START

0021060

9203606

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

RECEIVED
MAY 19 1992
CORRESPONDENCE CONTROL

MAY 13 1992

92-WOB-176

Mr. David B. Jansen, P. E.
Hanford Project Manager
State of Washington
Department of Ecology
P. O. Box 47600
Olympia, Washington 98504-7600

Dear Mr. Jansen:

PROJECT W-105 LIQUID EFFLUENT RETENTION FACILITY, "TEST RECORDS FOR BASIN 42 BOTTOM HIGH DENSITY POLYETHYLENE LINER"

Reference: Letter, Steven H. Wisness, Hanford Project Manager, the U. S. Department of Energy, Richland Field Office, to David B. Jansen, Hanford Project Manager, the State of Washington Department of Ecology (Ecology), "Project W-105 Liquid Effluent Retention Facility (LERF) Response to the Ecology Letter Dated March 9, 1992."

The reference letter committed to provide the test records for the bottom layer of high density polyethylene liner in Basin 42 by May 15, 1992. The test records are attached for your information.

If you have any questions regarding the test records, please contact Dana Bryson of the Waste Management Division on (509) 372-0738.

Sincerely,

Steven H. Wisness
Hanford Project Manager

MAY 1992
RECEIVED
EDMC

WMD:DCB

Attachment

cc: M. Jaraysi, Ecology, w/att
T. Veneziano, WHC, w/att
D. Kelley, WHC, w/o att
R. Julian, WHC, w/o att
R. Tollbom, WHC, w/o att
B. A. Davis, SWEC, w/o att

9212642145 1

KAISER ENGINEERS HANFORD	DOCUMENT TRANSMITTAL	Transmittal No. TR-W-105-AI-150

Date May 6, 1992 | Page 1 of 1

To: Distribution

From: David S. McShane, E2-70

Project/Work Order Number: W-105 / ER0241

Project/Work Order Title: 242A Evaporator and Purex Interim Retention Basin Sitework Construction

Subject: **Bottom HDPE Liner Seam Testing Data -- Basin 42 (Secondary)**

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242A Evaporator Interim Retention Basins
W105 C2/Section 02755
Destructive & Non-Destructive Seam Testing Data
Basin: 42 -- Line: Secondary

[] Check here if receipt acknowledgment is required.

Receipt Acknowledgment:

Please sign below acknowledging receipt of documents listed above and return receipt to at .

Signature _____ Date _____

KEH 0001.00 (12/91) KEF003

9 2 1 2 6 4 1 5 2

KEH
242A EVAPORATOR INTERIM RETENTION BASINS
W105 C2 / SECTION 02755
DESTRUCTIVE SEAM TESTING DATA
REFERENCE DRAWING NUMBER H-2-79590

PREPARED BY:_____
CHECKED BY:_____

BASIN: 42
LINE: SECONDARY

DATE	QUALIFICATION: START MID END	WELDING MACHINE NUMBER	WELDER, OPERATOR	KEH SAMPLE LOG NUMBER	NILEX TRIAL WELD NUMBER	CLIMATIC CONDITIONS		AVERAGE BREAK VALVE				COMMENTS
								PEEL		SHEER		
						TEMP	WIND	KEH	NILEX	KEH	NILEX	
01/27/92	START	713	D. GERRY	174	1	40	0	130	153	163	196	
01/27/92	MID	713	D. GERRY	176	4	42	0	138	149	160	179	
01/27/92	MID	713	D. GERRY	180	*	40	0	135	*	158	*	SEAM # 9-10
01/27/92	END	713	D. GERRY	184	8	40	0	134	120	159	177	
01/27/92	START	730	R. ANDERSON	175	2	40	0	141	150	160	191	
01/27/92	MID	730	R. ANDERSON	181	5	42	0	139	146	161	183	
01/27/92	MID	730	R. ANDERSON	177	*	42	0	139	*	160	*	SEAM # 11-12
01/27/92	END	730	R. ANDERSON	183	7	40	0	142	147	159	178	
01/27/92	START	755	BRAD S.	178	3	42	0	143	152	158	178	
01/27/92	MID	755	BRAD S.	179	*	40	0	143	*	161	*	SEAM # 16-17
01/27/92	MID	755	BRAD S.	185	*	40	0-10	139	*	157	*	SEAM # 27-28
01/27/92	END	755	BRAD S.	182	6	40	0	141	149	162	179	
01/30/92	START	755	D. GERRY	191	14	40	0-10	137	140	159	178	
01/30/92	MID	755	D. GERRY	193	18	45	0-10	137	145	162	159	
01/30/92	MID	755	D. GERRY	196	*	45	0-10	140	*	160	*	SEAM - WEST FLOOR/SLOPE TIE
01/30/92	MID	755	D. GERRY	187	*	45	0-10	139	*	155	*	SEAM # 40-41
01/30/92	MID	755	D. GERRY	189	*	45	0-10	135	*	154	*	SEAM # 42-43
01/30/92	END	755	D. GERRY	195	19	45	0-10	137	141	156	162	
01/30/92	START	730	R. ANDERSON	190	13	45	0-10	134	148	157	174	
01/30/92	MID	730	R. ANDERSON	192	16	45	0-10	134	142	157	163	
01/30/92	MID	730	R. ANDERSON	197	*	45	0-10	140	*	162	*	SEAM - EAST FLOOR/SLOPE TIE
01/30/92	MID	730	R. ANDERSON	186	*	45	0-10	138	*	157	*	SEAM # 45-46
01/30/92	MID	730	R. ANDERSON	188	*	45	0-10	135	*	154	*	SEAM # 32-33
01/30/92	END	730	R. ANDERSON	194	20	45	0-10	138	136	156	162	
01/31/92	START	27	M.M.	198	25	63	0	124	133	162	157	
01/31/92	END	27	M.M.	199	28	54	0	114	112	162	158	
01/31/92	START	24	K. BROCHEY	200	22	40	0	125	122	161	178	
01/31/92	MID	24	K. BROCHEY	201	24	63	0	138	120	161	163	
01/31/92	END	24	K. BROCHEY	202	27	54	0	124	124	162	160	
01/31/92	START	730	R. ANDERSON	203	21	40	0	142	153	164	182	
01/31/92	MID	730	R. ANDERSON	204	23	63	0	139	138	162	164	
01/31/92	MID	730	R. ANDERSON	206	*		0	143	*	158	*	SEAM # 49-50
01/31/92	END	730	R. ANDERSON	205	26	61	0	139	137	163	165	
02/01/92	START	27	M.M.	207	29	44	0	117	130	157	173	
02/01/92	END	27	M.M.	208	32	54	0	139	120	155	162	
02/01/92	START	24	K. BROCHEY	209	30	44	0	125	133	159	180	

* Extra destructive sample drawn by KEH, Nilex not required to test ** Machine operated part of the day

9 2 1 2 6 4 2 1 4 5 3

02/01/92	END	24	K. BROCHEY	210	31	54	0	128	126	159	162	
02/03/92	START	755	D. GERRY	211	33	53	0-10	140	142	158	169	
02/03/92	END	755	D. GERRY	213	36	52	0-10	139	139	162	168	**
02/03/92	START	24	K. BROCHEY	212	34	53	0-10	128	124	158	162	
02/03/92	END	24	K. BROCHEY	214	35	52	0-10	131	134	158	165	
02/04/92	START	24	R. ANDERSON	215	37	35	0	123	129	154	185	
02/04/92	END	24	R. ANDERSON	216	38	46	0	119	120	153	171	
02/05/92	START	24	K. BROCHEY	217	39	43	0	138	149	160	187	
02/05/92	END	24	K. BROCHEY	218	40	40	0	130	122	159	176	
03/27/92	START	32	R. ANDERSON	404	43	51	10-15	124	138	164	170	
03/27/92	END	32	R. ANDERSON	403	43	61	10-15	118	120	161	140	

PRELIMINARY

* Extra destructive sample drawn by KEH, Nilex not required to test ** Machine operated part of the day

9 2 1 2 6 4 2 1 4 5 4

Nilex Trial Weld #

NILEX

PROJECT NO: HD-91-274 PROJECT: W-105 A1-42 (secondary) LOCATION: Hanford 200E

K #5262

	SAMPLE #	DATE	SAMPLE INFORMATION: GUN #	TECH	TIME	TEMP. INF.: AMB.	SHEET	EXT.	EXT.*	NOZ	TIME	TEST RESULTS: PEEL # BRK	# BRK	# BRK	# BRK	# BRK	SHEAR # BRK	# BRK	# BRK	# BRK	# BRK	M.
1	1	1-27	713	Doug	8:45	40°	40°	370°	—	5	9:00	152/162	157/143	184/141	156/138	154/143	195	192	197	198	195	b
														153					196			
2	1	1-27	730	Rob	8:30	40°	40°	370°	—	5	9:12	157/148	158/143	147/142	154/144	156/151	191	193	188	192	190	b
														150					191			
3	1	1-27	755	Brad	11:53	42°	42°	375°	—	5	12:57	156/147	162/148	143/159	157/144	165/143	172	172	189	176	183	b
														152					178			
4	2	1-27	713	Doug	12:41	42°	42°	370°	—	5	1:11	157/143	147/140	145/155	148/142	135/150	180	182	181	178	176	b
														149					179			
5	2	1-27	730	Rob	12:30	42°	42°	375°	—	5½	1:19	156/148	149/146	148/151	140/138	153/144	181	184	182	186	184	b
														146					183			
6	2	1-27	755	Brad	2 12:56	41°	41°	370°	—	5	3:17	150/146	158/154	140/138	151/156	146/147	177	181	179	178	180	b
														149					179			
7	3	1-27	730	Rob	2:55	41°	41°	375°	—	5½	3:23	154/128	152/146	158/155	149/147	143/146	180	178	177	179	176	b
														147					178			
8	3	1-27	713	Doug	2:58	41°	41°	370°	—	5	3:37	132/154	146/119	151/114	145/99	143/97	173	176	176	182	177	b
														120					177			
9	1	1-29	730	Rob	8:20	55°	55°	375°	—	5	8:53	136/137	143/136	143/134	134/134	143/134	176	167	173	167	167	b
														138					170			

NOTES:
P-PASS
F-FAIL
*TEMP. OF EXTRUDATE

COMMENTS:

PRELIMINARY

Richard Cahoon

CHK'D BY: James Smith

9 2 1 2 6 4 2 1 4 5 5

NILEX

PROJECT NO: HD-91-724 PROJECT: W105-A1-#2 (secondary) LOCATION: Hanford 200E

SAMPLE #	DATE	GUN #	TECH	TIME	AMB.	SHEET	EXT.	EXT.•	NOZ.	TIME	PEEL %/BRK	%/BRK	%/BRK	%/BRK	%/BRK	SHEAR %/BRK	%/BRK	%/BRK	%/BRK	%/BRK	MILS	Mil Th Wel #
1	1-29	24	Kelly	8:20	55°	55°	280°	270°	8	9:32	122	125	110	107	119	161	164	154	157	159	60	16
													116					165				
2	1-29	24	Kelly	12:50	60°	60°	280°	270°	8	1:25	125	135	130	140	140	165	160	163	163	160	60	11
													134					162				
2	1-29	730	Rob	1:30	60°	60°	375	—	5	1:53	110/130	139/140	140/140	140/150	120/150	150	150	150	150	160	60	12
													14	135				152				
1	1-30	730	Rob	8:00	42°	42°	375	—	5	8:41	159/139	153/143	147/153	145/150	139/143	179	173	177	173	170	60	13
													148					174				
1	1-30	755	Doug	9:58	49°	49°	375	—	5	10:08	125/137	140/140	137/140	145/162	136/142	179	150	175	181	175	60	14
													140					178				
1	1-30	24	Kelly	10:37	49°	49°	280°	270°	8	10:48	105	115	105	118	105	159	170	165	162	160	60	15
													110					195				
2	1-30	730	Rob	12:00	49°	49°	375°	—	5½	12:30	145/145	140/145	140/140	140/140	140/140	170	165	150	170	160	60	16
													142					163				
1	1-30	104	Kelly	1:18	58°	58°	375°	—	5	1:34	139/138	138/125	139/135	140/129	140/128	165	165	165	155	155	60	17
													135					161				
2	1-30	755	Doug	12:40	54°	54°	375°	—	5	1:57	145/143	144/144	140/144	150/145	147/145	155	163	163	163	150	60	18
													145					159				

NOTES:
P-PASS
F-FAIL
•TEMP. OF EXTRUDATE

COMMENTS:

PRELIMINARY

Richard Gibson

CHK'D BY: Thomas

9 2 1 2 6 4 2 1 4 5 6

Nilex Trial Weld #

NILEX J.H 5262 (REVISED)

PROJECT NO: HD-91-224 PROJECT: WICS AI-42 (Geoceptor) LOCATION: Hanford 200E

	SAMPLE #	DATE	SAMPLE INFORMATION: GUN #	TECH	TIME	TEMP. INF.: AMB.	SHEET	EXT.	EXT.•	NOZ.	TIME	TEST RESULTS: PEEL # BRK	# BRK	# BRK	# BRK	# BRK	SHEAR # BRK	# BRK	# BRK	# BRK	# BRK	M
19	3	1-30	755	Doug	4:33	49°	49°	375°	—	5	4:40	143/141	139/134	152/142	141/142	137/141	164	162	159	161	164	6
														141					162			
20	3	1-30	730	Rob	4:40	49°	49°	375°	—	5	5:28	142/134	138/132	141/138	143/140	139/139	160	153	168	163	167	6
														136					162			
21	7	1-31	730	Rob	8:00	42°	42°	375°	—	5	8:15	147/147	150/142	163/160	150/160	139/150	190	185	180	185	180	6
														153					182			
22	1	1-31	24	Kelly	8:00	42°	42°	280°	270°	7½	8:33	130	119	133	115	115	178	175	181	180	174	6
														122					178			
23	2	1-31	730	Rob	12:35	50°	50°	375°	—	5	12:45	130/145	140/140	140/130	140/135	135/140	160	165	165	165	165	6
														138					164			
24	2	1-31	24	Kelly	12:45	63°	63°	280°	270°	6½	1:00	122	125	122	120	110	168	162	160	164	162	6
														120					163			
25	1	1-31	27	Mike	2:30	54°	54	270°	262°	7	2:45	134	135	135	133	130	162	159	163	161	165	6
														133					157			
26	3	1-31	730	Rob	3:00	53°	53°	375	—	5½	3:10	140/140	135/135	140/140	130/135	135/138	165	165	167	165	162	6
														137					165			
27	3	1-31	24	Kelly	4:25	53°	53°	280°	270°	6½	4:35	123	125	115	120	135	160	160	158	160	160	6
														124					160			

NOTES:
P-PASS
F-FAIL
•TEMP. OF EXTRUDATE

COMMENTS:

PRELIMINARY

CHK'D BY:

9 2 1 2 6 4 2 1 4 5 7

NILEX

TRIAL WELDS (Revised)

PROJECT NO: HD-91-774 PROJECT: WIDE A/-42 secondary LOCATION: 200E Hanford

Nilex Trial weld #

SAMPLE #	DATE	SAMPLE INFORMATION: GUN #	TECH	TIME	TEMP. INF. AMB.	SHEET	EXT.	EXT.•	NOZ.	TIME	TEST RESULTS PEEL # BRK	# BRK	# BRK	# BRK	# BRK	SHEAR # BRK	# BRK	# BRK	# BRK	# BRK	MILS	
2	1-31	27	Mike	4:35	53°	53°	270°	262°	7	4:40	120	105	118	105	114	157	154	164	153	162	60	28
													112					158				
1	2-1	27	Mike	8:30	44°	44°	270°	262°	7½	8:45	127	125	120	140	140	170	175	179	170	173	60	29
													130					173				
1	2-1	24	Kelly	8:35	44°	44°	275°	262°	7	8:55	130	135	135	130	135	177	177	180	180	188	60	30
													133					180				
2	2-1	24	Kelly	1:30	54°	54°	275°	263°	6½	1:38	130	125	128	123	126	163	165	165	170	168	60	31
													126					166				
2	2-1	27	Mike	1:40	54°	54°	270°	262°	7	1:45	110	127	122	117	125	167	163	166	156	160	60	32
													120					162				

NOTES:
P-PASS
F-FAIL
•TEMP. OF EXTRUDATE

COMMENTS:

PRELIMINARY

Richard Carlson

9402 1 2 6 4 2 1 4 5 8

NILEX KEH-5262 KEH 200E Nilex Trial Work #

PROJECT NO: HD-91-274 PROJECT: W-105 AL 44 (accelerated) LOCATION: Hanford 200E

AMPLE #	DATE	SAMPLE INFORMATION								TIME	TEST RESULTS											
		GUN #	TECH	TIME	TEMP. INF.				NOZ		PEEL					SHEAR						
					AMB.	SHEET	EXT.	EXT.•			#/BRK	#/BRK	#/BRK	#/BRK	#/BRK	#/BRK	#/BRK	#/BRK	#/BRK	# BRK	MILS	
1	2-3	755	Doug	12:35	53°	53°	375°	—	5	12:44	139/146	141/147	137/140	133/151	139/147	170	172	160	172	171	60	33
													142				169					
1	2-3	24	Kelly	1:00	53°	53°	270°	269°	6	1:19	124	114	118	133	132	163	162	164	160	163	60	34
													124				162					
2	2-3	24	Kelly	3:10	53°	53°	270°	269°	6	3:51	136	136	130	134	134	165	165	161	165	168	60	35
													134				165					
2	2-3	755	Doug	3:00	53°	53°	375°	—	5	3:59	134/142	140/134	140/135	135/140	141/153	163	169	169	175	166	60	36
													139				168					
1	2-4	24	Rob	8:25	35°	35°	280°	270°	8	8:37	121	135	122	129	138	182	184	183	195	183	60	37
													129				185					
2	2-4	24	Rob	1:00	47°	47°	230°	270°	8	1:60	110	115	130	130	115	170	170	170	170	175	60	38
													120				171					
1	2-5	24	Kelly	11:45	43°	43°	280°	269°	7	12:10	160	148	138	151	147	180	191	188	188	188	60	39
													149				187					
2	2-5	24	Kelly	4:00	43°	43°	280°	269°	7	4:05	110	122	131	124	123	170	184	173	180	174	60	40
													122				176					
1	2-7	24	Kelly	8:00	32°	32°	280°	269°	9	8:14	112	113	110	109	122	188	190	171	189	190	60	41
													113				190					

NOTES:
P-PASS
F-FAIL
•TEMP. OF EXTRUDATE

COMMENTS: REF-H-2-79590 Id

Michael Cahoon

9 2 1 2 6 4 2 1 4 5 9

TRIAL WELDS

NILEX

K.E.H # 5262

PROJECT NO: HO-91-274 PROJECT: A1-43 W-105 Primary LOCATION: Hanford 200 E

Niley Trial welds

SAMPLE #	DATE	SAMPLE INFORMATION: GUN #	TECH	TIME	TEMP. INF.: AMB.	SHEET	EXT.	EXT.•	NOZ.	TIME	TEST RESULTS: PEEL #/BRK	#/BRK	#/BRK	#/BRK	#/BRK	SHEAR #/BRK	#/BRK	#/BRK	#/BRK	#/BRK	MILS
1	3-27	32	Rob	7:35	51°	51°	280°	270°	8	7:45	134	131	137	149	137	167	169	176	172	167	60
													138			30%	30%	30%	30%	30%	170
2	3-27	32	Rob	9:20	51°	51°	280°	260°	7	9:34	107	127	132	115	120	142	134	140	148	140	60
													120			30%	30%	30%	30%	30%	140
1	3-30	32	Rob	6:30	47°	47°	280°	270°	8	6:53	116	121	106	119	131	182	181	178	178	177	60
																30%	30%	30%	30%	30%	
1	3-30	20	Kelly	7:00	47°	47°	275°	264°	7½	7:02	118	116	118	112	123	173	174	173	177	172	60
																30%	30%	30%	30%	30%	
2	3-30	20	Kelly	11:45	75°	80°	275°	264°	5½	12:26	119	132	117	110	114	146	147	147	143	184	60
																30%	30%	30%	30%	30%	
2	3-30	32	Rob	12:05	75°	80°	280°	270°	7	12:37	128	130	129	134	132	147	150	150	147	147	60
																30%	30%	30%	30%	30%	
1	3-31	32	Rob	7:35	53°	53°	280°	270°	7	7:47	131	121	121	130	123	170	167	171	170	169	60
																30%	30%	30%	30%	30%	
1	3-31	20	Kelly	8:00	53°	53°	25°	265°	7	8:09	104	118	123	119	107	160	162	163	160	162	60
																30%	30%	30%	30%	30%	
2	3-31	20	Kelly	11:00	71°	76°	270°	260°	5½	11:44	115	117	124	118	123	143	147	144	140	141	60
																30%	30%	30%	30%	30%	

