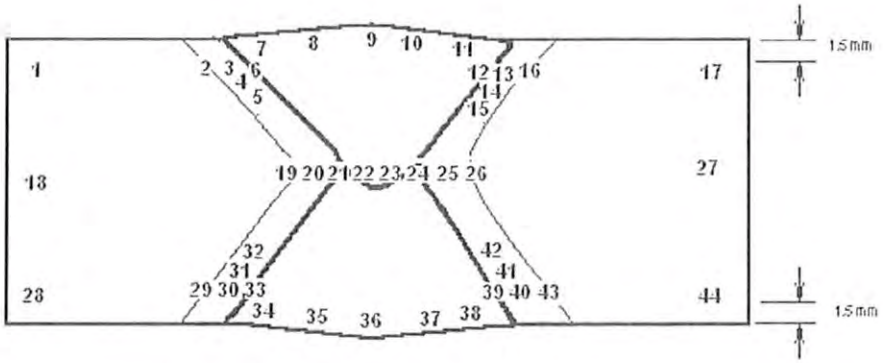
HARDNESS TEST REPORT

for Procedure Qualification Record # SAS-2-2

Client:	Sub-Arc Systems Inc.	**Job Number:**	636-10004
Address:	4605-47 Street Vermillion AB T9X 1L6	**Date:**	June 4, 2010
Materials:	SA-516 Grade 70		
Size:	1.000" Plate	**Condition:**	As Welded
Test Specification:	NACE RP0472		

Test Method:	Hardness testing performed in accordance with ASTM E-92 (Vickers Hardness of Metallic Materials) using a Vickers tester with a 1kg load.



Vickers Hardness Values

1	165	**10**	231	**19**	195	**28**	173	**37**	212
2	191	**11**	212	**20**	183	**29**	191	**38**	224
3	234	**12**	220	**21**	180	**30**	206	**39**	214
4	216	**13**	245	**22**	179	**31**	193	**40**	206
5	219	**14**	246	**23**	184	**32**	187	**41**	197
6	235	**15**	232	**24**	184	**33**	199	**42**	207
7	208	**16**	187	**25**	173	**34**	209	**43**	174
8	194	**17**	164	**26**	170	**35**	208	**44**	161
9	181	**18**	158	**27**	152	**36**	202		

We certify that the statements in this record are acceptable, in accordance with the requirements of NACE RP 0472. RP 0472-2005 paragraph 5.3 states "The maximum allowable HAZ hardness shall be 248 HV the maximum weld deposit hardness should be 248 HV and the average weld deposit hardness should not exceed 210 HV"

TEST RESULTS CERTIFIED BY:

Qualimet

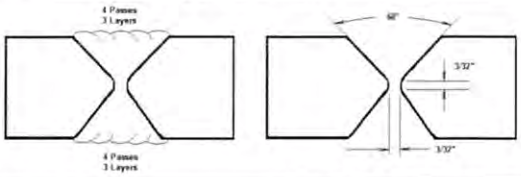
Sean Lepine, E.I.T.

PROCEDURE QUALIFICATION RECORD (PQR) QW-483

(Section IX, ASME Boiler and Pressure Vessel Code)

Company Name:	Sub-Arc Systems Inc.	**By:**	Gary Kohlman
PQR No.:	SAS-2-3	**Date:**	January 20, 2014
Revision No.:	1[1]	**Revision Date:**	October 3, 2014
Welding Process(es):	SAW / SAW	**Type(s):**	Machine / Machine

JOINTS QW-402



BASE METALS QW-403				POSTWELD HEAT TREATMENT QW-407	
Material Spec.:	SA-516		SA-516	**Temperature:**	
Grade/Type/Class:	Grade 60/70		Grade 60/70	**Time:**	
P-No. Group No.:	P-1 Group 1/2	**to**	P-1 Group 1/2	**Heating:**	***(None – As Welded)***
Heat No.:	H6/5888		H6/5888	**Cooling:**	
Carbon Equivalent (ASME):	0.41		0.41	**Other:**	
Carbon Equivalent (CSA):	0.41		0.41		
Thickness & Diameter:	1.000" w.t. Plate				
Max Weld Deposit:	<0.500" per pass				

PREHEAT QW-406		POSITIONS QW-405		
Preheat Temp. Min.:	50°F	**Process:**	**SAW (Leading)**	**SAW (Trailing)**
Interpass Temp. Max.:	550°F	**Position:**	2-G	2-G
Interpass Temp. Min.:	50°F	**Progression:**	Horizontal	Horizontal
Other:	Temperature monitored using tempilstiks	**Other:**	Not Applicable	Not Applicable

FILLER METALS QW-404		
Process:	**SAW (Leading)**	**SAW (Trailing)**
SFA Specification No.:	5.17	5.17
AWS Classification No.:	EM12K-H8	EM12K-H8
F-No.:	F-6	F-6
A-No.:	A-1	A-1
Size of Filler Metal:	3/32"	3/32"
Deposited Weld Metal:	0.500"	0.500"
Manufacturer:	Lincoln Electric	Lincoln Electric
Trade Name:	LA-61	LA-61
Heat / Lot Number:	Not Recorded	Not Recorded
Electrode-Flux (Class):	F7A6-EM12K-H8	F7A6-EM12K-H8
Flux Tradename:	Lincolnweld 882 Flux	Lincolnweld 882 Flux
Flux Heat / Lot Number.:	Not Recorded	Not Recorded
Product Form:	Coiled Solid Wire	Coiled Solid Wire

SHIELDING GAS QW-408		
Shielding Gas:		
Composition:	***(Not Applicable)***	***(Not Applicable)***
Flow Rate:		
Backing Gas:		

ELECTRICAL CHARACTERISTICS QW-409		
Current:	Direct (DC)	Direct (DC)
Polarity:	Reverse (EP)	Reverse (EP)
Volts:	28 - 30	28 - 30
Amps:	380 - 420	380 - 420
Travel Speed (ipm):	25.0	25.0
Maximum Heat Input (J/in):	30 240	30 240

TECHNIQUE QW-410		
String or Weave:	String	String
Oscillation:	Not Applicable	Not Applicable
Single / Multi Pass:	Multiple Passes from both sides	
Single / Multi Electrodes:	Multi	Multi
Wire Stick Out:	1/4" to 1 1/4"	1/4" to 1 1/4"
Electrode Spacing:	Not Recorded	Not Recorded
Nozzle / Cup Size:	Not Recorded	Not Recorded

[1]**Revision 1:** Review and update to the current edition of the ASME code.

PROCEDURE QUALIFICATION RECORD (PQR) QW-483
(Section IX, ASME Boiler and Pressure Vessel Code)

PQR # SAS-2-3 Revision 1

Tensile Test
QW-462

Specimen No.	Width (in)	Thickness (in)	Area (in^2)	Ultimate Total Load (lbs)	Ultimate Unit Stress (ksi)	Type of Failure & Location
			(Not Applicable)			

Guided Bend Tests
QW-462

Specimen No.	Type	Figure	Result
		(Not Applicable)	

Toughness Tests
QW-170

Specimen No.	Notch Location	Notch Type	Qual. Temp	Full Size Values (ft-lbs)	% Shear	Lateral Exp Inches	Drop Weight Break	Drop Weight No Brk
BH-1	Weld	V-Notch	-50°F	94	60	0.064	-----	-----
BH-2	Weld	V-Notch	-50°F	105	70	0.063	-----	-----
BH-3	Weld	V-Notch	-50°F	115	80	0.072	-----	-----
BH-4	HAZ	V-Notch	-50°F	74	40	0.046	-----	-----
BH-5	HAZ	V-Notch	-50°F	68	30	0.044	-----	-----
BH-6	HAZ	V-Notch	-50°F	83	----**	----**	-----	-----

**Shear and Lateral Expansion not recorded – specimen did not break

Fillet-Weld Tests
Not Applicable

Result-Satisfactory: **Yes** _____ **No** _____ Pen. into Parent Material: **Yes** ___ **No** _____
Macro-Results:

Other Tests

Type of Test: Not Applicable
Other: Not Applicable

Welder's Name: Keith Breedon **Reg. No.:** W-11618 **Stamp ID:** BH
Tests Conducted By: Qualimet **Lab. Test No.:** 636-13001
Revised By: Qualimet

We hereby recertify that the statements in this record have been revised in accordance with paragraph QW-200.2 are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Manufacturer: Sub-Arc Systems Inc.
Original Cert. Date: January 20, 2014 **By:** Gary Kohlman
Recertification Date: October 3, 2014 **By:** Gary Kohlman

Qualimet

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CHARPY IMPACT TEST REPORT

for Procedure Qualification Record # SAS-2-3

Client:	Sub-Arc Systems Inc.	**Job Number:**	636-13001
Address:	4605-47 Street Vermillion AB T9X 1L6	**Date:**	January 20, 2014
Materials:	SA-516 Grade 60/70 to SA-516 Grade 60/70		
Size:	1.000" w.t. Plate	**Condition:**	As Welded
Test Specification:	ASME Section IX, ASME Section VIII UG-84, ASTM A-370		
Test Equipment:	Satec Model S1-10, S/N: 1164		

Specimen Type:	Charpy V-Notch
Qualification Temperature:	-50.0°F
Test Temperature:	-50.0°F

Specimen Size (mm): 10

Sample Set	Sample Number	Actual Impact Energy (ft-lb)	Full Size (ft-lb)	Shear (%)	Lateral Expansion Inches
Weld (includes all processes)	BH-1	94	94	60	0.064
	BH-2	105	105	70	0.063
	BH-3	115	115	80	0.072
	Average:	**105**	**105**	**70**	**0.066**

We certify that the statements in this record are acceptable and that the specimen(s) were prepared and tested in accordance with the requirements of the current edition of ASTM A370, ASTM E23 and their latest editions.

