Mechanical/Piping/Electrical/Instrumentation (MPEI) Construction Summary – Rankin Inlet Tank Farm

- Primary MPEI construction contractor was NUQSANA PROMEC MINING
- Engineering firm for NUQSANA PROMEC MINING was ULTRAGEN
- All survey conducted by Hamel Arpentage

1. Marine pipeline requisite for filling tanks (August 17th to October 14th)

- Pipefitters welding pipe supports and placing on pads on slope to manifold.
- Fabricating pipe
- Filling marine line pipe for testing
- Tested marine line from east of tank farm to manifold (completed)
- Installing and welding piping marine line inside containment to tank 2
- Air pressure testing marine line And discharge to pump station.
- Re-tested marine line after replacement of flexible
- Installed blind after valve of tank 2 on marine line

2. Miscellaneous steel elements associated to pumping station(September 2nd to October 14th)

- backfilling trench for underground pipe
- Installing wire mesh in form ready to pour
- Installing concrete block and manifold on marine line
- Installing concrete pads for walkways
- Installing walkways over berm and piping
- Excavator and backfill electrical trench power line to manifold
- Set ventilation container (scrubber) on concrete blocks
- Installing 16" ventilation pipe from vac c-can to #2 tank.
- Installing stairs to electrical and pump container
- Welding 16" flange on ventilation pipe
- Painting inside ventilation building
- Working on securing electrical tray welding reinforcement
- Anchor Catwalk
- Close opening on ventilation building
- Ventilation dock to install on building
- Paint touch up
- Install 16" flexible on scrubber

3. Piping interrelated to pumping station (September 16th to October 21st)

- Moving pipe and fitting in preparation to start work for tank 2
- Assembling and welding piping south of tank 2
- Assembling and welding piping combustible area
- Assembling and welding piping north of tank 2
- Welding piping combustible area
- Assembling and welding piping discharge line to pump station north of tank 2
- Installing pressure release valve piping on tank

- Install labeling on valves
- Installed pipe support at pump station building
- Torking bolts piping
- Install gauge at pumping station
- Install 2"drain valve that was missing (Completed)

4. Electrical construction 2017 (September 16th to October 21st)

- Prep work: relocating C-Can with electrical materiel
- Installing grounding east and north of tank containment
- Electrician installs cable tray, pulling wire and connection wires
- Electrician installing ground wire
- Tag installation on electrical
- Finish installation strobe
- Electricians working on installing meter for permanent power

5. Testing - Rankin Inlet Site (September 2nd to October 14th)

- Testing and connection wires sea-can container
- Pipefitters assisting tanker unloading

Equipment Used for Construction (NUQSANA PROMEC MINING):

- Excavator
- Sky Track

QA/QC Summary

- 1. Non destructive examination; an magnetic particles inspection was conducted on socket weld and was accepted and conform to the standard. These inspections were done by MISTRAS firm.
- 2. Piping testing and cleaning; Air pressure test and water pressure water were done by NUQSANA PROMEC MINING on all the fuel line. After that, the cleaning were done with the pigging
- 3. Fire Protection; Automatic dry chemical fire suppression are installed as defined by the NFPA Standard for Dry Chemical Extinguishing Systems, NFPA-17.
- 4. As built drawings; Red line have been done on the isometric drawing
- 5. Refer to annexe O, section 6 and 7

APPENDIX H

Inspection Report – Inspection Test Plan



	4	7		ÇS	- Ui		A		4		IJ	Τ-	-	_	Z	
PROCESSIE OF SHIEFAST COURTS - Under Rose		Placement of Material <200mm		Placement of Material commun	Site Preparation		Survey Layout	State of the state			Materials Production	Ince Approved (issued for Construction)		the work to be performed.)		Description of Activities
MTRCSL		MIKSL	TENIE		MIKSL		HAMEL	AEM		AEMMIKSL		AEM / BITK9L		27	Functional	
placement of materials	Manifestars	20	placement of materials	Monitoring	Ensure alte is acceptable for	construction	Layout area of	Acceptance		Acceptance	Mariania	approved and Constru	Carlo and Pro-		Characteristic	
As required 5		As required 5	As required		Once	Detembar av		Ongoing		As required		ctlon		Frequency		
Technical Specs	Technical Specs	Site Standards	Site Standards, Technical Specs	Technical Specs	Site Standards,	eaued (FC's		Site Standards		Technical Space		leaned IFCs		Document(s)		
Conforms to IFCs and Technical space	specs	Conforms to IFCs	and Tectorical	specs	Conforms to IFCs	Conforms to IFC's.		Material subability		Passing material gradation		Stamped IFC Drawings and latest revisions		Acceptance Criteria		
Beck Fill V	Report	=	Report V	Report	Release for backfill /	Report Layout V	Sheat	Balance &		Sieve Analysis WA		Drawing Log; AEM Transmittal		(Reporting)	Victoria	
	-					_	-	AWA	-	AW	+	-	F	Туре	June .	
	-	+	_								-			Initialo	Shormour GC	
20	1 20		JU.	-		I								Date		
51				5	-	_	_			<u> </u>	-	X.	L	Тура	Gener	
3	5	-	ξ. 3	3			4		-	33	1	25	Ľ	nitials	Con	YES
HH	16/4 JA	rations	にがわ	北北山	ample Off	a with color	4	the land	25/2	The First	101	FI PANE		Date	General Contractor QC	VERIFICATION DATA
\$			\$					2		Š		70		Туре		NDAT
35	3	_	?	X	, C	२	6		7	S	1	3	li	itlafs		A.
167/19	1/67/17	11/07/1	15/20	1769/15	11/1/17	10/2/20	1/68/19		MAIN	2	1100	13/25/20		Date	AEN	
35	3.5	1/2	3	3	6 6	1	13	1	15	2	8	3	_	Title		
Density testing by AEM. Survey by Harnet, Holsture condition as required. Lift to be	Survey by Hamel, Lift to be refeased by QA.	be rejeased by QA	Density testing by AEM.		(Hamel)	Survey provided by AFM	to be dictated by AFM	Materials sources for	histing. OC Testing by	Sieve Analysis and	Document Control Yord older revisions	No work to proceed without Approved IFC Drawings issued fro AFE		Comments		

		CWP No.: 65	Onocompactor: 16	1	Work Area:	Contact Person: M	Area/System No.: Fuel Ferms	Contractor	PROJECT:
		- 10	Texel (Liner), Hamel (Survey), AEM Field Engineering (Materials Testing)	A SALL GOOD [ALL]	Rankin Fred Carry	MTKSt Mike Price	Fuel Farms	MTKSL	AGNICO EAGLE MINES (AEM) -CIVIL WORKS - RANKIN LAYDOWN
	No.: N/A	13			,				WW
Locumentation	R: Review	l: Inspection	n. now room	H. Malitarion Type	Vedforder Ton				
	w.	·.	1						
The secure of Report QA Recommentation	LI TON	Results	Test				No.:		
QA P		THE THE	20	AEM J		ITP Na.:	Contract/Job	×	
thorne pritation	Diselity Agency	Field Engineer	CC Construction Coordinator	AEM Job Titles		20170630 C005 001			

INSPECTION TEST PLAN

MIKSL

Page 1 of 2

Comments:
Applicable Sta Standard XXXXX-XXXXX
Applicable Technical Specification - 6515-GNS-014_RZ AEM Quality Manager / Supervisor / Designate (Print) Contractor Site Quality Manager / Supervisor ITP CLOSEOUT AND WORK ACCEPTANCE APPROVALS Jim Cordinal CLEM BOMIA

AEM Quality Manager / Supervisor

(Print) CLENT BONIA Contractor Site Quality Manager / Supervisor (Print) Contractor Construction Manager / Superintengent ITP ISSUE APPROVALS Construction Rouman C-CNEVAL SUPERVISOR BENEFAI SUPERVISOR Owner Constructum framon 12017-10-28 Date (minuday)) Date (mm/dd/yy) (mn/dd/yy) Date (mandalyy) Date (min/dd/)y) Lio-88-01

	7		ü	T	13	T	크	Т	5	T			-
	"inal acceptance and turnover		Walkdowns & Deficiency Correction		As built surrangry		Placement of Sand - Under Tank BY 97		Placement of Material Community	Management of Table			2011年では、1011年に
	AEMINTKSL		AEWNTKS	HAMEL	NEWNTKSL	W K SHU	SV 8801	Telvin		MAKSUTexel			
Jakonom	acceptance of		Vermon	eonstruction	Verilly	materials	Manitoring	materials	Montoring	restories a	Monitoring		
	Once	Pambas		Once		pariupan and		paymbas sr	1	Ongoing			
Technical Space	ssued IFC's	Changes	Asbuilt summary,	Approved Field	ESode IEStrator	Sita Standards	NECK STATES	5lm Standards		Manufacturers Specs, Technica Specs			
Field Changes	Conforms to IFCs.	A Approved Field	Conforms in IEC's	Approved field - classed ECN	apeca	and Technical	ppecs	and Technical	Technical Spece	Specs, Install SQF		INSPECTION TEST PLAN	
Acceptance		Cleaned Punch WA	Bo	a cleared ECN H	Lorian	Buck Fill	Modera	Back Fill	Modan	Installation		EST PLAN	
3		A.W.		-		V	たるとこれのう	only inc	The second	A Dried and			
4	9	*		-	7		一	2		Win A			
Mary Revenue	000	- 1	0-0-0		10/19/en	10.40	1408/200	4000	01/07/11	19/2/19			
- 10 3 601. Ca market	Pa 9 C. 12-16 11-16		CB 17-10		10 0 13 CA 80	DE PERSON	CA (7-03	MINE A	3	CG 1765th	8		
40.	1-4-32	Earle Ad	O THE Common of the continue and the con	40	サラの	THE TOUR	Track Back Breeze	The second second	0 +	9			
			enal change			100		Atazaredae	900		PE Zot2	9	

APPENDIX I

Inspection Report – Handover Package for Tank #2



Handover Package Tank 2 – 13,500CUM

AEM PURCHASE ORDER: OC-568510
AEM PACKAGE NO.: 6515-C-260-002
PACKAGE TITLE: FUEL TANKS (SUPPLY & INSTALL)
TANK LOCATION: RANKIN INLET

ICL Project No.: 295 ICL Document No.: 295-H2

AEM Document No.: 6515-C-260-002-141-QCR-0002 Sub001

Revision: 0

OWNER:

Agnico Eagle Mines Limited 145 King St. East, Suite 400, Toronto, Ontario M5C 2Y7

GENERAL CONTRACTOR:

Inukshuk Construction Limited PO Box 654 Rankin Inlet NU X0C 0G0

Contact: David Mosher

PH: (867) 645-4030 FX: (902) 429-7762

Submitted by: Inukshuk Construction Limited Submitted: October 30, 2017

Vendor Document Status

AGNICO EAGLE

1 Proceed to next submission and status.

2 Proceed with exceptions as noted to next submission and status.

3 Do not proceed.
Revise as noted and resubmit next submission and status.

4 Complete, no further submission required.

By:

Date:

Review and authorization to fabricate are only for general conformance with the design concept of the Project as expressed in the Contract Documents. Sole responsibility for the accuracy and completeness of this document, including but not limited to dimensions and quantities, remains with the Supplier/Contractor, Agnico Eagle does not warrant the accuracy or completeness of any of the information contained herein, nor does Agnico Eagle authorize or approve any construction means, methods, techniques, sequences or any safety precautions or procedures.

Agnico Eagle

No.

6515-C-260-002-141-QCR-0002 R: Sub001

DOCUMENT FOR INFORMATION

Preamble:

This package contains all QA/QC documents and drawings for the field erected fuel storage tank. The Inspection and Test Plan (ITP) serves as a Table of Contents for the Handover Package. The contents have been divided into items 1-20, and a table of contents for each item of the ITP can be found at the beginning of each section (item). The As-Built Drawings can be found at the end of this package.

This package was compiled by the General Contractor: **Inukshuk Construction Ltd.** and reviewed by Mechanical Engineer: **Kyle Brown**.

INSPECTION & TEST PLAN

Client:	AGNICO EAGLE	Tank Tag:	TK# 2	Document:	TK #2 ITP
Project ID:	MELIADINE GOLD MINE	Work Order:	2955	Revision:	0

							Witness, H	old, Review
Item	Component	Activity	ITP Type	Documentation	Acceptance Criteria	Notes	Po	ints
псп	Component	Activity	пт турс	Documentation	Acceptance Citteria	Notes	Client	Q.C.
							Sign/Date	Sign/Date
1	Kick-Off Meeting	Kickoff Meeting	N/A	Meeting Minutes	N/A			Н
2	Signature Log	Verify	N/A	Signature Log	N/A			Н
3	Welder Qualification	Verify	N/A	Individual Welder Qualifications / Welder Log	API-650 / ASME IX			Н
4	Inspector Qualification	Verify	N/A	In house Inspector & 3 rd Party Qualifications	API-650			Н
5	Weld Procedures	Verify	N/A	Approved Weld Procedures	API-650 / ASME IX, CWB W47.1			Н
6	Welding Consumable	Electrode Storage	N/A	N/A	Manufacturer's Instructions			R
7	Foundation	Foundation Survey	DC	Foundation Acceptance Report, Compaction Report & Survey from 3rd Party	API-650 Para 7.5.5			Н
		Materials	FI	MTR Confirmation to Dwg	Drawing & API-650 Sect. 4	MTR of all plate under shell.		
8	Floor	Fit up	VE, DC	As Built Drawing	Drawing	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.		R
		Welding	VE	Weld Map, Visual Report	API-650 Para 7.2 & 8.5 & WPS			R
		Vacuum Test	VB	Vacuum Box Test Report	API-650 Para 7.3.3(a) & 8.6			W
		Initial Weld Pass	VE	Weld Map, Visual Report	API-650 Para 8.5, 7.2.4.1			R
9	Shell to Floor Seams	Final Weld Pass	VE	Weld Map, Visual Report	API-650 Para 8.5, 7.2.4.1			R
		Diesel Test	NDT	Leak Test Report	API-650 Para 7.2.4.1 d)			W
		Materials	FI	MTR Confirmation to Dwg	Drawing & API-650 Sect. 4	MTR of all plate		Н
		Fit up 1st Course	VE, DC	As Built Drawing	Drawing			R
		Roundness	DC	Dimension Report	API-650 Para 7.5.3			Н
		Welding	VE	Weld Map, Visual Report	API-650 Para 7.2, 7.5, 8.5 & WPS			R
10	Shell	Tolerance Check – Plumbness & Local Deviations	DC	Dimension Report	API-650 Para 7.5			Н
		Diesel Test Shell Welds	NDT	Leak Test Report	API-650 Para 7.3.6 2)a)i)			W
		UT – All Shell	NDT	UT report / Log / Map	API-650 Para Annex U	Shell less than 3/8" shall be intrepreted as 3/8" as a modification of API-650. All T joint UT.		Н
11	Compression Ring	Fit up	VE, DC	As Built Drawing	Drawing			R
11	Compression king	Welding	VE	Weld Map, Visual Report	API-650 Para 7.2 & 8.5 & WPS			R
12	Roof	Fit up	VE, DC	As Built Drawing	Drawing			R
12	KUUI	Welding	VE	Visual Report	API-650 Para 7.2 & 8.5 & WPS			R
		Fit up	VE, DC	As Built Drawing	Drawing			R
13	Roof Structure	Column Plumbness	DC	Dimension Report	API-650 Para 7.5.2 b)			Н
		Welding	VE	Visual Report	API-650 Para 7.2 & 8.5 & WPS			R

							Witness, Ho	ld, Review
Item	Component	Activity	ITP Type	Documentation	Acceptance Criteria	Notes	Poi	nts
il.ciii	Component	ricuvity	111 1360	Documentation	/ideeptance oriteria	Hotes	Client	Q.C.
							Sign/Date	Sign/Date
		Layout	VE, DC	As Built Drawing	Drawing			Н
		Fit up	VE, DC	As Built Drawing	Drawing			R
		Welding	VE	Weld Map, Visual Report	API-650 Para 7.2 & 8.5 & WPS			R
14	Nozzles	Tolerance Check – Plumbness & Local Deviations		Dimension Report	API-650 Para 7.5			Н
		Shell Nozzle Repad Air test		Leak Test Report	API-650 Para 7.3.5			W
		MPI	NDT	MPI Report	API-650 Para 7.2.3.6	All welds of Shell Nozzles		W
		Layout	VE, DC	As Built Drawing	Drawing			Н
		Fit up	VE, DC	As Built Drawing	Drawing			R
		Welding	VE	Weld Map, Visual Report	API-650 Para 7.2 & 8.5 & WPS			R
15	Manway	Tolerance Check – Plumbness & Local Deviations	DC	Dimension Report	API-650 Para 7.5			Н
		Shell Manway Repad Air test	АТ	Leak Test Report	API-650 Para 7.3.5			W
		MPT	NDT	MPI Report	API-650 Para 7.2.3.6	All welds of Shell Manways		R
		Layout / Fit up	VE, DC	As Built Drawing	Drawing			R
16	Internals	Welding	VE	Visual Report	API-650 Para 7.2 & 8.5 & WPS			R
10	internais	Stillwell Plumbness	DC	Dimension Report	API-650 Para H.4.5	N/A		R
		MPI or LP	NDT	NDT Report	Sump Welds (if applicable) 7.3.4	MPI all welds		Н
17	Externals	Layout / Fit up	VE, DC	As Built Drawing	Drawing			R
17	Externals	Welding	VE	Visual Report	API-650 Para 7.2 & 8.5 & WPS			R
18	Stairs & Platforms	Fit up	VE, DC	As Built Drawing	Drawing			R
10	Stall's & Flationnis	Welding	VE	Visual Report	API-650 Para 7.2 & 8.5 & WPS			R
19	Bolts & Nuts	Inspection	VE, DC	As Built Drawing	Drawing	Bolt Torque		W
		Name Plate Verification	N/A	Scan of Name Plate	Drawings			Н
20	Final	Final Inspection	FI	As Built Drawings, Data Sheet, Manufacturer's Certification (3 rd Party), Punch List	Drawings			Н

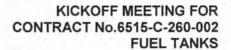
DEFINITIONS:

- W WITNESS: Specified activity to be observed by an outlined party. QC to provide the applicable party 24 hours notice of witness point.
- H HOLD: Specified component or installation to be inspected by an outlined party. No further activities specific to the component or installation may proceed until inspection is carried out. QC to provide the applicable party 24 hours notice of hold point.
- R REVIEW: Specified documentation and specifications applicable to a particular component and/or installation to be examined by an outlined party.
- AT AIR TEST: Specified component and/or installation to be air tested according to specified documentation and specifications.
- DC DIMENSION CHECK: Physical dimensions of component and/or installation to be verified according to specified documentation and specifications.
- FI FINAL INSPECTION: Specified inspection procedures to be executed prior to release of the component and/or installation and verified according to specified documentation and specifications.
- NDT NON DESTRUCTIVE TESTING: Specified component and/or installation to be inspected using a named non destructive testing method according to specified documentation and specifications.
- VE VISUAL Examination: Specified component and/or installation to be examined visually according to specified documentation and specification.
- VB VACUUM-BOX TEST: Specified component and/or installation to be vacuum box tested according to specified documentation and specifications.

