## FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1.	Manufactured and certified by: APEX ENGINEERED PRODUCTS 2669 LAKE RD CLARK, PA 16113																			
2.	(Name and address of Manufacturer)  2. Manufactured for: AGRIUM US INC. 5000 STATION A CALGARY, ALBERTA CANADA																			
3.	(Name and address of Purchaser) 3. Location of installation WEST SACRAMENTO NITROGEN OPERATIONS 3981 CHANNEL DRIVE WEST SACRAMENTO CA 95691																			
	(Name and address)  Type: HORIZONTAL HEAT EXCHANGER C-1112																			
	-760.	IONIZON I			rtical, or sphe	re)				or, jkt vessel, h	eat exch.,	, etc.)					erial number	)		
-	N/A (	CRN)		_ 53	16Q01 (Draw	ring numb	er)			National Board	l number			2012		(Year t	ouilt)			
5. ASME Code Section VIII Div 1 2010 EDD [Edition and Addenda (date)]									<b>W</b> A	(Code Case	number)			N/A rc	nacial Sa	anvice r	er UG-120(d	01		
Ite	ms 6-11 in	cL to be	comple	eted f	-				ed ves	sels, shell of i	•	hane	ers. or c	_		•	•			
	Shell (a) N		-		_		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,, <b>,</b> , , , , , , , , , , , , , , , , ,		(b) Overall Le			, 0. 0		,	<b>510</b>	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-		
		urse(s)			Materia	ıt	Thick	ness	T	Long. Joint			Circum	n. Joint (Cat.	A, B, &	C)	Heat Tre	atment		
No.	Diameter 28" ID	Diameter Length Spec./Grade or					Nom.	Corr.	Tyr				<del>                                     </del>			Eff.	Temp.	Time		
3	28" ID	<del>                                       </del>	23.75° 72°		SA-516-7 SA-518-7		.375°	.125"	A			70% B		NONE		70%	-	-		
1	26" ID	3	88.875"		SA-516-7	0	.375°	.125"	A	NONE		70%	В	NONE 70%		70%		<u></u>		
7. I	7. Heads: (a) N/A (b) N/A																			
	1	(1	1			nber grade or type) (		& temp)			(Material	$\neg$	number grade or ty		Т.					
	Location Bottom,		Thicknes			idius Knuckle	Elliptical	Con Apex A		Hemispherical Radius	Flat Diameter		Side to F	onvex Concave			ategory A	Eff.		
(a)			141161"	Con	CIOWII	MILICAR		1 14				+-	COLIVEX	Colicave	Туре	ruit	Spot, None			
(b)								<u> </u>						<u> </u>						
If n	emovable, l	oolts use	ed (desc	ribe d	other fasteni	ng) <u>-</u>														
8.T	ype of jack	et								Materia) Jacket closure		ımber g -	grade, siz	ze, number)						
		_	ione.										(D	escribe as o	-			lantah.		
	If bar, give	dimens	ions	_			·····						· · ·		II DOIL	.eu, u	escribe or s	Ketth		
9. N	9. MAWP 150 PSI — at max temp, 500°F — Min. design metal temp20°F at 150 PSI (Internal) (External)																			
LO. I	mpact Test	,	KEMPT PE	R UG-	20(f)					(External)	at test	tempe	erature	of						
				[Indic	ate yes or no	and the co	emponent(s)	) impact te	ested]											
l1. H	ydro., Pneu	I., Or CO	mb. test	: pres	s. <u>H</u>	/DRO 195 P	SI	P	roof 7	Test										
tem.	s 12 and 13	to be c	omplete	ed for	tube sectio	ns.														
