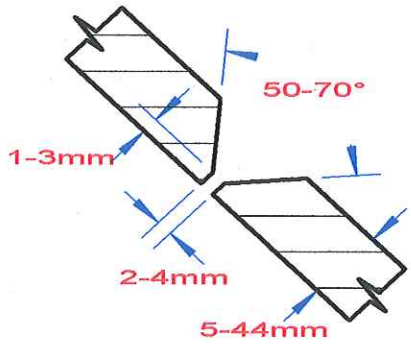
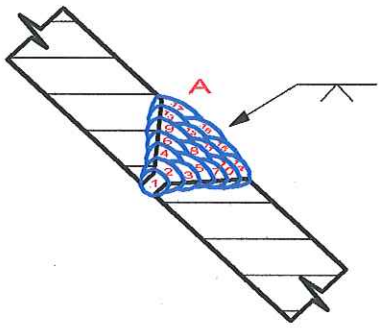
WELDING PROCEDURE SPECIFICATION

TWE PTY LTD

WPS No:	TWE-WPS-013	DATE:	1st Sept 2008	PAGE: 1	REV:No: 1
WELDING CODE:	AS/NZS3992 & ASME IX			MATERIAL GROUP:	D2, Group 1& P91
WELDING PROCESS:	Arc Welding (GTAW root) & (MMAW fill)			EDGE PREPARATION:	Machined & Grind
JOINT TYPE:	Single Vee Butt Weld			HEAT TREATMENT:	Yes (see below)
JOINT POSITION:	All Positions			WPS No:	TWE-PQR-013





JOINT DETAIL WELD SEQUENCE

JOINT TOLERANCES	
ROOT GAP:	2mm-4mm
ROOT FACE:	1mm-3mm
GROOVE ANGLE:	50-70 degrees
MATERIAL SPECIFICATION	
MTL:GR 1:	ASTM A335 -P91
MTL:GR 2:	ASTM A335 -P91
THICKNESS & DIA:	21.95(WT) &150nb
THICK RANGE QUAL:	5mm-44mm
DIA RANGE QUAL:	All diameters
THERMAL TREATMENT	
PREHEAT METHOD:	Heat Beads
PREHEAT TEMP:	200 degrees
MAX INTERPASS:	300 degrees
P.W.H.T:	Yes (see below)

WELD PASS DETAILS		ELECTRODE DESCRIPTION			WELDING PARAMETERS				BACK GOUGE	INTER PASS	HEAT INPUT
No	SIDE	POS	DIA	TYPE	AMPS	VOLTS	POL	SPD-mm/min	TECH	TEMP Oc	KJ/mm
1	A	6G	2.4mm	ER90S-B9	*95-115	*9v-12v	DC-	*50-70mm/min	n/a	300 max	0.6-2.0
2	A	6G	3.2mm	ER90S-B9	*145-165	*11v-13v	DC-	*50-70mm/min	n/a	300 max	1.0-3.4
3,4	A	6G	2.5mm	E9015-B9	*80-110	*23v-25v	DC+	*75-95mm/min	n/a	300 max	0.8-2.7
5,6	A	6G	3.2mm	E9015-B9	*120-140	*24v-26v	DC+	*80-99mm/min	n/a	300 max	1.1-3.8
7,9	A	6G	4.0mm	E9015-B9	*140-160	25v-27v	DC+	*75-95mm/min	n/a	300 max	1.4-5.0
10,13	A	6G	4.0mm	E9015-B9	*140-160	25v-27v	DC+	*80-99mm/min	n/a	300 max	1.3-4.5
14,17	A	6G	3.2mm	E9015-B9	*118-130	*24v-26v	DC+	*115-130 mm	n/a	300 max	0.8-2.7

TEST PLATE IDENTIFICATION		CONSUMABLE DETAILS		TEST REQUIREMENTS	
TEST DATE:	27/07/2007	ELEC TYPE:	ER90S-B9	PEARLSTREET ETRS	
WELDER:	Kye Hong Lee	DIAMETER:	2.4mm	VISUAL:	100%
ID:	KHL	CLASSIFICATION:	AS1167.2-RB9	MAGNETIC PARTICLE	27074204 M
WELDERS:	AS1796 No:7&4	CLASSIFICATION:	E9015-B9	ULTRASONIC:	27074204 UF
	or RT to Qualify	SHIELDING GAS:	Argon	MECHANICAL TESTS:	27074204.1 & 2
	additional Welders	FLOW RATE:	12 litres/min	HARDNESS REPORT:	27074204 H
*HEAT TREATMENT		PURGING GAS:	Argon	HEAT TREATMENT:	27074204
BAKE OUT:	300degC x 2 hrs	FLOW RATE:	5 litres/min	STORK COOPERHEAT	
PWHT:	760 deg C	CUP SIZE:	12mm	MAGNETIC PARTICLE	S/07/03461
SOAK TIME:	150 minutes	TUNGSTEN:	2.4m, 2%Thoriated	HEAT TREATMENT:	S/3461

GENERAL NOTES:

1. Remove all oxides and mill scale prior to any welding
2. Striking of the arc shall only be done within the confines of the joint design only.
3. This procedure may vary due to the fabrication sequence provided its within the variables of clauses Section 5 Table 5.1
4. *Heat treatment shall be be conducted using Furnace Heat treatment method with use of thermocouples. and in conjuntion with AS4458 & ASME 31.1
5. This Procedure is a Dual Qualification along with TENIX Welding Procedure No: TAPQR-008
6. *These Amps, Volts, and Travel speeds are guides only, and can be changed provided they are within the Heat Input Values -50%>+80% listed in column 12 of the PQR.

PREPARED BY: Alan Pohl	APPROVED BY: Alan Pohl	SIGNATURE: