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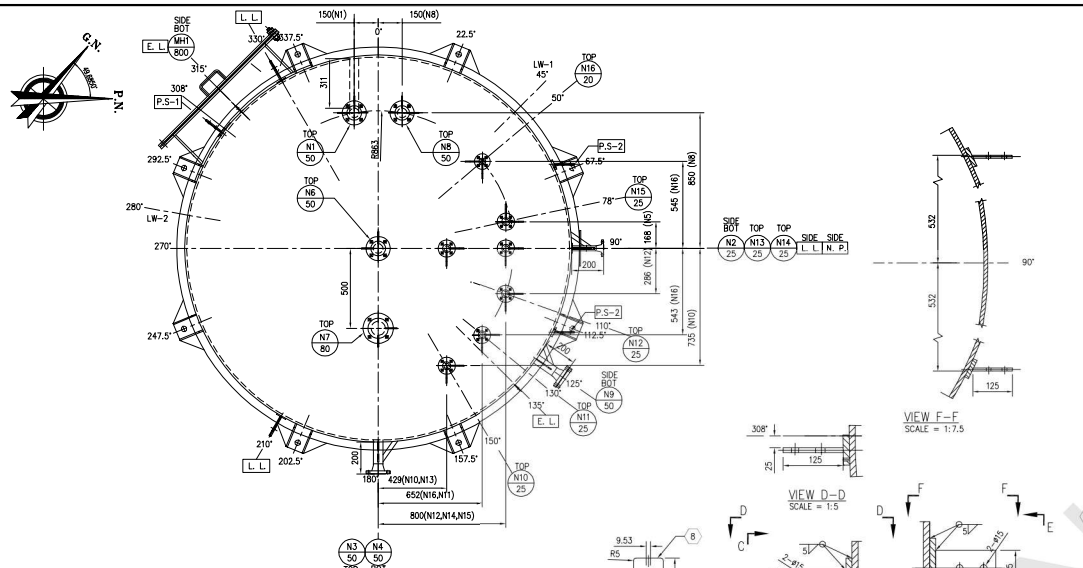

