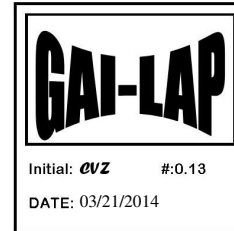




March 21, 2014

Allan Brantley
Brantley Engineering, LLC.
13933 Tree Loft Road
Milton, GA 30004



Re: FINAL LABORATORY TEST REPORT

Dear Mr. Brantley:

Thank you for consulting TRI California for your material testing needs.

Enclosed is the **final** laboratory report for the conformance testing of two (2) 60mil HDPE Microspike samples.

PROJECT NAME: Jed Cell 10

DATE REPORTED: March 21, 2014

REFERENCE TRI JOB NO.: G140213

DATE RECEIVED: March 12, 2014

SAMPLES SENT BY: AGRU, SC

SAMPLE IDENTIFICATIONS:

SAMPLE ID

1. R#G14C103031 L#H8240163
2. R#G14C102022 L#H8240163

TRI CONTROL NUMBER

- 96810
96811

TESTS REQUIRED / PERFORMED:

TEST METHOD

1. ASTM D5994
2. ASTM D1505
3. ASTM D6639
4. ASTM D1603
5. ASTM D5596

DESCRIPTION

- Thickness
Density
Tensile Properties
Carbon Black Content
Carbon Black Dispersion

TEST RESULTS: The test results are summarized in the attached Tables 1 to 2.

Respectfully,

TRI Environmental, Inc. - California

Maria Espitia

Maria Espitia
Quality Assurance

Carmelo V. Zantua
Technical Director

Signatures are on file

It shall be noted that the samples tested are believed to be true representatives of the material produced under the designation herein stated. In addition, the attached laboratory tests results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. TRI neither accepts responsibility for nor makes claims to the intended final use and purpose of the material. The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself. It is our policy to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. **Retained conformance samples are disposed of after one (1) month.** On the other hand, should you need us to keep them at a longer period, please advise us in writing.

3 Pages Total

TABLE 1.
MATERIAL PROPERTIES
 CLIENT: Brantley Engineering, LLC.
 PROJECT: Jed Cell 10

Date Received: 3/12/2014
 Date Reported: 3/21/2014
 Client Sample ID: R#G14C103031 L#H8240163
 Material Description: 60mil HDPE Microspike Geomembrane

QC'd By: *Maria Espitia*
 TRI Job No.: G140213
 TRI Control No.: 96810

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs.
	1	2	3	4	5	6	7	8	9	10					
METHOD	DESCRIPTION														
ASTM D5994	Thickness (mils)														
	<i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2° to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i>														
	<i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>														
	61	62	61	63	61	62	63	63	64	65	62	1	61	65	60 nominal 54 min.
ASTM D1505	Density (grams/ cm. ³)										0.9418	0.0003	0.9414	0.9420	.94 min.
	0.9414	0.9420	0.9419												
ASTM D6693 Type IV	<u>Tensile Properties:</u>														
	<i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F), and 50+/-5% relative humidity. Rate of Separation: 2"/min</i>														
	Tensile Strength at Yield (lbs/ in.-width)														
	MD	149	148	155	157	147					151	4	147	157	126 min.
	TD	164	161	167	161	141					159	10	141	167	
	Tensile Strength at Break (lbs/ in.- width)														
	MD	194	138	212	200	200					189	29	138	212	90 min.
	TD	206	207	224	200	181					204	15	181	224	
	Elongation at Yield (percent, %)														
	MD	14	15	16	17	15					15	1	14	17	12 min.
	TD	13	13	14	12	14					13	1	12	14	
	Elongation at Break (percent, %) <i>Gauge Length = 2.0 in.</i>														
	MD	478	275	485	399	413					410	84	275	485	100 min.
	TD	574	560	626	554	508					564	43	508	626	
ASTM D1603	Carbon Black Content (percent, %)														
	2.30	2.25									2.28	0.04	2.25	2.30	2-3
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)														
	1	1	1	1	1	1	1	1	1	1	10 out of 10 in Category 1				9 of 10 in Cat. 1 or 2 All in Cat. 1,2, or 3

(End of Table 1)

(Sheet 1 of 1)

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

LEGENDS:

MD - MACHINE DIRECTION
 TD- TRANSVERSE DIRECTION

1160 North Gilbert Street, Anaheim, CA 92801, www.precisionlabs.net
 Precision Geosynthetic Laboratories International dba TRI Environmental, Inc.

TABLE 2.
MATERIAL PROPERTIES
 CLIENT: Brantley Engineering, LLC.
 PROJECT: Jed Cell 10

Date Received: 3/12/2014
 Date Reported: 3/21/2014
 Client Sample ID: **R#G14C102022 L#H8240163**
 Material Description: **60mil HDPE Microspike Geomembrane**

QC'd By: *Maria Espitia*
 TRI Job No.: **G140213**
 TRI Control No.: **96811**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2° to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>	64	63	62	64	64	64	65	66	65	64	64	1	62	66	60 nominal 54 min.
ASTM D1505	Density (grams/ cm. ³) 0.9425 0.9420 0.9411											0.9419	0.0007	0.9411	0.9425	.94 min.
ASTM D6693 Type IV	<u>Tensile Properties:</u> <i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F), and 50+/-5% relative humidity. Rate of Separation: 2"/min</i>															
	Tensile Strength at Yield (lbs/ in.-width)															
	MD 149 161 158 144 147											152	7	144	161	126 min.
	TD 170 151 167 167 147											160	11	147	170	
	Tensile Strength at Break (lbs/ in.- width)															
	MD 191 207 218 167 212											199	21	167	218	90 min.
	TD 176 190 188 206 206											193	13	176	206	
	Elongation at Yield (percent, %)															
	MD 14 17 16 14 18											16	2	14	18	12 min.
	TD 12 14 14 14 15											14	1	12	15	
	Elongation at Break (percent, %) <i>Gauge Length = 2.0 in.</i>															
	MD 498 396 485 441 450											454	40	396	498	100 min.
	TD 468 520 505 569 588											530	49	468	588	
ASTM D1603	Carbon Black Content (percent, %)															
	2.09 2.19											2.14	0.07	2.09	2.19	2-3
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
	1 1 1 1 1 1 1 1 1 1											10 out of 10 in Category 1				9 of 10 in Cat. 1 or 2 All in Cat. 1,2, or 3

(End of Table 2)

(Sheet 1 of 1)

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

LEGENDS:

MD - MACHINE DIRECTION
 TD- TRANSVERSE DIRECTION