



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040015
 TRI Log #: 60698

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	52	51	54	55	53	51	52	52	55	50	53 50	2 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	197	202	210	206	189	160	163	171	168	166	183	20	175 min
Asperity Height (mils) - Side B	145	142	148	146	141	136	148	146	140	138	143	4	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.24	2.21									2.23	0.02	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	191	267	234	178	195						213	37	105 min
TD Break Strength (ppi)	213	209	225	216	259						224	20	105 min
MD Break Elongation (%)	490	471	495	439	495						478	24	250 min
TD Break Elongation (%)	661	610	680	661	781						679	63	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040024
 TRI Log #: 60698

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	52	55	54	53	53	52	54	54	51	52	53 51	1 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	212	216	205	207	170	174	181	180	172	171	189	19	175 min
Asperity Height (mils) - Side B	144	145	138	139	135	145	138	141	138	142	141	3	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.25	2.26									2.26	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	264	184	210	198	182						208	34	105 min
TD Break Strength (ppi)	229	223	253	197	246						230	22	105 min
MD Break Elongation (%)	468	505	501	519	462						491	25	250 min
TD Break Elongation (%)	681	716	744	546	772						692	88	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040032
 TRI Log #: 60698

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	53	55	51	52	51	48	55	53	55	50	52 48	2 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	178	173	181	204	194	190	200	198	189	195	190	10	175 min
Asperity Height (mils) - Side B	147	141	147	141	137	140	143	138	140	140	141	3	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.935	0.936	0.936								0.936	0.001	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.24	2.32									2.28	0.06	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	168	202	206	227	208						202	21	105 min
TD Break Strength (ppi)	219	186	247	221	203						215	23	105 min
MD Break Elongation (%)	434	537	448	500	528						489	47	250 min
TD Break Elongation (%)	654	563	745	675	639						655	66	250 min
MD Machine Direction	TD Transverse Direction												



November 3, 2020
November 17, 2020

Mail To:

Steve Mayes
Watershed Geo
11400 Atlantis Pl #200
Alpharetta GA, 30022

email: smayes@watershedgeo.com

Bill To:

<= Same

Dear Mr. Mayes:

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:	Big Rivers LF Phase 1 Closure
TRI Job Reference Number:	60266
Material(s) Tested:	One, Agru 50 mil Super Gripnet LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Asperity Height (ASTM D 7466) Density (ASTM D 1505) Carbon Black Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile Properties (ASTM D 6693)

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

*Signature is on file



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040041
 TRI Log #: 60266

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.	
	1	2	3	4	5	6	7	8	9	10				
Thickness (ASTM D 5994)														
Thickness (mils)	54	50	53	56	53	55	55	55	53	54	54	50	2	47.5 Avg
													<< min	45.8 of 10
														42.5 min ind
Asperity Height (ASTM D 7466)														
Asperity Height (mils) - Side A	197	198	192	180	181	185	209	203	181	201	193	10	175 min	
Asperity Height (mils) - Side B	148	149	141	143	146	143	140	145	144	141	144	3	130 min	
Side A - Shiny Side	Side B - Dull Side													
Density (ASTM D 1505)														
Density (g/cm3)	0.936	0.936	0.936									0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)														
% Carbon Black	2.39	2.38										2.39	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)														
Rating - 1st field view	1	1	1	1	1									9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1									1 cat 3
Tensile Properties (ASTM D 6693, 2 lpm strain rate)														
MD Break Strength (ppi)	214	254	225	188	236							223	25	105 min
TD Break Strength (ppi)	278	261	249	233	256							255	16	105 min
MD Break Elongation (%)	472	493	556	469	482							494	36	250 min
TD Break Elongation (%)	770	749	688	718	734							732	31	250 min
MD Machine Direction	TD Transverse Direction													



November 10, 2020
November 17, 2020

Mail To:

Steve Mayes
Watershed Geo
11400 Atlantis Pl #200
Alpharetta GA, 30022

email: smayes@watershedgeo.com

Dear Mr. Mayes:

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:	Big Rivers LF Phase 1 Closure
TRI Job Reference Number:	60325
Material(s) Tested:	Two, Agru 50 mil Super Gripnet LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Asperity Height (ASTM D 7466) Density (ASTM D 1505) Carbon Black Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile Properties (ASTM D 6693)

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

*Signature is on file

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
Sample Identification: GTB0064040059
TRI Log #: 60325

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	55	59	54	58	59	58	59	57	58	56	57 54	2 << min
Asperity Height (ASTM D 7466)												
Asperity Height (mils) - Side A	214	204	206	207	207	205	211	201	203	203	206	4
Asperity Height (mils) - Side B	141	141	140	142	149	142	141	149	140	144	143	3
Side A - Shiny Side	Side B - Dull Side											
Density (ASTM D 1505)												
Density (g/cm3)	0.936	0.936	0.936								0.936	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.25	2.28									2.27	0.02
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Break Strength (ppi)	238	239	233	231	231						234	4
TD Break Strength (ppi)	277	271	247	228	250						255	20
MD Break Elongation (%)	527	491	539	537	466						512	32
TD Break Elongation (%)	756	756	639	594	716						692	73
MD Machine Direction	TD Transverse Direction											

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
Sample Identification: GTB0064040067
TRI Log #: 60325

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	58	54	58	55	58	52	59	57	58	58	57 52	2 << min
Asperity Height (ASTM D 7466)												
Asperity Height (mils) - Side A	198	197	208	194	198	199	194	201	199	198	199	4
Asperity Height (mils) - Side B	141	143	149	141	138	139	141	142	144	147	143	3
Side A - Shiny Side	Side B - Dull Side											
Density (ASTM D 1505)												
Density (g/cm3)	0.935	0.935	0.935								0.935	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.21	2.27									2.24	0.04
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Break Strength (ppi)	260	266	241	216	224						241	22
TD Break Strength (ppi)	274	274	260	210	258						255	26
MD Break Elongation (%)	519	490	583	498	492						516	39
TD Break Elongation (%)	720	754	712	569	721						695	72
MD Machine Direction	TD Transverse Direction											



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

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

**PROJ.
SPEC.**

47.5 Avg
45 8 of 10
42.5 min ind

175 min
130 min

0.939 max

2.0-3.0

9 cat 1 or 2
1 cat 3

105 min
105 min

250 min
250 min

**PROJ.
SPEC.**

47.5 Avg
45 8 of 10
42.5 min ind

175 min
130 min

0.939 max

2.0-3.0

9 cat 1 or 2
1 cat 3

105 min
105 min

250 min
250 min



November 10, 2020
November 17, 2020

Mail To:

Steve Mayes
Watershed Geo
11400 Atlantis PI #200
Alpharetta GA, 30022

email: smayes@watershedgeo.com

Bill To:

<= Same

Dear Mr. Mayes:

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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:	Big Rivers LF Phase 1 Closure
TRI Job Reference Number:	60443
Material(s) Tested:	Eight, Agru 50 mil Super Gripnet LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Asperity Height (ASTM D 7466) Density (ASTM D 1505) Carbon Black Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile Properties (ASTM D 6693)

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

*Signature is on file

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
Sample Identification: GTB0064040050
TRI Log #: 60443

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	53	55	53	51	54	59	56	53	55	52	54 51	2 << min	47.5 Avg 45.8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	194	193	197	201	195	206	194	193	197	197	197	4	175 min
Asperity Height (mils) - Side B	152	148	151	147	147	148	144	147	151	151	149	3	130 min
Side A - Shiny Side	Side B - Dull Side												
Density (ASTM D 1505)													
Density (g/cm ³)	0.935	0.935	0.935								0.935	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.49	2.50									2.50	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	221	232	221	262	222						232	18	105 min
TD Break Strength (ppi)	227	237	248	262	259						247	15	105 min
MD Break Elongation (%)	576	492	499	538	529						527	34	250 min
TD Break Elongation (%)	706	733	770	785	757						750	31	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040075
 TRI Log #: 60443

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.	
	1	2	3	4	5	6	7	8	9	10				
Thickness (ASTM D 5994)														
Thickness (mils)	59	52	54	58	54	51	57	55	50	54	54	50	3	47.5 Avg
													<< min	45.8 of 10
														42.5 min ind
Asperity Height (ASTM D 7466)														
Asperity Height (mils) - Side A	198	197	208	199	199	199	201	203	193	197	199	197	4	175 min
Asperity Height (mils) - Side B	146	143	143	144	143	142	144	149	146	149	145	149	3	130 min
Side A - Shiny Side	Side B - Dull Side													
Density (ASTM D 1505)														
Density (g/cm ³)	0.935	0.935	0.935										0.000	0.939 max
Carbon Black Content (ASTM D 4218)														
% Carbon Black	2.24	2.23											0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)														
Rating - 1st field view	1	1	1	1	1									9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1									1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)														
MD Break Strength (ppi)	213	219	235	216	203								12	105 min
TD Break Strength (ppi)	232	248	266	264	232								17	105 min
MD Break Elongation (%)	505	482	529	509	543								23	250 min
TD Break Elongation (%)	693	726	773	755	687								38	250 min
MD Machine Direction	TD Transverse Direction													



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040083
 TRI Log #: 60443

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	53	52	55	51	51	54	54	53	53	55	53 51	2 << min	47.5 Avg 45.8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	203	207	209	211	203	198	204	201	206	204	205	4	175 min
Asperity Height (mils) - Side B	152	146	149	143	150	147	154	154	147	147	149	4	130 min
Side A - Shiny Side	Side B - Dull Side												
Density (ASTM D 1505)													
Density (g/cm ³)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.25	2.23									2.24	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	220	226	211	251	205						223	18	105 min
TD Break Strength (ppi)	251	203	243	232	247						235	19	105 min
MD Break Elongation (%)	530	579	488	506	503						521	36	250 min
TD Break Elongation (%)	718	601	699	690	716						685	48	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040091
 TRI Log #: 60443

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.		
	1	2	3	4	5	6	7	8	9	10					
Thickness (ASTM D 5994)															
Thickness (mils)	53	53	53	54	55	53	54	51	55	51	53	51	1	47.5 Avg	
													<< min	45.8 of 10	
														42.5 min ind	
Asperity Height (ASTM D 7466)															
Asperity Height (mils) - Side A	199	198	195	202	209	197	201	203	197	201	200	4	4	175 min	
Asperity Height (mils) - Side B	146	147	153	142	143	147	152	150	150	144	147	4	4	130 min	
Side A - Shiny Side	Side B - Dull Side														
Density (ASTM D 1505)															
Density (g/cm ³)	0.935	0.935	0.936								0.935	0.001		0.939 max	
Carbon Black Content (ASTM D 4218)															
% Carbon Black	2.16	2.17									2.17	0.01		2.0-3.0	
Carbon Black Dispersion (ASTM D 5596)															
Rating - 1st field view	1	1	1	1	1									9 cat 1 or 2	
Rating - 2nd field view	1	1	1	1	1									1 cat 3	
Tensile Properties (ASTM D 6693, 2 ipm strain rate)															
MD Break Strength (ppi)	217	232	242	235	219						229	11		105 min	
TD Break Strength (ppi)	255	249	244	235	261						249	10		105 min	
MD Break Elongation (%)	580	414	478	543	506						504	63		250 min	
TD Break Elongation (%)	752	735	699	669	750						721	36		250 min	
MD Machine Direction	TD Transverse Direction														

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040099
 TRI Log #: 60443

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.			
	1	2	3	4	5	6	7	8	9	10						
Thickness (ASTM D 5994)																
Thickness (mils)	54	56	53	51	55	53	57	54	52	55	54 51	2 << min	47.5 Avg 45.8 of 10 42.5 min ind			
Asperity Height (ASTM D 7466)																
Asperity Height (mils) - Side A	192	196	195	196	194	200	194	191	203	202	196	4	175 min			
Asperity Height (mils) - Side B	144	142	140	145	151	148	146	147	143	143	145	3	130 min			
Side A - Shiny Side	Side B - Dull Side															
Density (ASTM D 1505)																
Density (g/cm ³)	0.936	0.936	0.936											0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)																
% Carbon Black	2.18	2.15											2.17	0.02	2.0-3.0	
Carbon Black Dispersion (ASTM D 5596)																
Rating - 1st field view	1	1	1	1	1									9 cat 1 or 2		
Rating - 2nd field view	1	1	1	1	1									1 cat 3		
Tensile Properties (ASTM D 6693, 2 ipm strain rate)																
MD Break Strength (ppi)	277	245	228	218	198							233	30	105 min		
TD Break Strength (ppi)	257	235	237	257	269							251	15	105 min		
MD Break Elongation (%)	513	497	529	523	455							503	30	250 min		
TD Break Elongation (%)	731	626	660	710	704							686	42	250 min		
MD Machine Direction	TD Transverse Direction															