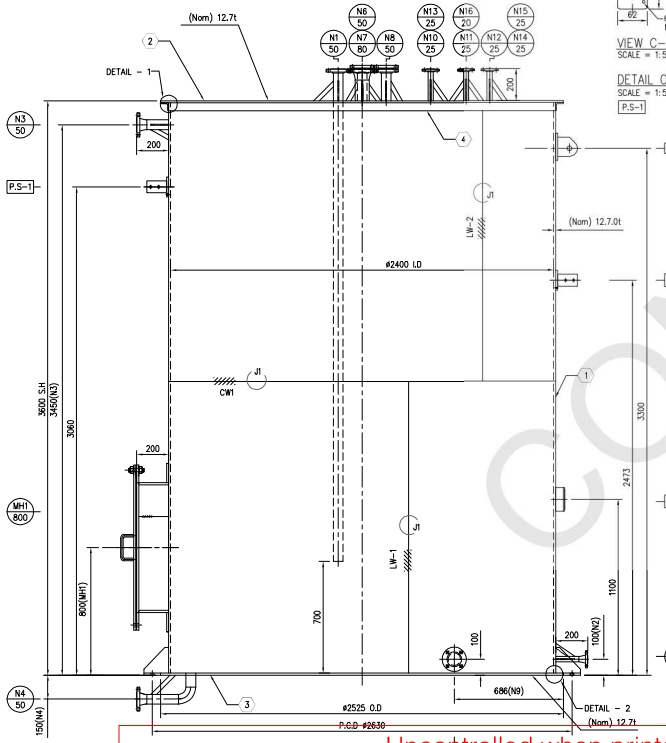

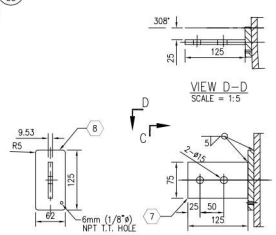

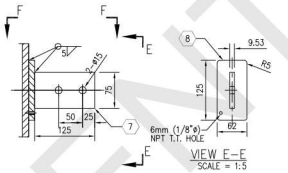

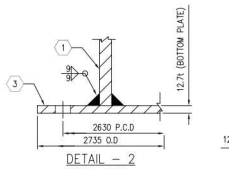

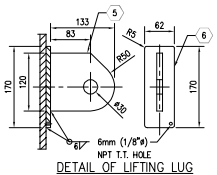

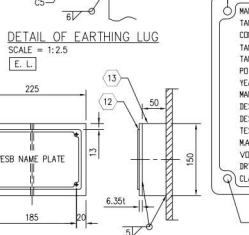

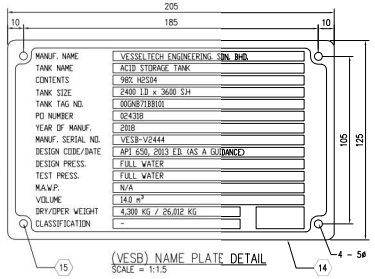

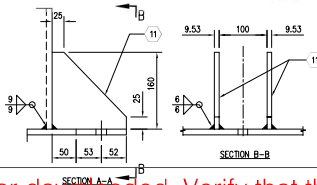

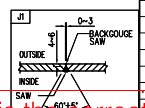

BILL OF MATERIAL

ITEM	DESCRIPTION	QTY	MATERIAL	REMARKS
1	SHELL	1	SA–516M Gr.485	2400 I.D x 3600 S.H x 12.7t
2	TOP PLATE	1	SA–516M Gr.485	ø2525 O.D x 12.7t
3	BOTTOM PLATE	1	SA–516M Gr.485	ø2525 O.D x 12.7t
4	SUPPORT ANGLE	1	SA–36M or EQUIV.	L 50 x 50 x 6t
5	LIFTING LUG	3	SA–516M Gr.485	120W x 133L x 12.7t
6	LUG BASE PLATE	3	SA–516M Gr.485	170W x 62L x 6.35t
7	SUPPORT BRACKET	3	SA–516M Gr.485	75W x 125L x 9.53t
8	PAD	3	SA–516M Gr.485	62W x 125H x 12.7t
9	EARTHING LUG	2	SS 316/L	6t
10	LUG BASE PLATE	8	SA–516M Gr.485	9.53t
11	GUSSET PLATE	16	SA–516M Gr.485	9.53t
12	NAME PLATE BRACKET	1	SA–516M Gr.485	225W x 150H x 6.35t
13	NAME PLATE BRACKET	1	SA–516M Gr.485	50W x 150H x 6.35t
14	NAME PLATE	1	SS 304	3t (SEE DETAIL)
15	RIVET	4	SA–516M Gr.485	5ø

NOZZLES DATA

NOZZLE MARK	SERVICE	QTY.	SIZE	SCH.	FLANGE STD./TYPE	FLANGE RATING	REMARK
N1	INLET	1	DN50	160	ANSI SORF	Cl.150	
N2	OUTLET	1	DN25	160	ANSI WNRF	Cl.150	
N3	OVERFLOW	1	DN50	160	ANSI WNRF	Cl.150	
N4	DRAIN	1	DN50	160	ANSI WNRF	Cl.150	
N6	AIR VENT	1	DN50	160	ANSI SORF	Cl.150	C/W BLIND
N7	LEVEL TRANSMITTER	1	DN80	160	ANSI WNRF	Cl.150	
N8	SPARE	1	DN50	160	ANSI SORF	Cl.150	C/W BLIND
N9	SPARE	1	DN50	160	ANSI WNRF	Cl.150	C/W BLIND
N10,N11,N12 N13,N14,N15	RETURN FROM DOSING PUMP /PRV	6	DN25	160	ANSI SORF	Cl.150	
N16	RETURN FROM CALIBRATION RETURN	1	DN20	160	ANSI SORF	Cl.150	
MH1	MANHOLE	1	DN800	12.7t	–	–	C/W BLIND

VESSEL TAG NO.