42

43

NOTES:
P-PASS
F-FAIL
•TEMP. OF EXTRUDATE

COMMENTS:

Richard Cahoon

CHKD BY:

PRELIMINARY

9 2 1 2 6 4 2 1 4 6 0

PRELIMINARY

KEH
242A EVAPORATOR INTERIM RETENTION BASINS
W105 C2 / SECTION 02755
NON-DESTRUCTIVE SEAM TESTING DATA
DWG # H-2-79590

BASIN: 42
LINER: SECONDARY

PREPARED BY:_____
CHECKED BY:_____

ROLL # FOR LEFT PANEL #	SEAM NUMBER		DATE MADE	WELDER, OPERATOR	WELDING MACHINE NUMBER	NON-DESTRUCTIVE TEST		OTHER
	PANEL #	PANEL #				TYPE OF TEST*	DATE TESTED	
AA-2871	54	53	01/31/92	R. ANDERSON	730	VBT	02/04/92	N.W. CORNER A
AA-2871	54	55	01/31/92	R. ANDERSON	730	APT	02/01/92	
AA-2871	55	53	01/31/92	R. ANDERSON	730	VBT	02/04/92	N.W. CORNER A
AA-2871	55	56	01/31/92	R. ANDERSON	730	APT	02/01/92	
AA-2908	56	53	01/31/92	R. ANDERSON	730	VBT	02/04/92	N.W. CORNER A
AA-2908	56	1	01/31/92	R. ANDERSON	730	APT	02/01/92	
AA-2873	1	53	01/31/92	R. ANDERSON	730	VBT	02/04/92	N.W. CORNER A
AA-2873	1	48	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2873	1	2	01/27/92	D. GERRY	713	APT/VBT	01/23/92 & 02/04/92	LOWER 25' VBT
AA-2873	2	47	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2873	2	46	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2873	2	3	01/27/92	R. ANDERSON	730	APT	01/28/92	
AA-2873	3	46	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2873	3	45	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2873	3	4	01/27/92	D. GERRY	713	APT	01/28/92	
AA-2873	4	45	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2873	4	44	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2873	4	5	01/27/92	R. ANDERSON	730	APT	01/28/92	
AA-2848	5	44	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2848	5	43	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2848	5	6	01/27/92	D. GERRY	713	APT	01/28/92	
AA-2848	6	43	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2848	6	42	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2848	6	7	01/27/92	R. ANDERSON	730	APT/VBT	01/30/92	41' OF SEAM VBT
AA-2848	7	42	01/30/92	D. GERRY	755	VBT	02/03/92	WEST SLOPE/FLOOR TIE
AA-2848	7	14	01/27/92	R. ANDERSON	730	VBT	02/03/92	S.W. CORNER
AA-2848	7	13	01/27/92	R. ANDERSON	730	VBT	02/03/92	S.W. CORNER
AA-2848	7	8	01/27/92	D. GERRY	713	APT	01/30/92	
AA-2848	8	13	01/27/92	R. ANDERSON	730	VBT	02/03/92	S.W. CORNER
AA-2848	8	12	01/27/92	R. ANDERSON	730	VBT	02/03/92	S.W. CORNER
AA-2848	8	9	01/27/92	R. ANDERSON	730	APT	01/28/92	
AA-2913	9	12	01/27/92	R. ANDERSON	730	VBT	02/03/92	S.W. CORNER
AA-2913	9	11	01/27/92	R. ANDERSON	730	VBT	02/03/92	S.W. CORNER
AA-2913	9	10	01/27/92	D. GERRY	713	VBT	02/03/92	

* VBT = VACUUM BOX TESTING

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AA-2848	10	11	01/27/92	R. ANDERSON	730	VBT	02/03/92	S.W. CORNER
AA-2913	11	12	01/27/92	R. ANDERSON	730	VBT	02/04/92	
AA-2913	12	13	01/27/92	R. ANDERSON	730	APT	01/30/92	
AA-2913	13	14	01/27/92	R. ANDERSON	730	APT	01/30/92	
AA-2913	14	42	01/30/92	R. ANDERSON	730	VBT	02/03/92	SOUTH SLOPE/FLOOR TIE
AA-2913	14	15	01/27/92	B. SAMBAUGH	755	APT	01/30/92	
AA-2914	15	42	01/30/92	R. ANDERSON	730	VBT	02/03/92	SOUTH SLOPE/FLOOR TIE
AA-2914	15	16	01/27/92	D. GERRY	713	APT	01/30/92	
AA-2914	16	42	01/30/92	R. ANDERSON	730	VBT	02/03/92	SOUTH SLOPE/FLOOR TIE
AA-2914	16	17	01/27/92	B. SAMBAUGH	755	APT	01/30/92	
AA-2914	17	42	01/30/92	R. ANDERSON	730	VBT	02/03/92	SOUTH SLOPE/FLOOR TIE
AA-2914	17	18	01/27/92	B. SAMBAUGH	755	APT	01/30/92	
AA-2914	18	42	01/30/92	R. ANDERSON	730	VBT	02/03/92	SOUTH SLOPE/FLOOR TIE
AA-2914	18	25	01/27/92	R. ANDERSON	730	VBT	02/03/92	S.E. CORNER
AA-2914	18	19	01/27/92	D. GERRY	713	APT	01/30/92	
AA-2857	19	24	01/27/92	R. ANDERSON	730	VBT	02/03/92	S.E. CORNER
AA-2857	19	20	01/27/92	D. GERRY	713	APT	01/30/92	
AA-2857	20	23	01/27/92	R. ANDERSON	730	VBT	02/03/92	S.E. CORNER
AA-2857	20	21	01/27/92	R. ANDERSON	730	APT	01/30/92	
AA-2857	21	22	01/27/92	R. ANDERSON	730	VBT	02/03/92	S.E. CORNER
AA-2857	22	23	01/27/92	R. ANDERSON	730	APT	01/30/92	
AA-2886	23	24	01/24/92	B. SAMBAUGH	755	APT	01/31/92	
AA-2857	24	25	01/27/92	R. ANDERSON	730	APT	01/31/92	
AA-2857	25	42	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2857	25	26	01/27/92	R. ANDERSON	730	VBT	02/03/92	EXTRUSION WELD
AA-2886	26	42	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2886	26	43A	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2886	26	27	01/27/92	B. SAMBAUGH	755	APT	01/31/92	
AA-2886	27	43A	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2886	27	44	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2886	27	28	01/27/92	B. SAMBAUGH	755	APT	01/31/92	
AA-2886	28	44	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2886	28	45A	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2886	28	29	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2847	29	45A	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2847	29	46A	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2847	29	30	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2847	30	46A	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2847	30	47	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2847	30	31	01/30/92	D. GERRY	755	APT	02/05/92	
AA-2847	31	47	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2847	31	48A	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2847	31	32	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2847	32	48A	01/30/92	D. GERRY	755	VBT	02/03/92	EAST SLOPE/FLOOR TIE
AA-2847	32	39	01/30/92	R. ANDERSON	730	VBT	02/04/92	N.E. CORNER
AA-2847	32	38	01/30/92	R. ANDERSON	730	VBT	02/04/92	N.E. CORNER
AA-2847	32	33	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2881	33	38	01/30/92	R. ANDERSON	730	VBT	02/04/92	N.E. CORNER

* VBT = VACUUM BOX TESTING

AA-2881	33	37	01/30/92	R. ANDERSON	730	VBT	02/04/92	N.E. CORNER
AA-2881	33	34	01/30/92	D. GERRY	755	APT	01/31/92	
AA-2881	34	37	01/30/92	R. ANDERSON	730	VBT	02/04/92	N.E. CORNER
AA-2881	34	36	01/30/92	R. ANDERSON	730	VBT	02/04/92	N.E. CORNER
AA-2881	34	35	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2881	35	36	01/30/92	R. ANDERSON	730	VBT	02/04/92	N.E. CORNER
AA-2867	36	37	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2881	37	38	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2881	38	39	01/30/92	D. GERRY	755	APT	01/31/92	
AA-2881	39	48A	01/30/92	R. ANDERSON	730	VBT	02/03/92	NORTH SLOPE/FLOOR TIE
AA-2881	39	40	01/30/92	D. GERRY	755	APT	01/31/92	
AA-2867	40	48A	01/30/92	R. ANDERSON	730	VBT	02/03/92	NORTH SLOPE/FLOOR TIE
AA-2867	40	41	01/30/92	D. GERRY	755	APT	01/31/92	
AA-2867	41	48A	01/30/92	R. ANDERSON	730	VBT	02/03/92	NORTH SLOPE/FLOOR TIE
AA-2867	41	49	01/31/92	R. ANDERSON	730	APT	01/31/92	
AA-2866	49	48	01/30/92	R. ANDERSON	730	VBT	02/03/92	NORTH SLOPE/FLOOR TIE
AA-2866	49	53	01/31/92	R. ANDERSON	730	VBT	02/04/92	N.W. CORNER B
AA-2866	49	50	01/31/92	R. ANDERSON	730	APT	02/01/92	
AA-2908	50	53	01/31/92	R. ANDERSON	730	VBT	02/04/92	N.W. CORNER B
AA-2908	50	51	01/31/92	R. ANDERSON	730	APT	02/01/92	
AA-2908	51	53	01/31/92	R. ANDERSON	730	VBT	02/04/92	N.W. CORNER B
AA-2908	51	52	01/31/92	R. ANDERSON	730	APT	02/01/92	
AA-2908	51	52A	01/31/92	R. ANDERSON	730	APT	02/01/92	
AA-2908	52	53	01/31/92	R. ANDERSON	730	VBT	02/04/92	N.W. CORNER B
AA-2908	52	52A	01/31/92	R. ANDERSON	730	APT	02/01/92	
AA-2908	53	48	01/30/92	R. ANDERSON	730	VBT	02/03/92	NORTH SLOPE/FLOOR TIE
AA-2847	48	48A	01/30/92	R. ANDERSON	730	VBT	02/03/92	
AA-2847	48	47	01/30/92	R. ANDERSON	730	VBT	02/04/92	
AA-2847	48A	47	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2866	47	46A	01/30/92	D. GERRY	755	APT	01/31/92	
AA-2866	47	46	01/30/92	D. GERRY	755	VBT	02/04/92	
AA-2913	46	46A	01/30/92	R. ANDERSON	730	VBT	02/04/92	
AA-2913	46	45	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2913	46A	45A	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2866	46A	45	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2874	45	45A	01/30/92	R. ANDERSON	730	APT	01/31/92	
AA-2874	45	44	01/30/92	R. ANDERSON	730	APT	02/01/92	
AA-2886	45A	44	01/30/92	R. ANDERSON	730	APT	02/01/92	
AA-2874	44	43A	01/30/92	D. GERRY	755	APT	02/01/92	
AA-2874	44	43	01/30/92	D. GERRY	755	APT	02/01/92	
AA-2867	43	43A	01/30/92	K. BROCHEY	24	VBT	02/04/92	
AA-2867	43	43	01/30/92	D. GERRY	755	APT	02/01/92	
AA-2857	43A	42	01/30/92	D. GERRY	755	APT	02/01/92	

