



GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER: 14C-152

OWNER: BAFFINLAD NU

LOCATION: Marry River NU

PROJECT TITLE: Baffinland MRP Tank Farm

CONTRACTOR: Nuna Logistics

GEOMEMBRANE SECONDARY PRIMARY CLOSURE OTHER

SURGRADE CONDITION (SURFACE COMPACTION, PROTRUSIONS, DESICCATION, EXCESSIVE MOISTURE):

REMARKS: Installation of underlay LP12 Geotextile and Hazard 535 and overlay of LP12 Geotextile

DATE: 08-Sep-13

SHEET NUMBER: 1

DEPLOYMENT EQUIPMENT:

	PANEL LOCATION REFERENCE NUMBER 1	PANEL LOCATION REFERENCE NUMBER 2	PANEL LOCATION REFERENCE NUMBER 3
PANEL/ROLL NUMBER	300685	N/ROLL#	N/ROLL#
DEPLOYMENT LENGTH	60.35m X 14.32m	60.35m X 14.32m	9.8m X 28.65
AMBIENT AIR TEMP.	-5	-5	-5
VISUAL OBSERVATION	good	good	good
OBSERVED OVERLAP	5"	5"	5"
CHECKED BY	Y.E	Y.E	Y.E
ADJACENT PANEL	N= trench S= 2 E= 5 W= trench	N= 1 S= 3,4 E= 5 W= trench	N= 2 S= trench E= trench W= 4

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER 4	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER
PANEL/ROLL NUMBER	N/ROLL#		
DEPLOYMENT LENGTH	12.4m X 9.6m		
AMBIENT AIR TEMP.	-5		
VISUAL OBSERVATION	good		
OBSERVED OVERLAP	5"		
CHECKED BY	Y.E		
ADJACENT PANEL	N= 2 S= trench E= 3 W= trench	N= S= E= W=	N= S= E= W=

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER
PANEL/ROLL NUMBER			
DEPLOYMENT LENGTH			
AMBIENT AIR TEMP.			
VISUAL OBSERVATION			
OBSERVED OVERLAP			
CHECKED BY			
ADJACENT PANEL	N= S= E= W=	N= S= E= W=	N= S= E= W=

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER
PANEL/ROLL NUMBER			
DEPLOYMENT LENGTH			
AMBIENT AIR TEMP.			
VISUAL OBSERVATION			
OBSERVED OVERLAP			
CHECKED BY			
ADJACENT PANEL	N= S= E= W=	N= S= E= W=	N= S= E= W=

SUBMITTED BY: Y.E

DATE: 10-Sep-13

**LAYFIELD****GEOMEMBRANE DEPLOYMENT LOG**

PROJECT NUMBER: 14C-152

PROJECT TITLE: Baffinland MRP Tank Farm

OWNER: BAFFINLAD NU

CONTRACTOR: Nuna Logistics

LOCATION: Marry River NU

GEOMEMBRANE SECONDARY PRIMARY CLOSURE OTHER

SUBGRADE CONDITION (SURFACE COMPACTION, PROTRUSIONS, DESICCATION, EXCESSIVE MOISTURE):

REMARKS: Installation of underlay LP12 Geotextile and Hazard 535 and overlay of LP12 Geotextile

DATE: 09-Sep-13

SHEET NUMBER: 2

DEPLOYMENT EQUIPMENT:

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER
PANEL/ROLL NUMBER	N/ROLL#		
DEPLOYMENT LENGTH	28.9m X 10.66m		
AMBIENT AIR TEMP.	-2		
VISUAL OBSERVATION	Good		
OBSERVED OVERLAP	5"		
CHECKED BY	Y.E		
ADJACENT PANEL	N= Trench S= Trench E= Trench W= 1,2	N= S= E= W=	N= S= E= W=
PANEL/ROLL NUMBER			
DEPLOYMENT LENGTH			
AMBIENT AIR TEMP.			
VISUAL OBSERVATION			
OBSERVED OVERLAP			
CHECKED BY			
ADJACENT PANEL	N= S= E= W=	N= S= E= W=	N= S= E= W=
PANEL/ROLL NUMBER			
DEPLOYMENT LENGTH			
AMBIENT AIR TEMP.			
VISUAL OBSERVATION			
OBSERVED OVERLAP			
CHECKED BY			
ADJACENT PANEL	N= S= E= W=	N= S= E= W=	N= S= E= W=
PANEL/ROLL NUMBER			
DEPLOYMENT LENGTH			
AMBIENT AIR TEMP.			
VISUAL OBSERVATION			
OBSERVED OVERLAP			
CHECKED BY			
ADJACENT PANEL	N= S= E= W=	N= S= E= W=	N= S= E= W=

SUBMITTED BY: Y.E

DATE: 10-Sep-13

GEOMEMBRANE TRIAL SEAM LOG

PROJECT NUMBER: 14C-152

PROJECT TITLE: Baffinland MRP Tank Farm

OWNER: BAFFINLAND

CONTRACTOR: Nuna Logistics

LOCATION: Marry River NU

SHEET NUMBER: 1

TF - # FUSION

X TX - # = EXTRUSION

TS - # = SOLVENT

[illegible]

LS FORM 3

LAYFIELD ENVIRONMENTAL SYSTEMS

SUBMITTED BY: _____
DATE: _____



GEOMEMBRANE SEAM LOG

PROJECT NUMBER:

14C-152

PROJECT TITLE:

Baffinland MRP Tank Farm

OWNER:

Baffinland

CONTRACTOR:

Nuna Logistics

LOCATION:

Marry River NU

PASSING TRIAL SEAMS

☒ FUSION

☐ EXTRUSION

☐ SOLVENT

NO.	TIME	TECH ID
TF-1	12:00	Y.E

SHEET NUMBER: 1

DATE: 08-Sep-13

SEAM NUMBER	SEAM SECTION * START POINT FINISH POINT	APPROX. START TIME	AMB. AIR TEMP.	WELD TECH.	PREHEAT OR MACH. SPEED	MACHINE TEMPERATURES		APPROX. LENGTH WELDED (M)	DESTR. NUMBER	CHK'D BY	REMARKS	NON- DESTRUCTIVE	
						DIGITAL SET	INDICATOR					TEST DATE	CHECKED BY
						WEDGE OR BARREL	WEDGE OR BARREL						
1 / 3	EEOS TO WEOS	12:38	-3	Y.E	47%	750	750	60.4		Y.E			
3 / 4	NEOS TO SEOS	14:28	-3	Y.E	47%	750	750	9.6		Y.E			
3,4 / 2	WEOS TO EEOS	15:30	-3	Y.E	47%	750	750	41.4		Y.E			
/ 2	NEOS TO SEOS	15:45	-3	Y.E	47%	750	750	1.0		Y.E			
/													
/													
/													
/													
/													
/													
/													
DAILY TOTAL								112.3					

* REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR, OR A POINT LOCATION ON THE SEAM.

