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

(Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)
As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. M	anufacture	d and ce	rtified by		nai Rotary Eng	gineering F	ublic Co	mpany Lim	nited 168 I	Moo 5, Su	mnaktor	n Sub-E	District, E	Banchang	District, I	Rayong 2	1130,Thailand
2. M	anufacture	d for	Schlu	mberger,	Cyclotech Ho	use, Armst	rong Roa	d, Basings		ne and ac 24 8NU, U)			
				1				(Nai	me and a	ddress of	Purcha	ser)					
3 10	ocation of i	nstallatio		PTT Expl Thailand	oration and Pr	oduction F	ublic Coi	mpany Lin	nited 132	Moo 2, La	inkrabue	Sub-D	istrict, La	ankrabue	District, F	Kamphan	g phet 62170,
O. L.	20000011 01 1	notaliatio		manana					(Na	me and a	ddress)						
4. Ty	/pe		Vertical		_ TREI	V-15-U-(001	None		TREL-155	02-S156	2-DW-0	01 Rev.	2		ne	2015
		(Horizon	tal or vert	ical, tank)	(Manufact	ure's serial	number)	(CRN)	(Dr	awing n	umber)				al Board iber)	(Year built)
5. AS	ME Code	Section	VII, Divis	ion1		2013 Edit	ion			Non	е				nun	Nor	
					[Addend	a, if applic	able (da	te)]	(Co	de Case	Numbe	r)			[Special		per UG-120(d)]
6. SI	hell		SA-516	Gr.70		16	mm			3 mm			781 mn	n		1078	mm
		(Mater	ial spec.	number,	grade)	(Nomina	l thickne	ss)	(Co	rr. Allow.)		(Inr	ner diam	eter)		Length	overall)]
							Box	dy Flange	s on Shel	le					•	4,	
		ID	OD	Flang	e Min Hu	ıh		l lange	3 011 01161	13				В	olting		
No.	Type	(mm)	(mm)	Thk (m			laterial	How At	tached	Location	41.4		2		Was	her	
1101	. , , , ,	()	()	11111	,	,	atoriai	11011711	taorica	Location	Num 8		Bolting	Material	(OD,ID	,Thk)	Washer Material
1	Cl. 300	781	1149.3	98.5	5 16	s	A-105	Type 1,	full RT	Тор	1-7/8"- 320L		SA1	93-B7	Nor	ne	None
	Flg.										Se	ts		70	1	300	0.000.00
7. Se	eams	*	Note	1		Full	0.85	None	e N	one		Note	2		None	N/A	1
		Long (wel			outt)] R.T.(sp						Sirth (we	lded, db	l.,sngl.,la	ip, butt)]	[R.T. (sp	ot (Eff.,	
												-	1		or full)]		courses)
8. H	eads: (a) N	laterial	·		SA-				(b) Ma	terial				Not			
			T M:=:		(Spec. no	o., grade)							(-	Spec. no	o., grade)	_	
		ation(_To	p, Thick	mum	Corrosion Allowance	Crow		uckle	Elliptical		nical	100000000000000000000000000000000000000	ispheric	ale	Flat liameter		e to Pressure
