APPENDIX E

TASK 3 - BEAD ON PIPE WELDING DATA – WATER BACKING

BEAD ON PLATE															Weld Data										Back Surface Data								
																					Cooling Rate										Cooling Rate		
Weld	Thickness	Process	Dia	Electrode	Position	Gas	WFS	Amps	Volts	TRIM	Arc Control	ESO	TS	HI	Max. T	Time to Max T	Time to 1000C	Time to 800C	Time to 500C	Time to 100C	ΔT 8/5	ΔT 1000-100 C	ΔT Peak- 100C	Slope at 540C	Max. T	Time to Max T	Time to 800C	Time to 500C	Time to 100C	ΔT 8/5	ΔT Peak- 100C	Slope at 540C
													ipm	kJ/mm	deg C	Sec		Sec	Sec	Sec			Sec	degC/sec	deg C	Sec	Sec	Sec	Sec			degC/sec
FW4	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	12.5	0.35	1255.5	76.56	77.44	78.24	81.4	106.24	3.2	28.8	29.68	-63.3	482.6	80.52	0	0	102.28	0	21.76	0
FW5	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	8.5	0.53	1255.7	62.8	64.12	65.44	69.56	102.04	4.1	37.9	39.24	-50.8	540	68.64	0	71	102	71	33.36	-51
FW6	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	6.0	0.74	1255.9	58.44	60.84	62.28	68.44	111.84	6.2	51.0	53.4	-33.0	600	67.12	0	73.76	109.2	73.76	42.08	-18
FW7	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	3.5	1.29	1256	56.56	59.52	61.32	72.24	120.96	10.9	61.4	64.4	-17.2	681.4	68.12	0	83.16	119.32	83.16	51.2	-7
FW8	6.4	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	11.0	0.53	1254.9	90.44	91.72	92.92	99.52	133.36	6.6	41.6	42.92	-27.2	657.9	94.8	0	102.12	134.4	102.12	39.6	-22
FW9	6.4	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	4.5	1.29	1255.1	78	79.36	85.4	101.44	146.2	16.0	66.8	68.2	-13.6	701.2	79.92	0	93.36	142.36	93.36	62.44	-21
FW10	8	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	11.0	0.53	1263.1	104.15	105.8	107.45	113.55	147.5	6.1	41.7	43.35	-44.4	531.9	111.55	0	114.15	150.5	114.15	38.95	0
FW11	8	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	4.5	1.29	1264.7	102.25	106.35	109.65	115.4	138.75	5.8	32.4	36.5	-40.7	594	111.95	0	119.3	154.75	119.3	42.8	0
FW12	6.4	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	14.0	0.35	1255.2	66.2	67.36	68.36	71.48	101.16	3.1	33.8	34.96	-64.8	510.4	71.76	0	72.6	101.92	72.6	30.16	0
FW14	11	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	10.5	0.53	1258.3	34.55	36.2	37.5	41.05	124.65	3.6	88.5	90.1	-59.2	342.2	43.6	0	0	126.8	0	83.2	0
FW15	11	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	4..5	1.29	1258.5	80.3	84.15	86.5	92.75	138.95	6.3	54.8	58.65	-57.4	465.6	93.65	0	0	147.2	0	53.55	0
FW23	6.4	GMAW - RMD	1.2	K-NOVA	FLAT	C10	160	170	17	85	5	13	13.0	0.53	1254.9	61.44	63.44	65.48	72.28	107.44	6.8	44.0	46	-27.9	559.4	66.76	0	71.24	107.48	71.24	40.72	-37
FW24	6.4	GMAW - RMD	1.2	K-NOVA	FLAT	C10	160	170	17	85	5	13	5.5	1.29	1168	40.76	41.72	44.32	59.6	102.52	15.3	60.8	61.76	-13.0	770.2	48.24	0	62.16	99.68	62.16	51.44	-11
FW28	6.4	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	5.5	0.53	1255.3	82.68	83.84	85.2	90.76	127	5.6	43.2	44.32	-36.25	536.3	89.76	0	92.44	124.8	92.44	35.04	0