SUBMITTED BY: Y.E

DATE: 10-Sep-13



GEOMEMBRANE SEAM LOG

PROJECT NUMBER: 14C-152 PROJECT TITLE: Baffinland MRP Tank Farm
OWNER: Baffinland CONTRACTOR: Nuna Logistics
LOCATION: Marry River NU

PASSING TRIAL SEAMS

☒ FUSION

☐ EXTRUSION

☐ SOLVENT

NO.	TIME	TECH ID
TF-2	14:00	Y.E

SHEET NUMBER: 2

DATE: 09-Sep-13

SEAM NUMBER	SEAM SECTION * START POINT FINISH POINT	APPROX. START TIME	AMB. AIR TEMP.	WELD TECH.	PREHEAT OR MACH. SPEED	MACHINE TEMPERATURES		APPROX. LENGTH WELDED (M)	DESTR. NUMBER	CHK'D BY	REMARKS	NON- DESTRUCTIVE	
						DIGITAL SET	INDICATOR					TEST DATE	CHECKED BY
						WEDGE OR BARREL	WEDGE OR BARREL						
1,2 / 5	NEOS TO SEOS	18:07	-4	Y.E	47%	750	750	28.9		Y.E			
/													
/													
/													
/													
/													
/													
/													
/													
/													
/													
DAILY TOTAL								28.9					

* REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR, OR A POINT LOCATION ON THE SEAM.

LS FORM 4

LAYFIELD ENVIRONMENTAL SYSTEMS

SUBMITTED BY: Y.E
DATE: 10-Sep-13



GEOMEMBRANE DEFECT / REPAIR LOG

PROJECT NUMBER: 14C-152

PROJECT TITLE: Baffinland MRP Tank Farm

OWNER: Baffinland

CONTRACTOR: Nuna Logistics

LOCATION: Merry River NU

SHEET NUMBER: 1

DEFECT CODE	LOG DATE	DEFECT LOCATION		DEFECT TYPE	REPAIR TYPE	WELD TECH.		REPAIR DATE	REMARKS **	TEST DATE	CHECKED BY
		SEAM OR PANEL NO.	DEFECT LOCATION DESCRIPTION								
1 A	09-Sep-13	1 / 2	7m WEOS TO EEOS	BO	P G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 B	09-Sep-13	1 / 2	10m WEOS TO EEOS	BO	P G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 C	09-Sep-13	1 / 2	13.4m WEOS TO EEOS	FM	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 D	09-Sep-13	4 / 2	2.13m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 E	09-Sep-13	4 / 2	5.7m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 F	09-Sep-13	4 / 2	9.1m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 G	09-Sep-13	3,4 / 2	12.1m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 H	09-Sep-13	3 / 2	15.24m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 I	09-Sep-13	3 / 2	18.8m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 J	09-Sep-13	3 / 2	20.4m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 K	09-Sep-13	3 / 2	1 m South of 1J	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 L	09-Sep-13	3 / 2	22.4m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 M	09-Sep-13	3 / 2	26.2m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 N	09-Sep-13	3 / 2	29.87m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 O	09-Sep-13	3 / 2	33.5m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 P	09-Sep-13	3 / 2	37.18m WEOS TO EEOS	T	G&W	Y.E		09-Sep-13		09-Sep-13	Y.E
1 Q	10-Sep-13	1 / 5	3.5m From NEOS TO SEOS	T	G&W	Y.E		10-Sep-13		10-Sep-13	Y.E
1 R	10-Sep-13	1 / 5	5.7m From NEOS TO SEOS	T	G&W	Y.E		10-Sep-13		10-Sep-13	Y.E
1 S	10-Sep-13	1 / 5	9.4m From NEOS TO SEOS	T	G&W	Y.E		10-Sep-13		10-Sep-13	Y.E
1 T	10-Sep-13	1,2 / 5	13.10m from NEOS TO SEOS	T	G&W	Y.E		10-Sep-13		10-Sep-13	Y.E

DEFECT TYPE: AD - ANIMAL RELATED DAMAGE

FE - EARTHWORK EQUIPMENT DAMAGE

PT - PRESSURE TEST CUT

B - UNDISPERSED RESIN BEAD

EXT - EXTENSION

SI - SOIL SURFACE IRREGULARITY

BO - FUSION WELDER BURN

FM - FISHMOUTH

SL - SLAG ON TEXTURED SHEET

BS - BOOT/SKIRT FROM FML PENETRATION

FS - FAULTY SEAM LENGTH

T - THREE PANEL INTERSECTION

CO - CHANGE OF OVERLAP

FYS - FIELD TEST STRIP

VL - VACUUM TEST LEAK

CR - CREASE

HT - HEAT JACK BURN

WR - WRINKLE

D - INSTALLATION DAMAGE

IO - INSUFFICIENT OVERLAP (UNDER SPEC.)

