Canadian Natural Resources Limited

Production - Facilities Engineering
A0524523 Vertical Separator Certificate of Inspection
and Manufacturers Data Report

Content Date Range: 1/4/2005 to 1/4/2005

Vessel Integrity
Inspection Data

Open: 2/2/2007 Close: Vital: Yes
CC+2 OP P
O763109

1060-04



VESSEL (A): 0524523

DATE OF INSPECTION: 2005 Jan 04



Certificate of Inspection

ANADARKO CANADA CORPORATION

PO BOX 2595 STN M 425-1 STREET SW ATTN GORDON TUNNICLIFFE CALGARY, AB T2P 4V4

JAN 24 2005

MIDSTREAM

PREFERRED RE-INSP. INTERVAL: 1.00 Yr

YEAR BUILT: 2004

CRN: T0062.2 SERIAL #: 138-57-04

VOLUME: 0.268 M3

HEATING SURFACE: SURFACE AREA:

COMPANY CODE:

DESCRIPTION: VERTICAL SEPARATOR LOCATION: STOCK, CALGARY

MANUFACTURER: MAR-QUINN INDUSTRIES LTD

Safety Valves

PART MAX. AUTHORIZED MAX. TEMP MIN. TEMP VALVE ID SETTING CAPACITY LOCATION

WORKING PRESSURE

VESSEL 9928 KPA 54 C -29 C SV1 TO BE INSTALLED

OWNER INSTRUCTIONS/REMARKS:

Contact the ABSA Safety Codes Officer before placing the vessel/boiler in service.

Vessel/Boiler to be installed in accordance with the Safety Codes Act and Regulations.

Verify that vessel/boiler is protected by an acceptable ASME Code pressure relief device, of adequate capacity, set at no more than maximum pressure authorized and installed in accordance with the Safety Codes Act & Regulations.

If installed at a wellsite or battery, this vessel may be removed from annual fee as per information bulletin IB03-003(I) - (Vessels having a volume not exceeding 0.5 M3 (500 Litres) that are located in well head plants or batteries)

Safety Codes Officer: CHAN, SIDNEY

Signature:

REQUIREMENTS OF THE SAFETY CODES ACT AND THE REGULATIONS ISSUED THEREUNDER:

The very comparison in charge shall report all accidents involving a boiler, pressure vessel or pressure piping system to the district Safety Codes Officer immediately and shall send a full report in writing to the Administrator as required by the Act. No repairs or alterations may be made unless authorized by a Safety Codes Officer.

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS

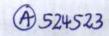
(Alternative Form for Single Chamber, Completely Shop or Fabricated Vessels Only)