Item 1 – Kickoff Meeting Minutes

Contents

1. Kickoff Meeting Minutes



AGNICO EAGLE

Meliadine Project Agnico Eagle Mines

Date: 27 January, 2017

Location: 842, WSP Office Montreal

Scope of Work: Fuel Tanks

Contract No. 6515-C-260-002

Meeting Notes Number: Kickoff Meeting 001

Issue Date: 31 January, 2017

Distribution:

AEM	Inukshuk Construction
* Diane Derome	+ Marc Losier
+ Normand Menard	+ Tony King
+ Joel Morlière	+ Jacob Saunders
++ Pierre Cianni	
++ Jack Dutil	
++ Mathieu Grenier	
++ Denis Duquette	

Legend: * Author + Attendee ++ Part-time # Teleconference

Item No.	Discussion /	Decision	- 100	Action By	Required Date				
1,0	INTRODUCT	ION	Info						
	Fabrication Erected Fue	ne purpose of this meeting is to kick-off the Engineering and abrication portions of Contract No.6515-C-260-002 "Field rected Fuel Tanks – Supply & Install" with Inukshuk construction Inc. hereinafter referred to as ICL.							
2.0	HSE & CONS	STRUCTION							
2.1	AEM Constru	uction contact :							
	Name	Position	Email	Phone					
	Jack Dutil	Construction Manager	jack.dutil@agnicoeagle.co	om T: 819.759.3555 x 39 M: 819.354.9081					
2.2		Contact : will be determine Meeting to come prior to M		Info					
2.3	for all workers Induction form	uctions - E-learning: It is a sto complete the induction as can be obtained by Denice@agnicoeagle.com.	prior to working at Site.	Info					
2.4	the Contracto major risk ass	er & Risk Mitigation: Prior or will need to develop a risk sociated with the Work. A minimize the identified risk	Info	Prior to Mob					



tem No.	Discussion / Dec	cision		Action	Ву	Required Date
2.5		ntractor to submit a V	Nork specific HSE Manuel al by AEM.	Info	0	Prior to Mob
	The HSE Manual	must be approved p	rior to mobilization at Site.			
2.6	shifts.		are 12hrs/ day on two (2)	ICL		Prior to Mob
			e WSCC an extended in the Supplemental			
2.7	Workers Rotatio	n – 6 weeks on 2 we	eks off.	Info)	
2.8		The API requests hy fore, hydro tests can	drotesting if water is be performed on the	AEM	М	URGENT
			liately with the water -8 months to obtain permit			
2.9	Liquid penetration accessible.	on testing – Is possi	ble only when water is not	Info)	
2.10	Rankin are the Co	modations – Worker ontractor's responsib odations at Meliadine		Info	0	
3.0	LOGISTICS (MA	TERIAL AND EQUIP	PMENT)			
	AEM Contact sha	Il be:				
	Name	Position	Email		Phone)
	Martin Ouellet	Expediting Coordinator	martin.ouellet@agnicoeagle.o	com	M:514-	703-9569
	Mathieu Grenier	Lead Logistics Coordinator	mathieu.grenier@agnicoeagl	e.com		759.3700 x 2924 .856.3046
	Cathrine Carmantrand	Expediting and logistics coordinator	Catherine.Carmantrand@wsp	ogroup.	T : 514	.343.0773 X 6072
3.1	Package Identification the PO number of		to Becancour must have	Info)	
3.2	equipment must Shipping Instruct instructions, AEM	be in compliance in the beautions. If packaging is a will backcharge a	ackaging of material and with AEM Packaging and s not in accordance to the any costs associated with	Info	o	
	double handling a	and repackaging.		s Info		

AGNICO EAGLE

tem No.	Discussion / De	cision		Actio	on By	Required Date
	April.	Cision				Duto
3.4	Shipping Prioriticommunicated to bundles, skids ar	es will need to o AEM including of	sels are scheduled in July. be identified by ICL and dimensions and weights of confirms that the priorities will s.	10	CL	
3.5		g: A Logistic meeti to identify shipping	ing will be scheduled at the priorities.		ine / ieu G.	Early-March
3.6	complicated for A Site due to the requests that IC	AEM to transport ar radioactive conten L consider ultra-sor	weld testing: It will be very nd store an x-ray machine at t within the machine. AEM nic testing as an alternative ve is in compliance with API	10	CL	
3.7	sections of 10' w skids. POST MEETIN	ride x 40' long. She		lr	nfo	
3.8	Material Manage AEM Contact sha	ment and handling a	at site			
	Name	Position	Email		Phone	
	Denis Duquette	Site Material & Logistics	denis.duquette@agnicoeagle	.com	T: 819-75 M: 819.3	59-3700 x 5616 39.8134
3.9	ICL will be res		Material has arrived at Site, own Material Requisitions. o come.	lr	nfo	
4.0	ENGINEERING &	& DELIVERABLES				
	AEM Contact sha	all be:				
	Name	Position	Email		Pho	ne
	Joel Morliere	Package Coordinator	Joel.Morliere@wspgroup.com		438-	843-7585
	Normand Menard	Lead Mechanical AEM	Normand.menard@agniceagle	.com	418-	454-0464
	Denis Thibodeau	Lead Package Engineer	Denis.Thibodeau@wspgroup.c	<u>om</u>	438-	843-7442
4.1	Issued for Consti IFC's the week o Changes include	f Feb 1st.	EM will be releasing the	A	ЕМ	Feb 1st



Item No.	Discussion	/ Decision		Act	ion By	Required
		roof 600mm dia.				Date
	The second second second second	int spec (Already consi	dered in pricing)			
4.2			wings submittals & approval		-	
4.2.1	DOCUMENT	S SUBMITTAL				
	AEM Contact					
	Name	Position	Email		Phone	
	Giovanni Cianni	Lead Document Control	giovanni.cianni@agnicoeagle	.com	M: 438-39	06-3886
4.2.2	Submittals All VDT requ DM for AEM and submittal	's review and approva	to be submitted through iPas al as per AEM's codification			info
4.2.3	Approvals AEM will reworking days	view and return the	documents within ten (10)			Info
4.2.4			sion with Giovanni Clanni, oading of documents			Info
	All Engineering through RFIs RFIs have to quick reply an Any potential is to be sent for RFIs to be s	(See attached RFI Ter include a comprehens of include potential cos schedule or Cost impaormally to AEM through	sive level of detail to allow a st or schedule impacts if any. act resulting from a RFI reply h a CCR. Engineer, copy the Contract			Info
			'DT) Review Γ for all technical document			Info
	diameters and provided. AEM confirms	ons: Inukshuk has issued height of the tanks. Note that the dimensions with the Civil / foundation				Info

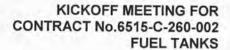


Item No.	Discussion / D	ecision		Acti	on By	Required Date
5.0	QA/QC AEM Contact si	hall be:				
	Name	Position	Email		Phone	
	Jean-Francois Tremblay	Lead Quality	Jean.Francois.Tremblay3@wspgrou	p.com	T: 418-3	68-6069
5.1	Quality Plan ICL to submit DM.	their Project Specif	fic QA/QC Plan through iPas	1	nfo	Prior to Mobilization
5.2			Pas DM. One Project specific stallation including hold points.	ı	nfo	Info
			ring work execution.			
5.3	Working & Weld	ding Procedures		1	nfo	Prior to
		their standard work M prior to work start	king and welding procedures			Mobilization
5.4	Quality Manage	ement Requirements	s Turnover Requirements			Prior to
	DM for approva	l by AEM.	gement system through iPas	i	nfo	Fabrication start
			o work on the documents and a smooth contract close-out.			
6.0	SCHEDULE			-		1
	AEM Contact sl	nall be:				
	Name	Position	Email		Phone	
	Pierre Cianni	Lead Planner	pierre.cianni@agnicoeagle.co	<u>om</u>	T: 819.82 M: 709 89	25.4711 x 8010 99-1711
8.1		Completion Date	: AEM confirms that the mid-July.	1	nfo	
8.2	testing the 13.5		11 days is scheduled for hydro as constraints on the filling max)	ı	nfo	
8.3			ks: AEM confirms that the ling on September 25 th 2017	1	nfo	
8.4	Progress and R		ts on a Monthly basis.	D	iane	
			y Progress meetings once the			



AGNICO EAGLE

Item No.	Discussion / D	ecision		Act	ion By	Required		
		started. First meetir	ng to be confirmed.			Date		
9.0	COMMERCIAL							
	AEM Contact sh							
	Name	Position	Email		Phone			
	Diane Derome	Formation CA	diane.derome@agnicoeagle.d	com	T: 438.84	13.7585		
	Steve Tauber	Site CA	steve.tauber@agnicoeagle.co	eagle.com T: 819.759.3555 x 3964				
9.1	ICL to provide to good standing.	ne Insurance certific	cate and latest WCB Letter of		ICL	Prior to Mobilization		
9.2	Verbal Instruction AEM indicated to normal practice instructions are the schedule and		Info					
9.3	Contract Site Classification Contract Change All the below changes but contract contract changes but contract changes but contract contrac		Info					
9.4	parties, which note to the contract.	d only modification nust be mutually ag A Contract Chang	to the contract signed by both greed upon to effect a change e Order describes the scope, t for a change to the contract.		Info			
9.5	ICL can initiate different site co	onditions, construction of a Contract	ontract Change Order due to tion change or similar event Change Order (See attached		Info			
9.6	AEM will crea Template and is	sue to ICL.	c) ogress Payment Certificate) approval prior to sending the		Info			
9.7			is in preparation and will be nd week of February.	C	Diane	Feb, 2017		



AGNICO EAGLE

Meliadine Project Agnico Eagle Mines

Accepted By:

Marc Losier Dated:

Inukshuk Construction Id.

Diane Derome Dated:

Agnico Eagle Mines Ltd.

Attachments: Distribution List, CCR Form, RFI Form

Item 2 – Signature Log

Contents

1. Signature Log

QUALITY CONTROL MANUAL

Exhibit 20a, Rev 0

	SIGNATURE LOG		
PRINT	SIGNATURE	COMPANY	DATE
Robert Hoffman	Rest HI	SAS	SEAT SO/17.
Keith Breedon		SAS	
Matthew Mackenzie		SAS	
Matthew Turmel	Mumel	SAS	SEPT 30/17.
Sebastien Ouellet	50	SAS	SEPT 30/17.
Stephane Gionet	70	AEM	1
Clem Bonia		AEM	
Chris Jaques	C)ogner.	SAS	Sept 30/17
	+		

Item 3 – Welder Qualification

Contents

- 1. Individual Welder Qualification
- 2. Welder's Qualification Record (Log)

Report # G2339

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

Client: Address: Contact: Work Loca	Sub A 17 Exp Name: Toby Phone:	loration	on W	ay, D				Wo		PAGE 1 OF 1 CODES 1. ASME B31.3 N/S 2. ASME B31.3 S/C 3. ASME Sec. VIII Div. 1 UV 4. ASME Sec. VIII Div. 1 UV 5. CSA Z662 6. CSA Z662 (Sour) 7. API 650 8. Other:	
NDE NO:	Size & thickness Plus Code Max. reinforcement	Material	Code	Œ	Technique Number	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion IP - Incomplete Penetration IP - Incomplete Penetration IP - Porosity Sr. Slag BT - Burn Through HL - High-Low IV: Internal Undercut AB - Arc Burn EU: External Undercut EU: External Undercut B - Porosity Sr. Slag Sr.	Reject
			1-8	See Back	Soo Back	Inches	Inches		100	Severity: 1 = Slight, 2 = Medlum, 3 = Severe (Reject) Discontinuity 1-3 V	Х
2G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	C.JA		-
3G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	C.JA		
4G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	C.JA	P@0"&7" 1 V	-
RT Technician RT Assistant # RT Assistant #	1 Victoria Sarnecki	3	CGSB	Level:	CEDO (#:	eg. # : _ 21927		5	SNT-TC-1A Level: III SNT-TC-1A No: 6 SNT-TC-1A Level: I SNT-TC-1A No: 21927 SNT-TC-1A Level: SNT-TC-1A No:	
Technician Signa Client Represent	-36	tation is a dicates ac	technica ceptance	al opinior e of the r	, not a gua eport and o on weldm	Date Evaluation rantee. esuits. ent.	ine 21,			Film Make / Brand AGFA Film Class / Type: 1-D Screens Lead Front 0.010* Back 0.010* One (no.) film pers Film Density in H & D: Min: 2.0 Max. 4.0 Penetrometer (IGI hole type) designation: N/A Recommended Max. U.G.: Source Isotope: IRIDIUM-192 (Gamma) Wall Viewing: Single Effective Focal Spot Size: 0.146 inches Processing: Automatic	0.20"

Report # G2340

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

										PAGE 1 OF 1	-
Client:	Sub A	Arc S	yste	ms					Clie	ient Job # Welder Coupons 1. ASME B31.3 N/S	
Address:	17 Exp	olorati	on W	ay, D	evon					P.O. # IODY 3. ASME Sec. VIII Div 1 UW	
Contact:	Name: Toby Phone:									Date: June 21/17 4. ASME Sec. VIII Div. 1 UV 5. CSA Z662 6. CSA Z662 (Sour) 7. API 650 8. Other:	W52
Work Loca	ation: All Car	n Insp	ectio	n Sho	р			Wo	rk De	escription: J.OV	
NDE No:	Size & thickness Plus Code Max. reInforcement	Material	Code	ğ	Technique Number	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion EP - Excessive Penetration IP - Incomplete Panetration P - Porosity G Internal Concavity BT - Burn Through HL - High-Low HL - High-Lo	Reject
			1-8	See Back	See Back	inches	Inches			Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject) Discontinuity 1-3 v	x
2G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	J.OV		
3G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	1.00		
4G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	J.OV	/	
					-						
						-					
				-							
							-				-
-											
-											
		+==		-		-		-	-		
		-		-		-					
			-	-							-
		1-									
								-			
							-				
				(E							
				121		1,5					
RT Technicia	n: Gordon Thomas		CGSE	Level:	2	F	Reg. # :		6	SNT-TC-1A Level: III SNT-TC-1A No: 6	
RT Assistant		_			CEDO (_	21927		,	SNT-TC-1A Level: I SNT-TC-1A No: 21927 SNT-TC-1A Level: SNT-TC-1A No:	
IMPORT	TANT: See reverse side of this form		Inspectio	on Service	s (2011) Inc.	LIMITED LIA	ABILITY PO	LICY			
Technician Signa		ers		1			une 21,	/17		Film Make / Brand AGFA Film Class / Type: 1-D	_
recinician Sign	V Z I					Date				Screens Lead Front 0.010" Back 0.010" One (no.) film pers	screen
Client Represen	tative Signature					Evaluation	n Date		-	Film Density in H & D: Min. 2.0 Max. 4.0 Penetrometer (IOI hole type) designation: N/A Recommended Max. U.G.:	0.30"
	The above interpre					rantee.				Penetrometer (IQI hole type) designation: N/A Recommended Max. U.G.: Source Isotope: IRIDIUM-192 (Gamma) Wall Viewing: Single	0.20"
	Clock tape marker It is the customer's									Effective Focal Spot Size: 0.146 inches Processing: Automatic	