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040107
 TRI Log #: 60443

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	60	57	58	55	55	60	56	57	59	58	58 55	2 << min	47.5 Avg 45.8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	198	202	193	195	197	200	199	199	200	205	199	3	175 min
Asperity Height (mils) - Side B	147	144	151	142	147	143	143	148	150	144	146	3	130 min
Side A - Shiny Side	Side B - Dull Side												
Density (ASTM D 1505)													
Density (g/cm ³)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.15	2.14									2.15	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	258	224	245	259	223						242	18	105 min
TD Break Strength (ppi)	274	297	286	262	273						278	13	105 min
MD Break Elongation (%)	440	478	540	588	499						509	57	250 min
TD Break Elongation (%)	733	795	733	747	786						759	30	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040115
 TRI Log #: 60443

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	58	53	59	58	56	58	55	55	57	54	56 53	2 << min	47.5 Avg 45.8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	208	206	193	201	214	205	201	203	202	205	204	5	175 min
Asperity Height (mils) - Side B	142	146	140	146	142	144	143	141	147	140	143	3	130 min
Side A - Shiny Side	Side B - Dull Side												
Density (ASTM D 1505)													
Density (g/cm ³)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.05	2.06									2.06	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	218	210	266	225	202						224	25	105 min
TD Break Strength (ppi)	289	236	275	238	276						263	24	105 min
MD Break Elongation (%)	530	445	532	520	500						505	36	250 min
TD Break Elongation (%)	801	657	758	706	763						737	56	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040123
 TRI Log #: 60443

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	55	51	54	50	52	53	57	54	53	49	53 49	3 << min	47.5 Avg 45.8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	195	195	204	200	212	205	204	206	206	203	203	5	175 min
Asperity Height (mils) - Side B	149	144	150	142	148	149	152	147	146	147	147	3	130 min
Side A - Shiny Side	Side B - Dull Side												
Density (ASTM D 1505)													
Density (g/cm3)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.18	2.15									2.17	0.02	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	221	234	217	248	218						228	13	105 min
TD Break Strength (ppi)	243	270	249	267	268						259	12	105 min
MD Break Elongation (%)	543	528	513	458	534						515	34	250 min
TD Break Elongation (%)	703	716	728	794	775						743	39	250 min
MD Machine Direction	TD Transverse Direction												



November 13, 2020
November 17, 2020

Mail To:

Steve Mayes
Watershed Geo
11400 Atlantis PI #200
Alpharetta GA, 30022

email: smayes@watershedgeo.com

Bill To:

<= Same

Dear Mr. Mayes:

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:	Big Rivers LF Phase 1 Closure
TRI Job Reference Number:	60502
Material(s) Tested:	Four, Agru 50 mil Super Gripnet LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Asperity Height (ASTM D 7466) Density (ASTM D 1505) Carbon Black Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile Properties (ASTM D 6693)

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

*Signature is on file

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040131
 TRI Log #: 60502

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.	
	1	2	3	4	5	6	7	8	9	10				
Thickness (ASTM D 5994)														
Thickness (mils)	53	54	52	51	52	51	52	53	53	50	52 50	1 << min	47.5 Avg 45.8 of 10 42.5 min ind	
Asperity Height (ASTM D 7466)														
Asperity Height (mils) - Side A	194	194	166	169	171	176	195	198	206	189	186	14	175 min	
Asperity Height (mils) - Side B	147	148	139	141	140	145	141	149	148	148	145	4	130 min	
Side A - Spike	Side B - Nub													
Density (ASTM D 1505)														
Density (g/cm3)	0.936	0.936	0.936								0.936	0.000	0.939 max	
Carbon Black Content (ASTM D 4218)														
% Carbon Black	2.37	2.37								2.37	0.00	2.0-3.0		
Carbon Black Dispersion (ASTM D 5596)														
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2	
Rating - 2nd field view	1	1	1	1	1								1 cat 3	
Tensile Properties (ASTM D 6693, 2 ipm strain rate)														
MD Break Strength (ppi)	212	210	187	200	219						206	12	105 min	
TD Break Strength (ppi)	240	247	236	209	229						232	15	105 min	
MD Break Elongation (%)	591	590	524	443	494						528	64	250 min	
TD Break Elongation (%)	702	736	678	648	670						687	34	250 min	
MD Machine Direction	TD Transverse Direction													



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040139
 TRI Log #: 60502

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	56	58	53	57	58	57	54	56	57	55	56 53	2 << min	47.5 Avg 45.8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	187	196	204	200	191	200	198	197	198	205	198	5	175 min
Asperity Height (mils) - Side B	140	144	144	146	141	143	142	143	148	147	144	3	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm ³)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.23	2.20								2.22	0.02	2.0-3.0	
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1							9 cat 1 or 2	
Rating - 2nd field view	1	1	1	1	1							1 cat 3	
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	235	229	261	251	252						246	13	105 min
TD Break Strength (ppi)	219	199	189	202	208						203	11	105 min
MD Break Elongation (%)	717	687	728	712	710						711	15	250 min
TD Break Elongation (%)	451	500	424	535	474						477	43	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
Sample Identification: GTB0064040147
TRI Log #: 60502

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.			
	1	2	3	4	5	6	7	8	9	10						
Thickness (ASTM D 5994)																
Thickness (mils)	58	54	52	51	55	58	54	52	51	58	54	51	58	54	3	47.5 Avg
															<< min	45.8 of 10
																42.5 min ind
Asperity Height (ASTM D 7466)																
Asperity Height (mils) - Side A	208	204	212	208	211	215	200	209	201	213	208	5	175 min			
Asperity Height (mils) - Side B	152	149	153	153	148	152	152	151	148	150	151	2	130 min			
Side A - Spike	Side B - Nub															
Density (ASTM D 1505)																
Density (g/cm3)	0.935	0.935	0.935								0.935	0.000	0.939 max			
Carbon Black Content (ASTM D 4218)																
% Carbon Black	2.22	2.22									2.22	0.00	2.0-3.0			
Carbon Black Dispersion (ASTM D 5596)																
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2			
Rating - 2nd field view	1	1	1	1	1								1 cat 3			
Tensile Properties (ASTM D 6693, 2 ipm strain rate)																
MD Break Strength (ppi)	240	224	233	223	222						228	8	105 min			
TD Break Strength (ppi)	242	257	255	241	235						246	10	105 min			
MD Break Elongation (%)	477	550	524	500	518						514	27	250 min			
TD Break Elongation (%)	707	717	734	706	674						708	22	250 min			
MD Machine Direction	TD Transverse Direction															



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040155
 TRI Log #: 60502

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	52	52	53	52	53	56	58	53	53	54	54 52	2 << min	47.5 Avg 45.8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	207	204	196	197	198	207	200	200	197	205	201	4	175 min
Asperity Height (mils) - Side B	145	146	143	145	146	146	149	141	148	142	145	3	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.935	0.935	0.935								0.935	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.13	2.23									2.18	0.07	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	213	194	214	239	220						216	16	105 min
TD Break Strength (ppi)	262	214	265	242	209						238	26	105 min
MD Break Elongation (%)	532	531	534	532	556						537	11	250 min
TD Break Elongation (%)	753	623	809	696	621						700	82	250 min
MD Machine Direction	TD Transverse Direction												



November 16, 2020
November 17, 2020

Mail To:

Steve Mayes
Watershed Geo
11400 Atlantis PI #200
Alpharetta GA, 30022

email: smayes@watershedgeo.com

Bill To:

<= Same

Dear Mr. Mayes:

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:	Big Rivers LF Phase 1 Closure
TRI Job Reference Number:	60517
Material(s) Tested:	Two, Agru 50 mil Super Gripnet LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Asperity Height (ASTM D 7466) Density (ASTM D 1505) Carbon Black Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile Properties (ASTM D 6693)

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

*Signature is on file



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040163
 TRI Log #: 60517

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	58	59	53	57	58	56	56	57	55	56	56 53	2 << min	47.5 Avg 45.8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	197	196	192	202	207	203	200	200	198	201	200	4	175 min
Asperity Height (mils) - Side B	149	141	141	145	138	139	143	144	146	143	143	3	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.14	2.18									2.16	0.03	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	2	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	191	243	199	208	201						208	20	105 min
TD Break Strength (ppi)	263	273	212	249	267						253	24	105 min
MD Break Elongation (%)	442	471	507	451	532						481	38	250 min
TD Break Elongation (%)	737	748	587	724	712						702	65	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040171
 TRI Log #: 60517

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.	
	1	2	3	4	5	6	7	8	9	10				
Thickness (ASTM D 5994)														
Thickness (mils)	56	58	58	56	59	57	57	51	55	50	56 50	3 << min	47.5 Avg 45.8 of 10 42.5 min ind	
Asperity Height (ASTM D 7466)														
Asperity Height (mils) - Side A	198	200	204	205	195	191	190	190	195	194	196	5	175 min	
Asperity Height (mils) - Side B	143	140	141	145	142	143	143	149	147	141	143	3	130 min	
Side A - Spike	Side B - Nub													
Density (ASTM D 1505)														
Density (g/cm ³)	0.936	0.936	0.936								0.936	0.000	0.939 max	
Carbon Black Content (ASTM D 4218)														
% Carbon Black	2.25	2.27								2.26	0.01	2.0-3.0		
Carbon Black Dispersion (ASTM D 5596)														
Rating - 1st field view	1	1	1	1	1							9 cat 1 or 2		
Rating - 2nd field view	1	1	1	1	1							1 cat 3		
Tensile Properties (ASTM D 6693, 2 ipm strain rate)														
MD Break Strength (ppi)	225	213	249	235	217							228	15	105 min
TD Break Strength (ppi)	262	260	249	265	258							259	6	105 min
MD Break Elongation (%)	536	589	484	419	479							501	64	250 min
TD Break Elongation (%)	690	726	678	718	730							708	23	250 min
MD Machine Direction	TD Transverse Direction													



November 19, 2020

Mail To:

Steve Mayes
Watershed Geo
11400 Atlantis Place
Suite #200
Alparetta, GA 30022

email: smayes@watershedgeo.com

Bill To:

<= Same

Dear Mr. Mayes:

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: **Big Rivers Landfill Phase 1 Closure Cap**

TRI Job Reference Number: 60606

Material(s) Tested: Three, Agru 50 mil SuperGripNet LLDPE Geomembrane(s)

Test(s) Requested: Thickness (ASTM D 5994)
Asperity Height (ASTM D 7466)
Density (ASTM D 1505)
Carbon Black Content (ASTM D 4218)
Carbon Dispersion (ASTM D 5596)
Tensile Properties (ASTM D 6693)

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

*Signature is on file

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers Landfill Phase 1 Closure Cap

Material: Agru 50 mil SuperGripNet LLDPE Geomembrane
 Sample Identification: GTB0084040190
 TRI Log #: 60606

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	53	58	59	53	54	61	52	52	56	51	55 51	3 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	194	196	199	200	193	192	178	194	188	179	191	8	175 min
Asperity Height (mils) - Side B	144	145	138	140	141	143	147	138	148	142	143	3	130 min
Side A - Spike	Side B - Drainage Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.935	0.935	0.935								0.935	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.29	2.27									2.28	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	213	223	224	227	231						224	7	105 min
TD Break Strength (ppi)	271	261	274	234	248						258	17	105 min
MD Break Elongation (%)	512	504	563	501	564						529	32	250 min
TD Break Elongation (%)	745	758	774	671	661						722	52	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers Landfill Phase 1 Closure Cap

Material: Agru 50 mil SuperGripNet LLDPE Geomembrane
 Sample Identification: GTB0084040198
 TRI Log #: 60606

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	58	60	60	55	60	60	55	55	56	53	57 53	3 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	212	192	208	210	201	199	211	216	197	202	205	8	175 min
Asperity Height (mils) - Side B	148	142	138	140	144	141	140	144	149	142	143	4	130 min
Side A - Spike	Side B - Drainage Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.28	2.26									2.27	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	230	251	270	244	234						246	16	105 min
TD Break Strength (ppi)	287	244	240	278	249						260	21	105 min
MD Break Elongation (%)	531	536	540	566	508						536	21	250 min
TD Break Elongation (%)	794	639	632	735	649						690	72	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers Landfill Phase 1 Closure Cap