As required by the Provisions of the ASME Code Rules, Section VIII, Division 1

CORRECTED COPY

Manufactured and Ce	rtified by:	_	MAR-QUINN INDUSTRIES LTD., 7115 SPARROW DRIVE, LEDUC, ALBERTA, CANADA, T9E 7L1 (Name and Address of Manufacturer)									
2. Manufactured for:			ANADAF	RKO CANADA COR	PORATION 425	- 1st. St. S.W. (2P 4V4				
3. Location of installation	n:				(Name and Address							
4. Type: Vert Se	parator		138 - 57 - 04 (Migra senal No.;	T0062.2		ddress) 42 Rev A Jawing No.)	N/A (Nati Bd. No.)		2004 Year Built			
5. The chemical and phy CODE. The design, or							BOILER AND PRI	ESSURE VI	ESSEL			
to	2003			N/A				A let				
	idenda (dat SA-106-E	0.0	1.031	Code Case	No.s 125	16 in (Special Service pe		20(d) 10'-9"			
The state of the s	Spec. No.,	Grade)	Nom. Thk. (Ir	n.) Corr. A	llow. (In.)	Diam. I. D. (f	t. & In.)	Length (overall) (ft. & In.) FULL 1				
7. Seams: Sm Long. (Welded, Dbl., S		R.1	mls 100 F. Eff. (%)	1150 H. T. Temp. (F)			th.(Welded, Dbl., R. T. (Sgl., Laps, Butt) Partial,		(Spot, No. of I,or Full) Courses			
B. Heads: (a) Mat'l	_		SA-516-70 (Spec. No., Gr		(b) Mat	"	SA-5 (Spec.					
Location (Top, Bottom, Ends)	Minimum	CA	Crown Radius	Knuckle Radius	Elliptical Radius	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)			
a) TOP	0.9	0.9 0.125 N/A		N/A	2:1	N/A	N/A	N/A	Concave			
BOTTOM If removable, bolts used	0.9	0.125	N/A	N/A	2:1	N/A N/A	N/A	N/A	Concave			
ii removable, bolts used	(describe of	ther lasterings)			(M	latl., Spec., No., Gr	, Size., No.)					
. MAWP		1440		psi at	max. temp.			130				
Min. design metal ten	nn.	-20	°F at	1440 psi.	Hydro., pneu., or	comb. test pre	ssure		1872			
0. Nozzles, inspection, a	-	valve opening					4.5					
Purpose plet, Outlet, Drain)	No.	Diam. Or Size	Туре	Mat'l	Nom. Thk.	Reinforcement Mat'l	How Attached		Location			
as Inlet/Outlet	2	3 in. NPS	The same of the sa	SA-105N/SA-106B SA-105N/SA-106B	0.600 in. 0.600 in.	N/A N/A	UW16.1(c)		Shell/Top Head Shell			
LLC,HLSD,LLSD Water/Oil Out,PI,TI	4	2 in. NPS	Complete Com	SA-105N/SA-106B	0.343 in.	N/A	UW16.1(c)	_	Shell			
Water LG, Oil LG,PSV	5	2 in. NPS		SA-105N/SA-106B	0.343 in.	N/A	UW16.1(c)		Shell			
Drain				SA-105N/SA-106B	0.343 in.	N/A	UW16.1(c)	_	Bottom Head			
		Not by						11	A STREET			
11. Supports: Skirts 12. Remarks: Manuf	-	(Yes or No)	Lugs N/A (No.)		N/A Oth (No.) nmissioned inspecto N/A	(Descrit	oe)	71.1	m Head by Welding (Where and How)			
Volum			truction Dwg #	of part, Item number, 138-56-58-04-A Re	v 3 Impact test e	xempt as per UC						
Hy	dostatic te	est conducted		osition.Full RT as pe			Separator.PSV by	others.				
We certify that the staten conform to the ASME Co	de for Pre	essure Vessels	t are correct an s, Section VIII, I	d that all details of on Division 1. "U" Certification of the control of the cont	design, material, o licate of Authoriza	construction, and tion No.	33,420	this vessel expires	9-Jul-05			
Date 51-Dec	-04	Co. na	me	(Manufactur	S S DIRECT A LAND	Signed	110	(Represent	ative)			
Vessel constructed by I, the undersigned, hold	a valid co	mmission issue	Mar-Quinn Inc	CERTIFICATE OF S	SHOP / FIELD IN at	7115 - Spa	arrow Drive Leduc	Alberta Ca	n. T9E 7L1			
	a valid coi		and emplo				ABSA		- 47E			
have inspected the comp my knowledge and belie this certificate neither the Manufacturer's Data Rep damage or loss of any ki	f, the Man e inspecto port. Furth	ufacturer has r nor his emplo ermore, neithe	Manufacturer's constructed this byer makes any er the Inspector	Data Report on s pressure vessel in warranty, expresse nor his employer st	ed or implied, con	cerning the pres	ction VIII, Division sure vessel descr	1.By signing ibed in this	to the best of			
	2005	Signe		(Mytholized Inspector)	Co	mmissions _	(Nat) Board	B# 144A	State. Prov. And No.)			

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS (Alternative Form for Single Chamber, Completely Shop or Fabricated Vessels Only) As required by the Provisions of the ASME Code Rules, Section VIII, Division 1



