	10073	156	14.5	2,262	8/7/2024
107	10023	161	14.5	2,335	8/7/2024
108	10023	39	14.5	566	8/7/2024
109	10006	127	14.5	1,842	8/7/2024
110	10006	73	14.5	1,059	8/7/2024
111	10049	88	14.5	1,276	8/7/2024
112	10049	112	14.5	1,624	8/7/2024
113	10020	52	14.5	754	8/7/2024
114	10020	148	14.5	2,146	8/7/2024
115	10014	12	14.5	174	8/7/2024
116	10014	161	14.5	2,335	8/7/2024
117	10044	165	14.5	2,393	8/7/2024
118	10044	35	14.5	508	8/7/2024
119	10014	27	14.5	392	8/7/2024
120	10001	113	14.5	1,639	8/7/2024
			TOTAL LINER PLACED (FT^2):	52,476	

Parkhill

LEAK DETECTION LAYER DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	4
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
121	10001	87	14.5	1,262	8/7/2024
122	10085	77	14.5	1,117	8/7/2024
123	10085	123	14.5	1,784	8/7/2024
124	10047	45	14.5	653	8/7/2024
125	10047	155	14.5	2,248	8/7/2024
126	10017	13	14.5	189	8/7/2024
127	10017	168	14.5	2,436	8/7/2024
128	10058	170	14.5	2,465	8/7/2024
129	10058	30	14.5	435	8/8/2024
130	10004	22	14.5	319	8/8/2024
131	10017	19	14.5	276	8/8/2024
132	10070	107	14.5	1,552	8/8/2024
133	10070	93	14.5	1,349	8/8/2024
134	10025	84	14.5	1,218	8/8/2024
135	10089	175	14.5	2,538	8/8/2024
136	10036	177	14.5	2,567	8/8/2024
137	10036	23	14.5	334	8/8/2024
138	10012	154	14.5	2,233	8/8/2024
139	10012	41	14.5	595	8/8/2024
140	10015	129	14.5	1,871	8/8/2024
141	10015	71	14.5	1,030	8/8/2024
142	10019	110	14.5	1,595	8/8/2024
143	10019	90	14.5	1,305	8/8/2024
144	10027	88	14.5	1,276	8/8/2024
145	10027	112	14.5	1,624	8/8/2024
146	10007	69	14.5	1,001	8/8/2024
147	10007	131	14.5	1,900	8/8/2024
148	10068	46	14.5	667	8/8/2024
149	10068	154	14.5	2,233	8/8/2024
150	10042	25	14.5	363	8/8/2024
151	10042	175	14.5	2,538	8/8/2024
152	10038	179	14.5	2,596	8/8/2024
153	10038	21	14.5	305	8/8/2024
154	10092	163	14.5	2,364	8/8/2024
155	10092	37	14.5	537	8/8/2024
156	10018	151	14.5	2,190	8/8/2024
157	10018	49	7	343	8/8/2024
158	10018	49	7	343	8/8/2024
159	10089	25	7	175	8/8/2024
160	10089	25	7	175	8/8/2024
			TOTAL LINER PLACED (FT^2):	51,989	

Parkhill

LEAK DETECTION LAYER DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	5
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW/CD

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
161	10025	15	7	105	8/8/2024
162	10025	15	7	105	8/8/2024
163	30129	204	14.5	2,958	8/8/2024
164	30129	96	14.5	1,392	8/8/2024
165	30007	114	14.5	1,653	8/8/2024
166	30007	186	14.5	2,697	8/8/2024
167	30034	183	14.5	2,654	8/8/2024
168	30034	117	14.5	1,697	8/8/2024
169	30123	64	14.5	928	8/8/2024
170	30123	178	14.5	2,581	8/8/2024
171	30123	58	14.5	841	8/8/2024
172	30121	106	14.5	1,537	8/8/2024
173	30121	184	14.5	2,668	8/8/2024
174	30128	172	14.5	2,494	8/8/2024
175	30128	128	14.5	1,856	8/8/2024
176	30116	30	14.5	435	8/8/2024
177	30116	159	14.5	2,306	8/8/2024
178	30116	111	14.5	1,610	8/8/2024
179	30132	50	14.5	725	8/8/2024
180	30132	160	14.5	2,320	8/8/2024
181	30132	90	14.5	1,305	8/8/2024
182	30120	66	14.5	957	8/9/2024
183	30120	157	14.5	2,277	8/9/2024
184	30120	77	14.5	1,117	8/9/2024
185	30122	85	14.5	1,233	8/9/2024
186	30122	166	14.5	2,407	8/9/2024
187	30122	49	14.5	711	8/9/2024
188	30112	119	14.5	1,726	8/9/2024
189	30112	181	14.5	2,625	8/9/2024
190	30131	166	14.5	2,407	8/9/2024
191	30131	134	14.5	1,943	8/9/2024
192	30113	27	14.5	392	8/9/2024
193	30113	162	14.5	2,349	8/9/2024
194	30113	111	14.5	1,610	8/9/2024
195	30015	48	14.5	696	8/9/2024
196	30015	139	14.5	2,016	8/9/2024
197	30015	113	14.5	1,639	8/9/2024
198	30127	29	14.5	421	8/9/2024
199	30127	122	14.5	1,769	8/9/2024
			TOTAL LINER PLACED (FT^2):	63,155	

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.13: Primary FML Deployment Log

Parkhill

PRIMARY FML - DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
DEPLOYMENT LOCATION:	Primary - Cell 2B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	2231	540	24	12,960	5/17/2024
2	2124	120	24	2,880	5/17/2024
3	2156	532	24	12,768	5/17/2024
4	2124	128	24	3,072	5/17/2024
5	2253	540	24	12,960	5/17/2024
6	2244	35	24	840	5/17/2024
7	2124	81	24	1,944	5/17/2024
8	2230	540	24	12,960	5/17/2024
9	2233	118	24	2,832	5/17/2024
10	2149	539	24	12,936	5/18/2024
11	2257	539	24	12,936	5/18/2024
12	2120	539	24	12,936	5/18/2024
13	2240	539	24	12,936	5/18/2024
14	2122	539	24	12,936	5/18/2024
15	2127	539	24	12,936	5/18/2024
16	2175	539	24	12,936	5/18/2024
17	2233	120	24	2,880	5/18/2024
18	2233	120	24	2,880	5/18/2024
19	2233	120	24	2,880	5/18/2024
20	2157	120	24	2,880	5/18/2024
21	2157	120	24	2,880	5/18/2024
22	2157	120	24	2,880	5/18/2024
23	2157	120	24	2,880	5/18/2024
24	2139	540	24	12,960	5/20/2024
25	2136	540	24	12,960	5/20/2024
26	2155	540	24	12,960	5/20/2024
27	2249	540	24	12,960	5/20/2024
28	2171	540	24	12,960	5/20/2024
29	2174	540	24	12,960	5/20/2024
30	2130	540	24	12,960	5/20/2024
31	2246	120	24	2,880	5/20/2024
32	2246	120	24	2,880	5/20/2024
33	2246	120	24	2,880	5/20/2024
34	2246	120	24	2,880	5/20/2024
35	2129	120	24	2,880	5/20/2024
36	2129	120	24	2,880	5/20/2024
37	2129	120	24	2,880	5/20/2024
			TOTAL LINER PLACED (FT^2):	284,808	

Parkhill

PRIMARY FML - DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
DEPLOYMENT LOCATION:	Primary - Cell 1B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	1532	132	24	3,168	8/10/2024
2	1527	135	24	3,240	8/10/2024
3	1516	137	24	3,288	8/10/2024
4	1517	137	24	3,288	8/10/2024
5	1514	137	24	3,288	8/10/2024
6	1524	137	24	3,288	8/10/2024
7	1510	140	24	3,360	8/10/2024
8	1510	142	24	3,408	8/10/2024
9	1523	144	24	3,456	8/10/2024
10	1523	146	24	3,504	8/10/2024
11	1523	151	24	3,624	8/10/2024
12	1515	151	24	3,624	8/10/2024
13	1515	151	24	3,624	8/12/2024
14	1515	155	24	3,720	8/12/2024
15	1526	159	24	3,816	8/12/2024
16	1526	161	24	3,864	8/12/2024
17	1526	163	24	3,912	8/12/2024
18	1512	164	24	3,936	8/12/2024
19	1512	165	24	3,960	8/12/2024
20	1512	166	24	3,984	8/12/2024
21	1518	167	24	4,008	8/12/2024
22	1518	169	24	4,056	8/12/2024
23	1519	171	24	4,104	8/12/2024
24	1519	174	24	4,176	8/12/2024
25	1521	176	24	4,224	8/12/2024
26	1521	177	24	4,248	8/12/2024
27	1530	177	24	4,248	8/12/2024
28	1530	178	24	4,272	8/12/2024
29	1520	180	24	4,320	8/12/2024
30	1520	183	24	4,392	8/12/2024
31	0292	186	22.5	4,185	8/12/2024
32	0292	188	22.5	4,230	8/12/2024
33	6296	189	22.5	4,253	8/12/2024
34	6296	190	22.5	4,275	8/12/2024
35	2161	540	24	12,960	8/13/2024
36	2158	275	24	6,600	8/13/2024
37	2172	540	24	12,960	8/13/2024
38	2158	250	24	6,000	8/13/2024
39	2134	540	24	12,960	8/13/2024
40	2151	540	24	12,960	8/13/2024
			TOTAL LINER PLACED (FT^2):	194,783	

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PRIMARY FML - DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
DEPLOYMENT LOCATION:	Primary - Cell 1B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	2170	540	24	12,960	8/13/2024
42	2136	390	1 to 24	4,875	8/13/2024
43	2136	83	1 to 13	581	8/13/2024
44	2169	540	24	12,960	8/13/2024
45	2138	27	24	648	8/14/2024
46	2138	269	24	6,456	8/14/2024
47	2176	250	24	6,000	8/14/2024
48	2176	250	24	6,000	8/14/2024
49	2148	540	24	12,960	8/14/2024
50	2165	126	10 to 18	1,764	8/14/2024
51	2165	124	5 to 10	930	8/14/2024
52	2165	250	24	6,000	8/14/2024
53	2152	540	24	12,960	8/14/2024
54	2150	540	24	12,960	8/14/2024
55	2248	540	24	12,960	8/14/2024
56	2254	540	24	12,960	8/15/2024
57	2163	540	24	12,960	8/15/2024
58	2132	540	24	12,960	8/15/2024
59	2147	540	24	12,960	8/15/2024
60	2225	540	24	12,960	8/15/2024
61	2143	78	14	1,092	8/15/2024
62	2247	220	14	3,080	8/15/2024
63	2247	218	14	3,052	8/15/2024
64	2165	138	24	3,312	8/15/2024
65	2247	85	24	2,040	8/15/2024
66	2143	223	24	5,352	8/15/2024
67	2143	223	24	5,352	8/15/2024
68	2153	237	24	5,688	8/15/2024
69	2153	245	24	5,880	8/15/2024
70	2245	245	24	5,880	8/15/2024
71	2245	229	24	5,496	8/15/2024
72	2167	212	24	5,088	8/15/2024
73	2167	212	15	3,180	8/15/2024
			TOTAL LINER PLACED (FT^2):	230,306	

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.14: Primary FML Seaming Log

Parkhill

PRIMARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 2B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

SEAMING LOCATION: Primary - Cell 2B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	5/17/2024	1/3	532	1:00 PM	CK	6292	850	5.5	1	MW/CD
2	5/17/2024	1/2	24	2:17 PM	TK	903	850	7.5	4	MW/CD
3	5/17/2024	1/4	8	2:48 PM	TK	903	850	7.5		MW/CD
4	5/17/2024	3/4	24	2:41 PM	RD	3385	850	7.0		MW/CD
5	5/17/2024	3/5	530	1:26 PM	RD	3385	850	7.0	2	MW/CD
6	5/17/2024	4/5	10	2:55 PM	TK	903	850	7.5		MW/CD
7	5/17/2024	5/6	24	2:47 PM	RD	3385	850	7.5		MW/CD
8	5/17/2024	4/6	35	2:56 PM	TK	903	850	7.5		MW/CD
9	5/17/2024	4/7	81	3:00 PM	TK	903	850	7.5		MW/CD
10	5/17/2024	6/7	24	2:56 PM	RD	3385	850	7.5		MW/CD
11	5/17/2024	5/8	540	2:41 PM	CK	6292	850	5.5	3	MW/CD
12	5/17/2024	2/4	120	2:38 PM	TK	903	850	7.5		MW/CD
13	5/17/2024	6/9	35	3:13 PM	TK	903	850	7.5		MW/CD
14	5/17/2024	7/9	81	3:15 PM	TK	903	850	7.5		MW/CD
15	5/17/2024	8/9	24	4:01 PM	RD	3385	850	7.0		MW/CD
16	5/17/2024	8/Tie-In	24	4:01 PM	RD	3385	850	7.0		MW/CD
17	5/17/2024	5/Tie-In	24	4:03 PM	RD	3385	850	7.0		MW/CD
18	5/17/2024	3/Tie-In	24	4:05 PM	RD	3385	850	7.0		MW/CD
19	5/17/2024	1/Tie-In	24	4:07 PM	RD	3385	850	7.0		MW/CD
20	5/18/2024	8/10	535	7:48 AM	CK	6292	850	5.5	5	MW/CD
21	5/18/2024	10/11	535	8:15 AM	RD	3385	850	7.0	6	MW/CD
22	5/18/2024	11/12	539	8:45 AM	TK	903	850	7.5	7	MW/CD
23	5/18/2024	12/13	539	9:10 AM	CK	6292	850	5.5	8	MW/CD
24	5/18/2024	13/14	539	9:53 AM	RD	3385	850	7.0	9	MW/CD
25	5/18/2024	14/15	539	10:35 AM	TK	903	850	7.0	10	MW/CD

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PRIMARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 2B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 2

SEAMING LOCATION: Primary - Cell 2B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	5/18/2024	15/16	539	11:18 AM	CK	6292	850	5.5	11	MW/CD
2	5/18/2024	10/17	24	3:51 PM	TK	903	850	7.5	12	MW/CD
3	5/18/2024	9/17	120	2:25 PM	TK	903	850	7.5		MW/CD
4	5/18/2024	11/18	24	3:49 PM	TK	903	850	7.5		MW/CD
5	5/18/2024	12/18	120	2:35 PM	TK	903	850	7.5		MW/CD
6	5/18/2024	12/19	24	3:47 PM	TK	903	850	7.5		MW/CD
7	5/18/2024	18/19	120	2:46 PM	RD	3385	850	7.0	13	MW/CD
8	5/18/2024	19/20	120	2:57 PM	TK	903	850	7.5		MW/CD
9	5/18/2024	13/20	24	3:45 PM	TK	903	850	7.5		MW/CD
10	5/18/2024	14/21	24	3:43 PM	TK	903	850	7.5		MW/CD
11	5/18/2024	20/21	120	3:10 PM	TK	903	850	7.5	14	MW/CD
12	5/18/2024	21/22	120	3:15 PM	CK	6292	850	5.5		MW/CD
13	5/18/2024	22/23	120	3:27 PM	TK	903	850	7.5		MW/CD
14	5/18/2024	16/23	24	3:39 PM	CK	6292	850	7.5		MW/CD
15	5/18/2024	15/22	24	3:41 PM	TK	903	850	7.5		MW/CD
16	5/18/2024	10/Tie-In	539	4:01 PM	RD	3385	850	7.5		MW/CD
17	5/18/2024	11/Tie-In	539	4:03 PM	RD	3385	850	7.5		MW/CD
18	5/18/2024	12/Tie-In	539	4:05 PM	RD	3385	850	7.5		MW/CD
19	5/18/2024	13/Tie-In	539	4:07 PM	RD	3385	850	7.5		MW/CD
20	5/18/2024	14/Tie-In	539	4:09 PM	RD	3385	850	7.5		MW/CD
21	5/18/2024	15/Tie-In	539	4:11 PM	RD	3385	850	7.5		MW/CD
22	5/18/2024	16/Tie-In	539	4:13 PM	RD	3385	850	7.5		MW/CD
23	5/20/2024	16/24	539	8:50 AM	CK	6292	850	5.5	15	MW/CD
24	5/20/2024	24/25	539	7:45 AM	TK	903	850	7.5	16	MW/CD
25	5/20/2024	25/26	539	8:05 AM	RD	3385	850	7.0	17	MW/CD

Parkhill

PRIMARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 2B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 3

SEAMING LOCATION: Primary - Cell 2B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	5/20/2024	26/27	539	9:35 AM	TK	903	850	7.5	18	MW/CD
2	5/20/2024	27/28	539	9:08 AM	RD	3385	850	7.5	19	MW/CD
3	5/20/2024	28/29	539	9:19 AM	CK	6292	850	7.5	20	MW/CD
4	5/20/2024	29/30	539	9:50 AM	TK	903	850	7.5	21	MW/CD
5	5/20/2024	23/31	120	10:34 AM	RD	3385	850	7.5		MW/CD
6	5/20/2024	24/31	24	1:40 PM	CK	6292	850	7.5	22	MW/CD
7	5/20/2024	31/32	120	10:49 AM	RD	3385	850	7.5		MW/CD
8	5/20/2024	25/32	24	1:38 PM	CK	6292	850	7.5		MW/CD
9	5/20/2024	26/33	24	1:36 PM	CK	6292	850	7.5		MW/CD
10	5/20/2024	32/33	120	10:47 AM	CK	6292	850	7.5		MW/CD
11	5/20/2024	27/34	24	1:34 PM	CK	6292	850	7.5		MW/CD
12	5/20/2024	33/34	120	10:52 AM	TK	903	850	7.5	23	MW/CD
13	5/20/2024	28/35	24	1:34 PM	CK	6292	850	7.5		MW/CD
14	5/20/2024	34/35	120	11:11 AM	RD	3385	850	7.5		MW/CD
15	5/20/2024	35/36	120	11:15 AM	TK	903	850	7.5	24	MW/CD
16	5/20/2024	29/36	24	1:32 PM	CK	6292	850	7.5		MW/CD
17	5/20/2024	36/37	120	11:26 AM	CK	6292	850	7.5		MW/CD
18	5/20/2024	30/37	24	1:30 PM	CK	6292	850	7.5	25	MW/CD
19	5/20/2024	24/Tie-In	24	2:22 PM	RD	3385	850	7.0		MW/CD
20	5/20/2024	25/Tie-In	24	2:20 PM	RD	3385	850	7.0		MW/CD
21	5/20/2024	26/Tie-In	24	2:18 PM	RD	3385	850	7.0		MW/CD
22	5/20/2024	27/Tie-In	24	2:16 PM	RD	3385	850	7.0		MW/CD
23	5/20/2024	28/Tie-In	24	2:14 PM	RD	3385	850	7.0		MW/CD
24	5/20/2024	29/Tie-In	24	2:12 PM	RD	3385	850	7.0		MW/CD
25	5/20/2024	30/Tie-In	24	2:10 PM	RD	3385	850	7.0		MW/CD

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PRIMARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

SEAMING LOCATION: Primary - Cell 1B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	8/10/2024	1/Existing Tie-In North	132	8:10 AM	CK	5902	850	6.5		MW/CD
2	8/10/2024	1/2	135	7:58 AM	RD	3385	850	7.5	DT#1	MW/CD
3	8/10/2024	2/3	137	8:20 AM	RD	3385	850	7.5		MW/CD
4	8/10/2024	3/4	137	8:30 AM	CK	5902	850	6.5	DT#2	MW/CD
5	8/10/2024	4/5	137	8:49 AM	RD	3385	850	7.5		MW/CD
6	8/10/2024	5/6	137	9:04 AM	CK	5902	850	6.5		MW/CD
7	8/10/2024	6/7	142	9:25 AM	RD	3385	850	7.5		MW/CD
8	8/10/2024	7/5	144	9:42 AM	CK	5902	850	6.5		MW/CD
9	8/10/2024	5/9	145	9:52 AM	RD	3385	850	7.5	DT#3	MW/CD
10	8/10/2024	9/10	146	10:10 AM	CK	5902	850	6.5		MW/CD
11	8/10/2024	10/11	151	10:23 AM	RD	3385	850	7.5		MW/CD
12	8/10/2024	11/12	151	10:34 AM	CK	5902	850	6.5	DT#4	MW/CD
13	8/12/2024	12/13	151	7:15 AM	CK	5902	850	6.0		MW/CD
14	8/12/2024	13/14	155	7:17 AM	RD	3385	850	8.0		MW/CD
15	8/12/2024	14/15	159	7:30 AM	BK	903	850	7.5	DT#5	MW/CD
16	8/12/2024	15/16	161	7:42 AM	CK	5902	850	6.0		MW/CD
17	8/12/2024	16/17	163	7:50 AM	RD	3385	850	8.0		MW/CD
18	8/12/2024	17/18	164	8:10 AM	BK	903	850	7.5		MW/CD
19	8/12/2024	18/19	165	8:20 AM	CK	5902	850	6.0	DT#6	MW/CD
20	8/12/2024	19/20	166	8:32 AM	RD	3385	850	8.0		MW/CD
21	8/12/2024	20/21	167	8:42 AM	BK	903	850	7.5		MW/CD
22	8/12/2024	21/22	169	8:50 AM	CK	5902	850	6.0		MW/CD
23	8/12/2024	22/23	171	9:08 AM	RD	3385	850	8.0	DT#7	MW/CD
24	8/12/2024	23/24	174	9:17 AM	BK	903	850	7.5		MW/CD
25	8/12/2024	24/25	176	9:30 AM	CK	5902	850	6.0		MW/CD

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PRIMARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 2

SEAMING LOCATION: Primary - Cell 1B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	8/12/2024	25/26	177	9:47 AM	RD	3385	850	8.0		MW/CD
2	8/12/2024	26/27	177	10:00 AM	BK	903	850	7.5	DT#8	MW/CD
3	8/12/2024	27/28	178	10:18 AM	CK	5902	850	6.0		MW/CD
4	8/12/2024	28/29	180	10:29 AM	RD	3385	850	8.0	DT#9	MW/CD
5	8/12/2024	29/30	183	10:44 AM	BK	903	850	7.5		MW/CD
6	8/12/2024	30/31	186	12:30 PM	CK	5902	850	8.0	DT#10	MW/CD
7	8/12/2024	31/32	188	12:45 PM	RD	3385	850	7.5		MW/CD
8	8/12/2024	32/33	189	1:06 PM	BK	903	850	8.5		MW/CD
9	8/12/2024	33/34	190	1:23 PM	RD	3385	850	7.5	DT#11	MW/CD
10	8/13/2024	35/36	24	7:56 AM	RD	3385	850	7.5		MW/CD
11	8/13/2024	34/36	22.5	8:00 AM	CK	5902	850	5.0		MW/CD
12	8/13/2024	33/36	22.5	8:02 AM	CK	5902	850	5.0		MW/CD
13	8/13/2024	32/36	22.5	8:04 AM	CK	5902	850	5.0		MW/CD
14	8/13/2024	31/36	22.5	8:06 AM	CK	5902	850	5.0		MW/CD
15	8/13/2024	30/36	24	8:08 AM	CK	5902	850	5.0		MW/CD
16	8/13/2024	29/36	24	8:10 AM	CK	5902	850	5.0		MW/CD
17	8/13/2024	28/36	24	8:12 AM	CK	5902	850	5.0		MW/CD
18	8/13/2024	27/36	24	8:14 AM	CK	5902	850	5.0		MW/CD
19	8/13/2024	26/36	24	8:16 AM	CK	5902	850	5.0		MW/CD
20	8/13/2024	25/36	24	8:18 AM	CK	5902	850	5.0	DT#13	MW/CD
21	8/13/2024	24/36	24	8:20 AM	CK	5902	850	5.0		MW/CD
22	8/13/2024	23/36	18	8:22 AM	CK	5902	850	5.0		MW/CD
23	8/13/2024	23/35	6	8:23 AM	CK	5902	850	5.0		MW/CD
24	8/13/2024	22/35	24	8:40 AM	CK	5902	850	5.0		MW/CD
25	8/13/2024	21/35	24	8:42 AM	CK	5902	850	5.0		MW/CD

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PRIMARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 3

SEAMING LOCATION: Primary - Cell 1B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	8/13/2024	20/35	24	8:44 AM	CK	5902	850	5.0		MW/CD
2	8/13/2024	19/35	24	8:46 AM	CK	5902	850	5.0		MW/CD
3	8/13/2024	18/35	24	8:48 AM	CK	5902	850	5.0		MW/CD
4	8/13/2024	17/35	24	8:50 AM	CK	5902	850	5.0		MW/CD
5	8/13/2024	16/35	24	8:52 AM	CK	5902	850	5.0	DT#12	MW/CD
6	8/13/2024	15/35	24	8:54 AM	CK	5902	850	5.0		MW/CD
7	8/13/2024	14/35	24	8:56 AM	CK	5902	850	5.0		MW/CD
8	8/13/2024	13/35	24	8:58 AM	CK	5902	850	5.0		MW/CD
9	8/13/2024	12/35	24	9:00 AM	CK	5902	850	5.0		MW/CD
10	8/13/2024	11/35	24	9:02 AM	CK	5902	850	5.0		MW/CD
11	8/13/2024	10/35	24	9:04 AM	CK	5902	850	5.0		MW/CD
12	8/13/2024	9/35	24	9:06 AM	CK	5902	850	5.0		MW/CD
13	8/13/2024	8/35	24	9:08 AM	CK	5902	850	5.0		MW/CD
14	8/13/2024	7/35	24	9:10 AM	CK	5902	850	5.0		MW/CD
15	8/13/2024	6/35	24	9:12 AM	CK	5902	850	5.0		MW/CD
16	8/13/2024	5/35	24	9:14 AM	CK	5902	850	5.0		MW/CD
17	8/13/2024	4/35	24	9:16 AM	CK	5902	850	5.0		MW/CD
18	8/13/2024	3/35	24	9:18 AM	CK	5902	850	5.0		MW/CD
19	8/13/2024	2/35	24	9:20 AM	CK	5902	850	5.0		MW/CD
20	8/13/2024	1/35	24	9:22 AM	CK	5902	850	5.0		MW/CD
21	8/13/2024	35/37	540	8:56 AM	RD	3385	850	7.5	DT#14	MW/CD
22	8/13/2024	36/38	250	9:30 AM	BK	903	850	8.0	DT#20	MW/CD
23	8/13/2024	37/38	24	10:02 AM	BK	903	850	8.0		MW/CD
24	8/13/2024	37/39 A	278	10:00 AM	CK	5902	850	6.5		MW/CD
25	8/13/2024	38/39	10	10:06 AM	BK	903	850	8.0		MW/CD

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PRIMARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 4

SEAMING LOCATION: Primary - Cell 1B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	8/13/2024	37/39 B	252	10:10 AM	RD	3385	850	7.5	DT#15	MW/CD
2	8/13/2024	39/40	525	12:42 PM	CK	5902	850	6.0	DT#16	MW/CD
3	8/13/2024	40/41	540	1:13 PM	RD	3385	850	7.5	DT#18	MW/CD
4	8/13/2024	41/42	530	1:48 PM	BK	903	850	8.0	DT#17	MW/CD
5	8/13/2024	42/43	151	2:16 PM	RD	3385	850	7.5		MW/CD
6	8/13/2024	41/44	20	2:40 PM	CK	5902	850	6.0		MW/CD
7	8/13/2024	42/44 A	238	2:42 PM	CK	5902	850	6.0	DT#19	MW/CD
8	8/13/2024	42/44 B	292	2:44 PM	BK	903	850	8.0		MW/CD
9	8/13/2024	43/44	151	2:55 PM	BK	903	850	8.0		MW/CD
10	8/14/2024	38/46	240	7:15 AM	CK	5902	850	6.0	DT#22	MW/CD
11	8/14/2024	38/45	24	7:23 AM	BK	903	850	8.0		MW/CD
12	8/14/2024	36/45	27	7:28 AM	BK	903	850	8.0		MW/CD
13	8/14/2024	45/46	27	7:34 AM	BK	903	850	8.0		MW/CD
14	8/14/2024	46/47	150	7:33 AM	RD	3385	850	7.5	DT#23	MW/CD
15	8/14/2024	47/48	150	7:38 AM	BK	903	850	8.0		MW/CD
16	8/14/2024	39/46	24	7:50 AM	CK	5902	850	6.0		MW/CD
17	8/14/2024	40/46	10	7:55 AM	CK	5902	850	6.0		MW/CD
18	8/14/2024	40/47	24	8:35 AM	BK	903	850	8.0		MW/CD
19	8/14/2024	41/48	24	8:37 AM	BK	903	850	8.0		MW/CD
20	8/14/2024	44/49	540	8:35 AM	CK	5902	850	6.0	DT#21	MW/CD
21	8/14/2024	49/52 A	24	8:55 AM	BK	903	850	8.0		MW/CD
22	8/14/2024	50/52	126	10:02 AM	BK	903	850	8.0		MW/CD
23	8/14/2024	49/52 B	24	8:55 AM	BK	903	850	8.0		MW/CD
24	8/14/2024	48/50	126	9:50 AM	BK	903	850	8.0	DT#24	MW/CD
25	8/14/2024	44/50	18	10:08 AM	BK	903	850	8.0		MW/CD

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PRIMARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 5

SEAMING LOCATION: Primary - Cell 1B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	8/14/2024	51/52	124	9:32 AM	BK	903	850	8.0	DT#25	MW/CD
2	8/14/2024	48/51	124	9:49 AM	RD	3385	850	7.0		MW/CD
3	8/14/2024	50/51	10	9:47 AM	BK	903	850	8.0		MW/CD
4	8/14/2024	49/53	515	12:45 PM	CK	5902	850	6.0	DT#26	MW/CD
5	8/14/2024	53/54	540	1:03 PM	RD	3385	850	7.0	DT#27	MW/CD
6	8/14/2024	54/55	540	1:37 PM	BK	903	850	8.0	DT#28	MW/CD
7	8/14/2024	49/Existing Tie-In North	24	2:11 PM	RD	3385	850	7.0	Capped	MW/CD
8	8/14/2024	53/Existing Tie-In North	24	2:13 PM	RD	3385	850	7.0		MW/CD
9	8/14/2024	54/Existing Tie-In North	24	2:15 PM	RD	3385	850	7.0		MW/CD
10	8/14/2024	55/Existing Tie-In North	24	2:17 PM	RD	3385	850	7.0		MW/CD
11	8/14/2024	43/Existing Tie-In North	13	2:30 PM	RD	3385	850	7.0		MW/CD
12	8/14/2024	44/Existing Tie-In North	24	2:32 PM	RD	3385	850	7.0		MW/CD
13	8/14/2024	35/Existing Tie-In North	24	2:36 PM	RD	3385	850	7.0		MW/CD
14	8/14/2024	37/Existing Tie-In North	24	2:38 PM	RD	3385	850	7.0		MW/CD
15	8/14/2024	39/Existing Tie-In North	24	2:40 PM	RD	3385	850	7.0	Capped	MW/CD
16	8/14/2024	40/Existing Tie-In North	24	2:46 PM	RD	3385	850	7.0	Capped	MW/CD
17	8/14/2024	41/Existing Tie-In North	24	2:48 PM	RD	3385	850	7.0		MW/CD
18	8/14/2024	42/Existing Tie-In North	24	2:50 PM	RD	3385	850	7.0		MW/CD
19	8/15/2024	55/56	540	7:27 AM	BK	903	850	8.0	DT#29	MW/CD
20	8/15/2024	56/57	540	7:52 AM	CK	5902	850	6.0	DT#30	MW/CD
21	8/15/2024	57/58	540	8:16 AM	RD	3385	850	7.0	DT#31	MW/CD
22	8/15/2024	58/59	540	8:35 AM	BK	903	850	8.0	DT#32	MW/CD
23	8/15/2024	59/60	540	9:00 AM	CK	5902	850	6.0	DT#33	MW/CD
24	8/15/2024	60/61	78	12:52 PM	RD	3385	850	7.0		MW/CD
25	8/15/2024	60/62	220	10:07 AM	RD	3385	850	7.0	DT#34	MW/CD

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PRIMARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico

PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 6

SEAMING LOCATION: Primary - Cell 1B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	8/15/2024	60/63	218	10:11 AM	BK	903	850	8.0	DT#36	MW/CD
2	8/15/2024	62/63	14	12:47 PM	RD	3385	850	7.0		MW/CD
3	8/15/2024	62/Existing Tie-In West	220	10:32 AM	RD	3385	850	7.0	DT#35	MW/CD
4	8/15/2024	63/Existing Tie-In West	218	10:12 AM	CK	5902	850	6.0		MW/CD
5	8/15/2024	61/Existing Tie-In West	78	1:04 PM	RD	3385	850	7.0		MW/CD
6	8/15/2024	52/64	138	12:25 PM	CK	5902	850	6.0		MW/CD
7	8/15/2024	52/65	85	12:45 PM	CK	5902	850	6.0		MW/CD
8	8/15/2024	64/65	24	12:40 PM	BK	903	850	8.0		MW/CD
9	8/15/2024	64/66	138	1:00 PM	CK	5902	850	6.0		MW/CD
10	8/15/2024	65/66	85	1:16 PM	CK	5902	850	6.0	DT#43	MW/CD
11	8/15/2024	66/67	223	1:07 PM	BK	903	850	8.0	DT#37	MW/CD
12	8/15/2024	67/68	223	1:30 PM	CK	5902	850	6.0		MW/CD
13	8/15/2024	68/69	237	1:39 PM	RD	3385	850	7.0	DT#38	MW/CD
14	8/15/2024	69/70 A	22	1:52 PM	BK	903	850	8.0	DT#39	MW/CD
15	8/15/2024	70/71	229	1:55 PM	CK	5902	850	6.0		MW/CD
16	8/15/2024	69/70 B	215	2:08 PM	RD	3385	850	7.0		MW/CD
17	8/15/2024	61/62	14	1:14 PM	RD	3385	850	7.0		MW/CD
18	8/15/2024	71/72	212	2:20 PM	CK	5902	850	6.0	DT#40	MW/CD
19	8/15/2024	72/73	212	2:40 PM	CK	5902	850	6.0		MW/CD
20	8/15/2024	73/Existing Tie-In West	21	3:00 PM	CK	5902	850	6.0	DT#41	MW/CD
21	8/15/2024	53/64	24	2:36 PM	RD	3385	850	7.0	DT#42	MW/CD
22	8/15/2024	54/66	24	2:39 PM	RD	3385	850	7.0		MW/CD
23	8/15/2024	55/67	24	2:41 PM	RD	3385	850	7.0		MW/CD
24	8/15/2024	55/68	12	2:42 PM	RD	3385	850	7.0		MW/CD
25	8/15/2024	56/68	24	2:46 PM	RD	3385	850	7.0		MW/CD

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PRIMARY FML - SEAMING LOG

PROJECT NAME: OWL Landfill Cell 1B
OWNER: Oilfield Water Logistics (OWL)
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 42035.23
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 7

SEAMING LOCATION: Primary - Cell 1B

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	8/15/2024	56/69	6	2:49 PM	RD	3385	850	7.0		MW/CD
2	8/15/2024	57/69	24	2:52 PM	RD	3385	850	7.0		MW/CD
3	8/15/2024	58/70	24	2:54 PM	RD	3385	850	7.0		MW/CD
4	8/15/2024	63/73	18	3:05 PM	RD	3385	850	7.0		MW/CD
5	8/15/2024	59/71	24	2:57 PM	RD	3385	850	7.0		MW/CD
6	8/15/2024	60/72	24	3:03 PM	RD	3385	850	7.0		MW/CD
7	8/17/2024	60/71	25	10:30 AM	MV	19				MW/CD
8	8/17/2024	52/53	25	8:22 AM	CK	5902	850	6.0		MW/CD
9	8/17/2024	59/70	15	10:10 AM	MV	19				MW/CD
10	8/16/2024	56/Existing Tie-In North	24	8:08 AM	CK	5902	850	6.0		MW/CD
11	8/16/2024	57/Existing Tie-In North	24	8:10 AM	CK	5902	850	6.0		MW/CD
12	8/16/2024	58/Existing Tie-In North	24	8:12 AM	CK	5902	850	6.0		MW/CD
13	8/16/2024	59/Existing Tie-In North	24	8:15 AM	CK	5902	850	6.0		MW/CD
14	8/16/2024	60/Existing Tie-In North	24	8:20 AM	CK	5902	850	6.0		MW/CD
15	8/16/2024	61/Existing Tie-In North	14	8:23 AM	CK	5902	850	6.0		MW/CD
16										MW/CD
17										MW/CD
18										MW/CD
19										MW/CD
20										MW/CD
21										MW/CD
22										MW/CD
23										MW/CD
24										MW/CD
25										MW/CD

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.15: Primary FML Seam Pressure Test Log

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PRIMARY FML - SEAMING PRESSURE TEST LOG

PROJECT SPECIFICATIONS	
MIN START PSI:	35
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PROJECT NAME: OWL Landfill Cell 2B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

PRESSURE TEST LOCATION: Primary - Cell 2B

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	5/17/2024	1/3	AS	2:00 PM	2:05 PM	35	35	LH/CD	PASS
2	5/17/2024	1/2	AS	2:20 PM	2:25 PM	35	35	LH/CD	PASS
3	5/17/2024	1/4	AS	3:00 PM	3:05 PM	35	35	LH/CD	PASS
4	5/17/2024	3/4	AS	2:50 PM	2:55 PM	35	35	LH/CD	PASS
5	5/17/2024	3/5 B	AS	2:15 PM	2:20 PM	35	35	LH/CD	PASS
6	5/17/2024	4/5	AS	3:15 PM	3:20 PM	35	35	LH/CD	PASS
7	5/17/2024	5/6	AS	2:55 PM	3:00 PM	35	35	LH/CD	PASS
8	5/17/2024	4/6	AS	3:16 PM	3:21 PM	35	35	LH/CD	PASS
9	5/17/2024	4/7	AS	3:15 PM	3:20 PM	35	35	LH/CD	PASS
10	5/17/2024	6/7	AS	3:10 PM	3:15 PM	35	35	LH/CD	PASS
11	5/17/2024	2/4 A	AS	3:00 PM	3:05 PM	35	35	LH/CD	PASS
12	5/17/2024	6/9	AS	3:20 PM	3:25 PM	35	35	LH/CD	PASS
13	5/17/2024	7/9	AS	3:20 PM	3:25 PM	35	35	LH/CD	PASS
14	5/17/2024	8/9	AS	3:25 PM	3:30 PM	35	35	LH/CD	PASS
15	5/17/2024	2/4 B	AS	3:05 PM	3:10 PM	35	35	LH/CD	PASS
16	5/17/2024	3/5 A	AS	3:30 PM	3:35 PM	35	35	LH/CD	PASS
17	5/18/2024	5/8	AS	7:50 AM	7:55 AM	35	35	LH/CD	PASS
18	5/18/2024	8/Tie-In	AS	7:50 AM	7:55 AM	35	35	LH/CD	PASS
19	5/18/2024	5/Tie-In	AS	7:55 AM	8:00 AM	35	35	LH/CD	PASS
20	5/18/2024	3/Tie-In	AS	7:55 AM	8:00 AM	35	35	LH/CD	PASS
21	5/18/2024	1/Tie-In	AS	8:00 AM	8:05 AM	35	35	LH/CD	PASS
22	5/18/2024	8/10	AS	9:00 AM	9:05 AM	35	35	LH/CD	PASS
23	5/18/2024	8/11	AS	9:10 AM	9:15 AM	35	35	LH/CD	PASS
24	5/18/2024	11/12	AS	10:00 AM	10:05 AM	35	35	LH/CD	PASS
25	5/18/2024	12/13	AS	10:25 AM	10:30 AM	35	35	LH/CD	PASS
26	5/18/2024	13/14 A	AS	11:20 AM	11:25 AM	35	35	LH/CD	PASS
27	5/18/2024	13/14 B	AS	11:25 AM	11:30 AM	35	35	LH/CD	PASS
28	5/18/2024	13/14 C	AS	11:35 AM	11:40 AM	35	35	LH/CD	PASS
29	5/18/2024	13/14 D	AS	11:00 AM	11:05 AM	35	35	LH/CD	PASS
30	5/18/2024	14/15	AS	11:40 AM	11:45 AM	35	35	LH/CD	PASS
31	5/18/2024	15/16	AS	2:00 PM	2:05 PM	35	35	LH/CD	PASS
32	5/18/2024	13/14 E	AS	11:00 AM	11:05 AM	35	35	LH/CD	PASS
33	5/18/2024	17/10	AS	4:00 PM	4:05 PM	35	35	LH/CD	PASS
34	5/18/2024	9/17	AS	2:35 PM	2:40 PM	35	35	LH/CD	PASS
35	5/18/2024	11/18	AS	4:00 PM	4:05 PM	35	35	LH/CD	PASS
36	5/18/2024	17/18	AS	2:40 PM	2:45 PM	35	35	LH/CD	PASS
37	5/18/2024	12/19	AS	3:55 PM	4:00 PM	35	35	LH/CD	PASS
38	5/18/2024	18/19 A	AS	3:00 PM	3:05 PM	35	35	LH/CD	PASS
39	5/18/2024	19/20	AS	3:05 PM	3:10 PM	35	35	LH/CD	PASS
40	5/18/2024	13/20	AS	3:55 PM	4:00 PM	35	35	LH/CD	PASS
41	5/18/2024	14/21	AS	3:51 PM	3:56 PM	35	35	LH/CD	PASS
42	5/18/2024	20/21	AS	3:25 PM	3:30 PM	35	35	LH/CD	PASS
43	5/18/2024	18/19 B	AS	3:00 PM	3:05 PM	35	35	LH/CD	PASS
44	5/18/2024	18/19 C	AS	3:00 PM	3:10 PM	35	35	LH/CD	PASS
45	5/18/2024	15/22	AS	3:50 PM	3:55 PM	35	35	LH/CD	PASS
46	5/18/2024	21/22	AS	3:40 PM	3:45 PM	35	35	LH/CD	PASS
47	5/18/2024	16/23	AS	3:45 PM	3:50 PM	35	35	LH/CD	PASS
48	5/18/2024	22/23	AS	3:45 PM	3:50 PM	35	35	LH/CD	PASS
49	5/18/2024	10/Tie-In	AS	7:41 AM	7:46 AM	35	35	LH/CD	PASS
50	5/18/2024	11/Tie-In	AS	7:40 AM	7:45 AM	35	35	LH/CD	PASS

Parkhill

PRIMARY FML - SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
OWNER:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2

PRESSURE TEST LOCATION: Primary - Cell 2B

PROJECT SPECIFICATIONS	
MIN START PSI:	35
TEST DURATION:	5 minutes
MAX PSI DROP:	30

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	5/18/2024	12/Tie-In	AS	7:31 AM	7:36 AM	35	35	LH/CD	PASS
2	5/18/2024	13/Tie-In	AS	7:30 AM	7:35 AM	35	35	LH/CD	PASS
3	5/18/2024	14/Tie-In	AS	7:36 AM	7:41 AM	35	35	LH/CD	PASS
4	5/18/2024	15/Tie-In	AS	7:35 AM	7:40 AM	35	35	LH/CD	PASS
5	5/18/2024	16/Tie-In	AS	7:45 AM	7:50 AM	35	35	LH/CD	PASS
6	5/20/2024	16/24	AS	9:40 AM	9:45 AM	35	35	LH/CD	PASS
7	5/20/2204	24/25	AS	8:40 AM	8:45 AM	35	35	LH/CD	PASS
8	5/20/2384	25/26	AS	9:00 AM	9:05 AM	35	35	LH/CD	PASS
9	5/20/2564	26/27	AS	9:45 AM	9:50 AM	35	35	LH/CD	PASS
10	5/20/2744	27/28	AS	10:10 AM	10:15 AM	35	35	LH/CD	PASS
11	5/20/2924	28/29	AS	10:30 AM	10:35 AM	35	35	LH/CD	PASS
12	5/20/3104	29/30	AS	10:35 AM	10:40 AM	35	35	LH/CD	PASS
13	5/20/3284	23/31	AS	11:00 AM	11:05 AM	35	35	LH/CD	PASS
14	5/20/3464	24/31	AS	2:25 PM	2:30 PM	35	35	LH/CD	PASS
15	5/20/3644	31/32	AS	11:05 AM	11:10 AM	35	35	LH/CD	PASS
16	5/20/3824	25/32	AS	2:20 PM	2:25 PM	35	35	LH/CD	PASS
17	5/20/4004	26/33	AS	2:15 PM	2:20 PM	35	35	LH/CD	PASS
18	5/20/4184	32/33	AS	11:10 AM	11:15 AM	35	35	LH/CD	PASS
19	5/20/4364	27/34	AS	2:10 PM	2:15 PM	35	35	LH/CD	PASS
20	5/20/4544	33/34	AS	11:20 AM	11:25 AM	35	35	LH/CD	PASS
21	5/20/4724	34/35	AS	1:30 PM	1:35 PM	35	35	LH/CD	PASS
22	5/20/2024	28/35	AS	2:05 PM	2:10 PM	35	35	LH/CD	PASS
23	5/20/2204	35/36	AS	1:35 PM	1:40 PM	35	35	LH/CD	PASS
24	5/20/2024	29/36	AS	2:00 PM	2:05 PM	35	35	LH/CD	PASS
25	5/20/2204	36/37	AS	1:40 PM	1:45 PM	35	35	LH/CD	PASS
26	5/20/2024	30/37	AS	1:40 PM	1:45 PM	35	35	LH/CD	PASS
27	5/20/2204	24/Tie-In	AS	3:00 PM	3:05 PM	35	35	LH/CD	PASS
28	5/20/2024	25/Tie-In	AS	2:55 PM	3:00 PM	35	35	LH/CD	PASS
29	5/20/2204	26/Tie-In	AS	2:50 PM	2:55 PM	35	35	LH/CD	PASS
30	5/20/2024	27/Tie-In	AS	2:45 PM	2:50 PM	35	35	LH/CD	PASS
31	5/20/2204	28/Tie-In	AS	2:40 PM	2:45 PM	35	35	LH/CD	PASS
32	5/20/2024	29/Tie-In	AS	2:35 PM	2:40 PM	35	35	LH/CD	PASS
33	5/20/2204	30/Tie-In	AS	2:30 PM	2:35 PM	35	35	LH/CD	PASS
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Parkhill

PRIMARY FML - SEAMING PRESSURE TEST LOG

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

PRESSURE TEST LOCATION: Primary - Cell 1B

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	8/10/2024	1/2	AS	8:02 AM	8:07 AM	30	30	MW/CD	PASS
2	8/10/2024	1/Existing Tie-In North A	AS	8:21 AM	8:26 AM	30	30	MW/CD	PASS
3	8/10/2024	1/Existing Tie-In North B	AS	8:24 AM	8:29 AM	30	30	MW/CD	PASS
4	8/10/2024	1/Existing Tie-In North C	AS	8:26 AM	8:31 AM	30	30	MW/CD	PASS
5	8/10/2024	2/3	AS	8:41 AM	8:46 AM	30	30	MW/CD	PASS
6	8/10/2024	3/4	AS	8:51 AM	8:56 AM	30	30	MW/CD	PASS
7	8/10/2024	4/5	AS	9:08 AM	9:13 AM	30	30	MW/CD	PASS
8	8/10/2024	5/6	AS	9:23 AM	9:28 AM	30	30	MW/CD	PASS
9	8/10/2024	6/7	AS	9:44 AM	9:49 AM	30	30	MW/CD	PASS
10	8/10/2024	7/8	AS	10:02 AM	10:07 AM	30	30	MW/CD	PASS
11	8/10/2024	8/9	AS	10:12 AM	10:17 AM	30	30	MW/CD	PASS
12	8/10/2024	9/10	AS	10:26 AM	10:31 AM	30	30	MW/CD	PASS
13	8/10/2024	10/11	AS	10:42 AM	10:47 AM	30	30	MW/CD	PASS
14	8/10/2024	11/12	AS	12:40 PM	12:45 PM	30	30	MW/CD	PASS
15	8/12/2024	12/13	AS	7:32 AM	7:37 AM	30	30	MW/CD	PASS
16	8/12/2024	13/14	AS	7:52 AM	7:57 AM	30	30	MW/CD	PASS
17	8/12/2024	14/15	AS	7:57 AM	8:02 AM	30	30	MW/CD	PASS
18	8/12/2024	15/16	AS	8:05 AM	8:10 AM	30	30	MW/CD	PASS
19	8/12/2024	16/17	AS	8:12 AM	8:17 AM	30	30	MW/CD	PASS
20	8/12/2024	17/18	AS	8:28 AM	8:33 AM	30	30	MW/CD	PASS
21	8/12/2024	18/19	AS	8:44 AM	8:49 AM	30	30	MW/CD	PASS
22	8/12/2024	19/20	AS	8:58 AM	9:03 AM	30	30	MW/CD	PASS
23	8/12/2024	20/21	AS	9:06 AM	9:11 AM	30	30	MW/CD	PASS
24	8/12/2024	21/22	AS	9:22 AM	9:27 AM	30	30	MW/CD	PASS
25	8/12/2024	22/23	AS	9:31 AM	9:36 AM	30	30	MW/CD	PASS
26	8/12/2024	23/24	AS	9:38 AM	9:43 AM	30	30	MW/CD	PASS
27	8/12/2024	24/25	AS	9:58 AM	10:03 AM	30	30	MW/CD	PASS
28	8/12/2024	25/26	AS	10:07 AM	10:12 AM	30	30	MW/CD	PASS
29	8/12/2024	26/27	AS	10:18 AM	12:23 PM	30	30	MW/CD	PASS
30	8/12/2024	27/28	AS	10:41 AM	10:46 AM	30	30	MW/CD	PASS
31	8/12/2024	28/29	AS	12:36 PM	12:41 PM	30	30	MW/CD	PASS
32	8/12/2024	29/30	AS	12:42 PM	12:47 PM	30	30	MW/CD	PASS
33	8/12/2024	30/31	AS	12:54 PM	12:59 PM	30	30	MW/CD	PASS
34	8/12/2024	31/32	AS	1:03 PM	1:08 PM	30	30	MW/CD	PASS
35	8/12/2024	32/33	AS	1:24 PM	1:29 PM	30	30	MW/CD	PASS
36	8/12/2024	33/34	AS	1:52 PM	1:57 PM	30	30	MW/CD	PASS
37	8/13/2024	35/36	AS	8:02 AM	8:07 AM	30	30	MW/CD	PASS
38	8/13/2024	34/36	AS	8:18 AM	8:23 AM	30	30	MW/CD	PASS
39	8/13/2024	33/36	AS	8:19 AM	8:24 AM	30	30	MW/CD	PASS
40	8/13/2024	32/36	AS	8:21 AM	8:26 AM	30	30	MW/CD	PASS
41	8/13/2024	31/36	AS	8:22 AM	8:27 AM	30	30	MW/CD	PASS
42	8/13/2024	30/36	AS	8:32 AM	8:37 AM	30	30	MW/CD	PASS
43	8/13/2024	29/36	AS	8:33 AM	8:38 AM	30	30	MW/CD	PASS
44	8/13/2024	28/36	AS	8:34 AM	8:39 AM	30	30	MW/CD	PASS
45	8/13/2024	27/36	AS	8:35 AM	8:40 AM	30	30	MW/CD	PASS
46	8/13/2024	26/36	AS	8:42 AM	8:47 AM	30	30	MW/CD	PASS
47	8/13/2024	25/36	AS	8:43 AM	8:48 AM	30	30	MW/CD	PASS
48	8/13/2024	24/36	AS	8:46 AM	8:51 AM	30	30	MW/CD	PASS
49	8/13/2024	23/36	AS	8:47 AM	8:52 AM	30	30	MW/CD	PASS
50	8/13/2024	23/35	AS	8:52 AM	8:57 AM	30	30	MW/CD	PASS

Parkhill

PRIMARY FML - SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
OWNER:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2

PRESSURE TEST LOCATION: Primary - Cell 1B

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	8/13/2024	22/35	AS	9:00 AM	9:05 AM	30	30	MW/CD	PASS
2	8/13/2024	21/35	AS	9:01 AM	9:06 AM	30	30	MW/CD	PASS
3	8/13/2024	20/35	AS	9:03 AM	9:08 AM	30	30	MW/CD	PASS
4	8/13/2024	19/35	AS	9:04 AM	9:09 AM	30	30	MW/CD	PASS
5	8/13/2024	18/35	AS	9:05 AM	9:10 AM	30	30	MW/CD	PASS
6	8/13/2024	17/35	AS	9:06 AM	9:11 AM	30	30	MW/CD	PASS
7	8/13/2024	16/35	AS	9:29 AM	9:34 AM	30	30	MW/CD	PASS
8	8/13/2024	15/35	AS	9:30 AM	9:35 AM	30	30	MW/CD	PASS
9	8/13/2024	14/35	AS	9:31 AM	9:36 AM	30	30	MW/CD	PASS
10	8/13/2024	13/35	AS	9:32 AM	9:37 AM	30	30	MW/CD	PASS
11	8/13/2024	12/35	AS	9:33 AM	9:38 AM	30	30	MW/CD	PASS
12	8/13/2024	11/35	AS	9:34 AM	9:39 AM	30	30	MW/CD	PASS
13	8/13/2024	10/35	AS	9:36 AM	9:41 AM	30	30	MW/CD	PASS
14	8/13/2024	9/35	AS	9:37 AM	9:42 AM	30	30	MW/CD	PASS
15	8/13/2024	8/35	AS	9:41 AM	9:46 AM	30	30	MW/CD	PASS
16	8/13/2024	7/35	AS	9:42 AM	9:47 AM	30	30	MW/CD	PASS
17	8/13/2024	6/35	AS	9:45 AM	9:50 AM	30	30	MW/CD	PASS
18	8/13/2024	5/35	AS	9:46 AM	9:51 AM	30	30	MW/CD	PASS
19	8/13/2024	4/35	AS	9:51 AM	9:56 AM	30	30	MW/CD	PASS
20	8/13/2024	3/35	AS	9:52 AM	9:57 AM	30	30	MW/CD	PASS
21	8/13/2024	2/35	AS	9:55 AM	10:00 AM	30	30	MW/CD	PASS
22	8/13/2024	1/35	AS	9:56 AM	10:01 AM	30	30	MW/CD	PASS
23	8/13/2024	38/39	AS	10:22 AM	10:27 AM	30	30	MW/CD	PASS
24	8/13/2024	37/38	AS	10:23 AM	10:28 AM	30	30	MW/CD	PASS
25	8/13/2024	37/39 A	AS	12:42 PM	12:47 PM	30	30	MW/CD	PASS
26	8/13/2024	37/39 B	AS	12:51 PM	12:56 PM	30	30	MW/CD	PASS
27	8/13/2024	39/40 A	AS	1:36 PM	1:41 PM	30	30	MW/CD	PASS
28	8/13/2024	39/40 B	AS	2:01 PM	2:06 PM	30	30	MW/CD	PASS
29	8/13/2024	40/41	AS	2:16 PM	2:21 PM	30	30	MW/CD	PASS
30	8/13/2024	41/42 A	AS	2:22 PM	2:27 PM	30	30	MW/CD	PASS
31	8/13/2024	41/42 B	AS	2:36 PM	2:41 PM	30	30	MW/CD	PASS
32	8/13/2024	42/43	AS	2:43 PM	2:48 PM	30	30	MW/CD	PASS
33	8/13/2024	42/44 A	AS	3:14 PM	3:19 PM	30	30	MW/CD	PASS
34	8/13/2024	42/44 B	AS	3:00 PM	3:05 PM	30	30	MW/CD	PASS
35	8/13/2024	43/44	AS	3:10 PM	3:15 PM	30	30	MW/CD	PASS
36	8/14/2024	41/44	AS	8:24 AM	8:29 AM	30	30	MW/CD	PASS
37	8/14/2024	36/38	AS	8:02 AM	8:07 AM	30	30	MW/CD	PASS
38	8/14/2024	38/46	AS	8:04 AM	8:09 AM	30	30	MW/CD	PASS
39	8/14/2024	38/45	AS	8:19 AM	8:24 AM	30	30	MW/CD	PASS
40	8/14/2024	45/46	AS	8:21 AM	8:26 AM	30	30	MW/CD	PASS
41	8/14/2024	36/45	AS	8:18 AM	8:23 AM	30	30	MW/CD	PASS
42	8/14/2024	39/46 A	AS	8:06 AM	8:11 AM	30	30	MW/CD	PASS
43	8/14/2024	39/46 B	AS	8:07 AM	8:12 AM	30	30	MW/CD	PASS
44	8/14/2024	46/47	AS	8:10 AM	8:15 AM	30	30	MW/CD	PASS
45	8/14/2024	47/48	AS	8:12 AM	8:17 AM	30	30	MW/CD	PASS
46	8/14/2024	40/47	AS	8:14 AM	8:19 AM	30	30	MW/CD	PASS
47	8/14/2024	41/48	AS	8:15 AM	8:20 AM	30	30	MW/CD	PASS
48	8/14/2024	51/52 B	AS	9:53 AM	9:58 AM	30	30	MW/CD	PASS
49	8/14/2024	50/51	AS	9:54 AM	9:59 AM	30	30	MW/CD	PASS
50	8/14/2024	48/51	AS	10:10 AM	10:15 AM	30	30	MW/CD	PASS

Parkhill

PRIMARY FML - SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
OWNER:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PRESSURE TEST LOCATION: Primary - Cell 1B

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	8/14/2024	51/52 A	AS	9:49 AM	9:54 AM	30	30	MW/CD	PASS
2	8/14/2024	50/52	AS	9:20 AM	9:25 AM	30	30	MW/CD	PASS
3	8/14/2024	48/50	AS	10:07 AM	10:12 AM	30	30	MW/CD	PASS
4	8/14/2024	44/50	AS	10:13 AM	10:18 AM	30	30	MW/CD	PASS
5	8/14/2024	49/53	AS	1:52 PM	1:57 PM	30	30	MW/CD	PASS
6	8/14/2024	53/54 A	AS	1:46 PM	1:51 PM	30	30	MW/CD	PASS
7	8/14/2024	53/54 B	AS	1:58 PM	2:03 PM	30	30	MW/CD	PASS
8	8/15/2024	54/55	AS	7:43 AM	7:48 AM	30	30	MW/CD	PASS
9	8/15/2024	53/Existing Tie-In A	AS	8:03 AM	8:08 AM	30	30	MW/CD	PASS
10	8/15/2024	53/Existing Tie-In B	AS	8:04 AM	8:09 AM	30	30	MW/CD	PASS
11	8/15/2024	44/Existing Tie-In	AS	8:07 AM	8:12 AM	30	30	MW/CD	PASS
12	8/15/2024	43/Existing Tie-In	AS	8:09 AM	8:14 AM	30	30	MW/CD	PASS
13	8/15/2024	42/Existing Tie-In A	AS	8:10 AM	8:15 AM	30	30	MW/CD	PASS
14	8/15/2024	42/Existing Tie-In B	AS	8:12 AM	8:17 AM	30	30	MW/CD	PASS
15	8/15/2024	41/Existing Tie-In	AS	8:14 AM	8:19 AM	30	30	MW/CD	PASS
16	8/15/2024	37/Existing Tie-In	AS	8:31 AM	8:36 AM	30	30	MW/CD	PASS
17	8/15/2024	35/Existing Tie-In	AS	8:34 AM	8:39 AM	30	30	MW/CD	PASS
18	8/15/2024	55/Existing Tie-In	AS	8:41 AM	8:16 AM	30	30	MW/CD	PASS
19	8/15/2024	55/56	AS	9:06 AM	9:11 AM	30	30	MW/CD	PASS
20	8/15/2024	56/57	AS	9:12 AM	9:17 AM	30	30	MW/CD	PASS
21	8/15/2024	57/58	AS	9:21 AM	9:26 AM	30	30	MW/CD	PASS
22	8/15/2024	58/59	AS	9:43 AM	9:48 AM	30	30	MW/CD	PASS
23	8/15/2024	59/60	AS	1:02 PM	1:07 PM	30	30	MW/CD	PASS
24	8/15/2024	60/62	AS	10:03 AM	10:08 AM	30	30	MW/CD	PASS
25	8/15/2024	62/Existing Tie-In West A	AS	12:46 PM	12:51 PM	30	30	MW/CD	PASS
26	8/15/2024	62/63	AS	1:23 PM	1:28 PM	30	30	MW/CD	PASS
27	8/15/2024	63/Existing Tie-In West A	AS	10:41 AM	10:46 AM	30	30	MW/CD	PASS
28	8/15/2024	60/63	AS	10:36 AM	10:41 AM	30	30	MW/CD	PASS
29	8/15/2024	63/Existing Tie-In West B	AS	12:03 PM	12:08 PM	30	30	MW/CD	PASS
30	8/15/2024	61/62	AS	1:20 PM	1:25 PM	30	30	MW/CD	PASS
31	8/15/2024	61/Existing Tie-In West A	AS	1:16 PM	1:21 PM	30	30	MW/CD	PASS
32	8/15/2024	61/Existing Tie-In West B	AS	1:17 PM	1:22 PM	30	30	MW/CD	PASS
33	8/15/2024	60/61	AS	1:02 PM	1:07 PM	30	30	MW/CD	PASS
34	8/15/2024	67/68	AS	2:23 PM	2:28 PM	30	30	MW/CD	PASS
35	8/15/2024	68/69 A	AS	2:27 PM	2:32 PM	30	30	MW/CD	PASS
36	8/15/2024	68/69 B	AS	2:16 PM	2:21 PM	30	30	MW/CD	PASS
37	8/15/2024	69/70 A	AS	2:31 PM	2:36 PM	30	30	MW/CD	PASS
38	8/15/2024	69/70 B	AS	2:41 PM	2:46 PM	30	30	MW/CD	PASS
39	8/15/2024	70/71	AS	2:43 PM	2:48 PM	30	30	MW/CD	PASS
40	8/15/2024	71/72	AS	2:47 PM	2:52 PM	30	30	MW/CD	PASS
41	8/15/2024	72/73 A	AS	3:02 PM	3:07 PM	30	30	MW/CD	PASS
42	8/15/2024	72/73 B	AS	2:51 PM	2:56 PM	30	30	MW/CD	PASS
43	8/16/2024	73/Existing Tie-In West A	AS	7:07 AM	7:12 AM	30	30	MW/CD	PASS
44	8/16/2024	73/Existing Tie-In West B	AS	7:04 AM	7:09 AM	30	30	MW/CD	PASS
45	8/16/2024	73/Existing Tie-In West C	AS	7:02 AM	7:07 AM	30	30	MW/CD	PASS
46	8/16/2024	73/Existing Tie-In West D	AS	7:03 AM	7:08 AM	30	30	MW/CD	PASS
47	8/16/2024	63/73	AS	7:10 AM	7:15 AM	30	30	MW/CD	PASS
48	8/16/2024	60/72	AS	7:11 AM	7:16 AM	30	30	MW/CD	PASS
49	8/16/2024	59/71	AS	7:18 AM	7:23 AM	30	30	MW/CD	PASS
50	8/16/2024	58/70	AS	7:48 AM	7:53 AM	30	30	MW/CD	PASS

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PRIMARY FML - SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
OWNER:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	4

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PRESSURE TEST LOCATION: Primary - Cell 1B

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	8/16/2024	57/69	AS	7:51 AM	7:56 AM	30	30	MW/CD	PASS
2	8/16/2024	56/69	AS	8:01 AM	8:06 AM	30	30	MW/CD	PASS
3	8/16/2024	56/68	AS	8:02 AM	8:07 AM	30	30	MW/CD	PASS
4	8/16/2024	55/68	AS	8:03 AM	8:08 AM	30	30	MW/CD	PASS
5	8/16/2024	55/67	AS	8:04 AM	8:09 AM	30	30	MW/CD	PASS
6	8/16/2024	54/66	AS	8:06 AM	8:11 AM	30	30	MW/CD	PASS
7	8/15/2024	67/68	AS	2:20 PM	2:25 PM	30	30	MW/CD	PASS
8	8/16/2024	53/64	AS	8:08 AM	8:13 AM	30	30	MW/CD	PASS
9	8/15/2024	64/65	AS	2:04 PM	2:09 PM	30	30	MW/CD	PASS
10	8/15/2024	52/64	AS	2:03 PM	2:08 PM	30	30	MW/CD	PASS
11	8/15/2024	52/65	AS	2:06 PM	2:11 PM	30	30	MW/CD	PASS
12	8/15/2024	64/66	AS	2:04 PM	2:09 PM	30	30	MW/CD	PASS
13	8/15/2024	65/66	AS	2:08 PM	2:13 PM	30	30	MW/CD	PASS
14	8/15/2024	66/67	AS	2:20 PM	2:25 PM	30	30	MW/CD	PASS
15	8/16/2024	56/Existing Tie-In North A	AS	8:24 AM	8:29 AM	30	30	MW/CD	PASS
16	8/16/2024	56/Existing Tie-In North B	AS	8:25 AM	8:30 AM	30	30	MW/CD	PASS
17	8/16/2024	57/Existing Tie-In North A	AS	8:12 AM	8:17 AM	30	30	MW/CD	PASS
18	8/16/2024	57/Existing Tie-In North B	AS	8:13 AM	8:18 AM	30	30	MW/CD	PASS
19	8/16/2024	58/Existing Tie-In North A	AS	8:19 AM	8:24 AM	30	30	MW/CD	PASS
20	8/16/2024	58/Existing Tie-In North B	AS	8:20 AM	8:25 AM	30	30	MW/CD	PASS
21	8/16/2024	58/Existing Tie-In North C	AS	8:21 AM	8:26 AM	30	30	MW/CD	PASS
22	8/16/2024	59/Existing Tie-In North A	AS	8:22 AM	8:27 AM	30	30	MW/CD	PASS
23	8/16/2024	59/Existing Tie-In North B	AS	8:24 AM	8:29 AM	30	30	MW/CD	PASS
24	8/16/2024	60/Existing Tie-In A	AS	8:41 AM	8:46 AM	30	30	MW/CD	PASS
25	8/16/2024	60/Existing Tie-In B	AS	8:53 AM	8:58 AM	30	30	MW/CD	PASS
26	8/16/2024	61/Existing Tie-In A	AS	8:57 AM	9:02 AM	30	30	MW/CD	PASS
27	8/16/2024	61/Existing Tie-In B	AS	8:58 AM	9:03 AM	30	30	MW/CD	PASS
28	8/16/2024	62/Existing Tie-In West B	AS	12:50 PM	12:55 PM	30	30	MW/CD	PASS
29	8/15/2024	54/Existing Tie-In North	AS	8:05 AM	8:10 AM	30	30	MW/CD	PASS
30	8/17/2024	52/53	AS	8:46 AM	8:51 AM	30	30	MW/CD	PASS
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APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.16: FML Seam Vacuum Test and Defect-Repair Log