12. T	ubesheet		SA-516-70	N *		33.38"				2.20	B5" MIN	.125*			WELD					
			nary (Mate SA-516-70		ec. number)]	[Dian 33.38*	neter (subje	ct to press	5.)]	(Nominal thicl		.125"	(Corr. Al	low.)	[Att. WELD		nt (welded or	t (welded or bolted)]		
		Floating			number)]		(Dlamete	r)	<del></del>	(Nominal thickn	iess)	(0	orr. Allov	w.)		(A	ttachment)			
.s. I		-523-702 Material s	pec. numi	ber, gr	ade or type)	1"	(O.D.)		٠.	35° AW (Nominal thickn					straight (Type (Straight or U)]					
						t	e la alcada d	wannala a	h.	· ····································			`	•						
	hell (a) Nu		_	-		imoers o	ј јаскегеа	vesseis c		i <i>nnels of heat</i> (b) Overall Lei			19°							
T, 31	• • •		- wurse	(5):	1					• •										
No.	Col Diameter	irses Le	Length Spo		Material Spec./Grade or Type		Thickness Nom. Corr.		Type	Long. Joint ( Full, Spot,				. Joint (Cat. A, B, & C Full, Spot, None		C) Heat Treatment Eff Temp. Time				
1 2	8" TO 12.25" (D		19"	Ţ	SB-551-70		.375"	.000"	Α	FULL		100%	В	FULL		100%	•	•		
+				+					_											
5. H	6. Heads: (a) N/A (b) N/A (Material spec. number grade or type) (H.T. – time & temp) (Material spec. number grade or type) (H.T. – time & temp)																			
	Location	301.1.1					Elliptical	Conto		Hemispherical ,	Flat			Pressure	Category					
	Bottom,		Min.	Солт.	Crown	Knuckle	Ratio	Ape Ang	x	Radius	Diamete	er (	Convex	Concave Type		Full,	Full, Spot, None			
(a) (b)												$\overline{}$								
(b)							1				<u> </u>									
If re	movable, b	olts use	d (desa	ibe o	ther fastenir	ng)	-			(Mato-	ial ener n	umhe-	orada o	size, number	1					
										(Pasery)	ומו ארביי וו	inited.	MIGGE, 5	114C, 11411111111	,					

## Form U-1 (Back)

16. MAWP	(Internal)	al) 15 9SI at max temp. (External)		ax temp.	500°F 500°F (External)		al)	Min. design metal temp.	-20°F	at	150 PSI			
17. Impact Test NO EXEMPT PER UNF-65 Indicate yes or no and the component(s) impact tested at test temperature of														
18. Hydro., pneu., or comb. test press. HYDRO 195 PSI Proof Test ——														
19. Nozzles,	19. Nozzles, inspection, and safety valve openings:													
Purpose		Discourse		Mat	erial	Nozzie T	hickness		How A	tached	1			
(Inlet, Outle		Diameter or Size	Fiange —	Nozz!e	Flange	Nom.	Corr.	Reinforcement Material			Location			
Drain, etc)			- 1		····	-			Nozzie	Flange	(Insp. Open.)			
INLET	1	12" 150#	RFLJ	SB-551-702	SA-182-304	.375"	.000°	N/A	UW 16.1	RFLJ	CHANNEL			
N3 INLET	1 1	101 150#	RFSO	SA-53-E B	SA-105	.5001	.125*	N/A	UW 18.tj	RFSO	SHELL			
BLIND		10" 150#	RFSO	8A-53-E-B	SA-105	.500"	.125'	N/A	UW 18.1j	RFSO	SHELL			
SUND	1 2	3" 150#	RFSO 1	SA-53-E/B	SA-105	.300*	.125°	N/A	UW 18.1	RF8C	SHELL			
BUND		2° 150#	RFSO	SA-53-E-8	SA-105	.218*	.125"	N/A	UW 16.1;	RF80	N2/N3			
20 Supports	20. Supports: Skirt HO Lugs 0 Legs 2 Others "SEE REMARKS Attached SHELL/WELDED													
zu. Supports	: SKIFL _		Lugs						_ Attach					
(Yes or No) (Number) (Number) (Describe) (Where and how)														
21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following Items of														
the report: (List the name of part, Item number, Manufacturer's name and identifying number)														
				<del></del>										
22. Remarks *TUBESHEETS EXPLOSION CLAD WITH SB-551-702 NOT CONSIDERED IN DESIGN CALCULATIONS														
	** (2) PC	ISION PADS AND	NAMEPLATE BE	RACKET										
	OVER PR	ESSURE PROTEC	CTION PROVIDED	BY OTHERS										
				CERTH	FICATE OF	SHOP	COMP	LIANCE						
				~		DIIOI	COM							
We certify	that the cta	ramanta in t	sia report ara	Annuant and	that all datails	ef docion				1				
oon form to	the ACME	DOLLED AND	ns report are	correct and	mar an details o	or oesign,	materiai, c	construction and workman	nsnip of th	is vessel				
COMMONM	I IIIC ASME	BULLER ANI	) PRESSURE	VESSEL CO	DE, Section VI	II, Divisio	n i.							