1.	Manufactured and Ce	ertified	by:	MAR-Q	UINN INDUSTRIES		RROW DRIVE, L		, CANADA	, T9E 7L1
2	Manufactured for:		The state of	ANADA	RKO CANADA COF		5 - 1st. St. S.W. (STATE OF THE STATE	2P 4V4	
3.	Location of installation	n:				Stoc	k	West .		figure 1
4.	Type: Vert Se			138 - 57 - 04 (Migra serial No.)	4 T0062	2 #3	342 Rev A	N/A	8.)	2004 Year Built
	The chemical and phy							BOILER AND PRI	ESSURE VI	ESSEL
	CODE. The design, or	onstruc	tion, and work	manship conform	to ASME Rules, S	Section VIII, Divisi	ion 1		2001 Year	The least to
	to	200	3		N/A				N/A	
		denda			Code Case			Special Sen	rice per UG-1	20(d)
6.	Shell:	SA-10	6-B	1.031	0	.125	16 in. C	DD		10'-9"
		1	lo., Grade)	Nom. Thk. (I	The second secon	llow. (In.) Diam. I. D. (Length	(overall) (ft. & In.)
7.	Seams: Sm	100		Smls 100	1150	1.25		pe # 1	FULL	
	Long. (Welded, Dbl., S	ingl., Lap. B		R. T. Eff. (%	b) H. T. Temp. (F)	Time (hr	r.) Girth.(We Sngl., La	elded, Dbl.,	R. T. (Spot, Partial, or Fu	No. of
8.	Heads: (a) Mat'l			SA-516-7	ON	(b) Mat			16-70N	III) Courses
	7. 7.		1 . 1	(Spec. No., G	rade)	(b) Mai	Marine C		No., Grade)	
ſ	Location (Top, Bottom,	Minim	um .	1			Conical Apex	Hemispherical	Flat	Side to Pressure
$\overline{}$	Ends)	Thickr		Crown Radius	TO SECURITION OF	Elliptical Radius	Angle	Radius	Diameter	(Convex or Concave)
(a) (b)	TOP BOTTOM	-	9 0.125	N/A	N/A	2:1	N/A	N/A	N/A	Concave
	If removable, bolts used (_	.9 0.125	N/A	N/A	2:1	N/A N/A	N/A	N/A	Concave
	i removable, boils useu (uescribi	ouner lasterlings	,	A STATE OF THE RE	(M	latl., Spec., No., Gr.	, Size., No.)		The state of the s
9.	MAWP		1440		psi at	max. temp.		1	30	°F
	Min. design metal tem	in	-20	°F at	1440 psi.		comb. test pres	SUITA		1872
	Nozzles, inspection, a		etv valve oneni		poi.	riyaro., prica., or	comb. rear pres	Joure	150	
							Section 1			311201
	Purpose let, Outlet, Drain)	No.	Diam. Or Size	Туре	Mat'l	Nom. Thk.	Reinforcement	How Attached		Location
	sas Inlet/Outlet	2	3 in. NPS	CL600RFWN	SA-105N/SA-106B	0.600 in.	Mat'l N/A	UW16.1(c)	19 11	Shell/Top Head
M	LLC,HLSD,LLSD	4	3 in. NPS	CL600RFWN	SA-105N/SA-106B	0.600 in.	N/A	UW16.1(c)		Shell
1	Water/Oil Out,PI,TI	4	2 in. NPT	CL600RFWN	SA-105N/SA-106B	0.343 in.	N/A	UW16.1(c)		Shell
W	ater LG, Oil LG,PSV	5	2 in. NPT	CL600RFWN	SA-105N/SA-106B	0.343 in.	N/A	UW16.1(c)	17 . 11	Shell
7	Drain	1	2 in. NPT	CL600RFWN	SA-105N/SA-106B	0.343 in.	N/A	UW16.1(c)	1 2	Bottom Head
	3810,7971		1 2 2 2		THE STATE OF			T PRET		
							madem i			
11.	Supports: Skirts	11	Yes	Lugs N/A		N/A Oth		Attacl	hed: Bt	m Head by Welding
12	Remarks: Manufa	cturore	(Yes or No)	(No.)) fied and signed by Com	No.)	(Describe	Carlos of the Carlos	dome of the	(Where and How)
	report:	icturer 5	raniai Data Rep	orts properly identif	led and signed by Con	N/A	rs have been turnish	led for the following	items of the	
	141	0.45		(Name	of part, Item number, I	Mfgr's name, and Ide	entifying stamp)			
					138-56-58-04-A Revosition.Full RT as pe					
	Tiyo	OStatio	test conducted		CERTIFICATE OF S			eparator.F3V by	oulers.	
	certify that the stateme			rt are correct and	d that all details of d	esign, material, c	onstruction, and	workmanship of th	nis vessel	
conf	form to the ASME Cod	le for P	ressure Vesse	s, Section VIII, D			tion No.	33,420	expires	9-Jul-05
Date	Vec. 31.	200	4 Co. na	ame	Mar-Quinn Indust	ries Ltd.	Signed	THE	2	
	9 110				(Manufacture			17/	Representa	ative)
/ac	sel constructed by			Mar-Quinn Ind	CERTIFICATE OF S	HOP / FIELD IN:		row Drive Ladve	Albarta Can	TOF 71.4
	e undersigned, hold a	valid c	ommission issu				sel Inspectors and	row Drive Leduc / d/ or the State or	Province of	1. 19E /L1
		erta		and emplo				Safety Association		
						THE BUT	JAN 0 4 200	15	a er a. e e	20 A 17 A
mv l	e inspected the compo knowledge and belief,	nent d	escribed in this inufacturer has	Manufacturer's	Data Report on pressure vessel in a	accordance with	and the contract of the contract of	and	state that, t	o the best of
this	certificate neither the i	inspect	or nor his empl	oyer makes any	warranty, expressed	d or implied, conc	erning the pressi	ure vessel describ	ed in this	
Man	ufacturer's Data Repo age or loss of any kind	ort. Fur	hermore, neith	er the Inspector	nor his employer sha	all be liable in any	y manner for any	personal injury or	property	
Danie	JAN 0 4 200			X	Special.		nedecis	An H	444	
	JAN 6 4 200	-	Signe	1	(Mitharized Inspector)	Con	nmissions	(Nat) Board In	ci. Endorsement	State, Prov. And No.)
				/ /						