PRELIMINARY

* VBT = VACUUM BOX TESTING

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NILEX

JOB NO. HD-91-774 OWNER K.E.H #5262

PROJECT A1-42 W-105 (secondary) CONTRACTOR G.I.T

GEOMEMBRANE SEAM LOG

H-2-79590 4

SEAM NUMBER	DATE	SEGMENT	OPERATOR	WELDER #	TIME	REMARKS	QA MON.
1-2	1-27	Fullseam	Doug	713	9:19	65' A.P.T OK V.T 25' of seam OK	
2-3	1-27	Fullseam	Rob	730	9:20	A.P.T OK	
3-4	1-27	Fullseam	Doug	713	9:46	A.P.T OK	
4-5	1-27	Fullseam	Rob	730	9:45	A.P.T OK	
5-6	1-27	Fullseam	Doug	713		A.P.T OK	
6-7	1-27	Fullseam	Rob	730	10:15	59' A.P.T OK V.T 41' of seam OK	
7-8	1-27	Fullseam	Doug	713		A.P.T OK	
8-9	1-27	Fullseam	Rob	730		A.P.T OK	
9-10	1-27	Fullseam	Doug	713	11:40	V.T OK	
10-11	1-27	Fullseam	Rob	730	1:35	V.T OK	
11-12	1-27	Fullseam	Rob	730	11:45	V.T OK	
12-13	1-27	Fullseam	Rob	730	11:25	A.P.T OK	
13-14	1-27	Fullseam	Rob	730	11:00	A.P.T OK	
14-15	1-27	Fullseam	BRAD	755	1:00	A.P.T OK	
15-16	1-27	Fullseam	Doug	713	1:21	A.P.T OK	
16-17	1-27	Fullseam	BRAD	755	1:40	A.P.T OK	
17-18	1-27	Fullseam	BRAD	755		A.P.T OK	
18-19	1-27	Fullseam	Doug	713	2:40	A.P.T OK	
19-20	1-27	Fullseam	Doug	713	2:22	A.P.T OK	
20-21	1-27	Fullseam	Rob	730		A.P.T OK	

PRELIMINARY

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NILEX

JOB NO. HD-91-774 OWNER K.E.A # 5262

PROJECT A1-42 W105 Secondary CONTRACTOR G.I.T

GEOMEMBRANE SEAM LOG

H-2-79590 A

SEAM NUMBER	DATE	SEGMENT	OPERATOR	WELDER #	TIME	REMARKS	QA MON.
21-22	1-27	Fullseam	Rob	730		V.T OK	
22-23	1-27	Fullseam	Rob	730	3:15	A.P.T OK	
23-24	1-27	Fullseam	BRAD	755	2:45	A.P.T OK	
24-25	1-27	Fullseam	Rob	730	2:15	A.P.T OK	
25-26	1-27	Fullseam	Rob	730		V.T OK	
26-27	1-27	Fullseam	BRAD	755	3:10	A.P.T OK	
27-28	1-27	Fullseam	BRAD	755	3:35	A.P.T OK	
28-29	1-30	Fullseam	Rob	730	9:00	A.P.T OK	
29-30	1-30	Fullseam	Rob	730	9:50	A.P.T OK	
30-31	1-30	Fullseam	Doug	755		A.P.T OK	
31-32	1-30	Fullseam	Rob	730	9:55	A.P.T OK	
32-33	1-30	Fullseam	Rob	730	10:10	A.P.T OK	
33-34	1-30	Fullseam	Doug	755	10:27	A.P.T OK	
34-35	1-30	Fullseam	Rob	730	12:00	A.P.T OK	
35-36	1-30	Fullseam	Rob	730	1:15	V.T OK	
36-37	1-30	Fullseam	Rob	730	11:45	A.P.T OK	
37-38	1-30	Fullseam	Rob	730	10:55	A.P.T OK	
38-39	1-30	Fullseam	Doug	755	10:40	A.P.T OK	
39-40	1-30	Fullseam	Doug	755	11:50	A.P.T OK	
40-41	1-30	Fullseam	Doug	755	12:10	A.P.T OK	

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NILEX

JOB NO. HD-91-774 OWNER K.E.H # 5262

PROJECT A142 W-105 (Secondary) CONTRACTOR G.I.T

GEOMEMBRANE SEAM LOG

REF. H-2-79590 R1

Roland Colgan

SEAM NUMBER	DATE	SEGMENT	OPERATOR	WELDER #	TIME	REMARKS	QA MON.
42-43	1-30	Fullseam	Doug	755		A.P.T OK	
42-43A	1-30	Fullseam	Doug	755		A.P.T OK	
43-43A	1-30	X-seam	Kelly	24		V.T OK	
43-44	1-30	Fullseam	Doug	755		A.P.T OK	
43A-44	1-30	Fullseam	Doug	755		A.P.T OK	
44-45	1-30	Fullseam	Rob	730		A.P.T OK	
44-45A	1-30	Fullseam	Rob	730		A.P.T OK	
45-45A	1-30	X-seam	Rob	730		A.P.T OK	
45-46	1-30	Fullseam	Rob	730		A.P.T OK	
45-46A	1-30	Fullseam	Rob	730		A.P.T OK	
45A-46A	1-30	Fullseam	Rob	730		A.P.T OK	
46-46A	1-30	X-seam	Rob	730		V.T OK	
46-47	1-30	Fullseam	Doug	755		V.T OK	
46A-47	1-30	Fullseam	Doug	755		A.P.T OK	
47-48	1-30	Fullseam	Rob	730		V.T OK	
47-48A	1-30	Fullseam	Rob	730		A.P.T OK	
48-48A	1-30	X-seam	Rob	730		V.T OK	
49-49	1-31	Fullseam	Rob	730	8:30	A.P.T OK	
49-50	1-31	Fullseam	Rob	730	9:10	A.P.T OK	
50-51	1-31	Fullseam	Rob	730	9:35	A.P.T OK	

PRELIMINARY

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NILEX

JOB NO. HD-91-774 OWNER K.E.H # 5262

PROJECT A1-42 W-105 (Secondary) CONTRACTOR G.T.T

GEOMEMBRANE SEAM LOG

REF. H-2-79570 A

SEAM NUMBER	DATE	SEGMENT	OPERATOR	WELDER #	TIME	REMARKS	QA MON.
51-52A	1-31	Fullseam	Rob	730		A.P.T OK	
51-52	1-31	Fullseam	Rob	730		A.P.T OK	
52-52A	1-31	X-seam	Rob	730		A.P.T OK	
52-53	1-31	Fullseam	Rob	730		V.T OK	
53-54	1-31	Fullseam	Rob	730		V.T OK	
54-55	1-31	Fullseam	Rob	730		A.P.T OK	
55-56	1-31	Fullseam	Rob	730		A.P.T OK	
56-1	1-31	Fullseam	Rob	730		A.P.T OK	
57	1-30	Fullseam	Rob	730		V.T OK Floor Tie Inn (North)	
58	1-30	Fullseam	Doug	755		V.T OK Floor Tie Inn (West)	
59	1-30	Fullseam	Rob	730		V.T OK Floor Tie Inn (South)	
60	1-30	Fullseam	Doug	755.		V.T OK Floor Tie Inn (East)	
61	1-27	Fullseam	Rob	730		V.T OK (S.E) Corner Tie Inn	
62	1-27	Fullseam	Rob	730	1:35	V.T OK (S.W) Corner Tie Inn	
63	1-31	Fullseam	Rob	730		V.T OK (N.W A) Corner Tie Inn A	
64	1-31	Fullseam	Rob	730		V.T OK (N.W B) Corner Tie Inn B	
65	1-30	Fullseam	Rob	730	1:15	V.T OK (N.E) Corner Tie Inn	

PRELIMINARY

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PANEL LOG

NILEX

KEH · 52.02

PROJECT NO. ND-91-274 PROJECT W-106 M1-42 (secondary)

DATE	PNL. #	ROLL #	MILS	LENGTH	WIDTH	SQ. FEET	REMARKS
1-27-92	1	AA-2873	60				
1-27-92	2	AA-2873	60				
1-27-92	3	AA-2873	60				
1-27-92	4	AA-2873	60				
1-27-92	5	AA-2848	60				
1-27-92	6	AA-2848	60				
1-27-92	7	AA-2848	60				
1-27-92	8	AA-2848	60				
1-27-92	9	AA-2913	60				
1-27-92	10	AA-2848	60				
1-27-92	11	AA-2913	60				
1-27-92	12	AA-2913	60				
1-27-92	13	AA-2913	60				
1-27-92	14	AA-2913	60				
1-27-92	15	AA-2914	60				
1-27-92	16	AA-2914	60				
1-27-92	17	AA-2914	60				
1-27-92	18	AA-2914	60				
1-27-92	19	AA-2857	60				
1-27-92	20	AA-2857	60				
1-27-92	21	AA-2857	60				
1-27-92	22	AA-2857	60				
1-27-92	23	AA-2886	60				
1-27-92	24	AA-2857	60				
1-27-92	25	AA-2857	60				
1-27-92	26	AA-2886	60				
1-27-92	27	AA-2886	60				
1-27-92	28	AA-2886	60				
1-30-92	29	AA-2847	60				
1-30-92	30	AA-2847	60				

= ODD SHAPED PANEL

PRELIMINARY

TOTAL SQUARE FEET THIS PAGE

TOTAL LINEAR FEET THIS PAGE

Richard Carson

PANEL LOG

NILEX

PROJECT NO. HD-91-274 PROJECT W-105 AI-42 (secondary) KSA 5262

DATE	PNL. #	ROLL #	MILS	LENGTH	WIDTH	SQ. FEET	REMARKS
1-30-92	31	AA-2847	60				
1-30-92	32	AA-2847	60				
1-30-92	33	AA-2881	60				
1-30-92	34	AA-2881	60				
1-30-92	35	AA-2881	60				
1-30-92	36	AA-2867	60				
1-30-92	37	AA-2881	60				
1-30-92	38	AA-2881	60				
1-30-92	39	AA-2881	60				
1-30-92	40	AA-2867	60				
1-30-92	41	AA-2867	60				
1-30-92	42	AA-2867	60				
1-30-92	43	AA-2867	60				
1-30-92	43A	AA-2857	60				
1-30-92	44	AA-2874	60				
1-30-92	45	AA-2874	60				
1-30-92	45A	AA-2886	60				
1-30-92	46	AA-2913	60				
1-30-92	46A	AA-2866	60				
1-30-92	47	AA-2866	60				
1-30-92	48	AA-2847	60				
1-30-92	48A	AA-2866	60				
1-31-92	49	AA-2866	60				
1-31-92	50	AA-2908	60				
1-31-92	51	AA-2908	60				
1-31-92	52	AA-2908	60				
1-31-92	52A	AA-2908	60				
1-31-92	53	AA-2908	60				
1-31-92	54	AA-2871	60				
1-31-92	55	AA-2871	60				

PRELIMINARY

★ = ODD SHAPED PANEL

TOTAL SQUARE FEET THIS PAGE

TOTAL LINEAR FEET THIS PAGE

Richard Brown

PANEL LOG

NILEX

PROJECT NO. HD-91-224 PROJECT K.E.M-5262 W-105 AL-42 (secondary)

DATE	PNL. #	ROLL #	MILS	LENGTH	WIDTH	SQ. FEET	REMARKS
1-31-92	56	AA-3908	60				

★ = ODD SHAPED PANEL

TOTAL SQUARE FEET THIS PAGE

TOTAL LINEAR FEET THIS PAGE

92-12532-1470

H-2-79590

NILEX

JOB NO. HD-91-274 OWNER K.E.H - 5262

PROJECT W-105 A1-42 (secondary) CONTRACTOR G.I.T

GEOMEMBRANE SEAM PRESSURE TESTING LOG

Richard Calvan

SEAM NUMBER	SEGMENT	TIME		OPERATOR	PRESSURE		OBS.	COM.	REMARKS	QA MON.
		START	END		START	END				
1-2	65'	12:17	12:32	Doug	101	100	Rob	Nilex	GA# 2082 A.P.T OK 65'	
1-2	25'	12:35	12:35	Doug	0	0	Rob	Nilex	NIA V.T 25'	
2-3	Fullseam	12:27	12:42	Rob	104	103	Rob	Nilex	GA# 2077 A.P.T OK	
3-4	Fullseam	10:32	10:47	Doug	69	66	Rob	Nilex	GA# 2077 A.P.T OK	
4-5	Fullseam	10:32	10:47	Rob	68	67	Rob	Nilex	GA# 2080 A.P.T OK	
5-6	Fullseam	10:33	10:48	Doug	74	71	Rob	Nilex	GA# 2078 A.P.T OK	
6-7		10:55	10:65	Rob	0	0	Rob	Nilex	NIA V.T. Entire seam	
6-7		11:35	11:50	Rob	66	66	Rob	Nilex	GA# 2082 A.P.T OK	
7-8	Fullseam	10:31	10:46	Doug	73	72	Rob	Nilex	GA# 2078 A.P.T OK	
8-9	Fullseam	2:34	2:49	Rob	101	101	Rob	Nilex	GA# 2078 A.P.T OK	
9-10	Fullseam	2:50	2:50	Doug	0	0	Rob	Nilex	NIA V.T Entire seam	
10-11	Fullseam	2:53	2:53	Rob	0	0	Rob	Nilex	NIA V.T. Entire seam	
11-12	Fullseam	2:54	2:54	Rob	0	0	Rob	Nilex	NIA V.T Entire seam	
12-13	Fullseam	9:51	10:06	Rob	66	66	Rob	Nilex	GA# 2079 A.P.T OK	
13-14	Fullseam	10:00	10:15	Rob	85	85	Rob	Nilex	GA# 2080 A.P.T OK	
14-15	Fullseam	1:26	1:41	Brad	66	66	Rob	Nilex	GA# 2077 A.P.T OK	
15-16	Fullseam	1:04	1:19	Doug	67	65	Rob	Nilex	GA# [illegible]	
16-17	Fullseam	1:04	1:19	Brad	75	74	Rob	Nilex	GA# [illegible]	
17-18	Fullseam	1:08	1:23	Brad	69	67	Rob	Nilex	GA# 2082 A.P.T OK	
18-19	Fullseam	1:57	2:12	Doug	75	73	Rob	Nilex	GA# 2082 A.P.T OK	

PRELIMINARY

9 2 1 2 6 4 2 1 4 7 1

NILEX

H-2-79590

JOB NO. HD-91-774 OWNER K.E.H - 5262

PROJECT W-105 A1-42 (secondary) CONTRACTOR G.I.T

GEOMEMBRANE SEAM PRESSURE TESTING LOG

Richard Gibson

SEAM NUMBER	SEGMENT	TIME		OPERATOR	PRESSURE		OBS.	COM.	REMARKS	QA MON.
		START	END		START	END				
20-21	Fullseam	1:58	2:13	Rob	75	74	Rob	Nilex	GA# 2079 A.P.T OK	
21-22	Fullseam	2:10	2:10	Rob	0	0	Rob	Nilex	N/A V.T Entire seam	
22-23	Fullseam	1:31	1:46	Rob	65	65	Rob	Nilex	GA# 2082 A.P.T OK	
23-24	Fullseam	1:36	1:51	Brad	69	66	Rob	Nilex	GA# 2078 A.P.T OK	
24-25	Fullseam	1:31	1:46	Rob	65	64	Rob	Nilex	GA# 2079 A.P.T OK	
25-26	Fullseam	1:38	1:38	Rob	0	0	Rob	Nilex	N/A V.T. Entire seam	
26-27	Fullseam	11:31	11:46	Brad	72	70	Rob	Nilex	GA# 2079 A.P.T OK	
27-28	Fullseam	11:26	11:41	Brad	71	68	Rob	Nilex	GA# 2082 A.P.T OK	
28-29	Fullseam	11:50	12:05	Rob	66	66	Rob	Nilex	GA# 2078 A.P.T OK	
29-30	Fullseam	11:00	11:15	Rob	77	76	Rob	Nilex	GA# 2079 A.P.T OK	
30-31	Fullseam						Rob	Nilex	GA#	
31-32	Fullseam	10:56	11:11	Rob	75	74	Rob	Nilex	GA# 2082 A.P.T OK	
32-33	Fullseam	10:53	11:08	Rob	79	76	Rob	Nilex	GA# 2078 A.P.T OK	
33-34	Fullseam	10:39	10:54	Doug	68	66	Rob	Nilex	GA# 2079 A.P.T OK	
34-35	Fullseam	10:22	10:37	Rob	66	66	Rob	Nilex	GA# 2078 A.P.T OK	
35-36	Fullseam	10:28	10:28	Rob	0	0	Rob	Nilex	N/A V.T. Entire seam	
36-37	Fullseam	10:31	10:46	Rob	83	82	Rob	Nilex	GA# 2082 A.P.T. OK	
37-38	Fullseam	10:15	10:30	Rob	72	71	Rob	Nilex	GA# 2079 A.P.T OK	
38-39	Fullseam	9:33	9:48	Doug	72	71	Rob	Nilex	GA# 2078 A.P.T OK	
39-40	Fullseam	9:33	9:48	Doug	73	71	Rob	Nilex	GA# 2082 A.P.T OK	

9 2 1 2 6 4 2 1 4 7 2

NILEX

H-2-79590 ZA

JOB NO. HD-91-274 OWNER K.E.H - 5262

PROJECT W-105 A1-42 secondary CONTRACTOR G.I.T

GEOMEMBRANE SEAM PRESSURE TESTING LOG

Richard Cahoon

SEAM NUMBER	SEGMENT	TIME		OPERATOR	PRESSURE		OBS.	COM.	REMARKS	QA MON.
		START	END		START	END				
41-49	Fullseam	2:08	2:23	Rob	76	75	Rob	Nilex	GA # 2079 A.P.T OK	
49-50	Fullseam	10:58	11:13	Rob	89	88	Rob	Nilex	GA # 2078 A.P.T OK	
50-51	Fullseam	10:59	11:14	Rob	74	73	Rob	Nilex	GA # 2082 A.P.T OK	
51-52	Fullseam	11:18	11:33	Rob	69	69	Rob	Nilex	GA # 2078 A.P.T OK	
51-52A	Fullseam	11:15	11:30	Rob	101	100	Rob	Nilex	GA # 2079 A.P.T OK	
52-52A	X-seam	11:18	11:33	Rob	99	96	Rob	Nilex	GA # 2082 A.P.T OK	
52-53	Fullseam	11:20	11:20	Rob	0	0	Rob	Nilex	N/A V.T. Entire seam	
53-54	Fullseam	11:21	11:21	Rob	0	0	Rob	Nilex	N/A V.T. Entire seam	
54-55	Fullseam	12:46	1:01	Rob	89	88	Rob	Nilex	GA # 2079 A.P.T OK	
55-56	Fullseam	12:20	12:35	Rob	65	64	Rob	Nilex	GA # 2079 A.P.T OK	
56-1	Fullseam	12:19	12:34	Rob	66	65	Rob	Nilex	GA # 2078 A.P.T OK	
42-43	Fullseam	9:34	9:49	Doug	65	64	Rob	Nilex	GA # 2079 A.P.T OK	
42-43A	Fullseam	8:54	9:09	Doug	70	69	Rob	Nilex	GA # 2078 A.P.T OK	
43-43A	X-seam	9:00	9:00	Kelly	0	0	Rob	Nilex	N/A V.T. Entire seam	
43-44	Fullseam	9:24	9:39	Doug	96	94	Rob	Nilex	GA # 2082 A.P.T OK	
43A-44	Fullseam	8:54	9:09	Doug	113	110	Rob	Nilex	GA # 2079 A.P.T OK	
44-45	Fullseam	9:27	9:42	Rob	104	101	Rob	Nilex	GA # 2078 A.P.T OK	
44-45A	Fullseam	8:23	9:09	Rob	74	74	Rob	Nilex	GA # 2082 A.P.T OK	
45-45A	X-seam	4:00	4:15	Rob	105	102	Rob	Nilex	GA # 2079 A.P.T OK	
45-46	Fullseam	4:00	4:15	Rob	64	164	Rob	Nilex	GA # 2082 A.P.T OK	

