BHEL TIRUCHY

SUMMARY LIST OF SITE ELECTRODES

PROJECT: BARH–2x660MW

CUSTOMER NO: 1700 & 1701

P:G: NO: 07

P.G. NAME: CIRCULATION SYSTEM

PRESSURE PARTS

SL. NO	TYPE OF ELECTRODE / WIRE	SIZE & QTY				TIG WIRE WT gm	REMARKS
		ø2.5	ø3.15	ø4.0	ø5.0		
01.	ER80S–B2					31188	
02	ER90S–B3					146213	
03	E8018–B2	61323	1650	3606			
04	E9018–B3	232133					
05	T23+T23(GTAW)					1836	
06	T23+T23(ARC)	2448	1020				

NOTES:–

1. RESERVE 50% ADDED.
2. QUANTITY GIVEN IS PER BOILER
3. THIS ERECTION WELDING SCHEDULE IS FOR REFERENCE PURPOSE ONLY.

ENCL : ERECTION WELDING SCHEDULE SHEETS
FROM 4–07–992–05064 TO 4–07–992–05068
&
4–07–992–05196 TO 4–07–992–05203

CC: 1. PROJECT CO–ORDINATOR/CONTRACTS:
2. SR.MANAGER/WTC
3. WELDING SCHEDULE FILE

PREPARED	CHECKED(DESIGNS)	APPROVED(WTC)	DRAWING NO.
R.SIVARAMAN	N.KIRUBAKARAN	G. SUBRAMANIAN	4–07–992–05063/01

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM

PAGE NO. : 1/5

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
01	WF–01(F–03+F04T1)	FUR.INTER FRONT HDR (NIPPLE) + FUR.FRONT VERT (TERM TUBES)	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8 V 408NOS	ER90SB3 2326	E 9018–B3 3672			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
02	WF–03(F–04T1+F–4F)	FUR.FRONT VERT (TERM TUBES) + FUR.VERT WALL FITTINGS	SA213 T22 + SA182F12CL2	ø38.1 + ø38.1	8.0	TIG ARC	8 V 408NOS	ER80SB2 2326	E 8018–B2 3672			1011/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
03	WF–04(F–02U+F–04U1)	FUR.FRONT VERT WALL TUBES + FUR.UPPER INTER FRONT FIN WELDED PANEL	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8 V 408NOS	ER90SB3 2326	E 9018–B3 3672			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
04	WF–05(F–04U1+F–04U)	FUR.UPPERE INTER FRONT FIN WELDED PANEL + FUR.UPPER FRONT FIN WELDED PANEL	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8 V 408NOS	ER90SB3 2326	E 9018–B3 3672			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
05	WF–06(F–04U+F–05)	FUR.UPPER FRONT FIN WELDED PANEL + FUR.UPPER FRONT OUTLET HDR (NIPPLE)	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8 V 408NOS	ER90SB3 2326	E 9018–B3 3672			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
06	WF–07(F–05+F–06)	FUR.UPPER FRONT OUTLET HDR (NOZZLE) + FUR.UPPER FRONT RISER PIPES	SA182F12CL2 + SA335 P12	ø219.1 + ø219.1	33.85	TIG ARC	33 W 4 NOS	ER80SB2 248	E 8018–B2 72	100	212	1010/05	150	655±15	85	100% RT 100% MPI/LPI	*	*	
07	WF–08(F–06+F–31)	FUR.UPPER FRONT RISER PIPES + SEPARATOR NOZZLE	SA335 P12 + SA182F22CL3	ø219.1 + ø219.1	33.35	TIG ARC	33 W 4 NOS	ER80SB2 248	E 8018–B2 72	100	212	1012/03	150	680 – 720	85	100% RT 100% MPI/LPI	*	*	
08	WF–10(GAMA PLUG)	GAMA PLUG	SA182F12CL2 + SA 335 P12			ARC	7 ◺ 8 NOS		E 8018–B2 18			1102/00	120			100% LPI/MPI/ SHIFT	*	*	
09	WF–11(F–03+F–02TO)	FUR.INTERMEDIATE FRONT HDR (NIPPLE) + FUR.UPPER FRONT SPRIAL TERM TUBES	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8 V 136NOS	ER90SB3 776	E 9018–B3 1224			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
10	WF–12(F–09+F–10T1)	FUR.INTERMEDIATE REAR HDR (NIPPLE) + FUR.REAR VERTICAL TERM TUBES	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8 V 408NOS	ER90SB3 2326	E 9018–B3 3672			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	24–08–10	4–07–992–05064	02