G2341 Report #

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

										PAGE 1 OF 1	
Client: Address: Contact:	Sub A 17 Exp Name: Toby Phone:	loratio	on W	ay, De				Wo		ent Job # Welder Coupons P.O. # Toby Date: June 21/17 Sescription: CODES 1. ASME B31.3 N/S 2. ASME B31.3 S/C 3. ASME Sec. VIII Div. 1 UW 4. ASME Sec. VIII Div. 1 UW 5. CSA Z662 6. CSA Z662 (Sour) 7. API 650 8. Other:	
Work Loca	tion: All Can	inspe	cuor	i snol	,	-		***	IN DES		
NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	ĬĠ	Technique	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion IP - Incomplete Penetration IP - Incomplete Penetration IP - Incomplete Penetration IP - Incomplete Penetration IP - Porosity S - Slag BT - Burn Through Ht High-Low C - Crack III: Internal Undercut EU: External Undercut Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject)	Reject
20 01 1111	r /oll cnoT	D1	1-8	See Back	See Back RT-2	0.750	25.000	1	M.GO	Discontinuity 1.3 V	Х_
2G SMAW	5/8" SPOT 5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	M.GO		
3G SMAW		P1	7	2	RT-2	0.750	25.000	1	M.GO		-
4G SMAW	5/8" SPOT	P1		2	N1-2	0.730	25.000	- 1	IVI.GO		
									- 31		-
-			-				9		-		
-		-						_			
							-				
										1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
-								- 5			
		+					-				
		-					-				
						-					
			-				- 3				-
											-1
		17-1-				-					
				-					-		
							-		-		
								2			
RT Technicia	n: Gordon Thomas		CGSF	Level:	2		Reg. # :		6	SNT-TC-1A Level: III SNT-TC-1A No: 6	
RT Assistant	W. V	_	1.72	. Current	CEDO	-	21927	,		SNT-TC-1A Level: SNT-TC-1A No: 2.1927	
RT Assistant		=			CEDO	-				SNT-TC-1A Level: SNT-TC-1A No:	
Technician Signa	TANT: See reverse side of this form ature tative Signature The above interpre	etation is	a technic	cal opinio	n, not a gu	Date Evaluation arantee.	une 21	100		Film Make / Brand AGFA Film Class / Type: 1-E Screens Lead Front 0.010* Back 0.010* One (no.) film per Film Density in H & D: Min. 2.0 Max. 4.0 Penetrometer (IQI hole type) designation: N/A Recommended Max. U.G.: Source Isotope: IRIDIUM-192 (Gamma) Wall Viewing: Single	
	Clock tape marker It is the customer's	and star	t arrow	marked	on weldn	nent.				Effective Focal Spot Size: 0.146 inches Processing: Automatic	C

Report # G2342

PAGE

1 OF 1

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

Client: Address: Contact: Work Loca	Sub A 17 Exp Name: Toby Phone: All Can	loratio	on W	ay, D				Wo		P.O. # Toby Date: June 21/17 2. ASM 3. ASM 4. ASM 5. CSA 2	Z662 (Sour 550	Civ 1 UV Div. 1 U	
NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	ij	Technique	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion EP - Excessive Penetration IP - Incomplete Penetration P - Porosity IC - Internal Concavity S - Siag BT - Burn Through HL - High-Low TI - Tungsten Inclusion C - Crarak U: Internal Undercut AB - Arc Burn EU: External Undercut HB - Hollow Bead	Severity	Accept	Reject
			1.8	See Back	See Back	inches	inches			Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject) Discontinuity	1-3	4	×
2G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	M.TU	P @ 0"	1	٧	
3G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	M.TU			٧	
4G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	M.TU	S@1"&2", P@5"	2	٧	
RT Techniciar	n: Gordon Thomas		CGSB	Level:	2		Reg.#:		6	SNT-TC-1A Level: III SNT-TC-1A No:	-	i	
RT Assistant #		-			CEDO (21927		*	SNT-TC-1A Level: I SNT-TC-1A No: SNT-TC-1A Level: SNT-TC-1A No:	219	27	
Technician Signa	2 3	tation is a	technica ceptance	al opinior e of the re	n, not a gua eport and r	Date Evaluation rantee. esults. ent.	ine 21,			Film Make / Brand AGFA Film Class / Back Co.010* Screens Lead Front 0.010* Back 0.010* Film Density in H & D: Min. 2.0 Max. 4.0 Penetrometer (IQI hole type) designation: N/A Recomm Source Isotope: IRIDIUM-192 (Gamma) Wall Viewing: Effective Focal Spot Size: 0.146 inches Processing	One (no	1-I I) film per U.G.: Single utomatic	0.20°

Report # G2343

PAGE

1 OF 1

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

Client: Address: Contact: Work Loca	Sub A 17 Expl Name: Toby Phone: All Can	loratio	on W	ay, D				Wo		P.O. # Toby Date: June 21/17 Scription: M.MA	B31.3 S/C Sec. VIII E Sec. VIII E 662 662 (Sour)	Civ 1 UV Div. 1 UV	
NDE NO:	Size & thickness Plus Code Max. reinforcement	Material	Code	ğ	Technique Number	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures		LF - Lack of Fusion IP - Incomplete Peretration IP - Incomplete Peretration IP - Incomplete Peretration P - Porestry S - Seg BT - Burn Through TT - Tungsten Inclusion IU: Internal Undercut AB - Arc Burn EU: External Undercut HB - Hollow Boad	Severity	Accept	Reject
2	remorcement	-	1-8	See Back	See Back	J. O Inches	S Inches	2 4	5	Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject) Discontinuity	1-3	- V	×
2G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	M.MA			V	
3G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	M.MA			٧	
4G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	м.ма	EU @ 2"	1	٧	
	1100												
RT Technicia RT Assistant RT Assistant	#1 Victoria Sarnecki		CGSE	Level:	2 CEDO	#:	Reg. # : 21927		6	SNT-TC-1A Level: III SNT-TC-1A No: SNT-TC-1A Level: I SNT-TC-1A No: SNT-TC-1A Level: SNT-TC-1A No:	219	70.	
Technician Signa	TANT: See reverse side of this form of the control	tation is a dicates ac	a technic cceptanc	al opinion e of the r marked	n, not a gua eport and i	Date Evaluation arantee. results. ent.	une 21,			Film Make / Brand AGFA Film Class / 1 Screens Lead Front 0.010" Back 0.010" Film Density in H & D: Min. 2.0 Max. 4.0 Penetrometer (IQI hole type) designation: N/A Recomment Source Isotope: IRIDIUM-192 (Gamma) Wall Viewing: Effective Focal Spot Size: 0.146 inches Processing	One (no	a.) film per	0.20*

Report # G2344

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

Client:	Sub A	rc Si	ıster	ns			~	-	Clie	ent Job # Welder Coupons 1. ASME B31.3 N/S
Address:	17 Expl				evon				2.0	P.O. # Toby 2. ASME 891.3 5/C 3. ASME Sec. VIII Div 1 UW51
Contact:	22,000	oraci		۵,, ۵	.,.,,					Date: June 21/17 4. ASME Sec. VIII DIV. 1 UW52 5. CSA Z662
Contact.										6. CSA Z662 (Sour) 7. API 650
30.00	Phone:	27.04		-1				14/-	al. Da	8. Other:
Work Loca	ation: All Can	Inspe	ection	Sho	р			VVQ	гк ре	escription: Q.PO
NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	Ď	Technique Number	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion
-			1-8	See Back	See Back	Inches	Inches			Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject) Discontinuity
2G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	Q.PO	IU @ 1", 2" & 6" 2 V
3G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	Q.PO	V
4G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	Q.PO	V -
						1 = 1				
								- 1		
			_		4					
-									-	
					-					
		-						-		
		-								
					-					
	100	-								
			1					-		
									-3	
=					7 1					
RT Technicia	n: Gordon Thomas	4	CGSB	Level:	2	-	Reg. # :		6	SNT-TC-1A Level: III SNT-TC-1A No: 6
RT Assistant	#1 Victoria Sarnecki				CEDO		21927			SNT-TC-1A Level: SNT-TC-1A No: 21927
RT Assistant	#2	3			CEDO	#:			7	SNT-TC-1A Level: SNT-TC-1A No:
17-	TANT: See reverse side of this form f	or All Can	Inspectio	n Service	s (2011) inc.		ABILITY PO			Film Make / Brand AGFA Film Class / Type: 1-D5
Technician Sign	nature	1	1			Date				Screens Lead Front 0.010" Back 0.010" One (no.) film per screen
Client Renrese	ntative Signature	21		_		Evaluati-	n Data			Film Density in H & D: Min. 2.0 Max. 4.0
cacat nepresel	The above interpret	tation is a	technics	al opinio	n, not a gu	Evaluation	n Date			Penefrometer (IQI hole type) designation: N/A Recommended Max. U.G.: 0.20"
	Client signature in	dicates a	cceptance	e of the r	eport and	results.				Source Isotope: IRIDIUM-192 (Gamma) Wall Viewing: Single
	Clock tape marker a It is the customer's r									Effective Focal Spot Size: 0.146 inches Processing: Automatic

Report # G2345

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

										PAGE 1 OF 1
Client: Address:	Sub A				evon	- 11			Clie	ient Job # Welder Coupons 1. ASME B31.3 N/S P.O. # Toby 2. ASME Sec. VIII Div 1 UW51
Contact:	Name: Toby Phone:	ioi de	J.,	۵,, ۵						Date: June 21/17 4. ASME Sec. VIII Div. 1 UW52 5. CSA Z662 6. CSA Z662 (Sour) 7. API 650 8. Other:
Work Loca	ntion: All Can	Inspe	ection	Sho	р			Wo	rk De	escription: D.ZU
NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	ğ	Technique Number	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion EP - Excessive Penatration IP - Incomplete Penetration P - Percently IC - Internal Concavity S - Slag Through HL - High-Low T1 - Tungsten Industrian C - Crack D - Internal Undercut AB - Are Burn EU: External Undercut HB - Hollow Bead
_			1-8	See Back	See Back	Inches	inches	3	97	Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject) Discontinuity 1-3 y x
2G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	D.ZU	J V
3G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	D.ZU	
4G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	D.ZU	J V
	Seattle of the Sea									
						Ĭ,				
	-									
					-					
	4-							3		
RT Technician		_	CGSB	Level:	2	F	Reg. # :		6	SNT-TC-1A Level: III SNT-TC-1A No: 6
RT Assistant					CEDO	_	21927		,	SNT-TC-1A Level: SNT-TC-1A No: 21927 SNT-TC-1A Level: SNT-TC-1A No:
IMPORT	ANT: See reverse side of this form	for All Can	Inspectio	n Service	s (2011) inc.			.30		Elite Moto / Drand
Technician Signa	eture 3/	/	A 100 100 100 100 100 100 100 100 100 10	- 30		Date	ine 21,	11/		Film Make / Brand AGFA Film Class / Type: 1-D5 Screens Lead Front 0.010" Back 0.010" One (no.) film per screen
Client Bepresen	tative Signature					Evaluation	n Date		-	Film Density in H & D: Min. 2.0 Max. 4.0 Penetrometer (IOI hole type) designation: N/A Recommended Max. U.G.: 0.20
	The above interpre Client signature in	dicates ac	ceptance	of the r	eport and r	esults.				Source Isotope: IRIDIUM-192 (Gamma) Wall Viewing: Single
	Clock tape marker It is the customer's r									Effective Focal Spot Size: 0.146 inches Processing: Automatic

Report # G2346

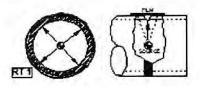
9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

Client: Address: Contact: Work Loca	Sub A 17 Exp Name: Toby Phone:	lorati	on W	ay, D				Wo		P.O. # Toby 3. Date: June 21/17 4. 5. 6. 7.	1 OF CODES ASME B31.3 N/ ASME B31.3 S/ ASME Sec. VIII ASME Sec. VIII CSA Z662 CSA Z662 (Sour API 650 Other:	/S C Div 1 UV	
NDE NO:	Size & thickness Plus Code Max. reinforcement	Material	Code	iğ.	Technique	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion	Severity	Accept	Reject
		1	1-8	See Back	See Back	inches	Inches			Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject) Discontinuity	1-3	٧.	x_
2G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	D.ZE	P @ 0"	1	٧ ٧	
3G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	D.ZE				
4G SMAW	5/8" SPOT	P1	7	2	RT-2	0.750	25.000	1	D.ZE			٧	
				7=1									
		-											
									+				
									- No.				
								1					
		-											
				- 7									
				-									
	1000110000000												
RT Technician		-	CGSB	Level:	2		leg.#:		6	SNT-TC-1A Level: III SNT-TC-1A	No:	5	
RT Assistant		-			CEDO (_	21927		·	SNT-TC-1A Level: I SNT-TC-1A SNT-TC-1A Level: SNT-TC-1A		927	
Technician Signa Client Represent	13/	tation is a	technico	al opinior e of the re marked o	ı, not a gua eport and r	Date Evaluation rantee, esuits, ent.	ine 21,			Screens Lead Front 0.010° Back 0.010 Film Density in H & D: Min. 2.0 Max. Penetrometer (IQI hole type) designation: N/A Re Source Isotope: IRIDIUM-192 (Gamma) Wall Viewi	4.0 commended Max. ing:	o.) fim per	0.20*

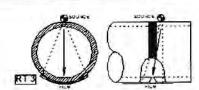
RADIOGRAPHIC EXAMINATION TECHNIQUE REFERENCE SHEET

ALL CAN INSPECTION SERVICES (2011) INC. RT TECHNIQUES
ALL CAN INSPECTION SERVICES (2011) INC. GENERAL RT PROCEDURE

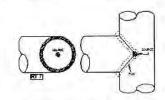
Important Note: Always check the QA/Procedures Manual for the most current Procedure Revision status.



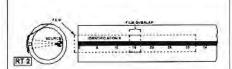
Tech #RT-1: Vessel Circumferential Weld 1 Exposure: QA Subsection 15.12.1



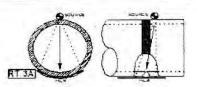
Tech #RT-3: Circ. Weld – Contact – Light Wall. 3 Exposures@120° Spacing: QA Subsection 15.12.6



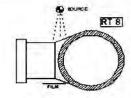
Tech #RT-7: Mitered "T" Joint - Single Wall - Source centered Exposures as required: QA Subsection 15.12.11



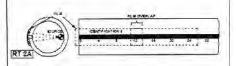
Tech #RT-2: Long. Weld - Light Wall - Source Inside 1 Exposure/15 inches: QA Subsection 15.12.2



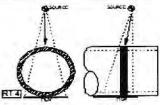
<u>Tech #RT-3A:</u> Circ. Weld – Contact – Heavy Wall 4 Exposures@90° Spacing: *QA Subsection 15.12.7*



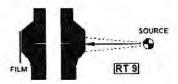
Tech #RT-8:Category *D" Weld
Exposures as required: QA Subsection 15.12.12



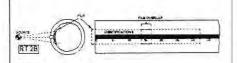
Tech #RT-2A: Long. Weld - Heavy Wall - Source Inside 1 Exposure/12 inches: QA Subsection 15.12.3



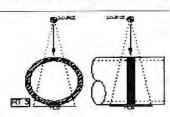
<u>Tech #RT-4:</u> Circ. Weld — Dbl Wall — Elipse 2 Exposures@90° Spacing: QA Subsection 15.12.8



Tech #RT-9: Gap Check
1 Exposure: QA Subsection 15.12.13



<u>Tech #RT-2B:</u> Long. Weld – Light Wall – Source Outside 1 Exposure/15 inches: *QA Subsection* 15.12.4



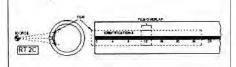
Tech #RT-5: Circ. Weld – Double Wall – Superimposed 3 Exposures@60° Spacing: QA Subsection 15.12.9

Penetrameter (IQI) Reference

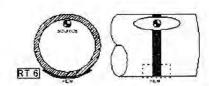
1. ASTM A 2. ASTM B 3. ASTM C 4. FEEN/EN-462

5. DIN/EN-462 Set/Size 1 (Wire range 1 - 7) 5. DIN/EN 462 Set/Size 6 (Wire range 6 - 12) 7. DIN/EN-462 Set/Size 10 (Wire range 10 - 16) 8. DIN/EN-462 Set/Size 13 (Wire range 13 - 19)

9. Hole Type: Indicate IQI Designation Number



Tech #RT-2C: Long. Weld – Heavy Wall – Source Outside 1 Exposure/12 inches: QA Subsection 15.12.5



Tech #RT-6: Circumferential Weld - Source not Centered Exposures as required: QA Subsection 15.12.10

IMPORTANT INFORMATION:

Scope of Services & Limits of Liability:

All Can Inspection Services (2011) Inc. does not warranty or imply warranty of services stated herein and shall not be held liable for services rendered as per established service agreements. At no time shall liability be placed upon All Can Inspection Services (2011) Inc. of which exceeds the amount paid for said services.