WS - WELDER RESTART

DS - DESTRUCTIVE TEST NUMBER

MD - MANUFACTURER/DELIVERY DAMAGE

OTHER:

REPAIR TYPE: P - PATCH, C - CAP, RS - RECONSTRUCTED SEAM, G&W - GRIND WELD

PASSING TRIAL SEAMS		
NO.	TIME	TECH ID.
TX-1	16:30	Y.E
TX-2	10:30	Y.E

** COLUMNS TO BE USED BY THE PROJECT SUPERVISOR OR LEAD TECHNICIAN ONLY.

LPL FORM 7

LAYFIELD ENVIRONMENTAL SYSTEMS

SUBMITTED BY: Y.E

DATE: 15-Sep-13

**LAYFIELD**

GEOMEMBRANE DEFECT / REPAIR LOG

PROJECT NUMBER: 14C-152

PROJECT TITLE: Baffinland MRP Tank Farm

OWNER: Baffinland

CONTRACTOR: Nuna Logistics

LOCATION: Mirry River NU

SHEET NUMBER: 1

DEFECT CODE	LOG DATE	DEFECT LOCATION		DEFECT TYPE	REPAIR TYPE	WELD TECH.		REPAIR DATE	REMARKS **	TEST DATE	CHECKED BY
		SEAM OR PANEL NO.	DEFECT LOCATION DESCRIPTION								
2 A	10-Sep-13	2 / 5	16.45m From NEOS TO SEOS	T	G&W	Y.E		10-Sep-13		10-Sep-13	Y.E
2 B	10-Sep-13	2 / 5	19.50m From NEOS TO SEOS	T	G&W	Y.E		10-Sep-13		10-Sep-13	Y.E
2 C	10-Sep-13	2 / 5	24.7m From NEOS TO SEOS	T	G&W	Y.E		10-Sep-13		10-Sep-13	Y.E
2 D		/									
2 E		/									
2 F		/									
2 G		/									
2 H		/									
2 I		/									
2 J		/									
2 K		/									
2 L		/									
2 M		/									
2 N		/									
2 O		/									
2 P		/									
2 Q		/									
2 R		/									
2 S		/									
2 T		/									

DEFECT TYPE: AD - ANIMAL RELATED DAMAGE

EE - EARTHWORK EQUIPMENT DAMAGE

PT - PRESSURE TEST GUT

D - UNDISPERSED RESIN BEAD

EXT - EXTENSION

SI - SOIL SURFACE IRREGULARITY

RO - FUSION WELDER BURN

FM - FISHMOUTH

SL - SLAG ON TEXTURED SHEET

BS - BOOT/SKIRT FROM FMI, PENETRATION

FS - FAILED SEAM LENGTH

T - THREE PANEL INTERSECTION

CO - CHANGE OF OVERLAP

FTS - FIELD TEST STRIP

VL - VACUUM TEST LEAK

CR - CREASE

HT - HEAT TACK BURN

WR - WRINKLE

D - INSTALLATION DAMAGE

IO - INSUFFICIENT OVERLAP (UNDER SPEC.)

WS - WELDER RESTART

DS-Y - DESTRUCTIVE TEST NUMBER

MD - MANUFACTURER/DELIVERY DAMAGE

OTHER: _____

REPAIR TYPE: P - PATCH, C - CAP, RS - RECONSTRUCTED SEAM, G&W - GRIND/WELD

PASSING TRIAL SEAMS		
NO.	TIME	TECH ID.
TX-2	10:30	Y.E

** COLUMNS TO BE USED BY THE PROJECT SUPERVISOR OR LEAD TECHNICIAN ONLY.

LPL FORM 7

LAYFIELD ENVIRONMENTAL SYSTEMS

SUBMITTED BY: Y.E

DATE: 15-Sep-13

LAYFIELD GEOMEMBRANE VACUUM / AIR LANCE TEST LOG

PROJECT NUMBER: 14C-152 **PROJECT TITLE:** Baffinland MRP Tank Farm
OWNER: BAFFINLAND **CONTRACTOR:** Nuna Logistics
LOCATION: Marry River NU

VACUUM BOX _____ **AIR LANCE** X **SHEET NUMBER:** _____ 1

SEAMS									REPAIRS					
SEAM NUMBER	SEAM SECTION * FROM TO		TEST DATE	TECH ID	DEFECTS **	COMPLETE NO YES	CHK'D BY	REMARKS **	DEFECT CODE	TEST DATE	TECH ID	DEFECTS **	CHK'D BY	REMARKS **
1 / 2	EEOS	- WEOS	08-Sep-13	Y.E		Y	Y.E		0A					
3 / 4	NEOS	- SEOS	08-Sep-13	Y.E		Y	Y.E		0B					
1 / 3,4	EEOS	- WEOS	08-Sep-13	Y.E		Y	Y.E		0C					
5 / 1,2	NEOS	- SEOS	09-Sep-13	Y.E		Y	Y.E		0D					
/ 2	NEOS	- SEOS	08-Sep-13	Y.E		Y	Y.E		0E					
/	-	-							0F					
/	-	-							0G					
/	-	-							0H					
/	-	-							0I					
/	-	-							0J					
/	-	-							0K					
/	-	-							0L					
/	-	-							0M					
/	-	-							0N					
/	-	-							0O					
/	-	-							0P					
/	-	-							0Q					
/	-	-							0R					
/	-	-							0S					
/	-	-							0T					

* REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR NUMBER, OR A POINT LOCATION ON THE SEAM

** RECORD QUANTITY OF LEAKS DETECTED AND REFERENCE NEW DEFECT CODE IN REMARKS

LS FORM 6

LAYFIELD ENVIRONMENTAL SYSTEMS

SUBMITTED BY: Y.E
 DATE: 20-Sep-13

LAYFIELD GEOMEMBRANE VACUUM / AIR LANCE TEST LOG

PROJECT NUMBER: 14C-125 **PROJECT TITLE:** Baffinland MRP Tank Farm
OWNER: Bffinland **CONTRACTOR:** Nuna Logistics
LOCATION: Marry River NU

VACUUM BOX X **AIR LANCE** _____ **SHEET NUMBER:** 1

SEAMS								REPAIRS					
SEAM NUMBER	SEAM SECTION * FROM TO	TEST DATE	TECH ID	DEFECTS **	COMPLETE NO YES	CHK'D BY	REMARKS **	DEFECT CODE	TEST DATE	TECH ID	DEFECTS **	CHK'D BY	REMARKS **
/	-							1 A	09-Sep-13	Y.E		Y.E	
/	-							1 B	09-Sep-13	Y.E		Y.E	
/	-							1 C	09-Sep-13	Y.E		Y.E	
/	-							1 D	09-Sep-13	Y.E		Y.E	
/	-							1 E	09-Sep-13	Y.E		Y.E	
/	-							1 F	09-Sep-13	Y.E		Y.E	
/	-							1 G	09-Sep-13	Y.E		Y.E	
/	-							1 H	09-Sep-13	Y.E		Y.E	
/	-							1 I	09-Sep-13	Y.E		Y.E	
/	-							1 J	09-Sep-13	Y.E		Y.E	
/	-							1 K	09-Sep-13	Y.E		Y.E	
/	-							1 L	09-Sep-13	Y.E		Y.E	
/	-							1 M	09-Sep-13	Y.E		Y.E	
/	-							1 N	09-Sep-13	Y.E		Y.E	
/	-							1 O	09-Sep-13	Y.E		Y.E	
/	-							1 P	09-Sep-13	Y.E		Y.E	
/	-							1 Q	10-Sep-13	Y.E		Y.E	
/	-							1 R	10-Sep-13	Y.E		Y.E	
/	-							1 S	10-Sep-13	Y.E		Y.E	
/	-							1 T	10-Sep-13	Y.E		Y.E	

* REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR NUMBER, OR A POINT LOCATION ON THE SEAM

** RECORD QUANTITY OF LEAKS DETECTED AND REFERENCE NEW DEFECT CODE IN REMARKS

LS FORM 6

LAYFIELD ENVIRONMENTAL SYSTEMS

SUBMITTED BY: _____
 DATE: _____



LAYFIELD BRANE VACUUM / AIR LANCE TEST LOG

PROJECT NUMBER: 14C-125

PROJECT TITLE: Baffinland MRP Tank Farm

OWNER: Bffinland

CONTRACTOR: Nuna Logistics

LOCATION: Marry River NU

VACUUM BOX X

AIR LANCE

SHEET NUMBER: 2

SEAMS								REPAIRS					
SEAM NUMBER	SEAM SECTION * FROM TO	TEST DATE	TECH ID	DEFECTS **	COMPLETE NO YES	CHK'D BY	REMARKS **	DEFECT CODE	TEST DATE	TECH ID	DEFECTS **	CHK'D BY	REMARKS **
/	-							2A	10-Sep-13	Y.E		Y.E	
/	-							2B	10-Sep-13	Y.E		Y.E	
/	-							2C	10-Sep-13	Y.E		Y.E	
/	-							2D					
/	-							2E					
/	-							2F					
/	-							2G					
/	-							2H					
/	-							2I					
/	-							2J					
/	-							2K					
/	-							2L					
/	-							2M					
/	-							2N					
/	-							2O					
/	-							2P					
/	-							2Q					
/	-							2R					
/	-							2S					
/	-							2T					

* REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR NUMBER, OR A POINT LOCATION ON THE SEAM

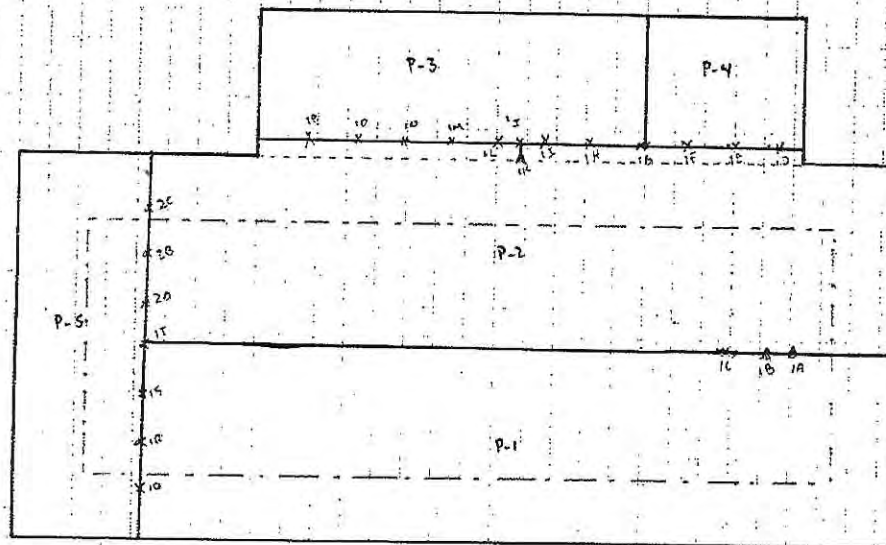
** RECORD QUANTITY OF LEAKS DETECTED AND REFERENCE NEW DEFECT CODE IN REMARKS

LS FORM 6

LAYFIELD ENVIRONMENTAL SYSTEMS

SUBMITTED BY: _____
DATE: _____

No.	REVISIONS	DATE (M/M/DD/YY)	By
-----	-----------	------------------	----



NOTES
 Oaffm land MRP
 TANK FARM.



HAZGARD 535

LEGEND

---	EXTENT OF LINER
---	TOC OF SLOPE
---	LINER FIELD SEAM
XXX	EXTENSION WELDING
Δ	PATCH
P2	PANEL NUMBER
1A	REPAIR NUMBER

Order No. 1	PROJECT No. 14C-152	
DWG: OF	SCALE:	
DWN:	CSD:	APPD:
DATE: 20-9-13	REVISION:	

CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

PROJECT NAME: Baffinland MRP Tank Farm
PROJECT NUMBER: 14C-152 DATE: 10 Sep - 2013
OWNER: Baffinland
LOCATION: Murray River Nu.

SCOPE OF INSTALLATION(S): THE WORK

Installation of HAZARDOUS 535 Layer on the tank Farm "2, 402.65m²"
Welds and testing 100% done.
Installation of under lay and overlay 6P 12 Geotextile.
"4,805.30m²"

Part 1 – LAYFIELD ENVIRONMENTAL SYSTEMS LTD.

I, Yonatan Espindola, a duly appointed representative of Layfield Environmental Systems Ltd. (LESL), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield Environmental Systems' QC program and the terms and conditions of the contract.

