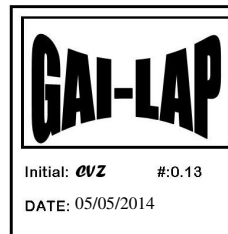




May 5, 2014

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 seam testing of six (6) HDPE seam samples.

PROJECT NAME: JED Cell 10

DATE REPORTED: May 5, 2014

REFERENCE TRI JOB NO.: G140382

DATE RECEIVED: May 5, 2014

SAMPLES SENT BY: Brantley Engineering

SAMPLE IDENTIFICATIONS:

SAMPLE ID

1. DSP7 22/ 24
2. DSP8 24/ 25
3. DSP10 30/ 31
4. DSP11 31/ 32
5. DSP12 46/ 47
6. DXP1 18/ EX

TRI-CA CONTROL NUMBER

- 97591
- 97592
- 97593
- 97594
- 97595
- 97596

TESTS REQUIRED / PERFORMED:

TEST METHOD

1. ASTM D6392
2. ASTM D6392

DESCRIPTION

- Shear Bond Strength
- Peel Bond Adhesion

TEST RESULTS: The test results are summarized in the attached Tables 1 to 3.

Respectfully,

TRI Environmental, Inc. - California

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. **Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks.** On the other hand, should you need us to keep them at a longer period, please advise us in writing.

4 Pages Total

TABLE 1.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **Brantley Engineering, LLC**
 PROJECT: **JED Cell 10**
 DATE REC'D: **5-May-14**

MATERIAL: **HDPE SEAM**
 SEAM TYPE: **Fusion Weld**
 TRI JOB #: **G140382**

QC'd By: *Maria Espitia*
 TEST METHOD: **ASTM D6392**
 DATE REPORT: **5-May-14**

Crosshead Speed: 2 in/min						Crosshead Speed: 2 in/min				
SAMPLE ID	TRI CONTROL #	SHEAR EVALUATION				PEEL EVALUATION				
		MAXIMUM STRENGTH (lb/in width)	% Elongation	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DSP7 22/ 24	97591	160	> 50%	BRK		1 Outside	119	0	SE1	
		157	> 50%	BRK		2 Outside	123	0	SE1	
		150	> 50%	BRK		3 Outside	123	0	SE1	
		156	> 50%	BRK		4 Outside	106	0	SE1	
		159	> 50%	BRK		5 Outside	112	0	SE1	
		AVG:		117				91		
		STD. DEV.		7						
		1 Inside	107	0		SE1				
		2 Inside	116	0		SE1				
		3 Inside	114	0		SE1				
4 Inside	114	0	SE1							
5 Inside	120	0	SE1							
AVG:		114			91					
STD. DEV.		5								
DSP8 24/ 25	97592	157	> 50%	BRK		1 Outside	119	0	SE1	
		156	> 50%	BRK		2 Outside	116	0	SE1	
		159	> 50%	BRK		3 Outside	108	0	SE1	
		163	> 50%	BRK		4 Outside	113	0	SE1	
		163	> 50%	BRK		5 Outside	120	0	SE1	
		AVG:		115				91		
		STD. DEV.		5						
		1 Inside	129	0		SE1				
		2 Inside	125	0		SE1				
		3 Inside	114	0		SE1				
4 Inside	116	0	SE1							
5 Inside	121	0	SE1							
AVG:		121			91					
STD. DEV.		6								

BREAK DESCRIPTION (ASTM D6392 FUSION):		EXTRUSION:	
AD	ADHESION FAILURE.	AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
BRK	BREAK IN SHEETING.	AD2	ADHESION FAILURE.
SE1	BREAK AT OUTER EDGE OF SEAM.	AD-WLD	BREAK THROUGH THE FILLET.
SE2	BREAK AT INNER EDGE OF SEAM.	SE1	BREAK AT BOTTOM EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.	SE2	BREAK AT TOP EDGE OF SEAM.
SIP	SEPARATION IN THE PLANE OF THE SHEET.	SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
		BRK1	BREAK IN BOTTOM SHEETING.
		BRK2	BREAK IN TOP SHEETING.
		AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
		HT	BREAK AT EDGE OF HOT TACK
		SIP	SEPARATION IN THE PLANE OF THE SHEET.

(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.

**TABLE 2.
SEAM PEEL AND SHEAR TEST RESULTS**

CLIENT: **Brantley Engineering, LLC**
PROJECT: **JED Cell 10**
DATE REC'D: **5-May-14**

MATERIAL: **HDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **G140382**

QC'd By: *Maria Espitia*
TEST METHOD: **ASTM D6392**
DATE REPORT: **5-May-14**

Crosshead Speed: 2 in/min						Crosshead Speed: 2 in/min					
SAMPLE ID	TRI CONTROL #	SHEAR EVALUATION				PEEL EVALUATION					
		MAXIMUM STRENGTH (lb/in width)	% Elongation	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)	
DSP-10 30/ 31	97593	158	> 50%	BRK		1 Outside	128	0	SE1		
		159	> 50%	BRK		2 Outside	112	0	SE1		
		158	> 50%	BRK		3 Outside	117	0	SE1		
		161	> 50%	BRK		4 Outside	119	0	SE1		
		159	> 50%	BRK		5 Outside	116	0	SE1		
		AVG:				118			91		
		STD. DEV.				6					
		1 Inside		120		0	SE1				
		2 Inside		101		0	SE1				
		3 Inside		115		0	SE1				
4 Inside		120	0	SE1							
5 Inside		107	0	SE1							
AVG:			113			91					
STD. DEV.			8								
DSP-11 31/ 32	97594	151	> 50%	BRK		1 Outside	122	0	SE1		
		147	> 50%	BRK		2 Outside	116	0	SE1		
		146	> 50%	BRK		3 Outside	113	0	SE1		
		151	> 50%	BRK		4 Outside	111	0	SE1		
		151	> 50%	BRK		5 Outside	105	0	SE1		
		AVG:				113			91		
		STD. DEV.				6					
		1 Inside		126		0	SE1				
		2 Inside		126		0	SE1				
		3 Inside		124		0	SE1				
4 Inside		118	0	SE1							
5 Inside		119	0	SE1							
AVG:			123			91					
STD. DEV.			4								
AVG:		159	120			AVG:		113	91		
STD. DEV.		1				STD. DEV.		8			
AVG:		151	> 50%	BRK		1 Outside	122	0	SE1		
147		> 50%	BRK	2 Outside		116	0	SE1			
146		> 50%	BRK	3 Outside		113	0	SE1			
151		> 50%	BRK	4 Outside		111	0	SE1			
151		> 50%	BRK	5 Outside		105	0	SE1			
AVG:			113			91					
STD. DEV.			6								
1 Inside		126	0	SE1							
2 Inside		126	0	SE1							
3 Inside		124	0	SE1							
4 Inside		118	0	SE1							
5 Inside		119	0	SE1							
AVG:			123			91					
STD. DEV.			4								
AVG:		149	120			AVG:		123	91		
STD. DEV.		2				STD. DEV.		4			

BREAK DESCRIPTION (ASTM D6392 FUSION):		EXTRUSION:	
AD	ADHESION FAILURE.	AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
BRK	BREAK IN SHEETING.	AD2	ADHESION FAILURE.
SE1	BREAK AT OUTER EDGE OF SEAM.	AD-WLD	BREAK THROUGH THE FILLET.
SE2	BREAK AT INNER EDGE OF SEAM.	SE1	BREAK AT BOTTOM EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.	SE2	BREAK AT TOP EDGE OF SEAM.
SIP	SEPARATION IN THE PLANE OF THE SHEET.	SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
		BRK1	BREAK IN BOTTOM SHEETING.
		BRK2	BREAK IN TOP SHEETING.
		AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
		HT	BREAK AT EDGE OF HOT TACK
		SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 2)

(Sheet 1 of 1)

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TABLE 3.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **Brantley Engineering, LLC**
 PROJECT: **JED Cell 10**
 DATE REC'D: **5-May-14**

MATERIAL: **HDPE SEAM**
 SEAM TYPE: **Fusion Weld**
 TRI JOB #: **G140382**

QC'd By: *Maria Espitia*
 TEST METHOD: **ASTM D6392**
 DATE REPORT: **5-May-14**

Crosshead Speed: 2 in/min						Crosshead Speed: 2 in/min					
SAMPLE ID	TRI CONTROL #	SHEAR EVALUATION				PEEL EVALUATION					
		MAXIMUM STRENGTH (lb/in width)	% Elongation	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)	
DSP12 46/ 47 Fusion	97595	157	> 50%	BRK		1 Outside	121	0	SE1		
		154	> 50%	BRK		2 Outside	125	0	SE1		
		157	> 50%	BRK		3 Outside	123	0	SE1		
		157	> 50%	BRK		4 Outside	124	0	SE1		
		157	> 50%	BRK		5 Outside	123	0	SE1		
		AVG:				123	91				
		STD. DEV.				1					
						1 Inside	123	0	SE1		
						2 Inside	125	0	SE1		
						3 Inside	118	0	SE1		
						4 Inside	116	0	SE1		
						5 Inside	113	0	SE1		
		AVG:				119	91				
		STD. DEV.				5					
DXP1 18/ EX Extrusion	97596	160	> 50%	BRK		1 Outside	173	0	See note		
		160	> 50%	BRK		2 Outside	164	0	See note		
		158	> 50%	BRK		3 Outside	164	0	See note		
		160	> 50%	BRK		4 Outside	165	0	SE2		
		153	> 50%	BRK		5 Outside	167	0	See note		
		AVG:				167	78				
		STD. DEV.				4					
						1 Inside	N/A				
						2 Inside					
						3 Inside					
						4 Inside					
						5 Inside					
		AVG:				120					
		STD. DEV.				3					

BREAK DESCRIPTION:

BRK BREAK IN SHEETING.
 SE1 BREAK AT OUTER EDGE OF SEAM.
 SE2 BREAK AT TOP EDGE OF SEAM.

Note: No adhesion failure. Only elongation on top sheeting.

(End of Table 3)

(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.