All Can Inspection Services shall utilize appropriate quality assurance measures, technical training, and safety parameters to assure services are provided to meet or exceed established NDE procedures, Practices and industry expectations and at no time shall warranty excess NDE services except those established in writing beyond those established prior to the services provided herein.

Report # G2616

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

Client:	Sub	Arc S	vsten	ns	-	_		_	C	lient Job#	Coupon	PAGE	1 OF	1		
Address: Contact: Work Loca	17 Exp Name: Toby Phone:	olorati	on Wa	ау, [Wo		P.O. # Date:	1. ASME 831.3 N 2. ASME 831.3 N 3. ASME Sec. VIII 4. ASME Sec. VIII 5. CSA 2662 6. CSA 2662 (Sou 7. API 650 8. ASME IX (QW-			/c Div 1 UW51 Div 1 UW52 r)		
NDE NO:	Size & thickness Plus Code Max. reinforcement	Material	Code	₫	Tachnique Number	Source Side of Object to Film Distance	Sou	Number of Exposures	Welder ID	LF - Lacit of Fution IF - Incomplete Penetration IC - Internal Concavity BT - Burn Through Ti - Tungsten inclusion IU Internal Undercut EU: External Undercut Severity: 1 = 5	EP - Excessive F P - Porosity S - Stag HL - High-Low C - Crack AS - Arc Burn HB - Holsow Beg	ď	Severity	Accept	Reject	
SAW 2G - Retest	5/8" Spot	P1	8	2 2	RT-2	0.750	25.000	1).NI		Discominusty		1.3	V	¥	
)**				1	-					-		
										31						
										,					-	
				1												
												-			-	
											-		-		-	
			-													
			1													
												· ·	14	-		
		-		-	1								-			
RT Technician: RT Assistant # 1 RT Assistant # 2			CGSB Le	vel:	CEDO #:		'g, #: _	6		SNT-TC-1A Le SNT-TC-1A Le SNT-TC-1A Le	evel:	SNT-TC-1A No: SNT-TC-1A No: SNT-TC-1A No:				
Technician Signatur	e Signature The above interpreta	ation is a to	actinical or	ofnlon.	E DOL & GISSE	And Valuation I	ug 1/1			Film Make / Brand Screens Lead Film Density in Fl & D: Psnetrometer (KII hole type) d	1	Film Class Back 6.010* Max. 4.0	/ Type: One (no.) rended Max. U:			
	Client signature Indi Clock tape marker ar It is the customer's re-	d start a	rrow mar ity to map	ked o welc	n weldmer Is on drawi	rt. ings:				Source Isotope: II Effective Focal Spot Size:	RIDIUM-192 (Gamma) 0.146 inches	Wall Viewing: Processin		ingle omatic		

Report # G2615

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

die vio		_				-						PAGE	1 OF	1	
Client:	Sub /								CI	ient Job #	Coupon		CODES SME B31.3 N		
Address:	17 Exp	olorati	on Wa	y, D	evon					P.O. #	Toby	3. A	SME B31.3 S, SME Sec. VIII	Div1U	
Contact:	Name: Toby									Date:	Aug 1/17	5. CS 6. CS	ME Sec. VIII A Z662 A Z662 (Sou		JW52
Work Loca	ition: All Car	n Inspe	ection	Sho	р			W	ork De	escription:	Matt Mackenz		1 650 SME IX (QW-	191.2)	
NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	ğ	Technique	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion IP - Incomplete Pensistion IC - Internal Concevity BT - Burn Through T - Tungsten Inclusion U: histmal Undercut EU: External Undercut	EP - Excessive P P - Porosity S - Starg HL - High-Low G - Crack AB - Arc Burn HB - Hostow Sea		Severity	Accept	Relect
	***		1.8 5	on Back	See Back	kvdyee	inches	P1	-	Severity: 1 = 5	ilight, 2 = Medium, 3 = 5 Decontinuity	evare (Reject)	1-3	V	_ x
SAW 2G	5/8" Spot	P1	8	2	RT-2	0.750	25.000	1	M.M	4				٧	Ī
	*					-					-		-		
									4 +						
				-											
						-		_	-		-	-	-		-
							0-								
		-4	-	-											
	-	+	=		-								+		
							- (1)		Ti		-		-		-
	-31												1 12		
	-	+		4				_		-					
			-+	1		- 1	-	-	-					-+	h
											-	~			
>												- 1			Ī
-0			-	4	-					-		_	4.4		
													+ 1		Н
		**		1											
			-		7							-0-			
	_		-			_	-		-				-		
RT Technician:	Gordon Thomas		CGSB Lev	vel:	2	Re	g.#:		5	SNT-TC-1A L	evel: III	SNT-TC-1A No:	6		
RT Assistant # RT Assistant #		1			CEDO #:	_				SNT-TC-1A L SNT-TC-1A L	evel:	SNT-TC-1A No:			
IMPORTAL	VT: See Yeverse side of this form fo	er All Com In	spection Se	rvices (2011) Inc. LI	MITED LIAB	ILITY POL	CY				7, 10, 10		_	
Technician Signati	The Way		,	_	7	A Date	ug 1/1	7	-)	Film Make / Brand Screens Lead	AGFA.	Film Class Back 0.010*	/Туре: Опе (по.)	1-D	-
Client Representa						valuation [ate	-	- 1	Film Density in H & D: Penetrometer (IQI hole type) o	Min. 2.0 dessignation: N/A	Max. 4.0	 nended Max U	G.:	0.20°
	The above interprets Client signature ind Clock tape marker a It is the customer's re	icutes acce nd start a	ptance of t	the rep ked or	weldmen	sults.					RIDIUM-192 (Gamma)	Wall Viewing:		Single	
-	, and the customer's re	-hruizibili			200		FV	N. N. A.		TION PEROP	-	Processin	ig: Au	tomatic	

Report # G2614

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

											PAG	iE 1	OF	1		
Client:	Sc	ub Arc S	yste	ms					Cli	ient Job #				CODES SME 831.3 N/5		
Address:	17	Explorati	on W	ay, D	evon					P.O. #	Tohus 2.		81.3 S/C e. VIII DI:	v 1 UW5:		
Contact:	Name: To Phone:	by												VIII Dw. 1 UW52		
Work Loca	tion: All	Can Inspe	ection	1 Sho	р			Wo	ork De	escription: Mit	ch Gouligier	8. ASME IX	(QW-191	1.2)		
NDE NO:	Size & thicknes Plus Code Max reinforcement	ate	Code	ğ	Technique Number	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion IP - Incomplete Panetration IC - Internal Concessity IT - Sum Through IT - Tungsten Inclusion Ut - Internal Lindercut EU: External Undercut	EP - Excessive Penstrate P - Porosity S - Stag HL - High-Low C - Crack AB - Ac Burn HB - Hollow Bean	nc	Severity	Accept		
ENG SEC.			1-8	See Back	See Back	la chas	S, Inches		3	Severity: 1 = Slight,	2 = Medium, 3 = Severe ((Reject)	1.3	4		
SAW 2G	5/8" Spot	P1	8	2	RT-2	0.750	25.000	1	M.GC	o l				٧		
			-					,						-		
											-		-			
												-				
											-					
			-,-										H			
													4			
		-11	-		À						-					
						_										
-			-02					= -	+ 1	-	-			200		
									-				1			
				-										- -		
								-								
RT Technician: RT Assistant#2 RT Assistant#2		ias	CGSBI	Level:	Z CEDO #	f:	eg.#:		i	SNT-TC-1A Level: SNT-TC-1A Level: SNT-TC-1A Level:	SNT	-TC-1A No: -TC-1A No: -TC-1A No:	6	_		
/1-	IT; See reverse side of this	form for all Can in	aspection	\$ ervices ((2011) Inc. L		BILITY POL		7	Film Make / Brand	AGFA	Film Class / Type		1-D5		
Technician Signatu	BL	- /			Ü	Date		_		Screens Lead Film Density in H & D:		sk 0.010*		n per screer		
Client Representati	The above int	erpretation is a correct and cates according to the category according to the cates according to the cates according to the category according t	eptance (of the re	not a guar port and re	sults.	Date			Penetromater (IQI hole type) designs Source (satope) IRIDIL		Recommended	Max U.G.			
	Clock tape ma It is the custom	rker and starts er's responsibi	lity to m	ap weld	is on draw	vings.				Effective Focal Spot Size:	0.146 inches	Processing:	Auton	natic		

Report # G2613

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

Client:	Sub /	Arc Sv	stems			_	-	CI	ient Job #	PAGE Coupon	000		1	
Address: Contact: Work Loca	17 Exp Name: Toby Phone:	oloratio	on Way,	Devon	P.O. # Toby 2. ASME 891. 3. ASME 896. 3. ASME 896. 4. ASME 896. 5. CSA 2662 6. CSA 2662 7. API 650.				1.3 S/C c. VIII DIV 1 UW51 c. VIII DIV. 1 UW52					
Work Loca	tion: All Cal	n inspe	ction Sh	op			Wa	ork D	escription: Ch	ris Jaques	At Harris In	1V (CAA-T21'S)		
NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	Tachnique	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Funion P - Incomplete Princertailon C - Initiama Conceavity BT - Burn Through T1 - Tungsten Inclusion IU Internal Undernout EU: External Undernout	EP - Excessive Penutration P - Parasity S - Stap H - High-Low C - Orack AB - Art Burn MB - Hellow Baad E - Medium, 3 = Severe (Re)	north.	Severity	Accept	
SAW 2G	5/8" Spot	P1	1-8 Sán B 8 2	-	0.750	25.000	1	CJA	Pi-	Discontinuity	aut)	1-a	V	
				-					1	-				
													#	
		++											4	
	-		-				-					-	4	
												-	- -	
												H	F	
-		1-1		-	-			Ŧ				1	Ti-	
			:);									+	#	
				76								+	-	
	~		-				H					1	#	
							+					+	-	
		-						_	- v			T		
RT Technicians RT Assistant # RT Assistant #	I .		CGSB Level	CEDO #	#:	eg.#:	6		SNT-TC-1A Level: SNT-TC-1A Level: SNT-TC-1A Level:	III SNT-TC SNT-TC SNT-TC	1A No:	6		
/1-	IT: See raverse side of this form for	or All Carr Ins	pection Sérvice	_	А	ыштурац ug 1/1			Film Make / Brand	Are I	im Class / Type:		1-D5	
Technician Signatu	BL	- 10			Date Evaluation	Date			Screens Lead Film Density in H & D:	Front 0.010' Back 0		ne (no.) 11	m per scree	
	The above Interpret	licates accep	stance of the	on, not a guar report and re	rantee. Psults.	- 445			Penetrometer (IO) hole type) designate Source Isotope: IRIDIUM	on: N/A A-192 (Gamma) Wall V	Recommended li		ide Tgle	
	Clock tape marker a It is the customer's re	ng start an esponsibilit	row marked ty to map w	on weldme elds on drav	ent. vings,				Effective Focal Spot Size:	0.146 inches	Processing:	Auto	matic	

Report # G2575

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

						_	*			PAGE	_)F 1		
Client:		b Arc S						Cli	Client Job # Welder Coupons 1, ASME B31,3 N/S P.O. # Toby 2, ASME Sec. VIII Div. 3, ASME Sec. VIII Div. 3, ASME Sec. VIII Div. 3, ASME Sec. VIII Div. 3					
Address:	17	Explorati	ion Way,	, Devon					P.O. #	3. ASME Sec.	VIII DIV1			
Contact:	Name: Tol	by							Date:	July 26/17	4. ASME Sec. 5. CSA Z662	200	UW52	
	Phone:										5. CSA Z662 (7. API 650	Sour)		
Work Loca	tion: All	Can Insp	ection SI	hop			Wo	ork De	rk Description: M.TV 8. ASME IX (QW-1912)					
NDE No:	Size & thickness Plus Code Max. reinforcement	te	Code	Technique	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion IP - Incomplete Penebat IC - Internal Concavity BT - Burn Through TI - Tungsten Induston IU: Internal Undercut EU: External Undercut	EP - Excessive Penetration P - Porcety S - Stag HL - High-Low C - Crack AR - Anc Burn HB - Hoskew Bibact		Severity	Reject	
			1-8 See	Back See Back	inches	inches			Severity: 1	= Slight, 2 = Medium, 3 = Severe (Re		-a .	k	
-2G SAW SAS 1	5/8" SPOT	P1	8 2	2 RT-2	0.750	25.000	1	M.TU	i]	3451		٧		
					-			L.,						
			11 11									III.		
							1, 1	1			40,4			
	0.0													
_						17 1			-					
-	14-			4		14.1								
	-						1.1	1 11						
-		$\rightarrow + +$		1	-				-					
-	-													
		4-1	-]				-				-	
				+	-				-					
				-	-	=							j	
						- <u>E</u>)								
- 14				11				-			34-			
)—			- [-								
-	-			-				<u> </u>		·			_	
-				4		-	- 1					-		
				4					_	-9				
		- 1-4			1				111					
			1			- 1			_	_				
		1	-		-				-				,	
	_													
RT Technician	Gordon Thom	ac	reseran	10 2	إ	10.00			YANG DIV	4				
RT Assistant #	1/11/2/2011	2.5	CGS8 Leve	CEDO	-	eg.#:_ 18988		6	SNT-TC-1A Level: III SNT-TC-1A No: 6 SNT-TC-1A Level: II SNT-TC-1A No: 1898					
RT Assistant #				CEDO	0	70308			SNT-TC-1		1A No: 1	18988		
IMPORTA	NT: See reverse side of this	form for All Card	Inspection Serv	lone (2011) Inc	CONTENTA	DII ITV DOL	101			7,7,700				
19-	m re	سهب	-	(2021) IIIC		dv 26/		1.0	Film Make / Brand	AGFA F	film Class / Type:	1.2		
Technician Signati	7 / /	1.60			Date	11, 20,	.,		Screens Lead	Front o.ong' Back		1-1 (no.) film per	D5 r screen	
Flore to 1	15	-	,						Film Density in H & D:	Min. 2.0 Max.	4.0			
Client Representa		ornradables to	tarket -	(in the	Evaluation	Date	-		Penetrometer (IQI hole ty	pe) designation: N/A	Recommended M	ax U.G	0.20"	
	Client zignatu	erpretation is a ire indicates acc	ceptance of th	e report and r	esults.			12	Source Isotope:	IRIDIUM-192 (Gamma) Wall	Viewing:	Single		
	Clock tape man	rker and start er's responsib	arrow marke ility to map v	ed on weldm welds on dra	ent. wings,			1	Effective Focal Spot S	ize: 0.146 inches	Processing:	Automasi	c	

Report # G2574

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

										PAG				
Client: Address:	Sub A				evon				Cli	ent Job # Welder Coupons P.O. # Toby	1. ASME B31 2. ASME B31	1.3 N/S 1.3 S/C		
Contact:	Name: Toby									Date: July 26/17 4. ASME Sec. 5. CSA 2662 (5. CSA 2662 (5				
Work Loca	ation: All Ca	n Insp	ectio	n Sho	р			Wo	rk De	Description: J.OV 7. API 650 8. ASME IX (QL)				
NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	īğ	Technique Number	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion itip - Incomplete Penetration itip - Incomplete Penetration itip - Incomplete Penetration itip - Incomplete Penetration P - Porcelly S - Stag BT - Burn Through HI - High-Low C - Chack Iti Informal Undercut FU External Undercut HB - Hollow Breat		Accept	Reject	
2G SAW SAS 1	5/8" SPOT	P1	1-t 8	See Back	See Back	0.750	25.000	1	J.OV	Severity: 1 = Slight, 2 = Medium, 3 = Severe (¥ .	
25 300 505 2	3/8 3501	FI		2	N1-2	0.730	25.00G	1	3.00	-		٧	-	
	wie.										100			
				6- 1										
						**(=	= 1							
	-					-						-		
			-											
		+										1		
		1												
	e :								-	1000			-	
	*				1							1		
	-				_									
											_		1	
								П						
			-				1							
					-			-					İ	
									1			<u> </u>		
RT Technician	n: Gordon Thomas	ļ į	CGSB	Level:	2	R	eg.#:		5	SNT-TC-1A Level: III SNT	TC-1A No:	6		
RT Assistant (B 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			7	CEDO (#:	18988			SNT-TC-1A Level: II SNT		8988		
1-	ANT: See reverse side of this form	for All Can	inspectio	n Services	(2011) inc		BILITY FOI			Film Make / Brand AGFA	Film Class / Type:	1-	-DS	
Technician Signa	1-BC					Date				Screens Lead Front 0.010* Bar Film Density in H & D: Min. 2.0 Min.		(no.) film pe	er screen	
Client Represent	The above interpre	tation is a	technica	al opinion	, not a gua	Evaluation rantee.	Date			Penetrometer (IOI hole type) designation N/A Source Isotope: IRIDIUM-192 (Gamma) W	Recommended M	7.1	0.20*	
	Clock tape marker It is the customer's	and start	arrow	narked o	on weldm	ent			1	Effective Focal Spot Size: 0.146 inches	all Viewing; —- Processing:	Single Automati		

ALL CAN INSPECTION SERVICES (2011) INC.