FW29	6.4	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	2.5	1.29	1239.6	92.72	98.56	103.12	127.76	172.92	24.6	74.4	80.2	-9.25	752.2	107.96	0	135.48	168.68	135.48	60.72	-9
FW30	8	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	7.5	0.53	1265	31.15	32.95	34.45	38.35	73.3	3.9	40.4	42.15	-48.7	482.4	37.45	0	0	71.85	0	34.4	0
FW31	8	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	3.0	1.29	1264.9	73.7	81.65	88.1	112.4	160.75	24.3	79.1	87.05	-7.9	755.6	90.3	0	0	161.45	0	71.15	-7
FW32	11	P-GMAW	0.9	ER70XTi	FLAT	C10	200	100	20.5	51	45	13	7.5	0.53	1257.8	59.3	60.2	62.2	65.25	120.85	3.1	60.6	61.55	-75.1	311.9	68.85	0	0	120.1	0	51.25	0
FW33	11	P-GMAW	0.9	ER70XTi	FLAT	C10	200	100	20.5	51	45	13	3.0	1.29	1256	61.15	63.65	67.2	74.55	132.5	7.3	68.9	71.35	-33.2	473.6	75.35	0	0	133.55	0	58.2	0
FW50	6.4	GS-FCAW	1.2	DS II 71T-12	FLAT	C25	325	200	25.5	NA	NA	19	11.00	1.06	936.2	86.16	x	87.76	102.2	136.8	14.4	x	50.68	-19.9	729.7	92.92	0	106.48	132.92	106.48	40	-14
FW51	6.4	GS-FCAW	1.2	DS II 71T-12	FLAT	C25	285	175	24.5	NA	NA	19	8.00	1.29	1254.6	57.76	59.88	63.76	79.96	118.9	16.2	59.0	61.12	-11.5	766.4	66.4	0	86.32	111.36	86.32	44.96	-10
FW52	8	GS-FCAW	1.2	DS II 71T-12	FLAT	C25	325	200	25.5	NA	NA	19	11.00	1.06	1262.3	28.9	30.65	31.35	37.5	100.0	6.2	69.4	71.1	-22.2	639.3	34.65	0	40.85	84.45	40.85	49.8	-2
FW53	8	GS-FCAW	1.2	DS II 71T-12	FLAT	C25	285	175	24.5	NA	NA	19	8.00	1.29	1264.2	142.9	146.65	150.6	174	348.3	23.4	201.7	205.4	-10.3	752.1	151.15	0	175.9	343.05	175.9	191.9	-8
FW54	11	GS-FCAW	1.2	DSII 80T1-Ni1	FLAT	C25	375	225	26.5	NA	NA	19	11.00	1.29	1257.9	41.55	44.85	47.8	55.5	107.0	7.7	62.2	65.45	-28.6	511.6	52.25	0	54.8	112.1	54.8	59.85	0
FW55	11	GS-FCAW	1.2	DSII 80T1-Ni1	FLAT	C25	375	225	26.5	NA	NA	19	7.00	1.99	1258.4	60.45	65.65	69.2	97.1	216.3	27.9	150.6	155.8	-6.3	606.6	74.15	0	94.85	222.55	94.85	148.4	-3
FW60	6.4	MCAW	1.2	MC70	FLAT	C10	200	140	20.5	48	32	13	13.00	0.52	1144.6	58.28	60.2	61.92	69.4	105.0	7.5	44.8	46.72	-22.4	663.8	63.84	0	70.6	104.44	70.6	40.6	-25
FW61	6.4	MCAW	1.2	MC70	FLAT	C10	200	140	20.5	48	32	13	5.25	1.29	1253.5	81.88	86.44	91.28	112.2	166.8	20.9	80.32	84.88	-11.4	856.9	92.92	95.72	119.44	165.32	23.72	72.4	-8
FW62	8	MCAW	1.2	MC70	FLAT	C10	200	140	20.5	48	32	13	13.00	0.52	1263.1	48.6	49.8	51.35	54.9	89.1	3.6	39.3	40.5	-66.6	483.7	53.5	0	0	89.55	0	36.05	0
FW63	8	MCAW	1.2	MC70	FLAT	C10	200	140	20.5	48	32	13	5.25	1.29	1262.4	72.9	77.75	81.6	91.25	133.3	9.7	55.5	60.35	-25.8	702.6	83.85	0	0	135.35	0	51.5	-20
FW64	11	MCAW	1.2	MC100	FLAT	C10	200	140	20.5	48	32	13	13.00	0.52	1257.6	49.85	50.8	52.05	54.05	110.1	2.0	59.25	60.2	-81.1	254.2	57.15	0	0	110.2	0	53.05	0
FW65	11	MCAW	1.2	MC100	FLAT	C10	200	140	20.5	48	32	13	5.25	1.29	1257.9	131.4	135.55	138.55	149.15	240.0	10.6	104.4	108.55	-18.2	508	145.4	0	0	234.55	0	89.15	0

Mandar:
1000C not reached