TEST RESULTS CERTIFIED BY: Qualimet

Hanibal Ghile, E.I.T.

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CHARPY IMPACT TEST REPORT

for Procedure Qualification Record # SAS-2-3

Client:	Sub-Arc Systems Inc.	**Job Number:**	636-13001
Address:	4605-47 Street Vermillion AB T9X 1L6	**Date:**	January 20, 2014
Materials:	SA-516 Grade 60/70 to SA-516 Grade 60/70		
Size:	1.000" w.t. Plate	**Condition:**	As Welded
Test Specification:	ASME Section IX, ASME Section VIII UG-84, ASTM A-370		
Test Equipment:	Satec Model S1-10, S/N: 1164		

Specimen Type:	Charpy V-Notch
Qualification Temperature:	-50.0°F
Test Temperature:	-50.0°F

Specimen Size (mm): 10

Sample Set	Sample Number	Actual Impact Energy (ft-lb)	Full Size (ft-lb)	Shear (%)	Lateral Expansion Inches
HAZ	BH-4	74	74	40	0.046
	BH-5	68	68	30	0.044
	BH-6	83	83	-----**	-----**
	Average:	**75**	**75**	-----**	-----**

**Shear and Lateral Expansion not recorded – specimen did not break

We certify that the statements in this record are acceptable and that the specimen(s) were prepared and tested in accordance with the requirements of the current edition of ASTM A370, ASTM E23 and their latest editions.

TEST RESULTS CERTIFIED BY: Qualimet

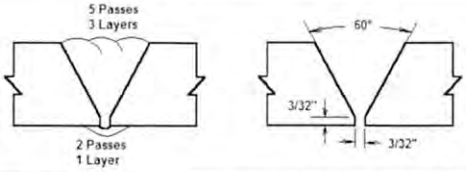
Hanibal Ghile, E.I.T.

PROCEDURE QUALIFICATION RECORD (PQR) QW-483

(Section IX, ASME Boiler and Pressure Vessel Code)

Company Name:	Sub-Arc Systems Inc.	**By:**	Gary Kohlman
PQR No.:	SAS-2-4	**Date:**	January 20, 2014
Revision No.:	1[1]	**Revision Date:**	October 3, 2014
Welding Process(es):	SAW / SAW	**Type(s):**	Machine / Machine

JOINTS QW-402



BASE METALS QW-403				POSTWELD HEAT TREATMENT QW-407	
Material Spec.:	SA-516		SA-516	**Temperature:**	
Grade/Type/Class:	Grade 60/70		Grade 60/70	**Time:**	
P-No. Group No.:	P-1 Group 1/2	**to**	P-1 Group 1/2	**Heating:**	***(None – As Welded)***
Heat No.:	53293		53293	**Cooling:**	
Carbon Equivalent (ASME):	0.39		0.39	**Other:**	
Carbon Equivalent (CSA):	0.39		0.39		
Thickness & Diameter:	0.249" w.t. Plate (machined)				
Max Weld Deposit:	<0.500" per pass				

PREHEAT QW-406		POSITIONS QW-405		
Preheat Temp. Min.:	50°F	**Process:**	**SAW (Leading)**	**SAW (Trailing)**
Interpass Temp. Max.:	550°F	**Position:**	2-G	2-G
Interpass Temp. Min.:	50°F	**Progression:**	Horizontal	Horizontal
Other:	Temperature monitored using tempilstiks	**Other:**	Not Applicable	Not Applicable

FILLER METALS QW-404		
Process:	**SAW (Leading)**	**SAW (Trailing)**
SFA Specification No.:	5.17	5.17
AWS Classification No.:	EM12K-H8	EM12K-H8
F-No.:	F-6	F-6
A-No.:	A-1	A-1
Size of Filler Metal:	3/32"	3/32"
Deposited Weld Metal:	0.125"	0.125"
Manufacturer:	Lincoln Electric	Lincoln Electric
Trade Name:	LA-61	LA-61
Heat / Lot Number:	Not Recorded	Not Recorded
Electrode-Flux (Class):	F7A6-EM12K-H8	F7A6-EM12K-H8
Flux Tradename:	Lincolnweld 882 Flux	Lincolnweld 882 Flux
Flux Heat / Lot Number.:	Not Recorded	Not Recorded
Product Form:	Coiled Solid Wire	Coiled Solid Wire

SHIELDING GAS QW-408		
Shielding Gas:		
Composition:	***(Not Applicable)***	***(Not Applicable)***
Flow Rate:		
Backing Gas:		

ELECTRICAL CHARACTERISTICS QW-409		
Current:	Direct (DC)	Direct (DC)
Polarity:	Reverse (EP)	Reverse (EP)
Volts:	30	30
Amps:	420	420
Travel Speed (ipm):	25.0	25.0
Maximum Heat Input (J/in):	30 240	30 240

TECHNIQUE QW-410		
String or Weave:	String	String
Oscillation:	Not Applicable	Not Applicable
Single / Multi Pass:	Multiple Passes from both sides	
Single / Multi Electrodes:	Multi	Multi
Wire Stick Out:	1/4" to 1 1/4"	1/4" to 1 1/4"
Electrode Spacing:	Not Recorded	Not Recorded
Nozzle / Cup Size:	Not Recorded	Not Recorded

[1]**Revision 1:** Review and update to the current edition of the ASME code.

PROCEDURE QUALIFICATION RECORD (PQR) QW-483

(Section IX, ASME Boiler and Pressure Vessel Code)

PQR # SAS-2-4 Revision 1

Tensile Test

QW-462

Specimen No.	Width (in)	Thickness (in)	Area (in^2)	Ultimate Total Load (lbs)	Ultimate Unit Stress (ksi)	Type of Failure & Location
			(Not Applicable)			

Guided Bend Tests

QW-462

Specimen No.	Type	Figure	Result
		(Not Applicable)	

Toughness Tests

QW-170

Specimen No.	Notch Location	Notch Type	Qual. Temp	Full Size Values (ft-lbs)	% Shear	Lateral Exp Inches	Drop Weight Break	Drop Weight No Brk
BG-1	Weld	V-Notch	-50°F	104	80	0.078	----	----
BG-2	Weld	V-Notch	-50°F	81	70	0.060	----	----
BG-3	Weld	V-Notch	-50°F	77	70	0.058	----	----
BG-4	HAZ	V-Notch	-50°F	40	30	0.027	----	----
BG-5	HAZ	V-Notch	-50°F	35	30	0.024	----	----
BG-6	HAZ	V-Notch	-50°F	46	40	0.033	----	----

Fillet-Weld Tests

Not Applicable

Result-Satisfactory: **Yes** _____ **No** _____ Pen. into Parent Material: **Yes** ___ **No** _____

Macro-Results:

Other Tests

Type of Test: Not Applicable

Other: Not Applicable

Welder's Name: Keith Breedon **Reg. No.:** W-11618 **Stamp ID:** BG

Tests Conducted By: Qualimet **Lab. Test No.:** 636-13001

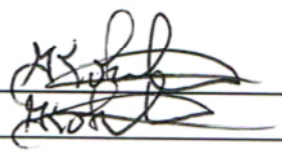
Revised By: Qualimet

We hereby recertify that the statements in this record have been revised in accordance with paragraph QW-200.2 are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Manufacturer: Sub-Arc Systems Inc.

