## FORM A-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS As Required by the Provisions of the ASME Code Rules, Section VIII, Division 2

Manufactured and     Manufactured for	KOBE ST	ESLITO TAK			74				
2. Manufactured for	remitted by "	LEL,LIU.IAN	ASAGO E	QUIPMENT				HO,TAKAS/	AGO-CITY,676-8670 J.
THE GOVERNMENT DESCRIPTION OF STREET	OPTI (	CANADA INC	C. CALG	ARY, ALE	BERTA CA	ime and address of a NADA			
3. Location of install	ation LONG	LAKE, ALE	BERTA C	ANADA	(Name an	d address of purchas	ser)		
	. Type VERT.REACTOR 100001 ALD-09-001  Horizontal or vertical tank Manufacturer's Seriel No. CRN							910 2010	
<ol><li>The chemical and</li></ol>	physical prop	erties of all pa	arts meet t	the requirer	nents of ma	Drawing No. aterial specifica	tions of the ASM	E BOILER AL	Year built ND PRESSURE VESSE
CODE. The design	, construction	, and workma	nship con	form to ASI	ME Code, S	ection VIII, Divi	sion 2	2	004
	JL	LY.1.2005					1489-2,2235-9,		Year
ems 6 to 11 incl. to b			vessels, j	ackets of ia	cketed ves		Code C	ara No	
6. ShellSA-3	36M F22V (5 Material (Spec. No	3A-336 F22V		219mm	On		3660am	9	17262ጣጣ
7. Seams	s	Nom, thk,	Corr. a			Length (overall)			
	NO. 1 BUT	SEAMLES Longitudinal		7050		Heattreat		Red	lographic treatment
	Girth		<del></del>	Heatt	restment	Rad	FULL "2		No. of courses
3. Heads: (a) Materia	SA-542	M TP.D CL.4 Spec.	la (SA-54 No., Gredo	2 TP.D CI	L.4a) (	b) Material		D CL.4a (S/ Spec. No., Gra	A-542 TP,D CL,4a)
Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown	Knuckle Radius	Elilptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure
a) TOP	110mm	Oma *1	-		-	- Aponytingio	1880mm	Diameter	CONVEX&CONCAVE
b) BOTTOM	110mm	Omm *1			<u> </u>		1880mm		CONVEX&CONCAVE
test pressure2	8.56MPaG		ii dosigii ii	netal temp.	-29	<u>°С</u> а	t19.0MPa	iG≠	hou, hydro., or comb
ms 12 and 13 to be c	ompleted for	 tube sections	; N/A	1					
Tubesheets Sta	ompleted for	tube sections	; N/A	r (subject to pr		Nom, thk	t 19.0MPa		Attech. (wid., bolted)
Tubesheets Star	ompleted for lonery meterial (Sp ating material (Sp	tube sections noc. No., Grade) no. No., Grade)	; N/A	r (subject to pr Diameter		Nom, thk.	Corr. allow		
Tubesheets State Flore Tubes Shall	ompleted for lonery meterial (Sp ating material (Spea, No Material (Spea, No e completed f	tube sections occ. No., Grade) oc. No., Grade) o., Grade) or inner cham	; N/A	Diameter  O.D.	essure)	Nom, thk, Nom, thk,	Corr. allow Corr. allow		Attech. (wid., bolted)
Tubesheets State Flo Tubes Tubes State Flo Tubes MShell MShell	ompleted for ionary meterial (Sp ating material (Sp Material (Speo, No	tube sections occ. No., Grade) oc. No., Grade) o., Grade) or inner cham	Oismote	Diameter  O.D.	essure)	Nom, thk Nom, thk Nom, thk	Corr. allow Corr. allow	mber	Attach. (wid., bolted) Attach. (wid., bolted)
Tubesheets State Flore Tubes Shall	ompleted for ionary meterial (Sp ating material (Spea, No Material (Spea, No e completed I eterial (Spea, Na, Longi	tube sections occ. No., Grade) oc. No., Grade) o., Grade) or inner cham	; N/A	Diameter O.D. cketed vess	essure)	Nom, thk Nom, thk Nom, thk	Corr. allow  Corr. allow  No  xohangers; N	mber /A	Attach, fwid., bolted) Attach, fwid., bolted) Type istraight or "U")
