APPENDIX G

TASK 7 – BEAD ON PIPE WELDING DATA – FLOWING AIR

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		Sec	degC/sec
FA1	3.2	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	13.0	0.35	1258.5	33.07	35.19	37.1	42.67	116.01	5.57	80.82	82.94	-37.5	1119.8	31.56	34.81	41.07	109.06	6.26	77.5	-44
FA2	3.2	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	8.5	0.53	1259.8	32.83	35.77	38.64	46.37	159.07	7.73	123.3	126.24	-31	1091.7	31.38	35.1	43.62	150.97	8.52	119.59	-34.5
FA3	3.2	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	6.0	0.74	1259.4	41.96	48.39	51.95	62.35	198.16	10.4	149.77	156.2	-20.5	1255.1	42.06	48.99	59.84	195.42	10.85	153.36	-14
FA4	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	12.5	0.35	1253.9	30.58	31	30.98	35.25	112.77	4.27	81.77	82.19	-62.5	484	32.19	0	0	107.14	0	74.95	0
FA5	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	8.5	0.53	1254.8	65.22	66.34	68.12	73.29	171.51	5.17	105.17	106.29	-38	565.1	66.68	0	70.13	164.74	0	98.06	-101
FA6	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	6.0	0.74	1098	38.04	38.5	40.38	52.9	182.36	12.52	143.86	144.32	-20	584.1	40.19	0	46.23	164.7	0	124.51	-41
FA7	6.4	SMAW	2.4	718MC	FLAT	NA	NA	90	21	NA	10	NA	3.5	1.29	1254.3	57.03	64.77	69.74	90.68	215.93	20.94	151.16	158.9	-11	728.7	58.7	0	78.39	214.59	0	155.89	-12
FA8	6.4	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	11.0	0.53	1227.1	31.53	32.49	34.62	42.4	161.52	7.78	129.03	129.99	-31.5	621.6	32.1	0	38.51	155.13	38.51	123.03	-53
FA9	6.4	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	4.5	1.29	1256.5	49.52	56.17	63.33	90.19	278.04	26.86	221.87	228.52	-14.5	893.3	50.17	55.57	81.2	268.53	25.63	218.36	-5
FA10	8	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	11.0	0.53	1193.7	34.6	34.78	35.32	40.04	135.17	4.72	100.39	100.57	-40	451.3	36.76	0	0	129.81	0	93.05	0
FA11	8	SMAW	3.2	718MC	FLAT	NA	NA	120	20.5	NA	10	NA	4.5	1.29	1220.1	36.36	38.27	42.32	56.23	209.5	13.91	171.23	173.14	-14	627	38.8	0	48.12	197.25	0	158.45	-26
FA12	6.4	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	14.0	0.35	1258.8	35.98	36.8	38.11	42.52	126.6	4.41	89.8	90.62	-52	564.9	37.74	0	40.44	124.06	0	86.32	-99.5
FA14	11	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	10.5	0.53	1054	31.56	31.93	33.3	37.08	137.14	3.78	105.21	105.58	-64.5	335.8	36.5	0	0	127.57	0	91.07	0
FA15	11	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	4.5	1.29	1254.2	41.26	45.14	47.82	57.49	234.36	9.67	189.22	193.1	-26	486	56.81	0	0	222.29	0	165.48	0
FA16	16.1	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	10.5	0.53	1257.4	26.41	27.65	29.09	32.04	92.53	2.95	64.88	66.12	-74	192.7	34.96	0	0	81.68	0	46.72	0