Material: Agru 50 mil SuperGripNet LLDPE Geomembrane
 Sample Identification: GTB0084040206
 TRI Log #: 60606

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	57	56	57	56	58	58	57	58	55	56	57 55	1 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	207	197	192	188	194	187	172	165	177	200	188	13	175 min
Asperity Height (mils) - Side B	142	140	142	139	136	144	142	141	141	145	141	3	130 min
Side A - Spike	Side B - Drainage Nub												
Density (ASTM D 1505)													
Density (g/cm ³)	0.937	0.937	0.937								0.937	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.25	2.26								2.26	0.01	2.0-3.0	
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1						9 cat 1 or 2		
Rating - 2nd field view	1	1	1	1	1						1 cat 3		
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	239	239	239	208	240						233	14	105 min
TD Break Strength (ppi)	230	247	236	263	251						245	13	105 min
MD Break Elongation (%)	508	490	543	481	576						520	39	250 min
TD Break Elongation (%)	659	701	680	729	695						693	26	250 min
MD Machine Direction	TD Transverse Direction												



November 19, 2020

Mail To:

Steve Mayes
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Suite #200
Alpharetta, GA 30022

email: smayes@watershedgeo.com

Bill To:

<= Same

Dear Mr. Mayes:

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: **Big Rivers Landfill Phase 1 Closure Cap**

TRI Job Reference Number: 60640

Material(s) Tested: Five, Agru 50 mil SuperGripNet LLDPE Geomembrane(s)

Test(s) Requested: Thickness (ASTM D 5994)
Asperity Height (ASTM D 7466)
Density (ASTM D 1505)
Carbon Black Content (ASTM D 4218)
Carbon Dispersion (ASTM D 5596)
Tensile Properties (ASTM D 6693)

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

*Signature is on file

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers Landfill Phase 1 Closure Cap

Material: Agru 50 mil SuperGripNet LLDPE Geomembrane
 Sample Identification: GTB0084040182
 TRI Log #: 60640

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	54	55	59	53	58	54	56	55	54	58	56	2	47.5 Avg
											53	<< min	45 8 of 10
													42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	206	205	197	192	187	183	176	188	191	178	190	10	175 min
Asperity Height (mils) - Side B	148	148	143	144	141	143	143	141	143	146	144	3	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.933	0.933	0.933								0.933	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.32	2.29									2.31	0.02	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	223	200	222	261	216						224	22	105 min
TD Break Strength (ppi)	238	234	206	256	240						235	18	105 min
MD Break Elongation (%)	568	498	520	537	476						520	35	250 min
TD Break Elongation (%)	659	610	605	685	672						646	37	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers Landfill Phase 1 Closure Cap

Material: Agru 50 mil SuperGripNet LLDPE Geomembrane
 Sample Identification: GTB0084040215
 TRI Log #: 60640

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	55	56	59	54	58	59	56	57	57	60	57	2	47.5 Avg
											54	<< min	45 8 of 10
													42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	195	191	200	197	196	193	199	194	193	197	196	3	175 min
Asperity Height (mils) - Side B	142	144	136	142	136	137	141	136	145	144	140	4	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.934	0.934	0.934								0.934	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.26	2.28									2.27	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	195	236	225	237	250						229	21	105 min
TD Break Strength (ppi)	262	242	267	265	231						253	16	105 min
MD Break Elongation (%)	447	501	479	548	427						480	47	250 min
TD Break Elongation (%)	715	694	741	721	631						700	42	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers Landfill Phase 1 Closure Cap

Material: Agru 50 mil SuperGripNet LLDPE Geomembrane
 Sample Identification: GTB0084040223
 TRI Log #: 60640

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	55	56	55	57	59	56	57	55	55	52	56	2	47.5 Avg
											52	<< min	45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	205	202	197	191	208	193	194	201	207	195	199	6	175 min
Asperity Height (mils) - Side B	132	141	147	146	144	146	146	147	148	146	144	5	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.933	0.933	0.933								0.933	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.31	2.32									2.32	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	237	213	214	225	274						233	25	105 min
TD Break Strength (ppi)	248	259	255	258	253						255	4	105 min
MD Break Elongation (%)	469	523	469	549	459						494	40	250 min
TD Break Elongation (%)	674	732	704	707	681						700	23	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers Landfill Phase 1 Closure Cap

Material: Agru 50 mil SuperGripNet LLDPE Geomembrane
 Sample Identification: GTB0084040231
 TRI Log #: 60640

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	55	53	52	58	57	55	52	56	56	53	55	2	47.5 Avg
											52	<< min	45 8 of 10
													42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	199	204	205	203	197	194	206	207	202	204	202	4	175 min
Asperity Height (mils) - Side B	149	150	142	143	145	152	151	152	146	143	147	4	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm ³)	0.933	0.933	0.933								0.933	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.30	2.28									2.29	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	231	199	204	238	238						222	19	105 min
TD Break Strength (ppi)	270	263	248	246	254						256	10	105 min
MD Break Elongation (%)	462	405	488	425	525						461	48	250 min
TD Break Elongation (%)	767	710	721	678	716						718	32	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers Landfill Phase 1 Closure Cap

Material: Agru 50 mil SuperGripNet LLDPE Geomembrane
 Sample Identification: GTB0084040239

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	58	56	55	57	58	56	57	57	57	54	57 54	1 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	203	211	193	196	192	200	200	199	198	206	200	6	175 min
Asperity Height (mils) - Side B	143	143	145	144	142	140	140	139	148	141	143	3	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.933	0.933	0.933								0.933	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.27	2.29								2.28	0.01	2.0-3.0	
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1						9 cat 1 or 2		
Rating - 2nd field view	1	1	1	1	1						1 cat 3		
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	245	203	262	197	220						225	28	105 min
TD Break Strength (ppi)	301	224	273	231	255						257	31	105 min
MD Break Elongation (%)	514	516	502	468	530						506	23	250 min
TD Break Elongation (%)	753	644	731	639	700						693	51	250 min
MD Machine Direction	TD Transverse Direction												



December 2, 2020

Mail To:

Steve Mayes
Watershed Geo
11400 Atlantis PI #200
Alpharetta GA, 30022

email: smayes@watershedgeo.com

Bill To:

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Dear Mr. Mayes:

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: **Big Rivers LF Phase 1 Closure**

TRI Job Reference Number: 60769

Material(s) Tested: Three, Agru 50 mil Super Gripnet LLDPE Geomembrane(s)

Test(s) Requested: Thickness (ASTM D 5994)
Asperity Height (ASTM D 7466)
Density (ASTM D 1505)
Carbon Black Content (ASTM D 4218)
Carbon Dispersion (ASTM D 5596)
Tensile Properties (ASTM D 6693)

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

*Signature is on file



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040247
 TRI Log #: 60769

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	55	56	58	54	56	56	56	53	56	53	55 53	2 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	189	205	179	186	185	191	188	179	202	190	189	9	175 min
Asperity Height (mils) - Side B	144	150	140	141	146	145	142	142	140	142	143	3	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.935	0.935	0.935								0.935	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.25	2.23									2.24	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	205	206	207	230	205						211	11	105 min
TD Break Strength (ppi)	238	259	271	259	237						253	15	105 min
MD Break Elongation (%)	511	477	508	544	539						516	27	250 min
TD Break Elongation (%)	694	735	752	735	702						724	25	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040256
 TRI Log #: 60769

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	52	53	48	54	55	53	51	49	51	53	52 48	2 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	182	188	166	174	173	176	197	194	186	195	183	11	175 min
Asperity Height (mils) - Side B	141	145	144	142	144	144	140	138	144	145	143	2	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.26	2.32									2.29	0.04	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	2								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	240	210	204	215	205						215	15	105 min
TD Break Strength (ppi)	229	228	240	211	232						228	11	105 min
MD Break Elongation (%)	566	509	514	534	569						538	28	250 min
TD Break Elongation (%)	586	716	745	630	688						673	65	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040266
 TRI Log #: 60769

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	50	51	55	54	54	55	55	52	54	53	53 50	2 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	193	192	200	197	197	206	196	194	197	192	196	4	175 min
Asperity Height (mils) - Side B	139	139	140	136	145	144	141	140	146	148	142	4	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.936	0.937	0.937								0.937	0.001	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.32	2.33									2.33	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	211	193	213	235	216						214	15	105 min
TD Break Strength (ppi)	257	260	219	233	184						231	31	105 min
MD Break Elongation (%)	504	433	530	358	539						473	76	250 min
TD Break Elongation (%)	727	746	668	715	511						673	95	250 min
MD Machine Direction	TD Transverse Direction												



December 2, 2020

Mail To:

Steve Mayes
Watershed Geo
11400 Atlantis PI #200
Alpharetta GA, 30022

email: smayes@watershedgeo.com

Bill To:

<= Same

Dear Mr. Mayes:

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: **Big Rivers LF Phase 1 Closure**

TRI Job Reference Number: 60809

Material(s) Tested: Six, Agru 50 mil Super Gripnet LLDPE Geomembrane(s)

Test(s) Requested: Thickness (ASTM D 5994)
Asperity Height (ASTM D 7466)
Density (ASTM D 1505)
Carbon Black Content (ASTM D 4218)
Carbon Dispersion (ASTM D 5596)
Tensile Properties (ASTM D 6693)

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

*Signature is on file



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040274
 TRI Log #: 60809

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	52	49	51	49	51	57	56	56	53	59	53 49	3 << min	47.5 Avg 45.8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	197	203	205	211	207	202	200	201	202	199	203	4	175 min
Asperity Height (mils) - Side B	143	141	141	144	147	149	143	141	141	140	143	3	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.937	0.937	0.937								0.937	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.22	2.21									2.22	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	183	223	208	200	208						204	15	105 min
TD Break Strength (ppi)	235	252	231	224	240						236	11	105 min
MD Break Elongation (%)	502	481	531	530	542						517	25	250 min
TD Break Elongation (%)	722	759	705	667	711						713	33	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040282
 TRI Log #: 60809

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	54	51	54	53	54	55	53	51	53	53	53 51	1 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	206	210	193	202	202	210	205	204	211	203	205	5	175 min
Asperity Height (mils) - Side B	140	143	142	139	141	140	142	143	145	142	142	2	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.932	0.932	0.933								0.932	0.001	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.23	2.25									2.24	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	206	209	201	211	198						205	5	105 min
TD Break Strength (ppi)	279	230	224	259	222						243	25	105 min
MD Break Elongation (%)	534	555	433	452	544						504	57	250 min
TD Break Elongation (%)	833	680	674	762	696						729	68	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

 Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040290
 TRI Log #: 60809

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.		
	1	2	3	4	5	6	7	8	9	10					
Thickness (ASTM D 5994)															
Thickness (mils)	50	52	55	50	52	57	54	52	50	52	52	52	2	47.5 Avg	
													<< min	45 8 of 10	
														42.5 min ind	
Asperity Height (ASTM D 7466)															
Asperity Height (mils) - Side A	200	199	203	198	185	194	191	212	198	201			7	175 min	
Asperity Height (mils) - Side B	142	146	140	141	138	137	134	131	136	132			5	130 min	
Side A - Spike															
Side B - Nub															
Density (ASTM D 1505)															
Density (g/cm3)	0.934	0.934	0.936										0.001	0.939 max	
Carbon Black Content (ASTM D 4218)															
% Carbon Black	2.22	2.23											0.01	2.0-3.0	
Carbon Black Dispersion (ASTM D 5596)															
Rating - 1st field view	1	1	1	1	1									9 cat 1 or 2	
Rating - 2nd field view	1	1	1	1	1									1 cat 3	
Tensile Properties (ASTM D 6693, 2 ipm strain rate)															
MD Break Strength (ppi)	204	214	222	211	220								7	105 min	
TD Break Strength (ppi)	236	267	253	250	252								11	105 min	
MD Break Elongation (%)	498	559	532	540	508								25	250 min	
TD Break Elongation (%)	709	829	752	736	743								45	250 min	
MD Machine Direction	TD Transverse Direction														



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040298
 TRI Log #: 60809

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	56	52	55	53	55	57	54	54	54	49	54 49	2 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	189	184	183	196	199	180	191	195	188	182	189	6	175 min
Asperity Height (mils) - Side B	137	138	137	145	135	137	137	135	144	135	138	4	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.932	0.933	0.933								0.933	0.001	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.13	2.07									2.10	0.04	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	213	203	204	216	251						217	20	105 min
TD Break Strength (ppi)	240	227	254	241	209						234	17	105 min
MD Break Elongation (%)	546	546	556	492	437						515	51	250 min
TD Break Elongation (%)	690	696	745	683	599						683	53	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040306
 TRI Log #: 60809

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	54	54	52	52	55	56	55	54	53	54	54 52	1 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	193	209	189	201	203	185	184	196	191	185	194	9	175 min
Asperity Height (mils) - Side B	147	148	144	145	143	139	135	141	137	139	142	4	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.937	0.937	0.937								0.937	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.19	2.17									2.18	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	206	198	207	235	215						212	14	105 min
TD Break Strength (ppi)	204	205	226	245	272						230	29	105 min
MD Break Elongation (%)	508	545	472	436	579						508	57	250 min
TD Break Elongation (%)	612	569	673	707	761						664	76	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0064040314
 TRI Log #: 60809

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	55	54	53	51	55	51	54	47	51	54	52 47	2 << min	47.5 Avg 45.8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	208	206	207	197	190	202	202	199	201	197	201	5	175 min
Asperity Height (mils) - Side B	144	148	138	139	141	140	141	146	143	140	142	3	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.936	0.936	0.937								0.936	0.001	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.26	2.31								2.29	0.04	2.0-3.0	
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1						9 cat 1 or 2		
Rating - 2nd field view	1	1	1	1	1						1 cat 3		
Tensile Properties (ASTM D 6693, 2 lpm strain rate)													
MD Break Strength (ppi)	209	213	195	231	227						215	14	105 min
TD Break Strength (ppi)	257	245	232	258	227						244	14	105 min
MD Break Elongation (%)	509	541	477	521	499						509	24	250 min
TD Break Elongation (%)	717	713	705	737	675						709	23	250 min
MD Machine Direction	TD Transverse Direction												



January 6, 2021

Travis Sneed
Big Rivers Electric Corporation
5663 State Route 85 W
Centertown, KY 42328

Via Email: travis.sneed@bigrivers.com

Subject: Geomembrane Third Party Conformance Submittal **2**
ClosureTurf® Final Cover System
Wilson Station Phase 1 Landfill Closure Cap, Centertown, KY

Dear Mr. Sneed,

Watershed Geosynthetics, Inc. has enclosed third party conformance testing documentation for the geomembrane component of ClosureTurf® Final Cover System for the above referenced project. The submittal includes a portion the third party conformance test results as summarized in the table below.

Submittal Date	Production Dates	Roll Count	Quantity (SF)	Cumulative Quantity (SF)
December 3, 2020	Oct. 23 – Nov. 25, 2020	1-314	3,611,000	3,611,000
January 6, 2021	Nov. 25 – Dec. 12, 2020; Sept. 24, 2020	315-408	1,081,000	4,692,000

Please note that the total quantity ordered is 408 rolls or 4,692,000 SF.

As required, the documentation noted below has been enclosed with this letter.

- 1) Third party (TRI Environmental, Austin, TX) laboratory conformance test results demonstrating compliance with Construction Quality Assurance Plan.

Should you require addition information, please do not hesitate to contact me at (502) 209-0325. Thank you for your business.

Respectfully,

Steven M. Mayes, P.E.
Northeast & Midwest Region Market Director

December 10, 2020

Mail To:

Steve Mayes
Watershed Geo
11400 Atlantis PI #200
Alpharetta GA, 30022

email: smayes@watershedgeo.com

Bill To:

<= Same

Dear Mr. Mayes:

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: **Big Rivers LF Phase 1 Closure**

TRI Job Reference Number: 60946

Material(s) Tested: Four, Agru 50 mil Super Gripnet LLDPE Geomembrane(s)

Test(s) Requested: Thickness (ASTM D 5994)
Asperity Height (ASTM D 7466)
Density (ASTM D 1505)
Carbon Black Content (ASTM D 4218)
Carbon Dispersion (ASTM D 5596)
Tensile Properties (ASTM D 6693)

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

*Signature is on file



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0066180001
 TRI Log #: 60946

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	56	56	55	52	50	54	52	49	52	57	53 49	3 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	201	193	206	194	168	179	192	202	211	195	194	13	175 min
Asperity Height (mils) - Side B	141	140	145	139	136	132	141	141	131	144	139	5	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.29	2.29									2.29	0.00	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	205	192	184	223	186						198	16	105 min
TD Break Strength (ppi)	294	255	263	228	268						262	24	105 min
MD Break Elongation (%)	568	489	507	459	418						488	56	250 min
TD Break Elongation (%)	802	715	732	690	820						752	56	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0066180009
 TRI Log #: 60946

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	56	53	53	58	53	57	53	54	52	50	54 50	2 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	172	164	180	182	201	184	200	200	210	198	189	15	175 min
Asperity Height (mils) - Side B	137	134	139	132	132	138	140	141	139	136	137	3	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.934	0.934	0.934								0.934	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.22	2.22									2.22	0.00	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	209	234	221	209	210						217	11	105 min
TD Break Strength (ppi)	205	243	214	225	256						229	21	105 min
MD Break Elongation (%)	524	489	469	569	501						510	38	250 min
TD Break Elongation (%)	588	766	624	665	685						666	67	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0066180017
 TRI Log #: 60946

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	59	50	55	57	53	53	50	58	54	56	54 50	3 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	189	190	203	193	190	183	202	213	210	204	198	10	175 min
Asperity Height (mils) - Side B	136	139	140	137	135	138	136	140	138	139	138	2	130 min
Side A - Spike	Side B - Nub												
Density (ASTM D 1505)													
Density (g/cm3)	0.936	0.936	0.936								0.936	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.30	2.31									2.31	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	203	207	230	166	217						205	24	105 min
TD Break Strength (ppi)	273	266	285	239	246						262	19	105 min
MD Break Elongation (%)	550	543	498	406	466						493	59	250 min
TD Break Elongation (%)	799	841	822	771	760						799	34	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0066180025
 TRI Log #: 60946

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.	
	1	2	3	4	5	6	7	8	9	10				
Thickness (ASTM D 5994)														
Thickness (mils)	50	51	55	56	55	55	54	52	56	54	54	50	2	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)														
Asperity Height (mils) - Side A	197	202	192	198	204	206	200	204	199	206	201	4	175 min	
Asperity Height (mils) - Side B	144	141	140	138	142	140	144	142	139	141	141	2	130 min	
Side A - Spike	Side B - Nub													
Density (ASTM D 1505)														
Density (g/cm3)	0.934	0.935	0.935									0.935	0.001	0.939 max
Carbon Black Content (ASTM D 4218)														
% Carbon Black	2.37	2.36										2.37	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)														
Rating - 1st field view	1	1	1	1	1									9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1									1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)														
MD Break Strength (ppi)	244	202	221	177	214							212	25	105 min
TD Break Strength (ppi)	270	174	260	287	258							250	44	105 min
MD Break Elongation (%)	455	513	568	398	521							491	66	250 min
TD Break Elongation (%)	808	532	812	800	756							742	119	250 min
MD Machine Direction	TD Transverse Direction													



December 17, 2020

Mail To:

Steve Mayes
Watershed Geo
11400 Atlantis PI #200
Alpharetta GA, 30022

email: smayes@watershedgeo.com

Bill To:

<= Same

Dear Mr. Mayes:

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: **Big Rivers LF Phase 1 Closure**

TRI Job Reference Number: 61062

Material(s) Tested: Six, Agru 50 mil Super Gripnet LLDPE Geomembrane(s)

Test(s) Requested: Thickness (ASTM D 5994)
Asperity Height (ASTM D 7466)
Density (ASTM D 1505)
Carbon Black Content (ASTM D 4218)
Carbon Dispersion (ASTM D 5596)
Tensile Properties (ASTM D 6693)

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

*Signature is on file



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0066180034
 TRI Log #: 61062

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	51	48	53	53	49	51	58	51	54	55	52 48	3 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	136	136	139	146	149	140	144	143	142	142	142	4	130 min
Asperity Height (mils) - Side B	191	196	211	200	216	200	203	207	208	151	198	18	175 min
Side A - Nub	Side B - Spike												
Density (ASTM D 1505)													
Density (g/cm3)	0.934	0.935	0.935								0.935	0.001	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.36	2.34									2.35	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	207	236	182	204	171						200	25	105 min
TD Break Strength (ppi)	207	235	238	230	213						225	14	105 min
MD Break Elongation (%)	507	447	529	559	511						511	41	250 min
TD Break Elongation (%)	645	671	684	672	615						657	28	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0066180042
 TRI Log #: 61062

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	51	52	57	55	55	53	58	51	56	56	54 51	2 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	138	142	138	143	149	151	142	145	142	138	143	4	130 min
Asperity Height (mils) - Side B	194	194	215	210	218	202	214	218	215	211	209	9	175 min
Side A - Nub	Side B - Spike												
Density (ASTM D 1505)													
Density (g/cm3)	0.935	0.935	0.935								0.935	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.25	2.22									2.24	0.02	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	199	193	190	215	232						206	18	105 min
TD Break Strength (ppi)	213	215	249	244	228						230	16	105 min
MD Break Elongation (%)	482	463	495	558	476						495	37	250 min
TD Break Elongation (%)	649	670	717	684	666						677	26	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0066180059
 TRI Log #: 61062

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	51	54	53	52	52	48	54	56	52	52	52 48	2 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	139	141	142	142	144	137	151	145	143	143	143	4	130 min
Asperity Height (mils) - Side B	193	204	211	216	211	198	214	216	214	205	208	8	175 min
Side A - Nub	Side B - Spike												
Density (ASTM D 1505)													
Density (g/cm3)	0.935	0.935	0.936								0.935	0.001	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.24	2.19									2.22	0.04	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	261	194	186	203	191						207	31	105 min
TD Break Strength (ppi)	215	204	212	212	178						204	15	105 min
MD Break Elongation (%)	449	491	483	516	536						495	33	250 min
TD Break Elongation (%)	667	607	647	658	584						633	36	250 min
MD Machine Direction	TD Transverse Direction												

GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0066180067
 TRI Log #: 61062

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	50	52	50	56	51	51	52	53	56	53	52 50	2 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	141	141	149	148	144	143	146	144	143	143	144	3	130 min
Asperity Height (mils) - Side B	202	205	219	219	218	213	223	222	190	201	211	11	175 min
Side A - Nub	Side B - Spike												
Density (ASTM D 1505)													
Density (g/cm3)	0.935	0.935	0.935								0.935	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.21	2.23									2.22	0.01	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	215	209	269	202	186						216	31	105 min
TD Break Strength (ppi)	242	226	266	207	204						229	26	105 min
MD Break Elongation (%)	508	481	455	514	493						490	24	250 min
TD Break Elongation (%)	772	686	798	642	654						710	71	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0066180075
 TRI Log #: 61062

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	53	57	51	53	50	53	52	55	52	51	53 50	2 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	135	138	145	140	141	153	148	145	152	142	144	6	130 min
Asperity Height (mils) - Side B	196	195	196	203	205	214	201	207	205	206	203	6	175 min
Side A - Nub	Side B - Spike												
Density (ASTM D 1505)													
Density (g/cm3)	0.934	0.934	0.934								0.934	0.000	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.11	2.15									2.13	0.03	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	191	255	179	208	239						214	32	105 min
TD Break Strength (ppi)	222	146	208	250	231						211	40	105 min
MD Break Elongation (%)	521	448	446	538	525						496	45	250 min
TD Break Elongation (%)	654	413	591	724	646						606	118	250 min
MD Machine Direction	TD Transverse Direction												



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0066180083
 TRI Log #: 61062