PRELIMINARY

9 2 1 2 6 4 2 1 4 7 3

NILEX

H-2-79590 A

JOB NO. HD-91-774 OWNER K.E.H 5262

PROJECT W-105 AL-42 (secondary) CONTRACTOR G.E.T

GEOMEMBRANE SEAM PRESSURE TESTING LOG

Richard Cahoon

SEAM NUMBER	SEGMENT	TIME		OPERATOR	PRESSURE		OBS.	COM.	REMARKS	QA MON.
		START	END		START	END				
45A-46A	Fullseam	3:23	3:38	Rob	79	79	Rob	Nilex	GA# 2079 A.P.T OK	
46-46A	X-seam	3:27	3:27	Rob	0	0	Rob	Nilex	N/A V.T Entire seam	
46-47	Fullseam	3:50	3:50	Doug	0	0	Rob	Nilex	N/A V.T Entire seam	
46A-47	Fullseam	3:21	3:36	Doug	65	64	Rob	Nilex	GA# 2078 A.P.T OK	
47-48	Fullseam	3:40	3:40	Rob	0	0	Rob	Nilex	N/A V.T Entire seam	
47-48A	Fullseam	3:33	3:48	Rob	67	67	Rob	Nilex	GA# 2082 A.P.T OK	
45-45A	X-seam	3:51	3:51	Rob	0	0	Rob	Nilex	N/A V.T Entire seam	

PRELIMINARY

9 2 2 6 4 2 1 4 7 4

NILEX

JOB NO. HD-91-274 OWNER K.E.H. 5262

PROJECT W-105 A1-42 (secondary) CONTRACTOR G.I.T.

GEOMEMBRANE SEAM PRESSURE TESTING LOG

Richard Cahoon

SEAM NUMBER	SEGMENT	TIME		OPERATOR	PRESSURE		OBS.	COM.	REMARKS	QA MON.
		START	END		START	END				
6-7	41'	10:55	10:55	Rob	0	0	Rob	Nilex	N/A V.T 41' of seam	
6-7	59'	11:35	11:50	Rob	66	66	Rob	Nilex	GA# 2082 A.P.T OK 59'	
30-31	Fullseam	10:23	10:18	Rob	75	74	Rob	Nilex	GA# 2079 A.P.T OK	

PRELIMINARY

9 2 1 2 6 4 2 1 4 7 5

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Anderson
Test Date: 3-30-1992
Report Date: 3-30-1992

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-08-02
Kaiser Proj. No.: W105
Sample No.: W105-C2-404

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First Street
Richland, Washington 99352

Sample #	Trial	Peel Adhesion Max. Load (ppi)	Failure Mode	Seam Shear Strength (ppi)	Failure Mode
W105-C2-404	1	123	F1A	163	F1A
	2	129	F1A	165	F1A
	3	146	F1A	165	F1A
	4	111	F1A	166	F1A
	5	111	F1A	162	F1A
Avg.		124		164	
Std. Dev.:		13		1	

Analyst: Ramirez

Quality Review

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing listed herein is based upon accepted industry practice as well as by the test method listed. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH-QA Officer

PRELIMINARY

9212642147 6

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 43
Location/Seam No.: End
Crew: Anderson
Test Date: 3-30-1992
Report Date: 3-30-1992

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-08-02
Kaiser Proj. No.: W105
Sample No.: W105-C2-403

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First Street
Richland, Washington 99352

Sample #	Trial	Peel Adhesion Max. Load (ppi)	Failure Mode	Seam Shear Strength (ppi)	Failure Mode
W105-C2-403	1	121	F1A	157	F1A
	2	97	F3	163	F1A
	3	138	F1A	164	F1A
	4	98	F3	162	F1A
	5	137	F1A	160	F1A
Avg.		118		161	
Std. Dev.:		18		2	

Analyst: Ramirez

Quality Review

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing listed herein is based upon accepted industry practice as well as by the test method listed. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH-QRA Officer

PRELIMINARY

9 2 1 2 5 3 1 2 1 4 7 7

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Lot No.: N/A
Basin/Vault No.: 42 & 44
Location/Seam No.: End
Crew: Brochey
Test Date: 07-Feb-92
Report Date: 07-Feb-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-08
Kaiser Proj. No.: W105
Sample No.: W105 C2-218

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-218	1	125	F1A	157	F1A
	2	137	F1A	158	F1A
	3	130	F1A	163	F1A
	4	128	F1A	163	F1A
	5	131	F1A	156	F1A
Avg.		130		159	
Std. Dev.:		4		3	

9 2 1 2 6 4 2 1 4 7 8

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

JR
Analyst: Ramirez

DW
Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH - CQA Officer
David McShane

PRELIMINARY

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42 & 44
Location/Seam No.: Start
Crew: Brochey
Test Date: 07-Feb-92
Report Date: 07-Feb-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-08
Kaiser Proj. No.: W105
Sample No.: W105 C2-217

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-217	1	134	F1A	156	F1A
	2	134	F1A	162	F1A
	3	144	F1A	161	F1A
	4	140	F1A	160	F1A
	5	137	F1A	162	F1A
Avg.		138		160	
Std. Dev.:		4		2	

JR
Analyst: Ramirez

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

DW
Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH - CQA Officer
David McShane

PRELIMINARY

9212642179

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Lot No.:	N/A	Peel Method:	ASTM D413
Basin/Vault No.:	42		NSF Modified
Location/Seam No.:	End	Shear Method:	ASTM D3083
Crew:	Anderson		NSF Modified
Test Date:	06-Feb-92	TRI Log No.:	1046-02-07
Report Date:	06-Feb-92	Kaiser Proj. No.:	W105
		Sample No.:	W105 C2-216

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-216	1	115	F1A	153	F1A
	2	124	F1A	153	F1A
	3	119	F1A	152	F1A
	4	120	F1A	153	F1A
	5	118	F1A	154	F1A
Avg.		119		153	
Std. Dev.:		3		1	

JR
Analyst: Ramirez

S. Allen
Quality Review

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH - QA Officer
David McSham

PRELIMINARY

9 2 1 2 6 4 2 1 4 3 0

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Anderson
Test Date: 06-Feb-92
Report Date: 06-Feb-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-07
Kaiser Proj. No.: W105
Sample No.: W105 C2-215

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-215	1	114	F1A	158	F1A
	2	123	F1A	153	F1A
	3	128	F1A	151	F1A
	4	128	F1A	150	F1A
	5	123	F1A	156	F1A
Avg.		123		154	
Std. Dev.:		5		3	

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH - CQA Officer

PRELIMINARY

9212614931

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-214
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Repairs End
Crew: Brochey
Test Date: 02-05-92
Report Date: 02-05-92

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-214	1	140	F1A	157	F1A
	2	118	F1A	161	F1A
	3	132	F1A	158	F1A
	4	128	F1A	158	F1A
	5	136	F1A	158	F1A
Avg.		131		158	
Std. Dev.:		8		1	

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

HEI - QA Officer
David McShane

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 5 4 2 1 4 3 2

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: End
Crew: Gerry
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-213

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-213	1	148	F1A	163	F1A
	2	142	F1A	163	F1A
	3	130	F1A	163	F1A
	4	138	F1A	161	F1A
	5	144	F1A	162	F1A
	6	138	F1A		
	7	146	F1A		
	8	140	F1A		
	9	128	F1A		
	10	134	F1A		
Avg.		139		162	
Std. Dev.:		6		1	

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review:

KEH - QA Officer

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9212541193

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-212
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Repairs
Crew: Brochey
Test Date: 02-05-92
Report Date: 02-05-92

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-212	1	130	F1A	159	F1A
	2	130	F1A	158	F1A
	3	132	F1A	158	F1A
	4	132	F1A	158	F1A
	5	118	F1A	156	F1A
Avg.		128		158	
Std. Dev.:		5		1	

JR
Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

KEH - QA Officer
David McShane

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 6 4 2 1 4 3 4

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Gerry
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-211

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-211	1	140	F1A	162	F1A
	2	140	F1A	162	F1A
	3	142	F1A	156	F1A
	4	136	F1A	156	F1A
	5	144	F1A	152	F1A
	6	138	F1A		
	7	134	F1A		
	8	136	F1A		
	9	146	F1A		
	10	144	F1A		
Avg.		140		158	
Std. Dev.:		4		4	

9 2 1 2 6 4 2 1 4 3 5

JR
Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review: KEH - QA Officer
David McShane

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: End
Crew: Brochey
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-210

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-210	1	136	F1A	160	F1A
	2	132	F1A	159	F1A
	3	126	F1A	158	F1A
	4	123	F1A	158	F1A
	5	125	F1A	158	F1A
Avg.		128		159	
Std. Dev.:		5		1	

JR
Analyst: Ramirez

S. Allen
Quality Review

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH - QA Officer
David E. McGhee

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Brochey
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-209

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-209	1	127	F1A	156	F1A
	2	124	F1A	161	F1A
	3	122	F1A	161	F1A
	4	123	F1A	160	F1A
	5	127	F1A	157	F1A
Avg.		125		159	
Std. Dev.:		2		2	

JR
Analyst: Ramirez

S. Allen
Quality Review

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH QCM Officer
David McGrane

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: End
Crew:
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-208

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-208	1	138	F1A	153	F1A
	2	138	F1A	154	F1A
	3	138	F1A	159	F1A
	4	139	F1A	154	F1A
	5	141	F1A	155	F1A
Avg.		139		155	
Std. Dev.:		1		2	

Analyst: Ramirez

Quality Review

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEI - QA Officer

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Manderfield
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-207

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-207	1	103	F1A	158	F1A
	2	124	F1A	157	F1A
	3	122	F1A	156	F1A
	4	128	F1A	153	F1A
	5	108	F1A	162	F1A
Avg.		117		157	
Std. Dev.:		10		3	

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH, QA Officer

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: 49-50
Crew: Anderson
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-206