Tubesheets State Flo Tubes Tubes State Flo Tubes MShell MShell	ompleted for ionary meterial (Sp ating meterial (Spe Material (Spea, No e completed I	tube sections oc. No., Grade) oc. No., Grade) oc. Grade) or inner cham Grade)	Diamete  Diamete	Diameter O.D. cketed vess	corr. ell-	Nom, thic Nom, thic Nom, thic name of heat or ow.	Corr. allow  Corr. allow  Nu  (changers; N  Inside diameter (cs or no)	mber /A Radio	Attech. (wid., bolted) Attech. (wid., bolted) Type (streight or "U") Length (overall) ographic treatment No. of courses
Tubesheets  Tubesheets  Flo  Tubes  Stat  Flo  Shell  Seams  Heads: (a) Matl.	ompleted for ionary metalial (Special Grand Material (Special Grand Material (Special Grand Gran	tube sections one. No., Grade) one. No., Grade) or inner cham Grade) audinal (wid., dbl.,	Dismote  Dismote  I bors of jack  I sngl.)	Diameter O.D.  Cketed vess Nom. thic	corr. ell	Nom, thk.  Nom, thk.  Nom, thk.  noels of heat a)  ow.  Host treatment ty  Rode  ) Matl.	Corr. allow  Corr. allow  Nu  (changers; N  Inside diameter (cs or no)  ographic treatment	rnber /A Rede	Attach, (wild., bolted) Attach, (wild., bolted) Type (streight or "U") Length (overall) ographic treatment No. of courses
Tubesheets  Tubesheets  State Floor Tubes  ms 14 to 18 incl. to be Shell  Seams  Heads: (a) Matil.  Location (Top, Bottom, Ends)	ompleted for ionary meterial (Sp ating material (Spea, No Material (Spea, No e completed I eterial (Spea, Na, Longi	tube sections oc. No., Grade) oc. No., Grade) oc. Grade) or inner cham Grade)	Diamete  Diamete	Diameter O.D. cketed vess	corr. ell-	Nom, thk.  Nom, thk.  Nom, thk.  nods of heat exo.  Wheat treatment to	Corr. allow  Corr. allow  Nu  (changers; N  Inside diameter (cs or no)	mber /A Radio	Attach, (wid., bolted)  Attach, (wid., bolted)  Type (streight or "U")  Length (averali)  ographic treatment  No. of courses  Side to Pressure
Tubesheets  Tubesheets  State Floor Tubes  Tubes  Tubes  Mati.  Location (Top, Bottom, Ends)	ompleted for lonery material (Special Grant Material Minimum)	tube sections  oc. No., Grade)  oc. No., Grade)  or inner cham  Grade)  Spec. No.  Corrosion	Dismote  Dismote  shors of jac  sngl)  Crown	Diameter O.D.  cketed vess Nom. thic	cornell Cornell Colment (I	Nom, thk  Nom, thk  Nom, thk  nnels of heat ex  ow.  Heat treatment (y  Rode  ) Matl.  Conical	Corr. allow  Corr. allow  Nu  (changers; N  Inside diameter (os or no) ographio treatment  S  Hemispherical	Radio	Attach, (wid., bolted)  Attach, (wid., bolted)  Type (streight or "U")  Length (averali)  ographic treatment  No. of courses  Side to Pressure
Tubesheets  Tubesheets  Flo  Tubes  Flo  Stat  Flo  Tubes  MSeams  Heads: (a) Matl.  Location (Top, Bottom, Ends)	ompleted for ionary meterial (Special representation) Material (Special Representation) e completed f eterial (Special Representation) Girth Minimum Thickness	cube sections co. No., Grade) co. No., Grade) co. Mo., Grade) cor inner cham Grade) Spec. No. Corrosion Allowance	Dismote shors of jac sngl)  Crown Radius	Diameter O.b. cketed vess Nom. thic  Knuckle Radius	Corr. ell	Nom, thk  Nom, thk  Nom, thk  nnels of heat ex  ow.  Heat treatment (y  Rode  ) Matl.  Conical	Corr. allow  Corr. allow  Nu  (changers; N  Inside diameter (os or no) ographio treatment  S  Hemispherical	Radio	Attach, (wid., bolted)  Attach, (wid., bolted)  Type (streight or "U")  Length (averali)  ographic treatment  No. of courses  Side to Pressure