FA17	16.1	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	4.5	1.29	1261.6	44.97	49.05	52.14	59.36	217.89	7.22	168.84	172.92	-34.5	303	55.45	0	0	196.35	0	140.9	0
FA18	19.1	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	10.5	0.53	1259	38.12	39.12	40.55	42.99	82.36	2.44	43.24	44.24	-98	148.3	47.37	0	0	73.1	0	25.73	0
FA19	19.1	SMAW	3.2	AtomArc 10018-M1	FLAT	NA	NA	120	20	NA	10	NA	4.5	1.29	1255.3	47.35	48.82	49.9	60.03	173.13	10.13	124.31	125.78	-23	247.9	62.33	0	0	154.57	0	92.24	0
FA20	3.2	GMAW - RMD	1.2	K-NOVA	FLAT	C10	100	130	17	85	5	13	27.5	0.19	1257.3	15.54	16.23	16.8	19.2	47.89	2.4	31.66	32.35	-86.5	811.9	15.72	15.8	18.78	45.59	2.98	29.87	-100.5
FA21	3.2	GMAW - RMD	1.2	K-NOVA	FLAT	C10	100	130	17	85	5	13	15.0	0.35	1257.5	21.83	23.98	25.64	30.77	81.16	5.13	57.18	59.33	-45.5	1055.9	21.84	24.43	29.91	79.64	5.48	57.8	-45
FA22	3.2	GMAW - RMD	1.2	K-NOVA	FLAT	C10	100	130	17	85	5	13	10.0	0.53	1259.5	41.96	42.13	42.28	42.92	91.32	0.64	49.19	49.36	-318	1259.4	41.07	47.58	55.81	0	8.23	0	-3.5
FA23	6.4	GMAW - RMD	1.2	K-NOVA	FLAT	C10	160	170	17	85	5	13	13.0	0.53	1253.6	23.35	24.4	26.35	32.3	147.58	5.95	123.18	124.23	-32	556	25.68	0	28.89	138.17	0	112.49	-91.5
FA24	6.4	GMAW - RMD	1.2	K-NOVA	FLAT	C10	160	170	17	85	5	13	5.5	1.29	1028.3	75.22	82	89.46	114.78	296.82	25.32	214.82	221.6	-3	911.2	77.64	84.12	108.31	289.05	24.19	211.41	-5.5
FA25	3.2	P-GMAW	0.9	K-NOVA	FLAT	C10	150	70	18	42	45	13	15.5	0.19	1097.3	25.6	26.02	26.95	30.34	73.66	3.39	47.64	48.06	-27	811.4	25.17	25.46	29.44	70.17	3.98	45	-74.5
FA26	3.2	P-GMAW	0.9	K-NOVA	FLAT	C10	150	70	18	42	45	13	8.5	0.35	1257.3	32.45	35.63	37.67	44.57	138.07	6.9	102.44	105.62	-37	987.4	31.35	34.53	41.65	131.15	7.12	99.8	-46
FA27	3.2	P-GMAW	0.9	K-NOVA	FLAT	C10	150	70	18	42	45	13	5.5	0.53	1257.8	43.89	50.23	53.62	64.59	191.8	10.97	141.57	147.91	-23	1113.8	43.31	49.49	60.17	185.6	10.68	142.29	-25.5
FA28	6.4	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	9.0	0.53	1213.2	43.15	44.24	46.69	54.45	195.12	7.76	150.88	151.97	-25.5	612.1	44.92	0	51.18	185.44	0	140.52	-43
FA29	6.4	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	9.0	1.29	1255.4	74.81	84.92	93.99	120.78	332.01	26.79	247.09	257.2	-8	715.5	80.4	0	104.43	325.47	0	245.07	-20
FA30	8	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	3.8	0.53	1239.3	33.5	34.66	34.98	41.49	167.13	6.51	132.47	133.63	-28	479.3	34.94	0	0	147.98	0	113.04	0
FA31	8	P-GMAW	0.9	K-NOVA	FLAT	C10	200	100	20.5	51	45	13	9.0	1.29	1055.6	71.31	75	85.39	108.77	333.83	23.38	258.83	262.52	-9	725.6	73.29	0	96.87	320.48	0	247.19	-17.5
