

APPENDIX I

TASK 7 – BEAD ON PIPE WELDING DATA – WATER MIST SPRAY

BEAD ON PLATE														Weld Data														Back Surface Data													
Weld	Thickness	Process	Dia	Electrode	Position	Gas	WFS	Amps	Volts	TRIM	Arc Control	ESO	TS	HI	Cooling Rate										Max. T	Time to Max T	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
															deg C	Sec	Sec	Sec	Sec	Sec	degC/sec	deg C	Sec	Sec																	
WMS1	3.2	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	13.0	0.35	1258	18.28	19.27	21.1	25.82	66.38	4.72	47.11	48.1	-51	992.9	17.16	18.75	23.87	62.07	5.12	44.91	-61	992.9	17.16	18.75	23.87	62.07	5.12	44.91	-61	
WMS2	3.2	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	8.5	0.53	1256.2	26.81	30.07	32.49	39.54	136.59	7.05	106.52	109.78	-31	960.6	26.36	28.99	36.9	129.22	7.91	102.86	-37.5	960.6	26.36	28.99	36.9	129.22	7.91	102.86	-37.5	
WMS3	3.2	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	6.0	0.74	1261.8	69.61	75.95	81.11	93.09	186.5	11.98	110.55	116.89	-23	1261.9	68.65	75.63	87.52	181.91	11.89	113.26	-23.5	1261.9	68.65	75.63	87.52	181.91	11.89	113.26	-23.5	
WMS4	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	12.5	0.35	1258.7	35.08	35.49	36.22	38.75	96.78	2.53	61.29	61.7	-80	462.8	35.58	0	0	89.92	0	54.34	0	462.8	35.58	0	0	89.92	0	54.34	0	
WMS5	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	8.5	0.53	1263.2	50.74	51.73	52.82	58.32	141.95	5.5	90.22	91.21	-37.5	544.3	51.78	0	54.02	131.18	0	79.4	-190	544.3	51.78	0	54.02	131.18	0	79.4	-190	
WMS6	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	6.0	0.74	1019.6	55.03	55.39	59.65	70.69	162.84	11.04	107.45	107.81	-23.5	673.2	55.87	0	66.11	154.03	0	98.16	-32	673.2	55.87	0	66.11	154.03	0	98.16	-32	
WMS7	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	3.5	1.29	1161.8	83.7	90.07	97.63	117.8	205.39	20.17	115.32	121.69	-17	724.9	84.47	0	102.74	197.56	0	113.09	-21	724.9	84.47	0	102.74	197.56	0	113.09	-21	
WMS8	6.4	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	11.0	0.53	1250.9	22.38	24.96	25.39	30.55	97.42	5.16	72.46	75.04	-31	580.1	21.23	0	25.18	94.64	0	73.41	-0.5	580.1	21.23	0	25.18	94.64	0	73.41	-0.5	
WMS9	6.4	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	4.5	1.29	1255.3	52.08	55.26	60.63	77.38	206.2	16.75	150.94	154.12	-2.5	792.9	62.52	0	81.61	203.39	0	140.87	-17.5	792.9	62.52	0	81.61	203.39	0	140.87	-17.5	
WMS10	8	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	11.0	0.53	1258.9	36.69	38.17	39.77	43.36	108.82	3.59	70.65	72.13	-57	479.5	39.25	0	0	102.01	0	62.76	0	479.5	39.25	0	0	102.01	0	62.76	0	
WMS11	8	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	4.5	1.29	1261.7	66.16	69.34	74.96	90.7	204.93	15.74	135.59	138.77	-17.5	677.8	69.39	0	84.99	203.63	0	134.24	-26	677.8	69.39	0	84.99	203.63	0	134.24	-26	
WMS12	6.4	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	14.0	0.35	1259	34.95	35.91	37.11	41.18	106.97	4.07	71.06	72.02	-55	541.1	37.22	0	39.14	102.39	0	65.17	-116	541.1	37.22	0	39.14	102.39	0	65.17	-116	
WMS14	11	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	10.5	0.53	1262	33.57	35.02	36.29	39.5	117.62	3.21	82.6	84.05	-66.5	329.9	37.69	0	0	105.39	0	67.7	0	329.9	37.69	0	0	105.39	0	67.7	0	