Layfield Environmental Systems Representative:
Name: Yonatan Espindola
Title: Supervisor
Date: 10 Sep 13 Signature: [Signature]

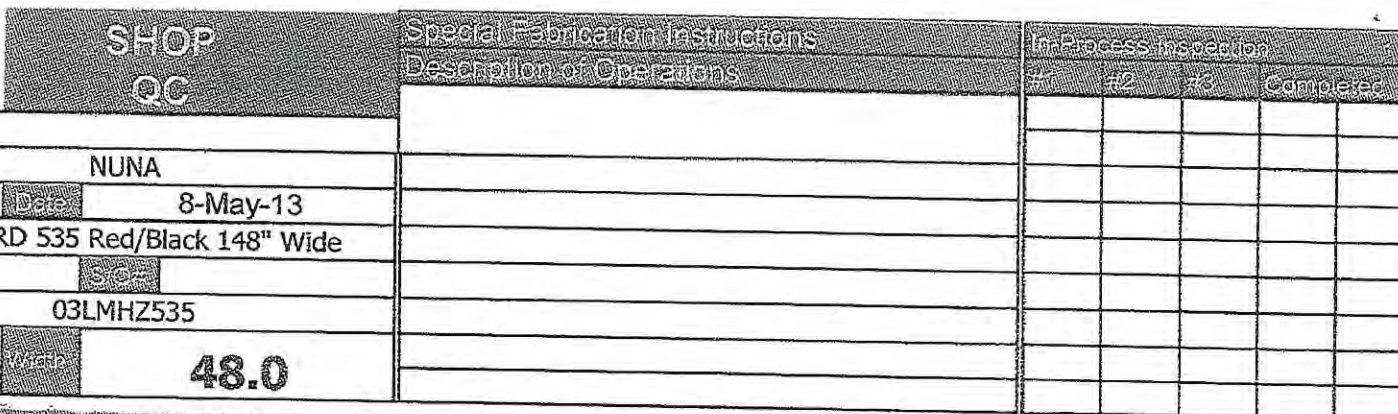
Part 2 – OWNER (or Representative)

I, Milly Price, a duly appointed representative of Nuna East, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield Environmental Systems representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:
Name: Milly Price
Title: Assistant PM
Company: Nuna East
Date: Sept 10, 2013 Signature: [Signature]

Comments: _____

[illegible]

Liner #		Shear (Seam #)		Peel (Seam #)												Tear Data (Seam #)							
Liner #		1	3				1 L	R	3 L	R	L	R	L	R	L	R	1	3					
300663	2	1	66	67			57	56	67	57							A.A.	A.A.					
300663	1	2	61	72			49	57	65	60							EE	EE					
300663		3	63	57			50	57	56	61							EE	EE					
300663		4	67	69			57	63	60	56							A.A.	A.A.					
300663		5	60	71			53	57	65	63							A.A.	A.A.					
300663		6	68	63			51	52	55	57							EE	EE					
300663		7															A.A.	A.A.					
300663																							
300663																							
300663																							
Inspections				#1 ANDRIO 05/09/13 #2 ANDRIO 05/10/13 #3 JORGE 05/10/13																Final		[Signature] 5/13/13	

Liner No.	1
Docket	49797
Roll	4
Panel	Qty
1	220
2	203
3	202
4	202

Liner No.	2
Docket	49797
Roll	4
Panel	Qty
1	220
2	203
3	202
4	215

Liner No.	3
Docket	49797
Roll	5
Panel	Qty
1	220
2	202
3	202
4	202

Liner No.	4
Docket	49797
Roll	2
Panel	Qty
1	220
2	203
3	203
4	203

Liner No.	5
Docket	41013
Roll	6
Panel	Qty
1	220
2	204
3	204
4	204

Liner No.	6
Docket	49797
Roll	1
Panel	Qty
1	160
2	202
3	202
4	202

JOB No. 300663
SALES No. 257273
ESL 14C-036



In-Process Inspection

Description of Operations

#1	#2	#3	Completed

TRACEABILITY REQUIRED

[illegible]

Docket / Lot #	#	Roll #	Line# / Panels	Quantity	Repairs
00049611	E28035	HZ535-20	L#1 / 3	3	
00049611	E28035	HZ535-14	L#1 / 1	1	
00049611	E28035	HZ535-16	L#2 / P-4	4	
00049611	E28035	HZ535-14	L#3 / P-4	4	
49611	E28035	HZ535-18	4 / 1-4	4	
					4
					700
					800
				Mach	PFS-U
				Speed	Temp
					Solice

[illegible]

Inspections

#1 May 8, 2013

#2 Tyrol May 8

#3 Lees
May 9/2013

Final

al 8/05/90ch



SHOP
QC

Special Fabrication Instructions
Description of Operations

In-Process Inspection

#1 #2 #3 Completed

Job Desc	Baffinland Mary River Milne Inlet Fuel Upgrad		
Customer	Nuna Logistics		
Sales Person	GVP	Date	8-May-13
Material Type	HAZGARD 535 Red/Black 148" Wide		
Prod Code	0	SC#	P8163c
Fab Code	03LMHZ535		
Length	200	Width	48.0

TRACEABILITY REQUIRED

Docket / Lot #	#	Roll #	Liner # / Panels	Quantity	Repairs
49611	E28035	HZ535-11	1/1-4	1	CROSS SPLICE L#3 - P-1 VAC test good
00049611	E28035	HZ535-18	L#3/P-190		
00049611	E28035	HZ535-02	L#3/P-3+10		Cross splice L#1 -> P-1 -> 20' from teen & Vc test OK
00049611	E28035	HZ535-17	L#3/P-1-2		
00049611	E28035	HZ535-17	L#1/180+90	1	
00049611	E28035	HZ535-15	L#1/2-4	3	
					#17 #4 700 800 Yes
ASTM D6392					Mach: PFS-U Speed: 750 Temp: 800 Splice: ☒

Liner #	Shear (Seam #)				Pee (Seam #)								Tech/Date (Seam #)			
	1	3			1L	R	3L	R	L	R	L	R	L	R	1	3
300686	1	69	67		56	55	52	51							LS	TL
300686	2	71	73		61	63	65	62							CH	CH
300686	3	75	67		59	61	58	56							TW	TW
300686	4	74	70		59	63	64	63							CH	CH
300686																
300686																
300686																
300686																
300686																
300686																

Inspections	#1 Lees Loonly LHA PH1- Max 9 km	#2 Honore 7.9105/13	#3 Tynd May 4 2013	Final
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**SHOP
QC**

Special Fabrication Instructions
Description of Operations

In-Process Inspection

#1 #2 #3 Completed

Job Desc.	Baffinland Mary River Milne Inlet Fuel Upgrad		
Customer	Nuna Logistics		
Sales Person	GVP	Date	8-May-13
Material Type	HAZGARD 535 Red/Black 148" Wide		
Prod Code	0	S/O#	P8163c
Fab Code	03LMHZ535		
Length	200	Width	48.0