Tubes State Tubes Area State Tubes Shell Mati.  Location (Top, Bottom, Ends)	ompleted for ionary meterial (Special (	co. No., Grade) co. No., Grade) co. No., Grade) co. Grade) cor inner cham. Grade) Spec. No. Corrosion Allowance	Dismete shors of jac sngJ c., Grade Crown Radius	Diameter O.D. cketed vess Nom.thic  Knuckle Radius	Corr. ell	Nom, thk.  Nom, thk.	Corr. allow Corr. allow Nu cohangers; N Inside diameter (os or no) ographio treatment S Hemisphericat Radius	Radio	Attach, (wild., bolted) Attach, (wild., bolted) Type (straight or "U") Length (overall) ographic treatment No. of courses Side to Pressure (Convex or Concave)
Tubesheets  Tubesheets  Flo  Tubes  Flo  Stat  Flo  Tubes  MSeams  Heads: (a) Matl.  Location (Top, Bottom, Ends)	ompleted for ionary meterial (Special representation of the completed of the complete of	co. No., Grade) co. No., Grade) co. No., Grade) co. Transcription of inner cham Grade) Spec. No. Corrosion Allowance other fastenia	Dismote  Dismote  substantial properties  possible sof jacobia  substantial properties  crown  Radius  ngs)  al max. (	Diameter O.D. cketed vess Nom. thic  Knuckle Radius  emp.	cornell  Cornell  Elliptical Ratio	Nom, thk.  Nom, thk.	Corr. allow  Corr. allow  Nu  (changers ; Ni  Inside diameter (os or no)  ographic treatment  S  Hemispherical  Radius	Radio	Attach, (wid., bolted) Attach, (wid., bolted) Type (streight or "U")  Length (overall)  ographie treatment  No. of courses  Side to Pressure (Convex or Concave)

## FORM A-1 (Back)

items below to be completed for all vessels where applicable

19. Nozzles, inspection and safety valve openings:  Purpose (Inlet, Outlet, Drain, etc.) No. or Size Type Material Thk. (mm) Material How Attached  MANWAY 1 30" SPECIAL SA-336 GR.F22V 312.5 INTEGRAL WELDED												
Material												
MANWAY 1 30" SPECIAL SA-336 GR.F22V 312.5 INTEGRAL WELDED	Location											
	TOP HEAD											
SOTECT 1 22 SPECIAL SA-336 GR.F22V 47.5 INTEGRAL WELDED I	BOTTOM HEAD											
CATALTS FOWE 1 6 CI. 2500FLG [SA-336 GR F22V ] 34.0   INTEGRAL   WELDED	BOTTOMHEAD											
QUENCH HOUSING 2 6" CI. 2500FLG SA-336 GR.F22V 34.0 INTEGRAL WELDED	SHELL											
CO. C. W. V.C.												
20. Supports; Skirt YES Lugs — Legs — Other — Attached WELDED TO BOTTOM  No. Describe Winter and how	SHELL RING											
21. Service: Fatigue analysis required NO and Describe contents or service												
22. Remarks: Manufacturer's Partial Data Reports properly identified and signed by commissioned insectors have been furnished for	ha fallanda											
SEE FURM A-3 SUPPLEMENTARY SHEFT *3	na ronowing											
Name of part, item manhor, manufacturer's name, and identifying stone												
SAFETY DEVICES WILL BE PROVIDED BY THE CUSTOMER.												
CERTIFICATION OF DESIGN												
User's Design Specification on file at KOBE STEEL, LTD. TAKASAGO EQUIPMENT PLANT.												
Manufacturer's Design Report on file at KOBE STEEL, LTD. TAKASAGO EQUIPMENT PLANT.												
User's Design Specification certified by RADOSLAV STEFANOVIC PE State ALBERTA Reg. No.	M58627											
Manufacturar's Design Design Design Design Design III	-50270											
CERTIFICATE OF SHOP COMPLIANCE												
We certify that the statements in this report are correct and that all details of design, material, construction, and workmanship of	this vessel											
Comorni to the Asiac Code for Pressure Vessels, Section VIII, Illivision 2.												