Parkhill

SECONDARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL Landfill Cell 2B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

TEST/REPAIR LOCATION: Secondary - Cell 2B
MONITOR: MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	5/9/2024	1/North Tie-In	4x4	RD	0	RD	5/15/2024	
2	5/9/2024	1/2/North Tie-In	3x4	RD	0	RD	5/15/2024	DT #1
3	5/9/2024	3/North Tie-In	2x2	RD	0	RD	5/15/2024	
4	5/9/2024	2/3/North Tie-In	3x3	RD	0	RD	5/15/2024	
5	5/9/2024	3/4/North Tie-In	2x2	RD	0	RD	5/15/2024	
6	5/9/2024	4/5/North Tie-In	2.5x3	RD	0	RD	5/15/2024	
7	5/9/2024	5/6/North Tie-In	2x2	RD	0	RD	5/15/2024	
8	5/9/2024	6/7/North Tie-In	1.5x2	RD	0	RD	5/15/2024	
9	5/9/2024	7/8/North Tie-In	2x2	RD	0	RD	5/15/2024	
10	5/9/2024	8 Hole @ End	1x1	RD	0	RD	5/15/2024	
11	5/9/2024	2/3/DT #2	2x4	TK	0	RD	5/15/2024	DT #2
12	5/9/2024	3/4/DT #3	2x4	TK	0	RD	5/15/2024	DT #3
13	5/9/2024	4/5/DT #4	2x4	TK	0	RD	5/15/2024	DT #4
14	5/9/2024	5/6/DT #5	2x4	TK	0	RD	5/15/2024	DT #5
15	5/9/2024	6/7/DT #6	2x4	TK	0	RD	5/15/2024	DT #6
16	5/9/2024	7/8/DT #7	2x4	TK	0	RD	5/15/2024	DT #7
17	5/11/2024	8/9/DT #8	2x4	TK	0	RD	5/15/2024	DT #8
18	5/11/2024	9/10/DT #9	2x4	TK	0	RD	5/15/2024	DT #9
19	5/11/2024	10/11/DT #10	2x4	TK	0	RD	5/15/2024	DT #10
20	5/11/2024	11/12/DT #11	2x4	TK	0	RD	5/15/2024	DT #11
21	5/11/2024	12/13/DT #12	2x4	TK	0	RD	5/15/2024	DT #12
22	5/11/2024	10/11 B.O	2x2	TK	0	RD	5/15/2024	
23	5/11/2024	13/14 B.O	2x2	TK	0	RD	5/15/2024	
24	5/11/2024	14/15 B.O	2x2	TK	0	RD	5/15/2024	
25	5/11/2024	15/16 B.O	2x2	TK	0	RD	5/15/2024	
26	5/13/2024	13/14/DT #13	2x4	TK	0	RD	5/15/2024	DT #13
27	5/13/2024	14/15/DT #14	2x4	TK	0	RD	5/15/2024	DT #14
28	5/13/2024	15/16/DT #15	2x4	TK	0	RD	5/15/2024	DT #15
29	5/13/2024	8/9/North Tie-In	2x6	TK	0	RD	5/15/2024	
30	5/13/2024	9/10/North Tie-In	2x2	TK	0	RD	5/15/2024	
31	5/13/2024	10/North Tie-In	3x24	TK	0	RD	5/15/2024	CAP
32	5/13/2024	10/11/North Tie-In	2x6	TK	0	RD	5/15/2024	
33	5/13/2024	11/12/North Tie-In	2x2	TK	0	RD	5/15/2024	
34	5/13/2024	12/13/North Tie-In	2x12	TK	0	RD	5/15/2024	
35	5/13/2024	13/14/North Tie-In	2x7	TK	0	RD	5/15/2024	
36	5/13/2024	14/15/North Tie-In	2x8	TK	0	RD	5/15/2024	
37	5/13/2024	15/16/North Tie-In	2x5	TK	0	RD	5/15/2024	
38	5/13/2024	16/17/North Tie-In	2x10	TK	0	RD	5/15/2024	
39	5/13/2024	17/18/Nort Tie-In	2x7	TK	0	RD	5/15/2024	
40	5/13/2024	16/17/DT #16	2x4	TK	0	RD	5/15/2024	DT #16

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SECONDARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL Landfill Cell 2B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 2

TEST/REPAIR LOCATION: Secondary - Cell 2B
MONITOR: MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	5/13/2024	17/18/DT #17	2x4	TK	0	RD	5/15/2024	DT #17
2	5/14/2024	Inter. 1/2/19/20	2x8	TK	0	RD	5/15/2024	DT #18
3	5/14/2024	Inter. 2/3/20/21	3x6	TK	0	RD	5/15/2024	DT #19
4	5/14/2024	Inter. 3/4/21/22	3x3	TK	0	RD	5/15/2024	
5	5/14/2024	Inter. 4/5/22/23	3x3	TK	0	RD	5/15/2024	
6	5/14/2024	Inter. 5/6/23/24	3x3	TK	0	RD	5/15/2024	
7	5/14/2024	Inter. 6/7/24/25	3x6	TK	0	RD	5/15/2024	DT #20
8	5/14/2024	Inter. 7/8/25/26	3x5	TK	0	RD	5/15/2024	
9	5/14/2024	Inter. 8/9/26/27	4x7	TK	0	RD	5/15/2024	DT #21
10	5/14/2024	Inter. 9/10/27/28	2x8	TK	0	RD	5/15/2024	
11	5/14/2024	Inter. 10/11/28/29	2x3	TK	0	RD	5/15/2024	
12	5/15/2024	Inter. 11/12/29/30	2x4	TK	0	RD	5/15/2024	
13	5/15/2024	30/31/DT #22	2x5	TK	0	RD	5/15/2024	DT #22
14	5/15/2024	Inter. 12/13/30/31	2x4	TK	0	RD	5/15/2024	
15	5/15/2024	Inter. 13/14/31/32	2x4	TK	0	RD	5/15/2024	
16	5/15/2024	Inter. 14/15/32/33	2x4	TK	0	RD	5/15/2024	
17	5/15/2024	Inter. 15/16/33/34	2x6	TK	0	RD	5/15/2024	DT #23
18	5/15/2024	Inter. 16/17/34/35	3x5	TK	0	RD	5/15/2024	
19	5/15/2024	34/35/DT #24	2x6	TK	0	RD	5/15/2024	DT #24
20	5/15/2024	Inter 34/35/36	2x2	TK	0	RD	5/15/2024	
21	5/15/2024	Inter. 35/36/37	2x4	TK	0	RD	5/15/2024	
22	5/15/2024	Inter 17/18/35/37	2x8	TK	0	RD	5/15/2024	DT #25
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PRIMARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL Landfill Cell 2B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

TEST/REPAIR LOCATION: Primary - Cell 2B
MONITOR: MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	5/21/2024	1North Tie-In	2x2	MV	0			
2	5/21/2024	1/3/North Tie-In DT#1	2x5	MV	0			DT #1
3	5/21/2024	3/5/North Tie-In	1x2	MV	0			
4	5/21/2024	5/8/North Tie-In	1x3	MV	0			
5	5/21/2024	8/10/North Tie-In	4x4	MV	0			
6	5/21/2024	10/11/North Tie-in	2x3	MV	0			
7	5/21/2024	11/12/North Tie-In	2x4	MV	0			
8	5/21/2024	12/13/North Tie-In	5x5	MV	0			
9	5/21/2024	13/14/North Tie-In	5x5	MV	0			
10	5/21/2024	14/15/North Tie-In	1x1	MV	0			
11	5/21/2024	3/5 DT #2	2x3	MV	0			DT #2
12	5/21/2024	3/5 B.O	2x2	MV	0			
13	5/21/2024	5/8 DT #3	2x4	MV	0			DT #3
14	5/21/2024	8/10 DT #5	2x4	MV	0			DT #5
15	5/21/2024	10/11 DT #6	2x4	MV	0			DT #6
16	5/21/2024	11/12 DT #7	2x4	MV	0			DT #7
17	5/21/2024	12/13 DT #8	2x4	MV	0			DT #8
18	5/21/2024	13/14 B.O	2x2	MV	0			
19	5/21/2024	13/14 B.O	2x2	MV	0			
20	5/21/2024	13/14 DT #9 CAP	2x15	MV	0			DT #9 CAP
21	5/21/2024	13/14 CAP	2x10	MV	0			
22	5/21/2024	14/15 DT #10	2x4	MV	0			DT #10
23	5/21/2024	Inter. 1/3/4	2x3	TK	0			
24	5/21/2024	Inter. 1/2/4 DT #4	3x6	TK	0			DT #4
25	5/21/2024	2/4 B.O	2x4	TK	0			
26	5/21/2024	Inter. 3/4/5	3x3	TK	0			
27	5/21/2024	Inter. 4/5/6	2x3	TK	0			
28	5/21/2024	Inter. 4/6/7	1x2	TK	0			
29	5/21/2024	Inter. 5/6/8/9	3x4	MV	0			
30	5/21/2024	Inter. 6/7/9	1x2	TK	0			
31	5/21/2024	Inter. 8/9/17/31 DT #12	3x15	TK	0			DT #12
32	5/21/2024	Inter. 10/11/17/18	3x3	TK	0			
33	5/21/2024	Inter. 11/12/18/19 DT #13	3x8	TK	0			DT #13
34	5/21/2024	18/19 B.O	3x5	TK	0			
35	5/21/2024	18/19 CAP B.O	3x7	TK	0			
36	5/21/2024	Inter. 12/13/19/20	2x3	TK	0			
37	5/21/2024	Inter. 13/14/20/21	3x4	TK	0			
38	5/21/2024	Inter. 14/15/21/22 DT #14	3x6	TK	0			DT #14
39	5/21/2024	Inter. 15/16/22/23	2x3	RD	0			
40	5/21/2024	Inter. 16/23/24/31 DT #22	3x10	RD	0			DT #22

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PRIMARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL Landfill Cell 2B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 2

TEST/REPAIR LOCATION: Primary - Cell 2B
MONITOR: MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	5/21/2024	Inter. 24/25/31/32	1x3	RD	0			
2	5/21/2024	Inter. 25/26/32/33	1x4	RD	0			
3	5/21/2024	Inter. 26/27/33/34	2x4	RD	0			
4	5/21/2024	33/34 B.O	2x5	RD	0			
5	5/21/2024	Inter. 27/28/34/35	2x4	RD	0			
6	5/21/2024	Inter. 28/29/35/36 DT #24	4x6	RD	0			DT #24
7	5/21/2024	Inter. 29/30/36/37 DT #25	2x7	RD	0			DT #25
8	5/21/2024	16/24 DT #15	2x4	RD	0			DT #15
9	5/21/2024	24/25 DT #16	2x4	RD	0			DT #16
10	5/21/2024	25/26 DT #17	2x4	RD	0			DT #17
11	5/21/2024	26/27 DT #18	2x4	RD	0			DT #18
12	5/21/2024	27/28 DT #19	2x4	RD	0			DT #19
13	5/21/2024	28/29 DT #20	2x4	RD	0			DT #20
14	5/21/2024	29/30 DT #21	2x4	RD	0			DT #21
15	5/21/2024	15/Tie-In	3x5	MV	0			
16	5/21/2024	15/16/Tie-In	1x1	MV	0			
17	5/21/2024	16/Tie-In	2x2	MV	0			
18	5/21/2024	26/24/Tie-In	3x15	MV	0			
19	5/21/2024	24/25/Tie-In	2x3	MV	0			
20	5/21/2024	25/26/Tie-In	2x2	MV	0			
21	5/21/2024	26/27/Tie-In	2x2	RD	0			
22	5/21/2024	27/28/Tie-In	5x15	RD	0			
23	5/21/2024	28/Tie-In	2x2	RD	0			
24	5/21/2024	28/29/Tie-In	2x2	RD	0			
25	5/21/2024	29/Tie-In	2x2	RD	0			
26	5/21/2024	29/30/Tie-In	2x2	RD	0			
27	5/21/2024	12	2x2	MV	0			
28	5/21/2024	12	2x2	MV	0			
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SECONDARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
OWNER:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
TEST/REPAIR LOCATION:	Secondary - Cell 1B	**MONITOR:**	MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	7/27/2024	Inter. 37/38/44	2x2	SL	0	RD	7/27/2024	
2	7/27/2024	Inter. 36/37/38	2x2	SL	0	RD	7/27/2024	
3	7/27/2024	Inter. 33/34/36	2x2	SL	0	RD	7/27/2024	
4	7/27/2024	Inter. 32/33/36	2x5	SL	0	RD	7/27/2024	DT#11
5	7/27/2024	Inter. 31/32/36	2x2	SL	0	RD	7/27/2024	
6	7/27/2024	Inter. 30/31/36	2.5x2	SL	0	RD	7/27/2024	
7	7/27/2024	Inter. 29/30/36	2x5	SL	0	RD	7/27/2024	DT#10
8	7/27/2024	Inter. 28/29/36	2.5x5	SL	0	RD	7/27/2024	DT#13
9	7/27/2024	Inter. 27/28/36	2x2	SL	0	RD	7/27/2024	
10	7/27/2024	Inter. 26/27/36	2x5	SL	0	RD	7/27/2024	DT#9
11	7/27/2024	Inter. 25/26/36	2x2	SL	0	RD	7/27/2024	
12	7/27/2024	Inter. 24/25/36	2x2	SL	0	RD	7/27/2024	
13	7/27/2024	Inter. 23/24/36	2x5	SL	0	RD	7/27/2024	DT#8
14	7/27/2024	Inter. 23/35/36	2x2	SL	0	RD	7/27/2024	
15	7/27/2024	Inter. 22/23/35	2x2	SL	0	RD	7/27/2024	
16	7/27/2024	Inter. 21/22/35	2x5	SL	0	RD	7/27/2024	DT#7
17	7/27/2024	Inter. 35/36/37/39	2x6	SL	0	RD	7/27/2024	DT#19
18	7/27/2024	Inter. 37/39/40	2x2	SL	0	RD	7/27/2024	
19	7/27/2024	Inter. 37/40/43	3x6	SL	0	RD	7/27/2024	DT#20
20	7/27/2024	Inter. 40/41/43/45	2x2	SL	0	RD	7/27/2024	
21	7/27/2024	Burnout 40/40 A/B	2x4	SL	0	RD	7/27/2024	
22	7/27/2024	Inter. 41/42/45/46	2x2	SL	0	RD	7/27/2024	
23	7/27/2024	Inter. 42/46/48	2x2	SL	0	RD	7/27/2024	
24	7/27/2024	Inter. 46/48/49	2x2	SL	0	RD	7/27/2024	
25	7/27/2024	Inter. 45/46/47	2.5x6	SL	0	RD	7/27/2024	DT#21
26	7/27/2024	Inter. 43/44/45	2x2	SL	0	RD	7/27/2024	
27	7/27/2024	Inter. 37/43/44	2x2	SL	0	RD	7/27/2024	
28	7/27/2024	Burnout 39/40	2x2	SL	0	RD	7/27/2024	
29	7/27/2024	Inter. 20/21/35	2x2	SL	0	RD	7/27/2024	
30	7/27/2024	Inter. 19/20/35	2x2	SL	0	RD	7/27/2024	
31	7/27/2024	Inter. 18/19/35	2x5	SL	0	RD	7/27/2024	DT#6
32	7/27/2024	Inter. 17/18/35	2x2	SL	0	RD	7/27/2024	
33	7/27/2024	Inter. 16/17/35	2x2	SL	0	RD	7/27/2024	
34	7/27/2024	Inter. 15/16/35	2x5	SL	0	RD	7/27/2024	DT#5
35	7/27/2024	Inter. 14/15/35	2.5x2	SL	0	RD	7/27/2024	
36	7/27/2024	Inter. 13/14/35	2x2	MV	0	RD	7/27/2024	
37	7/27/2024	Burnout 35/39	2x3	SL	0	RD	7/27/2024	
38	7/27/2024	Burnout 35/39	2x2	MV	0	RD	7/27/2024	
39	7/27/2024	Inter. 12/13/35	2x5	MV	0	RD	7/27/2024	DT#4
40	7/27/2024	Inter. 11/12/35	2x2	MV	0	RD	7/27/2024	

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SECONDARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 2

TEST/REPAIR LOCATION: Secondary - Cell 1B
MONITOR: MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	7/27/2024	Inter. 10/11/35	2x2	MV	0	RD	7/27/2024	
2	7/27/2024	Inter. 9/10/35	2x5	MV	0	RD	7/27/2024	DT#12
3	7/27/2024	Inter. 8/9/35	2x2	MV	0	RD	7/27/2024	
4	7/27/2024	Inter. 7/8/35	2x5	MV	0	RD	7/27/2024	DT#3
5	7/27/2024	Inter. 6/7/35	2x2	RD	0	RD	7/27/2024	
6	7/27/2024	Inter. 5/6/35	2x2	RD	0	RD	7/27/2024	
7	7/27/2024	Inter. 4/5/35	2x2	RD	0	RD	7/27/2024	
8	7/27/2024	Inter. 3/4/35	2x5	RD	0	RD	7/27/2024	DT#2
9	7/27/2024	Inter. 2/3/35	2x2	RD	0	RD	7/27/2024	
10	7/27/2024	Inter. 1/2/35	2x5	RD	0	RD	7/27/2024	DT#1
11	7/27/2024	Inter. 1/Existing Tie-In	4x5	RD	0	RD	7/27/2024	
12	7/27/2024	Burnout 1/Existing Tie-In	2x2	RD	0	RD	7/27/2024	
13	7/27/2024	DT#14 35/39	2x4	RD	0	RD	7/27/2024	DT#14
14	7/27/2024	DT#15 39/40	2x4	RD	0	RD	7/27/2024	DT#15
15	7/27/2024	Burnout 41/42	2x2	RD	0	RD	7/27/2024	
16	7/27/2024	DT#16 40/41	2x4	MV	0	RD	7/27/2024	DT#16
17	7/27/2024	Burnout 42/48	2x2	MV	0	RD	7/27/2024	
18	7/27/2024	DT#17 41/42	2.5x4	MV	0	RD	7/27/2024	DT#17
19	7/27/2024	DT#18 42/48	2.5x4	MV	0	RD	7/27/2024	DT#18
20	7/27/2024	Inter. 35/39/Existing	2x5	RD	0	RD	7/27/2024	
21	7/27/2024	Inter. 39/40/Existing	2.5x5	RD	0	RD	7/27/2024	
22	7/27/2024	Burnout 39/Existing	2x4	RD	0	RD	7/27/2024	
23	7/27/2024	Inter. 40/41/Existing	2x3	RD	0	RD	7/27/2024	
24	7/27/2024	Burnout 41/Existing	2x2	RD	0	RD	7/27/2024	
25	7/27/2024	Inter. 41/42/Existing	3x3	RD	0	RD	7/27/2024	
26	7/27/2024	Burnout 42/Existing	3x5	RD	0	RD	7/27/2024	
27	7/27/2024	Inter. 42/48	3x3	RD	0	RD	7/27/2024	
28	7/27/2024	Burnout 13/14	2x2	SL	0	RD	7/27/2024	
29	7/27/2024	Burnout 21/22	2x2	MV	0	RD	7/27/2024	
30	7/27/2024	Burnout 23/24	2x2	MV	0	RD	7/27/2024	
31	7/27/2024	Burnout 28/29	2x2	MV	0	RD	7/27/2024	
32	7/27/2024	Burnout 28/29	2x2	MV	0	RD	7/27/2024	
33	8/2/2024	DT#33 48/60	2x5	MV	0	RD	8/3/2024	DT#33
34	7/31/2024	Inter. 48/60/Existing	2.5x7	MV	0	RD	8/3/2024	Tie-In North
35	7/31/2024	Cap 59/Existing Tie-in North	2.5x7	MV	0	RD	8/3/2024	Inter. 58/59/60
36	7/31/2024	Burnout 58/Existing Tie-In North	2x3	MV	0	RD	8/3/2024	
37	7/31/2024	Burnout 58/69	2x2	MV	0	RD	8/3/2024	
38	7/31/2024	Inter. 57/58 Existing Tie-In North	2x4	MV	0	RD	8/3/2024	
39	7/31/2024	Burnout 51/Existing Tie-In North	2x2	MV	0	RD	8/3/2024	
40	7/31/2024	Inter 56/57/Existing Tie-In North	2x12	MV	0	RD	8/3/2024	

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SECONDARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 3

TEST/REPAIR LOCATION: Secondary - Cell 1B
MONITOR: MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	7/31/2024	Inter. 55/56/Existing Tie-In North	2x12	MV	0	RD	8/3/2024	
2	8/2/2024	Burnout 54/55	2x2	MV	0	RD	8/3/2024	
3	7/31/2024	Inter. 54/55/Existing Tie-in North	2x6	MV	0	RD	8/3/2024	
4	8/2/2024	Inter. 53/54/Existing Tie-in North	2x13	MV	0	RD	8/3/2024	
5	8/2/2024	Burnout 53/Existing Tie-In North	2x3	MV	0	RD	8/3/2024	
6	8/2/2024	Inter. 52/53/Existing Tie-In North	2x7	MV	0	RD	8/3/2024	
7	8/2/2024	Burnout 52/Existing Tie-In North	2x2	MV	0	RD	8/3/2024	
8	8/2/2024	Inter. 51/52/Existing Tie-In North	2x2	MV	0	RD	8/3/2024	
9	8/2/2024	DT#23 50/51	2x4	MV	0	RD	8/3/2024	DT#23
10	8/2/2024	DT#24 51/52	2x5	MV	0	RD	8/3/2024	DT#24
11	8/2/2024	DT#25 52/53	2x4	MV	0	RD	8/3/2024	DT#25
12	8/2/2024	DT#26 53/54	2x4	MV	0	RD	8/3/2024	DT#26
13	8/2/2024	DT#27 54/55	1.5x5	MV	0	RD	8/3/2024	DT#27
14	8/2/2024	DT#28 55/56	2x5	MV	0	RD	8/3/2024	DT#28
15	8/2/2024	DT#29 56/57	2x5	MV	0	RD	8/3/2024	DT#29
16	8/2/2024	DT#30 57/58	2x5	MV	0	RD	8/3/2024	DT#30
17	8/2/2024	DT#31 58/59	2x4	MV	0	RD	8/3/2024	DT#31
18	8/2/2024	Inter. 48/59/61	2x7	MV	0	RD	8/3/2024	
19	8/2/2024	DT#32 Inter. 59/60/61	2x6	MV	0	RD	8/3/2024	DT#32
20	8/2/2024	Inter. 48/60/61	2x3	MV	0	RD	8/3/2024	
21	8/2/2024	Burnout 51/Existing Tie-In North	2x6	MV	0	RD	8/3/2024	
22	8/2/2024	Inter. 50/51/Existing Tie-In North	4x4	MV	0	RD	8/3/2024	
23	8/2/2024	Burnout 50/Existing Tie-In North	3x3	MV	0	RD	8/3/2024	
24	8/2/2024	Inter. 50/Existing Tie-In North & West	3x4	MV	0	RD	8/3/2024	
25	8/3/2024	Burnout 50/Existing Tie-In West	3x4	SL	0	RD	8/3/2024	
26	8/3/2024	DT#22 50/Existing Tie-In West	3x21	SL	0	RD	8/3/2024	DT#22
27	8/2/2024	Burnout 50/Existing Tie-In West	2x4	SL	0	RD	8/3/2024	
28	8/2/2024	Inter. 50/62/Existing Tie-In West	3x4	SL	0	RD	8/3/2024	
29	8/2/2024	Burnout 62/Existing Tie-In West	2x2	SL	0	RD	8/3/2024	
30	8/2/2024	62/Existing Tie-In West	2x2	SL	0	RD	8/3/2024	
31	8/2/2024	DT#34 62/Existing Tie-In West	2x5	SL	0	RD	8/3/2024	DT#34
32	8/2/2024	Inter. 50/62/63	2x6	SL	0	RD	8/3/2024	DT#35
33	8/2/2024	Inter. 50/51/63	3x3	SL	0	RD	8/3/2024	
34	8/2/2024	Inter. 51/52/63/64	3x3	SL	0	RD	8/3/2024	
35	8/2/2024	Inter. 63/64/65	2x2	SL	0	RD	8/3/2024	
36	8/2/2024	DT#36 Inter. 64/65/66	2x6	SL	0	RD	8/3/2024	DT#36
37	8/2/2024	Inter. 52/64/66	2x3	SL	0	RD	8/3/2024	
38	8/2/2024	Inter. 52/53/66	2x3	SL	0	RD	8/3/2024	
39	8/2/2024	Inter. 53/54/66	2x2	SL	0	RD	8/3/2024	
40	8/2/2024	Inter. 54/66/67	3x3	SL	0	RD	8/3/2024	

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SECONDARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 4

TEST/REPAIR LOCATION: Secondary - Cell 1B
MONITOR: MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	8/2/2024	DT#37 Inter. 54/55/67/68	2x6	SL	0	RD	8/3/2024	DT#37
2	8/2/2024	DT#38 Inter. 55/56/68/69	2x12	SL	0	RD	8/3/2024	DT#38
3	8/2/2024	Inter. 56/57/69/70	2x3	SL	0	RD	8/3/2024	
4	8/2/2024	DT#39 Inter. 69/70/71	2x5	SL	0	RD	8/3/2024	DT#39
5	8/2/2024	Inter. 70/71/72	2x2	SL	0	RD	8/3/2024	
6	8/2/2024	DT#40 Inter. 57/58/70/72	3x5	SL	0	RD	8/3/2024	DT#40
7	8/2/2024	Inter. 58/59/72/74	3x3	SL	0	RD	8/3/2024	
8	8/3/2024	DT#42 Inter. 48/59/74	3x5	SL	0	RD	8/3/2024	DT#42
9	8/2/2024	Inter. 71/72/73	3x4	SL	0	RD	8/3/2024	
10	8/2/2024	Inter. 72/73/75	3x3	SL	0	RD	8/3/2024	
11	8/2/2024	DT#41 Inter. 72/74/75	2x7	SL	0	RD	8/3/2024	DT#41
12	8/3/2024	Inter. 48/49/74	2x8	SL	0	RD	8/3/2024	
13	8/3/2024	Inter. 46/49/74	2x7	SL	0	RD	8/3/2024	Cap 49/76
14	8/3/2024	Inter. 49/74/75/76	2x4	SL	0	RD	8/3/2024	
15	8/2/2024	DT#43 Inter. 46/47/76	2.5x6	SL	0	RD	8/3/2024	DT#43
16	8/2/2024	Inter. 47/76/77	2x2	SL	0	RD	8/3/2024	
17	8/3/2024	Inter. 75/76/77	2x2	SL	0	RD	8/3/2024	
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PRIMARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

TEST/REPAIR LOCATION: Primary - Cell 1B
MONITOR: MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	8/16/2024	Inter. 43/44/Existing Tie-In North	2x2	SL	0	RD	8/17/2024	
2	8/16/2024	Inter. 42/43/Existing Tie-in North	3x5	SL	0	RD	8/17/2024	
3	8/16/2024	Burnout 42/Existing	2x3	SL	0	RD	8/17/2024	
4	8/16/2024	Inter. 41/42/Existing	2x3	SL	0	RD	8/17/2024	
5	8/16/2024	Burnout 41/Existing	2x3	SL	0	RD	8/17/2024	
6	8/16/2024	Cap 40/Existing Tie-In North	2.5x26	SL	0	RD	8/17/2024	
7	8/16/2024	Cap 39/Existing Tie-In North	2.5x25	SL	0	RD	8/17/2024	
8	8/16/2024	Inter. 35/37/Existing Tie-In North	2x6	SL	0	RD	8/17/2024	
9	8/16/2024	Inter. 35/Existing Tie-In North	2x6	SL	0	RD	8/17/2024	
10	8/16/2024	Burnout 1/Existing Tie-In North	2x2	SL	0	RD	8/17/2024	
11	8/16/2024	Burnout 1/Existing Tie-In North	2x3	SL	0	RD	8/17/2024	
12	8/16/2024	DT#1 Inter. 1/2/35	2x5	SL	0	RD	8/17/2024	DT#1
13	8/16/2024	Cap 49/Existing Tie-In North	2x26	MV	0	RD	8/17/2024	
14	8/16/2024	Burnout 53/Existing Tie-In North	3x3	MV	0	RD	8/17/2024	
15	8/16/2024	Inter. 53/54/Existing Tie-In North	2x3	MV	0	RD	8/17/2024	
16	8/16/2024	Cap 54/Existing Tie-In North	2x10	MV	0	RD	8/17/2024	
17	8/16/2024	Cap 54/Existing Tie-In North	2x12	MV	0	RD	8/17/2024	
18	8/16/2024	Inter. 54/55/Existing Tie-In North	2x6	MV	0	RD	8/17/2024	
19	8/16/2024	Inter. 55/56/Existing Tie-In North	2x2	MV	0	RD	8/17/2024	
20	8/16/2024	Burnout 56/Existing Tie-In North	2x2	MV	0	RD	8/17/2024	
21	8/16/2024	Inter. 56/57/Existing Tie-In North	2x2	MV	0	RD	8/17/2024	
22	8/16/2024	Burnout 57/Existing Tie-In North	2x2	MV	0	RD	8/17/2024	
23	8/16/2024	Inter. 57/58/Existing Tie-In North	2x5	MV	0	RD	8/17/2024	
24	8/16/2024	Burnout 58/Existing Tie-In North	2x2	MV	0	RD	8/17/2024	
25	8/16/2024	Burnout 58/Existing Tie-In North	2x3	MV	0	RD	8/17/2024	
26	8/16/2024	Inter. 58/59/Existing Tie-In North	2x3	MV	0	RD	8/17/2024	
27	8/16/2024	Burnout 59/Existing Tie-In North	2x3	MV	0	RD	8/17/2024	
28	8/16/2024	Inter. 59/60/Existing Tie-In North	3x4	MV	0	RD	8/17/2024	
29	8/16/2024	Burnout 59/Existing Tie-In North	2x5	MV	0	RD	8/17/2024	
30	8/16/2024	Inter. 60/61/Existing Tie-In North	3x4	MV	0	RD	8/17/2024	
31	8/16/2024	Burnout 61/Existing Tie-In North	2x3	MV	0	RD	8/17/2024	
32	8/16/2024	Inter. 61/62/Existing Tie-In North	3x5	MV	0	RD	8/17/2024	
33	8/16/2024	Inter. 2/3/35	2x2	SL	0	RD	8/17/2024	
34	8/16/2024	DT#2 Inter. 3/4/35	2x6	SL	0	RD	8/17/2024	DT#2
35	8/16/2024	Inter. 4/5/35	2x2	SL	0	RD	8/17/2024	
36	8/16/2024	DT#14 35/37	2x2	SL	0	RD	8/17/2024	DT#14
37	8/16/2024	Inter. 5/6/35	2x2	SL	0	RD	8/17/2024	
38	8/16/2024	Inter. 6/7/35	2x2	SL	0	RD	8/17/2024	
39	8/16/2024	Inter. 7/8/35	2x2	SL	0	RD	8/17/2024	
40	8/16/2024	DT#3 Inter. 8/9/35	2x5	SL	0	RD	8/17/2024	DT#3

Parkhill

PRIMARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 2

TEST/REPAIR LOCATION: Primary - Cell 1B
MONITOR: MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	8/17/2024	Inter. 9/10/35	2x2	SL	0	RD	8/17/2024	
2	8/17/2024	Inter. 10/11/35	2x2	SL	0	RD	8/17/2024	
3	8/17/2024	DT#4 Inter. 11/12/35	2x2	SL	0	RD	8/17/2024	DT#4
4	8/17/2024	Inter. 12/13/35	2x6	SL	0	RD	8/17/2024	
5	8/17/2024	Inter. 13/14/35	2x2	SL	0	RD	8/17/2024	
6	8/17/2024	DT#5 Inter. 14/15/35	2x2	SL	0	RD	8/17/2024	DT#5
7	8/17/2024	DT#12 Inter. 15/16/35	2x6	SL	0	RD	8/17/2024	DT#12
8	8/17/2024	Inter. 16/17/35	2x2	SL	0	RD	8/17/2024	
9	8/17/2024	Inter. 17/18/35	2x2	SL	0	RD	8/17/2024	
10	8/17/2024	DT#6 Inter. 18/19/35	2x6	SL	0	RD	8/17/2024	DT#6
11	8/17/2024	Inter. 19/20/35	2x2	SL	0	RD	8/17/2024	
12	8/17/2024	Inter. 20/21/35	2x2	SL	0	RD	8/17/2024	
13	8/17/2024	Inter. 21/22/35	2x2	SL	0	RD	8/17/2024	
14	8/17/2024	DT#7 Inter. 22/23/35	2x6	SL	0	RD	8/17/2024	DT#7
15	8/17/2024	Inter. 23/35/36	2x2	SL	0	RD	8/17/2024	
16	8/17/2024	Inter. 23/24/36	2x2	SL	0	RD	8/17/2024	
17	8/17/2024	Inter. 24/25/36	2x2	SL	0	RD	8/17/2024	
18	8/17/2024	DT#13 Inter. 25/26/36	2x6	SL	0	RD	8/17/2024	DT#13
19	8/17/2024	DT#8 Inter. 26/27/36	2x6	SL	0	RD	8/17/2024	DT#8
20	8/17/2024	Inter. 27/28/36	2x2	SL	0	RD	8/17/2024	
21	8/17/2024	DT#9 Inter. 28/29/36	2x6	SL	0	RD	8/17/2024	DT#9
22	8/17/2024	Inter. 29/30/36	2x2	SL	0	RD	8/17/2024	
23	8/17/2024	DT#10 Inter. 30/31/36	2x5	SL	0	RD	8/17/2024	DT#10
24	8/17/2024	Inter. 31/32/36	2x2	SL	0	RD	8/17/2024	
25	8/17/2024	Inter. 32/33/36	2x2	SL	0	RD	8/17/2024	
26	8/17/2024	DT#11 Inter. 33/34/36	2x6	SL	0	RD	8/17/2024	DT#11
27	8/17/2024	Inter. 42/43/44	2.5x9	SL	0	RD	8/17/2024	
28	8/17/2024	Burnout 41/42	2x3	SL	0	RD	8/17/2024	
29	8/17/2024	DT#19 42/44 A	2x6	SL	0	RD	8/17/2024	DT#19
30	8/17/2024	DT#15 37/39 B	2x6	SL	0	RD	8/17/2024	DT#15
31	8/17/2024	DT#16 39/40	2x6	SL	0	RD	8/17/2024	DT#16
32	8/17/2024	Burnout 39/40	2x2	SL	0	RD	8/17/2024	
33	8/17/2024	DT#18 40/41	2x5	SL	0	RD	8/17/2024	DT#18
34	8/17/2024	DT#17 41/42	2x5	SL	0	RD	8/17/2024	DT#17
35	8/17/2024	Burnout 61/Existing Tie-In West	2x3	MV	0	RD	8/17/2024	
36	8/17/2024	Inter. 60/61/62	2x3	MV	0	RD	8/17/2024	
37	8/17/2024	DT#35 Inter. 61/66/Existing Tie-In West	2.5x10	MV	0	RD	8/17/2024	DT#35
38	8/17/2024	DT#34 60/62	2x5	MV	0	RD	8/17/2024	DT#34
39	8/17/2024	DT#33 59/60	2x5	MV	0	RD	8/17/2024	DT#33
40	8/17/2024	Burnout 62/Existing Tie-In West	2x	MV	0	RD	8/17/2024	

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PRIMARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 3

TEST/REPAIR LOCATION: Primary - Cell 1B
MONITOR: MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	8/17/2024	Inter. 62/63/Existing Tie-In West	3x3	MV	0	RD	8/17/2024	
2	8/17/2024	DT#36 Inter. 60/62/63	2x7	MV	0	RD	8/17/2024	DT#36
3	8/17/2024	DT#32 58/59	2x5	MV	0	RD	8/17/2024	DT#32
4	8/17/2024	DT#31 57/58	2x4	MV	0	RD	8/17/2024	DT#31
5	8/17/2024	DT$30 56/57	2x4	MV	0	RD	8/17/2024	DT#30
6	8/17/2024	DT#29 55/56	2x5	MV	0	RD	8/17/2024	DT#29
7	8/17/2024	DT#28 54/55	2x5	MV	0	RD	8/17/2024	DT#28
8	8/17/2024	DT#27 53/54	2x5	MV	0	RD	8/17/2024	DT#27
9	8/17/2024	DT#26 49/53	2x5	MV	0	RD	8/17/2024	DT#26
10	8/17/2024	73/Existing Tie-In West	2x2	MV	0	RD	8/17/2024	
11	8/17/2024	DT#41 73/Existing Tie-In West	2x5	MV	0	RD	8/17/2024	DT#41
12	8/17/2024	Burnout 73/Existing Tie-In West	2x2	MV	0	RD	8/17/2024	
13	8/17/2024	Inter. 63/73/Existing Tie-In West	3x3	MV	0	RD	8/17/2024	
14	8/17/2024	Inter. 60/63/72/73	3x4	MV	0	RD	8/17/2024	
15	8/17/2024	Burnout 72/73	3x3	MV	0	RD	8/17/2024	
16	8/17/2024	DT#40 Inter. 59/60/71/70	3x25	MV	0	RD	8/17/2024	DT#40
17	8/17/2024	Inter. 58/59/70/71	3x19	MV	0	RD	8/17/2024	
18	8/17/2024	Inter. 57/58/69/70	2x3	MV	0	RD	8/17/2024	
19	8/17/2024	DT#39 69/70 A	2x7	MV	0	RD	8/17/2024	DT#39
20	8/17/2024	Inter. 56/57/69	3x4	MV	0	RD	8/17/2024	
21	8/17/2024	Inter. 56/68/69	4x4	MV	0	RD	8/17/2024	
22	8/17/2024	Inter. 55/56/68	2x4	MV	0	RD	8/17/2024	
23	8/17/2024	Inter. 55/67/68	3x4	MV	0	RD	8/17/2024	
24	8/17/2024	DT#37 Inter. 54/66/67	2x6	MV	0	RD	8/17/2024	DT#37
25	8/17/2024	Inter. 53/54/64/66	2x4	MV	0	RD	8/17/2024	
26	8/17/2024	DT#42 52/53/64	2x6	MV	0	RD	8/17/2024	DT#42
27	8/17/2024	Inter. 49/53/52	2x4	MV	0	RD	8/17/2024	
28	8/17/2024	DT#21 Inter. 44/49/50/52	3x6	MV	0	RD	8/17/2024	DT#21
29	8/17/2024	Inter. 41/44/48/50	3x3	MV	0	RD	8/17/2024	
30	8/17/2024	Inter. 40/41/47/48	3x3	MV	0	RD	8/17/2024	
31	8/17/2024	DT#23 Inter. 39/40/46/47	2x24	MV	0	RD	8/17/2024	DT#23
32	8/17/2024	Burnout 39/40	2x2	MV	0	RD	8/17/2024	
33	8/17/2024	Inter. 38/39/46	3x3	MV	0	RD	8/17/2024	
34	8/17/2024	Inter. 37/38/39	2x2	MV	0	RD	8/17/2024	
35	8/17/2024	DT#20 Inter. 35/36/37/38	2x7	MV	0	RD	8/17/2024	DT#20
36	8/17/2024	Inter. 36/38/45	2x3	MV	0	RD	8/17/2024	
37	8/17/2024	DT#22 Inter. 38/45/46	2x7	MV	0	RD	8/17/2024	DT#22
38	8/17/2024	Burnout 51/52	2x3	MV	0	RD	8/17/2024	
39	8/17/2024	DT#25 Inter. 50/51/52	2x6	MV	0	RD	8/17/2024	DT#25
40	8/17/2024	DT#24 Inter. 48/50/51	2x6	MV	0	RD	8/17/2024	DT#24

Parkhill

PRIMARY FML - SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL Landfill Cell 1B
PROJECT NUMBER: 42035.23
OWNER: Oilfield Water Logistics (OWL)
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 4

TEST/REPAIR LOCATION: Primary - Cell 1B
MONITOR: MW/CD

	REPAIR DATE	PANEL	SIZE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	8/17/2024	Inter. 52/64/65	2x3	MV	0	RD	8/17/2024	
2	8/17/2024	DT#43 Inter. 64/65/66	2x6	MV	0	RD	8/17/2024	DT#43
3	8/17/2024	DT#38 68/69	2x5	MV	0	RD	8/17/2024	DT#38
4	8/17/2024	Inter. 41/42/43	2x7	MV	0	RD	8/17/2024	
5								
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APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.17: Geocomposite Deployment Log

Parkhill

GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
DEPLOYMENT LOCATION:	Cell 2B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	20086	250	14.5	3,625	5/22/2024
2	20130	250	14.5	3,625	5/22/2024
3	20097	152	14.5	2,204	5/22/2024
4	20097	98	14.5	1,421	5/22/2024
5	20105	250	14.5	3,625	5/22/2024
6	20131	250	14.5	3,625	5/22/2024
7	20074	72	14.5	1,044	5/22/2024
8	20074	178	14.5	2,581	5/22/2024
9	20103	250	14.5	3,625	5/22/2024
10	20078	223	14.5	3,234	5/22/2024
11	20067	250	14.5	3,625	5/22/2024
12	20120	250	14.5	3,625	5/22/2024
13	20115	147	14.5	2,132	5/22/2024
14	20115	103	14.5	1,494	5/22/2024
15	20059	250	14.5	3,625	5/22/2024
16	20027	250	14.5	3,625	5/22/2024
17	20113	250	14.5	3,625	5/22/2024
18	20102	250	14.5	3,625	5/22/2024
19	20055	55	14.5	798	5/22/2024
20	20055	143	14.5	2,074	5/22/2024
21	20068	250	14.5	3,625	5/22/2024
22	20129	250	14.5	3,625	5/22/2024
23	20122	101	14.5	1,465	5/22/2024
24	20055	52	14.5	754	5/22/2024
25	20122	149	14.5	2,161	5/22/2024
26	20020	250	14.5	3,625	5/22/2024
27	20112	250	14.5	3,625	5/22/2024
28	20119	250	14.5	3,625	5/22/2024
29	20057	250	14.5	3,625	5/22/2024
30	20125	156	14.5	2,262	5/22/2024
31	20125	94	14.5	1,363	5/22/2024
32	20060	250	14.5	3,625	5/22/2024
33	20065	250	14.5	3,625	5/22/2024
34	20030	55	14.5	798	5/22/2024
35	20030	195	14.5	2,828	5/22/2024
36	20018	250	14.5	3,625	5/22/2024
37	20035	205	14.5	2,973	5/22/2024
38	20029	250	14.5	3,625	5/22/2024
39	20066	250	14.5	3,625	5/22/2024
40	20123	146	14.5	2,117	5/22/2024
			TOTAL LINER PLACED (FT^2):	113,448	

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GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
DEPLOYMENT LOCATION:	Cell 2B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	20123	104	14.5	1,508	5/22/2024
42	20077	250	14.5	3,625	5/22/2024
43	20035	45	14.5	653	5/22/2024
44	20107	250	14.5	3,625	5/22/2024
45	20040	250	14.5	3,625	5/22/2024
46	20021	250	14.5	3,625	5/22/2024
47	20032	150	14.5	2,175	5/22/2024
48	20114	250	14.5	3,625	5/22/2024
49	20032	100	14.5	1,450	5/22/2024
50	20024	250	14.5	3,625	5/22/2024
51	20090	250	14.5	3,625	5/22/2024
52	20053	250	14.5	3,625	5/22/2024
53	20053	250	14.5	3,625	5/22/2024
54	20051	250	14.5	3,625	5/22/2024
55	20095	250	14.5	3,625	5/22/2024
56	20053	250	14.5	3,625	5/22/2024
57	20082	250	14.5	3,625	5/22/2024
58	20064	250	14.5	3,625	5/22/2024
59	20043	250	14.5	3,625	5/22/2024
60	20047	250	14.5	3,625	5/22/2024
61	20083	250	14.5	3,625	5/22/2024
62	20081	250	14.5	3,625	5/22/2024
63	20043	250	14.5	3,625	5/22/2024
64	20088	250	14.5	3,625	5/22/2024
65	20076	250	14.5	3,625	5/22/2024
66	20055	250	14.5	3,625	5/22/2024
67	20013	250	14.5	3,625	5/22/2024
68	20008	250	14.5	3,625	5/22/2024
69	20005	250	14.5	3,625	5/22/2024
70	20016	250	14.5	3,625	5/22/2024
71	20004	250	14.5	3,625	5/22/2024
72	20045	250	14.5	3,625	5/22/2024
73	20110	60	14.5	870	5/22/2024
74	20100	150	14.5	2,175	5/22/2024
75	20106	150	14.5	2,175	5/22/2024
76	20106	100	14.5	1,450	5/22/2024
77	20056	56	14.5	812	5/22/2024
78	20056	163	14.5	2,364	5/22/2024
79	20056	31	14.5	450	5/22/2024
80	20041	123	14.5	1,784	5/22/2024
			TOTAL LINER PLACED (FT^2):	119,364	

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GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 2B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3
DEPLOYMENT LOCATION:	Cell 2B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
81	20041	127	14.5	1,842	5/22/2024
82	20110	25	14.5	363	5/22/2024
83	20037	156	14.5	2,262	5/22/2024
84	20037	94	14.5	1,363	5/22/2024
85	20026	150	14.5	2,175	5/22/2024
86	20026	100	14.5	1,450	5/22/2024
87	20038	69	14.5	1,001	5/22/2024
88	20038	63	14.5	914	5/22/2024
89	20038	118	14.5	1,711	5/22/2024
90	20022	42	14.5	609	5/22/2024
91	20022	208	14.5	3,016	5/23/2024
92	20155	250	14.5	3,625	5/23/2024
93	20044	250	14.5	3,625	5/23/2024
94	20054	250	14.5	3,625	5/23/2024
95	20046	250	14.5	3,625	5/23/2024
96	20092	250	14.5	3,625	5/23/2024
97	20051	250	14.5	3,625	5/23/2024
98	20075	250	14.5	3,625	5/23/2024
99	20048	204	14.5	2,958	5/23/2024
100	20048	46	14.5	667	5/23/2024
101	20042	110	14.5	1,595	5/23/2024
102	20042	140	14.5	2,030	5/23/2024
103	20089	23	14.5	334	5/23/2024
104	20089	158	14.5	2,291	5/23/2024
			TOTAL LINER PLACED (FT^2):	51,954	

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GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	10071	184	14.5	2,668	8/19/2024
2	10071	16	14.5	232	8/19/2024
3	10082	165	14.5	2,393	8/19/2024
4	10082	35	14.5	508	8/19/2024
5	10075	151	14.5	2,190	8/19/2024
6	10075	49	14.5	711	8/19/2024
7	10035	132	14.5	1,914	8/19/2024
8	10035	68	14.5	986	8/19/2024
9	10029	117	14.5	1,697	8/19/2024
10	10029	83	14.5	1,204	8/19/2024
11	10083	99	14.5	1,436	8/19/2024
12	10083	101	14.5	1,465	8/19/2024
13	10053	81	14.5	1,175	8/19/2024
14	10053	119	14.5	1,726	8/19/2024
15	10041	65	14.5	943	8/19/2024
16	10041	135	14.5	1,958	8/19/2024
17	10062	44	14.5	638	8/19/2024
18	10062	156	14.5	2,262	8/19/2024
19	10034	24	14.5	348	8/19/2024
20	10034	176	14.5	2,552	8/19/2024
21	10072	178	14.5	2,581	8/19/2024
22	10072	22	14.5	319	8/19/2024
23	10060	151	14.5	2,190	8/19/2024
24	10060	49	14.5	711	8/19/2024
25	10039	125	14.5	1,813	8/19/2024
26	10039	75	14.5	1,088	8/19/2024
27	10084	102	14.5	1,479	8/19/2024
28	10084	98	14.5	1,421	8/19/2024
29	10037	75	14.5	1,088	8/19/2024
30	10037	125	14.5	1,813	8/19/2024
31	10043	49	14.5	711	8/19/2024
32	10043	151	14.5	2,190	8/19/2024
33	10077	20	14.5	290	8/19/2024
34	10077	167	14.5	2,422	8/19/2024
35	10077	13	14.5	189	8/19/2024
36	10088	156	14.5	2,262	8/19/2024
37	10088	44	14.5	638	8/19/2024
38	10061	123	14.5	1,784	8/19/2024
39	10061	77	14.5	1,117	8/19/2024
40	10091	84	14.5	1,218	8/19/2024
			TOTAL LINER PLACED (FT^2):	56,318	

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GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	10091	116	14.5	1,682	8/19/2024
42	10067	49	14.5	711	8/19/2024
43	10067	151	14.5	2,190	8/19/2024
44	10059	19	14.5	276	8/19/2024
45	10059	163	14.5	2,364	8/19/2024
46	10059	18	14.5	261	8/19/2024
47	10074	147	14.5	2,132	8/19/2024
48	10074	53	14.5	769	8/20/2024
49	10002	115	14.5	1,668	8/20/2024
50	10002	85	14.5	1,233	8/20/2024
51	10032	77	14.5	1,117	8/20/2024
52	10032	123	14.5	1,784	8/20/2024
53	10066	53	14.5	769	8/20/2024
54	10066	147	14.5	2,132	8/20/2024
55	10013	159	14.5	2,306	8/20/2024
56	10013	41	14.5	595	8/20/2024
57	10046	116	14.5	1,682	8/20/2024
58	10046	84	14.5	1,218	8/20/2024
59	10086	73	14.5	1,059	8/20/2024
60	10086	127	14.5	1,842	8/20/2024
61	10090	30	14.5	435	8/20/2024
62	10090	154	14.5	2,233	8/20/2024
63	10069	152	14.5	2,204	8/20/2024
64	10069	48	14.5	696	8/20/2024
65	10052	104	14.5	1,508	8/20/2024
66	10052	96	14.5	1,392	8/20/2024
67	10010	58	14.5	841	8/20/2024
68	10090	16	14.5	232	8/20/2024
69	10010	142	14.5	2,059	8/20/2024
70	10055	147	14.5	2,132	8/20/2024
71	10055	53	14.5	769	8/20/2024
72	10048	92	14.5	1,334	8/20/2024
73	10048	108	14.5	1,566	8/20/2024
74	10033	40	14.5	580	8/20/2024
75	10033	150	14.5	2,175	8/20/2024
76	10008	140	14.5	2,030	8/20/2024
77	10008	60	14.5	870	8/20/2024
78	10078	83	14.5	1,204	8/20/2024
79	10078	117	14.5	1,697	8/20/2024
80	10094	27	14.5	392	8/20/2024
			TOTAL LINER PLACED (FT^2):	54,129	

Parkhill

GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
81	10094	131	14.5	1,900	8/20/2024
82	10094	42	14.5	609	8/20/2024
83	10063	97	14.5	1,407	8/20/2024
84	10063	103	14.5	1,494	8/20/2024
85	10030	34	14.5	493	8/20/2024
86	10030	134	14.5	1,943	8/20/2024
87	10030	32	14.5	464	8/20/2024
88	10087	100	14.5	1,450	8/20/2024
89	10087	100	14.5	1,450	8/20/2024
90	10064	35	14.5	508	8/20/2024
91	10064	130	14.5	1,885	8/20/2024
92	10064	35	14.5	508	8/20/2024
93	10064	106	14.5	1,537	8/20/2024
94	10031	94	14.5	1,363	8/20/2024
95	10031	39	14.5	566	8/20/2024
96	10093	129	14.5	1,871	8/20/2024
97	10093	32	14.5	464	8/20/2024
98	10081	106	14.5	1,537	8/20/2024
99	10081	94	14.5	1,363	8/20/2024
100	10025	36	14.5	522	8/20/2024
101	10025	64	14.5	928	8/20/2024
102	10025	77	14.5	1,117	8/20/2024
103	20001	250	14.5	3,625	8/21/2024
104	20152	250	14.5	3,625	8/21/2024
105	20071	250	14.5	3,625	8/21/2024
106	20141	250	14.5	3,625	8/21/2024
107	20166	250	14.5	3,625	8/21/2024
108	20153	250	14.5	3,625	8/21/2024
109	20163	250	14.5	3,625	8/21/2024
110	20111	250	14.5	3,625	8/21/2024
111	20161	250	14.5	3,625	8/21/2024
112	20165	250	14.5	3,625	8/21/2024
113	20142	250	14.5	3,625	8/21/2024
114	20154	250	14.5	3,625	8/21/2024
115	20094	250	14.5	3,625	8/21/2024
116	20115	250	14.5	3,625	8/21/2024
117	20019	250	14.5	3,625	8/21/2024
118	20012	250	14.5	3,625	8/21/2024
119	20150	250	14.5	3,625	8/21/2024
120	20108	250	14.5	3,625	8/21/2024
			TOTAL LINER PLACED (FT^2):	90,625	

Parkhill

GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	4
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
121	20028	250	14.5	3,625	8/21/2024
122	20070	185	14.5	2,683	8/21/2024
123	20070	112	7	784	8/21/2024
124	20144	250	14.5	3,625	8/21/2024
125	20180	250	14.5	3,625	8/21/2024
126	20063	250	14.5	3,625	8/21/2024
127	20039	250	14.5	3,625	8/21/2024
128	20025	250	14.5	3,625	8/21/2024
129	20056	250	14.5	3,625	8/21/2024
130	20143	250	14.5	3,625	8/21/2024
131	20149	250	14.5	3,625	8/21/2024
132	20136	250	14.5	3,625	8/21/2024
133	20137	250	14.5	3,625	8/21/2024
134	20159	250	14.5	3,625	8/21/2024
135	20158	250	14.5	3,625	8/21/2024
136	20146	42	14.5	609	8/21/2024
137	20146	42	14.5	609	8/21/2024
138	20146	42	14.5	609	8/21/2024
139	20146	42	14.5	609	8/21/2024
140	20146	35	14.5	508	8/21/2024
141	20146	32	14.5	464	8/21/2024
142	20146	15	14.5	218	8/21/2024
143	20136	156	6	936	8/21/2024
144	20017	250	14.5	3,625	8/21/2024
145	20096	250	14.5	3,625	8/23/2024
146	20062	250	14.5	3,625	8/23/2024
147	20160	250	14.5	3,625	8/23/2024
148	20137	250	14.5	3,625	8/23/2024
149	20140	250	14.5	3,625	8/23/2024
150	20031	250	14.5	3,625	8/23/2024
151	20023	250	14.5	3,625	8/23/2024
152	20139	250	14.5	3,625	8/23/2024
153	20157	250	14.5	3,625	8/23/2024
154	20036	250	14.5	3,625	8/23/2024
155	20147	250	14.5	3,625	8/23/2024
156	20072	250	14.5	3,625	8/23/2024
157	20128	250	14.5	3,625	8/23/2024
158	20003	250	14.5	3,625	8/23/2024
159	20117	250	14.5	3,625	8/23/2024
160	20013	250	14.5	3,625	8/23/2024
			TOTAL LINER PLACED (FT^2):	116,778	

Parkhill

GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL Landfill Cell 1B	**PROJECT NUMBER:**	42035.23
CLIENT:	Oilfield Water Logistics (OWL)	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	5
DEPLOYMENT LOCATION:	Cell 1B	**MONITOR:**	MW

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
161	20098	250	14.5	3,625	8/23/2024
162	20011	250	14.5	3,625	8/23/2024
163	20127	250	14.5	3,625	8/23/2024
164	20124	250	14.5	3,625	8/23/2024
165	20100	250	14.5	3,625	8/23/2024
166	20162	250	14.5	3,625	8/23/2024
167	20079	250	14.5	3,625	8/23/2024
168	20135	250	14.5	3,625	8/23/2024
169	20058	250	14.5	3,625	8/23/2024
170	20121	250	14.5	3,625	8/23/2024
171	20118	250	14.5	3,625	8/23/2024
172	20157	250	14.5	3,625	8/23/2024
173	20101	250	14.5	3,625	8/23/2024
174	20010	250	14.5	3,625	8/23/2024
175	20016	250	14.5	3,625	8/23/2024
176	20002	250	14.5	3,625	8/23/2024
177	20149	250	14.5	3,625	8/23/2024
178	20145	250	14.5	3,625	8/23/2024
179	20069	250	14.5	3,625	8/23/2024
180	20142	250	14.5	3,625	8/23/2024
181	20184	250	14.5	3,625	8/24/2024
182	20133	250	14.5	3,625	8/24/2024
183	20126	250	14.5	3,625	8/24/2024
184	20104	250	14.5	3,625	8/24/2024
185	20006	250	14.5	3,625	8/24/2024
186	20087	250	14.5	3,625	8/24/2024
187	20132	250	14.5	3,625	8/24/2024
188	20009	250	14.5	3,625	8/24/2024
189	20049	250	14.5	3,625	8/24/2024
190	20111	250	14.5	3,625	8/24/2024
191	20170	250	14.5	3,625	8/24/2024
192	20109	250	14.5	3,625	8/24/2024
193	20222	250	14.5	3,625	8/24/2024
194	20073	250	14.5	3,625	8/24/2024
			TOTAL LINER PLACED (FT^2):	123,250	

APPENDIX C: CELL 1B/2B LINER INSTALLATION DOCUMENTATION

C.18: Demtech Tensionmeter Calibration Certificate

DEMTECH Services Inc.

CALIBRATION CERTIFICATE

Tensiometer Model: Pro-Tester [T-0100/A or T-0100SE/A]

Device Calibrated: S-Type load cell

Range: 0 - 750 lbs. Tension

Model No: M2405-750#

Serial No: 622265901

Calibration Apparatus: Pro-Cal unit, model TC-0100/A

A/D Module Model No: T-029

A/D Module Serial No: 265901

Channel No: N/A

Dead Weight:

W1	2
W2	152
W3	302

Reference Cell:

R1	2
R2	152
R3	302

Indicator reading with no load: 0

Offset: 4.677861 Scale: 3.329184

Applied Force lbs.	Cell Response:	Deviation Error:
2	2	0.00
52	52	0.00
102	102	0.00
152	152	0.00
202	202	0.00
252	252	0.00
302	302	0.00

Total Deviation Error (%): 0.00%

Temperature at time of calibration: 73 degrees F

Exitation Voltage: 5 V DC

This calibration conforms to the standards set by ASTM E4 and is traceable to NIST standards

Note: A/D Module and load cell above have been systems calibrated and are considered a matched pair. In general, calibrated A/D Modules and load cells are not interchangeable.

Calibration Technician: Tahoe Taylor Date: 03/07/22

Signature:

APPENDIX D: INDEPENDENT QUALITY ASSURANCE LABORATORY FML DESTRUCTIVE TESTING RESULTS

D.1: Cell 1B Primary and Secondary FML Destructive Test Results

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
AUSTIN, TX - USA | ANAHEIM, CA - USA | ANDERSON, SC - USA | GOLD COAST - AUSTRALIA | SUZHOU - CHINA

Date: 2024-07-30

Mail To:
Robert Chandler
Mustang Extreme Enviromental Service
1900 E. Ciunty rd 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
W053041

e-mail:rchandler@mustangextreme.com

Dear Mr. Chandler,

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

Project:	**W053041 OWL NBDL**
TRI Job Reference Number:	**81218**
Material(s) Tested:	(21) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

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

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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

Released to Imaging: 4/22/2025 11:02:49 AM

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81218

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	120	115	113	132	135	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	120	114	114	121	119	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	166	170	171	170	172	**170**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-2 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	117	116	110	110	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	112	110	127	121	120	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	180	177	172	172	**174**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81218

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-3 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	114	112	120	120	121	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	105	106	111	109	111	**108**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	172	172	172	176	179	**174**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-4 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	126	115	120	116	115	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	124	120	132	138	121	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	165	165	164	172	169	**167**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81218

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-5 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	114	116	113	109	108	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	110	111	127	107	108	**113**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	173	172	177	171	181	**175**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-6 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	135	116	120	120	115	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	122	112	117	128	109	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	172	169	180	175	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81218

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-7 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	113	121	117	116	112	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	134	125	126	126	125	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	164	164	171	163	166	**166**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-8 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	115	112	110	115	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	148	143	117	129	129	**133**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	165	165	165	175	171	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81218

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-9 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	117	117	116	118	115	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	119	110	115	114	112	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	164	165	163	170	169	**166**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-10 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	104	121	111	114	109	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	123	112	116	123	111	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	167	169	166	167	176	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81218

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-11 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	115	117	124	124	121	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	126	132	111	114	115	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	178	173	169	170	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-12 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	148	150	144	154	148	**149**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	138	143	136	138	139	**139**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	168	168	169	177	174	**171**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81218

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-13 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	92	140	120	147	120	**124**
Peel Incursion (%)	20	<5	<5	<5	<5	
Peel Locus Of Failure Code	AD-BRK	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	126	139	125	144	131	**133**
Peel Incursion (%)	<5	50	<5	<5	<5	
Peel Locus Of Failure Code	SE	AD-BRK	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	174	167	169	166	170	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-14 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	141	130	141	127	119	**132**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	132	130	129	124	125	**128**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	169	170	177	174	168	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81218

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-15 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	133	122	123	130	125	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	117	106	118	112	116	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	177	171	170	172	172	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-16 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	127	118	128	120	124	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	115	114	134	113	123	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	172	172	191	181	180	**179**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81218

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-17 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	123	129	142	129	130	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	111	115	130	112	116	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	168	166	184	155	173	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-18 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	128	127	139	128	126	**130**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	142	140	142	112	121	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	167	169	195	165	169	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81218

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-19 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	113	112	124	122	116	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	112	128	123	124	128	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	168	170	188	166	177	**174**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-20 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	135	129	145	133	131	**135**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	142	137	152	133	133	**139**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	158	163	176	148	163	**162**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81218

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-21 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	121	147	127	117	115	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	130	124	136	136	126	**130**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	174	175	192	181	179	**180**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2024-08-05

Mail To:
Robert Chandler
Mustang Extreme Enviromental Service
1900 E County Rd 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
W053041

e-mail:
rchandler@mustangextreme.com tkrueger@parkhill.com

Dear Mr. Chandler,

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

Project:	**NDBL WO53041**
TRI Job Reference Number:	**81290**
Material(s) Tested:	(22) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

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

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81290

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-22 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	128	122	106	128	132	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	119	128	116	129	134	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	168	167	165	166	169	**167**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-23 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	123	117	120	119	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	107	114	111	108	114	**111**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	169	170	170	170	175	**171**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
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Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81290

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-24 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	124	122	118	122	123	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	121	118	120	118	119	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	169	169	167	167	173	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-25 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	116	118	117	118	118	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	121	129	121	132	133	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	172	174	179	175	175	**175**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
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Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81290

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-26 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	134	115	146	144	147	**137**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	114	118	116	125	119	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	165	166	168	168	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-27 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	121	123	139	117	122	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	121	121	124	120	117	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	166	168	166	168	172	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81290

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-28 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	117	115	128	127	119	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	117	137	115	117	139	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	176	173	172	172	173	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-29 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	110	104	104	112	115	**109**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	122	121	123	118	124	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	169	168	168	169	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81290

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-30 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	120	117	118	121	118	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	134	124	133	137	135	**133**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	169	170	170	169	171	**170**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-31 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	133	116	114	115	121	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	132	140	137	133	130	**134**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	172	170	171	170	176	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81290

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-32 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	124	128	136	139	120	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	118	129	129	127	126	**126**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	174	172	177	171	172	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-33 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	117	119	123	130	130	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	119	123	119	116	137	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	178	184	176	178	178	**179**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81290

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-34 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	146	129	126	131	133	**133**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	131	150	133	135	133	**136**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	176	176	174	174	173	**175**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-35 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	128	145	130	138	129	**134**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	117	121	120	116	129	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	175	173	179	173	174	**175**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81290

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-36 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	120	123	113	110	120	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	119	120	118	121	116	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	174	169	170	171	**171**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-37 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	126	127	129	125	124	**126**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	128	129	131	128	139	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	164	169	167	165	166	**166**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81290

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-38 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	125	123	121	141	136	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	118	118	115	114	111	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	171	169	169	173	**170**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-39 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	119	119	117	123	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	127	127	126	129	133	**128**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	168	167	167	171	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81290

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-40 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	116	116	114	114	114	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	120	122	120	120	118	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	163	164	165	165	168	**165**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-41 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	147	137	136	143	111	**135**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	128	131	123	121	120	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	166	167	169	168	172	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81290

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-42 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	140	134	147	141	131	**139**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	111	112	113	113	111	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	164	159	160	160	162	**161**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-43 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	118	118	117	117	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	143	145	147	149	141	**145**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	166	167	165	165	167	**166**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2024-08-20

Mail To:
Robert Chandler
Mustang Extreme Enviromental Service
1900 E. Ciunty rd 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
W053041

e-mail:
rchandler@mustangextreme.com tkrueger@parkhill.com curtis007d@icloud.com

Dear Mr. Chandler,

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

Project:	**W053041 OWL NBDL**
TRI Job Reference Number:	**81439**
Material(s) Tested:	(43) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

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

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	135	120	140	143	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	127	112	125	130	126	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	175	178	176	178	181	**178**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-2 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	117	119	115	117	117	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	126	127	128	123	126	**126**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	172	172	173	174	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-3 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	120	124	121	121	119	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	122	126	118	123	121	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	173	173	172	173	174	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-4 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	120	116	115	124	125	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	122	118	123	123	123	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	173	174	170	174	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-5 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	129	123	130	120	133	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	127	120	116	127	127	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	172	174	172	174	173	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-6 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	122	114	125	120	111	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	124	130	122	123	125	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	169	171	170	172	174	**171**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-7 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	123	123	120	119	118	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	122	129	118	118	123	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	171	171	173	174	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-8 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	124	122	111	120	121	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	131	122	119	116	132	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	174	175	175	178	180	**176**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
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Project: W053041 OWL NBDL

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SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-9 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	115	125	121	128	130	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	121	134	120	131	132	**128**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	172	175	174	175	177	**175**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-10 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	153	152	151	147	152	**151**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	168	166	163	134	163	**159**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	179	178	177	179	178	**178**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
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Project: W053041 OWL NBDL

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SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-11 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	139	141	142	144	140	**141**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	153	162	153	157	147	**154**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	183	182	182	183	183	**183**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-12 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	139	133	120	131	140	**133**
Peel Incursion (%)	<5	<5	45	<5	<5	
Peel Locus Of Failure Code	SE	SE	AD-BRK	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	150	144	146	146	144	**146**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	169	169	169	169	171	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-13 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	146	164	114	157	145	**145**
Peel Incursion (%)	35	<5	<5	<5	<5	
Peel Locus Of Failure Code	AD-BRK	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	146	145	140	139	135	**141**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	168	168	169	171	173	**170**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-14 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	115	116	113	114	116	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	119	118	116	113	116	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	165	165	166	166	168	**166**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-15 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	117	129	117	121	120	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	117	119	111	119	116	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	171	172	175	176	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-16 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	127	116	125	115	122	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	116	116	112	112	112	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	172	171	172	172	172	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
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TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-17 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	117	120	119	119	124	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	113	129	113	113	124	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	168	171	171	170	178	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-18 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	116	118	118	115	124	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	116	119	115	114	119	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	168	168	154	168	174	**166**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
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	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-19 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	113	115	116	122	116	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	111	117	120	132	119	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	169	165	165	166	169	**167**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-20 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	134	130	110	109	112	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	124	144	128	116	114	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	166	161	163	157	164	**162**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-21 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	143	144	143	137	143	**142**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	126	130	124	122	128	**126**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	167	167	167	168	172	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-22 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	120	128	135	128	136	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	125	123	134	121	129	**126**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	170	175	170	174	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-23 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	113	111	113	109	**113**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	112	114	112	111	112	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	167	167	172	173	170	**170**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-24 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	113	94	126	126	124	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	120	112	108	110	109	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	175	175	171	173	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-25 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	118	115	118	126	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	134	108	138	108	109	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	169	165	164	166	165	**166**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-26 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	108	107	105	105	105	**106**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	127	143	139	128	124	**132**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	167	169	167	171	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-27 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	117	119	125	133	132	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	116	115	117	123	121	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	167	172	169	169	169	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-28 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	126	119	116	118	123	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	113	115	118	117	122	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	172	172	171	178	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-29 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	114	115	112	114	113	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	120	120	118	120	128	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	184	181	181	180	176	**180**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-30 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	133	125	124	126	135	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	123	120	119	123	119	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	168	168	166	170	166	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-31 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	115	115	124	131	91	**115**
Peel Incursion (%)	<5	<5	<5	<5	20	
Peel Locus Of Failure Code	SE	SE	SE	SE	AD-BRK	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	117	119	117	118	112	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	174	169	168	172	168	**170**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-32 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	120	123	122	121	123	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	135	134	122	128	127	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	173	169	167	168	165	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-33 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	136	112	116	112	112	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	118	115	117	117	114	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	172	173	176	170	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-34 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	121	122	118	123	117	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	124	127	126	128	124	**126**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	175	176	178	177	175	**176**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-35 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	120	119	120	125	121	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	129	130	127	130	128	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	174	170	172	171	176	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-36 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	128	116	117	117	117	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	106	122	118	125	125	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	181	178	176	176	170	**176**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-37 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	151	148	142	128	127	**139**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	132	126	123	128	123	**126**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	170	168	168	166	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-38 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	126	118	135	124	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	112	129	127	111	116	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	170	168	169	170	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-39 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	120	120	134	117	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	126	131	134	124	136	**130**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	168	167	167	168	169	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-40 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	112	118	110	104	114	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	121	121	113	118	131	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	167	167	166	168	166	**167**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-41 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	118	123	115	124	115	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	125	127	122	128	127	**126**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	182	180	184	182	179	**181**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-42 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	131	132	135	131	126	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	131	136	128	131	127	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	165	163	162	166	163	**164**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: W053041 OWL NBDL

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81439

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-43 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	114	111	104	104	110	**109**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	110	112	112	108	110	**110**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	170	168	168	169	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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APPENDIX D: INDEPENDENT QUALITY ASSURANCE LABORATORY FML DESTRUCTIVE TESTING RESULTS

D.2: Cell 2B Primary and Secondary FML Destructive Test Results

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Date: 2024-05-13

Mail To:
Robert Chandler
Mustang Extreme Enviromental Service
1900 E County Rd 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
W053041

e-mail:
rchandler@mustangextreme.com tkrueger@parkhill.com

Dear Mr. Chandler,

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

Project:	**NDBL WO53041**
TRI Job Reference Number:	**80568**
Material(s) Tested:	(9) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

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

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80568

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: SDS-1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	116	108	112	115	117	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	110	115	110	110	120	**113**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	173	168	169	169	168	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: SDS-2 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	117	115	121	120	120	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	116	136	116	118	130	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	170	169	171	172	**171**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80568

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: SDS-3 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	116	117	117	113	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	115	118	115	119	117	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	169	170	169	174	**170**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: SDS-4 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	126	118	116	114	114	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	125	120	125	123	129	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	166	167	172	169	167	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80568

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: SDS-5 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	130	139	135	135	141	**136**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	116	147	138	142	146	**138**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	166	168	166	165	165	**166**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: SDS-6 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	114	111	114	119	121	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	144	122	117	115	125	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	167	166	169	165	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80568

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: SDS-7 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	141	126	128	129	133	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	148	139	131	145	150	**143**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	168	172	168	167	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: SDS-8 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	112	114	113	117	121	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	117	120	129	131	119	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	166	169	170	169	168	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80568

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: SDS-9 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	116	110	122	112	111	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	107	108	111	110	110	**109**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	175	173	174	175	178	**175**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2024-05-14

Mail To:
Robert Chandler
Mustang Extreme Enviromental Service
1900 E County Rd 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
W053041

e-mail:
rchandler@mustangextreme.com tkrueger@parkhill.com

Dear Mr. Chandler,

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

Project:	**NDBL WO53041**
TRI Job Reference Number:	**80578**
Material(s) Tested:	(8) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

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

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80578

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-10 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	127	130	124	129	130	**128**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	127	125	121	135	131	**128**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	175	176	173	175	175	**175**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-11 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	114	116	115	113	125	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	138	139	125	123	123	**130**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	174	175	173	174	173	**174**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80578

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-12 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	125	118	120	120	137	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	109	109	123	134	131	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	172	176	171	171	170	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-13 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	115	115	116	116	125	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	130	128	128	124	123	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	169	170	172	173	167	**170**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80578

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-14 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	120	120	117	119	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	133	136	131	133	138	**134**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	166	169	162	167	165	**166**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-15 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	132	126	128	127	131	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	146	153	147	135	137	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	171	173	169	169	**171**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80578

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-16 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	127	121	104	109	101	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	125	130	131	133	127	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	173	173	171	171	176	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-17 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	131	130	125	129	132	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	128	139	126	139	131	**133**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	172	172	172	171	172	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2024-05-16

Mail To:
Robert Chandler
Mustang Extreme Enviromental Service
1900 E County Rd 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
W053041

e-mail:
rchandler@mustangextreme.com tkrueger@parkhill.com

Dear Mr. Chandler,

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

Project:	**NDBL WO53041**
TRI Job Reference Number:	**80594**
Material(s) Tested:	(8) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

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

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80594

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-18 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	110	111	108	109	117	**111**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	146	111	146	121	139	**133**
Peel Incursion (%)	<5	100	<5	30	<5	
Peel Locus Of Failure Code	SE	AD	SE	AD-BRK	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	160	161	160	161	160	**160**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-19 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	122	124	120	117	119	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	121	121	132	129	127	**126**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	175	170	169	169	175	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80594

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-20 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	148	129	121	144	142	**137**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	115	114	116	112	113	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	171	175	171	176	170	**173**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-21 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	122	126	132	117	139	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	134	128	112	118	114	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	170	169	168	168	**169**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80594

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-22 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	96	96	96	97	97	**96**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	127	121	122	121	119	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	169	173	170	174	**171**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-23 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	134	124	128	125	129	**128**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	122	121	120	122	138	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	171	171	170	170	**170**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL WO53041

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80594

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-24 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	138	135	131	135	136	**135**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	118	119	118	119	114	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	165	167	169	163	164	**166**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-25 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	116	138	142	152	117	**133**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	144	130	129	134	134	**134**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	165	163	164	167	165	**165**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2024-05-21

Mail To:
Robert Chandler
Mustang Extreme Enviromental Service
1900 E Cr140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
WO 53041

e-mail:
rchandler@mustangextreme.com tkrueger@parkhill.com curtisood@icloud.com

Dear Chandler,

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

Project:	**NDBL Owl Landfill**
TRI Job Reference Number:	**80611**
Material(s) Tested:	(14) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

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

Kendall Villarreal
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80611

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	146	152	154	154	153	**152**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	147	127	108	145	136	**133**
Peel Incursion (%)	10	<5	10	<5	<5	
Peel Locus Of Failure Code	AD-BRK	SE	AD-BRK	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	160	162	164	161	161	**162**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-2 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	124	121	116	133	115	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	133	118	120	131	119	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	170	170	172	175	**171**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80611

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-3 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	101	100	97	45	114	**91**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	141	154	155	155	165	**154**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	174	175	175	175	178	**175**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-4 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	137	138	141	150	151	**143**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	158	154	138	153	144	**149**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	168	170	163	169	168	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80611

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-5 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	118	117	118	119	123	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	124	123	123	127	129	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	178	174	174	174	175	**175**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-6 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	135	140	139	126	112	**130**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	116	113	119	114	113	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	172	171	174	171	174	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80611

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-7 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	117	117	118	117	117	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	118	118	122	118	119	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	182	181	187	181	181	**182**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-8 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	115	110	113	113	112	**113**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	126	131	127	128	127	**128**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	178	177	182	177	183	**179**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80611

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-9 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	110	116	111	110	114	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	124	132	127	133	116	**126**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	177	176	181	176	177	**177**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-10 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	135	131	129	129	130	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	129	121	122	124	123	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	174	174	178	175	176	**175**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80611

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-11 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	100	106	106	107	107	**105**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	127	119	122	141	151	**132**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	172	172	177	171	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-12 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	121	117	116	115	117	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	132	129	121	117	116	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	172	174	174	178	174	**174**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80611

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-13 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	110	121	117	115	116	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	113	113	116	114	117	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	174	169	173	170	170	**171**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-14 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	98	101	100	116	99	**103**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	119	121	122	142	144	**130**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	169	173	170	170	169	**170**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2024-05-22

Mail To:
Robert Chandler
Mustang Extreme Enviromental Service
1900 E Cr140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
WO 53041

e-mail:
rchandler@mustangextreme.com tkrueger@parkhill.com curtisood@icloud.com

Dear Chandler,

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

Project:	**NDBL Owl Landfill**
TRI Job Reference Number:	**80621**
Material(s) Tested:	(11) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

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

Nicole Saucedo

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80621

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-15 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	136	132	136	134	130	**134**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	119	121	131	116	121	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	164	164	164	165	166	**165**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-16 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	123	128	119	124	125	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	130	136	141	114	118	**128**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	165	164	165	167	165	**165**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80621

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-17 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	117	126	124	124	124	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	133	133	133	135	121	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	167	167	166	168	168	**167**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-18 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	120	117	116	120	119	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	110	108	107	109	109	**109**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	167	168	165	167	168	**167**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80621

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-19 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	113	124	114	120	115	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	108	107	110	112	130	**113**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	167	167	169	168	171	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-20 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	139	125	124	119	118	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	114	119	115	116	113	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	161	161	161	162	163	**162**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80621

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-21 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	128	126	135	133	133	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	129	132	128	114	118	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	166	168	166	169	168	**167**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-22 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	118	119	115	115	116	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	117	128	116	120	114	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	167	167	169	167	168	**168**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80621

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-23 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	129	120	120	117	133	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	121	118	127	128	119	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	165	167	166	167	165	**166**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-24 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	120	116	121	118	118	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	146	143	137	131	146	**141**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	170	172	170	170	170	**170**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: NDBL Owl Landfill

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 80621

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-25 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	149	148	133	134	132	**139**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	137	142	129	149	132	**138**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	167	168	168	166	167	**167**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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APPENDIX E: LEACHATE AND RISER PIPE PARTS CERTIFICATION

SUBMITTAL DATA

PROJECT	Owl Landfill
LOCATION	Eunice, NM
PREPARED FOR	4X Construction
SUPPLIER	ISCO
ITEM DESCRIPTION	HDPE Pipe & Fittings and Ancillary Items

REVIEW COMMENTS:

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HIGH-DENSITY POLYETHYLENE PIPE

High density polyethylene (HDPE) pipe is an exceptional piping product well-suited for a broad range of demanding applications. Tough, resilient HDPE piping is widely used in municipal water and sewer applications, natural gas distribution, industrial process piping, fire water loops, mining/ slurry handling systems and many more types of systems. With its strong, butt-fused joints and long-term ductility, HDPE pipe can be installed in numerous ways such as direct burial, slip-lining, pipe-bursting, and directional drilling. As a leading global distributor of HDPE piping systems and fusion equipment, along with fusion and fabrication services, ISCO Industries is your primary resource for all of your HDPE piping needs.

Consider some of these characteristics of HDPE Pipe:

- Economical
- Chemical/Corrosion Resistant
- Zero Leak-Rate
- Hydraulically Smooth
- Fatigue and Surge Resistant
- Long Design Life
- Tappable
- Easily Installed
- Small to Large Diameters
- Non-Toxic, Non-Tasting
- Lightweight
- Reliable
- Long-term strength and ductility
- Flexible and Coil-able
- Heat Fused
- Mechanically Joined (As Needed)
- Compatible with other systems
- Weather Resistant
- Impact Resistant
- Freeze Resistant
- Durable
- Abrasion Resistant
- Inert
- Self-Restrained Pipe (Monolithic)
- Listed and Approved

IMPORTANT STANDARDS FOR HIGH DENSITY POLYETHYLENE (HDPE) PIPE

As with any engineering material, there are numerous standards and codes by which HDPE pipe and fittings are produced, designed and installed. Principle among these are the applicable standards published by ASTM International (formerly known as the American Society for Testing and Materials). Other additional standards and/or codes such as AWWA, DOT, API or others may apply to specific installations or uses of HDPE pipe as well. What follows is a partial listing of some of the principle standards pertaining to HDPE piping within the North American market area.

TUBERÍA DE POLIETILENO DE ALTA DENSIDAD

La tubería de polietileno de alta densidad (HDPE) es un producto de tubería excepcional, bien adaptado a una amplia gama de aplicaciones exigentes. La tubería HDPE es fuerte y elástica y es ampliamente utilizada en aguas municipales y aplicaciones en alcantarillado, distribución de gas natural, tubería para procesamientos industriales, sistemas de agua contraincendios, sistemas de manejo de fangos / minería y muchos otros tipos de sistemas. Con sus uniones fuertes, fundidas a tope y ductilidad a largo plazo, la tubería HDPE puede instalarse de numerosas maneras tales como directamente enterrada, métodos de instaleionsin zanja y perforación direccional. Como un distribuidor líder a nivel mundial de sistemas con tubería HDPE y equipos de fusión, junto con servicios de fusión y fabricación, ISCO Industries es su principal recurso para todas sus necesidades en cuanto a tubería HDPE.

Considere algunas de estas características de la tubería HDPE:

- Económica
- Resistente a químicos/ a la corrosión
- Cero porciento de fugas
- Hidráulicamente suave
- Resistente a la fatiga y a sobrecargas de presión.
- Larga vida útil
- Derivable
- Fácil de instalar
- De diámetros pequeños a grandes
- No tóxica, no degustable
- Liviana
- Confiable
- Resistencia y ductilidad a largo plazo
- Flexible y rebobinable
- Termo-fundida
- Unido mecánicamente (si sea necesario)
- Compatible con otros sistemas
- Resistente a la intemperie
- Resistente a golpes
- Resistente a la congelación
- Durable
- Resistente a la abrasión
- Inerte
- Tubería auto-restringible (monolítica)
- Listada y Aprobada

NORMAS IMPORTANTES PARA POLIETILENO DE ALTA DENSIDAD (HDPE)

Como con cualquier material de ingeniería, hay numerosas normas y códigos mediante los cuales la tubería y accesorios HDPE son elaborados, diseñados e instalados. Entre estos principios están las normas aplicables publicadas por ASTM International (anteriormente conocida como Sociedad Americana para el Ensayo de Materiales). Otras normas y/o códigos adicionales como AWWA, DOT, API y otros pueden también aplicarse a instalaciones o a usos específicos de la tubería HDPE. Lo que sigue es una lista parcial de algunas normas de principios pertinentes a la tubería HDPE en el área del mercado norteamericano

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PIPE RESIN STANDARDS

ASTM D3350 - "Standard Specification for Polyethylene Plastics Pipe and Fitting Materials".
The quality of HDPE pipe starts with the resin from which it is produced. ASTM D3350 defines the basic physical property requirements of the polyethylene compound that is used to make the pipe or fittings.

ASTM F412 - "Standard Terminology Relating to Plastic Piping Systems".

ISO 4427-1 – "Plastics piping systems – Polyethylene (PE) pipes and fittings for water supply – Part 1: General". Specifies the general aspects of polyethylene (PE) piping systems (mains and service pipes) intended for the conveyance of water for human consumption, including raw water prior to treatment and water for general purposes. It also specifies the test parameters for the test methods to which it refers.

PIPE DIMENSIONS AND MANUFACTURING STANDARDS

ASTM F714 - "Standard Specification for Polyethylene (PE) Pipe (SDR-PR) Based on Outside Diameter".
Pipe produced in accordance with this standard is used across a broad variety of municipal, industrial, and various water-related applications. This standard includes IPS, DIPS and metric sizing systems in nominal outside diameters from 3" - 54".

ASTM D2513 - "Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing and Fittings".
Polyethylene pipe and other plastics for natural gas distribution are described in great detail in this standard.

ASTM D3035 - "Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter".
Most HDPE water tubing (½" to 3") is made to the dimensions in this standard. This standard was revised to include IPS sizes up through nominal 65" outside diameter and DIPS sizes up through nominal 48" outside diameter for municipally oriented PE pipe applications or services.

ASTM F2619 - "Standard Specification for High Density Polyethylene (PE) Line Pipe".
This standard includes HDPE pipe in sizes from ½" to 65" for various oil and gas producing applications such as oil, dry or wet gas, multiphase fluids and non-potable oil field water.

ASTM F3123 - "Standard Specification for Metric Outside Diameter Polyethylene (PE) Plastic Pipe (DR-PN)".

ISO 4427-2 – "Plastic piping systems – Polyethylene (PE) pipes and fittings for water supply – Part 2: Pipes". Specifies the pipes made from polyethylene (PE) intended for the conveyance of water for human consumption, including raw water prior to treatment and water for general purposes. It also specifies the test parameters for the test methods to which it refers.

REQUISITOS DE LA RESINA DE LA TUBERÍA

ASTM D3350 – "Especificación estándar para materiales de tubería y accesorios plásticos de polietileno". La calidad de la tubería HDPE empieza con la resina con la cual es elaborada. ASTM D3350 define los requisitos básicos de las propiedades físicas del compuesto de polietileno usado para hacer tubería y accesorios.

ASTM F412 - "Terminología Estándar Relacionada con los Sistemas de Tuberías de Plástico".

ISO 4427-1 – "Sistema de tuberías de plástico – Tuberías y fittings de Polietileno (PE) para suministro de agua – 1° Parte: General".
Especifica los aspectos generales de los sistemas de canalización hechos de PE (Polietileno) [cañerías y tuberías de servicio] para sistemas destinados a la conducción de agua para el consumo humano, incluyendo el agua cruda antes del tratamiento y el agua para usos generales. También especifica los parámetros de ensayo para los métodos de prueba a que se refiere.

REQUISITOS DIMENSIONALES Y DE FABRICACIÓN DE LA TUBERÍA

ASTM F714 – "Especificación estándar para la tubería (SDR-PR) de polietileno (PE) basada en el diámetro exterior." Esta norma se usa para la mayoría de aplicaciones con tubería HDPE de gran diámetro (4 a 63 pulgadas) aparte de la tubería para gas.

ASTM D2513 – "Especificación estándar para tubería termoplástica de presión para gas, entubado y accesorios". La tubería de polietileno y de otros plásticos para la distribución de gas natural se describen con mucho detalle en esta norma"

ASTM D3035 –"Especificación estándar para la tubería (DR-PR) plástica de polietileno (PE) basándose en el diámetro exterior controlado". La mayoría de la tubería HDPE para agua (de 1/2 a 3 pulgadas) está hecha según dimensiones de esta norma. Si bien, se proveen tuberías de tamaños hasta 24 pulgadas, muy poca tubería de gran diámetro se hace según esta norma.

ASTM F2619 – "Especificación estándar para tubería de conducción de polietileno (PE) de alta densidad" Esta norma incluye la tubería HDPE con tamaños desde ½ a 65 pulgadas para varias aplicaciones de producción de crudo y gas tales como crudo, gas seco o húmedo, fluidos de fase múltiple y agua no-potable de campos petrolíferos.

ASTM F3123 - "Especificación estándar para tubería plástica de polietileno (PE) de diámetro exterior métrico"

ISO 4427-2 – "Sistema de tuberías de plástico – Tuberias y fittings de Polietileno (PE) para suministro de agua – 2° Parte: Tuberías".
Especifica las tuberías hechas de PE (Polietileno) destinadas a la conducción de agua para el consumo humano, incluyendo el agua cruda antes del tratamiento y el agua para usos generales. También especifica los parámetros de ensayo para los métodos de prueba a que se refiere.

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INSTALLATION STANDARDS

ASTM D2321 - "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications"

ASTM D2774 - "Standard Practice for Underground Installation of Thermoplastic Pressure Piping"

ASTM F585 - "Standard Practice for Insertion of Flexible Polyethylene Pipe into Existing Sewers"

ASTM F1668 - "Standard Guide for Construction Practices for Buried Plastic Pipe"

ASTM F1962 - "Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings"

ASTM F2164 - "Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure".

AMERICAN WATER WORKS ASSOCIATION STANDARDS

ANSI/AWWA C901 - "Polyethylene Pressure Pipe and Tubing, .5 in. (13 mm) Through 3 in. (76 mm) for Water Service"

ANSI/AWWA C906 - "Polyethylene Pipe and Fittings, 4 in. (100 mm) through 63 in. (1,575 mm) for Water Distribution"

PIPE JOINING & QUALIFICATION STANDARDS

ASTM F2620 - "Standard Practice for Heat Fusion of Polyethylene Pipe and Fittings"

ASTM D2657 - "Standard Practice of Heat Fusion Joining of Polyolefin Pipe and Fittings"

ASTM F1290 - "Standard Practice for Electrofusion Joining Polyolefin Pipe and Fittings"

ASTM F3190 - "Standard Practice for Heat Fusion Equipment (HFE) Operator Qualification on Polyethylene (PE) and Polyamide (PA) Pipe and Fittings"

ISO 21307 – "Plastic pipes and fittings – Butt fusion jointing procedures for polyethylene (PE) pipes and fittings used in the construction of gas and water distribution systems"

FITTING STANDARDS

ASTM D3261 - "Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing"

ASTM F1055 - "Standard Specification for Electrofusion Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing"

NORMAS DE INSTALACIÓN

ASTM D2321 – "Práctica estándar para la instalación subterránea de tubería termoplástica en alcantarillas u otras aplicaciones de flujo por gravedad"

ASTM D2774 – "Práctica estándar para la instalación subterránea de tubería termoplástica de presión"

ASTM F585 – "Práctica estándar para la inserción de tubería flexible en alcantarillas existentes"

ASTM F1668 – "Guía estándar de prácticas de construcción para tubería plástica enterrada"

ASTM F1962 –"Guía estándar para uso en perforación direccional de máxima horizontalidad para la colocación de tubería o conducto de polietileno debajo de obstáculos, incluidos cruces de ríos"

ASTM F2164 -"Práctica estándar para la prueba de fugas sobre el terreno de los sistemas presurizados con tubería de polietileno (PE) mediante presión hidrostática"

NORMAS DE LA ASOCIACIÓN AMERICANA DE DISTRIBUCIÓN DE AGUA

ANSI/AWWA C901-2005 - "Tubo y tubería de presión de polietileno, 0,5 pulgadas (13mm) hasta 3 pulgadas (76mm) para servicios de agua"

ANSI/AWWA C906-2006 - "Tubería y accesorios de polietileno, de 4 pulgadas (100mm) hasta 63 pulgadas (1.575mm) para distribución de agua"

ESTANDARES PARA LA CERTIFICACION DE TUBERIAS Y FUSIONES

ASTM F2620 -"Práctica estándar para la termo-fusión de tubería y accesorios de polietileno"

ASTM D2657 -"Práctica estándar para unión por termo-fusión de tubería y accesorios de polietileno"

ASTM F1290 -"Práctica estándar para unión por electro-fusión de tubería y accesorios de poliolefina"

ASTM F3190 - "Práctica Estándar para la Certificación del Operador de Equipos de Termo-Fusion (HFE) de Tuberías y Accesorios de Polietileno (PE) y Poliamida (PA)"

ISO 21307 – "Tuberias y Fittings Plasticos – Procedimiento de Union a Tope para tuberias y fittings de polietileno (PE) usado en la construccion de sistemas para distribucion de gas y agua"

NORMAS PARA ACCESORIOS

ASTM D3261 - "Especificación estándar para Polietileno de la Fusión de Calor del Extremo (PE) Accesorios de Plástico para Polietileno (PE) Tubo de Plástico y tubería"

ASTM F1055 -"Especificación estándar para la electro-fusión de accesorios para tubo y tubería de polietileno de diámetro externo controlado"

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Received by OCD: 4/10/2025 3:02:31 PM

ASTM F1759 - "Standard Practice for Design of High Density Polyethylene (HDPE) Manholes for Subsurface Applications"

ASTM F2206 - "Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene (PE) Plastic Pipe, Fittings, Sheet Stock, Plate Stock or Block Stock"

ASTM F2880 - "Standard Specification for Lap-Joint Type Flange Adapters for Polyethylene Pressure Pipe in Nominal Pipe Sizes 3/4 in. to 65 in."

ISO 4427-3 – "Plastic piping systems – Polyethylene (PE) pipes and fittings for water supply – Part 3: Fittings".

Specifies the general aspects of fittings made from PE for piping systems intended for the conveyance of water for human consumption, including raw water prior to treatment and water for general purposes. It also specifies the test parameters for the test methods to which it refers.

CANADIAN STANDARDS ASSOCIATION

CAN/CSA137 - "Thermoplastic Pressure Piping Compendium"

CSA Z662 - "Oil and Gas Pipeline Systems"

OTHER USEFUL REFERENCES

Handbook of Polyethylene Pipe, A publication of the Plastics Pipe Institute (www.plasticpipe.org)

AWWA M55, PE Pipe - Design and Installation, A Manual of Water Supply Practices published by the American Water Works Association

ISO 4427-5 – "Plastic piping systems – Polyethylene (PE) pipes and fittings for water supply – Part 5: Fitness for purpose of the system".

Specifies the characteristics of the fitness for purpose of assembled piping systems made from polyethylene (PE) intended for the conveyance of water for human consumption, including raw water prior to treatment and water for general purposes. It also specifies the test parameters for the test methods to which it refers.

ASTM F1759 -"Práctica estándar para el diseño de entradas a alcantarillas de polietileno de alta densidad (HDPE) para aplicaciones bajo superficie"

ASTM F2206 -"Especificación estándar para accesorios fabricados de tubería plástica de polietileno (PE) fundida a tope, accesorios, reservas de láminas de planchas y de bloques"

ASTM F2880 "Especificación estándar para adaptadores de bridas tipo lap-joint para tubería de presión de polietileno en diámetros nominales, ¾" a 65""

ISO 4427-3 – "Sistema de tuberías de plástico – Tuberías y fittings de Polietileno (PE) para suministro de agua – 3° Parte: Fittings".
Especifica los aspectos generales de los accesorios hechos de PE (Polietileno) para sistemas de canalización destinados a la conducción de agua para el consumo humano, incluyendo el agua cruda antes del tratamiento y el agua para usos generales. También especifica los parámetros de ensayo para los métodos de prueba a que se refiere.

ASOCIACIÓN DE NORMAS CANADIENSES

CAN/CSA137 - "Compendio de tubería termoplástica de presión"

CSA Z662 - "Sistemas de Conducción de Tuberías para Oleoductos y Gasoductos"

OTRAS REFERENCIAS ÚTILES

Manual de tubería de polietileno, una publicación del instituto de tubería plástica (www.plasticpipe.org)

AWWA M55, Tubería PE - Diseño e instalación, un manual de prácticas de abastecimiento de agua publicado por la asociación americana de abastecimiento de agua.

ISO 4427-5 – "Sistema de tuberías de plástico – Tuberías y fittings de Polietileno (PE) para suministro de agua – 5° Parte: Adaptación según el propósito del sistema".

Especifica las características de la aptitud para el uso de los sistemas de tuberías ensambladas hechas de PE (Polietileno) destinados a la conducción de agua para el consumo humano, incluyendo el agua cruda antes del tratamiento y el agua para usos generales. También especifica los parámetros de ensayo para los métodos de prueba a que se refiere.

Released to Imaging: 4/22/2025 11:02:49 AM

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SPECIFICATIONS FOR HDPE PIPE

Polyethylene piping systems are defined or specified using two important criteria: the ASTM D3350 cell classification and the ASTM F412 thermoplastic piping material designation code. For many years, the ASTM D3350 cell classification consisted of a series of six digits followed by one letter, shown in Table 1. The six digits equate to the specified level of performance required in six separate physical properties defined within the standard. The final letter specifies the color or UV-resistance requirement. ASTM D3350 also includes a requirement for testing the resistance of the polyethylene compound to the oxidative effects of chlorine. The six digits and one letter are now supplemented by a chlorine resistance categorization. Taken together the D3350 cell classification establishes a minimum range of technical performance for the PE compound used to produce the pipe.

The F412 thermoplastic piping material designation code allows for simple identification of the most significant engineering properties of a PE pipe material. This code consists of an abbreviation for the basic material as defined within the ASTM standards. The standardized abbreviation for polyethylene is the term "PE". This basic polymer designation is then followed by a series of four digits. The first two digits relate directly to specific physical properties for the compound as defined within ASTM D3350. The last two digits are the long-term hydrostatic stress rating as recommended by the Hydrostatic Stress Board of the Plastic Pipe Institute in hundreds of psi. The long-term hydrostatic stress rating is the hydrostatic design basis (HDB) multiplied by the appropriate design factor (DF).

So the thermoplastic piping material designation code follows the form below.

PEXYZZ, the format of the thermoplastic material designation code for PE pipe

Where: **PE** indicates polyethylene

X is the characteristic density range for the compound used to make the pipe as defined within ASTM D3350

Y is the characteristic slow crack growth resistance range for the compound used to make the pipe as defined within ASTM D3350

ZZ is the long-term hydrostatic stress at 73°F, expressed in hundreds of psi

ESPECIFICACIONES PARA LA TUBERÍA HDPE

Los sistemas de tubería de polietileno se definen o especifican usando dos importantes criterios: La célula de clasificación de ASTM D3350 y el código de designación de material termoplástico para tubería ASTM F412. El ASTM D3350 consiste en una serie de seis dígitos seguidos por una letra. Los seis dígitos corresponden al nivel especificado del desempeño requerido en seis propiedades físicas separadas definidas dentro de la norma. La letra final especifica el color o la resistencia a los UV que se exige. Todo Junto la célula de clasificación D3350 establece un margen mínimo de desempeño técnico para el compuesto de PE usado para elaborar la tubería

El código termoplástico F412 designado permite la simple identificación de las propiedades de ingeniería más significativas de la tubería de PE. Este código consiste en una abreviación del material básico según se lo define en las normas ASTM. La abreviación estandarizada para el polietileno es "PE" Esta designación básica del polímero es seguida de una serie de cuatro dígitos. Los primeros dos dígitos se relacionan directamente con propiedades físicas específicas del compuesto según lo definido en ASTM D3350. Los últimos dos dígitos representan la tasa de fatiga hidrostática a largo plazo según lo recomendado por la junta para la fatiga hidrostática del instituto de tubería plástica en cientos de PSI. La tasa de la fatiga hidrostática a largo plazo es igual a la base del diseño hidrostático (HDB) multiplicado por el factor de diseño apropiado (DF)

Así el código de designación del material de la tubería termoplástica sigue la forma indicada abajo:

PEXYZZ, El formato del material termoplástico código designación de tubos PE.