Original Cert. Date: January 20, 2014 **By:** Gary Kohlman

Recertification Date: October 3, 2014 **By:** Gary Kohlman



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CHARPY IMPACT TEST REPORT

for Procedure Qualification Record # SAS-2-4

Client:	Sub-Arc Systems Inc.	**Job Number:**	636-13001
Address:	4605-47 Street Vermillion AB T9X 1L6	**Date:**	January 20, 2014
Materials:	SA-516 Grade 60/70 to SA-516 Grade 60/70		
Size:	0.249" w.t. Plate (machined)	**Condition:**	As Welded
Test Specification:	ASME Section IX, ASME Section VIII UG-84, ASTM A-370		
Test Equipment:	Satec Model S1-10, S/N: 1164		

Specimen Type:	Charpy V-Notch
Qualification Temperature:	-50.0°F
Test Temperature:	-50.0°F

Specimen Size (mm): 5.2

Sample Set	Sample Number	Actual Impact Energy (ft-lb)	Full Size (ft-lb)	Shear (%)	Lateral Expansion Inches
Weld (includes all processes)	BG-1	54	104	80	0.078
	BG-2	42	81	70	0.060
	BG-3	40	77	70	0.058
	Average:	**45**	**87**	**73**	**0.065**

We certify that the statements in this record are acceptable and that the specimen(s) were prepared and tested in accordance with the requirements of the current edition of ASTM A370, ASTM E23 and their latest editions.

TEST RESULTS CERTIFIED BY: Qualimet

Hanibal Ghile, E.I.T.

Qualimet

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CHARPY IMPACT TEST REPORT

for Procedure Qualification Record # SAS-2-4

Client:	Sub-Arc Systems Inc.	**Job Number:**	636-13001
Address:	4605-47 Street Vermillion AB T9X 1L6	**Date:**	January 20, 2014
Materials:	SA-516 Grade 60/70 to SA-516 Grade 60/70		
Size:	0.249" w.t. Plate (machined)	**Condition:**	As Welded
Test Specification:	ASME Section IX, ASME Section VIII UG-84, ASTM A-370		
Test Equipment:	Satec Model S1-10, S/N: 1164		

Specimen Type:	Charpy V-Notch
Qualification Temperature:	-50.0°F
Test Temperature:	-50.0°F

Specimen Size (mm): 5.2

Sample Set	Sample Number	Actual Impact Energy (ft-lb)	Full Size (ft-lb)	Shear (%)	Lateral Expansion Inches
HAZ	BG-4	21	40	30	0.027
	BG-5	18	35	30	0.024
	BG-6	24	46	40	0.033
	Average:	**21**	**40**	**33**	**0.028**

We certify that the statements in this record are acceptable and that the specimen(s) were prepared and tested in accordance with the requirements of the current edition of ASTM A370, ASTM E23 and their latest editions.

TEST RESULTS CERTIFIED BY:

Qualimet

Hanibal Ghile, E.I.T.

Item 6 – Welding Consumable

Contents

1. N/A

Item 7 – Foundation

Contents

Inukshuk Construction Limited
Industrial Contracting Project Management

PO Box 654
Rankin Inlet, NU X0C 0G0
T 867.645.4030 F 867.645.4064

Item 7 - Foundation Acceptance Report

PROJECT #:	AEM Tank #2 Pad Sand Grade
PROJECT TITLE:	AEM Tank Farm
SITE:	Rankin Inlet , NU
Date:	July 28, 2017

No.	Northing	Easting	Elevation	Description
1	6963697.448	546007.935	0.000	270
3	6963726.036	546030.269	0.000	90
4	6963722.909	546004.808	0.000	180
2	6963700.575	546033.396	0.000	0
5	6963711.742	546019.102	0.000	center
11	6963648.504	546002.922	7.816	BM1
12	6963667.273	546022.542	7.956	BM2
20	6963662.458	546016.328	6.718	nail
100	6963711.698	546019.037	8.233	PAD
101	6963715.178	546021.045	8.198	PAD
102	6963713.312	546022.745	8.196	PAD
103	6963711.476	546023.032	8.194	PAD
104	6963709.701	546022.557	8.188	PAD
105	6963708.140	546020.837	8.186	PAD
106	6963707.859	546017.903	8.193	PAD
107	6963709.297	546015.856	8.194	PAD
108	6963711.861	546015.038	8.188	PAD
109	6963714.849	546016.565	8.188	PAD
110	6963718.123	546014.307	8.164	PAD
111	6963719.743	546019.425	8.167	PAD
112	6963717.700	546024.421	8.164	PAD
113	6963714.725	546026.494	8.158	PAD
114	6963709.295	546026.704	8.164	PAD

Inukshuk Construction Limited
Industrial Contracting Project Management

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Item 7 - Foundation Acceptance Report

115	6963705.182	546023.754	8.164	PAD
116	6963703.695	546019.525	8.166	PAD
117	6963704.779	546015.018	8.170	PAD
118	6963708.409	546011.772	8.164	PAD
119	6963706.886	546008.105	8.134	PAD
120	6963712.083	546007.038	8.128	PAD
121	6963717.635	546008.628	8.128	PAD
122	6963721.388	546011.970	8.128	PAD
123	6963723.540	546017.010	8.133	PAD
124	6963723.302	546022.515	8.134	PAD
125	6963720.466	546027.280	8.131	PAD
126	6963716.145	546030.254	8.124	PAD
127	6963710.646	546031.041	8.126	PAD
128	6963705.524	546029.362	8.128	PAD
129	6963701.923	546026.064	8.134	PAD
130	6963700.029	546021.916	8.130	PAD
131	6963699.785	546017.655	8.136	PAD
132	6963701.338	546013.053	8.131	PAD
133	6963704.648	546009.354	8.126	PAD
134	6963701.326	546004.827	8.084	PAD → outter
135	6963698.560	546007.256	8.080	PAD
136	6963696.498	546010.177	8.075	PAD
137	6963694.887	546013.707	8.082	PAD
138	6963694.193	546017.025	8.079	PAD
139	6963694.063	546020.096	8.084	PAD
140	6963694.529	546023.186	8.087	PAD
141	6963695.624	546026.381	8.087	PAD
142	6963697.302	546029.256	8.083	PAD
143	6963699.509	546031.814	8.086	PAD

Inukshuk Construction Limited
Industrial Contracting Project Management

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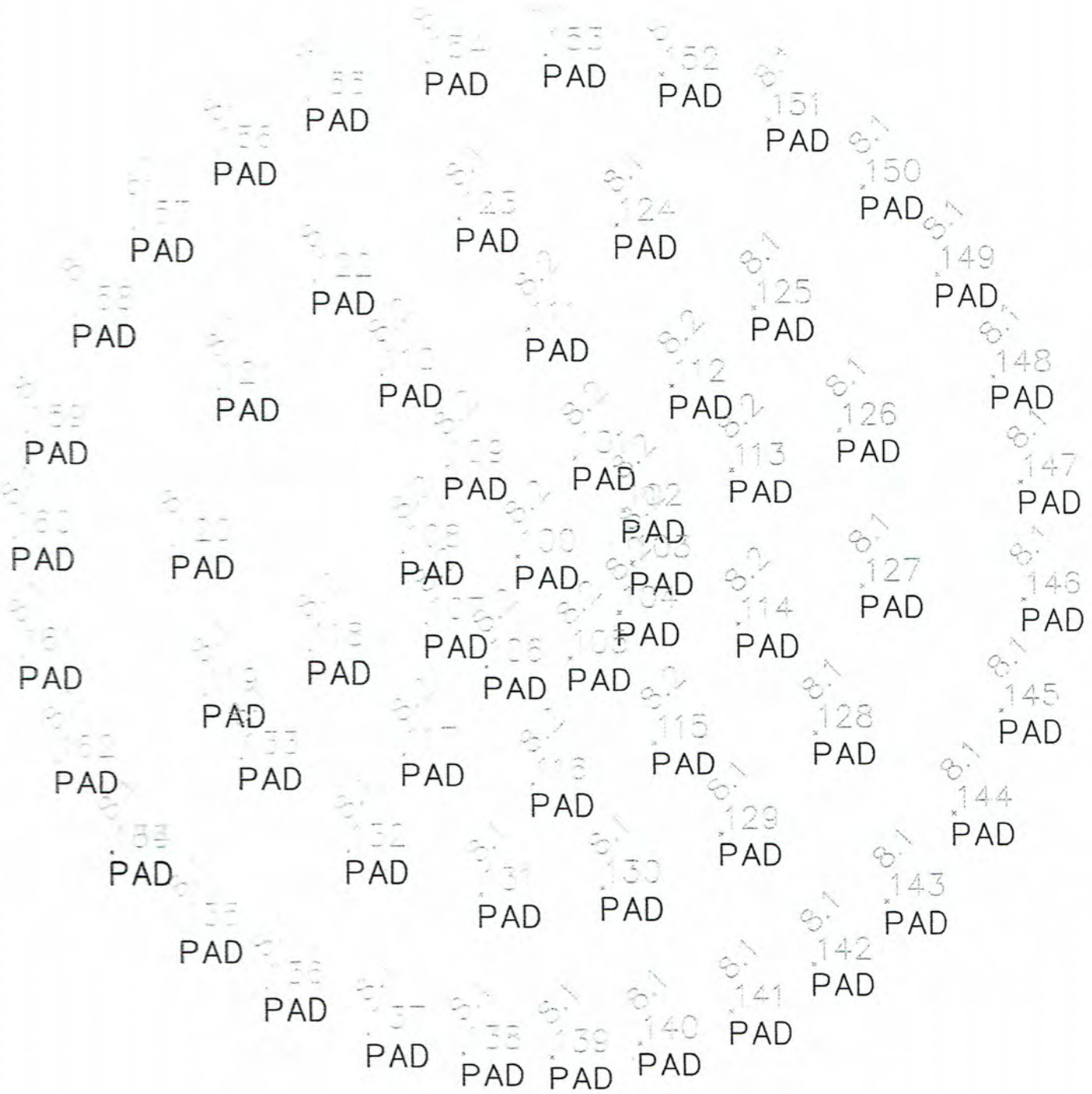
T 867.645.4030 F 867.645.4064

Item 7 - Foundation Acceptance Report

144	6963702.622	546034.180	8.086	PAD
145	6963706.256	546035.852	8.082	PAD
146	6963710.155	546036.642	8.083	PAD
147	6963714.305	546036.546	8.087	PAD
148	6963718.009	546035.606	8.082	PAD
149	6963721.614	546033.677	8.077	PAD
150	6963724.642	546031.096	8.073	PAD
151	6963727.047	546027.824	8.079	PAD
152	6963728.664	546024.091	8.078	PAD
153	6963729.355	546020.065	8.080	PAD
154	6963729.081	546015.944	8.078	PAD
155	6963727.801	546011.792	8.075	PAD
156	6963725.881	546008.572	8.080	PAD
157	6963723.215	546005.675	8.078	PAD
158	6963720.263	546003.644	8.078	PAD
159	6963716.126	546001.962	8.080	PAD
160	6963712.384	546001.478	8.075	PAD
161	6963708.257	546001.727	8.079	PAD
162	6963704.537	546002.941	8.085	PAD
163	6963701.310	546004.821	8.088	PAD

Tank Pad #2 Sand Top Elevations



Item 8 – Floor

Contents

SSAB

12400 Highway 43 North, Axis, Alabama 36505, US

Test Certificate

Item 8 - Floor - MTR

Form TC1: Revision 2: Date 23 Apr 2014

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-13 | **Shipping Manifest:** AR240131

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Ship Date: 21 Feb 17
Cert Date: 21 Feb 17

Cert No: 081597448

Size: 0.250 X 120.0 X 480.0 (IN)

Tested Pieces:				Tensiles:					Hardness	Charpy Impact Tests									
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir		Abs. Energy(FTLB) 1	2	3	Avg	% Shear 1	2	3	Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
E7B102	E11	0.256 (DISCRT)	C							33	44	37	38					-50F	L	5.0	
			C							35	27	34	32					-50F	T	5.0	
E7B102	E12	0.256 (DISCRT)	C							39	40	36	38					-50F	L	5.0	
			C							27	25	22	25					-50F	T	5.0	
E7B102	E13	0.255 (DISCRT)	C	55	76		26	T		35	34	30	33					-50F	L	5.0	
			C							27	44	41	37					-50F	T	5.0	
E7B102	E14	0.256 (DISCRT)	C	55	75		24	T		56	41	58	52					-50F	L	5.0	
			C							27	32	30	30					-50F	T	5.0	
W7B598	E06	0.256 (DISCRT)	C							30	30	30	30					-50F	L	5.0	
			C							37	27	23	29					-50F	T	5.0	
W7B598	E07	0.256 (DISCRT)	C	52	72		25	T													
W7B598	E08	0.256 (DISCRT)	C	51	71		25	T													
W7B598	E10	0.256 (DISCRT)	C							32	40	31	34					-50F	L	5.0	
			C							28	34	28	30					-50F	T	5.0	

Chemical Analysis

Heat Id	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	ORGN
E7B102	.18	.94	.009	.001	.25	.027	.025	.26	.12	.11	.05	.002	.005	.011	.0002	.0076	USA
W7B598	.18	.92	.009	.001	.24	.028	.022	.26	.13	.08	.05	.001	.004	.011	.0002	.0078	USA

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
CHARPY FULL SIZE EQUIVALENT = ABSORBED ENERGY AVG X 10 / TEST SIZE IN MM
NORMALIZED PLATES. HEATED AT 1665F FOR 14 MINUTES.
TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
PRODUCTS SHIPPED:

W7B598 E06	6705201	PCES:	1,	LBS:	4084	W7B598 E06	6705200	PCES:	1,	LBS:	4084
E7B102 E14	6705250	PCES:	1,	LBS:	4084	E7B102 E14	6705249	PCES:	1,	LBS:	4084
E7B102 E13	6705243	PCES:	1,	LBS:	4084	E7B102 E12	6705236	PCES:	1,	LBS:	4084
E7B102 E13	6705244	PCES:	1,	LBS:	4084	W7B598 E06	6705199	PCES:	1,	LBS:	4084
E7B102 E12	6705235	PCES:	1,	LBS:	4084	E7B102 E13	6705234	PCES:	1,	LBS:	4084
E7B102 E11	6705193	PCES:	1,	LBS:	4084	E7B102 E11	6705190	PCES:	1,	LBS:	4084

(P) Cust Part #:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

SSAB

12400 Highway 43 North, Axis, Alabama 36505, US

Test Certificate

Item 8 - Floor - MTR

Form TC1: Revision 2: Date 23 Apr 2014

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-13 | **Shipping Manifest:** AR240131

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Ship Date: 21 Feb 17
Cert Date: 21 Feb 17

Cert No: 081597448
(Page 2 of 2)

Size: 0.250 X 120.0 X 480.0 (IN)

Tested Pieces:				Tensiles:						Charpy Impact Tests							
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
W7B598 E10	6705178	PCES:	1, LBS:	4084					E7B102 E11	6705183	PCES:	1, LBS:	4084				
W7B598 E10	6705177	PCES:	1, LBS:	4084					W7B598 E10	6705181	PCES:	1, LBS:	4084				
W7B598 E10	6705179	PCES:	1, LBS:	4084					W7B598 E10	6705189	PCES:	1, LBS:	4084				
W7B598 E10	6705186	PCES:	1, LBS:	4084					E7B102 E11	6705172	PCES:	1, LBS:	4084				
E7B102 E11	6705176	PCES:	1, LBS:	4084					W7B598 E10	6705180	PCES:	1, LBS:	4084				
E7B102 E11	6705192	PCES:	1, LBS:	4084					E7B102 E11	6705194	PCES:	1, LBS:	4084				
E7B102 E11	6705184	PCES:	1, LBS:	4084					E7B102 E11	6705185	PCES:	1, LBS:	4084				
W7B598 E06	6705207	PCES:	1, LBS:	4084					W7B598 E06	6705206	PCES:	1, LBS:	4084				
E7B102 E12	6705239	PCES:	1, LBS:	4084					E7B102 E12	6705231	PCES:	1, LBS:	4084				
E7B102 E14	6705247	PCES:	1, LBS:	4084					E7B102 E13	6705242	PCES:	1, LBS:	4084				
E7B102 E14	6705248	PCES:	1, LBS:	4084					E7B102 E12	6705237	PCES:	1, LBS:	4084				
W7B598 E06	6705209	PCES:	1, LBS:	4084					E7B102 E13	6705240	PCES:	1, LBS:	4084				
E7B102 E12	6705238	PCES:	1, LBS:	4084					W7B598 E06	6705198	PCES:	1, LBS:	4084				
E7B102 E14	6705251	PCES:	1, LBS:	4084					W7B598 E06	6705197	PCES:	1, LBS:	4084				
E7B102 E13	6705241	PCES:	1, LBS:	4084					E7B102 E12	6705230	PCES:	1, LBS:	4084				

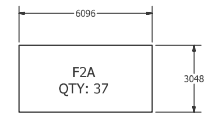
(P) Cust Part #:

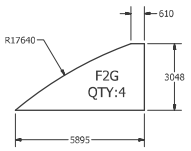
WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

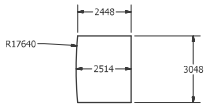
Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