TAG NO.	000NB71BB101	SERIAL NO.	VESB–V2444	UNIT	1

NOTE:
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL COMPENSATING PAD REQUIRE 6mm (1/8") DIA.) NPT TELL-TALE HOLE HOLE WITH GREASE.
3. MINIMUM THICKNESS INCLUSIVE CORROSION ALLOWANCE.
4. ALL FILLET WELD SIZE TOLERANCE SHALL BE –0/+5mm.
5. THE ACCEPTANCE OF NOZZLE PROJECTION AND ALIGNMENT SHALL FOLLOW QCP009 LATEST REVISION.
6. WELDING PROCEDURE VESB/WPS/ SHALL BE USED FOR ALL EXTERNAL ATTACHMENT WELDING.
7. HORIZONTAL AND VERTICAL SPOT RADIOGRAPH : ONE IN THE FIRST 3 METER AND ONE IN EACH 30 METER THEREAFTER, 25% OF WHICH SHALL BE AT INTERSECTIONS.

DESIGN CODE	API 650, 2013 ED. (AS A GUIDANCE)
MATERIAL OF CONSTRUCTION	
SHELL	SA–516M Gr.485
TOP PLATE	SA–516M Gr.485
BOTTOM PLATE	SA–516M Gr.485
FLANGE	SA–105M
NECK	SA–106M Gr.B
BOLTS & NUTS	SA–193M Gr. B7 & SA–194M Gr. 2H (H.D.G)
GASKET	5MM THICKNESS PTFE
EARTHING LUG	SS 316/L
LIFTING LUG	SA–516M Gr.485
NAME PLATE BRACKET	SA–516M Gr.485
NAME PLATE	SS 304

VESSEL DESIGN CONDITIONS

Design Pressure	MPag	FULL WATER	External Design Presssure	NO
Operating Pressure	MPag	ATM	Specific Gravity	1.84
Design Temperature	(°C)	45	Corrosion Allowance (mm)	5
Operating Temperature	(°C)	ATM	Capacity / Volume (m^3)	14.0
Full Water Test		YES		
Vessel Content		98% H2S04		

NDT EXAMINATION REQUIREMENT

Radiography	DPI/MT	UT	PMHT	HARDNESS TEST
100%	100% ON ALL WELD	N/A	N/A	N/A

EXTERNAL PAINTING SPECIFICATION (–)

PROCESS	GENERIC NAME (SPECIFIC NAME)	No. Of COAT	DFT (micron)
Surface Preparation	BLAST TO SA 2.5		
1st COAT	POLYAMIDE CURED ZINC RICH EPOXY (JOTUN: BARRIER)	1	80
2nd COAT	POLYAMIDE CURED EPOXY (JOTUN : PENGUARD MIDCOAT MIO)	1	125
3rd COAT	POLYAMIDE CURED EPOXY (JOTUN : PENGUARD MIDCOAT MIO)	1	125
4th COAT	POLYURETHANE (JOTUN : HARDTOP XP)	1	80
FINAL COLOUR	DECORATION COLOUR: RAL 9001 (CREAM) BASE COLOUR: RAL 4005 (BLUE LILAC) COLOUR CODE: RAL 1026 (LUMINOUS YELLOW) WITH RAL 9011 (GRAPHITE BLACK) DIAGONAL STRIPS		
	TOTAL		410

INTERNAL PAINTING SPECIFICATION

PROCESS	GENERIC NAME (SPECIFIC NAME)	No. Of COAT	DFT (micron)
Surface Preparation	BARE MILL FINISH		
1st COAT		–	–