U Certificate of Authorization 37,813 Expires AUGUST 8, 2014														
5/72/17														
Date Signed Name APEX ENGINEERED PRODUCTS Signed														
	(Manufacturer) (Representative)													
CERTIFICATE OF SHOP INSPECTION														
I, the unde	rsigned, ho	lding a valid	commission	issued by th	e National Boar	rd of Boile	er and Pre	ssure Vessel Inspectors as	nd/or the S	tate or Pro	vince			
of	OH	aı	nd employed	lbv		HSBCT		of	c	 <del>-</del>	,			
have inspe	cted the nr				acturer's Data R			- デース 3 ~/ ふ						
etate that	o the hear o	farrimarile	des and half	af shallfan	Actual S Data P			J-72 17	lif		,and			
DDECCIME	o me cest c	ODE Carrie	age and ben	ici, the Mant	nacturer has con	nstructed	ms pressu	re vessel in accordance w	vitin ASME	BOILER A	עא .			
PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed														
or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.														
be mable in	i any manne	er for any per	sonal injury	or property	damage or a los	s of any k	ind arisin;	g from or connected with	this inspec	tion.				
			$\sim$ $\sim$	) /	1111									
Date 5	<u> 23-()</u>	Signe	d <u>/-</u>	Mr.	KUUS	C	ommissio	is NBKUGGA	OHII	20	(			
			//	(Authorized'I	inspector)			[National Board (Incl endo			e and number]			
			CERT	IFICATE	OF FIELD	ASSEM	IBLY C	OMPLIANCE						
We certify	that the sta	tements on th	nis report are	correct and	that the field as	sembly co	nstruction	of all parts of this vessel	conforms	with the r	equirements			
of ASME B	OILER AND	PRESSURE	VESSEL COL	DE Section V	/III, Division 1.	II Certific	ate of Au	horization No.		oires	equitements			
			· DDDLL OO	ob Section v	111, 1517131011 1.	o comme	ace of Aut	10112211011110.						
Date		Name	:				Sign	ed						
_		-		(A	ssembler)				(Repres	entative)				
<u> </u>			CERT			ASSET	ART V I	NSPECTION	(1111)100	3110001107				
I the under	mirmad hol	dina a smlid							17 41 6					
of	isigned, noi				e Nanonai Boar	d of Boile	r and Fre	ssure Vessel Inspectors ar	nd/or the S	tate or Pro	vince			
		an	d employed					<del></del>						
of				have compa	red the stateme	nts in this	Manufact	urer's Data Report with t	he describe	d pressure	vessel			
and state that parts referred to as data items not included in the certificate of shop inspection, have been														
inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance														
with the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a hydro-														
static test o	f		B	v signing this	s certificate neit	her the In	spector no	r his/her employer makes	any warra	ntv. avnre	ssed or			
static test of  By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer														
shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.														
and the state of t														
Date		Signe	ed			(	ommissio	ons						
_				(Authorized I	nspector)			National Board (Incl end	orsements)	State Drovin	ace and number)			