Donde: **PE** - significa polietileno

X - es el margen de la densidad característica del compuesto usado para hacer la tubería según lo definido en ASTM D3350

Y - es el margen de la resistencia al crecimiento lento de fisuras característico del compuesto usado para hacer la tubería según lo definido en ASTM D3350

ZZ - es la fatiga hidrostática a largo plazo a 230°F expresado en cientos de PSI

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Historically, the market for PE pipe was dominated by essentially two primary thermoplastic material designation codes. These were PE2406 and PE3408. In 2005, changes were made to ASTM D3350 to allow for the identification and integration of much higher levels of technical performance in PE piping materials within the North American standards system. This resulted in a temporary proliferation of PE thermoplastic piping material designation codes. Today, we still have a fairly broad selection of material designation codes for PE piping systems throughout the marketplace. However, for all practical purposes, the market for PE pipe is characterized by the three common thermoplastics materials designation codes.

PE2708 - This piping product, commonly supplied as yellow colored products, is produced from a medium density compound as defined in the current version of D3350 and is widely used in natural gas distribution and some specialty applications.

PE3608 - This piping product is the legacy product resulting from the old PE3408 thermoplastic piping material designation code that was so widely specified and used prior to 2005. Today, products labeled PE3608 are rather uncommon due to higher performing PE4710 resins available at roughly the same price.

PE4710 - This piping product designation represents the culmination of years of technical research on polymer performance in PE piping and offers the designer or end-user exceptional levels of pipe system performance. For example, the PE4710 piping products support a higher long-term hydrostatic stress rating making the pressure rating for a given wall thickness of pipe 25% higher than a comparable PE3608 piping product. By the same token, these piping products exhibit a significantly higher resistance to slow crack growth. Given the exceedingly high physical performance of the PE4710 piping products, it is no surprise that they have replaced the older PE3408/PE3608 piping products since they meet or exceed all of the technical requirements.

PE100 – This piping product material meets the requirements for polyethylene piping systems as defined by the International Organization of Standardization (ISO). PE100 materials have proven to provide excellent creep rupture strength, resistance to rapid crack propagation, and stress crack resistance. PE100 is the primary polyethylene material used in global polyethylene piping applications not specified by ASTM materials.

Históricamente, el mercado de la tubería PE estaba dominado esencialmente por dos códigos principales de designación del material termoplástico. Estos eran PE2406 y PE3408. En el 2005, se hicieron cambios al ASTM D3350 para permitir, dentro del sistema de normas norteamericanas, la identificación e integración de niveles mucho más elevados de desempeño técnico en lo materiales de PE. Esto dio como resultado una proliferación provisional de los códigos de designación del material de la tubería termoplástica de PE. Hoy, aún tenemos una muy amplia selección de códigos de designación de material para sistemas de tubería de PE por todo el mercado. Sin embargo, para efectos prácticos, el mercado de la tubería de PE está caracterizado por tres códigos de designación de material termoplástico de uso corriente.

PE2708 - Este producto para tubería comúnmente suministrado como productos de color amarillo es producido a partir de un compuesto de media densidad según lo definido en la versión actual del D3350 y es ampliamente usado en la distribución de gas natural y en algunas aplicaciones especializadas.

PE3608 - Este producto para tubería es un producto heredado y resultado del antiguo código PE3408 de designación del material de la tubería termoplástica que fue ampliamente especificado y usado antes del 2005. Hoy en día, los productos etiquetados PE3608 son bastante poco comunes debido a las resinas PE4710 de mayor rendimiento disponibles a aproximadamente el mismo precio.

PE4710 - Esta designación de producto para tubería representa la culminación de años de investigación técnica en desempeño del polímero en tubería de PE y ofrece al diseñador o al usuario final niveles excepcionales de desempeño de sistemas de tubería. Por ejemplo, los productos PE4710 para tubería soportan un régimen nominal más alto de fatiga hidrostática a largo plazo haciendo que la capacidad de presión para un espesor dado de pared sea 25% más elevada que un producto PE3608 para tubería comparable. De la misma manera, estos productos para tubería exhiben una resistencia significativamente más elevada al crecimiento lento de fisuras. Dado el rendimiento físico extremadamente alto de los productos de tubería PE4710, no es de sorprender que cumplan o superen todos los requisitos técnicos de los productos de tubería PE3408 o PE3608. Dado el rendimiento físico excesivamente alto de los productos de tubería PE4710, no es de sorprender que hayan reemplazado los productos de tubería PE3408 / PE3608 más antiguos ya que cumplen o superan todos los requisitos técnicos.

PE100 – Esta materia prima de tubería cumple con los requisitos para los sistemas de tubería de polietileno según lo definido por la Organización Internacional de Normalización (ISO). Los materiales PE100 han demostrado proporcionar una excelente resistencia a la rotura por afluencia, resistencia a la propagación rápida de grietas y resistencia al fisuras por tensión. PE100 es el material primario de polietileno utilizado en aplicaciones de tuberías de polietileno global no especificadas por los materiales de ASTM.

Table 1 provides a summary of the different ASTM D 3350 cell classification for each of these materials based on these three primary thermoplastic piping material designation codes.

Table 1: Typical Cell Classification by Current Thermoplastic Piping Material Designation Code

Physical Property	ASTM Test Method	Units	PE2708		PE3608		PE4710	
			Cell Number	Typical Value	Cell Number	Typical Value	Cell Number	Typical Value
Density	D 1505	gr/cc	2	>0.925 - 0.940	3	>0.940 - 0.947	4	>0.947 - 0.955
Melt Index	D 1238	gr/10 min	3	<0.4 - 0.15	4	<0.15	4	<0.15
Flexural Modulus	D 790	psi	3	40,000 - <80,000	5	110,000 - <180,000	5	110,000 - <180,000
Tensile Strength	D 638	psi	3	2,600 - <3,000	4	3,000 - <3,500	4	3,000 - <3,500
							5	3,500 - <4,000
Resistance to Slow Crack Growth	F 1473	hours	7	500 minimum	6	100 minimum	7	500 minimum
Hydrostatic Design Basis, HDB	D 2837	psi	3	1250	4	1600	4	1600
UV Stabilizer	D 1603	%	E	Colored with UV Stabilizer	C	2% Min Carbon Black	C	2% Min Carbon Black

Notes:
1. The density provided is base resin density (without the influence of carbon black). Typical PE4710 HDPE pipe has a density of 0.956 to 0.964 with carbon black.
2. To be designated a PE4710, the pipe resin must meet certain supplementary requirements established by the Stress Board (HSB) of the Plastics Pipe Institute (PPI).
3. Tensile Strength cell numbers of 4 and 5 are both acceptable values for PE4710 materials.

Table 2: ASTM D3350 Chlorine Resistance Testing Categorization

Categorization	Test Stress 2.48 MPa (360 psi) Time (h)	Test Stress 2.76 MPa (400 psi) Time (h)	Test Stress 3.10 MPa (450 psi) Time (h)
CC0	Unspecified	Unspecified	Unspecified
CC1	2700	1900	1900
CC2	7400	5100	3400
CC3	16 200	11 100	7400

It should be noted that other PE thermoplastics piping material designation codes do exist and may be encountered in the market place occasionally. However, the three primary PE thermoplastic piping material designations codes of Table 1 represent the principle PE piping products in the market today. For more information regarding these other thermoplastic piping material designation codes, please contact your ISCO sales professional.

Table 3 below provides a simplification of Table 1 and illustrates the relative ease with which PE piping products may be specified. Using this approach allows the designer or specified to accurately designate the appropriate PE piping product through the use a single thermoplastic piping material designation code and a relatively simple text string that establishes the physical property requirements for seven key performance properties.

The selected thermoplastic piping material designation code and minimum cell classification is then combined with the appropriate production and installation standards to effectively specify a tough, durable PE piping system. ISCO Industries can provide model specifications for a wide range of PE pipe applications. These model specifications are available at www.isco-pipe.com or by contacting your ISCO sales professional.

Table 3: Representative Minimum Cell Classification by Thermoplastic Piping Material Designation Code

Thermoplastic Piping Material Designation Code	Minimum Cell Classification Per ASTM D3350
PE2708	233373E
PE3608	345464C
PE4710	445474C

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La tabla 1 da un resumen de la diferente clasificación de célula según ASTM D 3350 para cada uno de estos materiales basándose en los tres códigos principales de designación del material de la tubería termoplástica.

Tabla 1: Clasificación típica de la célula por el código actual de designación del material de la tubería termoplástica.

Propiedades físicas	Método de prueba ASTM	Unidades	PE2708		PE3608		PE4710	
			Número de célula	Valor típico	Número de célula	Valor típico	Número de célula	Valor típico
Densidad	D 1505	gr/cc	2	>0.925 - 0.940	3	>0.940 - 0.947	4	>0.947 - 0.955
Índice de fundición	D 1238	gr/10 min	3	<0.4 - 0.15	4	<0.15	4	<0.15
Módulo de flexión	D 790	psi	3	40,000 - <80,000	5	110,000 - <180,000	5	110,000 - <180,000
Resistencia a la tracción	D 638	psi	3	2,600 - <3,000	4	3,000 - <3,500	4	3,000 - <3,500
							5	3,500 - <4,000
Resistencia al crecimiento lento de fisuras	F 1473	hours	7	500 min	6	100 min	7	500 min
Base del diseño hidrostático, HDB	D 2837	psi	3	1250	4	1600	4	1600
Estabilizador UV	D 1603	%	E	Coloreado con estabilizador UV	C	2% mínimo carbon negro	C	2% mínimo carbon negro

Notas:

1. La densidad provista es la densidad de la resina base (sin la influencia del negro de carbón). La tubería HDPE PE4710 típica tiene una densidad de 0,956 a 0,964 con negro carbón.
2. Para ser designado como un PE4710, la resina del tubo debe cumplir ciertos requisitos suplementarios establecidos por la junta de la fatiga hidrostática (HSB) del instituto de tubería plástica (PPI).
3. La resistencia a la tracción de los números de cédula 4 y 5 son ambos valores aceptables para los materiales de PE4710.

Tabla2: ASTM D3350 Cloro pruebas de resistencia categorización

Categorización	Prueba de esfuerzo 2.48 MPa (360 psi) Tiempo (h)	Prueba de esfuerzo 2.76 MPa (400 psi) Tiempo (h)	Prueba de esfuerzo 3.10 MPa (450 psi) Tiempo (h)
CC0	sin especificar	sin especificar	sin especificar
CC1	2700	1900	1900
CC2	7400	5100	3400
CC3	16 200	11 100	7400

Debe notarse que existen otros códigos de designación para el material de la tubería termoplástica de PE y de cuando en cuando pueden encontrarse en el mercado. Sin embargo, los tres códigos principales de designación del material de la tubería termoplástica de la tabla 1 representan el principio de los productos de la tubería PE en el mercado actual. Para más información referente a estos otros códigos de designación de material termoplástico para tubería, por favor póngase en contacto con profesional de ventas de ISCO.

La tabla 3 de abajo es una simplificación de la tabla 1 e ilustra la relativa facilidad con la cual los productos para tubería PE pueden ser especificados. El uso de esta aproximación permite al diseñador o al que especifica designar con precisión el producto apropiado para tubería PE mediante el uso de un simple código de designación de material de la tubería termoplástica y una cadena de texto relativamente simple que establece los requisitos de las propiedades físicas para siete claves de desempeño.

El código de designación del material de la tubería termoplástica y la clasificación mínima de célula se combinan luego con las normas apropiadas de producción e instalación para especificar eficazmente un sistema de tubería PE fuerte y durable. ISCO Industries puede proveer especificaciones modelos para una amplia gama de aplicaciones de tubería PE. Estas especificaciones modelo están disponibles en www.isco-pipe.com o al ponerse en contacto con su profesional de ventas de ISCO.

Tabla 3: Representante de Clasificación de la célula mínima por termoplástico tuberías de materiales Código Denominación

Termoplástico tuberías de materiales Código Denominación	Clasificación celular Mínimo Según ASTM D3350
PE2708	233373E
PE3608	345464C
PE4710	445474C

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HDPE FITTINGS - MOLDED

There are two basic methods of creating most HDPE fittings, either by injection molding or fabricating from pipe or cylinders. Molded fittings are typically fully pressure rated, since the body of the molded fitting is reinforced with extra material around the OD at the bend, branch, or reduction to provide additional strength and maintain the intended pressure rating. The reinforcement terminates near the end of the molded fitting so that it has the same outside diameter of the pipe to facilitate welding. Fittings that are typically made by injection molding are 90 degree elbows, 45 degree elbows, tees, reducers, end caps and flange adapters. Molded fittings are typically available in 12" and smaller sizes due to processing and cost variables.

HDPE FITTINGS - FABRICATED

Like any other material, HDPE fabricated elbows and tees have a reduced pressure rating because the miter cut and weld create an effective oval at the welded intersection. Stress is increased during operation because of changes in flow direction. As the angle of the miter cut increases, the operating stress also increases along with the challenge of maintaining section alignment. Sweep bends that are forged from pipe have no cuts/welds, therefore have no derating.

In the early stages of the HDPE industry, a standard 25% derating for HDPE elbows was commonly used. With the advent of elbows made with larger miter angles (i.e. 3 segment 90/2 segment 45) and new resins, a more systematic approach was needed. The American Society of Mechanical Engineers offered an equation within the process piping code B31.3 that was incorporated by ISCO from 2003 to 2016. In section 304.2, equations 4a and 4b were used to determine pressure ratings of mitered elbows. For HDPE fittings, the pressure rating at that time was based on three criteria: the miter angle, the resin's material properties (Pipe Design Stress), and the wall thickness.

ISCO has taken the next step in the advancement of producing high-quality fabricated HDPE fittings. Our fabricated elbows, tees, reducing tees, and end caps are now produced and tested in accordance with ASTM F2206 - "Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene Plastic Pipe". ASTM F2206 places very specific requirements on fabricated fittings in two areas - the type of HDPE pipe, fittings, and plate or sheet stock used in the manufacturing of pressure-rated fabricated fittings; and the testing required for qualifying fabricated fittings.

ISCO only uses PE4710 HDPE materials per ASTM D3350 and HDPE pipe manufactured in accordance with ASTM D3035, ASTM F714, or ASTM F2619 to produce ASTM F2206 fabricated fittings. In addition, ISCO has contracted with accredited third-party agencies to conduct the short-term and elevated-temperature

ACCESORIOS PEAD - MOLDEADOS

Hay dos métodos básicos para elaborar la mayoría de accesorios HDPE, sea mediante moldeo por inyección o por fabricación a partir de tubería o cilindros. Los accesorios moldeados están normalmente categorizados para la presión máxima, ya que el cuerpo del accesorio moldeado es más grueso (material extra alrededor del diámetro externo, excepto en los extremos) que la tubería lo que proporciona una resistencia adicional y mantiene la capacidad de presión esperada. Los accesorios normalmente hechos mediante moldeo por inyección son los codos de 90°, codos de 45°, tees, reductores, tapas de extremo y adaptadores de brida. Los accesorios moldeados están normalmente disponibles en diametros de 12" y hacia abajo por razones de costo y de procesamiento.

ACCESORIOS PEAD - FABRICADOS

Al igual que cualquier otro material, HDPE fabricado codos o tees fabricados tienen una capacidad de presión reducida porque el corte a inglete y la soldadura crean un óvalo eficaz en la intersección soldada. El esfuerzo aumenta durante la operación debido a los cambios de dirección del flujo. A medida que el ángulo de corte a inglete aumenta, la tensión operativa también aumenta junto con el reto de mantener la alineación de la sección. Las curvas de barrido que se forjan desde la tubería no tienen cortes / soldaduras, por lo tanto no tienen reducción de potencia.

En las etapas iniciales de la industria del HDPE (PEAD), una reducción estándar del 25% para codos en PEAD fue usado comúnmente. Con la aparición de codos hechos con mayores ángulos de inglete (ejemplo. 3 segmento 90/ 2 segmento 45) y de nuevas resinas, fue necesario un enfoque más sistemático. La sociedad The American Society of Engineers eléctricos ofreció una ecuación dentro de la norma B31.3 para procesamiento de tubería que fue incorporado por ISCO desde el 2003 al 2016. En la sección 304.2, las ecuaciones 4a y 4b se usaron para determinar las capacidades de presión de los codos de inglete. Para los accesorios de PEAD, la capacidad de presión en aquel momento se basaba en tres criterios: el ángulo de inglete, las propiedades del material de la resina (esfuerzo de diseño de tubería), y el espesor de la pared.

ISCO ha dado un paso adelante en el progreso de producción de accesorios de PEAD fabricados con alta calidad. Nuestros codos, tees rectas, tees reductoras, y tapas de extremo fabricados son ahora producidos y probados siguiendo la norma ASTM F2206 - "Especificación estándar para accesorios fabricados para la tubería plástica de polietileno de fusión a tope". La norma ASTM F2206 pone requisitos muy específicos sobre accesorios fabricados en dos áreas – en el tipo de tubería de PEAD, accesorios, y las reservas de plancha y láminas usadas en la fabricación de accesorios fabricados con presión nominal; y en las pruebas requeridas para la calificación de los accesorios fabricados.

ISCO usa solamente PE4710 materiales de PEAD según la norma ASTM D3350 y tubería de PEAD fabricada de acuerdo con las normas ASTM D3035, ASTM F714, ó ASTM F2619 para producir accesorios fabricados según la norma ASTM F2206. Además, ISCO ha firmado contratos con agencias de terceros acreditadas para realizar los ensayos requeridos para cumplir con la pruebas de diseño del estándar ASTM F2206- los ensayos a corto plazo y a presión elevada-temperatura mantenida.

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sustained-pressure proof-of-design testing required to meet the ASTM F2206 standard.

ASTM F2206 also establishes the concept of Equivalent Dimension Ratio, or EDR, that simplifies the process of matching the required pressure rating of fabricated fittings using miter cut feedstock (elbows and straight line tees) to that of the pipe in which it will be joined. EDRs are determined for each fitting type and wall thickness by the collection of empirical data from the required ASTM F2206 pressure testing (see Table 6a and 6b for testing information). The EDR methodology provides HDPE piping system designers with a consistent means for specifying HDPE fabricated fittings. Note: Standard ISCO ASTM F2206 fabricated fittings are not manufactured with beveled ends on the inside diameter; however, this option is available upon request.

La norma ASTM F2206 establece también el concepto de Relación Dimensional Equivalente, o EDR (por sus siglas en inglés), que simplifica el proceso de emparejar capacidad de presión requerida de un accesorio fabricado con materia prima cortada en angulo (codos y tees rectas) con la de la tubería a la cual irá unido Los EDRs son determinados para cada tipo de accesorio y espesor. EDR es determinado para cada tipo de accesorio y espesor de pared mediante la recopilación de datos empíricos de las pruebas de presión requeridas por la norma ASTM F2206 (consulte la Tabla 6a y 6b para obtener información sobre las pruebas). La metodología EDR proporciona a los diseñadores de sistemas de tubería de PEAD unos medios consistentes para la especificación de accesorios fabricados en PEAD. Nota: Los accesorios ISCO estándar fabricados según la norma ASTM F2206 no se fabrican con extremos biselados en el diámetro interior; sin embargo, esta opción está disponible bajo pedido.

Table 4

Piping System DR	Feedstock DR	Fitting EDR	Fitting Pressure Rating (psi)
7	5	7	335
9	7	9	250
11	9	11	200
13.5	11	13.5	160
17	11	17	125
21	17	21	100
26	21	26	80
32.5	26	32.5	63

ISCO has not included HDPE fabricated crosses and lateral wyes within the ASTM F2206 offering. ISCO recommends that engineers considering the use of HDPE crosses and lateral wyes implement derating factors as shown in Table 7.

ISCO no ha incluido piezas en cruz ni piezas en Y laterales de PEAD fabricadas dentro de lo que ofrece la norma ASTM F2206. ISCO recomienda que los ingenieros consideren los factores de corrección de presión de la piezas HDPE laterales tipo "Ys" como se muestra en la Tabla 7.

DR, EDR, PRESSURE RATING, AND AVAILABLE SIZES

The chart below is representative of a pressure chart for each fitting page, where items in bold blue are considered standard in many sizes.Those in gray are considered non-standard and availability may be limited. Those not listed are not available for that fitting style.

DR, EDR, Presión de servicio y disponible

El siguiente cuadro es representativo de un gráfico de presión para cada página de adaptación, donde los elementos en negrita se consideran estándar en muchos tamaños. Los que están en gris son considerados no-estándar y la disponibilidad pueden ser limitados. Aquellos que no figuran no están disponibles para que el estilo apropiado.

Table 5

Feedstock DR	32.5	26	21	17	13.5	11	9	7
Pressure Rating	XX psi	XX psi	XX psi	**XX psi**	XX psi	**XX psi**	**XX psi**	XX psi
EDR	XX	XX	XX	**XX**	XX	**XX**	**XX**	XX

Received by OCD: 4/10/2025 3:02:31 PM

ISCO ASTM F2206 PRESSURE TESTING

The following table lists the fitting styles and sizing groups where ISCO has conducted pressure testing in accordance with ASTM F2206, Section 7.3 ("Elevated Sustained Pressure Test" and "Short Term Pressurization Testing"):

ISCO Prueba de Presión ASTM F2206

La siguiente tabla enumera los tipos de accesorios y los diversos diámetros donde ISCO ha realizado pruebas de presión de acuerdo con la norma ASTM F2206, Sección 7.3 ("Prueba de Presión Incrementada y Sostenida" y "Prueba de Presurización de Corta Duración"):

Table 6a

	ASTM F2206 Size Groups Grupos de Tamaño ASTM F2206		
Fitting Style Estilo de Accesorio	≤12"	>12"- <24"	≥24"
Elbows Codos	X	X	X
Tees Hierros en T	X	X	X
Reducing Tees Tees reductoras	X	X	X
End Caps Tapas del extremo	X	X	X

ASTM F2206 pressure testing was conducted with ISCO HDPE fabricated fittings during the months/years shown below:

La prueba de presión según ASTM F2206 se realizó con accesorios HDPE fabricados por ISCO durante los meses/años que se muestran a continuación:

Table 6b

	ASTM F2206 Size Groups Grupos de Tamaño ASTM F2206		
Required Test Prueba Requerida	≤12"	>12"- <24"	≥24"
Short Term Pressure Test Performed in Prueba de presión a corto plazo realizada en	Completed & Current Actualizado	Completed & Current Actualizado	Completed & Current Actualizado
Elevated Temperature / Sustained Pressure Test Performed in Prueba de temperatura elevada / presión sostenida realizada en	Completed & Current Actualizado	Completed & Current Actualizado	Completed & Current Actualizado

Table 7: Derating Factors for Non-ASTM F2206 Fabricating Fittings

For HDPE fittings made from pipe with no additional reinforcement

Crosses-Fabricated	Cruz – Fabricadas	DR: 7, 9, 11 — Derating Factor: 0.60 DR: 13.5 - 32.5 — Derating Factor: 0.50
Lateral Wyes-Fabricated	YES laterales - Fabricadas	DR: 7, 9, 11 — Derating Factor: 0.33 DR: 13.5 - 32.5 — Derating Factor: 0.33
Plastic Blind Flanges HDPE/PVC • Blind Flanges are available in 1" thick as standard with limited ranges of full pressure capacity. Some additional thickness options are available. Larger blinds likely have reduced capacity-verify pressure requirements at time of order.	Bridas ciegas plásticas HDPE/PVC • Las bridas ciegas están disponibles en espesores de 1 pulgada como estándar con capacidad de presión máxima de intervalos limitados. Están disponibles algunas opciones con espesores adicionales. Las bridas ciegas más grandes tienen probablemente una reducida capacidad – verifique los requisitos de la presión al momento del pedido.	DR: 7 - 32.5 — Derating Factor: *conditional
Cleanout Fittings HDPE • Cleanout Fittings are used in gravity flow applications and are only designed for preventing the intrusion of ambient environment into the pipe.	Accesorios HDPE de limpieza • Los accesorios de limpieza se usan en aplicaciones de flujo por gravedad y están diseñados solamente para evitar la intromisión en la tubería del entorno medio ambiental.	DR: 7 - 32.5 — Derating Factor: 0

Released to Imaging: 4/22/2025 11:02:49 AM

Received by OCD: 4/10/2025 3:02:31 PM

ISCO AND ASME B31 REQUIREMENTS

The American Society of Mechanical Engineers (ASME) was founded in 1880 as a way for engineers to address concerns within the United States' vast industrial and mechanical expansion. Today, ASME has more than 100,000 members where many participate in committees producing and maintaining more than 600 codes, standards and technical journals in use by numerous industries in more than 100 countries.

ASME codes and standards relate to many different technical disciplines. The series of technical codes that discuss piping and pipelines is the ASME B31 Series. The B31 Series includes codes and standards covering everything from design and materials through fabrication, assembly, and testing of pressure piping systems for a host of applications including Power (B31.1), Fuel Gas (B31.2), Process (B31.3) and Pipeline Transportation (B31.4) among others.

Thermoplastic (HDPE) piping systems are referenced in two specific sections within the ASME B31 Series: B31.1 – Power Piping and B31.3 - Process Piping. B31.1 prescribes minimum requirements typically found in electric power generating stations and district heating and cooling systems. B31.3 contains requirements for piping used in petroleum refineries, chemical plants and related processing plants and terminals.

ISCO's fabrication facilities currently use a fusing (bonding) procedure and fusion operators that meet the requirements of both ASME B31.1 and B31.3. The following provides a brief overview of the B31.1 and B31.3 rules as they apply to HDPE fabricators:

ASME B31.1

ASME B31.1 includes Mandatory Appendix N – Rules for Nonmetallic Piping and Piping Lined with Nonmetals. The qualification requirements for fusing (bonding) procedure specifications and personnel are given in Chapter N-V Fabrication, Assembly, and Erection, Section N-127 Bonding Plastic Joints. Qualification requirements and specific qualification tests are set out in N-127 and include:

Requisitos de ISCO y ASME B31

La Sociedad Americana de Ingenieros Mecánicos (ASME por sus siglas en inglés) fue fundada en 1880 como un modo para que los ingenieros aborden diversos temas en el marco de la vasta expansión industrial y mecánica en los Estados Unidos. Hoy, ASME tiene más de 100,000 miembros, donde muchos participan en comités que crean y mantienen más de 600 códigos, estándares y documentos técnicos que son usados por numerosas industrias en más de 100 países.

Los códigos y estándares ASME se utilizan en diversas disciplinas técnicas. La serie de códigos técnicos que tratan sobre tuberías y líneas de conducción es la serie ASME B31. La serie B31 incluye códigos y estándares que cubren temas desde el diseño y materiales durante la fabricación, ensamble, y las pruebas de los sistemas de tuberías a presión para un gran número de aplicaciones que incluyen Energía (B31.1), Gas combustible (B31.2), Proceso (B31.3) y Poliductos (B31.4) entre otros.

Los sistemas de tuberías termoplásticas (HDPE) se mencionan en dos secciones específicas dentro de la serie ASME B31:

B31.1 – Tuberías para uso en proyectos de Energía y B31.3 – Requerimiento de Tuberías. B31.1 - Prescribe los requisitos mínimos normalmente encontrados en estaciones generadoras de energía eléctrica y sistemas de calefacción & enfriamiento. B31.3 contiene los requisitos para tuberías utilizadas en refinerías de petróleo, plantas químicas y plantas terminales relacionadas.

Las instalaciones de fabricación de ISCO cuentan actualmente con un procedimiento de fusión (unión) y operadores de fusión que cumplen con los requisitos de las normas ASME B31.1 y B31.3. A continuación se ofrece un breve resumen de las normas B31.1 y B31.3 que se aplican a en la fabricación de productos HDPE:

ASME B31.1

ASME B31.1 incluye el Apéndice N obligatorio - Normas para Tuberías No Metálicas y para Tuberías Revestidas con No-Metales. Los requisitos exigidos para las especificaciones del procedimiento de fusión (unión) y para el personal se encuentran en el Capítulo N-V Fabricación, Ensamblaje y Montaje, Sección N-127 Uniones (Fusiones) de Plástico. Los requisitos de certificación y las pruebas específicas se mencionan en N-127 e incluyen:

Table 8

Test Method Método de Prueba	Material Parameters Parámetros del Material	Test Parameters Parámetros de la Prueba	Number Required Número requerido	Pass Aprobación
Hydrostatic Pressure Presión Hidrostática	NPS 4-inch or a minimum of 25% of the NPS of the largest piping component tested; test assembly shall contain one pipe-to-pipe joint and one pipe-to-fitting joint NPS de 4 pulgadas o un mínimo de 25% del NPS del diámetro de tubería más grande probado; la prueba debe contener una unión tubo con tubo y una unión tubo y accesorio	Maximum of either 150 psig or 1.5 times the pressure calculated per N-104.1.2(a) Máximo 150 psig o 1.5 veces la presión calculada según N-104.1.2 (a)	Once per operator Una por operador	Joints shall not leak or separate at the test pressure Las fusiones no deben tener fugas ni separarse durante la prueba de presión.
OR Alternativa				
Reverse Bend or Guided Side Bend Doblado Invertido o Doblado Lateral Guiado	NPS 4-inch or a minimum of 25% of the NPS of the largest piping component tested; test assembly shall contain one pipe-to-pipe joint and one pipe-to-fitting joint NPS de 4 pulgadas o un mínimo de 25% del NPS del diámetro de tubería más grande probado; la prueba debe contener una unión tubo con tubo y una unión tubo y accesorio	Test strips shall not break when bent a minimum of 90 degrees, at ambient temperature, over an inside bend radius of 1.5 times the NPS tested La probeta o muestra no se debe romper cuando se doble a 90 grados mínimo, a temperatura ambiente, en un radio de curvatura interna de 1.5 veces el NPS probado	Minimum of three coupons per operator Mínimo de tres muestras por operador	Test strips shall not break at required bend radius Las probeta o muestra no se debe romper en el radio de curvatura requerido

Released to Imaging: 4/22/2025 11:02:49 AM

Received by OCD: 4/10/2025 3:02:31 PM

ASME B31.3

ASME B31.3 also requires that HDPE fusion procedures and operators (bonders) be qualified and specific details of this are found in Section A328 Bonding of Plastics. Section A328.1, Bonding Responsibility, states that each employer is responsible for the bonding done by personnel of his organization and ... shall conduct the required performance qualification tests to quality bonding procedure specifications (BPS) and bonders or bonding operators. Specifically, Section A328.2.5 outlines the qualification tests for the fusion procedure or BPS, and the performance of each fusion or bonding operator as:

ISCO has qualified our fusion procedure and operators per ASME B31.3, Section N-127.

ASME B31.3

ASME B31.3 también requiere que los procedimientos y operadores (soldadores) de fusión de HDPE estén certificados y los detalles específicos de esto se encuentran en la sección A328 Unión de Plásticos. La Sección A328.1, Responsabilidad de la Fusion, establece que cada empleador es responsable de la fusión realizada por el personal de su organización y ... este llevará a cabo las pruebas para la certificación de desempeño requeridas según las especificaciones del procedimiento de unión (fusión) de calidad (BPS) y los operadores de equipos semiautomáticos y automáticos. Concretamente, la Sección A328.2.5 describe las pruebas de certificación para el procedimiento de fusión ó BPS, y el desempeño de cada operador de fusión o unión como:

ISCO ha certificado nuestro procedimiento de fusión y operadores según la norma ASME B31.3, Sección N-127.

Table 9

Test Method Método de Prueba	Material Parameters Parámetros de Material	Test Parameters Parámetros de Prueba	Number Required Número Requerido	Pass Aprobación
Quick Burst in accordance with ASTM D1599 Prueba Destructiva de acuerdo a ASTM D1599	NPS 4-Inch or a minimum of 25% of the NPS of the largest piping component tested; test assembly shall contain at least one of each joint type identified in the BPS NPS de 4 pulgadas o un mínimo del 25% del NPS del diámetro más grande de tubería probado; la muestra de prueba debe contener al menos uno de cada tipo de unión (fusión) identificado en el BPS	Increase pressure within the assembly to induce failure between 60 seconds and 70 seconds Aumentar la presión dentro de la tubería para provocar la falla entre 60 segundos y 70 segundos	Once per procedure and/or operator Una vez por procedimiento y/o por operador	Failure initiates outside of the fusion weld La falla se inicia fuera de la soldadura por fusión
OR Alternativa				
Hydrostatic Hidrostático	NPS 4-Inch or a minimum of 25% of the NPS of the largest piping component tested; test assembly shall contain at least one of each joint type identified in the BPS NPS de 4 pulgadas o un mínimo del 25% del NPS del componente más grande de tubería probado; la muestra de prueba debe contener al menos uno de cada tipo de fusión identificado en el BPS	The test pressure shall be calculated per A328.2.5. Test duration shall not be less than 1 hour La presión de prueba se calculará según la norma A328.2.5. La duración de la prueba no será inferior a 1 hora	Once per procedure and/or operator Una vez por procedimiento y/o por operador	No leakage or separation of joints Sin fugas ni separación de las uniones

ISCO has conducted testing in accordance with Section A328.2 thus qualifying our fusion procedure and operators to ASME B31.3.