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.	
	1	2	3	4	5	6	7	8	9	10				
Thickness (ASTM D 5994)														
Thickness (mils)	55	52	51	52	54	52	55	56	52	53	53	51	2	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)														
Asperity Height (mils) - Side A	142	144	140	141	134	137	141	143	145	148	142	4	130 min	
Asperity Height (mils) - Side B	203	214	215	207	211	205	203	213	212	202	209	5	175 min	
Side A - Nub	Side B - Spike													
Density (ASTM D 1505)														
Density (g/cm3)	0.937	0.937	0.937								0.937	0.000	0.939 max	
Carbon Black Content (ASTM D 4218)														
% Carbon Black	2.15	2.16									2.16	0.01	2.0-3.0	
Carbon Black Dispersion (ASTM D 5596)														
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2	
Rating - 2nd field view	1	1	1	1	1								1 cat 3	
Tensile Properties (ASTM D 6693, 2 ipm strain rate)														
MD Break Strength (ppi)	243	207	229	237	219						227	14	105 min	
TD Break Strength (ppi)	234	240	226	242	227						234	7	105 min	
MD Break Elongation (%)	542	534	540	472	465						511	39	250 min	
TD Break Elongation (%)	699	685	676	723	683						693	19	250 min	
MD Machine Direction	TD Transverse Direction													



December 18, 2020

Mail To:

Steve Mayes
Watershed Geo
11400 Atlantis PI #200
Alpharetta GA, 30022

email: smayes@watershedgeo.com

Bill To:

<= Same

Dear Mr. Mayes:

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: **Big Rivers LF Phase 1 Closure**

TRI Job Reference Number: 611363

Material(s) Tested: One, Agru 50 mil Super Gripnet LLDPE Geomembrane(s)

Test(s) Requested: Thickness (ASTM D 5994)
Asperity Height (ASTM D 7466)
Density (ASTM D 1505)
Carbon Black Content (ASTM D 4218)
Carbon Dispersion (ASTM D 5596)
Tensile Properties (ASTM D 6693)

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

*Signature is on file



GEOMEMBRANE TEST RESULTS
 TRI Client: Watershed Geo
 Project: Big Rivers LF Phase 1 Closure

Material: Agru 50 mil Super Gripnet LLDPE Geomembrane
 Sample Identification: GTB0066180051
 TRI Log #: 611363

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	52	56	53	54	52	50	57	59	57	55	54 50	3 << min	47.5 Avg 45 8 of 10 42.5 min ind
Asperity Height (ASTM D 7466)													
Asperity Height (mils) - Side A	141	141	138	142	141	141	138	137	144	141	140	2	130 min
Asperity Height (mils) - Side B	197	195	206	206	202	207	195	207	207	201	202	5	175 min
Side A - Nub	Side B - Spike												
Density (ASTM D 1505)													
Density (g/cm3)	0.936	0.936	0.937								0.936	0.001	0.939 max
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.17	2.23									2.20	0.04	2.0-3.0
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Break Strength (ppi)	217	205	171	202	217						202	19	105 min
TD Break Strength (ppi)	271	208	242	210	242						235	26	105 min
MD Break Elongation (%)	442	453	396	507	458						451	40	250 min
TD Break Elongation (%)	795	674	794	626	661						710	79	250 min
MD Machine Direction	TD Transverse Direction												

APPENDIX G - TRI DESTRUCT LAB RESULTS



Date: 2022-05-26

Mail To:

Matt Bleything
Burns and McDonnell
9450 Ward Parkway
Kansas City , MO , 64114

Bill To:

Burns and McDonnell
supplierinvoices@burnsmcd.com

PO 199014

e-mail:
mbleything@burnsmcd.com mrcarlin@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **72294**

Material(s) Tested: (2) 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,

Jarret Nelson
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72294

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-1 | Weld: Heat Fusion and Sample ID: DS-2 | Weld: Heat Fusion, with sub-sections for Side: A, Side: B, and Shear.

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.



Date: 2022-06-02

Mail To:

**Matt Bleything
Burns and McDonnell
9450 Ward Parkway
Kansas City , MO , 64114**

Bill To:

**Burns and McDonnell
supplierinvoices@burnsmcd.com
''
PO 199014**

e-mail:

mbleything@burnsmcd.com mrcarlin@burnsmcd.com hwebb@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **72427**

Material(s) Tested: (5) 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,

Jarret Nelson
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72427

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72427

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72427

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side A (Peel Strength, Incursion, Locus, NSF), Side B (Peel Strength, Incursion, Locus, NSF), and Shear (Strength, Elongation).

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.



Date: 2022-06-06

Mail To:

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PO 199014**

e-mail:

mbleything@burnsmcd.com mrcarlin@burnsmcd.com hwebb@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **72482**

Material(s) Tested: (6) Heat Fusion Weld Seam(s)
(1) Single Extrusion 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,

Jarret Nelson
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72482

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-8 Weld: Heat Fusion						
Side: A						Peel A
Peel Strength (ppi)	117	104	101	106	109	107
Peel Incursion (%)	<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)	103	100	112	92	114	104
Peel Incursion (%)	<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)	139	137	134	141	143	139
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-9 Weld: Heat Fusion						
Side: A						Peel A
Peel Strength (ppi)	96	110	99	101	104	102
Peel Incursion (%)	<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	116	111	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	
Shear						Shear
Shear Strength (ppi)	136	142	144	137	141	140
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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72482

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-10 and DS-12, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72482

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-13 and DS-14, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 72482

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-11 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	133	124	130	129	130	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)	129	130	138	129	135	132
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.



Date: 2022-06-04

Mail To:

**Matt Bleything
Burns and McDonnell
9450 Ward Parkway
Kansas City , MO , 64114**

Bill To:

**Burns and McDonnell
supplierinvoices@burnsmcd.com
''
PO 199014**

e-mail:

mbleything@burnsmcd.com mrcarlin@burnsmcd.com hwebb@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **72473**

Material(s) Tested: (4) Heat Fusion Weld Seam(s)
(1) Single Extrusion 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,

Jarret Nelson
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72473

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-15 and DS-17, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72473

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 72473

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-16 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	117	133	122	109	126	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)	127	130	128	126	129	128
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.



Date: 2022-06-20

Mail To:

**Matt Bleything
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Bill To:

**Burns and McDonnell
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PO 199014**

e-mail:

mbleything@burnsmcd.com mrcarlin@burnsmcd.com hwebb@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **72772**

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,

Jarret Nelson
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72772

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-20 and DS-21, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72772

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-22 and DS-23, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72772

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72772

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-26 and DS-27, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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.



Date: 2022-06-23

Mail To:

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mbleything@burnsmcd.com mrcarlin@burnsmcd.com hwebb@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **72873**

Material(s) Tested: (5) 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,

Jarret Nelson
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72873

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-28 and DS-29, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72873

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-30 and DS-31, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72873

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side: A (Peel Strength, Incursion, Locus, NSF), Side: B (Peel Strength, Incursion, Locus, NSF), and Shear (Strength, Elongation).

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.



Date: 2022-06-24

Mail To:

**Matt Bleything
Burns and McDonnell
9450 Ward Parkway
Kansas City , MO , 64114**

Bill To:

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PO 199014**

e-mail:

mbleything@burnsmcd.com mrcarlin@burnsmcd.com hwebb@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **72901**

Material(s) Tested: (4) Heat Fusion Weld Seam(s)
(2) Single Extrusion 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,

Jarret Nelson
Project Manager
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.



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72901

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include parameters for Sample ID: DS-33 and DS-34, categorized by Side (A and B) and Shear, with values for Peel Strength, Incursion, Locus Of Failure Code, NSF Failure Code, and Shear Strength/Elongation.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72901

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-35 and DS-36, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 72901

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-37 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	127	112	130	140	137	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)	128	125	128	133	133	129
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-38 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	135	127	129	134	118	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)	138	136	134	134	133	135
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.



Date: 2022-06-27

Mail To:

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PO 199014

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **72928**

Material(s) Tested: (3) 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,

Jarret Nelson
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72928

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-39 and DS-40, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 72928

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side A (Peel Strength, Incursion, Locus, NSF), Side B (Peel Strength, Incursion, Locus, NSF), and Shear (Strength, Elongation).

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.



Date: 2022-07-08

Mail To:

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e-mail:

mbleything@burnsmcd.com mrcarlin@burnsmcd.com hwebb@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **73211**

Material(s) Tested: (2) 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,

Jarret Nelson
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 73211

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-42 and DS-43, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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.



Date: 2022-07-19

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **73453**

Material(s) Tested: (11) Heat Fusion Weld Seam(s)
(1) Single Extrusion 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

Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 73453

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-44 and DS-45, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 73453

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-46 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-47 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 73453

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-48 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-49 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 73453

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-50 and DS-51, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 73453

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-52 and DS-53, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 73453

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side: A (Peel Strength 96), Side: B (Peel Strength 111), and Shear (Shear Strength 131).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 73453

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-55 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	94	88	102	90	89	93
Peel Incursion (%)	<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)	146	139	140	139	144	142
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.



Date: 2022-07-28

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **73724**

Material(s) Tested: (5) 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

Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 73724

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-56 and DS-57, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 73724

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear) with corresponding test results.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear) with corresponding test results.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 73724

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side A (Peel Strength 114, Peel Incursion <5, etc.), Side B (Peel Strength 111, Peel Incursion <5, etc.), and Shear (Shear Strength 134, Shear Elongation >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.



Date: 2022-07-30

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **73787**

Material(s) Tested: (1) Heat Fusion Weld Seam(s)
(2) Single Extrusion 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,

Jarret Nelson
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 73787

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side A (Peel Strength, Incursion, Locus, NSF), Side B (Peel Strength, Incursion, Locus, NSF), and Shear (Strength, Elongation).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 73787

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-62 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	120	124	114	126	127	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)	131	134	122	131	133	130
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-63 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	125	128	106	111	128	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)	136	138	133	137	134	136
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.



Date: 2022-08-17

Mail To:

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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **74285**

Material(s) Tested: (7) Heat Fusion Weld Seam(s)
(1) Single Extrusion 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

Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74285

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74285

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-66 and DS-67, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74285

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-68 and DS-69, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74285

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side: A (Peel Strength, Incursion, Locus, NSF), Side: B (Peel Strength, Incursion, Locus, NSF), and Shear (Strength, Elongation).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 74285

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-71 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	135	166	140	148	133	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)	153	168	154	148	169	158
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.



Date: 2022-08-18

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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **74322**

Material(s) Tested: (4) Heat Fusion Weld Seam(s)
(1) Single Extrusion 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

Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74322

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-72 and DS-73, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74322

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-74 and DS-75, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 74322

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-76 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	108	109	105	110	110	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)	134	137	139	139	139	138
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.



Date: 2022-08-19

Mail To:

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **74360**

Material(s) Tested: (5) 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,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74360

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-77 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-78 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74360

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-79 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-80 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74360

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side: A (Peel Strength 105, Incursion <5, Locus SE, NSF FTB), Side: B (Peel Strength 110, Incursion <5, Locus SE, NSF FTB), and Shear (Strength 134, Elongation >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.



Date: 2022-09-03

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **74805**

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,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74805

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-82 and DS-83, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74805

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-84 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-85 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74805

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-86 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear.

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-87 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 74805

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-88 and DS-89, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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.



Date: 2022-09-21

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **75186**

Material(s) Tested: (12) Heat Fusion Weld Seam(s)
(2) Single Extrusion 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,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75186

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-90 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-91 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75186

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-92 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-93 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75186

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear.

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75186

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-96 | Weld: Heat Fusion, Side: A (Peel A: 108), Side: B (Peel B: 101), and Shear (Shear: 138).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-97 | Weld: Heat Fusion, Side: A (Peel A: 93), Side: B (Peel B: 109), and Shear (Shear: 129).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75186

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear.

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75186

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 75186

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-101 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	144	158	142	93	152	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)	135	148	139	137	146	141
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-102 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	143	146	150	143	150	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)	150	157	143	147	142	148
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.



Date: 2022-09-27

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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **75328**

Material(s) Tested: (5) 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,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75328

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-104 and DS-105, with sub-sections for Side: A, Side: B, and Shear. Mean values are highlighted in boxes (e.g., 104, 93, 124).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75328

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-106 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-107 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75328

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side: A (Peel Strength, Incursion, Locus, NSF), Side: B (Peel Strength, Incursion, Locus, NSF), and Shear (Strength, Elongation).

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.



Date: 2022-09-29

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **75409**

Material(s) Tested: (3) Heat Fusion Weld Seam(s)
(2) Single Extrusion 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,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75409

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-111 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-112 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75409

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side A (Peel Strength, Incursion, Locus, NSF), Side B (Peel Strength, Incursion, Locus, NSF), and Shear (Strength, Elongation).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 75409

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-109 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	150	150	165	151	152	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)	146	149	150	152	150	149
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-110 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	126	131	126	129	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)	137	141	138	140	146	140
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.