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-206	1	138	F1A	156	F1A
	2	138	F1A	158	F1A
	3	140	F1A	158	F1A
	4	148	F1A	158	F1A
	5	140	F1A	158	F1A
	6	147	F1A		
	7	143	F1A		
	8	145	F1A		
	9	138	F1A		
	10	148	F1A		
Avg.		143		158	
Std. Dev.:		4		1	

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: End
Crew: Anderson
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-205

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-205	1	143	F1A	163	F1A
	2	133	F1A	163	F1A
	3	139	F1A	163	F1A
	4	141	F1A	163	F1A
	5	138	F1A	163	F1A
	6	136	F1A		
	7	141	F1A		
	8	138	F1A		
	9	139	F1A		
	10	138	F1A		
Avg.		139		163	
Std. Dev.:		3		0	

JR
Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

S. Allen
Quality Review

KEH - CQA Director
David McShane

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 6 4 2 1 4 9 1

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Mid
Crew: Anderson
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-204

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-204	1	137	F1A	165	F1A
	2	128	F1A	163	F1A
	3	138	F1A	163	F1A
	4	128	F1A	158	F1A
	5	140	F1A	163	F1A
	6	140	F1A		
	7	145	F1A		
	8	140	F1A		
	9	150	F1A		
	10	146	F1A		
Avg.		139		162	
Std. Dev.:		7		2	

JR
Analyst: Ramirez

S. Allen
Quality Review

KEH - QRA Officer
David McGrew

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 6 4 2 1 4 9 2

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Anderson
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-203

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-203	1	138	F1A	165	F1A
	2	139	F1A	166	F1A
	3	147	F1A	158	F1A
	4	139	F1A	165	F1A
	5	141	F1A	167	F1A
	6	145	F1A		
	7	143	F1A		
	8	147	F1A		
	9	141	F1A		
	10	144	F1A		
Avg.		142		164	
Std. Dev.:		3		3	

JR
Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

S. Allen
Quality Review

KEH - QA Officer
David McShane

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: End
Crew: Brochey
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-202

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-202	1	139	F1A	161	F1A
	2	136	F1A	161	F1A
	3	113	F1A	163	F1A
	4	112	F1A	163	F1A
	5	121	F1A	163	F1A
Avg.		124		162	
Std. Dev.:		11		1	

Analyst: Ramirez

Quality Review

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH - QA Officer

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Mid
Crew: Brochey
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-201

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-201	1	137	F1A	163	F1A
	2	140	F1A	158	F1A
	3	141	F1A	159	F1A
	4	141	F1A	163	F1A
	5	133	F1A	163	F1A
Avg.		138		161	
Std. Dev.:		3		2	

Analyst: Ramirez

Quality Review

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH - QA Officer

PRELIMINARY

9 2 1 2 6 4 2 1 4 9 5

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Brochey
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-200

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-200	1	126	F1A	161	F1A
	2	122	F1A	161	F1A
	3	133	F1A	162	F1A
	4	123	F1A	161	F1A
	5	122	F1A	158	F1A
Avg.		125		161	
Std. Dev.:		4		1	

JR
Analyst: Ramirez

S. Allen
Quality Review

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH - QRA Officer
David McShane

PRELIMINARY

9 2 1 2 6 4 2 1 4 9 6

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: End
Crew: Manderfield
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-199

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-199	1	114	F1A	162	F1A
	2	121	F1A	163	F1A
	3	110	F1A	163	F1A
	4	118	F1A	163	F1A
	5	105	F1A	161	F1A
Avg.		114		162	
Std. Dev.:		6		1	

Analyst: Ramirez

Quality Review

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH - QA Officer

PRELIMINARY

9 2 1 2 6 4 2 1 4 9 7

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Manderfield
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-198

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-198	1	108	F1A	162	F1A
	2	129	F1A	162	F1A
	3	133	F1A	162	F1A
	4	121	F1A	163	F1A
	5	128	F1A	163	F1A
Avg.		124		162	
Std. Dev.:		9		0	

Analyst: Ramirez

Quality Review

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

KEH - QA Officer

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: East Floor Tie In
Crew: Anderson
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-197

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-197	1	134	F1A	163	F1A
	2	148	F1A	162	F1A
	3	144	F1A	163	F1A
	4	139	F1A	163	F1A
	5	145	F1A	159	F1A
	6	138	F1A		
	7	142	F1A		
	8	143	F1A		
	9	133	F1A		
	10	132	F1A		
Avg.		140		162	
Std. Dev.:		5		2	

9 2 1 2 6 4 2 1 1 9 9

JR
Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

S. Alles
Quality Review

KEH QQA Officer

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: West Floor Tie In
Crew: Gerry
Test Date: 02-04-92
Report Date: 02-04-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-02
Kaiser Proj. No.: W105
Sample No.: W105 C2-196

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-196	1	134	F1A	160	F1A
	2	134	F1A	160	F1A
	3	143	F1A	160	F1A
	4	134	F1A	159	F1A
	5	142	F1A	161	F1A
	6	148	F1A		
	7	133	F1A		
	8	143	F1A		
	9	143	F1A		
	10	142	F1A		
Avg.		140		160	
Std. Dev.:		5		1	

9 2 1 2 6 4 2 1 5 0 0

JR
Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

S. Adler
Quality Review

KEH - QA Officer
David McClure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: End
Crew: Gerry
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-195

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-195	1	136	F1A	156	F1A
	2	140	F1A	158	F1A
	3	140	F1A	154	F1A
	4	138	F1A	158	F1A
	5	136	F1A	153	F1A
	6	134	F1A		
	7	140	F1A		
	8	136	F1A		
	9	136	F1A		
	10	138	F1A		
Avg.		137		156	
Std. Dev.:		2		2	

JR
Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review: KEH - QA Officer
David McShane

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9212512501

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: End
Crew: Anderson
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-194

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-194	1	140	F1A	157	F1A
	2	134	F1A	154	F1A
	3	140	F1A	158	F1A
	4	140	F1A	158	F1A
	5	138	F1A	153	F1A
	6	136	F1A		
	7	138	F1A		
	8	138	F1A		
	9	136	F1A		
	10	136	F1A		
Avg.		138		156	
Std. Dev.:		2		2	

JR
Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

HEN - QA Officer
David McShane

The testing herein is based upon accepted industry practice as well as by the test method. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 6 4 2 1 5 0 2

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Mid-day
Crew: Gerry
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-193

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-193	1	138	F1A	156	F1A
	2	136	F1A	166	F1A
	3	130	F1A	166	F1A
	4	134	F1A	160	F1A
	5	140	F1A	162	F1A
	6	136	F1A		
	7	144	F1A		
	8	134	F1A		
	9	138	F1A		
	10	138	F1A		
Avg.		137		162	
Std. Dev.:		4		4	

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9212642150 3

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Mid-day
Crew: Anderson
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-192

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-192	1	128	F1A	158	F1A
	2	128	F1A	159	F1A
	3	134	F1A	158	F1A
	4	136	F1A	156	F1A
	5	138	F1A	153	F1A
	6	130	F1A		
	7	136	F1A		
	8	138	F1A		
	9	130	F1A		
	10	144	F1A		
Avg.		134		157	
Std. Dev.:		5		2	

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review KEH - QA Officer

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9212642150d

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Gerry
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-191

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-191	1	144	F1A	160	F1A
	2	138	F1A	160	F1A
	3	140	F1A	159	F1A
	4	140	F1A	158	F1A
	5	138	F1A	158	F1A
	6	132	F1A		
	7	142	F1A		
	8	132	F1A		
	9	132	F1A		
	10	136	F1A		
Avg.		137		159	
Std. Dev.:		4		1	

9 2 1 2 6 4 2 1 5 0 5

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review: KEN COA COPY

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Anderson
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-190

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-190	1	136	F1A	158	F1A
	2	134	F1A	157	F1A
	3	118	F1B	158	F1A
	4	132	F1B	157	F1A
	5	138	F1A	153	F1A
	6	136	F1A		
	7	134	F1A		
	8	132	F1A		
	9	138	F1A		
	10	138	F1A		
Avg.		134		157	
Std. Dev.:		6		2	

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: 42-43
Crew: Gerry
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-189

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-189	1	140	F1A	153	F1A
	2	128	F1A	157	F1A
	3	136	F1A	156	F1A
	4	134	F1A	153	F1A
	5	138	F1A	153	F1A
	6	134	F1A		
	7	134	F1A		
	8	132	F1A		
	9	138	F1A		
	10	136	F1A		
Avg.		135		154	
Std. Dev.:		3		2	

Analyst: Ramirez

Quality Review

KEN. COA. SPEC.

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: 32-33
Crew: Anderson
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-188

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-188	1	136	F1A	158	F1A
	2	138	F1A	157	F1A
	3	134	F1A	155	F1A
	4	138	F1A	151	F1A
	5	136	F1A	151	F1A
	6	140	F1A		
	7	130	F1A		
	8	122	F1A		
	9	134	F1A		
	10	138	F1A		
Avg.		135		154	
Std. Dev.:		5		3	

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review KEH - QA Officer

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 5 4 2 1 5 0 8

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: 32-33
Crew: Anderson
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-188

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-188	1	136	F1A	158	F1A
	2	138	F1A	157	F1A
	3	134	F1A	155	F1A
	4	138	F1A	151	F1A
	5	136	F1A	151	F1A
	6	140	F1A		
	7	130	F1A		
	8	122	F1A		
	9	134	F1A		
	10	138	F1A		
Avg.		135		154	
Std. Dev.:		5		3	

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review KEH - QQA Officer

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 6 4 2 1 5 0 9

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: 40-41
Crew: Gerry
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-187

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-187	1	142	F1A	158	F1A
	2	136	F1A	157	F1A
	3	138	F1A	156	F1A
	4	142	F1A	154	F1A
	5	138	F1A	152	F1A
	6	138	F1A		
	7	144	F1A		
	8	140	F1A		
	9	136	F1A		
	10	136	F1A		
Avg.		139		155	
Std. Dev.:		3		2	

9 2 1 2 6 4 2 1 5 1 0

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: 45-46
Crew: Anderson
Test Date: 02-05-92
Report Date: 02-05-92

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-02-04
Kaiser Proj. No.: W105
Sample No.: W105 C2-186

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-186	1	144	F1A	163	F1A
	2	138	F1A	158	F1A
	3	136	F1A	156	F1A
	4	136	F1A	158	F1A
	5	134	F1A	152	F1A
	6	138	F1A		
	7	132	F1A		
	8	138	F1A		
	9	142	F1A		
	10	146	F1A		
Avg.		138		157	
Std. Dev.:		4		4	

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 6 4 2 1 5 1 1

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Lot No.:	N/A	Peel Method:	ASTM D413
Basin/Vault No.:	42		NSF Modified
Location/Seam No.:	27-28	Shear Method:	ASTM D3083
Crew:	Stambaugh		NSF Modified
Test Date:	02-05-92	TRI Log No.:	1046-02-04
Report Date:	02-05-92	Kaiser Proj. No.:	W105
		Sample No.:	W105 C2-185

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-185	1	136	F1A	158	F1A
	2	144	F1A	158	F1A
	3	136	F1A	157	F1A
	4	144	F1A	157	F1A
	5	138	F1A	155	F1A
	6	138	F1A		
	7	138	F1A		
	8	140	F1A		
	9	140	F1A		
	10	140	F1A		
Avg.		139		157	
Std. Dev.:		3		1	

9 2 1 2 6 4 2 1 5 1 2

Analyst: Ramirez

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

KEH - QQA OFFICER

The testing herein is based upon accepted industry practice as well as by the test method. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

42

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-01-10
Kaiser Proj. No.: W105
Sample No.: W105 C2-184
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: End
Crew: Gerry
Test Date: 01-29-92
Report Date: 01-29-92

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-184	1	143	F1A	161	F1A
	2	130	F1A	157	F1A
	3	126	F1A	158	F1A
	4	137	F1A	159	F1A
	5	136	F1A	161	F1A
	6	137	F1A		
	7	128	F1A		
	8	138	F1A		
	9	127	F1A		
	10	141	F1A		
Avg.		134		159	
Std. Dev.:		6		2	

KEH - QA Officer
David McShane

JR
Analyst: Ramirez

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 6 4 2 1 5 1 3

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-01-10
Kaiser Proj. No.: W105
Sample No.: W105 C2-183
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: End
Crew: Anderson
Test Date: 01-29-92
Report Date: 01-29-92

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-183	1	150	F1A	157	F1A
	2	147	F1A	157	F1A
	3	139	F1A	163	F1A
	4	138	F1A	158	F1A
	5	143	F1A	158	F1A
	6	142	F1A		
	7	140	F1A		
	8	142	F1A		
	9	137	F1A		
	10	138	F1A		
Avg.		142		159	
Std. Dev.:		4		2	

KEH - QA Officer

JR
Analyst: Ramirez

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-01-10
Kaiser Proj. No.: W105
Sample No.: W105 C2-182
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: End
Crew: Stambaugh
Test Date: 01-29-92
Report Date: 01-29-92

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-182	1	138	F1A	162	F1A
	2	143	F1A	163	F1A
	3	143	F1A	163	F1A
	4	148	F1A	163	F1A
	5	138	F1A	161	F1A
	6	138	F1A		
	7	138	F1A		
	8	142	F1A		
	9	143	F1A		
	10	134	F1A		
Avg.		141		162	
Std. Dev.:		4		1	

KEIL - CQA OFFICER

Analyst: Ramirez

Quality Review

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 6 4 2 1 5 1 5

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-01-10
Kaiser Proj. No.: W105
Sample No.: W105 C2-181
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Mid-Day
Crew: Anderson
Test Date: 01-29-92
Report Date: 01-29-92

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-181	1	138	F1A	160	F1A
	2	138	F1A	161	F1A
	3	136	F1A	161	F1A
	4	140	F1A	160	F1A
	5	138	F1A	161	F1A
	6	141	F1A		
	7	142	F1A		
	8	141	F1A		
	9	138	F1A		
	10	138	F1A		
Avg.		139		161	
Std. Dev.:		2		0	

KEL - QA Officer

Analyst: Ramirez

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 6 4 2 1 5 1 6

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-01-10
Kaiser Proj. No.: W105
Sample No.: W105 C2-180
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: 9-10
Crew: Gerry
Test Date: 01-29-92
Report Date: 01-29-92

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-180	1	139	F1A	158	F1A
	2	133	F1A	158	F1A
	3	135	F1A	158	F1A
	4	130	F1A	158	F1A
	5	139	F1A	157	F1A
	6	136	F1A		
	7	134	F1A		
	8	138	F1A		
	9	129	F1A		
	10	136	F1A		
Avg.		135		158	
Std. Dev.:		3		0	

KEH QRA Officer

Analyst: Ramirez

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9 2 1 2 6 4 2 1 5 1 7

42

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-01-10
Kaiser Proj. No.: W105
Sample No.: W105 C2-179
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: 16-17
Crew: Stambaugh
Test Date: 01-29-92
Report Date: 01-29-92

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-179	1	140	F1A	162	F1A
	2	137	F1A	162	F1A
	3	143	F1A	162	F1A
	4	144	F1A	160	F1A
	5	149	F1A	160	F1A
	6	142	F1A		
	7	143	F1A		
	8	141	F1A		
	9	145	F1A		
	10	148	F1A		
Avg.		143		161	
Std. Dev.:		3		1	

KEH - QAA Officer
David McKeen

JR
Analyst: Ramirez

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

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42

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method:	ASTM D413 NSF Modified
Shear Method:	ASTM D3083 NSF Modified
TRI Log No.:	1046-01-10
Kaiser Proj. No.:	W105
Sample No.:	W105 C2-178
Lot No.:	N/A
Basin/Vault No.:	42
Location/Seam No.:	Start
Crew:	Stambaugh
Test Date:	01-29-92
Report Date:	01-29-92

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-178	1	141	F1A	157	F1A
	2	143	F1A	157	F1A
	3	140	F1A	157	F1A
	4	150	F1A	157	F1A
	5	138	F1A	163	F1A
	6	150	F1A		
	7	147	F1A		
	8	143	F1A		
	9	137	F1A		
	10	145	F1A		
Avg.		143		158	
Std. Dev.:		4		2	

KEH - QA Officer
David McKean

JR
Analyst: Ramirez

Quality Review

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9212642159

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-01-10
Kaiser Proj. No.: W105
Sample No.: W105 C2-177
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: 11-12
Crew: Anderson
Test Date: 01-29-92
Report Date: 01-29-92

9 2 1 2 6 4 2 1 5 2 0

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-177	1	136	F1A	160	F1A
	2	140	F1A	161	F1A
	3	140	F1A	162	F1A
	4	140	F1A	161	F1A
	5	139	F1A	158	F1A
	6	139	F1A		
	7	137	F1A		
	8	134	F1A		
	9	140	F1A		
	10	144	F1A		
Avg.		139		160	
Std. Dev.:		3		1	

KEH - QA Officer
David McShane

JR
Analyst: Ramirez

Quality Review

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-01-10
Kaiser Proj. No.: W105
Sample No.: W105 C2-176
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Mid-Day
Crew: Gerry
Test Date: 01-29-92
Report Date: 01-29-92

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-176	1	129	F1A	159	F1A
	2	135	F1A	162	F1A
	3	142	F1A	162	F1A
	4	138	F1A	162	F1A
	5	134	F1A	157	F1A
	6	139	F1A		
	7	140	F1A		
	8	139	F1A		
	9	143	F1A		
	10	140	F1A		
Avg.		138		160	
Std. Dev.:		4		2	

KEH - QA Officer

Analyst: Ramirez

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-01-10
Kaiser Proj. No.: W105
Sample No.: W105 C2-175
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Anderson
Test Date: 01-29-92
Report Date: 01-29-92

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-175	1	140	F1A	160	F1A
	2	140	F1A	162	F1A
	3	139	F1A	159	F1A
	4	146	F1A	159	F1A
	5	143	F1A	158	F1A
	6	140	F1A		
	7	143	F1A		
	8	143	F1A		
	9	140	F1A		
	10	137	F1A		
Avg.		141		160	
Std. Dev.:		2		1	

KEH - COA Officer

Analyst: Ramirez

Quality Review

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

The testing herein is based upon accepted industry practice as well as by the test method.
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

9 2 1 2 6 4 2 1 5 2 2

SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method: ASTM D413 NSF Modified
Shear Method: ASTM D3083 NSF Modified
TRI Log No.: 1046-01-10
Kaiser Proj. No.: W105
Sample No.: W105 C2-174
Lot No.: N/A
Basin/Vault No.: 42
Location/Seam No.: Start
Crew: Gerry
Test Date: 01-29-92
Report Date: 01-29-92

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105 C2-174	1	134	F1A	163	F1A
	2	140	F1A	163	F1A
	3	107	F1A	162	F1A
	4	145	F1A	163	F1A
	5	141	F1A	162	F1A
	6	142	F1A		
	7	143	F1A		
	8	140	F1A		
	9	100	F3		
	10	111	F3		
Avg.		130		163	
Std. Dev.:		16		0	

KEH - CQA Officer
David A. [illegible]

JR
Analyst: Ramirez

* Key to Failure Modes
F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

Quality Review

The testing herein is based upon accepted industry practice as well as by the test method.
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SEAM STRENGTH LABORATORY REPORT

TRI/Environmental, Inc.
9063 Bee Caves Road
Austin, Texas 78733

Kaiser Engineers Hanford Co.
Attn: Mr. Larry Gaddis
801 First St.
Richland, WA 99352

Peel Method:	ASTM D413 NSF Modified	Project No.:	W105
		Sample No.:	W105C2-144
Shear Method:	ASTM D3083 NSF Modified	Lot No.:	N/A
		Basin/Vault No.:	N/A
TRI Log No.:	415-114-7	Location/Seam No.:	Demonstration
Test Date:	01-9-92		11/5/91
Report Date:	01-10-92	Crew:	Anderson

Sample #	Trial #	Peel Adhesion Max. Load (lbs/inch width)	Failure Mode*	Seam Shear Strength (lbs)	Failure Mode*
W105C2-144	1	143	F1A	155	F1A
	2	134	F1A	157	F1A
	3	142	F1A	157	F1A
	4	137	F1A	161	F1A
	5	140	F1A	160	F1A
	6	142	F1A		
	7	133	F1A		
	8	138	F1A		
	9	138	F1A		
	10	138	F1A		
Avg.		139		158	
Std. Dev.:		3		2	

Analyst/Ramirez

Quality Review

KEH - CQA Officer

* Key to Failure Modes

F1A Film Tearing Bond (Ductile)
F1B Film Tearing Bond (>50% Peel Prior to Tear)
F2 Brittle Liner Failure
F3 Seam Failure

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TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

PRELIMINARY

9212652152 4

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