"U2" Certificate of Authorization No. 12.315 expires AUGUST 9, 2010  Date Co. pan KOBE STEEL, LTD, TAKASAGO EQUIPMENT PLANE:	-											
Date Co. nam 60BE STEEL, LTD. TAKASAGO EQUIPMENT PLANSigned HIROYUKI BAN Representative	C											
CERTIFICATE OF SHOP INSPECTION												
Vessel made by KOBE STEEL, LTD. TAKASAGO EQUIPMENT PLANT. at 3-1.2-CHOME SHINHAMA ARAI-CHO TAKASAGO-CITY 676-	0070 14 0441											
I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State	BOYU JAPAN											
OF THE PROPERTY AND ADDRESS OF THE PROPERTY OF	V. C.											
ofLYNN MASSACHUSETTS	lurar'a Data											
and state that, to the best of my knowledge and belief the Manufacturar because	terrese date.											
any warranty, expressed of implied, concerning the pressure vessel described in this Manufacturar's Data Danast Eucharmana	maleh al											
inspector not his employer shall be liable in any manner for any personal injury or properly damage or a fose of any kind ericing from a	r connected											
with any map colon.												
Date Signed NB-9012A, B / GA765 MOTOO KANKE unorized Inspector Netional Board Encl. endersements), State, Prov., a												
IVIO TO CANK Sturronzea inspector National Board Enct. andors amental, State, Prov., a	and No.											
CERTIFICATE OF RELD ASSEMBLY COMPLIANCE	1											
We certify that the field assembly construction of all parts of this vessel conforms with the requirements of Section VIII, Division 2 or BOILER AND PRESSURE VESSEL CODE.	f the ASME											
"U2" Certificate of Authorization No expires												
Data Ca	J											
Co. name Signed Representative												
CERTIFICATE OF FIELD ASSEMBLY INSPECTION												
I, the undersigned, holding a velid commission issued by the National Board of Roller and Pressure Vasset Inspectors and/or the State	or Occudent											
of and employed by	or Frovince											
and employed by	lata Panart											
of	reta Report											
of, have compared the statements in this Manufacturer's C with the described pressure vessel and state that parts referred to as data items	certificate of shop inspection, have been inspected by me and that, to the hest of my broudedge and helief the Magnetic and t											
of, have compared the statements in this Manufacturer's C with the described pressure vessel and state that parts referred to as data items, not incl certificate of shop inspection, have been inspected by me and that, to the best of my knowledge and belief, the Manufacturer has a	anateustad											
of, have compared the statements in this Manufacturer's E with the described pressure vessel and state that parts referred to as data items, not include the state of shop inspection, have been inspected by me and that, to the best of my knowledge and belief, the Manufacturer has c and assembled this pressure vessel in accordance with the ASME Code, Section VIII, Division 2. The described vessel was inspected and	onstructed											
of, have compared the statements in this Manufacturer's Described pressure vessel and state that parts referred to as data items, not include certificate of shop inspection, have been inspected by me and that, to the best of my knowledge and belief, the Manufacturer has a can assembled this pressure vessel in accordance with the ASME Code, Section VIII, Division 2. The described vessel was inspected and to a hydrostatic test of, psi. By signing this certificate neither the inspector nor his employer makes any warrants.	d subjected											
with the described pressure vessel and state that parts referred to as data items, not incl certificate of shop inspection, have been inspected by me and that, to the best of my knowledge and belief, the Manufacturer has c and assembled this pressure vessel in accordance with the ASME Code, Section VIII, Division 2. The described vessel was inspected and to a hydrostatic test of psi. By signing this certificate neither the Inspector nor his employer makes any warranty, or implied, concerning the pressure vessel described in this Manufacturer's Data Report, Furthermore, neither the Inspector nor his employer.	onstructed d subjected expressed											
with the described pressure vessel and state that parts referred to as data items, not incl certificate of shop inspection, have been inspected by me and that, to the best of my knowledge and belief, the Manufacturer has c and assembled this pressure vessel in accordance with the ASME Code, Section VIII, Division 2. The described vessel was inspected and to a hydrostatic test of psi. By signing this certificate neither the Inspector nor his employer makes any warranty, or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his em be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this increase.	onstructed d subjected expressed											
of, have compared the statements in this Manufacturer's Described pressure vessel and state that parts referred to as data items, not include certificate of shop inspection, have been inspected by me and that, to the best of my knowledge and belief, the Manufacturer has a can assembled this pressure vessel in accordance with the ASME Code, Section VIII, Division 2. The described vessel was inspected and to a hydrostatic test of, psi. By signing this certificate neither the inspector nor his employer makes any warrants.	onstructed d subjected expressed bloyer shall ion.											