Date: 2022-10-06

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **75574**

Material(s) Tested: (10) 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,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75574

Table with 7 columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-114 | Weld: Heat Fusion, Side: A (Peel Strength 111), Side: B (Peel Strength 99), and Shear (Shear Strength 139).

Table with 7 columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-115 | Weld: Heat Fusion, Side: A (Peel Strength 109), Side: B (Peel Strength 96), and Shear (Shear Strength 132).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75574

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-116 | Weld: Heat Fusion, Side: A (Peel Strength 108), Side: B (Peel Strength 103), and Shear (Shear Strength 131).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-117 | Weld: Heat Fusion, Side: A (Peel Strength 107), Side: B (Peel Strength 99), and Shear (Shear Strength 142).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75574

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-118 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-119 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75574

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 75574

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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.



Date: 2022-10-24

Mail To:

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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **76029**

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,

Nicole Saucedo

Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76029

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76029

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-126 | Weld: Heat Fusion, Side: A (Peel Strength 104, Peel Incursion <5, etc.), Side: B (Peel Strength 106, Peel Incursion <5, etc.), and Shear (Shear Strength 146, Shear Elongation >50).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-127 | Weld: Heat Fusion, Side: A (Peel Strength 115, Peel Incursion <5, etc.), Side: B (Peel Strength 111, Peel Incursion <5, etc.), and Shear (Shear Strength 161, Shear Elongation >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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76029

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-128 | Weld: Heat Fusion, Side: A (Peel Strength 116), Side: B (Peel Strength 104), and Shear (Shear Strength 143).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-129 | Weld: Heat Fusion, Side: A (Peel Strength 106), Side: B (Peel Strength 100), and Shear (Shear Strength 139).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76029

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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.



Date: 2022-10-25

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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **76070**

Material(s) Tested: (6) 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76070

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-132 | Weld: Heat Fusion, Side: A (Peel Strength 100), Side: B (Peel Strength 96), and Shear (Shear Strength 135).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-133 | Weld: Heat Fusion, Side: A (Peel Strength 109), Side: B (Peel Strength 91), and Shear (Shear Strength 130).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76070

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76070

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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.



Date: 2022-10-27

Mail To:

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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **76130**

Material(s) Tested: (8) Heat Fusion Weld Seam(s)
(1) Single Extrusion 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,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76130

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-138 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-139 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76130

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-140 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-141 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76130

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-142 | Weld: Heat Fusion, Side: A (Peel Strength 113, Peel Incursion <5, etc.), Side: B (Peel Strength 98, Peel Incursion <5, etc.), and Shear (Shear Strength 141, Shear Elongation >50).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes data for Sample ID: DS-143 | Weld: Heat Fusion, Side: A (Peel Strength 94, Peel Incursion <5, etc.), Side: B (Peel Strength 98, Peel Incursion <5, etc.), and Shear (Shear Strength 138, Shear Elongation >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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76130

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 76130

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-146 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	125	118	130	119	123	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)	125	128	125	125	121	125
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.



Date: 2022-11-17

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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **76664**

Material(s) Tested: (6) Heat Fusion Weld Seam(s)
(2) Single Extrusion 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,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76664

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-147 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-148 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76664

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-149 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-151 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76664

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 76664

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-150 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	122	112	122	108	102	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)	144	137	139	143	136	140
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-154 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	71	128	110	147	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	
Shear						Shear
Shear Strength (ppi)	131	127	129	128	128	129
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.



Date: 2022-11-23

Mail To:

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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **76821**

Material(s) Tested: (5) 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,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
<http://www.geosyntheticstestinc.com>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76821

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-155 | Weld: Heat Fusion, Side: A (Peel A, 88), Side: B (Peel B, 112), and Shear (128).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-156 | Weld: Heat Fusion, Side: A (Peel A, 90), Side: B (Peel B, 109), and Shear (139).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76821

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-157 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-158 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 76821

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side: A (Peel Strength, Incursion, Locus, NSF), Side: B (Peel Strength, Incursion, Locus, NSF), and Shear (Strength, Elongation).

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.



Date: 2023-06-09

Mail To:

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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **78199**

Material(s) Tested: (1) Heat Fusion Weld Seam(s)
(2) Single Extrusion 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78199

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side A (Peel Strength 98), Side B (Peel Strength 108), and Shear (Shear Strength 134).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 78199

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-160 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	119	118	122	123	120	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)	125	128	119	122	120	123
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-161 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	95	115	123	121	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	
Shear						Shear
Shear Strength (ppi)	136	133	135	134	134	134
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.



Date: 2023-06-13

Mail To:

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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **78220**

Material(s) Tested: (4) 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78220

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-163 and DS-164, with sub-sections for Side: A, Side: B, and Shear. Values include Peel Strength (ppi), Peel Incursion (%), Peel Locus Of Failure Code, Peel NSF Failure Code, Shear Strength (ppi), and Shear Elongation @ Break (%).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78220

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-165 and DS-166, with sub-sections for Side: A, Side: B, and Shear. Mean values are highlighted in boxes (e.g., 102, 110, 123, 105, 113, 126).

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.



Date: 2023-06-14

Mail To:

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Kansas City , MO , 64114

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PO 199014 PJ 142697

e-mail:

mbleything@burnsmcd.com arbarber@burnsmcd.com hwebb@burnsmcd.com mrcarlin@burnsmcd.com
tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **78242**

Material(s) Tested: (3) Heat Fusion Weld Seam(s)
(2) Single Extrusion 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78242

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-167 | Weld: Heat Fusion, Side: A (Peel Strength 92), Side: B (Peel Strength 94), and Shear (Shear Strength 125).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-168 | Weld: Heat Fusion, Side: A (Peel Strength 77), Side: B (Peel Strength 96), and Shear (Shear Strength 117).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78242

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side: A (Peel Strength, Incursion, Locus, NSF), Side: B (Peel Strength, Incursion, Locus, NSF), and Shear (Strength, Elongation).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 78242

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-170 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	97	89	106	88	127	101
Peel Incursion (%)	<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)	103	91	109	103	123	106
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-171 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	112	119	117	82	119	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)	112	91	118	101	128	110
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.



Date: 2023-07-07

Mail To:

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Kansas City , MO , 64114

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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **78448**

Material(s) Tested: (5) Heat Fusion Weld Seam(s)
(1) Single Extrusion 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78448

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78448

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78448

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side A (Peel Strength 92), Side B (Peel Strength 116), and Shear (Shear Strength 136).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 78448

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-173 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	96	101	97	94	99	97
Peel Incursion (%)	<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)	94	97	100	101	100	98
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.



Date: 2023-08-01

Mail To:

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Kansas City , MO , 64114**

Bill To:

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **78714**

Material(s) Tested: (4) Heat Fusion Weld Seam(s)
(1) Single 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78714

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-178 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-179 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78714

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-181 | Weld: Heat Fusion, Side: A (Peel Strength 98), Side: B (Peel Strength 96), and Shear (Shear Strength 120).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes data for Sample ID: DS-182 | Weld: Heat Fusion, Side: A (Peel Strength 102), Side: B (Peel Strength 90), and Shear (Shear Strength 127).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 78714

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-180 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	128	125	112	119	123	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)	126	126	130	130	126	128
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.



Date: 2023-08-17

Mail To:

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mbleything@burnsmcd.com arbarber@burnsmcd.com hwebb@burnsmcd.com mrcarlin@burnsmcd.com
tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **78894**

Material(s) Tested: (5) 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78894

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78894

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 78894

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side: A (Peel Strength, Incursion, Locus, NSF), Side: B (Peel Strength, Incursion, Locus, NSF), and Shear (Strength, Elongation).

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.



Date: 2023-08-18

Mail To:

Burns and McDonnell

, ,

e-mail:

Dear ,

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.

Bill To:

Burns and McDonnell

Project: BIG RIVER ELECTRIC CORPORATION WILSON STATION CCR LF CLOSURE

TRI Job Reference Number: **78907**

Material(s) Tested: (6) 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS

TRI Client: Burns and McDonnell

Project: BIG RIVER ELECTRIC CORPORATION WILSON STATION CCR LF CLOSURE

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 78907

TEST REPLICATE NUMBER

PARAMETER	1	2	3	4	5	MEAN
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Sample ID: DS-188 | Weld: Heat Fusion

						Peel A
Side: A						
Peel Strength (ppi)	96	97	101	99	98	98
Peel Incursion (%)	<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)	103	108	119	99	108	107
Peel Incursion (%)	<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)	132	133	146	131	132	135
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: DS-189 | Weld: Heat Fusion

						Peel A
Side: A						
Peel Strength (ppi)	92	92	106	97	90	95
Peel Incursion (%)	<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)	104	104	115	105	106	107
Peel Incursion (%)	<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)	126	128	139	125	127	129
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: Burns and McDonnell

Project: BIG RIVER ELECTRIC CORPORATION WILSON STATION CCR LF CLOSURE

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 78907

TEST REPLICATE NUMBER

Table with 7 columns: PARAMETER, 1, 2, 3, 4, 5, MEAN

Sample ID: DS-190 | Weld: Heat Fusion

Table for Sample DS-190 showing Peel A, Peel B, and Shear results across 5 replicates.

Sample ID: DS-191 | Weld: Heat Fusion

Table for Sample DS-191 showing Peel A, Peel B, and Shear results across 5 replicates.

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: Burns and McDonnell

Project: BIG RIVER ELECTRIC CORPORATION WILSON STATION CCR LF CLOSURE

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 78907

TEST REPLICATE NUMBER

PARAMETER	1	2	3	4	5	MEAN
-----------	---	---	---	---	---	------

Sample ID: DS-192 | Weld: Heat Fusion

						Peel A
Side: A						
Peel Strength (ppi)	107	104	101	97	97	101
Peel Incursion (%)	<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)	100	99	111	98	98	101
Peel Incursion (%)	<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)	130	130	145	130	135	134
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: DS-193 | Weld: Heat Fusion

						Peel A
Side: A						
Peel Strength (ppi)	105	112	118	111	116	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)	106	110	116	107	109	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)	136	128	145	131	134	135
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2023-08-18

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **78904**

Material(s) Tested: (2) Single Extrusion 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 78904

TEST REPLICATE NUMBER

PARAMETER	1	2	3	4	5	MEAN
-----------	---	---	---	---	---	------

Sample ID: DS-194 | Weld: Single Extrusion

Side: Peel						Peel
Peel Strength (ppi)	120	124	133	130	125	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)	149	164	160	164	149	157
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: DS-195 | Weld: Single Extrusion

Side: Peel						Peel
Peel Strength (ppi)	117	114	141	140	140	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)	158	149	186	150	133	155
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2023-09-07

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **79099**

Material(s) Tested: (3) Heat Fusion Weld Seam(s)
(2) Single Extrusion 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79099

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-196 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-197 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79099

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Rows include Side: A (Peel Strength, Incursion, Locus, NSF), Side: B (Peel Strength, Incursion, Locus, NSF), and Shear (Strength, Elongation).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 79099

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-199 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	115	115	100	118	120	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)	125	123	122	121	126	123
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-200 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	118	117	119	99	113	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)	132	133	128	130	130	131
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.



Date: 2023-09-12

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **79141**

Material(s) Tested: (2) Heat Fusion Weld Seam(s)
(2) Single Extrusion 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79141

Table with columns: PARAMETER, TEST REPLICATE NUMBER (1-5), MEAN. Includes sections for Sample ID: DS-201 and DS-202, each with Side A and Side B peel tests and Shear tests.

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 79141

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-203 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	119	118	119	121	122	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)	128	125	123	126	126	126
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-204 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	127	126	127	126	127	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)	132	129	129	130	129	130
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.



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tapropst@burnsmcd.com

Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **79151**

Material(s) Tested: (2) Heat Fusion Weld Seam(s)
(2) Single Extrusion 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>



DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79151

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-207 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-208 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 79151

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-205 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	119	119	109	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	
Shear						Shear
Shear Strength (ppi)	115	117	117	116	116	116
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-206 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	127	111	125	121	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)	131	127	125	128	125	127
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.