	Bo	tom, End		m)	(mm)	Radius	Ra	idius	Ratio	Apex	Angle		Radius		(mm)	(Conv	ex or Concave)
	(a)	Top		5.8	0	-		-	-	2	-		-		781		-
	(b)	Bottom	25	5.4	3	-		- 1	-	3	0 *		-		-	Con	/ex / Concave
							Bor	dy Flange	s on Hoar	6							
			ID	OD	Flange Thk	Min Hub		ay i lange.	Johnson					В	olting		
No.	Location	Туре	(mm)	(mm)	(mm)	(mm	22	Material	How A	ttached	200 1 12		1725 III 24 III	100	Was		
. ESSINO		-	-	-	()	((V.	Wild Control	3		Num 8	-	Bolting	Material	(OD,ID	,Thk)	Washer Material
(a) (b)		-			-	- :		-1		-	-			-	-		
(-)								0									
9. MA	WP	3,	792.12 kP	a	101.33 I	(Pa	at	max. tem	ip		120 °C					120 °C	
	. , .		Internal)		(Extern	010.00		,_			(Interna	(Cont.)			22	xternal)	
	in. design	metal ten		-29	°C	at	3,792.12	kPa	Hydro., I	oneu., or	comb. I	est pre	ssure_	H	ydro test a	t 4929.7	5 kPa
PI	oof test	_	Not A	oplicable		\mathcal{L}	\										
10 <u>.</u> No	zzles, insp	ection, a	nd safety	valve o	penings:												
	Purp	ose	N	Dian	neter T		Mate	rial		lozzle	Re	einforce	ment	Attac	hment D	etails	Location
(Ir	let, Outlet			ors		De N	ozzle	Flange	Nom.	ickness Con	_	Mater		Noz		Flange	(Insp.Open.)
Inlet	(N1A)		1	NP.	S 4" Cl.300	$\overline{}$	106 Gr.B	SA-105	13.49 m		-	SA-516 G	ir 70	Fig UW-		Note 1	
	(N1B)		1			_	106 Gr.B	SA-105	18.20 m			SA-516 C		Fig UW-		Note 1	-
Liqui	d Outlet (N	2A)	1	NP	S 4" CI.300	Flg. SA-	106 Gr.B	SA-105	13.49 m	m 3 mr	n S	SA-516 G	Gr.70	Fig UW-	16.1(c)	Note 1	-
_	d Outlet (N		1				106 Gr.B		18.20 m		_	SA-516 G		Fig UW-		Note 1	-
	S Outlet (N	3)	- 4	_			106 Gr.B	SA-105	11.13 m		_	N/A	$\overline{}$	Type 8 Tab		Note 1	-
1000	Vent (N4)		1	NP.	S 2" Cl.300	rig. [S	A-105	SA-105	16.6 mr	n 3 mr	11	Integra	31	Fig UW-	10.1(C)	LWN	-
11.	Supports:	Skirt	No	Lu			egs _	None	_Other	Support		Att	ached _			Welding	T
10	Dame - !	Manaca	(Yes or		(Numb			(Number)		(Descr		I	. h 1	and to be		e and he	ow)
	Remarks: tems of the		urers Pa	ruai Data	Reports pro	periy iden	unea and	i signed t	by Comm	None N	rispecto	ors nave	e been f	urnisned	ior the f	ollowing	
		SP-C				(Nam	e of Par	t, item nu	mber, Ma	15.10. = 3.41.	r's nam	e and i	dentifyir	ng stamp)		
							See Att	tached U-	4 Form						17		

	CERTIFICATE OF SHOP /FIELD COMPLIANCE
	tify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel
	n to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number 34,402
expires	March 2, 2016
Date	August 20, 2015 Co. name Thai Rotary Engineering Public Company Limited Signed CHANYUT S. (Representative)
	(Manufacturer) (Representative) CERTIFICATE OF SHOP /FIELD INSPECTION
	168 Moo 5, Sumnaktorn Sub-District, Banchang
Vessel	constructed by Thai Rotary Engineering Public Company Limited at District, Rayong 21130, Thailand
	ndersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by
	GLOBAL CTANDARDS HARTFORD CONNECTICUT
	est of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE
	L CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or
	concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer
	liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.
Date A	AUB31, 15 Signed V200 PIPAT V Commissions NB 13225 A N
	(Authorized Inspector) [National Board(incl. endorsements)]
	$\sim C_1$
	OUDIC
	WEINGINE BRING PORTING
	x'0'
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FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

2. Manufacture	d for Schlumberger, Cyclotech	House, Armstrong Road, Basingstoke, RG24 8NU,		12								
. Location of	PTT Exploration ar Thailand	(Name and address of Purchas d Production Public Company Limited 132 Moo 2, I		amphang phet 62170,								
Type	Vertical	(Name and address) Vessel	TDEL 1/45 II 004									
4. Type(Ho	prizontal vertical, or sphere)	(Tank, separator, heat exch., etc.)	TREL-V-15-U-001 (Manufacturer's serial	number)								
	None	TREL-15502-S1562-DW-001 Rev.2	None	2015								
-	(CRN)	(Drawing No.)	(National Board number.)	(Year built)								
Data Report tem Number		Remarks		· Mi								
2. Remarks	-Note.1 Type no.1 Butt We	ld, Full RT										
to.	-Note.2 : Shell to Cone Type No. (8) in Table UW-12											
9	-Note.3 : SA-516 Gr.70, Heat Treated 595 °C, 1 Hr., Diameter 781 mm(ID) x 66.64 mm(ID), Length 431.5 mm											
	Type 1 Full RT for long seams.											
	-"N/A" abbreviated from Not Applicable.											
	-"LWN" abbreviated from Long Weld Neck Flange.											
	- Hydro test was performed in Vertical position.											
	- Impact test exempted per	act test exempted per UG-20(f), UCS-66 (a)&(b).										
	- Cone Section (Bottom Head) was Heat Treated due to Fiber Elongation exceeded 5%											
	- Removable Top Head ide	Head identification marked : TREL-V-15-U-001 on Peripheral Edge.										
		<u> </u>										
	-	201										
				±								
Certificate of Au	thorization: Type: "U"	No. 34,402	Expires March	2, 2016								
		0		+								
Date August	20, 2015 NameT	ai Rotary Engineering Public Company Limited (Manufacturer)	Signed	CHANYUT S.								
44.000	11 15	Jan I Pina	10.00= 1	emanvej								
Date AUG	Name Name	Commiss	sion NB 13275 AN									