VESSEL WEIGHT IN – KG

EMPTY	MAX. OPERATING	HYDROTEST
4300	26,012	28,420

NO	DD/MMM/YY	REVISIONS AND RECORD OF ISSUE	BY	DES	CHKD	PDE	APPD
0	30.OCT.18	ISSUE FOR CONSTRUCTION	YX	JON	AD		

OWNER: PT.Bhumi Jati Power

PROJECT TITLE: TANJUNG JATI B EXPANSION (JAWA-4) COAL FIRED STEAM POWER PLANT 2 x 1,000 MW

OWNER'S ENGINEER: PÖYRY

EPC CONTRACTORS: Sumitomo Corporation; PT. Wasa Mitra Engineering; AvantPower Japan Ltd.

VESB DRAWING NO.: DWG–5680 (1 of 3)

VESB JOB NO.: V5377

PROJECT DRAWING NO.: TJB56-L3-OFF-C-GNB-M-DGA-0011 REV. 0

ENGINEERING & FABRICATOR: VESSELTECH ENGINEERING SDN. BHD. (213872-T)
LOT 1779, JALAN KPB 4, BUKIT BELIMBING, BALAKONG
43300 SERI KEMBANGAN, SELANGOR DARUL EHSAN.
TEL : 603–8961 3209, FAX : 603–8961 2807.