Item 8 - Floor - Weld Map

PARTS LIST			
ITEM	QTY	DESCRIPTION	MATERIAL
F2A	37	PL 6.35 X 3048 X 6096	G40.21M-260WT
F2B	2	PL 6.35 X 3048 X 2514	G40.21M-260WT
F2C	4	PL 6.35 X 3048 X 5480	G40.21M-260WT
F2D	4	PL 6.35 X 3048 X 1931	G40.21M-260WT
F2E	4	PL 6.35 X 3048 X3866	G40.21M-260WT
F2F	4	PL 6.35 X 3048 X 5094	G40.21M-260WT
F2G	4	PL 6.35 X 3048 X 5895	G40.21M-260WT
F2H	4	PL 6.35 X 3048 X 5485	G40.21M-260WT
F2I	4	PL 6.35 X 3131 X 845	G40.21M-260WT
F2J	2	PL 6.35 X 838 X 6096	G40.21M-260WT







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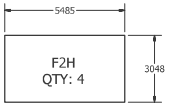
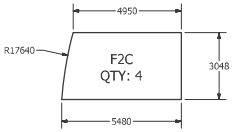
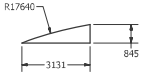
QTY: 2







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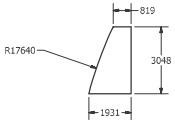
QTY: 4



F2D
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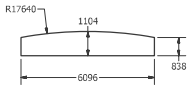
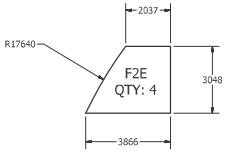
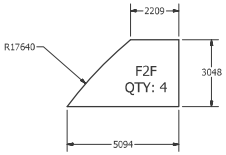
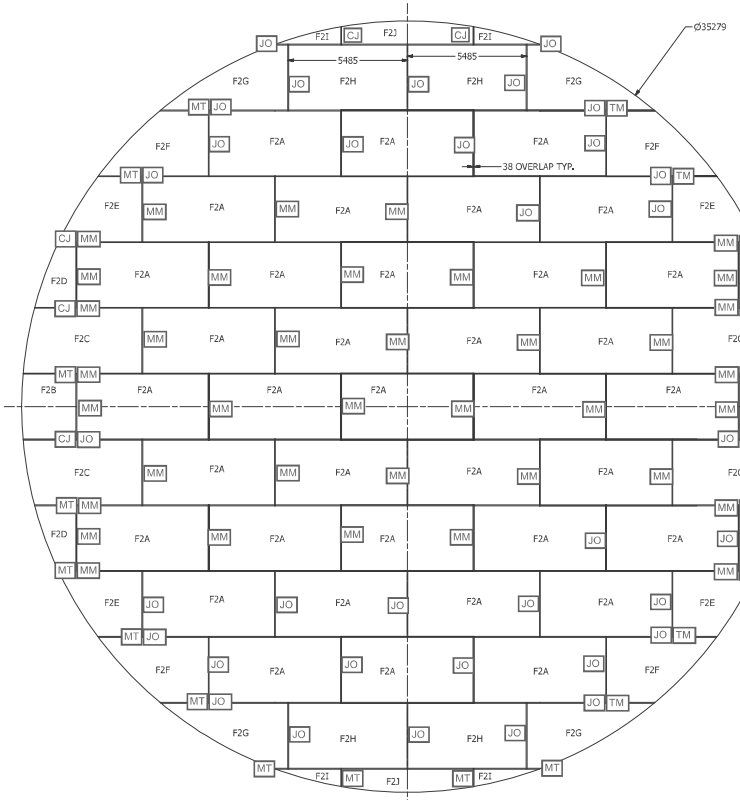


F2J
QTY: 2







TANK 2 (13.5ML) FLOOR LAYOUT
SCALE 1 / 100

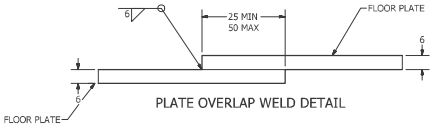


PLATE OVERLAP WELD DETAIL

NOTE - PER API-650 5.1.5.4 - BOTTOM PLATES UNDER THE SHELL SHALL HAVE THE OUTER ENDS OF THE JOINTS FITTED AND LAP-WELDED TO FORM A SMOOTH BEARING SURFACE.

19-Jul-2017
Permit Number: P471

DRAWN	JACOB SAUNDERS	1/10/2017	TK #2 (13.5ML) - FLOOR LAYOUT
CHECKED	MARC LOSIER	3/14/2017	
QA			TITLE: MELIADINE FIELD ERECTED TANKS - TANK #2 (13.5ML) FLOOR AND ROOF LAYOUT
MFG			
APPROVED			

SIZE A1 | DWG NO 295-M2 | REV 1
SCALE 1 / 100 | SHEET 1 OF 2

Sub-Arc Systems Inc.

4605-47 Street
Vermillion, AB, T9X 1L6
780-608-9589

Exhibit 15c, Rev 1

QUALITY CONTROL MANUAL

VISUAL TEST REPORT

Customer: Agnico Eagle

Location: Rankin Inlet

Code Requiring Test: API 650 (section 8.5.2) Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A Test Date(s):

Tested by: Ambient Conditions:

Items Tested:

FLOOR WELDS.

Results:

ALL FLOOR WELD VISUALY TESTED. ALL WELDS ACCEPTABLE.

Sub-Arc Representative Signature: _____ Date: AUG 31/17

Client Representative Signature: Glen Boivin Date: Sept 04/17

Client Signature: _____ Date: _____

Sub-Arc Systems Inc.

4605-47 Street
Vermillion, AB, T9X 1L6
780-608-9589

QUALITY CONTROL MANUAL

Exhibit 14, Rev 1

VACUUM BOX TEST REPORT – FLOOR PLATE WELDS

Customer: AGNICO EAGLE

Location: RANKIN INLET TANK #2

Equipment Tag No.: N/A

Equipment Description: N/A

Code Requiring Test: API 650 Reason for Test: New Construction

(A vacuum box/soap solution test for floor plate weld seams is required for new construction or major alterations, no visible leaks should be observed)

Test Solution: Water / Snoop Ambient Conditions: 10°

Test Date(s): AUG 7/17 Surface Condition: CLEAN

Tested by: MATT MACKENZIE Surface Test Temperature: 10°

Pressure Gauge:

Items Tested:

FLOOR WELDS.

Results:

ALL FLOOR WELDS WERE VACUMM BOX TESTED
ONE LEAK WAS DETECTED. AREA WAS FIXED, THEN RE-TESTED.
NO FURTHER LEAKS WERE FOUND.

Sub-Arc Representative Signature: [signature] Date: Aug 7/17

Client Representative Signature: _____ Date: _____

Client Signature: Clem Bonin CLEM BONIN Date: aug 23/17

Item 9 – Shell to Floor Seams

Contents

Item 9 - Shell to Floor Seams - Initial and Final Pass Weld Map

Inside shell to floor first pass MM
Inside shell to floor final pass JO

PARTS LIST			
ITEM	QTY	DESCRIPTION	MATERIAL
F2A	37	PL 6.35 X 3048 X 6096	G40.21M-260WT
F2B	2	PL 6.35 X 3048 X 2514	G40.21M-260WT
F2C	4	PL 6.35 X 3048 X 5480	G40.21M-260WT
F2D	4	PL 6.35 X 3048 X 1931	G40.21M-260WT
F2E	4	PL 6.35 X 3048 X3866	G40.21M-260WT
F2F	4	PL 6.35 X 3048 X 5094	G40.21M-260WT
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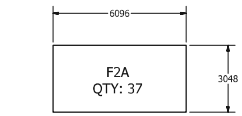
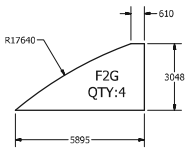
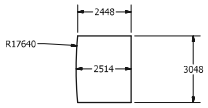
F2H	4	PL 6.35 X 3048 X 5485	G40.21M-260WT
F2I	4	PL 6.35 X 3131 X 845	G40.21M-260WT
F2J	2	PL 6.35 X 838 X 6096	G40.21M-260WT







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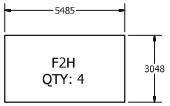
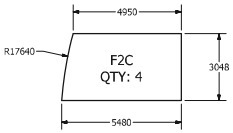
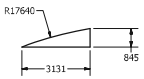
QTY: 2







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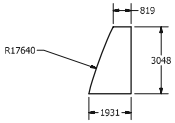
QTY: 4



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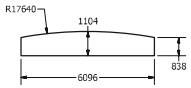