WMS15	11	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	4.5	1.29	1261.9	57.82	60.91	64.89	77.45	232.8	12.56	171.89	174.98	-11.5	502.1	64.14	0	64.21	217.46	0	153.32	0	502.1	64.14	0	64.21	217.46	0	153.32	0	
WMS16	16.1	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	10.5	0.53	1259.6	39.64	40.56	42.3	45.49	101.75	3.19	61.19	62.11	-66.5	184.2	47.95	0	0	87.03	0	39.08	0	184.2	47.95	0	0	87.03	0	39.08	0	
WMS17	16.1	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	4.5	1.29	1258.9	58.19	59.9	62.12	67.48	204.36	5.36	144.46	146.17	-57	301.5	67.89	0	0	182.95	0	115.06	0	301.5	67.89	0	0	182.95	0	115.06	0	
WMS18	19.1	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	10.5	0.53	1265.9	43.76	44.1	44.51	47.23	87.64	2.72	43.54	43.88	-60.5	149.5	53.26	0	0	76.77	0	23.51	0	149.5	53.26	0	0	76.77	0	23.51	0	
WMS19	19.1	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	4.5	1.29	1265.7	56.49	59.79	64.65	71.27	177.76	6.62	117.97	121.27	-34	241.3	69.48	0	0	154.02	0	84.54	0	241.3	69.48	0	0	154.02	0	84.54	0	
WMS20	3.2	GMAW - RMD	1.2	K-NOVA	FLAT	C10	100	130	17	85	5	13	27.5	0.19	1259.9	11.71	12.48	12.93	14.84	41.27	1.91	28.79	29.56	-91.5	603.1	11.52	0	13.03	18.57	0	7.05	-481.5	603.1	11.52	0	13.03	18.57	0	7.05	-481.5	
WMS21	3.2	GMAW - RMD	1.2	K-NOVA	FLAT	C10	100	130	17	85	5	13	15.0	0.35	1259.5	16.79	18.85	20.21	24.62	79.29	4.41	60.44	62.5	-17.5	945	16.39	18.31	23.69	29.31	5.38	12.92	-88.5	945	16.39	18.31	23.69	29.31	5.38	12.92	-88.5	
WMS22	3.2	GMAW - RMD	1.2	K-NOVA	FLAT	C10	100	130	17	85	5	13	10.0	0.53	1259.1	22.97	26.39	28.59	35.43	113.64	6.84	87.25	90.67	-31.5	1198.6	22.2	27.4	35.41	118.77	8.01	96.57	-29	1198.6	22.2	27.4	35.41	118.77	8.01	96.57	-29	
WMS23	6.4	GMAW - RMD	1.2	K-NOVA	FLAT	C10	160	170	17	85	5	13	13.0	0.53	1264.1	23.59	24.29	25.86	32.11	110.26	6.25	85.97	86.67	-32	622.6	25.03	0	29.87	101.21	0	76.18	-46	622.6	25.03	0	29.87	101.21	0	76.18	-46	
WMS24	6.4	GMAW - RMD	1.2	K-NOVA	FLAT	C10	160	170	17	85	5	13	5.5	1.29	1264.1	44.85	54.13	60.65	88.46	201.21	27.81	147.08	156.36	-8.5	518.9	47.74	0	48.44	176.56	0	128.82	0	518.9	47.74	0	48.44	176.56	0	128.82	0	
WMS25	3.2	P-GMAW	0.9	K-NOVA	FLAT	C10	150	70	18	42	45	13	15.5	0.19	1260.1	19.73	20.48	21.15	24.15	60.33	3	39.85	40.6	-71.5	721.3	19.25	0	22.6	30.22	0	10.97	0	721.3	19.25	0	22.6	30.22	0	10.97	0	
WMS26	3.2	P-GMAW	0.9	K-NOVA	FLAT	C10	150	70	18	42	45	13	8.5	0.35	1260.4	25.66	28.94	30.74	37.05	108.67	6.31	79.73	83.01	-46	1027.3	25.23	28.75	35.43	45.5	6.68	20.27	-22.5	1027.3	25.23	28.75	35.43	45.5	6.68	20.27	-22.5	
WMS27	3.2	P-GMAW	0.9	K-NOVA	FLAT	C10	150	70	18	42	45	13	5.5	0.53	1260.7	36.13	42.95	45.93	56.08	165.03	10.15	122.08	128.9	-48	1206.7	34.71	42.04	52.15	70.18	10.11	35.47	-5.5	1206.7	34.71	42.04	52.15	70.18	10.11	35.47	-5.5	
WMS28	6.4	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	9.0	0.53	1229.5	58.19	59.14	61.84	69.69	160.05	7.85	100.91	101.86	-26	618.5	58.58	0	65.31	148.81	0	90.23	-58.5	618.5	58.58	0	65.31	148.81	0	90.23	-58.5	
WMS29	6.4	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	9.0	1.29	1261.1	84.87	94.98	103.52	129.1	246.96	25.58	151.98	162.09	-11	830.2	82.99	86.64	113.81	231.83	27.17	148.84	-15	830.2	82.99	86.64	113.81	231.83	27.17	148.84	-15	
WMS30	8	P-GMAW	0.9	K-NO																																					