



TOTAL NO. OF PAGES 6
(EXCLUDING THIS PAGE)

KHTC REFERENCE : T10176 – BOM

DOCUMENT TITLE : BILL OF MATERIAL

EQUIPMENT NAME : SRU FEED STEAM HEATER

CUSTOMER: SHELL ALBIAN SANDS

ITEM NUMBER: 260-SX-101/201 A/B/C/D

P.O. NUMBER: 50274775 002 OP

Rev	Description	By / Date	Chk'd By /Date	App'd By / Date
0	First Issue	HUI R. 2009/4/30	KL 2009/5/14	BAW 4 May 2009
i	SOME ITEM ADDED	C.H. 2009/5/29	BAW 29 May 2009	BAW 29 May 2009

T10176 Canada Status: Advanced
 (KHTC Job Number)

SHELL QTY FOR 8 SHELLS

REV	ITEM	QTY	PART NAME	SPECIFICATIONS	MATERIAL	NOTES
	200	8	BARREL (PLATE)	64" ID X 0.625" THK X 237.625" LG (119" + 118.625")	SA-516 70N	B, H
	201	8	HEAD (2.0-1 ELLIPT.)	64" ID X 0.625" NOM(.481" MIN) THK X 1.5" SF	SA-516 70N	B, H
	206	8	GIRTH FLANGE	71.5" OD X 64" ID X 8.125" THK	SA350 LF2N CL1 C, H	
	240A	8	NOZZLE FLANGE	14" - 300# ANSI RF WN (BORE SCH 60)	SA350 LF2N CL1 C, H	
	240B	8	NOZZLE FLANGE	6" - 300# ANSI RF WN (BORE XS)	SA350 LF2N CL1 C, H	
1	240C	8	NOZZLE FLANGE	2" - 300# ANSI RF LWN X 9.0625" LG	SA350 LF2N CL1 C, H	
1	240D	8	NOZZLE FLANGE	1" - 300# ANSI RF LWN X 7.6875" LG	SA350 LF2N CL1 C, H	
1	240E	8	NOZZLE FLANGE	1" - 300# ANSI RF LWN X 7.1875" LG	SA350 LF2N CL1 C, H	
1	240F	8	NOZZLE FLANGE	1.5" - 300# ANSI RF LWN X 7.3125" LG	SA350 LF2N CL1 C, H	
1	241A	8	NOZZLE PIPE	14" NPS X 0.594" THK X 9.25" LG	SA-333 6 SML	B, H
1	241B	8	NOZZLE PIPE	6" NPS X 0.432" THK X 10.375" LG	SA-333 6 SML	B, H
	245A	8	NOZZLE REINF. PAD	0.625" THK X 20" X 20.5" DEV LG (ROLL TO 32.625"IR)	SA-516 70N	B, H
	245B	8	NOZZLE REINF. PAD	0.625" THK X 10.625" X 11.125" DEV LG (ROLL TO 32.625" IR)	SA-516 70N	B, H
4	260	8	SUPPORT PAD	0.625" THK X 14" LG X 109.5" DEV. LG (ROLL TO 32.625" IR)	SA-516 70N	B, H
4	260A1	8	BASE PLATE	0.75" THK X 12" X 60" LG	SA-516 70N	B, H
4	260A2	8	BASE PLATE	0.75" THK X 6" X 59" LG	SA-516 70N	B, H
4	260B1	8	WEB	1.25" THK X 46.8125" X 86.75" LG	SA-516 70N	B, H
4	260B2	8	WEB	1.25" THK X 46.8125" X 86.75" LG	SA-516 70N	B, H
4	260C1	16	GUSSET	0.625"THK X 10.75" X 25.9375" LG	SA-516 70N	B, H
4	260C2	16	GUSSET	0.625"THK X 4.75" X 24.75" LG	SA-516 70N	B, H
4	260D1	16	RIB	0.5"THK X 10.75" X 10.75" LG	SA-516 70N	B, H
4	260D2	16	RIB	0.5"THK X 4.75" X 8.1875" LG	SA-516 70N	B, H
4	260E1	16	RIB	0.5"THK X 10.75" X 15.4375" LG	SA-516 70N	B, H
4	260E2	16	RIB	0.5"THK X 4.75" X 13.8125" LG	SA-516 70N	B, H
4	260F1	16	REINF. PLATE	0.5"THK X 8.9375" X 10.75" LG	SA-516 70N	B, H
4	260F2	16	REINF. PLATE	0.5"THK X 4.75" X 6.0625" LG	SA-516 70N	B, H
2	265A	8	INSULATION RING	0.375" DIA X 37.75" DEV. LG (ROLL TO 12" MEAN DIA)	SA-36	
3	265B	8	INSULATION SUPP.RING	0.375" DIA X 216.375" DEV. LG (ROLL TO 68.875" MEAN DIA)	SA-36	

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Canada

Status: Advanced

SHELL (continued ...)