Date: 2023-09-19

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Dear Mr. Bleything,

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: Big Rivers Electric Corporation Wilson Station Closure

TRI Job Reference Number: **79217**

Material(s) Tested: (4) Heat Fusion Weld Seam(s)
(2) Single Extrusion 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,

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79217

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-209 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-210 | Weld: Heat Fusion, Side: A (Peel A), Side: B (Peel B), and Shear (Shear).

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: Burns and McDonnell
Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79217

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-211 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

Table with columns: PARAMETER, 1, 2, 3, 4, 5, MEAN. Includes sections for Sample ID: DS-212 | Weld: Heat Fusion, Side: A, Side: B, and Shear.

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 - SINGLE TRACK

TRI Client: Burns and McDonnell

Project: Big Rivers Electric Corporation Wilson Station Closure

Material: 50 mil. LLDPE

SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

TRI Log#: 79217

PARAMETER	TEST REPLICATE NUMBER					MEAN
	1	2	3	4	5	
Sample ID: DS-213 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	125	119	114	122	126	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)	115	113	123	118	129	120
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-214 Weld: Single Extrusion						
Side: Peel						Peel
Peel Strength (ppi)	119	119	110	116	128	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)	122	125	129	123	116	123
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.

APPENDIX H - GEOMEMBRANE SPECIFICATIONS DOCUMENTS

Table 4. Required 50 Mil Textured LLDPE Geomembrane Properties – Manufacturing Quality Control



GEO SYNTHETICS

Super Gripnet® Liner
LINEAR LOW DENSITY POLYETHYLENE

AGRU America's structured geomembranes are manufactured on state-of-the-art manufacturing equipment using the flat die calender manufacturing process, a method that produces a more consistent core thickness than other processes, such as the blown film extrusion process. AGRU uses only the highest-grade HDPE and LLDPE resins manufactured in North America.

PRODUCT DATA		Test Method	Frequency	Minimum Average Values
Thickness (nominal), mil (mm)		ASTM D7594	Per Roll	50 (1.27)
Thickness (min avg), mil (mm)				47.5 (1.19)
Thickness (min 8 of 10), mil (mm)				45 (1.12)
Thickness (lowest individual), mil (mm)				42.5 (1.09)
Drainage Void Height, mil (mm)		ASTM D1466	2nd Roll	3.20 (0.31)
Friction Spike Height, mil (mm)		ASTM D1466	2nd Roll	175 (4.43)
Densities, g/cc, maximum		ASTM D792, Method B	200,000 lb	0.959
Tensile Properties (both directions)		ASTM D6697, Type IV		
Strength @ Break, lbf/in width (N/mm)		2, 5-minute	20,000 lb	105 (18.4)
Elongation @ Break, % (GL-w2.0%)			300	
Tear Resistance, lbf/in		ASTM D1004	45,000 lb	30 (1.33)
Puncture Resistance, lbf/in		ASTM D4833	45,000 lb	55 (0.80)
Carbon Black Content, % (range)		ASTM D4218	20,000 lb	2-3
Carbon Black Dispersion (Category)		ASTM D5596	45,000 lb	Only near spherical agglomerates: 10 veins Cat. 1 or 2
Conductive Induction Time, minutes		ASTM D3895, 200°C, 1 atm O ₂	200,000 lb	>160
Transmittance, %/90°		ASTM D4716	Periodic	4 x 10 ⁻¹

SUPPLY INFORMATION (STANDARD ROLL DIMENSIONS)

THICKNESS	WIDTH	LENGTH	AREA (APPROX)				
mil	ft	ft	sq ft				
50	1.25	23	7	500	152	11,500	1,068
60	1.5	23	7	500	152	11,500	1,068
80	2.0	23	7	300	91.4	6,900	640
100	2.5	23	7	300	91.4	6,900	640

Note: Average roll weight is 5,000 lbs (2,268 kg) for 50 and 60 mil and 4,000 lbs (1,814 kg) for other thicknesses. All rolls are supplied with two drags. Rolls are wound on a 6" core. Special length available upon request. Roll length and width have a tolerance of ±1%. The weight values may change due to project specifications i.e. absolute minimum thickness or special length or shipping requirements i.e. international containerized shipments.

All information, recommendations and suggestions appearing in this literature concerning the use of our products are based upon tests and data believed to be reliable. However, it is the user's responsibility to determine the suitability for their own use of the products described herein. Since the actual use by others is beyond our control, no guarantee or warranty of any kind, expressed or implied, is made by AGRU America as to the effects of such use or the results to be obtained. For AGRU America assume any liability in connection herewith. Any statement made herein may not be absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations. Nothing herein is to be construed as a permission or as a recommendation to change any fabric.

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 This information is provided for reference purposes only and is not intended as a warranty or guarantee. AGRU America, Inc. assumes no liability in connection with the use of this information.

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 agru.lifesciences@pernet
 Revision Date: July 3, 2019



www.agru.com

Table 5. Required 50-Mil Textured LLDPE Seam Properties

PARAMETER	TEST METHOD	TEST FREQUENCY		ACCEPTANCE CRITERIA FOR 50-MIL LLDPE ⁽²⁾
		QC Testing	QA Testing	
Seam Shear Strength (PPI)	ASTM D 6392	1 per welder per machine prior to each seaming period	1 every 1000 feet of seam length	75 ppi and all tests film tear bond
Seam Peel Strength (PPI)	ASTM D 6392	1 per welder per machine prior to each seaming period	1 every 1000 feet of seam length	63 (wedge) and 57 (extrusion) ppi and all tests film tear bond
Air Pressure	GRI GM6	N/A	All fusion welds	Pressure to 30 to 35 psi for 5 minutes, ≤ 3 psi loss, note pressure drop when far seam is cut
Vacuum Box Testing	ASTM D 5641	N/A	All extrusion welds	Examine weld for 10 seconds through window of vacuum box at min. 3 psi

- (1) For Shear Testing of both fusion and extrusion welds, the strength of 4 out of 5 specimens should meet or exceed the given value. The 5th can be as low as 80% of the tested value. Required laboratory seam testing will be performed by a geosynthetics testing laboratory at a frequency of one test per 500 linear feet of seam constructed for both extrusion and fusion welding equipment unless otherwise directed by the Owner's Representative.
- (2) For Peel Testing of fusion welds, the strength of 4 out of 5 specimens should meet or exceed the given value. The fifth can be as low as 80% of the tested value. All specimens will fail due to non-film tear bond or with greater than 25% incursion of the weld (peel).
- (3) For Peel Testing of extrusion welds, 1 out of 5 specimens may either achieve <52 lb/in. but be ≥41.6 lb/in. or exhibit greater than 25% incursion of the weld (peel). The remaining four specimens must meet the specified strength and have a maximum of 25% incursion of the weld (peel).
- (4) For Air Channel Testing of fusion welds, specimen must maintain pressure for 5 minutes with no less than 3 psi pressure drop. Note pressure drop when far seam is cut.
- (5) For Vacuum Box Testing of extrusion welds, examine weld for 10 seconds at the required test pressure through the vacuum box window for evidence of leaks.

Table 5. Required 50-Mil Textured LLDPE Seam Properties

PARAMETER	TEST METHOD	TEST FREQUENCY		ACCEPTANCE CRITERIA FOR 50-MIL LLDPE ⁽²⁾
		QC Testing	QA Testing	
Seam Shear Strength (PPI)	ASTM D 6392	1 per welder per machine prior to each seaming period	1 every 1000 feet of seam length	75 ppi and all tests film tear bond
Seam Peel Strength (PPI)	ASTM D 6392	1 per welder per machine prior to each seaming period	1 every 1000 feet of seam length	63 (wedge) and 57 (extrusion) ppi and all tests film tear bond
Air Pressure	GRI GM6	N/A	All fusion welds	Pressure to 30 to 35 psi for 5 minutes, ≤ 3 psi loss, note pressure drop when far seam is cut
Vacuum Box Testing	ASTM D 5641	N/A	All extrusion welds	Examine weld for 10 seconds through window of vacuum box at min. 3 psi

- (1) For Shear Testing of both fusion and extrusion welds, the strength of 4 out of 5 specimens should meet or exceed the given value. The 5th can be as low as 80% of the tested value. Required laboratory seam testing will be performed by a geosynthetics testing laboratory at a frequency of one test per 500 linear feet of seam constructed for both extrusion and fusion welding equipment unless otherwise directed by the Owner's Representative.
- (2) For Peel Testing of fusion welds, the strength of 4 out of 5 specimens should meet or exceed the given value. The fifth can be as low as 80% of the tested value. All specimens will fail due to non-film tear bond or with greater than 25% incursion of the weld (peel).
- (3) For Peel Testing of extrusion welds, 1 out of 5 specimens may either achieve <52 lb/in. but be ≥41.6 lb/in. or exhibit greater than 25% incursion of the weld (peel). The remaining four specimens must meet the specified strength and have a maximum of 25% incursion of the weld (peel).
- (4) For Air Channel Testing of fusion welds, specimen must maintain pressure for 5 minutes with no less than 3 psi pressure drop. Note pressure drop when far seam is cut.
- (5) For Vacuum Box Testing of extrusion welds, examine weld for 10 seconds at the required test pressure through the vacuum box window for evidence of leaks.

Table 8. Calibration Of Testing Equipment

Equipment	Required Test	Minimum Frequency	Acceptance Criteria
Nuclear Density Gauge	Radioactive Source Wipe Testing and Systems Electronics Check	Annually by Manufacturer or Specialty Testing firm qualified to inspect and calibrate nuclear source equipment	Certificate of Calibration and Safety by Testing Firm
Tensiometer	Tensile strength calibration to standard	Prior to arrival to project site. Tensiometer to be field verified at the discretion of the Engineer	+/- 3 psi
Air Pressure Gauges	Pressure in psi compared to standard	Prior to arrival to project site or documentation that the product is new	+/- 1 psi
Other	As Determined by the Engineer	As Recommended by the Manufacturer, or Required by State Auditor of Measurement Devices	As Guaranteed by the Manufacturer

Table 9. Minimum Requirements for Cast-In-Place Concrete

Material	Requirements	Minimum Frequency
Formwork	Supplier certification and all other available documentation to demonstrate that the supplied material meets project requirements.	1 / supplier / product
Concrete Materials	Supplier certification and all other available documentation to demonstrate that the supplied material meets project requirements.	1 / supplier / product
Design Mix	Supplier certification and all other available documentation to demonstrate that the supplied material meets project requirements.	1 / supplier / product
Steel Reinforcing Bar	Shop Drawings and supplier certification and all other available documentation to demonstrate that the supplied material meets project requirements.	1 / supplier / product
Mill Tests	Three copies of each test report; bars shall be properly tagged so as to permit identification of the heat number shown on the mill test report for any and all steel delivered to the Project Site	1 / supplier / product / 15 tons (or less) delivered
Ready-Mix Delivery Slips	Contractor shall keep a record of time and place of each batch of concrete, together with ready-mix delivery slips (batch tickets) certifying contents and proportions of each truck load delivered to the site. Records shall be available for inspection by the CQC Manager upon request.	Available upon Request, and submitted at completion of the work