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

1. M	anufacture	d and ce	ertifi	ied by	Thai	Rotary	Engineeri	ng Public	Company L								District, F	Rayong 2	1130,Thailand
2. M	anufacture	d for	5	Schlumbe	erger, Cyc	lotech l	House, Arı	mstrong R	oad, Basin	gstoke,	RG24 8	BNU, UN	dress of NTED KI Purchas	NGDC)			
	3 13					tion an	d Producti	on Public						,	istrict, La	ankrabue	District, k	Camphan	g phet 62170,
3. Lc	cation of i	nstallatio	n	Th	ailand	C WATE				10	(Name	and a	ddress)						1.40
4. Ty	pe	1200 T 27 T		ertical		1000	REL-V-15		Nor		TR		02-V1564			3	(Nations	ne al Board	2015 (Year
E A C	ME Code	letter south		or vertica		(Manu		erial numb	er) (CF	RN)		1000	awing nu	mber)			num	ber)	built)
5. AS	ME Code,	Section	VII	, Divisior	" –	[Add		Edition oplicable ((date)]		(Code	None Case	e Number)			[Special	Nor service	per UG-120(d)]
6. SI	nell			SA-516 G				16 mm			3	mm		- 7	578 mr		lare III	1076	1 22
		(Mater	ial	spec. nu	mber, gra	ade)	(Non	ninal thick	ness)		(Corr.	Allow.)		(Ini	ner diam	eter)		Length (overall)]
			_						Body Flan	ges on S	Shells	20			100	- 1991			
111		ID		OD	Flange	1 1 1 1 1 1	n Hub							- p 10		Во	lting Was	ner	
No.	Туре	(mm)		(mm)	Thk (mm)	Thi	(mm)	Material	How	Attached	d Lo	cation	Num & :		Bolting	Material	(OD,ID		Washer Material
1	Cl. 300 Flg.	578		914	69.9		16	SA-105	Туре	1,full RT	г	Тор	230L x Sets	24	SA1	93- B 7	Nor	ie	None
7. Se	eams			Note 1			Full	0.8	5 No	ne	Non	е		Not	e 2	2	None	N/A	1
	_	Long (we	lded	d, dbl.,sng	gl.,lap, but	t)] R.1	C.(spot or f	ull)] (Eff.,	%) (H.T.	temp.)	(Time,	hr) [G	irth (weld	led, db	ol.,sngl.,la	p, butt)]		1 Y 1 S	,
8. He	eads: (a) M	laterial					SA-105			(b)	Mater	ial		- (),	Note	or full)] e 3		courses)
			_			• •	. no., gra	de)							(Spec. no			
		ation(_To		Minimu		orrosio	_ Cr		Knuckle	Ellipt	38 J. G. S. W. S		nical		ispheric	ale D	Flat iameter	The second second	e to Pressure
		tom, End	3)	(mm))	(mm)	Rai		Radius	Ra			Angle		Radius		(mm)	(Conv	ex or Concave)
	a) b)	Top Bottom	\dashv	69.9 16		3	_	-	-	-	_	_	0°		-		578	Con	vex / Concave
											0	D							
				ID	OD I	Flange T	hk Min	Hub Thk	Body Flan	ges on I	Heads	1				Bo	lting		
No.	Location	Туре		100	mm)	(mm)		mm)	Material	H	low Atta	ched	Num &	Cina	Daltina	Material	Wasi		NA/
(a)	-	-		-	-	-		-	2				- Nulli &	Size	Boiling	-	(OD,ID	, ITIK)	Washer Material
(b)	1.7	-		-	-	-		-					-			-	-		•
9. MA	WP	3,	792	.12 kPa		101.	33 kPa		at max. te	emp.	<u> </u>		120 °C					120 °C	
N.4:	n design			ernal)	00.00	1.000000	ternal)	2700	AO I-D-	Llvd	ro nn		Internal)		accure	110		xternal)	510
	n. design i oof test	netal tel	np.	Not Appl	-29 °C		at	3,792	.12 kPa	Hyui	io., pii	eu., or c	comb. Te	est pre	essure_	Ну	dro test a	1 4929.7	5 кРа
					deservices and the second														
IU. NO	zzles, insp		and					M	aterial		Noz	zzle	Τ.			Attac	hment D	otoile	T
(Ir	Purp let, Outlet		tc.)	No	Diamet or size		Type	Nozzle		no N	Thick lom.	ness	_	Mate	ement rial	Noz		Flange	Location (Insp.Open.)
Solid	Inlet (N1)			1	NPS 3	" C	1.300 Flg.	SA-106 G			13 mm	3 mm		A-516	Gr.70	Fig UW-		Note 1	-
_	(N2)			1	NPS 3	_	1.300 Flg.	SA-106 G			13 mm	3 mm		N/A		Type 8 Tab		Note 1	-
	Vent (N3) Water Inle	t (N4)		1 1	NPS 2		I.300 Flg. I.300 Flg.	SA-105 SA-105			64 mm 64 mm	3 mm	_	Integr		Fig UW-	areas our or 2 models	LWN	-
91.0	s Outlet (N			40	NPS 2		I.300 Flg.	SA-790 S31803	SA-182	2	54mm	0 mm		A-516		Fig UW-		Note 1	
	Switch for		(N6	SA) 1	NPS 2		I.300 Flg.	SA-105			64 mm	3 mm		Integ		Fig UW-		LWN	
_	Switch for		(Ne		NPS 2		1.300 Flg.	SA-105	_		64 mm	3 mm	_	Integr		Fig UW-		LWN	-
	nce Line (N		1	1	NPS 2	5	I.300 Flg.	SA-105			64 mm	3 mm	100	Integ		Fig UW-		LWN	-
	ing Port (Na		•	1	mm	Bo	olting Pad	SA-105			6 mm	3 mm		Integr	ral	Fig UW-		N/A	
11.	Supports:	Skirt	(V	No	Lugs	_	None umber)	Legs	(Numbe	Oth	10 10 to	None (Descri		_ Att	ached			/ Welding e and ho	
	Remarks:		ture	es or no) er's Partia		•		identified			mmiss	•	•	s hav	e been f	urnished			Jw j
		-E					(1	Name of F	Part, item i	number			r's name	and i	identifyii	ng stamp)		
								See	Attached	U-4 For	rm								