REV	ITEM	QTY	PART NAME	SPECIFICATIONS	MATERIAL	NOTES
2	265C	144	INSULATION CLIP	0.375" DIA X 1.8125" LG	SA-36	
4	266	16	GROUNDING LUGS	0.25" THK X 2" X 6" LG	304SS	
	290A	8	NAME PLATE	STANDARD (IMPERIAL)	304 SS	
	290B	8	NAME PLATE	STANDARD (S.I)	304 SS	
	295	8	NAME PLATE BRACKET	STANDARD (TYPE H2)	SA-516 70N	B, H

REVISIONS TO SECTION

1	ADDED LENGTH FOR NOZZLE & NOZZLE PIPE	2009-05-20	CHEN2Q
2	SOME ITEM ADDED	2009-05-29	CHEN2Q
3	ADDED MATERIAL FOR ITEM 265B	2009-05-29	CHEN2Q
4	Item 266 added	2009-05-29	NIENHU3R

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(KHTC Job Number)

Canada

Status: Advanced

BUNDLE QTY FOR 8 SHELLS

REV	ITEM	QTY	PART NAME	SPECIFICATIONS	MATERIAL	NOTES
	400	5928	U-TUBES	1" OD X 0.109" THK (MIN) SEE T10176-6 DWG	SA-179 SML	A, E
	402	8	STAT. TUBESHEET	67.125" OD X 6" THK	SA-516 70N	B, F, G, H
1	408	32	TUBESHEET PLUG	1.25" DIA - 8UN X 3.5" LG	SA-105N	
1	410	80	BAFFLES	63.6875" OD X 0.625" THK	SA-36	
3	410A2	8	SUPPORT PLATE	0.625"THK X 5.125" X 27.5" LG	SA-36	
1	411	16	SUPPORT PLATE	0.375" THK X 22.125" X 61.0625" LG	SA-36	
1	411A1	16	CONNECTING ROD	0.625" DIA X 62.875" DEV. LG(ROLL TO 19.0625" MEAN RADIUS)	SA-36	
1	411A2	16	CONNECTING ROD	0.625" DIA X 23.675" DEV. LG(ROLL TO 6.5625" MEAN RADIUS)	SA-36	
	414	8	END SUPPORT PLATE	63.6875" OD X 0.75" THK	SA-36	
2	417	32	SKID BAR	0.75"THK X 1.625" X 233.75" LG	SA-36	
1	418A	96	TIERODS	0.625" DIA X 234.375" LG	SA-36	
1	418B		SPACERS	1.0" OD X 21806" LG TOTAL	SA179 OR SA214	
1	418Z	192	NUTS FOR 418A	0.625" DIA HEX	SA-36	
1	452	216	IMPINGEMENT RODS	1" DIA X 25.25" LG	SA-36	

REVISIONS TO SECTION

- 1 SOME ITEM ADDED
- 2 ITEM 417 QTY. WAS 16
- 3 Part number corrected

2009-05-29 CHEN2Q
2009-05-29 CHEN2Q
2009-05-29 NIENHU3R

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(KHTC Job Number)