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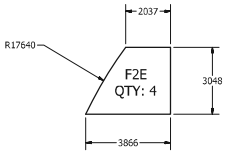
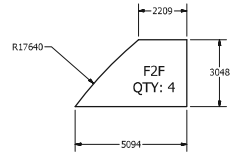
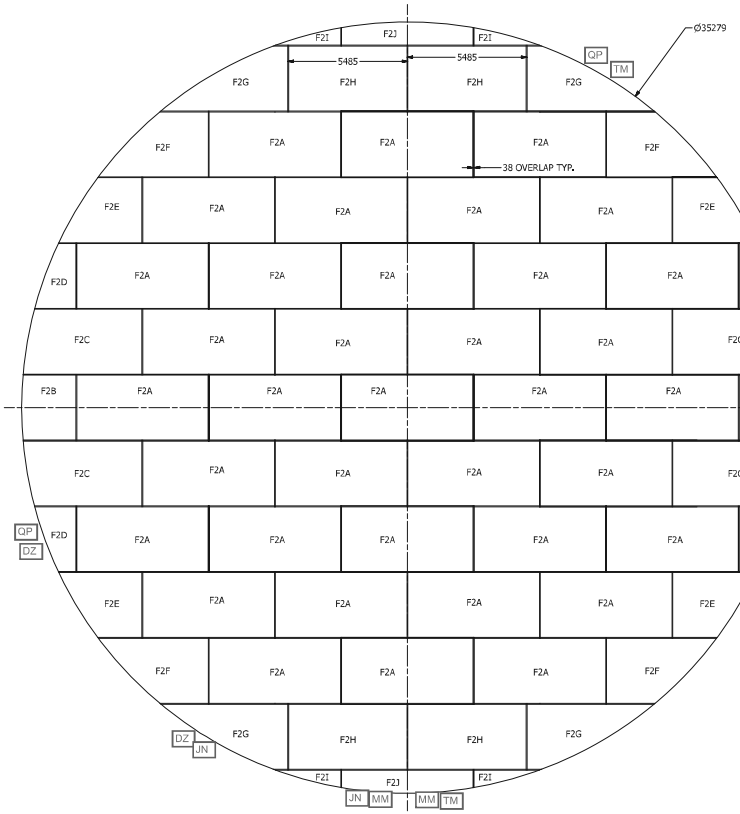
QTY: 2







TANK 2 (13.5ML) FLOOR LAYOUT
SCALE 1 / 100

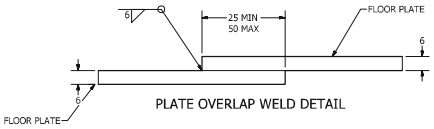


PLATE OVERLAP WELD DETAIL

NOTE - PER API-650 5.1.5.4 - BOTTOM PLATES UNDER THE SHELL SHALL HAVE THE OUTER ENDS OF THE JOINTS FITTED AND LAP-WELDED TO FORM A SMOOTH BEARING SURFACE.

19-Jul-2017
Permit Number: P471

DRAWN	JACOB SAUNDERS	1/10/2017	TK #2 (13.5ML) - FLOOR LAYOUT
CHECKED	MARC LOSIER	3/14/2017	
QA			TITLE: MELIADINE FIELD ERECTED TANKS - TANK #2 (13.5ML) FLOOR AND ROOF LAYOUT
MFG			
APPROVED			

SIZE A1 | DWG NO 295-M2 | REV 1
SCALE 1 / 100 | SHEET 1 OF 2

Sub-Arc Systems Inc.

4605-47 Street
Vermillion, AB, T9X 1L6
780-608-9589

QUALITY CONTROL MANUAL

Exhibit 15c, Rev 1

VISUAL TEST REPORT

Customer: Agnico Eagle

Location: Rankin Inlet

Code Requiring Test: API 650 (section 8.5.2) Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A Test Date(s): Aug 18/17

Tested by: MATT MACKENZIE. Ambient Conditions: 9°

Items Tested:

SHELL TO FLOOR WELD.

Results:

SHELL TO FLOOR WELD VISUALLY INSPECTED.
NO DEFECTS WERE FOUND ALL WELDS ACCEPTABLE.

Sub-Arc Representative Signature: [signature] Date: Aug 18/17.

Client Representative Signature: _____ Date: _____

Client Signature: [signature] CLEM BONITA Date: Aug 23/17

Sub-Arc Systems Inc.

4605-47 Street
Vermillion, AB, T9X 1L6
780-608-9589

QUALITY CONTROL MANUAL

Exhibit 15a, Rev 1

DIESEL TEST REPORT (SHELL TO BOTTOM WELD)

Customer: Agnico Eagle

Location: Rankin Inlet Tank #2

Equipment Tag No.: N/A

Equipment Type: N/A

Equipment Description: N/A

Code Requiring Test: API 650 (section 7.2.4) Reason for Test: New Construction

(The initial weld pass inside the shell shall have all slag and non-metals removed from the surface of the weld and then examined for its entire circumference both visually and applying a high Flash-point penetrating oil such as light diesel to the gap between the shell and the bottom, letting stand for at least four hours, and examining the weld for evidence of wicking.)

Surface Condition (As Welded)

Test Solution: Diesel Test Date(s): Aug 4/17

Tested by: Matt MacKenzie Ambient Conditions: 12° C

Items Tested:

Shell to bottom Weld.

Results:

No leaks were found at time of inspection.

Sub-Arc Representative Signature: [signature] Date: Aug 4/17

Client Representative Signature: _____ Date: _____

Client Signature: Clem Bonin [signature] Date: Aug 23/17

Item 10 - Shell

Contents

SSAB

Test Certificate

Form TC1: Revision 2: Date 23 Apr 2014

12400 Highway 43 North, Axis, Alabama 36505, US

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-06 | **Shipping Manifest:** AR239887

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Size: 0.562 X 113.0 X 365.0 (IN)

Ship Date: 16 Feb 17 | **Cert No:** 081596751
Cert Date: 16 Feb 17 | (Page 1 of 1)

Tested Pieces:				Tensiles:						Charpy Impact Tests							
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
E7B111	B15	0.568 (DISCRT)	C	51	72		26	T		114 106 131 117		-45F	L	10.	
			C							76 81 74 77		-45F	T	10.	

Chemical Analysis

Heat Id	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	ORGN
E7B111	.18	.92	.010	<.001	.24	.027	.026	.26	.14	.11	.04	.002	.005	.011	.0002	.0074	USA

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
NORMALIZED PLATES. HEATED AT 1665F FOR 26 MINUTES.
TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
PRODUCTS SHIPPED:

E7B111	B15	6704705	PCES:	1,	LBS:	6574	E7B111	B15	6704706	PCES:	1,	LBS: 6574
E7B111	B15	6704704	PCES:	1,	LBS:	6574	E7B111	B15	6704707	PCES:	1,	LBS: 6574

(P) Cust Part #:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

SSAB

Test Certificate

Form TC1: Revision 2: Date 23 Apr 2014

12400 Highway 43 North, Axis, Alabama 36505, US

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-06 | **Shipping Manifest:** AR239891

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Size: 0.562 X 113.0 X 365.0 (IN)

Ship Date: 16 Feb 17
Cert Date: 16 Feb 17

Cert No: 081596775
(Page 1 of 1)

Tested Pieces:				Tensiles:						Charpy Impact Tests							
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
E7B111	B15	0.568 (DISCRT)	C	51	72		26	T		114 106 131 117		-45F	L	10.	
			C							76 81 74 77		-45F	T	10.	
E7B111	B16	0.568 (DISCRT)	C	50	72		27	T		135 123 122 127		-45F	L	10.	
			C							112 84 96 97		-45F	T	10.	

Heat Id	Chemical Analysis C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	ORGN
E7B111	.18	.92	.010	<.001	.24	.027	.026	.26	.14	.11	.04	.002	.005	.011	.0002	.0074	USA

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
NORMALIZED PLATES. HEATED AT 1665F FOR 26 MINUTES.
TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
PRODUCTS SHIPPED:

E7B111 B16	6704877	PCES:	1,	LBS:	6574	E7B111 B15	6704876	PCES:	1,	LBS:	6574
E7B111 B15	6704866	PCES:	1,	LBS:	6574	E7B111 B15	6704867	PCES:	1,	LBS:	6574
E7B111 B15	6704865	PCES:	1,	LBS:	6574	E7B111 B15	6704864	PCES:	1,	LBS:	6574
E7B111 B15	6704708	PCES:	1,	LBS:	6574	E7B111 B16	6704878	PCES:	1,	LBS:	6574

(P) Cust Part #:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

SSAB

Test Certificate

Form TC1: Revision 2: Date 23 Apr 2014

12400 Highway 43 North, Axis, Alabama 36505, US

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-08 | **Shipping Manifest:** AR239887

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Ship Date: 16 Feb 17 | **Cert No:** 081596752
Cert Date: 16 Feb 17 | (Page 1 of 1)

Size: 0.437 X 113.0 X 365.0 (IN)

Tested Pieces:				Tensiles:						Charpy Impact Tests						
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
E7B111	B14	0.443 (DISCRT)	C	53	74		27	T		143 155 114 137		-45F	L	10.	
			C							90 102 80 91		-45F	T	10.	
W7B608	B11	0.442 (DISCRT)	C	53	75		26	T		121 122 118 120		-50F	L	10.	
			C							104 93 51 83		-50F	T	10.	