If your project includes HDPE materials specified to ASME B31.1 or B31.3, it should be a technical requirement that your HDPE supplier submit qualification-testing records. This is the only way to ensure your project truly meets ASME B31.1 or B31.3 requirements.

ISCO has qualified our procedures and operators in accordance with both ASME B31.1 and B31.3, and we are ready to fabricate best-in-class fittings and spools for your ASME B31 project.

ISCO ha realizado la prueba de acuerdo con la Sección A328.2, certificando así nuestro procedimiento de fusión y operadores según ASME B31.3.

Si su proyecto incluye materiales HDPE especificados según las normas ASME B31.1 o B31.3, debe ser una exigencia técnica que su proveedor de HDPE presente registros de pruebas-certificaciones. Esta es la única forma de garantizar que su proyecto realmente cumpla con los requisitos exigidos por la norma ASME B31.1 o B31.3.

ISCO ha certificado sus procedimientos y operadores de acuerdo con las normas ASME B31.1 y B31.3, y estamos listos para fabricar los mejores accesorios y estructuras para su proyecto ASME B31.

Released to Imaging: 4/22/2025 11:02:49 AM

Received by OCD: 4/10/2025 3:02:31 PM

For reference only. Actual dimensions may vary.
Solo para referencia. Las dimensiones reales pueden variar.

PE4710 HDPE PIPE SIZES IPS AND LARGE DIAMETER METRIC

PE4710 Tamaños HDPE tuberías IPS y Diámetro Grande Métrico

DR		11			13.5			15.5		
PE4710 Pressure Rating Resistencia a la Presión		200 psi			160 psi			138 psi		
Nom. OD DE Nominal (in)	Actual OD DE Actual (in)	Min Wall Espesor Mínimo de Pared (in)	Avg ID DI Promedio (in)	Weight Peso (lb/ft)	Min Wall Espesor Mínimo de Pared (in)	Avg ID DI Promedio (in)	Weight Peso (lb/ft)	Min Wall Espesor Mínimo de Pared (in)	Avg ID DI Promedio (in)	Weight Peso (lb/ft)
¾″	1.05	0.095	0.848	0.13	---	---	---	---	---	---
1″	1.315	0.12	1.062	0.2	---	---	---	---	---	---
1¼″	1.66	0.151	1.34	0.314	---	---	---	---	---	---
1½″	1.9	0.173	1.534	0.411	---	---	---	---	---	---
2″	2.375	0.216	1.917	0.642	0.176	2.002	0.534	0.153	2.05	0.47
3″	3.5	0.318	2.825	1.395	0.259	2.95	1.16	0.226	3.021	1.02
4″	4.5	0.409	3.633	2.31	0.333	3.793	1.92	0.29	3.885	1.687
5″	5.563	0.506	4.491	3.523	0.412	4.689	2.928	0.359	4.802	2.58
6″	6.625	0.602	5.348	4.93	0.491	5.585	4.152	0.427	5.719	3.656
8″	8.625	0.784	6.963	8.47	0.639	7.271	7.04	0.556	7.445	6.197
10″	10.75	0.977	8.678	13.16	0.796	9.062	10.932	0.694	9.28	9.626
12″	12.75	1.159	10.293	18.51	0.944	10.748	15.38	0.823	11.006	13.53
14″	14	1.273	11.302	22.32	1.037	11.801	18.54	0.903	12.085	16.31
16″	16	1.455	12.916	29.15	1.185	13.487	24.22	1.032	13.812	21.3
18″	18	1.636	14.531	36.89	1.333	15.173	30.651	1.161	15.538	26.95
20″	20	1.818	16.145	45.541	1.481	16.859	37.84	1.29	17.265	33.28
22″	22	2	17.76	55.105	1.63	18.545	45.79	1.419	18.991	39.712
24″	24	2.182	19.375	65.58	1.778	20.231	54.49	1.548	20.717	47.92
26″	26	2.364	20.989	77.44	1.926	21.917	64.261	1.677	22.444	56.532
28″	28	2.545	22.604	89.785	2.074	23.603	74.522	1.806	24.17	65.563
30″	30	2.727	24.218	103.076	2.222	25.289	85.543	1.935	25.897	75.264
32″	32	2.909	25.833	117.285	2.37	26.975	97.324	2.065	27.623	85.672
34″	34	3.091	27.447	132.411	2.519	28.661	109.905	2.194	29.35	96.714
36″	36	3.273	29.062	148.454	2.667	30.347	123.208	2.323	31.076	108.424
42″	42	3.818	33.906	202.039	3.111	35.404	167.675	2.71	36.255	147.568
48″	48	4.364	38.749	278.27	3.556	40.461	216.74	3.097	41.435	192.774
54″	54	4.909	43.59	352.14	4.00	45.75	286.94	3.484	46.614	243.921
1600mm/63″	62.99	---	---	---	4.667	53.107	390.58	4.065	54.383	340.15
1800mm	70.87	---	---	---	5.2*	60.1*	Call	---	---	---
2000mm	78.74	---	---	---	5.8*	66.8*	Call	---	---	---
2250mm	88.58	---	---	---	---	---	---	---	---	---
2500mm	98.43	---	---	---	---	---	---	---	---	---
2720mm	107.1	---	---	---	---	---	---	---	---	---
2800mm	110.2	---	---	---	---	---	---	---	---	---
3000mm	118.1	---	---	---	---	---	---	---	---	---
3500mm	137.8	---	---	---	---	---	---	---	---	---

1. Pressures are based on using water at 23°C (73°F).
2. Average inside diameter calculated using actual OD and minimum wall plus 6% for use in estimating fluid flows. Actual ID will vary.
3. Other piping sizes or DR's may be available upon request.
4. Standard Lengths:
   - 40' for 2"-24"
   - 50' for 26" and larger
   - Coils available for ¾ - 4" (6" by special order)

*DR 13.6

1. Las presiones están basadas en el uso de agua a 23°C (73°F)
2. El diámetro interno promedio calculado el diámetro externo real y la pared mínima más 6% para uso la estimación de flujos de fluidos. El diámetro interno real variará.
3. Otros tamaños o DR de tubería pueden estar disponibles bajo pedido.
4. Longitudes estándar
   - 40 pies para 2 -24 pulgadas
   - 50 pies para 26 pulgadas o mayores
   - Bobinas disponibles para ¾ a 4 pulgadas (6 pulgadas para pedidos especiales)

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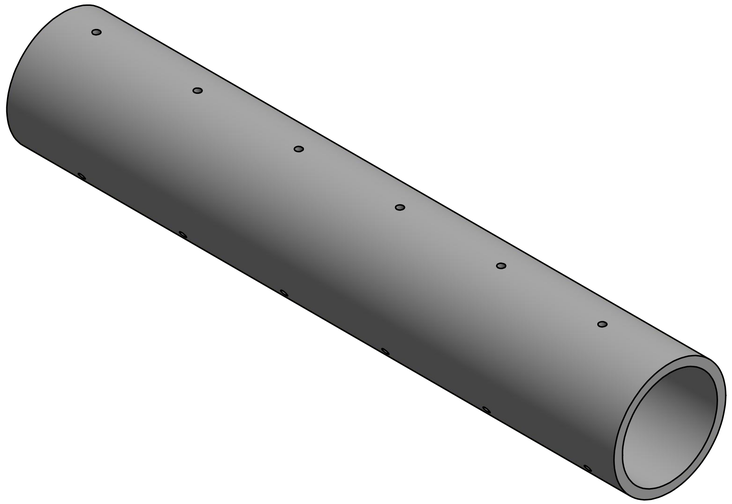
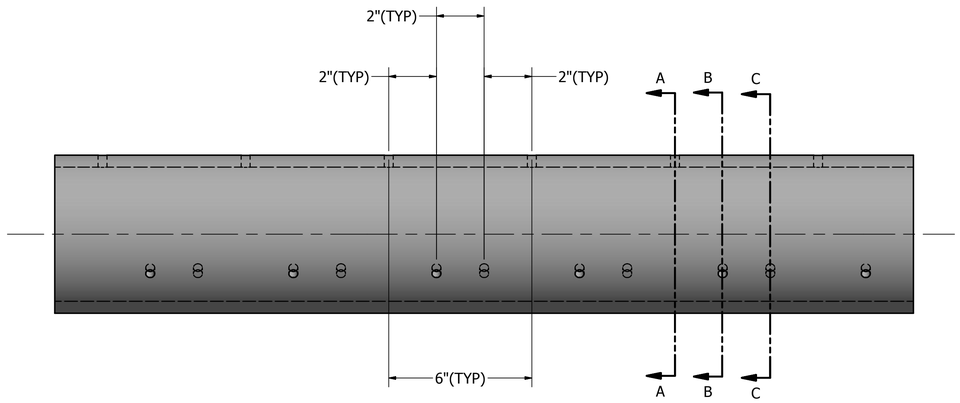
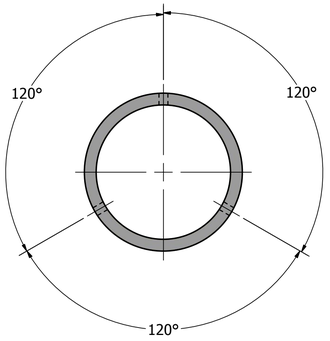
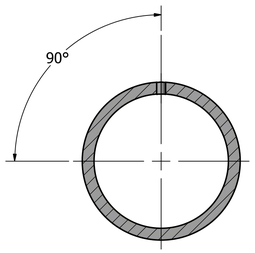
PARTS LIST			
ITEM	SIZE/DR	PART NUMBER	DESCRIPTION
1	6" DR 11 IPS	35061199	3 ROWS OF 1/2" DIA HOLES, 120 DEGREE APART, 6" C-C. EACH HOLE SPACED 2" FROM PREVIOUS HOLE (3 TOTAL ROWS)

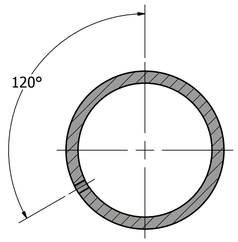




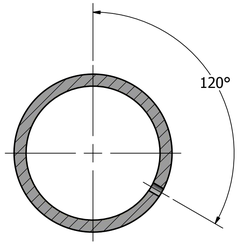




SECTION A-A



SECTION B-B



SECTION C-C

NOT TO SCALE

THIS DRAWING IS INTELLECTUAL PROPERTY OF ISCO INDUSTRIES, INC. ("ISCO"). IT IS INTENDED FOR THE IDENTIFICATION OF THE GOOD(S) DEPICTED AND SHALL NOT BE CIRCULATED OR REPRODUCED WITHOUT PERMISSION FROM AN AUTHORIZED AGENT OF ISCO. THE USE OF THIS DRAWING IS NOT INTENDED TO REPLACE THE EVALUATION, JUDGMENT AND/OR OPINION OF A LICENSED PROFESSIONAL AND THE USER OF THIS DRAWING EXPRESSLY ASSUMES AND RELEASES ISCO FROM ALL RISK AND LIABILITY ASSOCIATED THEREWITH. THE GOODS DEPICTED IN THIS DRAWING ARE SUBJECT TO ISCO'S STANDARD TERMS AND CONDITIONS OF SALE SET FORTH AT WWW.ISCO-PIPE.COM/TERMS-AND-CONDITIONS.ASPX .

TOLERANCE STANDARDS AS MEASURED AT AMBIENT TEMPERATURE:
-ISCO SHALL MAINTAIN A FABRICATION TOLERANCE OF ± 1/2" FOR ALL DIMENSIONS SHOWN.
-ISCO SHALL MAINTAIN A FABRICATION TOLERANCE OF ± 2° FOR ALL ANGLES SHOWN.
-(X"X") MARKS A DIMENSION THAT IS FOR REFERENCE ONLY.
-(NC) MARKS A DIMENSION THAT IS NOT CRITICAL AND REQUIRES NO NOTIFICATION OF DEVIATION BY FABRICATOR.
-SPECIFIC TOLERANCES MAY BE PROVIDED BY CUSTOMER BUT MUST BE APPROVED BY ISCO INDUSTRIES AND NOTED ON DRAWING PRIOR TO FABRICATION.
*UNLESS OTHERWISE SPECIFIED.

GENERAL NOTES:
-STRUCTURE OUTLETS NOT DESIGNED AS ANCHOR POINTS FOR CONNECTED PIPING.

REVISION HISTORY

REV	DESCRIPTION	DATE	BY

TESTING
REQUIRED: NONE
TYPE: N/A
PRESSURE: N/A
DURATION: N/A

APPROVED BY: DATE:

WO #:

ISCO®
www.isco-pipe.com 1-800-345-4726

DRAWN BY: BM DATE: 4/4/2017

REVIEWED BY: BS DATE: 4/4/2017

CUSTOMER NAME: 35061199

DRAWING TITLE: 6" DR 11 IPS HDPE PERF PATTERN

SIZE: D | DWG FILE LOCATION: DF/STOCK/PERF | SHEET 1 OF 1

TERRITORY REPRESENTATIVE: N/A

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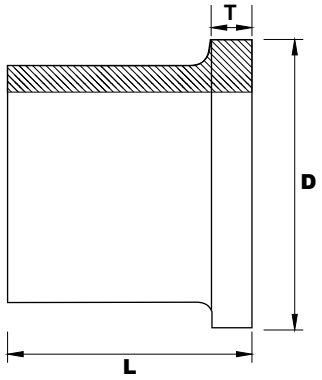
FLANGE ADAPTER

Adaptador De Brida



DR	32.5	26	21	17	15.5	13.5	11	9	7
Pressure Rating Resistencia a la Presión	63 psi	80 psi	100 psi	125 psi	138 psi	160 psi	200 psi	250 psi	333 psi

Nominal Size (in) Tamaño nominal	OD (in)	D (in)	L (in)	7	9	11	13.5	15.5	17	21	26	32.5
				T (in)	T (in)	T (in)	T (in)	T (in)	T (in)	T (in)	T (in)	T (in)
3/4	1.05	2	4	0.2	0.2	0.2	-	-	-	-	-	-
1	1.315	2.37	4	0.21	0.21	0.21	-	-	-	-	-	-
1-1/4	1.66	2.75	4	0.25	0.25	0.25	-	-	-	-	-	-
1-1/2	1.9	3.12	4	0.3	0.3	0.3	-	-	-	-	-	-
2	2.375	4	6	0.504	0.504	0.45	0.45	0.45	0.45	0.45	0.45	0.45
3	3.5	5	6	0.7	0.7	0.67	0.67	0.67	0.67	0.67	0.67	0.67
4	4.5	6.598	6	1.12	1.12	0.896	0.896	0.896	0.896	0.896	0.896	0.896
6	6.625	8.5	8	1.344	1.344	0.895	0.895	0.895	0.895	0.895	0.895	0.895
8	8.625	10.598	9	1.82	1.82	1.12	1.12	1.12	1.12	1.12	1.12	1.12
10	10.75	12.799	10.75	2.24	1.68	1.455	1.455	1.455	1.434	1.01	1.01	1.01
12	12.75	15.252	11	2.549	2.1	1.725	1.725	1.725	1.725	1.12	1.12	1.12
14	14	17.5	11	2.848	2.24	1.905	1.905	1.905	1.82	1.23	1.23	1.23
16	16	20	12	3.25	2.5	2.13	2.13	2.13	2.13	1.345	1.345	1.345
18	18	21.098	12	4.108	2.75	2.35	2.35	2.35	2.24	1.4	1.4	1.4
20	20	23.5	12	3.88	3.74	2.55	2.55	2.55	2.55	1.557	1.557	1.557
22	22	25.6	12	4.188	4.17	2.75	2.75	2.75	2.75	1.702	1.702	1.702
24	24	27.9	14	4.61	4.61	3.15	3.15	3.15	3	1.867	1.867	1.867
26	26	29.75	14	4.893	4.893	3.205	3.205	3.205	3.205	1.916	1.916	1.916
28	28	32	14	5.25	5.25	3.432	3.432	3.432	3.432	2.063	2.063	2.063
30	30	34	14	5.607	5.607	3.659	3.659	3.659	3.659	2.211	2.211	2.211
32	32	36.125	14	-	5.964	3.886	3.886	3.886	3.886	2.355	2.355	2.355
34	34	38.125	14	-	6.321	4.114	4.114	4.114	4.114	2.487	2.487	2.487
36	36	40.5	14	-	6.679	4.341	4.341	4.341	4.341	2.618	2.618	2.618
42	42	47.125	21	-	-	5.023	5.023	5.023	5.023	3.013	3.013	3.013
48	48	53.5	21	-	-	5.75	5.705	5.705	5.705	3.408	3.408	3.408
54	54	59.625	21	-	-	-	-	-	6.386	3.803	3.803	3.803
63	63	66.79	21	-	-	-	-	-	7.409	4.395	4.395	4.395

1. 20" DR 7 L = 12.75"; 22" DR 7 L = 13", 36" DR 9 L = 16.5"

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Description		Qty	Description		Qty
2" Standard Zinc			**2" XL Zinc**		
5/8-11 x 4	Stud Zinc	4	5/8-11 x 8	Stud Zinc	4
5/8-11	HeavyHex Nut Zinc	8	5/8-11	HeavyHex Nut Zinc	8
5/8	Flat washer Zinc	8	5/8	Flat washer Zinc	8
3" Standard Zinc			**3" XL Zinc**		
5/8-11 x 5	Stud Zinc	4	5/8-11 x 8	Stud Zinc	4
5/8-11	HeavyHex Nut Zinc	8	5/8-11	HeavyHex Nut Zinc	8
5/8	Flat washer Zinc	8	5/8	Flat washer Zinc	8
4" Standard Zinc			**4" XL Zinc**		
5/8-11 x 5-1/4	Stud Zinc	8	5/8-11 x 13-5/8	Stud Zinc	8
5/8-11	HeavyHex Nut Zinc	16	5/8-11	HeavyHex Nut Zinc	16
5/8	Flat washer Zinc	16	5/8	Flat washer Zinc	16
6" Standard Zinc			**6" XL Zinc**		
3/4-10 x 5-7/8	Stud Zinc	8	3/4-10 x 15-1/2	Stud Zinc	8
3/4-10	HeavyHex Nut Zinc	16	3/4-10	HeavyHex Nut Zinc	16
3/4	Flat washer Zinc	16	3/4	Flat washer Zinc	16
8" Standard Zinc			**8" XL Zinc**		
3/4-10 x 6-1/8	Stud Zinc	8	3/4-10 x 16-3/8	Stud Zinc	8
3/4-10	HeavyHex Nut Zinc	16	3/4-10	HeavyHex Nut Zinc	16
3/4	Flat washer Zinc	16	3/4	Flat washer Zinc	16
10" Standard Zinc			**10" XL Zinc**		
7/8-9 x 7-3/4	Stud Zinc	12	7/8-9 x 18-5/8	Stud Zinc	12
7/8-9	HeavyHex Nut Zinc	24	7/8-9	HeavyHex Nut Zinc	24
7/8	Flat washer Zinc	24	7/8	Flat washer Zinc	24
12" Standard Zinc			**12" XL Zinc**		
7/8-9 x 8-1/2	Stud Zinc	12	7/8-9 x 20-3/8	Stud Zinc	12
7/8-9	HeavyHex Nut Zinc	24	7/8-9	HeavyHex Nut Zinc	24
7/8	Flat washer Zinc	24	7/8	Flat washer Zinc	24
14" Standard Zinc			**14" XL Zinc**		
1-8 x 10-1/8	Stud Zinc	12	1-8 x 21-1/4	Stud Zinc	12
1-8	HeavyHex Nut Zinc	24	1-8	HeavyHex Nut Zinc	24
1	Flat washer Zinc	24	1	Flat washer Zinc	24
16" Standard Zinc			**16" XL Zinc**		
1-8 x 10-1/2	Stud Zinc	16	1-8 x 23-7/8	Stud Zinc	16
1-8	HeavyHex Nut Zinc	32	1-8	HeavyHex Nut Zinc	32
1	Flat washer Zinc	32	1	Flat washer Zinc	32
18" Standard Zinc			**18" XL Zinc**		
1-1/8 x 11	Stud Zinc	16	1-1/8 x 24-7/8	Stud Zinc	16
1-1/8	HeavyHex Nut Zinc	32	1-1/8	HeavyHex Nut Zinc	32
1-1/8	Flat washer Zinc	32	1-1/8	Flat washer Zinc	32

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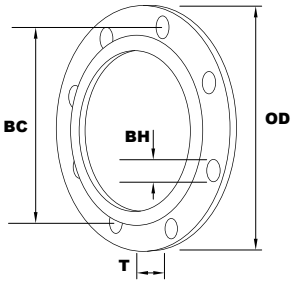
For reference only. Actual dimensions may vary.
Solo para referencia. Las dimensiones reales pueden variar.

BACK-UP RING - DUCTILE IRON
FOR USE WITH FLANGE ADAPTER

Anillo De Respaldo De Hierro Dúctil Para Uso Con El Adaptador De Brida



MATES TO FLANGES MADE TO THE FOLLOWING STANDARD: Se conecta a bridas hechas a las siguientes normas:			
Standard Estándar	**Class** Clase	**Type** Tipo	**Size Range** Margen de Tamaños
ASME/ANSI B16.5	150	-	1/2"- 24"
ASME/ANSI B16.47 Series A	150	-	26"- 60"
ASME/ANSI B16.1	125	-	All
AWWWA C 207	B, D, E (hub flanges) B, D, E (bridas de núcleo)	B, D, E (rings, blind flanges) B, D, E (anillos, brida ciega)	All
EN 1759-1 (BS, DIN, and UNE)	150	-	1/2"- 24"

Nominal Size (in)	Pipe OD (in)	DR	Pressure Rating (psi)	OD (in)	BC (in)	BH (in)	T (in)	Bolt # Perno #
3/4	1.05	7	335	3.88	2.75	0.625	0.5	4
1	1.315	7	335	4.25	3.13	0.625	0.56	4
1-1/4	1.66	7	335	4.63	3.5	0.625	0.63	4
1-1/2	1.9	7	335	5	3.88	0.625	0.69	4
2	2.375	7	335	6	4.75	0.75	0.75	4
		11	200	6	4.75	0.75	0.5	4
3	3.5	7	335	7.5	6	0.75	0.94	4
		11	200	7.5	6	0.75	0.53	4
4	4.5	7	335	9	7.5	0.75	0.94	8
		11	200	9	7.5	0.75	0.55	8
6	6.625	7	335	11	9.5	0.875	1	8
		11	200	11	9.5	0.875	0.63	8
8	8.625	7	335	13.5	11.75	0.875	1.12	8
		11	200	13.5	11.75	0.875	0.85	8
10	10.75	7	335	16	14.25	1	1.19	12
		11	200	16	14.25	1	0.98	12
12	12.75	7	335	19	17	1	1.5	12
		11	200	19	17	1	1.25	12
14	14	7	335	21	18.75	1.125	1.63	12
		11	200	21	18.75	1.125	1.38	12
16	16	7	335	23.5	21.25	1.125	1.88	16
		11	200	23.5	21.25	1.125	1.65	16
18	18	7	335	25	22.75	1.25	1.9	16
		11	200	25	22.75	1.25	1.67	16
20	20	7	335	27.5	25	1.25	2.125	20
		11	200	27.5	25	1.25	1.81	20
22	22	7	335	29.5	27.25	1.375	2.3	20
		11	200	29.5	27.25	1.375	2	20
24	24	7	335	32	29.5	1.375	2.5	20
		9	250	32	29.5	1.375	2.13	20
		11	200	32	29.5	1.375	2.17	20
		17	125	32	29.5	1.375	1.95	20

Nominal Size (in)	Pipe OD (in)	DR	Pressure Rating (psi)	OD (in)	BC (in)	BH (in)	T (in)	Bolt # Perno #
26	26	7	335	34.25	31.75	1.375	2.53	24
		11	200	34.25	31.75	1.375	2.38	24
		17	125	34.25	31.75	1.375	2	24
28	28	9	250	36.5	34	1.375	2.6	28
		11	200	36.5	34	1.375	2.5	28
		17	125	36.5	34	1.375	2.3	28
30	30	9	250	38.75	36	1.375	2.8	28
		11	200	38.75	36	1.375	2.6	28
		17	125	38.75	36	1.375	2.28	28
		26	80	38.75	36	1.375	2.06	28
32	32	9	250	41.75	38.5	1.63	3	28
		11	200	41.75	38.5	1.63	2.75	28
		26	80	41.75	38.5	1.63	2.12	28
34	34	11	200	43.75	40.5	1.63	2.93	32
		17	125	43.75	40.5	1.63	2.44	32
		26	80	43.75	40.5	1.63	2.14	32
36	36	9	250	46	42.75	1.63	3.8	32
		11	200	46	42.75	1.63	3.03	32
		17	125	46	42.75	1.63	2.75	32
		26	80	46	42.75	1.63	2.5	32
42	42	11	200	53	49.5	1.63	4.06	36
		13.5	160	53	49.5	1.63	3.66	36
		21	100	53	49.5	1.63	3	36
48	48	11	200	59.5	56	1.63	4.53	44
		17	125	59.5	56	1.63	3.94	44
		26	80	59.5	56	1.63	3.5	44
54	54	17	125	66.25	62.75	1.88	4	44
		26	80	66.25	62.75	1.88	3.75	44
63	63	17	125	73	69.25	1.88	3.15	52
		26	80	73	69.25	1.88	2.8	52

1. Standard surface treatment is painted primer. Optional surface treatments are available as galvanized, epoxy-coated, or powder-coated. Availabilities may be extended.

1. Tratamiento de la superficie Standard está pintado de imprimación. Tratamientos superficiales opcionales están disponibles como galvanizado, recubierto de polvo epoxi-recubiertos o. Disponibilidades podrán prorrogarse.

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125-150 LB. PIPE FLANGE GASKETS

125 - 150 LB. RING		125 - 150 LB. FULL FACE				
PIPE SIZE OLD STD. I.D.	NEW STD. ASA I.D. AND O.D.	PIPE SIZE OLD STD. I.D.	NEW STD. ASA I.D. AND O.D.	NO. HOLES	HOLE DIA.	BOLT CIRCLE
1/2	27/32 X 1-7/8	1/2	27/32 X 3-1/2	4	5/8	2-3/8
3/4	1-1/16 X 2-1/4	3/4	1-1/16 X 3-7/8	4	5/8	2-3/4
1	1-5/16 X 2-5/8	1	1-5/16 X 4-1/4	4	5/8	3-1/8
1-1/4	1-21/32 X 3	1-1/4	1-21/32 X 4-5/8	4	5/8	3-1/2
1-1/2	1-29/32 X 3-3/8	1-1/2	1-29/32 X 5	4	5/8	3-7/8
2	2-3/8 X 4-1/8	2	2-3/8 X 6	4	3/4	4-3/4
2-1/2	2-7/8 X 4-7/8	2-1/2	2-7/8 X 7	4	3/4	5-1/2
3	3-1/2 X 5-3/8	3	3-1/2 X 7-1/2	4	3/4	6
3-1/2	4 X 6-3/8	3-1/2	4 X 8-1/2	8	3/4	7
4	4-1/2 X 6-7/8	4	4-1/2 X 9	8	3/4	7-1/2
4-1/2	5 X 7	4-1/2	5 X 9-1/4	8	3/4	7-3/4
5	5-9/16 X 7-3/4	5	5-9/16 X 10	8	7/8	8-1/2
6	6-5/8 X 8-3/4	6	6-5/8 X 11	8	7/8	9-1/2
7	7-5/8 X 10	7	7-5/8 X 12-1/2	8	7/8	10-3/4
8	8-5/8 X 11	8	8-5/8 X 13-1/2	8	7/8	11-3/4
9	9-5/8 X 12-1/2	9	9-5/8 X 15	12	7/8	13-1/4
10	10-3/4 X 13-3/8	10	10-3/4 X 16	12	1	14-1/4
12	12-3/4 X 16-1/8	12	12-3/4 X 19	12	1	17
14	14 X 17-3/4	14	14 X 21	12	1 1/8	18-3/4
15	15 X 19	15	15 X 22-1/4	16	1 1/8	20
16	16 X 20-1/4	16	16 X 23-1/2	16	1 1/8	21-1/4
18	18 X 21-5/8	18	18 X 25	16	1 1/4	22-3/4
20	20 X 23-7/8	20	20 X 27-1/2	20	1 1/4	25
22	22 X 26	22	22 X 29-1/2	20	1 1/4	27-1/4
24	24 X 28-1/4	24	24 X 32	20	1 3/8	29-1/2
26	26 X 30-1/2	26	26 X 34-1/4	24	1 3/8	31-3/4
28	28 X 32-3/4	28	28 X 36-1/2	28	1 3/8	34
30	30 X 34-3/4	30	30 X 38-3/4	28	1 3/8	36
32	32 X 38	32	32 X 41-3/4	28	1 5/8	38-1/2
34	34 X 39	34	34 X 43-3/4	32	1 5/8	40-1/2
36	36 X 41-1/4	36	36 X 46	32	1 5/8	42-3/4
38	38 X 43-5/8	38	38 X 48-3/4	36	1 5/8	45-1/4
40	40 X 45-5/8	40	40 X 50-3/4	36	1 5/8	47-1/4
42	42 X 48	42	42 X 53	36	1 5/8	49-1/2
44	44 X 50-1/8	44	44 X 55-1/4	40	1 5/8	51-3/4
46	46 X 52-1/8	46	46 X 57-1/4	40	1 5/8	53-3/4
48	48 X 54-1/2	48	48 X 59-1/2	44	1 5/8	56

* UNLESS OTHERWISE SPECIFIED ON ORDER, OLD STANDARD SIZES WILL BE SUPPLIED

TYPE OF MATERIAL

BUNA-N (NITRILE) SHEET
BUTYL SHEET
CLOTH INSERTED SHEET
DARPAC COMPRESSED SHEET
EPDM (ETHYLENE PROPYLENE)
GRAPHITE SHEET (SUBJECT TO CARTON CHARGE)
HYPALON SHEET
NEOPRENE - 50 THRU 70 DURO
NEOPRENE DIAPHRAGM - DUCK INSERTED
RED RUBBER SHEET
SILICONE SHEET - 50 THRU 70 DURO
TAN PURE GUM
TETRABLUE SHEET PACKING
TETRAGLAS-T GASKET CLOTH
VEGETABLE FIBER SHEET (SUBJECT TO MINIMUM QUANTITY ORDER)
VITON (FLUOROELASTOMER)
WHITE FOOD GRADE RUBBER
WIRE INSERTED TETRAGLAS-T

Flange Gaskets

250-300 LB. PIPE FLANGE GASKETS

250 - 300 LB. RING		250 - 300 LB. FULL FACE				
PIPE SIZE OLD STD. I.D.	NEW STD. ASA I.D. AND O.D.	PIPE SIZE OLD STD. I.D.	NEW STD. ASA I.D. AND O.D.	NO. HOLES	HOLE DIA.	BOLT CIRCLE
1/2	27/32 X 2-1/8	1/2	27/32 X 3-3/4	4	5/8	2-5/8
3/4	1-1/16 X 2-5/8	3/4	1-1/16 X 4-5/8	4	3/4	3-1/4
1	1-5/16 X 2-7/8	1	1-5/16 X 4-7/8	4	3/4	3-1/2
1-1/4	1-21/32 X 3-1/4	1-1/4	1-21/32 X 5-1/4	4	3/4	3-7/8
1-1/2	1-29/32 X 3-3/4	1-1/2	1-29/32 X 6-1/8	4	3/4	4-1/2
2	2-3/8 X 4-3/4	2	2-3/8 X 6-1/2	8	7/8	5
2-1/2	2-7/8 X 5-1/8	2-1/2	2-7/8 X 7-1/2	8	7/8	5-7/8
3	3-1/2 X 5-7/8	3	3-1/2 X 8-1/4	8	7/8	6-5/8
3-1/2	4 X 6-1/2	3-1/2	4 X 9	8	7/8	7-1/4
4	4-1/2 X 7-1/8	4	4-1/2 X 10	8	7/8	7-7/8
4-1/2	5 X 7-5/8	4-1/2	5 X 10-1/2	8	7/8	8-1/2
5	5-9/16 X 8-1/2	5	5-9/16 X 11	8	7/8	9-1/4
6	6-5/8 X 9-7/8	6	6-5/8 X 12-1/2	12	7/8	10-5/8
7	7-5/8 X 10-7/8	7	7-5/8 X 14	12	7/8	11-7/8
8	8-5/8 X 12-1/8	8	8-5/8 X 15	12	1	13
9	9-5/8 X 12-7/8	9	9-5/8 X 16-1/4	12	1	14
10	10-3/4 X 14-1/4	10	10-3/4 X 17-1/2	16	1-1/8	15-1/4
12	12-3/4 X 16-5/8	12	12-3/4 X 20-1/2	16	1-1/4	17-3/4
14	14 X 19-1/8	14	14 X 23	20	1-1/4	20-1/4
16	16 X 21-1/4	16	16 X 25-1/2	20	1-3/8	22-1/2
18	18 X 23-1/4	18	18 X 28	24	1-3/8	24-3/4
20	20 X 25-3/4	20	20 X 30-1/2	24	1-3/8	27
22	22 X 27-3/4	22	22 X 33	24	1-3/8	29-1/4
24	24 X 30-1/2	24	24 X 36	24	1-5/8	32
26	26 X 32-7/8	26	26 X 38-1/4	28	1-5/8	34-1/2
28	28 X 35-3/8	28	28 X 40-3/4	28	1-5/8	37
30	30 X 37-1/2	30	30 X 43	28	1-7/8	39-1/4
32	32 X 38-5/8	32	32 X 45-1/4	28	1-7/8	41-1/2
34	34 X 41-5/8	34	34 X 47-1/2	28	1-7/8	43-1/2
36	36 X 44	36	36 X 50	32	2-1/8	46
38	38 X 46-1/8	38	38 X 52-1/4	32	2-1/8	48
40	40 X 48-3/4	40	40 X 54-1/4	36	2-1/8	50-1/4
42	42 X 50-3/4	42	42 X 57	36	2-1/8	52-3/4
44	44 X 53	44	44 X 59-1/4	36	2-1/8	55
46	46 X 55-1/4	46	46 X 61-1/2	40	2-1/8	57-1/4
48	48 X 58-3/4	48	48 X 65	40	2-1/8	60-3/4

*** UNLESS OTHERWISE SPECIFIED ON ORDER, OLD STANDARD SIZES WILL BE SUPPLIED**

TYPE OF MATERIAL

BUNA-N (NITRILE) SHEET
BUTYL SHEET
CLOTH INSERTED SHEET
DARPAC COMPRESSED SHEET
EPDM (ETHYLENE PROPYLENE)
GRAPHITE SHEET (SUBJECT TO CARTON CHARGE)
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NEOPRENE - 50 THRU 70 DURO
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RED RUBBER SHEET
SILICONE SHEET - 50 THRU 70 DURO
TAN PURE GUM
TETRABLUE SHEET PACKING
TETRAGLAS-T GASKET CLOTH
VEGETABLE FIBER SHEET (SUBJECT TO MINIMUM QUANTITY ORDER)
VITON (FLUOROELASTOMER)
WHITE FOOD GRADE RUBBER
WIRE INSERTED TETRAGLAS-T

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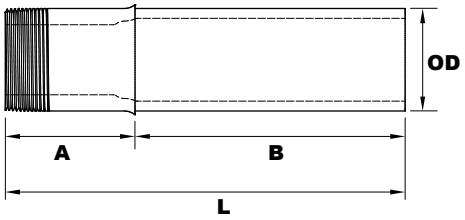
For reference only. Actual dimensions may vary.
Sólo para referencia. Las dimensiones reales pueden variar.