FORM U-3 MANUFACTURER'S CERTIFICATE OF COMPLIANCE 138-57-04

COVERING PRESSURE VESSELS TO BE STAMPED WITH THE UM SYMBOL, SEE U-1(i)

As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1 0529523B

3. Occa 4. Type 5. ASN Item 6-1 6. Shel	OH5414 (CRM ME Code, Se 1 incl. To be till (a) No. o	(Horiz 1.213 I) e comple of course e(s)	eted for si e(s):	Ed	280 (Dr. 2001, A	Rev. A awing No.) 2003 lenda (date	4	(Na	me and Ad	STOCK ie and Ad	Purchaser dress)	.W. Calç	gary, AB T2i	138	-72-04 serial No	o.)	
4. Type 5. ASN Item 6-1 6. Shel	OH5414 (CRM ME Code, Set 1 incl. To be till (a) No. co	(Horiz 4.213 I) etion VII e comple of course e(s) Length	, vert., or s I, Div. 1 eted for side(s):	Ed	(Dr. 2001, A tion and Add	awing No.) 2003 lenda (dati			(Nam Scrubbe	STOCK ne and Ad r	dress)	,			The state of the s	D.)	
5. ASM	OH5414 (CRM ME Code, Se 1 incl. To be II (a) No. of Course Diameter, in.	tion VIII complete course e(s)	, vert., or s I, Div. 1 eted for side(s):	Ed	(Dr. 2001, A tion and Add	awing No.) 2003 lenda (dati		(Tan	Scrubbe	r		_			The state of the s	0.)	7
5. ASN Item 6-1 6. Shel	OH5414 (CRM ME Code, Se 1 incl. To be II (a) No. of Course Diameter, in.	tion VIII complete course e(s)	I, Div. 1 eted for si e(s):	Ed	(Dr. 2001, A tion and Add	awing No.) 2003 lenda (dati		(Tan	k, separato	or, ect.)	4.0			(Mfgr's	serial No	0.)	_
No. E	(CRN ME Code, Se 1 incl. To be II (a) No. o Course Diameter, in.	etion VII comple of course e(s)	eted for si e(s):	Ed	(Dr. 2001, A tion and Add	awing No.) 2003 lenda (dati											
No. E	ME Code, Set 1 incl. To be all (a) No. of Course Diameter, in.	complete course (s) Length	eted for si e(s):	Ed	2001, A	2003 lenda (dati					N/A				200		
No. E	1 incl. To be	complete course (s) Lengh	eted for si e(s):	Ed	tion and Add	lenda (dati	9)				lat'l Bd. N	0.)			(Year bi	uilt)	
No. C	Course	e(s) Lengh	e(s):			AND DESCRIPTION OF THE PARTY OF		-	11/4	Code Ca							
No. C	Course	e(s) Lengh	e(s):					ted ves	ssels, she			igers, or	chamber of r	nulti-ch	amber v	essels.	
1	Diameter, in.	Lengh				1									0 in.		
1	Diameter, in.	Lengh	Course(s)				Thickness I		Long. Joint (Cat. /				um. Joint (Cat, A,B,& C)		(C)	THeat 1	reatm
	8.625 in.	30			Material Spec./Grade or Type				Full, Spo		Eff.	Туре	Full, Spot, None		Eff.		Time
7. Head		_) in.	S	A-106-B	0.322	0.322 0.125		N/A		N/A	#1	FULL		100%		1.25hr