Chemical Analysis

Heat Id	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	ORGN
E7B111	.18	.92	.010	<.001	.24	.027	.026	.26	.14	.11	.04	.002	.005	.011	.0002	.0074	USA
W7B608	.18	.92	.008	.001	.24	.027	.026	.26	.18	.10	.05	.001	.005	.011	.0002	.0079	USA

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
NORMALIZED PLATES. HEATED AT 1665F FOR 21 MINUTES.
TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
PRODUCTS SHIPPED:
W7B608 B11 6704648 PCES: 1, LBS: 5112
E7B111 B14 6704652 PCES: 1, LBS: 5112
W7B608 B11 6704649 PCES: 1, LBS: 5112

(P) Cust Part #:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

SSAB

Test Certificate

Form TC1: Revision 2: Date 23 Apr 2014

12400 Highway 43 North, Axis, Alabama 36505, US

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-08 | **Shipping Manifest:** AR239886

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Ship Date: 16 Feb 17 | **Cert No:** 081596745
Cert Date: 16 Feb 17 | (Page 1 of 1)

Size: 0.437 X 113.0 X 365.0 (IN)

Tested Pieces:				Tensiles:						Charpy Impact Tests							
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
E7B111	B14	0.443 (DISCRT)	C	53	74		27	T		143 155 114 137		-45F	L	10.	
			C							90 102 80 91		-45F	T	10.	
W7B608	B11	0.442 (DISCRT)	C	53	75		26	T		121 122 118 120		-50F	L	10.	
			C							104 93 51 83		-50F	T	10.	

Chemical Analysis

Heat Id	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	ORGN
E7B111	.18	.92	.010	<.001	.24	.027	.026	.26	.14	.11	.04	.002	.005	.011	.0002	.0074	USA
W7B608	.18	.92	.008	.001	.24	.027	.026	.26	.18	.10	.05	.001	.005	.011	.0002	.0079	USA

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
NORMALIZED PLATES. HEATED AT 1665F FOR 21 MINUTES.
TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
PRODUCTS SHIPPED:

E7B111	B14	6704428	PCES:	1,	LBS:	5112	W7B608	B11	6704660	PCES:	1, LBS: 5112
W7B608	B11	6704659	PCES:	1,	LBS:	5112	W7B608	B11	6704657	PCES:	1, LBS: 5112
W7B608	B11	6704658	PCES:	1,	LBS:	5112	W7B608	B11	6704656	PCES:	1, LBS: 5112

(P) Cust Part #:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

SSAB

Test Certificate

Form TC1: Revision 2: Date 23 Apr 2014

12400 Highway 43 North, Axis, Alabama 36505, US

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-08 | **Shipping Manifest:** AR239888

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Size: 0.437 X 113.0 X 365.0 (IN)

Ship Date: 16 Feb 17 | **Cert No:** 081596755
Cert Date: 16 Feb 17 | (Page 1 of 1)

Tested Pieces:				Tensiles:						Charpy Impact Tests							
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
E7B111	B14	0.443 (DISCRT)	C	53	74		27	T		143 155 114 137		-45F	L	10.	
			C							90 102 80 91		-45F	T	10.	
W7B608	B11	0.442 (DISCRT)	C	53	75		26	T		121 122 118 120		-50F	L	10.	
			C							104 93 51 83		-50F	T	10.	

Heat Id	Chemical Analysis C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	ORGN
E7B111	.18	.92	.010	<.001	.24	.027	.026	.26	.14	.11	.04	.002	.005	.011	.0002	.0074	USA
W7B608	.18	.92	.008	.001	.24	.027	.026	.26	.18	.10	.05	.001	.005	.011	.0002	.0079	USA

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
NORMALIZED PLATES. HEATED AT 1665F FOR 21 MINUTES.
TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
PRODUCTS SHIPPED:
E7B111 B14 6704427 PCES: 1, LBS: 5112 W7B608 B11 6704442 PCES: 1, LBS: 5112

(P) Cust Part #:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

SSAB

Test Certificate

Form TC1: Revision 2: Date 23 Apr 2014

12400 Highway 43 North, Axis, Alabama 36505, US

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-08 | **Shipping Manifest:** AR239887

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Ship Date: 16 Feb 17 | **Cert No:** 081596752
Cert Date: 16 Feb 17 | (Page 1 of 1)

Size: 0.437 X 113.0 X 365.0 (IN)

Tested Pieces:				Tensiles:						Charpy Impact Tests						
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
E7B111	B14	0.443 (DISCRT)	C	53	74		27	T		143 155 114 137		-45F	L	10.	
			C							90 102 80 91		-45F	T	10.	
W7B608	B11	0.442 (DISCRT)	C	53	75		26	T		121 122 118 120		-50F	L	10.	
			C							104 93 51 83		-50F	T	10.	

Chemical Analysis

Heat Id	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	ORGN
E7B111	.18	.92	.010	<.001	.24	.027	.026	.26	.14	.11	.04	.002	.005	.011	.0002	.0074	USA
W7B608	.18	.92	.008	.001	.24	.027	.026	.26	.18	.10	.05	.001	.005	.011	.0002	.0079	USA

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
NORMALIZED PLATES. HEATED AT 1665F FOR 21 MINUTES.
TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
PRODUCTS SHIPPED:
W7B608 B11 6704648 PCES: 1, LBS: 5112
E7B111 B14 6704652 PCES: 1, LBS: 5112
W7B608 B11 6704649 PCES: 1, LBS: 5112

(P) Cust Part #:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

SSAB

Test Certificate

Form TC1: Revision 2: Date 23 Apr 2014

12400 Highway 43 North, Axis, Alabama 36505, US

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-08 | **Shipping Manifest:** AR239891

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Ship Date: 16 Feb 17 | **Cert No:** 081596776
Cert Date: 16 Feb 17 | (Page 1 of 1)

Size: 0.437 X 113.0 X 365.0 (IN)

Tested Pieces:				Tensiles:						Charpy Impact Tests						
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
W7B608	B11	0.442 (DISCRT)	C	53	75		26	T		121 122 118 120		-50F	L	10.	
			C							104 93 51 83		-50F	T	10.	

Chemical Analysis

Heat Id	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	ORGN
W7B608	.18	.92	.008	.001	.24	.027	.026	.26	.18	.10	.05	.001	.005	.011	.0002	.0079	USA

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
NORMALIZED PLATES. HEATED AT 1665F FOR 21 MINUTES.
TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
PRODUCTS SHIPPED:
W7B608 B11 6704647 PCES: 1, LBS: 5112

(P) Cust Part #:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

SSAB

Test Certificate

Form TC1: Revision 2: Date 23 Apr 2014

12400 Highway 43 North, Axis, Alabama 36505, US

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-09 | **Shipping Manifest:** AR239886

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Ship Date: 16 Feb 17
Cert Date: 16 Feb 17

Cert No: 081596746
(Page 1 of 1)

Size: 0.375 X 113.0 X 365.0 (IN)

Tested Pieces:				Tensiles:						Charpy Impact Tests							
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
W7B608	B06	0.381 (DISCRT)	C	53	75		27	T		77 78 103 86		-50F	L	7.5	
			C							46 31 49 42		-50F	T	7.5	
W7B608	B07	0.380 (DISCRT)	C	52	75		27	T		88 103 87 93		-45F	L	7.5	
			C							54 52 48 51		-45F	T	7.5	
W7B608	B08	0.381 (DISCRT)	C	53	74		26	T		100 122 119 114		-45F	L	7.5	
			C							40 57 79 59		-45F	T	7.5	

Chemical Analysis

Heat Id	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	ORGN
W7B608	.18	.92	.008	.001	.24	.027	.026	.26	.18	.10	.05	.001	.005	.011	.0002	.0079	USA

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
CHARPY FULL SIZE EQUIVALENT = ABSORBED ENERGY AVG X 10 / TEST SIZE IN MM
NORMALIZED PLATES. HEATED AT 1665F FOR 19 MINUTES.
TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
PRODUCTS SHIPPED:

W7B608 B08	6704576	PCES:	1,	LBS:	4386	W7B608 B07	6704580	PCES:	1,	LBS:	4386
W7B608 B07	6704579	PCES:	1,	LBS:	4386	W7B608 B08	6704577	PCES:	1,	LBS:	4386
W7B608 B08	6704583	PCES:	1,	LBS:	4386	W7B608 B07	6704582	PCES:	1,	LBS:	4386
W7B608 B07	6704578	PCES:	1,	LBS:	4386	W7B608 B08	6704589	PCES:	1,	LBS:	4386
W7B608 B08	6704585	PCES:	1,	LBS:	4386	W7B608 B08	6704586	PCES:	1,	LBS:	4386
W7B608 B08	6704588	PCES:	1,	LBS:	4386	W7B608 B07	6704581	PCES:	1,	LBS:	4386
W7B608 B08	6704590	PCES:	1,	LBS:	4386	W7B608 B08	6704587	PCES:	1,	LBS:	4386
W7B608 B06	6704488	PCES:	1,	LBS:	4386	W7B608 B07	6704499	PCES:	1,	LBS:	4386
W7B608 B06	6704485	PCES:	1,	LBS:	4386	W7B608 B08	6704574	PCES:	1,	LBS:	4386
W7B608 B08	6704575	PCES:	1,	LBS:	4386	W7B608 B07	6704498	PCES:	1,	LBS:	4386

(P) Cust Part #:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

SSAB

Test Certificate

Form TC1: Revision 2: Date 23 Apr 2014

12400 Highway 43 North, Axis, Alabama 36505, US

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-09 | **Shipping Manifest:** AR239888

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Ship Date: 16 Feb 17 | **Cert No:** 081596756
Cert Date: 16 Feb 17 | (Page 1 of 1)

Size: 0.375 X 113.0 X 365.0 (IN)

Tested Pieces:				Tensiles:						Charpy Impact Tests							
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
W7B608	B06	0.381 (DISCRT)	C	53	75		27	T		77 78 103 86		-50F	L	7.5	
			C							46 31 49 42		-50F	T	7.5	
W7B608	B07	0.380 (DISCRT)	C	52	75		27	T		88 103 87 93		-45F	L	7.5	
			C							54 52 48 51		-45F	T	7.5	

Chemical Analysis

Heat Id	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	ORGN
W7B608	.18	.92	.008	.001	.24	.027	.026	.26	.18	.10	.05	.001	.005	.011	.0002	.0079	USA

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
CHARPY FULL SIZE EQUIVALENT = ABSORBED ENERGY AVG X 10 / TEST SIZE IN MM
NORMALIZED PLATES. HEATED AT 1665F FOR 19 MINUTES.
TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
PRODUCTS SHIPPED:

W7B608	B06	6704489	PCES:	1,	LBS:	4386	W7B608	B07	6704497	PCES:	1, LBS: 4386
W7B608	B07	6704495	PCES:	1,	LBS:	4386	W7B608	B06	6704480	PCES:	1, LBS: 4386
W7B608	B06	6704492	PCES:	1,	LBS:	4386	W7B608	B06	6704491	PCES:	1, LBS: 4386
W7B608	B06	6704490	PCES:	1,	LBS:	4386	W7B608	B07	6704496	PCES:	1, LBS: 4386
W7B608	B06	6704484	PCES:	1,	LBS:	4386	W7B608	B06	6704481	PCES:	1, LBS: 4386
W7B608	B06	6704486	PCES:	1,	LBS:	4386	W7B608	B06	6704487	PCES:	1, LBS: 4386
W7B608	B07	6704500	PCES:	1,	LBS:	4386					

(P) Cust Part #:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

SSAB

Test Certificate

Form TC1: Revision 2: Date 23 Apr 2014

12400 Highway 43 North, Axis, Alabama 36505, US

Customer:
SAMUEL, SON & CO. LTD
1250 APPLEBY LINE

BURLINGTON
ON L7L5G6

Customer P.O.No.: C41966 & 41-490196 | **Mill Order No.** 41-491119-09 | **Shipping Manifest:** AR239891

Product Description: CSA G40.21(2013) 38WT/260WT - CAT 5;LCVN 15FT.LBS,TCVN13FT.LBS@-45F/A673-P ALLOYS API650(12TH ED) TABLE 4-1 GR.IIIA NORMALIZED

Size: 0.375 X 113.0 X 365.0 (IN)

Ship Date: 16 Feb 17
Cert Date: 16 Feb 17

Cert No: 081596777
(Page 1 of 1)

Tested Pieces:				Tensiles:						Charpy Impact Tests								
Heat Id	Piece Id	Tested Thickness	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Hardness	Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Tmp	Tst Dir	Tst Siz (mm)	BDWTT Tmp %Shr
W7B608	B09	0.381 (DISCRT)	C	52	73		26	T		97 83 96 92		-45F	L	7.5	
			C							50 58 48 52		-45F	T	7.5	
W7B608	B10	0.380 (DISCRT)	C	52	74		23	T		120 92 86 99		-45F	L	7.5	
			C							53 51 57 54		-45F	T	7.5	

Heat	Chemical Analysis																	
Id	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N		ORGN
W7B608	.18	.92	.008	.001	.24	.027	.026	.26	.18	.10	.05	.001	.005	.011	.0002	.0079		USA

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
CHARPY FULL SIZE EQUIVALENT = ABSORBED ENERGY AVG X 10 / TEST SIZE IN MM
NORMALIZED PLATES. HEATED AT 1665F FOR 19 MINUTES.
TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
PRODUCTS SHIPPED:

W7B608	B09	6704857	PCES:	1,	LBS:	4386	W7B608	B09	6704863	PCES:	1, LBS: 4386
W7B608	B09	6704858	PCES:	1,	LBS:	4386	W7B608	B09	6704856	PCES:	1, LBS: 4386
W7B608	B09	6704848	PCES:	1,	LBS:	4386	W7B608	B09	6704846	PCES:	1, LBS: 4386
W7B608	B10	6704849	PCES:	1,	LBS:	4386	W7B608	B09	6704853	PCES:	1, LBS: 4386
W7B608	B09	6704855	PCES:	1,	LBS:	4386	W7B608	B09	6704854	PCES:	1, LBS: 4386
W7B608	B10	6704850	PCES:	1,	LBS:	4386	W7B608	B09	6704847	PCES:	1, LBS: 4386

(P) Cust Part #:

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Justin Ward +1 251 662 4400
SENIOR METALLURGIST - PRODUCT

Sub-Arc Systems Inc.

4605-47 Street
Vermillion, AB, T9X 1L6
780-608-9589

QUALITY CONTROL MANUAL

Exhibit 18, Rev A

DIMENSIONAL CHECK REPORT – ROUNDNESS

Customer: AGNICO EAGLE

Location: RANKIN INLET. TANK #2.

Equipment Tag No.: N/A

Equipment Type: N/A

Equipment Description: N/A.

Code Requiring Test: API 650 Reason for Test: New Construction

(The tank shell will be checked for roundness at 12" above the tank floor. Roundness will be checked at 45 degree intervals or less, max. 20' spacing)

Test Date(s): Aug 8/17.

Tested by:

Seam Test Results:

Roundness checks were made every 20' around the tank. All Areas were found acceptable.

Sub-Arc Representative Signature: _____ Date: Aug 8/17.

Client Representative Signature: _____ Date: _____

Client Signature: Stephany Giant Date: Aug 21/17

Item 10 - Shell Roundness Dimension Report - AmSpec Data (3rd party)

AmSpec

LASER DIAMETERS

Dia	Beam	Hyp	
14.000		14.000	0.000

Enter Diameters (or Radii) in decimal Ft. Ex: 45.90

	Diameters left	Right	of center beam
1	114.92	114.81	
2	114.93	115.05	
3	115.15	115.14	
4	115.09	115.13	
5	115.09	115.11	
6	115.11	114.99	
7	115.08	115.07	
8	115.07	115.90	
9	115.05	115.11	
10	115.07	115.07	
11	115.05	115.07	
12	115.12	115.13	
13	115.12	115.15	
14	114.97	115.11	
15	114.94	114.86	
16	115.12	115.13	
17	115.08	115.12	
18	115.04	115.02	
19	115.04	115.06	
20	115.13	115.11	
21	115.08	115.08	
22	115.06	115.01	
23	115.08	115.07	
24	115.12	115.15	
25	115.14	115.18	
26	114.88	114.95	
27			
28			
29			
30			
31			
32			
33			
34			
Average=	115.059	115.099	

TAKE LASER DIAMETERS ABOUT EVERY 3 to 5 FEET AROUND THE INSIDE PERIMETER OF THE TANK FOR 180 DEGREES (HALF WAY ROUND). TAKING READINGS BOTH (ALTERNATE) SIDES OF THE CENTER POST/COLUMN.

IF DIAMETER DISTANCE IS TOO GREAT FOR LASER, THEN TAKE RADII FROM CENTER PIPE (NOT FROM A COLUMN) ABOUT EVERY 5 FEET AROUND THE INSIDE PERIMETER OF THE TANK FOR 360 DEGREES