TRACEABILITY REQUIRED

Docket / Lot #	#	Roll #	Line# / Panels	Quantity	Repairs
00049611	E28035	HZ535-2	L#1 / P-192'+1	1+192'	cross splice L#1-P-2 (8') vac test good cross splice L#1-P-1 (8') vac test good Pinch point on L#4 P-4+2 check with vac test good #17 650 800
00049611	E28035	HZ535-6	L#1 / P-2+8'	2+8'	
00049611	E28035	HZ535-6	L2 / P-1	1	
00049611	E28035	HZ535-7	L2 / P-4	3	
00049611	E28035	HZ535-7	L#3 / P-192'	192'	
00049611	E28035	HZ535-15	L#3 / P-3+8'	3+8'	
00049611	E28035	HZ535-13	L#4 / P-3	3	
00049611	E28035	HZ535-9	L#4 / P-1	1	
					Mach: PFS-UI Speed: Temp: Splice: Yes

ASTM D6392		Shear (Seam #)				Peel (Seam #)				Tech/Date (Seam #)			
Liner #		1	3			1L	R	3L	R	L	R	L	R
300688	1	71	67			64	62	62	58			TW	TW
300688	2	72	71			61	58	58	63			CH	FW
300688	3	73	77			62	61	63	57			TW	TW
300688	4	78	74			62	63	64	58			TW	TW
300688													
300688													
300688													
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300688													
300688													
300688													

Inspections	#1 Tyrel May 9 2013	#2 Honore	#3 May 10 2013	Final
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Tyrel May 10 2013

Loony



SHOP
QC

Description of Operations

In-Process Inspection

#1	#2	#3	Completed
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Job Desc.	Baffinland Mary River Milne Inlet Fuel Upgrade		
Customer	Nuna Logistics		
Sales Person	GVP	Date	8-May-13
Material Type	HAZGARD 535 Red/Black 148" Wide		
Prod Code	0	S/O#	P8163c
Fab Code	03LMHZ535		
Length	200	Width	48.0

LIABILITY REQUIRED

Docker / Lot #	#	Roll #	Line# / Panels	Quantity	Repairs
00049611	E28035	# 6	1 / 2	2	L-1 PANEL #3 splice 15' from the start VAC TEST good. L-3 panel 4 splice 2' from end VT good.
00049611	E28035	# 7	1 / 2	2	
00049611	E28035	# 7	2 / 2	2	
00049611	E28035	# 13	2 / 2	2	
00049601	E28035	# 8	3 / 3 + 198'	4	
00049611	E28035	# 20	3 / 2 Feet	4	
49611	E28035	# 10	4 / 4	4	# 4 700 800. # 17 650 860
					Yes

Mach	PFS-UI	Speed	Temp	Splice

ASTM D6392		Shear (Seam #)		Peel (Seam #)		Tech/Date (Seam #)																		
Liner #	1	3				1 L	R	3 L	R	L	R	L	R	L	R	1	3							
300689	1	62	63			49	51	52	49							AL	AL							
300689	2	65	67			52	52	51	52							MM	MM							
300689	3	69	71			65	60	65	60							MM	HB							
300689	4	65	70			61	63	64	62							HB	HS							
300689																								
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300689																								
300689																								
Inspections					#1	AL				#2	MARIAL				#3	Hunter				Final				

may 1/10/2013 May 10/2013 May 11/2013

MAY-11-2013



**SHOP
QC**

Special Fabrication Instructions
Description of Operations

In-Process Inspection

#1 #2 #3 Completed

Job Desc	Baffinland Mary River Milne Inlet Fuel Upgrad		
Customer	Nuna Logistics		
Sales Person	GVP	Date	8-May-13
Material Type	HAZGARD 535 Red/Black 148" Wide		
Prod Code	0	S/O#	P8163c
Fab Code	03LMHZ535		
Length	200	Width	48.0

TRACEABILITY REQUIRED

Docket / Lot #	#	Roll #	Liner# / Panels	Quantity	Repairs
E28035	-49611	H2535	8	4	cross-splice - L3 - P1 - 20' from the end VKT. OK # #17
E28035	-49611	H2535	-8	1	
E28035	-49611	H2535	-1	2	
E28035	-49611	H2535	-7	1	
E28035	-49611	H2535	1	4	
E28035	-49611	H2535	-1	1	
E28035	-49611	H2535	-1	3	

Mach: PFS-U1 Speed: 530 Temp: 860 Splice:

ASTM D6392		Shear (Seam #)				Peel (Seam #)								Tech/Date (Seam #)				
Liner #		1	3				1 L	R	3 L	R	L	R	L	R	1	3		
300690	1	71	70				61	60	61	62					CA	CA		
300690	2	65	68				61	59	57	59					CA	CA		
300690	3	72	71				65	63	62	60					CH	CH		
300690	4	74	75				61	62	64	65					CH	CH		
300690																		
300690																		
300690																		
300690																		
300690																		
300690																		
300690																		

Inspections	#1 Elso MAY-11-2013	#2 Honore May 11	#3	Final Edgar B May 11/2013
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Geomembrane Certificate of Analysis

LAYFIELD POLY FILMS LTD.

11120 Silversmith Place, Richmond, BC, V7A 5E4

Phone: (604) 275-5588

Fax: (604) 275-7867

Web: www.geomembranes.com

E-Mail: milcerts@LayfieldGroup.com

Customer **Layfield Geosynthetics and Industrial Fabrics Ltd.**

Address 11603-180 Street NW

Edmonton

Alberta

T5S 2H6

Canada

Customer PO#

E25671

Layfield Job #

41013

Values (US/Metric)

US

HAZGARD 535

Manufacturing Test Results

Property	Method*	Units	Spec	Roll	Roll	Roll
	ASTM	US		1	10	16
Thickness(min)	D5199	mil	35	✓	36	38
Thickness(Ave)	D5199	mil	38	✓	38	40
Tensile Strength MD	D638	lb/in	130	✓	205	232
Elongation MD	D638	%	800	✓	1687	1753
Tensile Strength TD	D638	lb/in	130	✓	227	226
Elongation TD	D638	%	800	✓	1728	1771
Tear Strength MD	D1004	lbs	19	✓	24	25
Tear Strength TD	D1004	lbs	19	✓	25	27
Puncture Strength	D4833	lbs	49	✓	77.3	81
Dim. Stab. MD (max)	D1204	%	1.5	✓	0.0	0.0
Dim. Stab. TD (max)	D1204	%	1.5	✓	0.0	0.00
Carbon Black Content	D1603	%	3	✓	3.4	3
Carbon Black Dispersion	D5596	1 or 2	2	✓		
Specific Gravity (min)	D1505	g/cc	0.939	✓	0.942	0.942

**

We hereby certify that the geomembrane produced meets
or exceeds Layfield's specifications outlined above.

**Formulation Tested Previously Successfully

May 13, 2013

Date

Authorized Signature

Geomembrane Certificate of Analysis

LAYFIELD POLY FILMS LTD.

11120 Silversmith Place, Richmond, BC, V7A 5E4

Phone: (604) 275-5588

Fax: (604) 275-7867

Web: www.geomembranes.com

E-Mail: millcerts@LayfieldGroup.com

Customer **Layfield Geosynthetics and Industrial Fabrics Ltd.**

Address 11603-180 Street NW

Edmonton

Alberta

T5S 2H6

Canada

Customer PO#

E80181

Layfield Job #

49797

Values (US/Metric)

US

HAZGARD 535

Manufacturing Test Results

Property	Method*	Units	Spec	Roll
	ASTM	US		1
Thickness(min)	D5199	mil	35	✓ 35
Thickness(Ave)	D5199	mil	38	✓ 38
Tensile Strength MD	D638	lb/in	130	✓ 208
Elongation MD	D638	%	800	✓ 1360
Tensile Strength TD	D638	lb/in	130	✓ 204
Elongation TD	D638	%	800	✓ 1475
Tear Strength MD	D1004	lbs	19	✓ 27
Tear Strength TD	D1004	lbs	19	✓ 25
Puncture Strength	D4833	lbs	49	✓ 69.7
Dim. Stab. MD (max)	D1204	%	1.5	✓ 0.0
Dim. Stab. TD (max)	D1204	%	1.5	✓ 0.0
Carbon Black Content	D1603	%	3	✓ 3.3
Carbon Black Dispersion	D5596	1 or 2	2	✓
Specific Gravity (min)	D1505	g/cc	0.939	✓ 0.939

**

We hereby certify that the geomembrane produced meets or exceeds Layfield's specifications outlined above.

****Formulation Tested Previously Successfully**

May 13, 2013

Date _____

BLUNDER

Authorized Signature



LAYFIELD POLY FILMS LTD.

11120 Silversmith Place, Richmond, BC, V7A 5E4

Phone: (604) 275-5588

Fax: (604) 275-7867

Geomembrane Certificate of Analysis

Web: www.geomembranes.com

E-Mail: millcents@LayfieldGroup.com

Customer **Layfield Geosynthetics and Industrial Fabrics Ltd.**

Address 11603-180 Street NW

Edmonton

Alberta

T5S 2H6

Canada

Customer PO#

E28035

Layfield Job #

49611

Values (US/Metric)

US

HAZGARD 535

Manufacturing Test Results

Property	Method*	Units	Spec		Roll	Roll	Roll
	ASTM	US			1	10	19
Thickness(min)	D5199	mil	35	✓	38	38	39
Thickness(Ave)	D5199	mil	38	✓	40	41	42
Tensile Strength MD	D638	lb/in	130	✓	204	209	210
Elongation MD	D638	%	800	✓	1412	1450	1413
Tensile Strength TD	D638	lb/in	130	✓	201	208	203
Elongation TD	D638	%	800	✓	1387	1411	1434
Tear Strength MD	D1004	lbs	19	✓	26		26
Tear Strength TD	D1004	lbs	19	✓	25		26
Puncture Strength	D4833	lbs	49	✓	66.6		66
Dim. Stab. MD (max)	D1204	%	1.5	✓	0.0		
Dim. Stab. TD (max)	D1204	%	1.5	✓	0.0		
Carbon Black Content	D1603	%	3	✓	3.4		
Carbon Black Dispersion	D5596	1 or 2	2	✓			
Specific Gravity (min)	D1505	g/cc	0.939	✓	0.939		

**

We hereby certify that the geomembrane produced meets
or exceeds Layfield's specifications outlined above.

**Formulation Tested Previously Successfully

May 13, 2013

Date

Authorized Signature

INSTALLATION WARRANTYLayfield Reference No. : (Job #) 14C-152

LAYFIELD ENVIRONMENTAL SYSTEMS LTD. (LAYFIELD) hereby warrants to (Nuna Logistics Limited); (the Customer) that the work performed by LAYFIELD on the Installation described as Baffinland Iron Mines Corporation – Projects Performed in Subcontract BIM – 34802-SC-03 will:

1. Meet the field seam specifications set out in the contract between LAYFIELD and the Customer (as amended by LAYFIELD's quotation), all workmanship to meet the requirements of LAYFIELD's Field Installation Quality Assurance program, and be free of defects at the time of completion of the Installation; and
2. Be free of installation defects from the date of the completion of the Installation (September 19, 2013), for a period of one year so long as the completed Installation is used for the purposes and in the manner for which the Installation was designed.

Should damage or defects within the scope of the aforesaid warranties occur, LAYFIELD shall repair the damage or defects, PROVIDED THAT the area to be repaired must first be made ready by the Customer and be in a clean, dry, unencumbered condition, free from all water, soil, sludge, residuals, and liquids of any kind.

To enable LAYFIELD to investigate and determine the cause of any alleged damage or defect, notice and details of any claim hereunder must be presented in writing to LAYFIELD within thirty (30) days after the alleged damage or defect was first noticed or observed. Failure to provide such notice and details shall invalidate all warranties provided hereunder.

The liability of LAYFIELD under the aforesaid warranties are subject to the following conditions:

- a. LAYFIELD's only obligation shall be to repair or replace any defective workmanship and in no event shall LAYFIELD be liable for any amount in excess of the cost of the Installation;
- b. No allowance will be made for repairs, replacements or alterations made by the Customer unless with the prior written consent of LAYFIELD;
- c. The warranties hereunder extend only to the Customer and are not transferable;
- d. The warranties hereunder shall not apply to any damage or defects resulting from misuse, mechanical abuse by machinery, equipment or persons, excessive pressures or stresses, exposure of the completed Installation of harmful chemicals, unusual weather conditions, casualty catastrophe such as (but not limited to) earthquake, flood, hail, tornado, or any other act of God;
- e. Under no circumstances shall LAYFIELD be liable for any special, direct, indirect, or consequential damages including the loss of use of the Installation howsoever caused;
- f. The warranties hereunder are given in lieu of all other warranties, express, implied, statutory, or otherwise, and the Customer expressly waives all other warranties and claims whatsoever except those specifically given herein, and the Customer acknowledges that the warranties hereunder are accepted in preference to and to the exclusion of any or all other warranties; and
- g. An Installation Warranty will not be provided for lining projects unless the installation is completed by LAYFIELD personnel or designated LAYFIELD subcontractors.