Report # G2573

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

SHOP: 780-462-1072 OFFICE: 780-462-9797 FAX: 780-462-4664 EMAIL: shop@allcaninspection.com www.allcaninspection.com

Client: Address: Contact: Work Loca	Name: Toby Phone:	Arc Sy plorati n Inspe	on W	ay, C				Wo		P.O. # Toby 2. ASM 3. ASM 5. CSA. 6. CSA. 7. API 6	2662 (Sour	C DIV 1 U DIV. 1 U	
NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Corde	ō	Tachnique Number	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion IP - Incomplete Penetration IP - Incomplete Penetration ID - Information Concessity ID - Information IT - Burn Through IT - Burn Through IT - Tungsten Inclusion It Internal Undercut AB - Air Burn EU: External Undercut HB - Holizw Bosed	Severity	Accept	Reject
2G SMAW-SAS 1	5/8" SPOT	, P1	1-8_	See Back		inches	Inches			Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject) Discordinary	1-3	٧	x
3G SMAW-SAS 1	5/8" SPOT	P1	8	2	RT-2	0.750	25,000	1	J.Ni	(P @ 2" & 6"(ok)) S @ 0"-1"	3		X
4G SMAW-SAS 1	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	J.Ni	P@0"	1	٧ ٧	
				_					α=				
						3-	-						
						10-					+ -		
								-					
					,								
				-				4					-
								-					
RT Technician RT Assistant # RT Assistant #	1 Adele Kezama		CGSB	Lével:	CEDO #	v:	eg. # : 18988	6		SNT-TC-1A Level: III SNT-TC-1A No: SNT-TC-1A Level: II SNT-TC-1A No: SNT-TC-1A Level: SNT-TC-1A No:	189		
Technician Signat	161	or All Cass In	nspection	Services	7	Ju Date	aly 26/:			Film Make / Brend AGFA Film Class / 1 Screens Lead Front 0-010* Beck 0.010* Film Density in H & D: Min. 2.0 Max. 4.0	Cine (no:	1-D	
ment regil visalle	The above interpret Client signature in Clock tape marker of It is the customer's re	ind start	eptance TOYY	of the rs Of ked (, not a guar aport and re M WGIdMC	esults.	Date			Penetrometer (IO) hole type) designation: N/A Recomment Source tsotope: IRIDIUM-192 (Gamme) Wall Viewing: Effective Focal Spot Size: 0 146 inches Processing		.G.: Single tomalic	0.20*

ALL CAN INSPECTION SERVICES (2011) INC.

Report # G2572

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

SHOP: 780-462-1072 OFFICE: 780-462-9797 FAX: 780-462-4664 EMAIL: shop@allcaninspection.com <u>www.allcaninspection.com</u>

Client: Address: Contact: Work Loca	Name: Toby Phone:	Arc So plorati n Inspe	ion W	/ay, D				Wo		CODES CODE
NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	ğ	Technique	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion EP - Excessive Panellation P - Incomplete Penellation P - Possity C - Hearnst Concavity BT - Burn Through HL - High-Low T1 - Tungeten Inclusion Ut Interestal Undercut EU External Undercut HB - Hollow Based
DC SHANI(SAC)	E (O) EDOX		1.0	See Back	See Back	inthe	instee			Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject)
26 SMAW-SAS 1	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	K.WR	
4G 5MAW-SAS 1	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	K.WR	
	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	K.WR	V
2G SAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	K,WR	R V
RT Technician: RT Assistant # 1 RT Assistant # 2			CGSB L	evel:	2 CEDO #:		g.#: 18988	6		SNT-TC-1A Level: SNT-TC-1A No: 5 SNT-TC-1A Level: SNT-TC-1A No: 18988 SNT-TC-1A Level: SNT-TC-1A No:
Technician Signatur	M	tion is a to	echnical o	opinion, if the rep	not a guara not and res	Juli ate valuation in ritee. ults.	ly 26/1		F	Film Make / Brand AGFA Film Class / Type: 1-D5 Screens Lead Front 0.010* Back 0.010* One (no.) rim per screen Film Density in H & D; Min. 2.0 Max. 4.0 Penetrometer (ICI hole type) designation: N/A Recommended Max. U.G.: 0.20* Scurce Isotope: IRIDIUM-192 (Gamma) Wall Viewing: Single Effective Focal Spot Size: 0.146 Inches Processing: Automatic

ALL CAN INSPECTION SERVICES (2011) INC. 9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

Report # G2571

SHOP: 780-462-1072 OFFICE: 780-462-9797 FAX: 780-462-4664 EMAIL: shop@allcaninspection.com www.allcaninspection.com

Client:	F. L	A C.				_	_		- 40	Construction		GE 1	OF	_1	
0.000		Arc 5							Ci	ient Job #	Welder Coupons	1. ASME 2. ASME			
Address:		plorati	on W	ay, D	evori					P.O. #	Toby	3. ASME	Sec. VIII	DIVIU	
Contact:	Name: Toby									Date:	July 26/17	4. ASME 5. CSA Z	562		JW52
	Phone:											6. CSA Z0 7. API 65	0		
Work Loca	tion: All Ca	in Insp	ection	Sho	р			Wo	ork De	escription:	T.MO	8. ASME	IX (QW-1	191.2)	
NDE NO:	Size & thickness Plus Code Max. reinforcement	Material	Code	ĬĞ	Technique Number	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion IP - Incomplete Penets IC - Internal Conceasity IST - Sum Through IT - Tungsten Inclusion IC: Internal Undercat EU: External Undercat	r S-Stag HL-High-Low r C-Crack AB-Arc Burn	ation	Severity	Accept	Reject
	- in the second		1-8	Say Back	See Pack	Inches	inches		-	Severity:	1 = Slight, 2 = Medium, 3 = Severe Observationity	e (Reject)	1-9	*	x
26 SMAW-SAS-1	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	T.MC)				٧	i
∃G SMAW-SAS 1	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	T.MC)				٧	t
AG SMAW-SAS 1	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	T.MC)			1	٧	, 1
		4.											41		İ
			100												14
		-		1				+						1	
-,															16
							-	4						F	
-				-						-					
		++	-+					-					<u></u> .	Ш	
		+-	İ	4	-00										
				- 4		-	-		4						
		1-1	-+			100									
_		1	-							-		-			
				-4						4					
-4		7	- #							-			-		0-
			-+					-		-					
					-9-			-							4
		1	-+						-	-					-
		17	-1-			-			-				_	_	=
				1	-			-64							
11		 		=				+					1		
			-	-1-			$\overline{}$	-				-0			
	2-			T				=	4,5	-				-4	-14-
RT Technician:	Gordon Thomas	1	CGSB L	evel:	2	Ď.	eg.#:			CNIT TO	14 (4/4)	75.44	-1		
RT Assistant #	-	-	-		CEDO A		18988	,6				IT-TC-1A No: IT-TC-1A Na:	1000	_	
RT Assistant #	2				CEDO #		~===					T-TC-1A No:	1898	-	
IMPORTAL	NT: See veverse side of this form	for All Cam II	nspection 5	ervices	(2021) Inc.).	IMITED LIAI	DILITY POL	icy						=	
Technician Signatu	in r	Comp		_	_		ly 26/			Film Make / Brand Screens Lead Film Density in H & D		Film Class / Ty ack 0.010* Max. 4.0	pe; One (np.)	f-D	
Client Represental	The above interpre Client signature in Clock tape marker	dicates aco and start a	episnes o	f the re	not a guar port and re n weldme	suits. nt.	Date			Penetrometer (ICI hole I Source Isotope:	N/A IRIDIUM-192 (Germma)	Recommend Wall Viewing:	.8	Single	0.20°
_	It is the customer's	responsibil	lity to ma	ap weld	ds on draw	ings.				Effective Focal Spot S	t-	Processing:	Au	lomatic	-

ALL CAN INSPECTION SERVICES (2011) INC.

Report # G2570

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4

SHOP: 780-462-1072 OFFICE: 780-462-9797 FAX: 780-462-4664 EMAIL: shop@allcaninspection.com www.allcaninspection.com

Client: Address: Contact: Work Loca	Name: Toby Phone:	Arc S plorati n Inspe	ion W	'ay, C				Wo		lient Job # Welder Coupons P.O. # Toby Date: July 26/17 escription: J.Hi	1. ASME B 2. ASME B 3. ASME S 4. ASME S 5. CSA 766 6. CSA 766 7. API 650 8. ASME D	31,3 5/0 ec. VIII I ec. VIII I 52 52 (Sour	: Div 1 U\ Div, 1 U	
NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	ğ	Techniqua	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	LF - Lack of Fusion LF - Incomplete Penetration R- Incomplete Penetration R- Porcestry S- Staig BT - Burn Through HI - High-Low TI - Fungsten Inclusion IU Internal Undercut AB - An Burn EU- External Undercut HB - Hollew Beaut		Severity	Accept	Reject
las como y			1-8	See Back	See Back	Seches	inches :			Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reje	:t)	1-3	_; -	×
26 SMAW-SAS 1 36 SMAW-SAS 1	5/8" SPOT	PI	8 -	2	RT-2	0.750	25.000	1	J.Hi				٧	
46 SMAW-SAS 1	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	J.Hi				٧	
TO SHORT THE E	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	J.Hi				٧	
					-				n la-					
									5					
-									-		=			
												- +	-	
					-				-					
									-0				#	
RT Technician: RT Assistant # : RT Assistant # :	L Adele Kezama		CGSB L	e v	CEDO #	-	g.#: 18988	6	Ī	SNT-TC-1A Level: III SNT-TC-2 SNT-TC-1A Level: II SNT-TC-1 SNT-TC-1A Level: SNT-TC-3	A No:	6 1898	3	
Technician Signatu	By	oy All Can Iso	espection S	Services			шту роц ly 26/1			Screens Lead Front 0.010' Back o.): The (no.) (l	1-DS Im perso	_
Client Représentati	The above interprets Client signature ind Clock tape marker as It is the customer's re	icates acce nd start a	rrow ma	f the rep trked or	not a guers port and res	sults.	Date			Pensitrometer (KOI hole type) designation: N/A Source Isotope: IRIDIUM-192 (Garma) Wall Vis	4.0 Recommended wring: 'ocessing:	Si	ngle matic),20'

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A

WELDED MANE	WELDED		2			LIMITATIONS			
WELDER NAME	WELDER SYMBOL	QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
MATT MACKENZIE	M. MA	06,21,17	SAS 1	SMAW	F3. F4	26.	1'4"		X-RAY 6 2343
	M. MA	06,21,17	SAS 1	5 m AW	F3, F4	36	14"		X-RAY 6-2343
	M. MA.	06,21,17	SAS 1	SMAW	F3, F4	44	14"		x- RAY C= 2343
	M.WA.	08,01,17	545 Z	SAW	77A6	26	1 1/4"		x-RAY G 2615.
									,
	-								

QC (PRINT)	DATE (yyyy-MM-dd):
SIGN:	
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):
SIGN: RESHER	2017,08,01

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A

WELDER NAME	WELDER	DATE	01141151045101			LIMITATIONS			
WEEDEN NAME	SYMBOL	QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
MITCH COULICEP	M. 60	06,21,17	5AS 1	SMAW	F3. F4	26	1 4"		V-0- 0 22/11
	W. 60	06,21,17	SAS 1	5maw	F3 F4	36	114"		X-Ray 62341
	M.60	06,21,17	5A51	SMAW	F3, F4	44	(40)		x-RAY 62341
	M. 60	08,01,17	5A52	SAW	F746	26	114"		X-RAY 6 2614.
									2017.
		1							

QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):	
SIGN: RESHER	2017,08,01	

	WELDER
Sub-Arc Systems Inc.	

WELDERS' QUALIFICATION RECORD API 650

Exhibit 8, Rev A

WELDER NAME	WELDER	DATE	01141151045			LIMITATIONS			
WEEDEN NAME	SYMBOL	QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
HAS JARUES	C.JA	06,21,17	SAS 1	SMAW	F3, F4	26.	1 4"	HANGE	X-RAY 62339
	C.JA.	06,21,7	345 I	5 = 1 AW	F3. F4	36	14"		X-RAY 6 233
	C. 3A.	06,21,17	345 1	SMAW	F3, F4	44	14"		x- PM 6233
	C. JA	08,01,17	5A52	SAW	F7A6	26	114"		X-Ray 6 2613
									/ 0 4 5 7 .

QC (PRINT)	DATE (yyyy-MM-dd):	11-2
SIGN:		
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):	
SIGN: RENHE	2017,08,01	

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A

WELDER NAME	WELDED	DATE			LIMITATIONS					
	SYMBOL	WELDER SYMBOL	QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
MATT TURMEC	M.TU	06,21,17	SAS 1	SMAW	F3. F4	26.	1 14"	THITTE	X-Ray 62342	
	m.Tu	06,21,17	545 1	5 m Aw	F3 F4	34	114"		K-RAY G 2342	
	M.TU	06,21,17	SAS 1	SMAW	F3, F4	44	14"		x-22 G2342	
	M.Tu.	07, 26,17	5452	SAW	F746	26	1'4"			
									x-2 Ay G 2575	
							T = 1			

QC (PRINT)	DATE (yyyy-MM-dd):
SIGN:	
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):
SIGN: RONHE	2017,02/26

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev

	WELDER	DATE							
	SYMBOL	QUALIF.		PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
JOHL OUEREARD	J.01	06,21,17	5AS 1	SMAW	F3. F4	26.	1 1/4"	IIAIGE	X-Rmy 62340
	J.0V	06,21,17	545 1	5 m Aw	F3 F4	36	144"		K-RAY 6 2340
	J.01	06,21,17	548 L	SMAW	F3 , F4	44	140		
	2.00	07.26,17	5 AS 2	SAW	F7A6	26	114"		X-RAY 62340 X-Ray 62514
									1 5 4317
					- 1				

QC (PRINT)	DATE (yyyy-MM-dd):
SIGN:	
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):
SIGN: RESHER	2017,02,26

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

QUALITY CONTROL MANUAL

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A
----------------------	--	------------------

WELDER NAME	WELDER	DATE	QUALIFICATION PROCEDURE			LIMITATIONS			REMARKS
	SYMBOL			PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	
KEUW WHIGHT	KWR	07,26,17	545 1	5man	F3. F4	26.	1411	- In In Cal	X-Ray 62572
	K.WR	07,26,17		Sigan	F3. F4	36	1/41		
	K. WR.			SMAW	F3 F4	46	141		x-Ray 62572
	K. we	07,26,17	5A52	5AW	F7 46	26	14"		X-RAY 6 2572
									X-RAY 62572
		-							
1									
						- 1			

QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):	
SIGN: RUSHING	2017, 07,28	

Sub-Arc Systems Inc.		c .	WELL	Exhibit 8, Rev A					
WEIDER						LIMITATIONS			
WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS	DIAMETER RANGE	REMARKS
JOEL DUERGAUND	J.0V	07,26,17	5 AS . 2	SAW	F7A6	26	141		x Rm # 6 2574
7									
						1			
QC (PRINT) SIGN:				DA	ГЕ (уууу-ММ-	dd):			
QA (PRINT) Rol	FRT HOF	Fman		DAT	F (www.MM_	44).			