FA32	11	P-GMAW	0.9	ER70XTi	FLAT	C10	200	100	20.5	51	45	13	3.8	0.53	1174.3	30.38	31.35	32.94	36.43	141.36	3.49	110.01	110.98	-68.5	346.6	33.08	0	0	126.95	0	93.87	0
FA33	11	P-GMAW	0.9	ER70XTi	FLAT	C10	200	100	20.5	51	45	13	9.0	1.29	1112.2	76.28	79	85.57	107.83	359.35	22.26	280.35	283.07	-11	524.3	83.81	0	90.93	339.63	0	255.82	0
FA34	16.1	P-GMAW	0.9	ER70XTi	FLAT	C10	200	100	20.5	51	45	13	3.8	0.53	1259.6	34.06	35.06	36.78	40.01	119	3.23	83.94	84.94	-65.5	205.6	44.04	0	0	105.98	0	61.94	0
FA35	16.1	P-GMAW	0.9	ER70XTi	FLAT	C10	200	100	20.5	51	45	13	9.0	1.29	1256.7	65.48	69.64	76.15	84.02	262.62	7.87	192.98	197.14	-37.5	318.5	77.49	0	0	244.55	0	167.06	0
FA36	19.1	P-GMAW	0.9	ER70XTi	FLAT	C10	200	100	20.5	51	45	13	3.8	0.53	1006.4	35.03	35	35.68	38.5	85.99	2.82	50.99	50.96	-71.5	156.8	44.36	0	0	76.19	0	31.83	0
FA37	19.1	P-GMAW	0.9	ER70XTi	FLAT	C10	200	100	20.5	51	45	13	9.0	1.29	1256.7	61.81	64.29	72.2	81.89	241.24	9.69	176.95	179.43	-22.5	259.8	76.26	0	0	218.63	0	142.37	0
FA38	6.4	SS-FCAW	2.0	FABSHIELD 71K6	FLAT	NA	75	200	18	NA	NA	28	3.8	1.06	1255.9	29.27	38.26	43.33	67.06	246.94	23.73	208.68	217.67	-12	1028	32	39.04	62.15	239.21	23.11	207.21	-11
FA39	6.4	SS-FCAW	2.0	FABSHIELD 71K6	FLAT	NA	75	200	18	NA	NA	28	6.5	1.29	1185.8	47.06	52.82	59.63	93.42	313.87	33.79	261.05	266.81	-5.5	1071.8	44.88	55.33	87.29	303.77	31.96	258.89	-8.5
FA40	8	SS-FCAW	2.0	FABSHIELD 71K6	FLAT	NA	125	280	19	NA	NA	32	12.0	1.06	1257.3	25.94	58.5	31.02	48.51	234.47	17.49	175.97	208.53	-9	737.9	29.25	0	45.31	227.96	0	198.71	-20
FA41	8	SS-FCAW	2.0	FABSHIELD 71K6	FLAT	NA	125	280	19	NA	NA	32	9.5	1.29	1257.8	38.18	44	49.98	75.17	285.84	25.19	241.84	247.66	-9	846.7	42.41	45.59	71.46	282.66	25.87	240.25	-9
FA44	11	SS-FCAW	2.0	FABSHIELD 81N2	FLAT	NA	150	310	19	NA	NA	32	11.0	1.29	1257.8	29.01	31	30.8	51.01	264.79	20.21	233.79	235.78	-13.5	608.7	35.42	0	46.49	252.53	0	217.11	-16.5
FA45	11	SS-FCAW	2.0	FABSHIELD 81N2	FLAT	NA	150	310	19	NA	NA	32	7.0	1.99	1256.2	39.86	47.5	57.49	96.79	403.6	39.3	356.1	363.74	-4.47	755.7	46.44	0	81.34	376.15	0	329.71	-6
FA46	16.1	SS-FCAW	2.0	FABSHIELD 81N2	FLAT	NA	150	310	19	NA	NA	32	11.0	1.29	1258.4	2.82	32.84	35	43.21	217.12	8.21	184.28	214.3	-20	368.8	38.11	0	0	202.83	0	164.72	0
FA47	16.1	SS-FCAW	2.0	FABSHIELD 81N2	FLAT	NA	150	310	19	NA	NA	32	7.0	1.99	1258.5	36.19	43.15	47.01	64.35	319.52	17.34	276.37	283.33	-9	476.8	48.67	0	0	303.12	0	254.45	0
FA48	19.1	SS-FCAW	2.0	FABSHIELD 81N2	FLAT	NA	150	310	19	NA	NA	32	11.0	1.29	1255.1	22.47	24.1	25.23	34.05	180.03	8.82	155.93	157.56	-43.5	283	36.62	0	0	163.55	0	126.93	0
FA49	19.1	SS-FCAW	2.0	FABSHIELD 81N2	FLAT	NA	150	310	19	NA	NA	32	7.0	1.99	1255.7	30.34	31.56	32.18	47.73	276.15	15.55	244.59	245.81	-17	369.4	45.51	0	0	253.33	0	207.82	0