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Status: Advanced

RIGHT HAND CHANNEL QTY FOR 8 SHELLS

REV	ITEM	QTY	PART NAME	SPECIFICATIONS	MATERIAL	NOTES
	500	8	BARREL (PLATE)	64" ID X 0.875" THK X 51.4375" LG	SA-516 70N	B, H
2	504	8	PARTITION PLATE	1.375" THK X 64" X 65.4375" LG	SA-516 70N	B, H
	505	8	GIRTH FLANGE	71.5" OD X 64" ID X 7.1875" THK	SA350 LF2N CL1	C, H
	506	8	GIRTH FLANGE	71.5" OD X 64" ID X 7.1875" THK	SA350 LF2N CL1	C, H
	507	8	FLAT COVER	71.5" OD X 5.5625" THK	SA-516 70N	B, G
	540A	8	NOZZLE FLANGE	12" - 300# ANSI RF WN (BORE SCH 60)	SA350 LF2N CL1	C, H
	540B	8	NOZZLE FLANGE	30" - 300# ASME B16.47 SERIES 'A' RF WN (BORE XS)	SA350 LF2N CL1	C, H
1	540C	8	NOZZLE FLANGE	1" - 300# ANSI RF LWN X 9.1875" LG	SA350 LF2N CL1	C, H
1	540D	8	NOZZLE FLANGE	1.5" - 300# ANSI RF LWN X 9.1875" LG	SA350 LF2N CL1	C, H
1	540E	8	NOZZLE FLANGE	1" - 300# ANSI RF LWN X 9.3125" LG	SA350 LF2N CL1	C, H
1	541A	8	NOZZLE PIPE	12" NPS X 0.562" THK X 9.5625" LG	SA-333 6 SML	B, H
1	541B	8	NOZZLE PIPE (PLATE)	29" ID X 0.5" THK X 11.5" LG	SA-516 70N	B, H
	545A	8	NOZZLE REINF. PAD	0.625" THK X 18.75" X 19.25" DEV LG (ROLL TO 32.875" IR)	SA-516 70N	B, H
	545B	8	NOZZLE REINF. PAD	0.875" THK X 42.75" X 43.875" DEV LG (ROLL TO 32.875" IR)	SA-516 70N	B, H
2	562	32	LIFTING LUG	0.75" X 3" X 6" LG	SA-516 70N	B, H

REVISIONS TO SECTION

- 1 ADDED LENGTH FOR NOZZLE & NOZZLE PIPE
- 2 REVISED ITEM 504 & ITEM 562 ADDED

2009-05-20 CHEN2Q
2009-05-29 CHEN2Q

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(KHTC Job Number) Status: Advanced

STUD BOLTS QTY FOR 8 SHELLS

REV	ITEM	QTY	PART NAME	SPECIFICATIONS	MATERIAL	NOTES
2	800		GASKET	SEE GASKET DWG T10176-5		
2	904A	672	CHANNEL TO SHELL	1.125" DIA X 20.5" LG THREADED FULL LENGTH	SA-193 B7	D
2	904B	1344	NUTS FOR 904A	1.125" DIA S.F. H.H.	SA-194 2H	D
2	904C	672	WASHER FOR 904B	HARDENED WASHER FOR 1.125" DIA STUD	ASTM F436	D
2	905A	672	CHANNEL TO CHAN.COV.	1.125" DIA X 14.5" LG THREADED FULL LENGTH	SA-193 B7	D
2	905B	1344	NUTS FOR 905A	1.125" DIA S.F. H.H.	SA-194 2H	D
2	905C	672	WASHER FOR 905B	HARDENED WASHER FOR 1.125" DIA STUD	ASTM F436	D

REVISIONS TO SECTION

- 1 WASHER ADDED AND STUD LENGTH REVISED.
- 2 Bolting placed on hold

2009-05-12 rongh
2009-05-13 NIENHU3R

T10176

(KHTC Job Number)

Canada

Status: Advanced

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- (A) PROVIDE ONE COMPLETE BEND PLUS 60" MINIMUM STRAIGHT LENGTH FROM EACH HEAT FOR EACH UNIT. A SS WIRE TAG SHALL BE ATTACHED TO THE SAMPLE TUBE REFERENCING THE UNIT TAG NUMBER.
 - (B) CARBON: 0.23% WT.% MAX.
 $CE < 0.45$, $CE = C + Mn/6 + (Ni+Cu)/15 + (Cr+Mo+V)/5$
MTRS TO SHOW C, Mn, Mo, Cr, Ni, V, Cu.
 - (C) CARBON: 0.25% WT.% MAX.
 $CE < 0.45$, $CE = C + Mn/6 + (Ni+Cu)/15 + (Cr+Mo+V)/5$
MTRS TO SHOW C, Mn, Mo, Cr, Ni, V, Cu.
 - (D) INCLUDING 10% OF SPARE BOLTS, NUTS AND WASHERS FOR GIRTH FLANGES. BOLTING THREADS & NUTS SHALL BE COATED WITH A MOLYBDENUM BASED ANTI-SEIZE COMPOUND PRIOR TO FINAL ASSEMBLY.
 - (E) CHINESE TUBING ACCEPTED.
NEEDS TO BE WRAPPED IN PLASTIC AND CRATED.
 - (F) MOCK-UP TEST BLOCK REQUIRED
 - (G) CHARPY IMPACT TEST TO 20/15 FT-LB @ -42°F
 - (H) HARDNESS 200 BHN MAX.
 - (I) MICRO-ALLOYED MATERIALS SHALL NOT BE USED WITHOUT CUSTOMER'S WRITTEN ACCEPTANCE.