7. Head	3.7						- 1								411	100	A ST
. неас	d-1 (-1)			CA	234-WPB				76.5				CA 224 W	DD			
	ds: (a)	(Ma	at'l Spec., N		o, or Type) H	T Time	& Tem	p.	(b)	1 - 1 -	(Mat'l S	Spec., No.	SA-234-W Grade, or Typ		- Time &	temp.	
Loc	cation (Top,		kness		A Market	Elliptical		nical	Hemisp	herical	Flat		Pressure		Categ	100	
Charles of	ottom,Ends)	Min.	Corr.	Crown	Knuckle	Ratio		Angle			Diame	Convex	Concave	Туре		ot, None	Eff.
(a)	Тор	0.25	0.125	N/A	N/A	2 to 1		I/A	N/	Α	N/A	N/A	Yes	#1		JLL	100%
b) l	Bottom	0.25	0.125	N/A	N/A	2 to 1	N	I/A	N/	Α	N/A	N/A	Yes	#1	Fl	JLL	100%
f remova	able, bolts u	sed (de	scribe oth	er faster	ning)		156		900			N/A					-15
					NI/A							., Grade, S		/^			
17.7	e of jacket ve dimensio				N/A	N/A	-		Jack	et closu		_	IN	/A			
	ro., pneu., o				nings:	(In 390 psi		yes or n	Proo	componer of test	it(s) impa	ct tested)	N	/A			
	rpose	No.	Diam. (FlangeTy	ne N	Material		Nozzle Thickne		Reinfo	rcement			J.	Location	
	et, Drain, etc.					Noz		Flange	Nom.	Corr.	Mate		Nozzle	100	lange		
	Inlet	1	1.0		T.O.L.	SA-1		N/A	CL3000	0.125	_	I/A	UW16.1(a) N/A			Shell	
	Dutlet	1	2.0		H.CPLG.	SA-1	_	N/A	CL3000	0.125		/A	UW16.1(a) N/A		_	Top Head	
	Orain	1	1.0		T.O.L.	SA-10	_	N/A	CL3000	0.125		I/A	UW16.1(a)	N/A	_	Bottom	-
1,000	pection LC	1	1.0		T.O.L. H.CPLG.	SA-10		N/A N/A	CL3000	0.125		/A /A	UW16.1(a)	N/A		She	
	LC		2.0	и.	H.CFLG.	SA-11	JOIN	NA	GL3000	0.125	N	I/A	UVV10.1(a)	N//	1	She	11
1215	17 /	HJ L	B. L.	AU.			-										
7 75 4			V		× 1										310		47.5
13. Supp	ports: Skirts	- (Y	Yes es or No)	Lugs		I/A Io.)	Legs	N/		Others	N/A (Describ	iel .	Attached:		to Btm. Fere and F		
4. Man	ufacturer's F			t proper			ed by		380	Inspecto			nished for the				
the r	report: (List t	he nam	e of part,	item nun	nber, mfg's	name a	nd ide	ntifying	number)								
_			16		1		1			-11		-			1		
E D.	nelse:		_	-	Mel	1.04	hic fo	+ 0-	oto offer	Dura 40	0 74 70	04 4 0	. 0	_		13.8	
5. Rem	narks:			-					struction			-04-A Re	v. 0	100	100		
	-	-	-		нус				ed in verti		uOH.					7	
											uction, an	d workma	nship of this ve	essel cor	form to ti	ne	
	E Code for Pre			oon vill, I								d' - 5	1.105				
C M C	Certificate of A	uthorizati			33,421	- O 1		xpires	4.4		-	9-	Jul-05		4		_
te	sec.2	,200	Nam	e	N	ar-Quinn	Indus		.td.	41	Signed	1	100	presnlat	ivel	-	4
Sign	ed	8	and/ rtified Indi	Co	Esel	, (mai							4116	.p. our na			