OUTLINE DRAWING FOR ACID STORAGE TANK

APPD/ENGR	ANDREW	BY	NAME	UNITS	VIEW
CHKD	JON	DD/MMM/YY	25.10.2017	MM/M	B/P(M)/S(D)/D

EPC LOT3 SUB–CONTRACTOR: BLACK & VEATCH

SPEC NAME: AMMONIA REMOVAL SYSTEM

SPEC NO.: 179956.65.2101

EPC LOT3 SUB–CONTRACTOR DRAWING NO.: GNB–M–DGA–0011

SHEET NO. 1 OF 3 REV. 0

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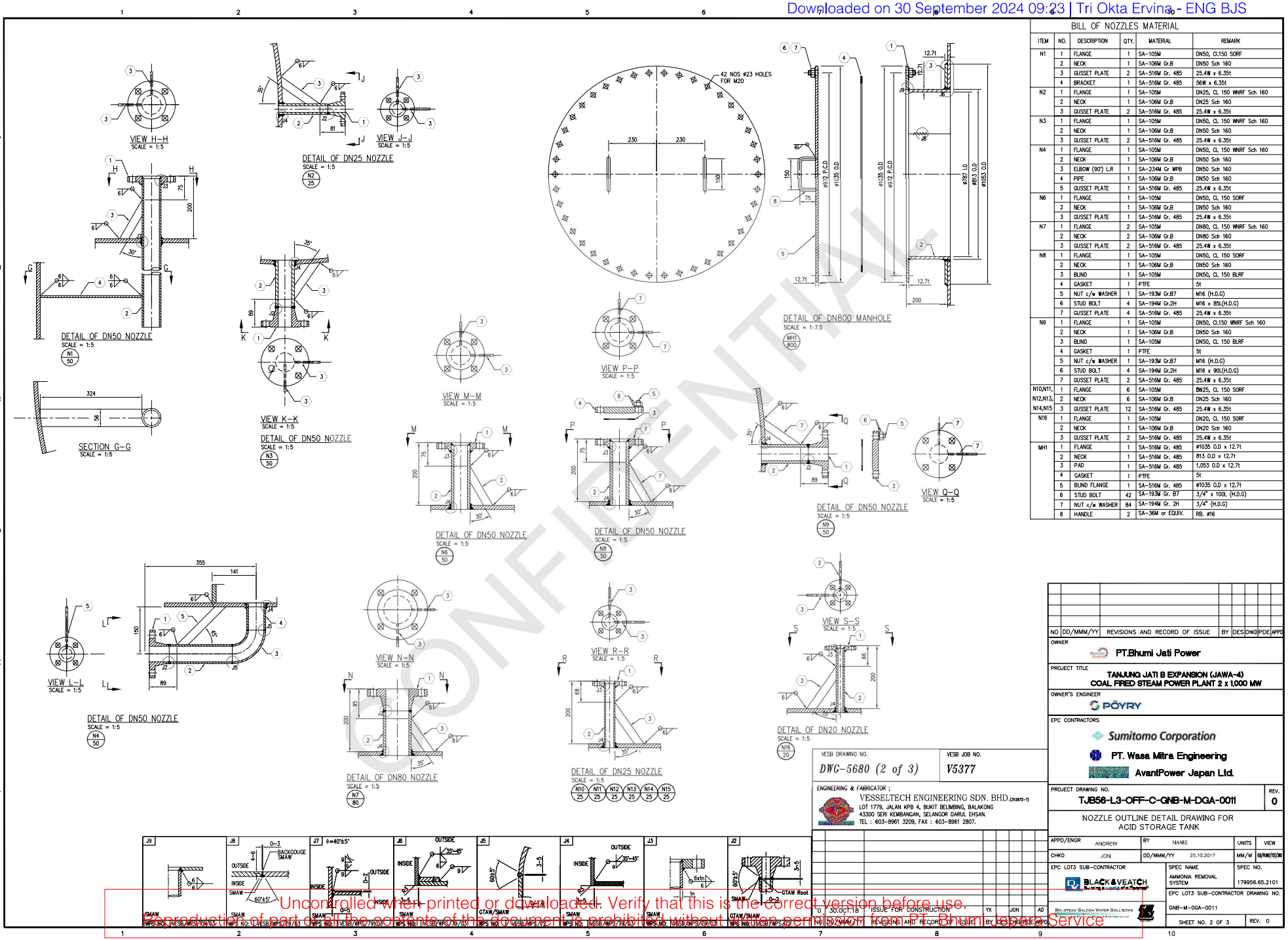

BILL OF NOZZLES MATERIAL

ITEM	NO.	DESCRIPTION	QTY.	MATERIAL	REMARK
N1	1	FLANGE	1	SA-105M	DN50, Cl.150 SORF
	2	NECK	1	SA-106M Gr.B	DN50 Sch 160
	3	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
	4	BRACKET	1	SA-516M Gr. 485	56W x 6.35t
N2	1	FLANGE	1	SA-105M	DN25, CL 150 WNRF Sch 160
	2	NECK	1	SA-106M Gr.B	DN25 Sch 160
	3	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
N3	1	FLANGE	1	SA-105M	DN50, CL 150 WNRF Sch 160
	2	NECK	1	SA-106M Gr.B	DN50 Sch 160
	3	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
N4	1	FLANGE	1	SA-105M	DN50, CL 150 WNRF Sch 160
	2	NECK	1	SA-106M Gr.B	DN50 Sch 160
	3	ELBOW (90°) L.R	1	SA-234M Gr WPB	DN50 Sch 160
	4	PIPE	1	SA-106M Gr.B	DN50 Sch 160
	5	GUSSET PLATE	1	SA-516M Gr. 485	25.4W x 6.35t
N6	1	FLANGE	1	SA-105M	DN50, CL 150 SORF
	2	NECK	1	SA-106M Gr.B	DN50 Sch 160
	3	GUSSET PLATE	1	SA-516M Gr. 485	25.4W x 6.35t
N7	1	FLANGE	2	SA-105M	DN80, CL 150 WNRF Sch 160
	2	NECK	2	SA-106M Gr.B	DN80 Sch 160
	3	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
N8	1	FLANGE	1	SA-105M	DN50, CL 150 SORF
	2	NECK	1	SA-106M Gr.B	DN50 Sch 160
	3	BLIND	1	SA-105M	DN50, CL 150 BLRF
	4	GASKET	1	PTFE	5t
	5	NUT c/w WASHER	1	SA-193M Gr.B7	M16 (H.D.G)
	6	STUD BOLT	4	SA-194M Gr.2H	M16 x 85L(H.D.G)
	7	GUSSET PLATE	4	SA-516M Gr. 485	25.4W x 6.35t
N9	1	FLANGE	1	SA-105M	DN50, CL150 WNRF Sch 160
	2	NECK	1	SA-106M Gr.B	DN50 Sch 160
	3	BLIND	1	SA-105M	DN50, CL 150 BLRF
	4	GASKET	1	PTFE	5t
	5	NUT c/w WASHER	1	SA-193M Gr.B7	M16 (H.D.G)
	6	STUD BOLT	4	SA-194M Gr.2H	M16 x 90L(H.D.G)
	7	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
N10,N11, N12,N13, N14,N15	1	FLANGE	6	SA-105M	8N25, CL 150 SORF
	2	NECK	6	SA-106M Gr.B	DN25 Sch 160
	3	GUSSET PLATE	12	SA-516M Gr. 485	25.4W x 6.35t
N16	1	FLANGE	1	SA-105M	DN20, CL 150 SORF
	2	NECK	1	SA-106M Gr.B	DN20 Sch 160
	3	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
MH1	1	FLANGE	4	SA-516M Gr. 485	ø1035 O.D x 12.7t
	2	NECK	1	SA-516M Gr. 485	813 O.D x 12.7t
	3	PAD	1	SA-516M Gr. 485	1,053 O.D x 12.7t
	4	GASKET	1	PTFE	5t
	5	BLIND FLANGE	1	SA-516M Gr. 485	ø1035 O.D x 12.7t
	6	STUD BOLT	42	SA-193M Gr. B7	3/4" x 100L (H.D.G)
	7	NUT c/w WASHER	84	SA-194M Gr. 2H	3/4" (H.D.G)
	8	HANDLE	2	SA-36M or EQUIV.	RB. ø16

NO	DD/MMM/YY	REVISIONS AND RECORD OF ISSUE	BY	DES	CHKD	PDE	APPD
0	30.OCT.18	ISSUE FOR CONSTRUCTION	YX	JON	AD		

OWNER: PT.Bhumi Jati Power

PROJECT TITLE: TANJUNG JATI B EXPANSION (JAWA-4)
COAL FIRED STEAM POWER PLANT 2 x 1,000 MW

OWNER'S ENGINEER: PÖYRY

EPC CONTRACTORS: Sumitomo Corporation; PT. Wasa Mitra Engineering; AvantPower Japan Ltd.

VESB DRAWING NO.: DWG-5680 (2 of 3)
VESB JOB NO.: V5377

ENGINEERING & FABRICATOR:
VESSELTECH ENGINEERING SDN. BHD.(313872-T)
LOT 1779, JALAN KPB 4, BUKIT BELIMBING, BALAKONG
43300 SERI KEMBANGAN, SELANGOR DARUL EHSAN.
TEL : 603-8961 3209, FAX : 603-8961 2807.

PROJECT DRAWING NO.: TJB56-L3-OFF-C-GNB-M-DGA-0011
REV.: 0

NOZZLE OUTLINE DETAIL DRAWING FOR ACID STORAGE TANK

APPD/ENGR	ANDREW	BY	NANIE	UNITS	VIEW
CHKD	JON	DD/MMM/YY	25.10.2017	MM/M	89/MM/93/36

EPC LOT3 SUB-CONTRACTOR: BLACK & VEATCH
SPEC NAME: AMMONIA REMOVAL SYSTEM
SPEC NO.: 179956.65.2101
EPC LOT3 SUB-CONTRACTOR DRAWING NO.: GNB-M-DGA-0011
SHEET NO. 2 OF 3
REV. 0

BOLDSTEAD SALOON WATER SOLUTIONS

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