Revision 1 March 1, 2017

SIGN: Q

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev /
----------------------	---------------------------------------	------------------

WEIDEDWALL					LIMITATIONS					
WELDER NAME	WELDER SYMBOL	QUALIF.	DATE QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS	
JOE NIEBERHOFF	IN. Z	07,26,17	5A5 1	6mAW	F3, F4	36	11/411		x RAY # 62573	
	J.NI	107.26,17	5AS 1	SMAW	F3, F4	46	11/411		X RAY # 62573	
	エハエ	08,01,17	5AS 1	5m4w	F3, F4	26	114"		* RAY @ 2616.	
									,	
					1					

QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HO FROM	DATE (yyyy-MM-dd):	
SIGN: Rul H	2017, 08, 01	

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A

					LIMITATIONS				
WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
Justia Hill	7.4I	07,26,17	SAS 1	5man	F3, F4	26.	1411		X-Ray 62570
	I. HI	07,26,17	5AS 1	SMAW	F3. F4	36	1411		Y-RAY 6 2570
	J. HI	07,26,17	545 I	5MAW	F3 F4	46	11411		X- RAY 6 2570

QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):	
SIGN: RUNING	2017, 07,28	

	Exhibit 8, Rev A	
LIMITATIONS		

		10.20	DATE QUALIFICATION PROCEDURE	LIMITATIONS					
WELDER NAME	WELDER SYMBOL	DATE QUALIF.		PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
FOE NIEBERHOFF	INZ	07,26,17	545 1	5m Aw	F3, F4	36	11/411		XRAY # 62573
	J.NI	67,26,17	5AS 1	SMAW	F3, F4	46	11/411		x Ray # € 2573
							-		
									17

QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HOPEMAN	DATE (yyyy-MM-dd):	
SIGN: Rul X HOD	2017, 07, 28	

stems Inc		WELD	WELDERS' QUALIFICATION RECORD API 650					Exhibit 8, Rev A
	A				LIMITATIONS			
WELDER SYMBOL	QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
m.tu.	07,26,17		SAW	F1A6	76	14"		XRAY GaSTS
	WELDER	SYMBOL QUALIF.	WELDER DATE QUALIFICATION PROCEDURE	WELDER DATE QUALIFICATION PROCESS	WELDER SYMBOL QUALIF. QUALIFICATION PROCEDURE PROCESS ELECTRODE	WELDER SYMBOL QUALIF. QUALIFICATION PROCEDURE PROCESS ELECTRODE POSITION	WELDER SYMBOL QUALIF. QUALIFICATION PROCEDURE PROCESS ELECTRODE POSITION RANGE	WELDER SYMBOL DATE QUALIFICATION PROCEDURE PROCESS ELECTRODE POSITION RANGE RANGE

QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):	
SIGN: Ruck Ha	2017, 07,28	

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

QUALITY CONTROL MANUAL

Sub-Arc Sys	stems Inc. WELDERS' QUALIFICATION RECORD API 650						Exhibit 8, Rev A		
						LIMITATIONS			
WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
JOEL DUERGAUND	J.0V	07,26,17		SAW	F7A6	26	11/4"		× Rm + 6 2574
		-							
QC (PRINT) SIGN:				DA	ГЕ (уууу-ММ-	dd):			
SIGN: Q. IST HOFFMAN					TE (yyyy-MM-	dd):			

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

QUALITY CONTROL MANUAL

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A

WELDER NAME	WELDER	DATE		LIMITATIONS					I
WEEDEN NAME	SYMBOL	QUALIF.		PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
KEUN WHIEHT		07,26,17	545 £	Sman	F3. F4	26	1 14 21		X-Ray G 2572
	K.WR	07,26,17	5AS 1	Syan	F3, F4	36	, 41		x-RAY 62572
			5451	SMAW	F3 F4	46	141		x-RAY 6 2572
	K. wR	07,26,17		5AW	F746	26	14"		X-RAY 6 2572
									1
- 2	· i								
1									
						-			1

QC (PRINT)	DATE (yyyy-MM-dd):
SIGN:	
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):
SIGN: RUSHING	2017,07,28

	WELDERS' QUALIFICATION RECORD	
Sub-Arc Systems Inc.	API 650	Exhibit 8, Rev A

P. B. Barrier	WELDER SYMBOL	1 = 1		LIMITATIONS					
WELDER NAME		DATE QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
TYLER MONERIEF	T. MO	07,26,17	5AS 1	Sman	F3. F4	26	1411		x Ray # 62571
	T. Ma	07,26,17	545 1	5m4w	F3. F4	36	1 1/4 11		XRMy # E2571
	T. mo	07.26.17	545 1	SMAW	F3 F4	46	114"		× Ray # 6 2571.

QC (PRINT)	DATE (yyyy-MM-dd):
SIGN:	
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):
SIGN: RUS H	2017, 07,28

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev

						LIMITATIONS			
WELDER NAME	WELDER SYMBOL	QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
CHN'S JARUES	C.JA	06,21,17	5AS 1	5 MAW	F3. F4	26.	1 14"		X-Rmy 62339
	C. JA.	06,21,17	545 I	5 m Aw	F3, F4	36	14"		x-RAY 6 2339
<u> </u>	C. 3A.	06,21,17	3A5 1	SMAW	F3, F4	44	14"		x-PA 62339
					•				7
		7,							
				2					

QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):	
SIGN: RECHARD	2017,06,23	

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A

WELDED MANE	WEIDED					LIMITATIONS			
WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
JOEL OUEREARD	J-01	06,21,17	SAS 1	SMAW.	F3, F4	26.	1 '4"		X-RAY 6 2340
	J.0V	06,21,17	5A5 1	5 m Aw	F3, F4	36	14"		x-RAY 6 2340
	I.OV	06,21,17	548 1	SMAW	F3, F4	44	14"		x-22 62340
							•		7
			4						

QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):	
SIGN: REALLY	2017,06,23	

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

QUALITY CONTROL MANUAL

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A

WELL	DED MAME	WELDED	DED DATE			LIMITATIONS				
WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS	
MITCH	COULICER	M. GO	06,21,17	SAS 1	SMAW	F3. F4	26.	1'4"		X-RAY 62341
		M. G0	06,21,17	SAS 1	5 m Aw	F3, F4	36	14"		x-RAY 62341
		M-60	06,21,17	5A5 1	SMAW	F3, F4	44	(44"		x- RAY 6234/
										7

QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):	
SIGN: RECORD	2017,06,23.	

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A

WELDED MANE	WELDED					LIMITATIONS			
WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
MATT TURMEL	M.Tu	06,21,17	SAS 1	SMAW	F3. F4	26.	1 14"		X-Ray 62342
	м.та	06,21,17	545 1	5 m Aw	F3, F4	36	14"		x-RAY G 2342
	M.TU	06,21,17	SAS 1	SMAW	F3, F4	44	(14")		x-RAY 62342
					-				114 6 2542
								······································	

QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):	
SIGN: ROCK HER	2017,06,23.	

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8 , Rev A

						LIMITATIONS				
WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS	
MATTI MACKENZIE	M. MA	06,21,17	SAS 1	SMAW	F3. F4	26.	1 14"		X-RAY 6 2343	
	M. MA	06,21,17	SAS 1	SMAW	F3, F4	36	14"		x-RAY 6-2343	
	m. MA.	06,21,17	SASI	SMAW	F3, F4	44	(4"		x- PAL G 2343	
								The Control of the Co		
			=							
			3							

QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):	
SIGN: RESHER	2017,06,23	

Sub-Arc Sys	stems Ind	D .	WELI	DERS' QL	JALIFICATI API 650	ON RECO	PRD		Exhibit 8 , Rev A
WELDER NAME	WELDER	DATE	OUAL IFICATION			LIMITATIONS			
WELDER NAME	SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
QUITON POTTS	Q.P0	06,21,17	SAS 1	SMAW	F3. F4	26.	1 14"		X-80 623 W/
	Q. 80	06,21,17	5AS 1	5 m Aw	F3 F4	36	114"		X-RAY 62344
	Q. PD	06,21,17	SAS 1	SMAW	F3, F4	44	(4"	The state of the s	X-RAY 62344 X-RAY 62344
					`	2			7 20031
					u .				
QC (PRINT) SIGN:				DAT	Е (уууу-ММ-	dd):			
QA (PRINT) Ro	BERT H	offma	\sim	DAT	Е (уууу-ММ-с	dd):			

Revision 1 March 1, 2017

SIGN: 2

2017,06,23

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

QUALITY CONTROL MANUAL

Sub-Arc Systems Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A

WELDER NAME	WELDED	DATE	011411510451011		•	LIMITATIONS			
WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	REMARKS
Dustin Zubach	D.24	06,21,17	54S 1	SMAW	F3, F4	26.	1 14"		X-RAY 62345
	D.24	06,21,17	SAS 1	5 m Aw	F3, F4	36	14"		x-RAY 6 2345
	b. 24	06,21,17	545 I	SMAW	F3, F4	44	(4)		X-PAL 62345
					,				2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	~								
					_				
	-7								
					9			-	
								· · · · · · · · · · · · · · · · · · ·	

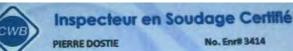
QC (PRINT)	DATE (yyyy-MM-dd):	
SIGN:		
QA (PRINT) ROBERT HOFFMAN	DATE (yyyy-MM-dd):	
SIGN: RECEIVED	2017,06,23	

Item 4 – Inspector Qualification

Contents

1. CWB Inspector Qualifications for NDE Testing

CWB Inspector Certification - Pierre Dostie



No. Enr# 3414

est un Inspecteur en soudage certifié de Niveau3 et satisfait aux exige de la norme CSA W178.2 « Qualification des inspecteurs en soudage ».

Valide jusqu'au

février 16, 2018

CSA W47.1/W59 ASMEMII-1 IX ASME B31.3 CSA W47.2/W59.2

Cette certification est valide pour le(s) code(s) et/ou la norme(s) sulvant(es) : Valide jusqu'en août 2020 Valide jusqu'en novembre 2021 Valide jusqu'en août 2020 Valide jusqu'en novembre 2021

Conditions

- La possession de cette carte ne signifie nullement que son détenteur représente un organisme d'inspection certifiée en vertu de la norme CSA W178.1 et ayant du personnel et des procédures approuvées par le Bureau canadien de soudage.
- 2. Cette carte demoure la propriété du Bureau et peut être rappelée en tout temps.
- 3. L'usage de la présente carte à des fins frauduleuses peut entraîner son annulation.

Pour toute question concernant cette qualification, veuillez communiquer avec :

1-800-844-6790 | www.cwbgroup.org









CWB Inspector Certification - Sylvain Germain



Conditions

- La possession de cette carte ne signifie autiement que son détenteur représente un organisme d'inspection outrifiée en vertu de la norme CSA W178.1 et ayant du personnel et des procédures approuvées par le Bureau canadien de soudage.
- 2. Cette carte demeure la propriété du Bureau et peut être rappelée en tout temps.
- L'usage de la présente carte à des fins frauduleuses peut entraîner son annulation.
 Pour loute question concernant cette qualification, veuillez communiquer avec :

1-800-844-6790 | www.cwbgroup.org









Item 5 – Weld Procedures

Contents

1. Approved Weld Procedures

SUB-ARC SYSTEMS INC.

Welding Procedure Specification

in accordance with

ASME Section IX

Welding Procedure	Specification No.:		SAS-1 Re	evision 1 ¹	
Supp	orting PQR No. (s):	SAS-1-1, SAS-1-2, SAS-1-3 Revision 1, SAS-1-4			
	C	Qualified fo	or		
Process(es):	SMAW / SMAW /	SAW	Position(s):	All / All / Flat or Horizontal ²	
Filler Metal F-No.:	F-3 / F-4 / F-6	3	A-No.:	A-1 / A-1 / A-1	
AWS Classification:	E6010 / E7018-1 / F7A	6-EM12K	Weld Type(s):	Groove, Fillet, Weld buildup	
Base Metal:	P-1 Group 1	or 2	To:	P-1 Group 1 or 2	
Typical Materials:				in Table QW-422 of ASME Section	
				s are not required, and P-1 Group 1 phness properties are required.	
Diameter Range:	All diameters		Condition(s):	As welded	
		Normal Servi	ce	Impact Tested to -50°F	
Thickness Range:	ASME Section IX	0.062" to 1.500)"	0.125" to 1.500"	
	ASME Section VIII	0.062" to 1.500	O"	0.125" to 1.500"	
	ASME B31.1	0.062" to 0.750)"	0.125" to 0.750"	
	ASME B31.3	0.062" to 0.750)"	0.125" to 0.750"	

	Provincial Registration
	DDCD
SA	FETY CODES ACT - PROVINCE OF ALBERTA WELDING FROCEDURE
Spe We Ma Eler Th.	1389.2 10 No. WP 3389.2 10 No. SAS-I (Rev I) 10 Process SMAW / SMAW / SAW 11 Gr. P. No. I Gr. I + 2 10 Gr. F. No. 3+ 4+ 6 A. No. I 11 Qual For 38.1 cnm. PW.H.T. NO. 12 N.T.H. QUAL 3.2 cnm. CVN -46°C
Yr	14 Mo. 11 Day 5 Signed JASON REINHART, PENG. WELDING SPECIALIST

Provincial Registration	

¹Revision 1: Revision to accommodate revision of PQR SAS-1-3 as well as the addition PQR SAS-1-4 to expand the base metal thickness range where proven notch toughness properties are required at -50°F.

²SAW position limited by process usability.

WELDING PROCEDURE SPECIFICATION (WPS) QW-482 (Section IX, ASME Boiler and Pressure Vessel Code)

C	Company N	lame: Sub-A	Arc Systems Inc.	E	By: Gary Kohlm	ıan
	WPS	S No.: SAS-	1	Da	te: January 4, 2	2002
	Revision			Revision Da	te: July 15, 201	14
•	porting P		1-1, SAS-1-2, SAS-1-3 Revision		-> / - / -	
Weldi	ng Proces	s(es): SMA	N / SMAW / SAW	Type(s): Manual / Ma	anual / Machine
	.IO	INTS QW	<i>I</i> -402	.lo	int Details	
Joint Design:		ee, Lap, Corn		All ASME joint designs.		uction
Backing:	-	-	ithout backing.	drawings for joint details. V		
Buoking.		MAW with back		specified, refer to typical joi		
		with backing or				
Backing Materia			or weld metal or backwelding a	s required. No Retainers.		
	(-) 		BASE METALS	QW-403		
P-No.:	P-1	Group No.:	*1 or 2 to P-N	o.: P-1	Group No.:	*1 or 2
OR			· · · · · · · · · · · · · · · · · · ·			
Spec. type & gra	ide:		Not Applicable to S	pec. type & grade:	Not A	Applicable
OR						
Chem. Analysis	& Mech. P	rop.:	Not Applicable to C	hem. Analysis & Mech. Pro	p.:	Not Applicable
Thick	ness Ranç	ge				
			Normal Service	Impact Tested to -5	50°F	-
Base Metal: Gro	ove:	Section IX	0.062" to 1.500"	0.125" to 1.500"	Fillet:	All
		Section VIII	0.062" to 1.500"	0.125" to 1.500"	Fillet:	All
		B31.1	0.062" to 0.750"	0.125" to 0.750"	Fillet:	All
		B31.3	0.062" to 0.750"	0.125" to 0.750"	Fillet:	All
Pipe Dia Range:		All diameter		_	Fillet:	All
			veld layer shall not exceed 0.500			
*LII	mited to P-	1 Group 1 or 2	only when proven notch toughne			
		_	FILLER METALS	QW-404		• • • • • • • • • • • • • • • • • • • •
91	ocification	Process: n No. (SFA):	SMAW 5.1	SMAW 5.1		SAW 5.17
•		ication No.:	E6010	E7018-1		EM12K
		F-No.:	F-3	F-4		F-6
		A-No.:	A-1	A-1		A-1
	Size of F	iller Metals:	3/32", 1/8", 5/32"	3/32", 1/8", 5/32, 3/16", 1	/4" 3/32",	1/8", 5/32", 3/16"
Weld Meta	al Thicknes	ss - Groove:	0.250" max.	1.500" max.		1.500" max.
		- Fillet:	Unlimited	Unlimited		Unlimited
E	lectrode-F	lux (Class):	Not Applicable	Not Applicable	F7/	A6-EM12K-H8
	Ma	anufacturer:	Not Applicable	Not Applicable	Liı	ncoln Electric
	•	Tradename:	Not Applicable	Not Applicable		LA-61
	Flux T	rade Name:	Not Applicable	Not Applicable	Lin	coln 882 Flux
		Alloy Flux:	Not Applicable	Not Applicable		Neutral
		nable Insert:	Not Applicable	Not Applicable		ot Applicable
Supp		iller Metals:	Not Applicable	Not Applicable		ot Applicable
	Pro	oduct Form: Other:	Covered Electrode	Covered Electrode		iled Solid Wire
		Julei.	E6010 limited to root pass only	when proven notch toughnes	ss properties are	requirea.

¹Revision 1: Revision to accommodate revision of PQR SAS-1-3 as well as the addition PQR SAS-1-4 to expand the base metal thickness range where proven notch toughness properties are required at -50°F.

WELDING PROCEDURE SPECIFICATION (WPS) QW-482 (Section IX, ASME Boiler and Pressure Vessel Code)

WPS # SAS-1 Rev.1

	POSITIONS	QW-405				REATMENT	QW-407	
Position(s) of					o. Range:			
Welding Prog		W Vertical Up or Do	wn		e Range:			
		W Vertical Up or Do				(None – As	one – As Welded)	
		Flat or Horizontal ¹						
Position(s)	of Fillet: All				Cooling:			
	PREHEAT	QW-406			GAS	QW-408		
Temperat		QVV TOO		Shielding		QTT TOO		
Interpass Ten		(See Next Pag	re)	_	position:			
•	ass Min.:	(CCC TOAL T ug	٠,		low Rate:	(Not App	licable)	
Preheat Main		ising tempilstiks, pyr	ometer or		Backing:	(
		able methods.			Other:			
	-	ELECTRICAL	CHARACTERI	STICS OV	V-409			
	Curre		Direct - DC	F-4 SMAW:	Direct - DC	F-6 SAW:	Direct - DC	
	Polar		Reverse - EP	F-4 SMAW:	Reverse - EP	F-6 SAW:	Reverse - EP	
	Amps (Rang		50 - 180	F-4 SMAW:	50 - 360	F-6 SAW:	250 - 750	
	Volts (Rang		18 - 34	F-4 SMAW:	18 - 34	F-6 SAW:	22 - 38	
	Travel Speed (Rang		1 - 16	F-4 SMAW:	1 - 20	F-6 SAW:	4 - 35	
Maximum Heat	Input: 0.125" to 0.62		25 200 J/in	F-4 SMAW:	29 640 J/in	F-6 SAW:	36 428 J/in	
axa rivat	0.625" to 1.50		69 300 J/in	F-4 SMAW:	63 000 J/in	F-6 SAW:	73 636 J/in	
Electrode	Wire feed speed ran		55 555 5/111	1 TOMATI.	20 000 0/111	. JOAN.	. 0 000 0/111	
	Electrode Size & Ty		2					
-	etal Transfer for GMA							
mode of mo	Oth		it input mandatory	only when prove	en notch toughne	ess is required		
	-				ar noton toagimi	oco io roquirou.		
			•	W-410				
	String or Weave E	Sead: String and w	veave. Weave size		led to prevent e	xceeding maxim	num heat inputs.	
	String or Weave E Orifice or Gas Cup	Size: String and w	veave. Weave size	shall be control	•		•	
	-	String and w Size: Not Applical Base materi paint, tar, et welded shal	veave. Weave size ble ial must be thoroug c.) at least 1" back I be smooth, unifor	shall be control thly cleaned of a on each side of m and free from	all foreign materi f the joint prior to notches, slag,	ial (scale, rust, o o welding. All su fins and burrs.	oil, grease, irfaces to be	
	Orifice or Gas Cup	String and w Size: Not Applical Base materi paint, tar, et welded shal	veave. Weave size ble al must be thoroug c.) at least 1" back	shall be control thly cleaned of a on each side of m and free from	all foreign materi f the joint prior to notches, slag,	ial (scale, rust, o o welding. All su fins and burrs.	oil, grease, irfaces to be	
N	Orifice or Gas Cup	String and w Not Applicat Base materi paint, tar, et welded shal Perform by	veave. Weave size ble ial must be thoroug c.) at least 1" back I be smooth, unifor	shall be control phly cleaned of a on each side of m and free from g hammer, power	all foreign materi f the joint prior to notches, slag, er brushing, grir	ial (scale, rust, on welding. All suffins and burrs.	oil, grease, urfaces to be each weld layer.	
N	Orifice or Gas Cup Initial Clea Interpass Clea	String and w Size: Not Applical Base materi paint, tar, et welded shal hing: Perform by v ging: Arc air, goug	veave. Weave size ble al must be thoroug c.) at least 1" back I be smooth, unifor wire brush, chippin ge, grind, etc., grin	shall be control phly cleaned of a on each side of m and free from g hammer, power	all foreign materi f the joint prior to notches, slag, er brushing, grir	ial (scale, rust, on welding. All suffins and burrs.	oil, grease, irfaces to be each weld layer.	
	Orifice or Gas Cup Initial Clea Interpass Clea Method of Back Gou Oscilla	String and w Size: Not Applical Base materi paint, tar, et welded shal ning: Perform by ging: Arc air, goug tion: Not Applical	weave. Weave size ble lal must be thoroug c.) at least 1" back I be smooth, unifor wire brush, chippin ge, grind, etc., grindle	shall be control phly cleaned of a on each side of m and free from g hammer, power	all foreign materi f the joint prior to notches, slag, er brushing, grir	ial (scale, rust, on welding. All suffins and burrs.	oil, grease, irfaces to be each weld layer.	
Contac	Orifice or Gas Cup Initial Clea Interpass Clea Method of Back Gou	String and w Size: Not Applicat Base materi paint, tar, et welded shal Perform by ging: Arc air, goug tion: Not Applicat 1/4" to 1 1/4 Single or mi	weave. Weave size ble lal must be thoroug c.) at least 1" back I be smooth, unifor wire brush, chippin ge, grind, etc., grindle	shall be control ghly cleaned of a on each side of m and free from g hammer, powed d to clean metal	all foreign materi f the joint prior to notches, slag, er brushing, grir where thermal	ial (scale, rust, o o welding. All su fins and burrs. nding, etc. after processes are u	oil, grease, irfaces to be each weld layer. ised if required.	
Contac Multiple o	Orifice or Gas Cup Initial Clea Interpass Clea Method of Back Gou Oscilla It Tube to Work Dista	String and w Size: Not Applical Base materi paint, tar, et welded shal Perform by v ging: Arc air, goug tion: Not Applical ance: 1/4" to 1 1/4 Single or marequired.	weave. Weave size ble all must be thoroug c.) at least 1" back I be smooth, unifor wire brush, chippin ge, grind, etc., grin ble "	shall be control while cleaned of a on each side of m and free from g hammer, powe d to clean metal side, multiple onl	all foreign materi f the joint prior to notches, slag, er brushing, grin where thermal	ial (scale, rust, o o welding. All su fins and burrs. nding, etc. after processes are u	bil, grease, infaces to be each weld layer. ised if required. is properties are	
Contac Multiple o	Orifice or Gas Cup Initial Clea Interpass Clea Method of Back Gou Oscilla et Tube to Work Dista or Single Pass (per s	String and w Size: Not Applical Base materi paint, tar, et welded shal Perform by v ging: Arc air, goug tion: Not Applical ance: 1/4" to 1 1/4 Single or marequired.	veave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grin ble " ultiple passes per sultiple, multiple only	shall be control while cleaned of a on each side of m and free from g hammer, powe d to clean metal side, multiple onl	all foreign materi f the joint prior to notches, slag, er brushing, grin where thermal	ial (scale, rust, o o welding. All su fins and burrs. nding, etc. after processes are u	bil, grease, infaces to be each weld layer. ised if required. is properties are	
Contac Multiple o	Orifice or Gas Cup Initial Clea Interpass Clea Method of Back Gou Oscilla et Tube to Work Dista or Single Pass (per s	String and w Size: Not Applical Base materi paint, tar, et welded shal Perform by Ging: Arc air, goug tion: Not Applical Arc air, goug Tion: 1/4" to 1 1/4 Single or marequired. Cing: Single or Mare Single or Mare Peening is r	weave. Weave size ble all must be thorouge.) at least 1" back of the smooth, unifor wire brush, chippinge, grind, etc., grindle " ultiple passes per solutiple, multiple only not allowed	shall be control while cleaned of a on each side of m and free from g hammer, powe d to clean metal side, multiple only y when proven n	all foreign materi f the joint prior to notches, slag, er brushing, grir where thermal	ial (scale, rust, o o welding. All su fins and burrs. nding, etc. after processes are u	bil, grease, infaces to be each weld layer. ised if required. is properties are	
Contac Multiple o	Orifice or Gas Cup Initial Clea Interpass Clea Method of Back Gou Oscilla et Tube to Work Dista or Single Pass (per s	String and work Size: Not Applical Base matering paint, tar, et welded shall Perform by signing: Arc air, goughtion: Not Applical 1/4" to 1 1/4 Single or matering: Single or Matering: Peening: TYPICAL	veave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grin ble " ultiple passes per sultiple, multiple only	shall be control while cleaned of a on each side of m and free from g hammer, powe d to clean metal side, multiple only y when proven n	all foreign materi f the joint prior to notches, slag, er brushing, grin where thermal	ial (scale, rust, o o welding. All su fins and burrs. nding, etc. after processes are u	bil, grease, infaces to be each weld layer. ised if required. is properties are	
Contac Multiple o	Orifice or Gas Cup Initial Clea Interpass Clea Method of Back Gou Oscilla Et Tube to Work Dista or Single Pass (per sigle Electrodes & Spa	String and work Size: Not Applical Base matering paint, tar, et welded shall Perform by signing: Arc air, goughtion: Not Applical 1/4" to 1 1/4 Single or matering: Single or Matering: Peening: TYPICAL	weave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grin ble " ultiple passes per s ultiple, multiple only not allowed . WELDING PA	shall be control while cleaned of a on each side of m and free from g hammer, powe d to clean metal side, multiple only when proven n RAMETERS Current	all foreign materi f the joint prior to notches, slag, er brushing, grin where thermal	ial (scale, rust, convelding, All suffins and burrs, and burrs, anding, etc. after processes are unotch toughnesses are reproperties are repro	bil, grease, urfaces to be each weld layer. used if required.	
Contac Multiple o	Orifice or Gas Cup Initial Clea Interpass Clea Method of Back Gou Oscilla It Tube to Work Dista Or Single Pass (per sigle Electrodes & Spa Pee	String and we Not Applicate Base matering paint, tar, et welded shall Perform by the Month of th	veave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grin ble " ultiple passes per s ultiple, multiple only not allowed . WELDING PA	shall be control while cleaned of a on each side of m and free from g hammer, powe d to clean metal side, multiple on y when proven n RAMETERS Current Amp.	all foreign materi f the joint prior to notches, slag, er brushing, grin where thermal	ial (scale, rust, convelding, All suffins and burrs, and burrs, anding, etc. after processes are unotch toughness properties are refundational toughness.	bil, grease, urfaces to be each weld layer. used if required. s properties are required.	
Contac Multiple of Multiple or Sing Process	Orifice or Gas Cup Initial Clea Interpass Clea Method of Back Gou Oscilla It Tube to Work Dista Or Single Pass (per sigle Electrodes & Spa Pee Filler AWS Classification	String and work Size: Not Applicat Base matering paint, tar, et welded shall Perform by the string of the string o	veave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grindle with the passes per sultiple passes per sultiple, multiple only not allowed Type & Polarity	shall be control while cleaned of a on each side of m and free from g hammer, powe d to clean metal side, multiple only when proven n RAMETERS Current Amp. Range	all foreign material the joint prior to notches, slag, er brushing, grir where thermal by when proven totch toughness	ial (scale, rust, control of welding. All suffins and burrs. Inding, etc. after processes are unotch toughness properties are response	bil, grease, urfaces to be each weld layer. used if required. s properties are required.	
Contact Multiple of Sing Process SMAW	Orifice or Gas Cup Initial Clea Interpass Clea Method of Back Gou Oscilla Interpass Clea Method of Back Gou Oscilla Interpass Clea Set Tube to Work Dista Or Single Pass (per set) Interpass (per set) Interpass Cleasification E6010	String and we Not Applicate Base matering paint, tar, et welded shall Perform by the Month of th	veave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grindle littple passes per sultiple, multiple only not allowed Type & Polarity DC EP	shall be control while cleaned of a on each side of m and free from g hammer, powe d to clean metal when proven n RAMETERS Current Amp. Range 50 - 100	all foreign material the joint prior to notches, slag, er brushing, grin where thermal by when proven totch toughness	ial (scale, rust, convelding, All suffins and burrs, and burrs, anding, etc. after processes are unotch toughness properties are refundational toughness.	bil, grease, urfaces to be each weld layer. used if required. s properties are required.	
Contact Multiple of Sing Multiple or Sing Process SMAW SMAW	Initial Clea Interpass Clea Method of Back Gou Oscilla It Tube to Work Dista or Single Pass (per sigle Electrodes & Spa Pee Filler AWS Classification E6010	String and work Size: Not Applicat Base matering paint, tar, et welded shall Perform by the string of the string o	veave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grin ble " ultiple passes per sultiple, multiple only not allowed Type & Polarity DC EP DC EP	shall be control when proven n RAMETERS Current Amp. Range 50 - 106 shall be control ghall be control ghall cleaned of a on each side of m and free from ghall hand free from ghall clean metal side, multiple only when proven n	all foreign material the joint prior to notches, slag, er brushing, grin where thermal ly when proven totch toughness	ial (scale, rust, co welding. All sufins and burrs. Inding, etc. after processes are unotch toughness properties are responsed to the second s	bil, grease, urfaces to be each weld layer. used if required. s properties are required. Travel Speed (IPM) 1 - 12	
Contact Multiple of Sing Process SMAW	Initial Clea Interpass Clea Method of Back Gou Oscilla It Tube to Work Dista or Single Pass (per signer Electrodes & Spa Pee Filler AWS Classification E6010 E6010 E6010	String and work of Applications in the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the performance: Single or mure required. Single or Mure performs is required.	veave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grindle liber with the same of the liber with the li	shall be control while cleaned of a on each side of m and free from g hammer, powed to clean metal side, multiple only when proven not clean metal RAMETERS Current Amp. Range 50 - 100	all foreign material fithe joint prior to notches, slag, er brushing, grir where thermal ly when proven totch toughness to the last of the	ial (scale, rust, co welding. All sufins and burrs. Inding, etc. after processes are unotch toughness properties are responsed by the second s	pil, grease, urfaces to be each weld layer. Ised if required. Is properties are required. Travel Speed (IPM) 1 - 12 2 - 14 4 - 16	
Contact Multiple of Sing Process SMAW SMAW SMAW SMAW SMAW	Initial Clea Interpass Clea Method of Back Gou Oscilla It Tube to Work Dista or Single Pass (per signer Single Electrodes & Spa Pee Filler AWS Classification E6010 E6010 E7018-1	String and work of Applications in the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the performance: Single or mure required.	veave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grind ble " ultiple passes per subtiple only not allowed Type & Polarity DC EP DC EP DC EP DC EP	shall be control when proven n RAMETERS Current Amp. Range 50 - 106 60 - 186 when proven last of the control shall be control shall be control and free from the control shall be control and free from the control and the control shall be control and the control shall be control and the control shall be control and the control shall be control and the control and the control shall be control and the control and the control shall be control and the cont	all foreign material the joint prior to notches, slag, er brushing, grin where thermal ly when proven totch toughness to the last of the l	ial (scale, rust, co welding. All sufins and burrs. Inding, etc. after processes are unotch toughness properties are responsed by the second s	bil, grease, practice to be each weld layer used if required. So properties are required. Travel Speed (IPM) 1 - 12 2 - 14 4 - 16 1 - 14	
Process SMAW SMAW SMAW SMAW SMAW SMAW SMAW	Initial Clea Interpass Clea Method of Back Gou Oscilla It Tube to Work Dista or Single Pass (per signer Single Electrodes & Spa Pee Filler AWS Classification E6010 E6010 E7018-1 E7018-1	String and work of Applications in the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the performance: Single or Multiple performance in the perfor	veave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grin ble " ultiple passes per sultiple only not allowed Type & Polarity DC EP DC EP DC EP DC EP DC EP DC EP	shall be control when proven n side, multiple only when proven n RAMETERS Current Amp. Range 50 - 100 50 - 180 70 - 180	all foreign material the joint prior to notches, slag, er brushing, grin where thermal ly when proven totch toughness ly le le le le le le le le le le le le le	ial (scale, rust, co welding. All sufins and burrs. Inding, etc. after processes are unotch toughness properties are responsed by the second s	bil, grease, practices to be each weld layer. each weld layer. each if required. So properties are required. Travel Speed (IPM) 1 - 12 2 - 14 4 - 16 1 - 14 2 - 16	
Process SMAW SMAW SMAW SMAW SMAW SMAW SMAW SMAW	Initial Clea Interpass Clea Method of Back Gou Oscilla It Tube to Work Dista or Single Pass (per signer Single Electrodes & Spa Pee Filler AWS Classification E6010 E6010 E7018-1 E7018-1 E7018-1	String and work of Applications in the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the performance: Single or mure required.	weave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grind ble "" ultiple passes per sultiple, multiple only not allowed Type & Polarity DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP	shall be control when proven n RAMETERS Current Amp. Range 50 - 100 50 - 130 70 - 180 90 - 230	all foreign material the joint prior to notches, slag, er brushing, grin where thermal ly when proven totch toughness ly less than 18 ly ly ly ly ly ly ly ly ly ly ly ly ly	rocesses are unotch toughness properties are respectively ange as a solution of the solution	bil, grease, practices to be each weld layer. Itsed if required. So properties are required. Travel Speed (IPM) 1 - 12 2 - 14 4 - 16 1 - 14 2 - 16 3 - 18	
Process SMAW SMAW SMAW SMAW SMAW SMAW SMAW SMAW	Initial Clea Interpass Clea Method of Back Gou Oscilla St Tube to Work District Or Single Pass (per state of Single Pass) Gle Electrodes & Spa Pee Filler AWS Classification E6010 E6010 E7018-1 E7018-1 E7018-1 E7018-1	Size: Not Applicat Base materi paint, tar, et welded shal Perform by v ging: Arc air, goug tion: Not Applicat I 1/4" to 1 1/4 Single or mu required. Single or Mu Peening is r TYPICAL Metal Diameter (in) 3/32 1/8 5/32 3/32 1/8 5/32 3/16	veave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grin ble " ultiple passes per sultiple only not allowed Type & Polarity DC EP	shall be control when proven n RAMETERS Current Amp. Range 50 - 100 50 - 130 70 - 180 90 - 230 130 - 29	all foreign material the joint prior to notches, slag, er brushing, grin where thermal ly when proven totch toughness ly when proven lotch toughness ly ly ly ly ly ly ly ly ly ly ly ly ly	rocesses are unotch toughness properties are unotch toughness pr	bil, grease, practices to be each weld layer used if required. So properties are required. Travel Speed (IPM) 1 - 12 2 - 14 4 - 16 1 - 14 2 - 16	
Process SMAW SMAW SMAW SMAW SMAW SMAW SMAW SMAW	Initial Clea Interpass Clea Method of Back Gou Oscilla It Tube to Work Dista or Single Pass (per signer Single Electrodes & Spa Pee Filler AWS Classification E6010 E6010 E7018-1 E7018-1 E7018-1 E7018-1 E7018-1 E7018-1	String and work in the string	weave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grind ble "" ultiple passes per sultiple, multiple only not allowed Type & Polarity DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP DC EP	shall be control when proven n RAMETERS Current Amp. Range 50 - 100 50 - 130 70 - 180 90 - 230	all foreign material the joint prior to notches, slag, er brushing, grin where thermal ly when proven totch toughness ly when proven lotch toughness ly ly ly ly ly ly ly ly ly ly ly ly ly	rocesses are unotch toughness properties are respectively ange as a solution of the solution	poil, grease, prefaces to be each weld layer. Issed if required. Is properties are required. Travel Speed (IPM) 1 - 12 2 - 14 4 - 16 1 - 14 2 - 16 3 - 18 4 - 19	
Process SMAW SMAW SMAW SMAW SMAW SMAW SMAW SMAW	Initial Clea Interpass Clea Method of Back Gou Oscilla St Tube to Work District Or Single Pass (per state of Single Pass) Gle Electrodes & Spa Pee Filler AWS Classification E6010 E6010 E7018-1 E7018-1 E7018-1 E7018-1 E7018-1 F7A6-EM12K	String and work of Applications in the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the performance in the paint of the	veave. Weave size ble fal must be thorouge. At least 1" back of the smooth, unifor wire brush, chippinge, grind, etc., grind ble fultiple passes per stall tiple, multiple only not allowed Type & Polarity DC EP	shall be control when proven n RAMETERS Current Amp. Range 50 - 100 50 - 150 60 - 180 70 - 180 90 - 230 130 - 29 180 - 36	Ill foreign materia the joint prior to notches, sign, er brushing, grir where thermal ly when proven otch toughness the last of the last o	rotch toughness properties are recorded as a second	bil, grease, infaces to be each weld layer. Issed if required. So properties are required. Travel Speed (IPM) 1 - 12 2 - 14 4 - 16 1 - 14 2 - 16 3 - 18 4 - 19 4 - 20	
Process SMAW SMAW SMAW SMAW SMAW SMAW SMAW SMAW	Initial Clea Interpass Clea Method of Back Gou Oscilla St Tube to Work District Or Single Pass (per state of Single Pass) Gle Electrodes & Spa Pee Filler AWS Classification E6010 E6010 E6010 E7018-1 E7018-1 E7018-1 E7018-1 E7018-1 F7A6-EM12K F7A6-EM12K	Size: Not Applicate Base matering: paint, tar, et welded shale Perform by the side): Arc air, goughtion: Not Applicate Single or murequired. Single or Muning: Peening is required. Diameter (in) 3/32 1/8 5/32 3/16 1/4 3/32 1/8 3/32 1/8 5/32 3/16 1/4 3/32 1/8	veave. Weave size ble al must be thoroug c.) at least 1" back l be smooth, unifor wire brush, chippin ge, grind, etc., grin ble " ultiple passes per sultiple only not allowed Type & Polarity DC EP	shall be control when proven n RAMETERS Current Amp. Range 50 - 100 50 - 130 70 - 180 90 - 230 130 - 29	Ill foreign materia the joint prior to notches, sign, er brushing, grir where thermal ly when proven otch toughness the last of the last o	rocesses are unotch toughness properties are unotch toughness pr	poil, grease, prefaces to be each weld layer. Issed if required. Is properties are required. Travel Speed (IPM) 1 - 12 2 - 14 4 - 16 1 - 14 2 - 16 3 - 18 4 - 19	
Process SMAW SMAW SMAW SMAW SMAW SMAW SMAW SMAW	Initial Clea Interpass Clea Method of Back Gou Oscilla St Tube to Work District Or Single Pass (per state of Single Pass) Gle Electrodes & Spa Pee Filler AWS Classification E6010 E6010 E7018-1 E7018-1 E7018-1 E7018-1 E7018-1 F7A6-EM12K	String and work of Applications in the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the paint, tar, et welded shall perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the perform by the performance in the paint of the	veave. Weave size ble fal must be thorouge. At least 1" back of the smooth, unifor wire brush, chippinge, grind, etc., grind ble fultiple passes per stall tiple, multiple only not allowed Type & Polarity DC EP	shall be control when proven n RAMETERS Current Amp. Range 50 - 100 50 - 150 60 - 180 70 - 180 90 - 230 130 - 29 180 - 36	Ill foreign materia the joint prior to notches, sign, er brushing, grir where thermal ly when proven otch toughness the last of the last o	rotch toughness properties are recorded as a second	bil, grease, infaces to be each weld layer ised if required. So properties are required. Travel Speed (IPM) 1 - 12 2 - 14 4 - 16 1 - 14 2 - 16 3 - 18 4 - 19 4 - 20	