We certify that the s	CERTIFICATE OF SHOP /FIELD COMPLIANCE atements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel
conform to the ASM	E BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number 34,402 arch 2, 2016
Date August 8	
	CERTIFICATE OF SHOP /FIELD INSPECTION
Vessel constructed	168 Moo 5, Sumnaktorn Sub _P District, Banchang Thai Rotary Engineering Public Company Limited at District, Rayong 21130,Thailand
I, the undersigned,	olding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by STANDARDS. HARTFORD. CONNECTICUT
have inspected the to the best of my kn VESSEL CODE, Se implied, concerning shall be liable in an	component described in this Manufacturer's Data Report on ALL 2015, and state that, wheledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE belief to VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.
Date AU631, 1	(Authorized Inspector) Commissions No. 13225 A. N. [National Board(incl. endorsements)]
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10.0	

FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

	Harris Assessment Dead Desired In DOOM ONLY	LUNUTED WINODOM									
d for Schlumberger, Cyclotech	House, Armstrong Road, Basingstoke, RG24 8NU (Name and address of Purcha										
PTT Exploration an Thailand			Camphang phet 62170,								
Vartical	(Name and address)	TREL WAS III O	00								
orizontal vertical, or sphere)	(Tank, separator, heat exch., etc.)	TREL-V-15-U-002 (Manufacturer's serial number)									
None	TREL-15502-V1564-DW-001 Rev 3	* 1	2015								
(CRN)	(Drawing No.)	(National Board number.)	(Year built)								
	Remark	ss									
and other in the more t											
-Note.1 Type no.1 Butt Wel	d, Full RT										
-Note.2 : Shell to Cone Type No. (8) in Table UW-12											
-Note.3 : SA-516 Gr.70, Heat Treated 595 °C, 1 Hr., Diameter 578 mm(ID) x 66.64 mm(ID), Length 310.5 mm											
Type 1 Full RT for long seams.											
- Nozzle -Solid Inlet (N1), Neck to top Head joint, was PWHT 595 °C, 180 minutes.											
- Impact test exempted per	110										
- Cone Section (Bottom Hea	nd) was Heat Treated due to Fiber Elongation e	exceeded 5%.									
- Removable Top Head identification marked : TREL-V-15-U-002-1 on Peripheral Edge.											
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)=	A 1										
	~0										
											
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			en il secondania								
itnorization: Type: "U"	No. 34,402	Expires March	2, 2016								
	1/2		+								
st 8, 2015 NameTh		Signed (Perros	CHANYUT S.								
1- 00	Phi .	10 1	emauvej								
31 15 Name	(Authorized Inspector) Commis	NB 13225 As N [National Board (incl. e	n e								
	Thailand Vertical orizontal vertical, or sphere) None (CRN) -Note.1 Type no.1 Butt Well -Note.2 : Shell to Cone Type -Note.3 : SA-516 Gr.70, Hele Type 1 Full RT for -"N/A" abbreviated from Note -"LWN" abbreviated from Lote - Nozzle — Solid Inlet (N1), Need to test was performed - Nozzle — Solid Inlet (N1), Need test exempted per second test	PTT Exploration and Production Public Company Limited 132 Moo 2, Thailand (Name and address) Vessel Prizontal vertical, or sphere) (Tank, separator, heat exch., etc.) None TREL-15502-V1564-DW-001 Rev.3 (CRN) (Drawing No.) Remark -Note.1 Type no.1 Butt Weld, Full RT -Note.2: Shell to Cone Type No. (8) in Table UW-12 -Note.3: SA-516 Gr.70, Heat Treated 595 °C, 1 Hr., Diameter 578 mm(ID) Type 1 Full RT for long seams. -"N/A" abbreviated from Not Applicable. -"LWN" abbreviated from Long Weld Neck Flange. - Hydro test was performed in Vertical position. - Nozzle —Solid Inlet (N1), Neck to top Head joint, was PWHT 595 °C, 180 - Impact test exempted per UG-20(f), UCS-66 (a)&(b). - Cone Section (Bottom Head) was Heat Treated due to Fiber Elongation e - Removable Top Head identification marked: TREL-V-15-U-002-1 on Period Section (Bottom Head) was Heat Treated for the Fiber Elongation of the Period Section (Bottom Head) was Heat Treated for the Fiber Elongation of the Period Section (Bottom Head) was Heat Treated for the Fiber Elongation of the Period Section (Bottom Head) was Heat Treated for the Fiber Elongation of the Period Section (Bottom Head) was Heat Treated for the Fiber Elongation of the Fi	PTT Exploration and Production Public Company Limited 132 Moo 2, Lankrabue Sub-District, Lankrabue District, halland (Name and address) Vertical Vessel TREL-V-15-U-0 (Namical, or sphere) (Tank, separator, heat exch., etc.) None (CRN) (Rational Board number.) Remarks -Note.1 Type no.1 Butt Weld, Full RT -Note.2: Shell to Cone Type No. (8) in Table UW-12 -Note.3: SA-516 Gr.70, Heat Treated 595 °C, 1 Hr., Diameter 578 mm(ID) x 66.64 mm(ID), Length 310.5 mm, Type 1 Full RT for long seams. -'NIA" abbreviated from Not Applicable. -LWN' abbreviated from Long Weld Nack Flange. - Hydro test was performed in Vertical position. - Nozzle –Solid Inlet (N1), Neck to top Head joint, was PWHT 595 °C, 180 minutes. - Impact test exempted per UG-20(f), UCS-66 (a)&(b). - Cone Section (Bottom Head) was Heat Treated due to Fiber Elongation exceeded 5%. - Removable Top Head identification marked: TREL-V-15-U-002-1 on Peripheral Edge.								