TRANSITION FITTING HDPE TO MALE NPT THREADED METAL

Accesorio Transición HDPE A NPT Macho Roscado



DR	17	11	9	7
Pressure Rating Resistencia a la Presión	125 psi	200 psi	250 psi	333 psi

Nominal Size (in) Tamaño nominal	OD (in)	A (in)	B (in)	L (in)
1/2	0.84	1.6	6.4	8
3/4	1.05	1.8	6.2	8
1	1.315	2	6	8
1-1/4	1.66	2.6	5.4	8
1-1/2	1.9	2.6	5.4	8
2	2.375	3	5	8
3	3.5	4	4	8
4	4.5	4	8	12
6	6.625	5	8	13
8	8.625	7	8	15
10	10.75	8	8	16
12	12.75	9	9	18

1. Available in Brass, Carbon Steel (Epoxy Coated), 304 and 316 Stainless Steel

1. Disponible en bronce, acero al carbono recubierto con Epoxy y acero inoxidable 304 y 316.

ISCO ONLINE AND ON-THE-GO

Find the resources you need by visiting isco-pipe.com on your desktop or mobile device.

ISCO en línea y en marcha: encuentre los recursos que necesita visitando isco-pipe.com en su dispositivo de escritorio o móvil.

www.isco-pipe.com

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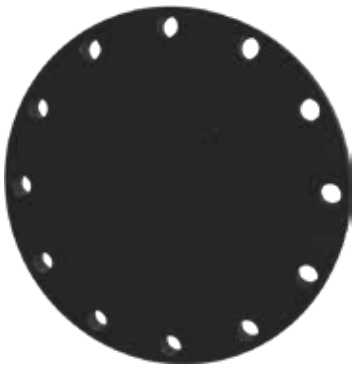
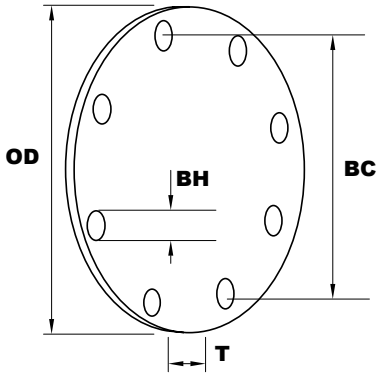
BLIND FLANGE HDPE AND PVC

Brida Ciega De HDPE Y PVC





Nominal Size (in) Tamaño nominal	OD (in)	BC (in)	BH (in)	T (in)	Bolt # Perno #
3/4	3.875	2.75	0.625	1	4
1	4.25	3.13	0.625	1	4
1-1/4	4.625	3.5	0.625	1	4
1-1/2	5	3.88	0.625	1	4
2	6	4.75	0.750	1	4
3	7.5	6	0.750	1	4
4	9	7.5	0.750	1	8
6	11	9.5	0.875	1	8
8	13.5	11.75	0.875	1	8
10	16	14.25	1	1	12
12	19	17	1	1	12
14	21	18.75	1.125	1	12
16	23.5	21.25	1.125	1	16
18	25	22.75	1.25	1	16
20	27.5	25	1.25	1	20
22	29.5	27.25	1.375	1	20
24	32	29.5	1.375	1	20
26	34.25	31.75	1.375	1	24
28	36.5	34	1.375	1	28
30	38.75	36	1.375	1	28
32	41.75	38.5	1.625	1	28
36	46	42.75	1.625	1	32
40	50.75	47.25	1.625	1	36
42	53	49.5	1.625	1	36
48	59.5	56	1.625	1	44
54	66.25	62.75	1.875	1.5	44
63	73	69.25	1.875	1.5	52

1. Bolt circle for IPS Blind Flanges are the same for DIPS Blind Flanges 24" and smaller.
2. HDPE and PVC Blinds are not rated for full pressure above 6".

1. La circunferencia de los pernos en las bridas ciegas ips es que el de las bridas ciegas dips de 24 pulgadas o menos.
2. Las bridas ciegas de hdpe y pvc por encima de 6 pulgadas no están categorizadas para presión máxima.

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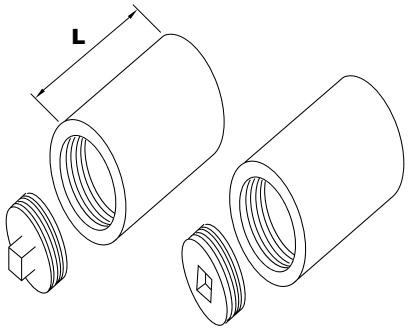
CLEAN OUT THREADED

Tapa De Limpieza



Nominal Size (in) Tamaño nominal	OD (in)	L (in)
2	2.375	6
3	3.5	6
4	4.5	6
6	6.625	6
8	8.625	6
10	10.75	6
12	12.75	6

1. Clean Out fittings are rated for gravity service only.
2. Male boss standard. Female boss available upon request.
3. Fusion end of fitting comes standard as DR11 wall thickness.

1. Los accesorios de limpieza están clasificados solo para servicios por gravedad.
2. Norma jefe masculino. jefa disponibles bajo petición.
3. Fusion end of fitting comes standard as DR11 wall thickness.

AWARD-WINNING: ISCO has been a frequent award-winner for the Plastics Pipe Institute's "Project of the Year" award. See the work that took home the prize year after year on our website.

RECONOCIMIENTO: ISCO ha sido un frecuente ganador del premio "Proyecto del Año" del Instituto de Tubos de Plástico (PPI siglas en inglés). Vea en nuestro sitio web los proyectos que ganaron el premio en los últimos años.

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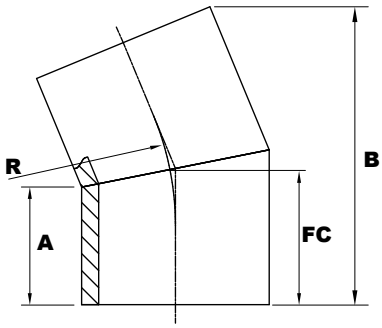
22.5° ELBOW FABRICATED TWO-SEGMENT MITERED BEND

Codo De 22.5° Fabricado De Dos Segmentos



Feedstock DR	32.5	26	21	17	13.5	11	9	7
Pressure Rating	50 psi	63 psi	80 psi	100 psi	125 psi	160 psi	200 psi	250 psi
EDR	41	32.5	26	21	17	13.5	11	9

Nominal Size (in) Tamaño nominal	OD (in)	A (in)	B (in)	FC (in)	R (in)
2	2.375	4	8.6044	4.2362	13.1274
3	3.5	4	9.0349	4.3481	13.6899
4	4.5	5	11.3415	5.4476	14.1899
6	6.625	6	14.0786	6.6589	15.2524
8	8.625	6.5	15.8059	7.3578	16.2524
10	10.75	6.5	16.6191	7.5692	17.3149
12	12.75	8	20.2703	9.2681	19.4461
14	14	8	20.7486	9.3924	21.0766
16	16	8	21.514	9.5913	24.0875
18	18	8	22.2793	9.7902	26.8471
20	20	8	23.0447	9.9891	30.1094
22	22	8	23.8101	10.188	32.9946
24	24	8	24.5754	10.3869	36.0055
26	26	14	36.8841	16.5859	39.0165
28	28	14	37.6494	16.7848	41.9017
30	30	14	38.4148	16.9837	44.9881
32	32	14	39.1802	17.1826	48.0493
36	36	14	40.7109	17.5804	54.0712
42	42	21	56.4742	25.1772	62.9783
48	48	21	58.7703	25.7739	72.0111
54	54	21	61.0664	26.3706	81.0439
63	63	21	64.5105	27.2657	85.5439

1. Some size/DR combinations may have limited availability.
2. EDR (Equivalent Dimensional Ratio) – The EDR specified is the DR of the piping system for which the fabricated fitting is intended to be butt fused.

1. Algunos Tamano / DR Combinaciones puede tener disponibilidad limitada.
2. EDR (Ratio Dimensional Equivalente) - El EDR especificado es el DR del sistema de tuberías para que el accesorio fabricado pueda ser fusionado a tope.

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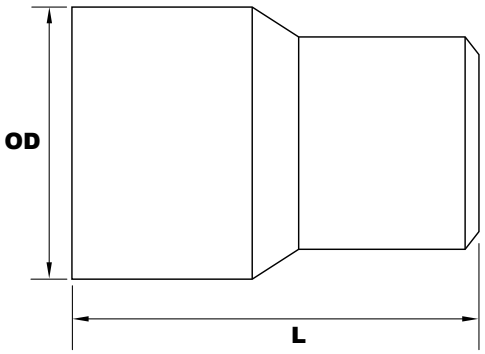
END CAP MOLDED

Tapa De Extremo Moleada



DR	17	11	9	7
Pressure Rating Resistencia a la Presión	125 psi	200 psi	250 psi	333 psi

Nominal Size (in) Tamaño nominal	OD (in)	DR (in)	L (in)
3/4	1.05	11	2.08
1	1.315	11	2.14
1-1/4	1.66	11	2.35
1-1/2	1.9	11	2.55
2	2.375	17	2.94
		11	2.94
		9	2.94
		7	2.94
3	3.5	17	7.33
		11	7.33
		9	7.33
		7	7.33
4	4.5	17	7.56
		11	7.56
		9	7.38
		7	7.38
6	6.625	17	6.19
		11	6.19
		9	10.52
		7	10.52
8	8.625	17	8
		11	8
		9	12.25
		7	12.25
10	10.75	17	10.05
		11	10.05
12	12.75	17	12.25
		11	12.25

1. Some end caps may have reduced section on end, shape varies.

1. Algunas tapas pueden tener una sección reducida en el extremo, la forma varía.

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GRAINGER

Valve and Meter Boxes / NDS Meter Box: Rectangular, 12 in Ht, 20...

NDS Meter Box: Rectangular, 12 in Ht, 20 in Wd, 25 3/4 in Lg, 3 in x 4 in Pipe Size

Item **52XA19** Mfr. Model **D1500-DIRB**

Compare

Shipping Weight **14.55 lbs**

Ship Availability Terms

Add to List

Product Details

Catalog Page 2907

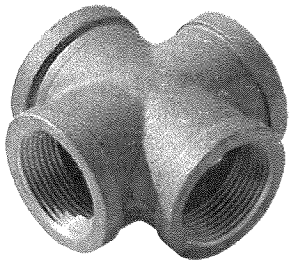
Brand	**NDS**
Manufacturer Part Number	**D1500-DIRB**
Shape	**Rectangular**
Height	**12 in**
Width	**20 in**
Length	**25-3/4 in**
Pipe Size	**3 in x 4 in**
Color	**Black**
Body Material	**Polyolefin**
Product Type	**Meter Box**
UNSPSC	**40141616**
Country of Origin	**USA (subject to change)**

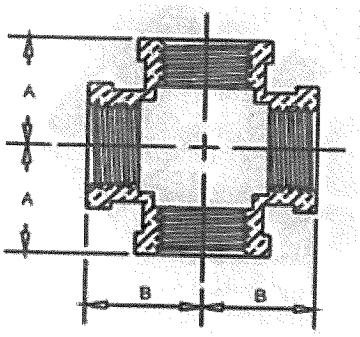
Chat with an Agent

DIMENSIONAL SPECIFICATIONS
LEADED IMPORT BRASS FITTINGS** 125 LB.

CROSS

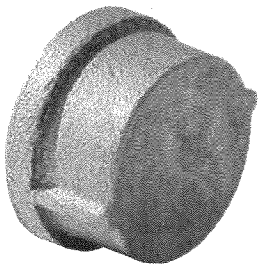
Part #	Size (IN.)	Approx. Net WT. (LB.)	A	B
X110-02	1/8	0.13	0.54	0.54
X110-04	1/4	0.20	0.71	0.71
X110-06	3/8	0.29	0.82	0.82
X110-08	1/2	0.43	1.01	1.01
X110-12	3/4	0.68	1.18	1.18
X110-16	1	1.08	1.43	1.43
X110-20	1-1/4	1.70	1.69	1.69
X110-24	1-1/2	1.97	1.84	1.84
X110-32	2	2.52	2.12	2.12
X110-40	2-1/2	5.73	2.70	2.70

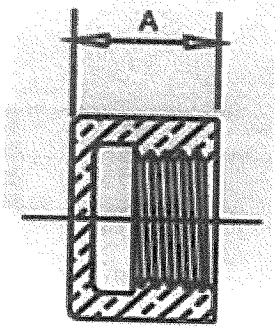




CAP

Part #	Size (IN.)	Approx. Net WT. (LB.)	A
X116-02	1/8	0.04	0.49
X116-04	1/4	0.07	0.59
X116-06	3/8	0.09	0.66
X116-08	1/2	0.13	0.78
X116-12	3/4	0.22	0.84
X116-16	1	0.40	1.00
X116-20	1-1/4	0.48	1.13
X116-24	1-1/2	0.72	1.16
X116-32	2	1.11	1.34
X116-40	2-1/2	1.75	1.72
X116-48	3	2.71	1.81
X116-64	4	3.76	2.09





** ⚠ WARNING: This product can expose you to Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. This product is not for use in potable water.

MERIT BRASS
DIRECTING THE FLOW OF *Quality*

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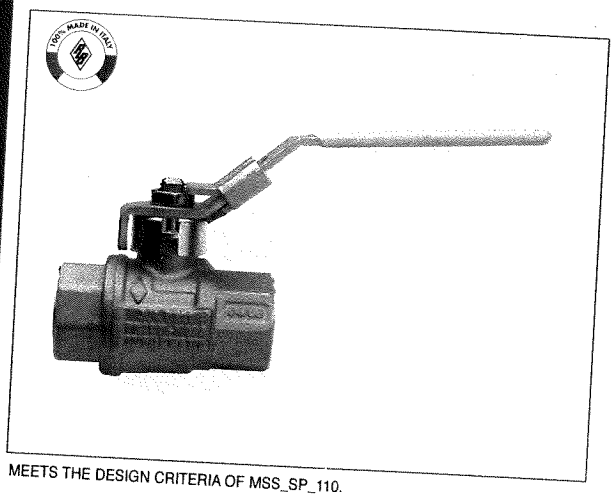
EURO-SFER

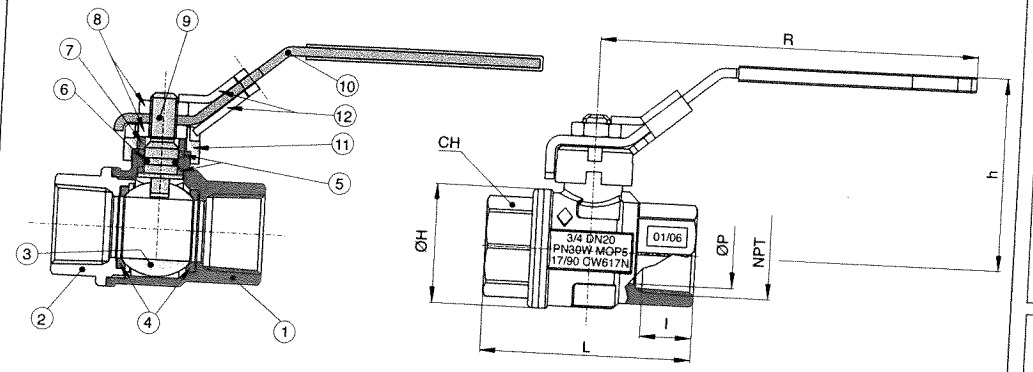


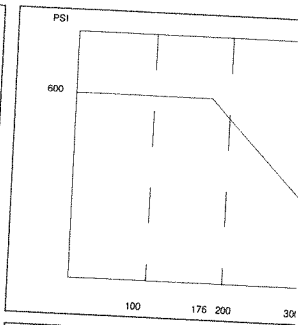
MEETS THE DESIGN CRITERIA OF MSS_SP_110.

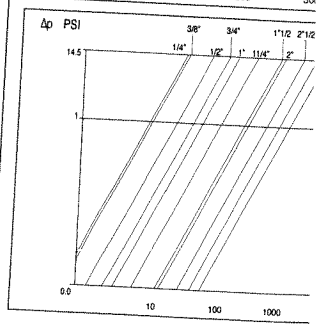
SERIES 171L
COMMERCIAL STYLE

Brass ball valve, FNPT threaded, full port, with latch lock handle.
- Pressure rating 600 WOG-150 WSP.
- Temperature range -4°F to +366°F.
- Blow-out proof stem, chrome plated brass ball.
- P.T.F.E seats, seals, and thrust washer.
- Adjustable stem packing.
- 100% electronically tested in the open and closed position at 80 psi.
- Not to be used for drinking water.
- Valve to be used in fully open or fully closed position.
- ANSI B1.20.1 connections.

171L: LOCK HANDLE - size 1/4" to 4".
171LCR: CHROME PLATED - size 1/4" to 4".







The Buna O-ring is fitted to the stem of the valve as the best possible protection against potential gas leakage under extreme duty, or low pressure applications. A secondary P.T.F.E stem seal will also assure that the valve is suitable for use up to 366° F.

N POS	PART NAME	MATERIAL	N PCS
1	BODY	BRASS C37700	1
2	END CONNECTION	BRASS C37700	1
3	BALL	BRASS C37700	1
4	BALL SEAT	P.T.F.E	2
5	THRUST WASHER/STEM SEAL	P.T.F.E	2
6	O-RING	NBR	1
7	PACKING GLAND	BRASS C38500	1
8	NUT	STEEL CL 04	2
9	STEM	BRASS C38500	1
10	HANDLE	Fe DD11 UNI EN 10111	1
11	BUSH	ZAMA G Zn Al4 UNI EN 1774	1
12	LOCKING DEVICE	Fe DD11 UNI EN 10111	1

SIZE	ØP	l	L	ØH	CH	R	h	Cv	psi
1/4"	0.39	0.39	2.03	0.91	0.79	3.78	1.83	6.24	600
3/8"	0.39	0.41	2.03	0.91	0.79	3.78	1.83	6.94	600
1/2"	0.59	0.54	2.44	1.30	0.98	3.78	1.99	18.84	600
3/4"	0.79	0.55	2.72	1.54	1.22	4.84	2.48	34.10	600
1"	0.98	0.66	3.07	1.93	1.50	4.84	2.64	49.71	600
1 1/4"	1.26	0.68	3.43	2.32	1.89	5.94	3.15	102.89	600
1 1/2"	1.57	0.68	3.90	2.87	2.13	5.94	3.39	265.90	600
2"	1.95	0.70	4.31	3.39	2.64	6.30	3.82	306.36	600
2 1/2"	2.56	0.93	5.59	4.37	3.54	8.11	5.02	624.28	600
3"	3.15	1.02	6.46	5.35	4.13	8.11	5.45	1009.25	600
4"	3.94	1.09	7.60	6.54	5.12	10.28	6.56	1606.94	600

⚠ **WARNING**: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to **www.p65wa**

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To ensur

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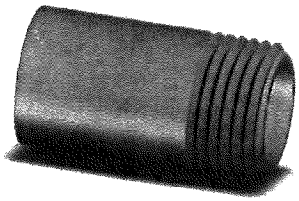


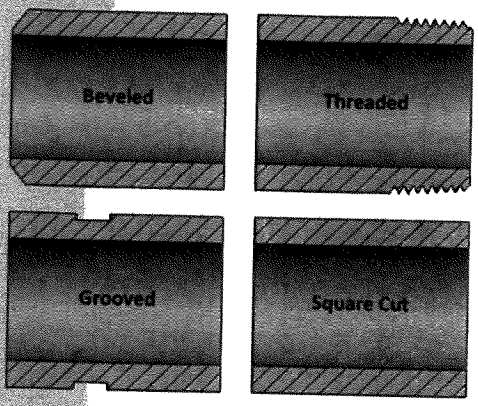
Pipe Nipple

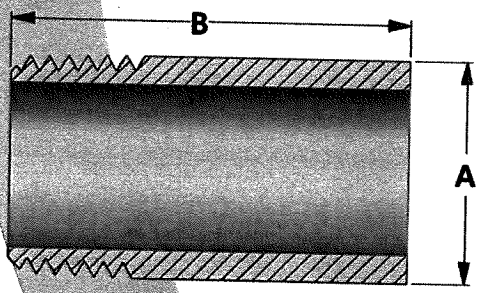
Specification: ASTM A733
Threaded ends per ASME B1.20.1 • Beveled ends per ASME B16.25

Material: Available in a complete range of Carbon Steels, Stainless Steels, Alloy Steels and Non-ferrous metals certified to ASTM, ASME, and Military standards.

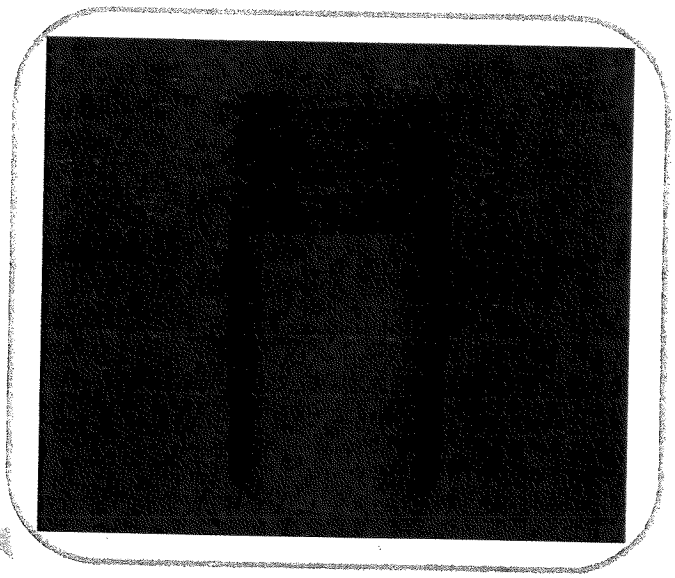
Sizes: 1/4"- 8" in S40/STD, S80/XH, S160 & XXH
Also available in special pipe schedules and custom lengths.
Lengths which are shorter than Close length are not recommended for pressure application.

End Preparations





Active 3D Model



All dimensions are in inches • Weights are based on Carbon Steel

Pipe Size	A	B										
		Close	Short	Standard Lengths								
1/8	0.405	0.750	1.500	2.000	2.500	3.000	3.500	4.000	4.500	5.000	5.500	6.000
1/4	0.540	0.875	1.500	2.000	2.500	3.000	3.500	4.000	4.500	5.000	5.500	6.000
3/8	0.675	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500	5.000	5.500	6.000
1/2	0.840	1.125	1.500	2.000	2.500	3.000	3.500	4.000	4.500	5.000	5.500	6.000
3/4	1.050	1.375	1.500	2.000	2.500	3.000	3.500	4.000	4.500	5.000	5.500	6.000
1	1.315	1.500	2.000	---	2.500	3.000	3.500	4.000	4.500	5.000	5.500	6.000
1-1/4	1.660	1.625	2.000	---	2.500	3.000	3.500	4.000	4.500	5.000	5.500	6.000
1-1/2	1.900	1.750	2.000	---	2.500	3.000	3.500	4.000	4.500	5.000	5.500	6.000
2	2.375	2.000	2.500	---	---	3.000	3.500	4.000	4.500	5.000	5.500	6.000
2-1/2	2.875	2.500	3.000	---	---	---	---	4.000	4.500	5.000	5.500	6.000
3	3.500	2.625	3.000	---	---	---	---	4.000	4.500	5.000	5.500	6.000
3-1/2	4.000	2.750	4.000	---	---	---	---	---	4.500	5.000	5.500	6.000
4	4.500	2.875	4.000	---	---	---	---	---	4.500	5.000	5.500	6.000
5	5.563	3.000	4.500	---	---	---	---	---	---	5.000	5.500	6.000
6	6.625	3.125	4.500	---	---	---	---	---	---	5.000	5.500	6.000

APPENDIX F: CONFORMATION OF COMPLIANCE: OWL LANDFILL SERVICES, INC. SURFACE WASTE MANAGEMENT FACILITY; CONSTRUCTION UPDATE.

Tyler Krueger

From: Tyler Krueger
Sent: Friday, May 3, 2024 8:46 AM
To: brad.a.jones@state.nm.us
Subject: OWL Cell 2B Liner
Attachments: OWL Cell 2AB OCD Review.pdf

Categories: Not Filed By Newforma

Good morning,

We are planning on starting liner next week, possibly starting May 7th. The northern half of Cell 2AB was previously lined. The southern half has been excavated and liner is scheduled to begin. The plan set has previously been reviewed when we constructed the northern half of Cell 2.

Please feel free to reach out if you have any questions or concerns.

Thank you

Tyler Krueger, PE
Civil Engineer | Associate

Parkhill
806.473.3656 | Parkhill.com

APPENDIX G: RESUMÉS

G.1: Tyler S. Krueger, PE, Engineer of Record, Parkhill - Site CQA Engineer/Manager

CONTACT

tkrueger@parkhill.com
806.473.3656

EDUCATION

Texas Tech University
Bachelor of Science,
Civil Engineering

LICENSES

Registered Professional Engineer
Texas No. 130015

EXPERIENCE

10 Years in Industry

Tyler Krueger PE

Tyler Krueger, PE, is an Associate and Civil Engineer in Parkhill's Environmental Sector. His experience includes engineering design as well as construction and permitting services on municipal solid waste (MSW) landfills in Texas. Many of his projects have included groundwater compliance, annual volume, NMOC reporting, permit modifications, and permit applications for landfills. Additionally, he has experience in liner installation for multiple MSW landfills in Texas. He has also developed Site Operating Plans, Landfill Gas Management Plans, and Erosion Stability Plans. He is also a licensed Class A MSW Operator.

EXPERIENCE

- Brownfield MSWLF cell 2 Bidding, Construction Admin., Testing, RPR and Liner Evaluation Reporting
- Brownfield Landfill Cell 2 Expansion
- Denton Municipal Solid Waste Engineering Services Landfill Permit Amendment
- Denton Landfill On-Call Engineering Project
- Post Landfill Site Layout Revision
- C.K. Disposal E&P Landfill
- Delaware Basin E&P Landfill
- Levelland Landfill Type IV Cell 2
- Pecos City Landfill Site Life Evaluation
- Pecos City Landfill ADC Authorization
- Post Landfill Initial Development
- Plainview Landfill Tier 2 Testing
- City of Lamesa Landfill Cell 5 DBC
- Plainview Landfill Sector 2A-2B Expansion
- Levelland Landfill Type 4 Cell 3
- Town of Pecos City Landfill Trench 6 & 7 - DBC
- Big Spring Big Sandy Draw Landfill Litter Fence
- Lamesa Landfill Permit Amendment

APPENDIX G: RESUMÉS

G.2: Matt Kingsley, PE, Senior Project Manager

CONTACT

980.525.9426

EDUCATION

Valparaiso University
Bachelor of Science,
Civil Engineering

LICENSES

Registered Professional Engineer
Texas No. 135539

EXPERIENCE

33 Years in Industry

Matt Kingsley PE

Matt Kingsley, PE, Senior Civil Engineer with Parkhill's Environmental Sector. He is an professional in landfill and transfer station operations, design, and construction. He has operated and developed over 10 Transfer Stations across the United States, in both arid and sub-tropical climates. He has also developed, expanded, and operated over 25 landfills from Phoenix to Philadelphia. Through Matt's diverse engineering design and operational experience, he has provided valuable insight for many of our clients. This has recently included operations consulting to both Sandoval County and the City of Albuquerque, two of the largest waste generators in New Mexico. Matt conducted a multiple-week assessment of operations for the City of Albuquerque, including their landfill and three transfer stations. After preparing an extensive report and summary of key safety and operational findings, Matt was asked to present this to the City's public works director and his staff.

EXPERIENCE

- Estancia Valley Solid Waste Authority Septage Lagoon with Liner
- Albuquerque MSW Landfill Services
- EVRLF-Landfill Engineering Services
- Lea Land Landfill
- Tucumcari-Landfill-Cell 4 design bid bld
- Town of Clayton Landfill Monitoring
- De Baca County Landfill Monitoring
- Deming Butterfield Trail Landfill Monitoring
- Deming Landfill Monitoring
- Paseo de Vista Landfill
- Lea County Landfill Environmental Compliance Services
- Lea County SWA Cell 6 Landfill
- Lea County Landfill Pavement Design
- Raton Landfill Monitoring
- T or C Landfill
- Old Tucumcari Landfill Monitoring
- City of Tucumcari Landfill Monitoring
- Raton Landfill Monitoring
- Lea County Landfill - Tier 2 Testing
- Santa Rosa Landfill Monitoring
- WM Rio Rancho Landfill Groundwater Monitoring

APPENDIX G: RESUMÉS

G.3: Max White, RPR, Construction Phase Services, Site CQA Manager

Max White

Max White is a member of Parkhill's CPS/CM Sector. He joined Parkhill in 1985 as a Resident Project Representative (RPR). Prior to joining Parkhill, Max was employed by Texas Tech University in the Office of Water Management. Since joining Parkhill, Max has provided on-site inspection services for all kinds of projects, including water and wastewater treatment plants, solid waste landfills, and streets and drainage improvements.

CONTACT

mwhite@parkhill.com
806.473.3533

EDUCATION

Texas Tech University
Bachelor of Science,
Mechanized Agriculture (Business Option)

LICENSES

Registered Irrigator
Texas No. 8164

EXPERIENCE

40 Years in Industry

EXPERIENCE

- Brownfield MSWLF cell 2 Bidding, Construction Admin., Testing, RPR and Liner Evaluation Reporting
- Brownfield Landfill Cell 2 Expansion
- Lea County Landfill - Tier 2 Testing
- Levelland Landfill Type I Cell 2
- Post Landfill Initial Development
- Plainview Landfill Tier 2 Testing
- City of Lamesa Landfill Cell 5 DBC
- C.K. Disposal E&P Landfill
- Delaware Basin E&P Landfill
- Big Spring / Howard County Big Sandy MSW Landfil - Ph 1 Planning Engineering and Construction
- Big Spring-Howard County Big Sandy Draw Landfill Groundwater background Monitoring
- Levelland Landfill Type IV Cell 2
- Plainview Paving Improvements - Reconstruction of 13th, 15th, Skate Park Parking Lot, and Landfill Road
- Greater El Paso Landfill Cells 11-14 Bid and Construction Administration

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator:	OGRID:
OWL LANDFILL SERVICES, LLC 3889 Maple Avenue Dallas, TX 75219	371820
	Action Number: 450952
	Action Type: [C-137] Non-Fee SWMF Submittal (SWMF NON-FEE SUBMITTAL)

CONDITIONS

Created By	Condition	Condition Date
joseph.kennedy	None	4/22/2025