¹SAW position limited by process usability.

WELDING PROCEDURE SPECIFICATION (WPS) QW-482 (Section IX, ASME Boiler and Pressure Vessel Code)

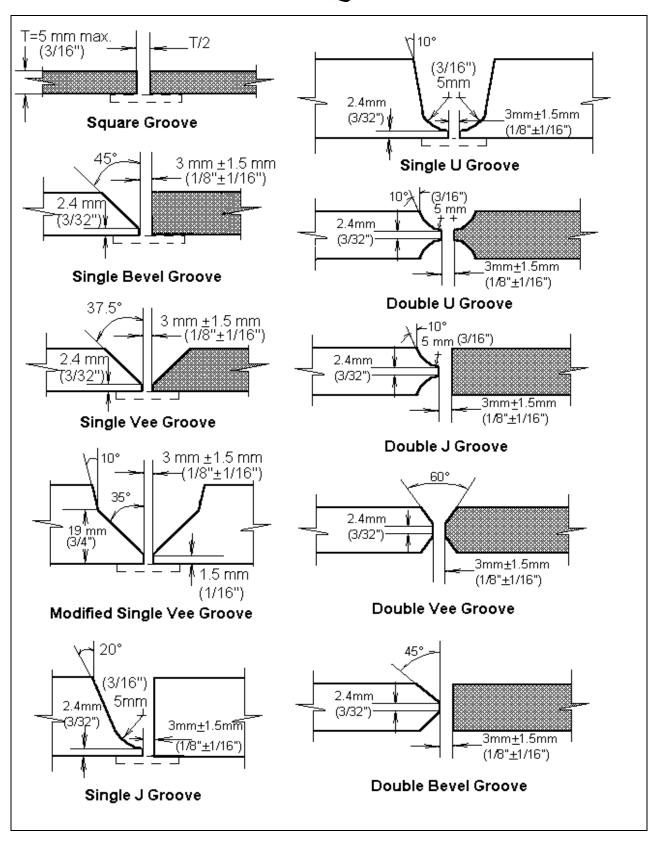
WPS# SAS-1 Rev.1

PREHI	EAT & INTERPASS TEMPERATURE MINIMUM AND MAXIMUM
Section VIII :	50°F minimum for all P-1 materials except as listed below :
	175°F if the joint thickness exceeds 1.000" and the specified carbon content exceeds 0.30%
	200°F if the joint thickness is 1.250" to 1.500"
B31.1 :	50°F minimum for all P-1 materials
B31.3 :	50°F for all P-1 materials except as listed below:
	175°F if the specified minimum tensile strength of the base material exceeds 71 ksi
Max. Interpass Temp.:	650°F for normal service, 550°F for applications where proven notch toughness is required

Reference to relevant construction codes is mandatory prior to production welding to determine any supplementary restrictions.

Typical Joint Details QW-482

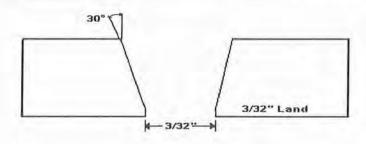
Prepared by: \mathbf{Q} ualimet

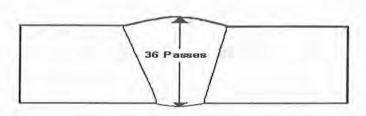


PROCEDURE QUALIFICATION RECORD (PQR) QW-483 (Section IX, ASME Boiler and Pressure Vessel Code)

Company Name:	Sub Arc Systems		
PQR No:	SAS-1-1	Date:	January 4, 2002
Revision No.:	*****	Revision Date:	Kokaa
WPS No:	SAS-1	- WARRIET	
Welding Process(es):	SMAW/ SMAW/ SAW		
Types:	Manual/ Manual/ Machine		

JOINTS QW-402





BASE MET	TALS QW-403	POSTWELD HEAT TR	EATMENT QW-407
Material Spec.: SA-516	SA-516	Temperature:	
Type or Grade: Grade 60	to Grade 70	Time:	
P-No.: P-1 Group	1 P-1 Group 2	Other:	Not Applicable
Thickness of Test Coupon:	1.75" wt.		
Diameter of Test Coupon:	Plate		
Other: Carbon Equivalen	t (C.E): 0.40		
PREHE		SHIELDING G	AS QW-408
Preheat & Interpass Min.: 175 °F		Shielding Gas: N/A	
Interpass Max.:	600°F	Composition: N/A	
Ť	emperature monitored using Tempilsticl	Flow Rate: N/A	
	FILLER ME		
Process	SMAW	SMAW	SAW
SFA Spec No:	5.1	5.1	5.17
AWS Class, No:	E6010	E7018-1	EM12K
F-No:	F-3	F-4	F-6
A-No:	A-1	A-1	A-1
Size of Filler Metal:	1/8"	1/8"	3/32"
Deposited Metal:	0.250"	0.750"	0.750"
Flux Class:	N/A	N/A	F7A6 (Neutral)
Other:	Covered Electrode	Covered Electrode	Coiled Solid Wire
			(Lincoln L61/882)
	ELECTRICAL CHAP	RACTERISTICS QW-409	
Process:	SMAW	SMAW	SAW
Current:	Direct (DC)	Direct (DC)	Direct (DC)
Polarity:	Reverse (EP)	Reverse (EP)	Reverse (EP)
Volts:	21	21	31
Amps:	110	125	450
Heat Input (J/in):	69 300	63 000	73 636
	TECHNIC	QUE QW-410	
Process:	SMAW	SMAW	SAW
Position:	3G	3G	2G
Progression:	Vertical Up	Vertical Up	Horizontal
Travel Speed (ipm):	2.5	2.25	16
String or Weave:	String	String and Weave	String
Oscillation:	N/A	N/A	N/A
Single / Multi Pass:	Multiple	Multiple	Multiple
Single / Multi Electrodes:	Single	Single	Single
Wire Feed Rate:	N/A	N/A	80 ipm

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

				Tensile 7	est	PQR# _	1	SAS-1-
Specimer No.	n Widt In	h Th	ickness In	Area in ²	Ultimat Total Lo	ad Unit	imate Stress psi	Type of Failure & Location
			See	Attached Re	port			
			G	uided Bend QW-462				
	Type an	d Figure No),			Result		
			See	Attached Re	port			
			7	oughness QW-170				
Specimen No.	Notch Location	Notch Type	Test Temp	Impact Values		al Exp Mils	Droj Break	Weight No Brk
140.	Location	Турс	remp	values	70 Onear	IIIII3	Dicak	NO DIK
			See	Attached Ro	eport			
			F	illet-Weld 1				
tesult-Satis lacro-Resu		Yes	No	Not Applica Per	ble n. Into Parent	Material:	Yes	_ No
				Other Tes	ts			
ype of Tes	t: Vicke	ers Hardnes	s Test to NA	CE MR01				
eposit Ana	the second secon	N/A						
lelder's Na ests Condu		Kolman Qualimet		ck No.: _W-		Stamp ab. Test No	-	- 01001
					and that the IX of the AS			epared, we
			Manufa		b Arc Systems	<u> </u>) a	
ate: Janu	ary 4, 2002			By: Ga	ry Kolman	Mary 1	1000	>



7817 CORONET BOAD, EDMONTON, AB. T6E 4N7 = (780) 469-5870 • FAX (780) 405-5829
 • CALDARY (403) 278-9862 • 1-800-621-8978 • www.qualimatinc.com

"Your source of Quality Materials Engineering"

MECHANICAL TEST REPORT

for Procedure Qualification Record # SAS-1-1

Client:	Sub Arc Systems	Job Number:	636-01001
Address;	4605-47 Steet Vermillion, AB	Date:	January 4, 2002
Materials:	SA-516 Grade 60 to 70		
Size:	1.750" wt plate	Condition:	As Welded

Tensile Tests QW - 462.1(a)

Sample Identification:	CCT1	CCT2
Sample Size – inch:(W × T)	1.723 x 0.753	1.717 x 0.759
Least X-Sect, Area - in2:	1.30	1.30
Ultimate Load - lbs:	102 526	104 116
Ult. Ten. Strength - ksi:	72.3	71.6
Character of Failure:	Ductile	Ductile
Location of Failure:	Base Metal 516 Gr.60 Side	Base Metal 516 Gr.60 Side
Req'd Tensile Strength - ksi:	60.0	60.0
Pass or Fail:	Passed	Passed
Remarks:		

Bend Test QW - 462.2

Sample Identification:	CCB1	CCB2	CCB3	CCB4
Type of Bend Test:	TSB	TSB	TSB	TSB
Pass or Fail:	Pass	Pass	Pass	Pass
Remarks:				

Types of Bend Tests
TSB, TFB, TRB = transverse side, face or root bend

LSB, LFB, LRB = longitudinal side, face or root bend

We certify that the statements in this record are acceptable, in accordance with the requirements of ASME Section IX.

TEST RESULTS CERTIFIED BY:



QUALIMET INC.



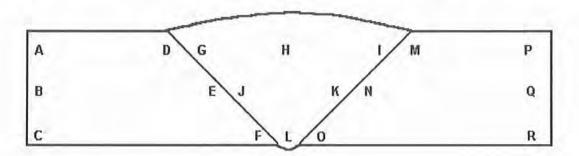
7817 CORONET ROAD, EDMONTON, AB. T6E 4N7 * (780) 469-5870 = FAX (780) 465-5829
 CALGARY (403) 278-9862 * 1-800-621-8979 * www.qualimetinc.com

HARDNESS TEST REPORT

for Procedure Qualification Record # SAS-1-1



Client;	Sub Arc Systems	Jab Number: 636-01001							
Address;	4605-47 Steet Vermillion, Alberta T	9X-1L6 Date: January 4, 2002							
Materials:	SA-516 Grade 60 to 70								
Size:	1.750" wt plate	Condition: As Welded							
Test Method:	Hardness testing performed in accordance with ASTM E-92 using a Vickers Hardness Tester with a 10 kg load. (HV10)								
Equipment:	Matsuzawa Seiki Co. Ltd. Vickers Hardness Tester S/N: 7193M								
Calibration;	Test Block: 197 ± 6 DPH	Act. Reading: 197 DPH							



Hardness Values

Α	177	D	198	G	205	J	210	M	189	Р	178
В	182	E	205	Н	103	K	207	N	196	Q	181
C	173	F	201	1	208	L	202	О	194	R	179

These hardness values do not exceed 248 HV10 (HRC 22).

We certify that the statements in this record are acceptable, in accordance with the requirements of ASME Section IX and NACE MR01

Test Results Certified by:

QUALIMET INC.



an Years