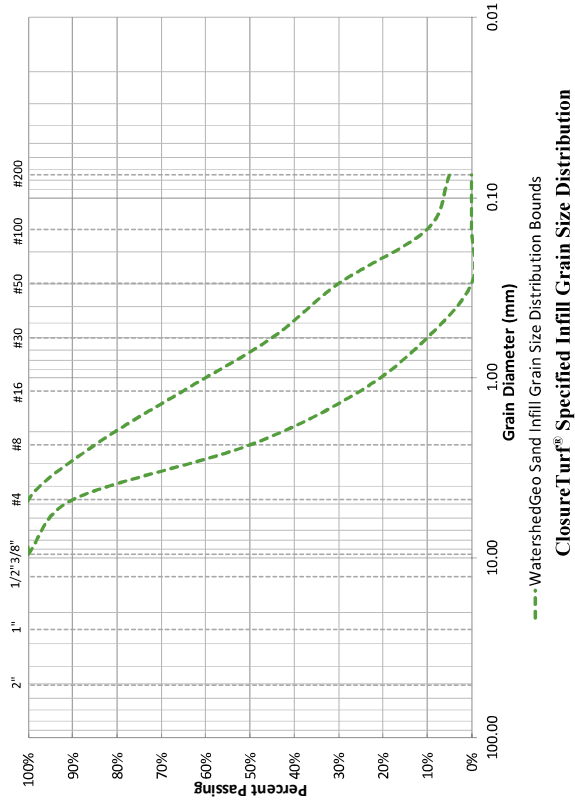
Section 31 05 19.16: Geomembranes

PARAMETER	TEST METHOD	TEST FREQUENCY		ACCEPTANCE CRITERIA FOR 50-MIL LLDPE ⁽²⁾
		QC Testing	QA Testing	
Thickness (mils)	ASTM D-5994	Each roll	1 per 100,000 sf	47.5 minimum average 42.5 minimum individual 45 minimum for at least 8 of 10 individual
Drainage Stud/Asperity Height (mils)	ASTM D7466	Every 2 nd Roll ⁽³⁾	1 per 100,000 sf	130 minimum average
Density (g/cm ³)	ASTM D1505/ D792	1 per 200,000 lb.	1 per 100,000 sf	0.939 minimum
Strength at Break (ppi) Elongation at Break (%)	ASTM D 6693 ASTM D 6693	1 per 20,000 lb 1 per 20,000 lb	1 per 100,000 sf 1 per 100,000 sf	≥ 105 ≥ 250%
Carbon Black Content	ASTM D 4218	1 per 45,000 lb.	1 per 100,000 sf	2.0% to 3.0%
Carbon Black Dispersion	ASTM D 5596	1 per 45,000 lb.	1 per 100,000 sf	9 in Category 1 or 2 and 1 in Category 3
Oxidative Induction Time (OIT)	ASTM D3895 or D5885	1 per 200,000 lb.	none	100 min. (ASTM D3895) or 400 min. (ASTM D5885)
Oven Aging at 85°C	ASTM D5721	Per each formulation	none	35% (standard) or 60% (high pressure)
UV Resistance	ASTM D5885	Per each formulation	none	35%
Pre-Construction Interface Testing	ASTM D 6243-98	Twice initially, once per construction event thereafter	Not required	Per Minimum Required Shear Strength for Veneer Stability ^(3,4) See Attachment Figures
Transmissivity ⁽⁸⁾ (@ 240 psf normal load, gradient = 0.33)	ASTM D 4716	See Note 7	1 per 1,000,000 sq. ft.	5 x 10 ⁻⁴ m ² /sec

- 1) Acceptance criteria from GRI GM17 and GRI GM19 unless otherwise noted.
- 2) Alternate the measurement side for double sided textured sheet.
- 3) Tests will be performed on the entire liner system cross-section and over the range of normal stresses planned for application during shearing.
- 4) Interface Shear to be performed by the Owner for approval for use of the Contractor's proposed product. Interface Shear testing will be performed on the sample with the lowest asperity height from the QC testing, and the lowest asperity height from the QA testing.
- 5) QC Testing to be provided by the manufacturer at the frequency noted.
- 6) QA Testing to be provided by the Owner.
- 7) At the manufacturer's recommended frequency unless noted otherwise.
- 8) Transmissivity shall be measured under the same boundary conditions (soil/geosynthetics) as those to be constructed.

APPENDIX I - CLOSURETURF DOCUMENTS

Sand Infill Grain Size Distribution		
	3/8" (9.5 mm)	100%
90%	#4 (4.75 mm)	100%
50%	#8 (2.36 mm)	85%
25%	#16 (1.18 mm)	65%
10%	#30 (0.60 mm)	45%
0	#50 (0.30 mm)	30%
0	#100 (0.15 mm)	10%
0	#200 (0.075 mm)	5%



ENGINEERED TURF COMPONENT (CT)

Product Data	Test Method	Values
Yarn Type	N/A	Polyethylene, Fibrillated
Yarn Color	N/A	Olive Green, Play Green, Tan
Yarn Weight (Total Product Weight)	ASTM D5261 (sample size, 1 yd ²)	220 oz. / sq. yd. (≥ 32 oz. / sq. yd.)
Tensile Strength of Yarn	ASTM D2256	15 lbs., min.
CBR Puncture	ASTM D6241	1,500 lb. (MARV)
Tensile Product (MD/XD)	ASTM D4595	2,100 MD / 1,600 XD lb/ft (MARV)
Interface Friction between ClosureTurf CT and Super Gripnet®	ASTM D5321	35°, min. Peak
Engineered Turf Fiber UV Stability	ASTM G147	>60% retained tensile strength at 100 yrs. (projected)
Backing System UV Stability (Exposed)	ASTM G154	110 lbs./ft. retained tensile strength at 6,500 hrs (projected)
Aerodynamic Evaluation	Modified Cycle 1., UVA340 GTRI Wind Tunnel	120 mph with max. uplift of 0.12 lb/sf
Rainfall Induced Erosion	ASTM D6459	Infill Loss 0.1% at 6 in./hr. Rainfall
Steady State Hydraulic Overtopping (ClosureTurf® w/ HydroBinder®)	ASTM D7277/D7276	5 ft. overtopping resulting in 29 ft/s velocity and 8.8 psf shear stress for Manning's n value of 0.02
Full Scale Wave Overtopping Test Cumulative Volume (ClosureTurf® with HydroBinder®)	Colorado State University Wave Simulator	165,000 ft ³ /ft
Full Scale Wave Overtopping Test Discharge (ClosureTurf® with HydroBinder®)	Colorado State University Wave Simulator	4.0 ft ³ /s/ft
HydroBinder® Infill Mix	ASTM C387 / ASTM C109	3/4 in. infill 5,000 psi (min. at 28 days)

SUPPLY INFORMATION (Standard Roll Dimensions)

	Thickness		Width		Length		Area (approx.)		Weight (avg.)	
	mil	mm	ft.	m	ft.	m	ft ²	m ²	lbs	kg
Super Gripnet®	50	1.25	23	7	500	152	11,500	1,068	~5,000	~2,268
Turf Component	N/A	N/A	15	4.6	300	91.44	4,500	418	~1,000	~454

ClosureTurf® and HydroTurf® products (US Patent No. 7,682,105, 8,585,322, 9,163,375, and 9,199,287; Canadian Patent No. 2,663,170; and other Patents Pending) and trademarks are the property of Watershed Geosynthetics LLC. All information, recommendations and suggestions appearing in this literature concerning the use of our products are based upon tests and data believed to be reliable; however, this information should not be used or relied upon for any specific application without independent professional examination and verification of its accuracy, suitability and applicability. Since the actual use by others is beyond our control, no guarantee or warranty of any kind, expressed or implied, is made by Watershed Geosynthetics LLC as to the effects of such use or the results to be obtained, nor does Watershed Geosynthetics LLC assume any liability in connection herewith. Any statement made herein may not be absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations. Nothing herein is to be construed as permission or as a recommendation to infringe any patents.

- (1) Minimum of ten readings must be equal to or greater than the specified thickness.
- (2) Or as required to meet the interface shear requirements for the project. See Section 4 of the CQA Plan. Minimum of ten readings must average specified height. Eight of the readings must be ≥ 12 mils, and the lowest reading must be ≥ 8 mils. No visible variation across the width of the roll will be allowed.
- (3) Carbon dispersion for 10 different views: 9 of 10 views will be Category 1 or 2 with one view allowed in Category 3.
- (4) Manufacturer's Quality Control testing will be performed at a frequency of one test per every 50,000 ft² or one test per resin lot, whichever is more frequent. Thickness testing will be performed on each roll.
- (5) Asperity Height measurements will be performed on every roll, alternating between measurements for top of sheet and bottom of sheet.

Table 6. Required Properties For Nonwoven Geotextiles – Manufacturing Quality Control

Material Property	Value⁽¹⁾	Units	Test Method	Manufacturer's Frequency
10 oz/sy Nonwoven Geotextile				
Mass/Area (min. avg.)	10	oz/sy	ASTM D 5261	100,000 SF
Permittivity	0.94	sec ⁻¹	ASTM D 4491	750,000 SF
Grab Tensile	260	lb	ASTM D 4632	100,000 SF
Grab Elongation	50	percent	ASTM D 4632	100,000 SF
CBR Puncture Resistance	725	lb	ASTM D 6241	100,000 SF
Trapezoidal Tear	100	lb	ASTM D 4533	100,000 SF
Apparent Opening Size	100	U.S. Sieve	ASTM D 4751	750,000 SF
8 oz/sy Nonwoven Geotextile				
Mass/Area (min. avg.)	8	oz/sy	ASTM D 5261	100,000 SF
Permittivity	1.26	sec ⁻¹	ASTM D 4491	750,000 SF
Grab Tensile	220	lb	ASTM D 4632	100,000 SF
Grab Elongation	50	percent	ASTM D 4632	100,000 SF
CBR Puncture Resistance	575	lb	ASTM D 6241	100,000 SF
Trapezoidal Tear	90	lb	ASTM D 4533	100,000 SF
Apparent Opening Size	80	U.S. Sieve	ASTM D 4751	750,000 SF
6 oz/sy Nonwoven Geotextile				
Mass/Area (min. avg.)	6	oz/sy	ASTM D 5261	100,000 SF
Permittivity	1.50	sec ⁻¹	ASTM D 4491	750,000 SF
Grab Tensile	160	lb	ASTM D 4632	100,000 SF
Grab Elongation	50	percent	ASTM D 4632	100,000 SF
CBR Puncture Resistance	435	lb	ASTM D 6241	100,000 SF
Trapezoidal Tear	65	lb	ASTM D 4533	100,000 SF
Apparent Opening Size	70	U.S. Sieve	ASTM D 4751	750,000 SF

Notes:

⁽¹⁾ Minimum average roll values

Table 7. Required Properties For Nonwoven Geotextiles – Conformance Testing

Material Property	Value⁽¹⁾	Units	Test Method	Frequency
10 oz/sy Nonwoven Geotextile				
Mass/Area (min. avg.)	10	oz/sy	ASTM D 5261	250,000 SF
Permittivity	0.94	sec ⁻¹	ASTM D 4491	250,000 SF
Grab Tensile	260	lb	ASTM D 4632	250,000 SF
Grab Elongation	50	percent	ASTM D 4632	250,000 SF
CBR Puncture Resistance	725	lb	ASTM D 6241	250,000 SF
Trapezoidal Tear	100	lb	ASTM D 4533	250,000 SF
Apparent Opening Size	100	U.S. Sieve	ASTM D 4751	250,000 SF
8 oz/sy Nonwoven Geotextile				
Mass/Area (min. avg.)	8	oz/sy	ASTM D 5261	250,000 SF
Permittivity	1.26	sec ⁻¹	ASTM D 4491	250,000 SF
Grab Tensile	220	lb	ASTM D 4632	250,000 SF
Grab Elongation	50	percent	ASTM D 4632	250,000 SF
CBR Puncture Resistance	575	lb	ASTM D 6241	250,000 SF
Trapezoidal Tear	90	lb	ASTM D 4533	250,000 SF
Apparent Opening Size	80	U.S. Sieve	ASTM D 4751	250,000 SF
6 oz/sy Nonwoven Geotextile				
Mass/Area (min. avg.)	6	oz/sy	ASTM D 5261	250,000 SF
Permittivity	1.50	sec ⁻¹	ASTM D 4491	250,000 SF
Grab Tensile	160	lb	ASTM D 4632	250,000 SF
Grab Elongation	50	percent	ASTM D 4632	250,000 SF
CBR Puncture Resistance	435	lb	ASTM D 6241	250,000 SF
Trapezoidal Tear	65	lb	ASTM D 4533	250,000 SF
Apparent Opening Size	70	U.S. Sieve	ASTM D 4751	250,000 SF

Notes:

⁽¹⁾ Minimum average roll values

Table 8. Calibration Of Testing Equipment

Equipment	Required Test	Minimum Frequency	Acceptance Criteria
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Other	As Determined by the Engineer	As Recommended by the Manufacturer, or Required by State Auditor of Measurement Devices	As Guaranteed by the Manufacturer

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Steel Reinforcing Bar	Shop Drawings and supplier certification and all other available documentation to demonstrate that the supplied material meets project requirements.	1 / supplier / product
Mill Tests	Three copies of each test report; bars shall be properly tagged so as to permit identification of the heat number shown on the mill test report for any and all steel delivered to the Project Site	1 / supplier / product / 15 tons (or less) delivered
Ready-Mix Delivery Slips	Contractor shall keep a record of time and place of each batch of concrete, together with ready-mix delivery slips (batch tickets) certifying contents and proportions of each truck load delivered to the site. Records shall be available for inspection by the CQC Manager upon request.	Available upon Request, and submitted at completion of the work



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