LAYFIELD ENVIRONMENTAL SYSTEMS LTD.

LAYFIELD ENVIRONMENTAL SYSTEMS LTD.


Greg Van Petten, Director of Construction Operations
Cameron Forster, General Manager



NUNA EAST LTD

Section 9

Material Test Reports



Dow Chemical Canada ULC
Canada

June 10, 2013

Mr. Paul Mutter
Merkley Supply Ltd.
100 Bayview Road
Ottawa, ON K1Y 4L6

E-mail: paul.mutter@merkleysupply.com

**RIGID EXTRUDED POLYSTYRENE MATERIAL CERTIFICATION OF COMPLIANCE FOR BAFFIN ISLAND/NUNA
LOGISTICS PROJECT**

Dear Paul:

This letter certifies that the STYROFOAM™ HI-60 rigid extruded polystyrene insulation lots listed below meet or exceed our specification for STYROFOAM™ HI-60 product in Attachment 1. Moreover, the STYROFOAM™ HI-60 meets and exceeds the requirements of CAN/ULC S-701-01 "Standard for Thermal Insulation, Polystyrene Boards, and Pipe Coverings" Type 4.

Compliance to the specification shown in Attachment 1 applies to:

Production Lot #:

1H240202 – 2" HI-60 shipped from Merkley Supply Limited stock

The summary of our STYROFOAM™ HI-60 specifications and the measured values are titled in the attached table. Please realize that the manufacturing of STYROFOAM™ Brand Insulation is a continuous and constantly monitored process. Explaining notes to that effect are included at the bottom of the attached table. Additional characteristics of the product are included in Attachment 2.

Material from the above mentioned lot # was manufactured at the following Dow Plant Location:
4445 Marie Victorin
Varenes, Québec Canada J3X 1T3

Please do not hesitate to contact me if you have any further questions.

Regards,

Brian Baird
Senior Account Manager
Dow Building Solutions

Mailing Address
3298 Hargrove Road
Mississauga, ON L5L 4E9
905/820-7400 - Phone
800/807-4312 - Fax
bkbaird@dow.com

918340 061013A:BKBVb

Attachments

Attachment 1

Specifications	STYROFOAM™ HI-40 1" & 1.5"	Note
Type CAN/ULC S701-01	Type 4	
Thermal resistance R-value per inch Metric RSI ASTM C-518-91, C-177-85	5-R per inch RSI-0.87	1
Compressive strength (min) Metric ASTM D1621	60 (lb/in ²) 415(kPa)	1
Water absorption (% by volume) max. ASTM D2842	0.7	1
Water vapor permeance max. (perm) Metric ASTM E96	0.6 perms 35 ng/pa.s.m ²	1
Co-efficient of linear thermal expansion. Metric. ASTM D696	3.5 (x10 ⁻⁵ in/in. °F) 0.063 mm/m/°C	
Width (inches) ASTM D1622	24" +/- 1/16"	
Length (inches) ASTM D1622	96" +/- 3/16"	
Thickness (inches) ASTM D1622	1" or 1.5" +/- 1/16"	

Notes:

1. Dow manufactures extruded polystyrene insulation in a continuous monitored process. The key manufacturing properties of cell size, density, blowing agent content, and fresh compressive strength are kept within established upper and lower control limits for that particular product. This ensures that the final aged product properties will meet or exceed the published properties listed in Attachment 1.
2. Dow testing of extruded polystyrene is performed at the Standard Council of Canada accredited facility located at:
The Dow Chemical Company
200 Larkin Center, 1605 Joseph Drive
Midland, MI 48674

Attachment 2

Additional Product Characteristics – STYROFOAM™ HI-60 Extruded Polystyrene

Flammability:

In Accordance with CAN/ULC S102.2 Test Method
Flame Spread: 155
Smoke Developed: Over 500

Chemical Resistance:

Chemical Resistance ⁽¹⁾ of STYROFOAM DECKMATE Insulation			
Acid inorganic, weak	Excellent	Salts	Excellent
Acid, inorganic, strong	Excellent	Insecticides	Not recommended
Acid, organic, weak	Excellent	Kerosene	Poor
Acid, organic, strong	Good	Mineral oil USP	Excellent
Bases	Excellent	Naphtha (VMP)	Not recommended
Alcohols, including isopropyl alcohol	Excellent	Turpentine	Not recommended
Methyl ethyl ketone	Not recommended	Beer	Good
Polyglycols, including propylene glycol	Excellent	Gasoline	Not recommended
Hydrocarbons	Not recommended	Fruit juices	Good

(1) Explanation of ratings:

Excellent = The plastic was unaffected for the duration of the test.

Good = A very slight clouding or discoloration of the plastic.

Poor = Considerable change in plastic during exposure.

Not recommended = Severe attack of the plastic. became soft and malleable after a few hours of exposure.

NOTE: This table should be used as a guide only. For design purposes, specific test data on the intended application may be needed.

Biological Resistance:

Resists biological degradation by organisms or enzymes.

Environmental:

Inert, non-nutritive, is highly stable, and is non-regulated by WHIMIS, therefore, does not produce any undesirable gases or leachate.

Ultra-Violet Degradation Resistance:

The prolonged exposure of STYROFOAM™ brand insulation products and other polystyrene foam insulations to sunlight's UV radiation will cause deterioration of the exposed surface. This will manifest itself by the formation of a yellowish, dusty surface. Once formed, this dusty surface will act as a protective screen preventing further deterioration of the insulation's exposed surface. This screen will be effective provided the deteriorated surface remains undisturbed. Sunlight will not affect the material underlying the deteriorated surface.

Following installation or while in storage, STYROFOAM™ brand insulation products can be protected from the effects of sunlight's UV radiation by the use of coverings such as tarps, building paper or other sheathing membranes or light coloured latex paints.



NUNA EAST LTD

Section 10

Construction Pictures







NUNA EAST LTD

Section 11

Signature Log

Signature Log

[illegible]