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Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME ; CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM

PAGE NO. : 2/5

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
11	WF–14(F–10T1+F–10F)	FUR.REAR VERTICAL TERM TUBES + FUR.VERTICAL WALL FITTINGS	SA213 T22 + SA182F12CL2	ø38.1 + ø38.1	8.0	TIG ARC	8 V 408NOS	ER80SB2 2326	E 8018–B2 3672			1011/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
12	WF–15(F–08U+F–11)	FUR.REARE VERTICAL WALL TUBES + FUR.REAR ARCH FIN WELDED PANEL	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8 V 408NOS	ER90SB3 2326	E 9018–B3 3672			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
13	WF–16(F–11+F–12)	FUR.REAR ARCH FIN WELDED PANEL + FUR.REAR SCREEN TUBES	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8 V 272NOS	ER90SB3 1550	E 9018–B3 2448			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
14	WF–17(F–11+F–13)	FUR.REAR ARCH FIN WELDED PANEL + FUR.REAR HANGER TUBES	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8 V 136NOS	ER90SB3 776	E 9018–B3 1224			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
15	WF–18(F–12+F–14)	FUR.REAR SCREEN TUBE + FUR.UPPER REAR OUTLET HDR (NIPPLE)	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8 V 272NOS	ER90SB3 1550	E 9018–B3 2448			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
16	WF–19(F–13+F–14)	FUR.REAR HANGER TUBES + FUR.UPPER REAR OUTLET HEADER (NIPPLE)	SA213 T23 + SA213 T23	ø57.2 + ø57.2	12.2	TIG ARC	12 V 136NOS	2CRWV 1224	E 9015–G(23) 1632	680		1052/00	150	720–745		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
17	WF–20(F–14+F–15)	FUR.UPPER REAR OUTLET HEADER(NOZZLE) + FUR.REAR RISER PIPES	SA182F22CL3 + SA335 P12	ø219.1 + ø219.1	33.8	TIG ARC	33 W 4 NOS	ER80SB2 248	E 8018–B2 72	100	220	1012/03	150	680–720	85	100% RT/ 100% MPI/LPI SHIFT	*	*	
18	WF–21(F–15+F–15)	FUR.REAR RISER PIPES + FUR.REAR RISER PIPES	SA335 P12 + SA335 P12	ø219.1 + ø219.1	33.8	TIG ARC	33 W 4 NOS	ER80SB2 248	E 8018–B2 72	100	220	1010/05	150	655±15	85	100% RT/ 100% MPI/LPI SHIFT	*	*	
19	WF–22(F–06+F–31)	FUR.REAR RISER PIPES + SEPARATOR NOZZLE	SA335 P12 + SA182F22CL3	ø219.1 + ø219.1	33.8	TIG ARC	33 W 4 NOS	ER80SB2 248	E 8018–B2 72	100	220	1012/03	150	680–720	85	100% RT/ 100% MPI/LPI SHIFT	*	*	
20	WF–24(GAMA PLUG)	GAMA PLUG	SA182F11CL2 + SA335 P12			ARC	7 ◺ 12 NOS		E 8018–B2 72			1102/00	120	–	–	100% MPI/LPI/ SHIFT	*	*	

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R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	24–08–10	4–07–992–05065	03

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Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM

PAGE NO. : 3/5

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	REMARKS
21	WF–25(F–09T+F–08TO)	FUR.INTERMEDIATE REAR HDR(NIPPLES) + FUR.UPPER REAR SPRIAL TERM TUBES	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8 V 136NOS	ER90SB3 776	E 9018–B3 1224			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
22	WF–26(F–18+F–19T1)	FUR.INTERMEDIATE (LH) SIDE HDR(NIPPLE) + FUR.(LH)SIDE VERT TERM TUBES	SA213 T22 + SA213 T22	ø38.1 + ø38.1	9.5	TIG ARC	9.5 V 366NOS	ER90SB3 1940	E 9018–B3 5490			1014/02	–	680–750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
23	WF–28(F–19T1+F–19F)	FUR.UPPER(LH) SIDE VERT TERMS TUBES + FUR.(LH) SIDE VERT WALL FITTINGS	SA213 T22 + SA182F12CL2	ø38.1 + ø38.1	9.5	TIG ARC	9.5 V 366NOS	ER80SB2 1940	E 8018–B2 5490			1012/03	–	680–720	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
24	WF–29(F–17U+F–19U1)	FUR.(LH) SIDE SPRIAL WALLL + FUR.UPPER INTER(LH) SIDE FIN WELDED PANEL	SA182F12CL2 + SA213 T22	ø38.1 + ø38.1	9.5	TIG ARC	9.5 V 366NOS	ER80SB2 1940	E 8018–B2 5490			1012/03	–	680–720	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
25	WF–32(F–19U1+F–19U)	FUR.UPPER INTER(LH) SIDE FIN WELDED PANEL + FUR.UPPER (LH) SIDE FIN WELDED PANEL	SA213 T22 + SA213 T22	ø38.1 + ø38.1	9.5	TIG ARC	9.5 V 366NOS	ER90SB3 1940	E 9018–B3 5490			1014/02	–	680–750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
26	WF–33(F–19U+F–20–1)	FUR.UPPER(LH) SIDE FIN WELDED PANELS + FUR.UPPER (LH) SIDE OUTLET HEADER (NIPPLE)	SA213 T22 + SA213 T22	ø38.1 + ø38.1	9.5	TIG ARC	9.5 V 366NOS	ER90SB3 1940	E 9018–B3 5490			1014/02	–	680–750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
27	WF–34(F–21–1+F–21)	FUR.UPPER (LH) SIDE OUTLETHDR(NOZZLE) + FUR.(LH) SIDE RISER PIPES	SA182F12CL2 + SA335 P12	ø219.1 + ø219.1	33.9	TIG ARC	33 W 4 NOS	ER80SB2 248	E 8018–B2 72	100	220	1010/05	150	655+15	85	100% RT/ 100% MPI/LPI SHIFT	*	*	
28	WF–35(F–21+F–21)	FUR(LH)SIDE RISER PIPES + FUR(LH)SIDE RISER PIPES	SA335 P12 + SA335 P12	ø219.1 + ø219.1	33.9	TIG ARC	33 W 2 NOS	ER80SB2 124	E 8018–B2 36	50	110	1010/05	150	655+15	85	100% RT/ 100% MPI/LPI SHIFT	*	*	
29	WF–36(F–21+F–21)	FUR(LH)SIDE RISER PIPES + FUR(LH)SIDE RISER PIPES ELBOW	SA335 P12 + SA234WP12CL1	ø219.1 + ø219.1	33.9	TIG ARC	33 W 3 NOS	ER80SB2 186	E 8018–B2 54	75	165	1010/05	150	655+15	85	100% RT/ 100% MPI/LPI SHIFT	*	*	
30	WF–37(F–21+F–31)	FUR.SIDE RISER PIPES + SEPARATOR NOZZLE	SA335 P12 + SA182F22CL3	ø219.1 + ø219.1	33.9	TIG ARC	33 W 4 NOS	ER80SB2 248	E 8018–B2 72	100	220	1012/03	150	680–720	85	100% RT/ 100% MPI/LPI SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	24–08–10	4–07–992–05066	01

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Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

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WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM

PAGE NO. : 4/5

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ELECTRODE FILLER SPEC. ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
31	WF–39(GAMA PLUG)	GAMA PLUG	SA182F12CL2 + SA335 P12			ARC	7 ◺		E 8018–B2			1102/05	120			100% MPI/LPI/ SHIFT	*	*	
							13 NOS		29										
32	WF–40(F–18+F–17TO)	FUR.INTERMEDIATE (LH) SIDE HDR(NIPPLE) + FUR.UPPER(LH)EDSIDE SPRIAL TERM TUBES	SA213 T22 + SA213 T22	ø38.1 + ø38.1	9.5	TIG ARC	9.5 V	ER90SB3	E 9018–B3			1014/02	–	680–750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
							122NOS	647	1830										
33	WF–41(F–18–2+F–19T1)	FUR.INTERMEDIATE(RH) SIDE HDR(NIPPLE) + FUR.(RH) SIDE VERTICAL TERM TUBES	SA213 T22 + SA213 T22	ø38.1 + ø38.1	9.5	TIG ARC	9.5 V	ER90SB3	E 9018–B3			1014/02	–	680–750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
							366NOS	1940	5490										
34	WF–43(F–19T1+F–19F)	FUR.(RH) SIDE VERTICAL TERM TUBES + FUR(RH)SIDE VERTICAL WALL FITTINGS	SA213 T22 + SA182F12CL2	ø38.1 + ø38.1	9.5	TIG ARC	9.5 V	ER80SB2	E 8018–B2			1012/03	–	680–720	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
							366NOS	1940	5490										
35	WF–44(F–19F+F–19U1)	FUR(RH) SIDE VERTICAL WALL FITTINGS + FUR.UPPER INTER(RH)SIDE FIN WELDED PANEL	SA182F12CL2 + SA213 T22	ø38.1 + ø38.1	9.5	TIG ARC	9.5 V	ER80SB2	E 8018–B2			1012/03	–	680–720	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
							366NOS	1940	5490										
36	WF–47(F–19U1+F–19U)	FUR.UPPER INTER(RH)SIDE FIN WELDED PANELS + FUR.UPPER (RH) SIDE FIN WELDED PANELS	SA213 T22 + SA213 T22	ø38.1 + ø38.1	9.5	TIG ARC	9.5 V	ER90SB3	E 9018–B3			1014/02	–	680–750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
							366NOS	1940	5490										
37	WF–48(F–19U+F–20–2)	FUR.UPPER (RH) SIDE FIN WELDED PANELS + FUR.UPPER(RH) SIDE OUTLET HEADER(NIPPLE)	SA213 T22 + SA213 T22	ø38.1 + ø38.1	9.5	TIG ARC	9.5 V	ER90SB3	E 9018–B3			1014/02	–	680–750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
							366NOS	1940	5490										
38	WF–49(F–20–2+F–21)	FUR.UPPER(RH) SIDE OUTLET HEADER(NOZZLE) + FUR(RH)SIDE RISER PIPES	SA182F12CL2 + SA335 P12	ø219.1 + ø219.1	33.9	TIG ARC	33 W	ER80SB2	E 8018–B2			1010/05	150	655±15	85	100% RT/ 100% MPI/LPI SHIFT	*	*	
							4 NOS	248	72	100	220								
39	WF–50(F–21+F–21)	FUR(RH)SIDE RISER PIPES + FUR(RH)SIDE RISER PIPES	SA335 P12 + SA335 P12	ø219.1 + ø219.1	33.9	TIG ARC	33 W	ER80SB2	E 8018–B2			1010/05	150	655+15	85	100% RT/ 100% MPI/LPI SHIFT	*	*	
							3 NOS	186	54	75	165								
40	WF–51(F–21+F–21)	FUR.SIDE RISER PIPES + FUR(RH)SIDE RISER PIPES ELBOW	SA335 P12 + SA234WP12CL1	ø219.1 + ø219.1	33.9	TIG ARC	33 W	ER80SB2	E 8018–B2			1010/05	150	655±15	85	100% RT/ 100% MPI/LPI SHIFT	*	*	
							4 NOS	248	72	100	220								

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	24–08–10	4–07–992–05067	04

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

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WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM

PAGE NO. : 5/5

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC.				WPS NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT		NDT METHOD / QUANTUM	REF.		RE–MARKS
				SIZE	THICK			TIG	ARC SPEC.					TEMP. °C	HOLD. TIME		SPEC. NO.	ACC NORM REF	
							QTY	QTY	ø2.5	ø3.15	ø4.0	REV. NO.							
41	WF–54(GAMA PLUG)	GAMA PLUG	SA182F12CL2 + SA335 P12			ARC	7 ◺		E 8018–B2			1102/05	120			100% MPI/LPI/ SHIFT	*	*	
							13 NOS		29										
42	WF–55(F–18–2+F–17TO)	FUR.INTERMEDIATE (RH) SIDE HDR(NIPPLE) + FUR.UPPER(RH)SIDE SPRIAL TERM TUBES	SA213 T22 + SA213 T22	ø38.1 + ø38.1	7.1	TIG ARC	7.1 V	ER90SB3	E 9018–B3			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
							122NOS	769	1098										
43	F–19U	FIN + FIN	SA387GR12CL2 + SA387GR12CL2		6 + 6	ARC	6.0 V		E 8018–B2			1205/02	125			10% MPI/LPI/ SHIFT	*	*	NON–PR.PARTS WELD
44	F–04U	LUG.PLATE + COLLECTOR .PLATE	SA387GR12CL2 + SA387GR12CL2		6 + 45	ARC			E 8018–B2			1205/02	125			10% MPI/LPI/ SHIFT	*	*	NON–PR.PARTS WELD
45	F–19U	LUG.PLATE + COLLECTOR .PLATE	SA387GR12CL2 + SA387GR12CL2		6 + 36	ARC			E 8018–B2			1205/02	125			10% MPI/LPI/ SHIFT	*	*	NON–PR.PARTS WELD
46	S–21	LUG.PLATE + COLLECTOR .PLATE	SA387GR12CL2 + SA387GR12CL2		6 + 25	ARC			E 8018–B2			1205/02	125			10% MPI/LPI/ SHIFT	*	*	NON–PR.PARTS WELD

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	24–08–10	4–07–992–05068	02

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. : 00

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM(SPIRAL)

PAGE NO. : 1/8

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. TIG	ARC SPEC. QTY ø2.5	ARC SPEC. QTY ø3.15	ARC SPEC. QTY ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
							QTY	QTY											
01	WF–01(F–02U+FC1)	SPIRAL/VERT TRANSITION @ FRT WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 39 NOS	ER90SB3 285	E 9018–B3 351			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
02	WF–02(F–02U1+F–02U–2, F–02U–3,F–02U–4)	SPIRAL/VERT TRANSITION @ FRT WALL + FUR.UPP FRT SPIRAL FW PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 128NOS	ER90SB3 935	E 9018–B3 1152			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
03	WF–03(F–02U–1+FC–1, FC–2,FC–3)	SPIRAL/VERT TRANSITION @ FRT WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 31 NOS	ER90SB3 227	E 9018–B3 279			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
04	WF–04(F–02TO+F–02F)	FUR.UPP FRT SPIRAL TERMINAL TUBES + FUR.SPIRAL WALL FITTINGS(FRONT)	SA213 T22 + SA182F12CL2	ø38.1 + ø38.1	7.1	TIG ARC	7.1√ 136NOS	ER80SB2 993	E 8018–B2 1224			1011/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
05	WF–05(F–02U–2,F–02U–6, F–02U–7A+FC–1)	SPIRAL FURN–FRONT WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 252NOS	ER90SB3 1840	E 9018–B3 2268			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
06	WF–06(F–02U–7A, F–02U–8,F–02U–17+F–WB)	SPIRAL FURN–FRONT WALL + FURNACE WINDBOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 370NOS	ER90SB3 270	E 9018–B3 3330			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
07	WF–07(F–02U–17+ FC–1)	SPIRAL FURN–FRONT WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 128NOS	ER90SB3 935	E 9018–B3 1152			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
08	WF–08(F–02U–17+ FC–9,FC–10)	SPIRAL FURN–FRONT WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 2 NOS	ER90SB3 15	E 9018–B3 18			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
09	WF–09(F–02U–17, F–02U–11+F–WB)	SPIRAL FURN–FRONT WALL + FURNACE WINDBOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 245NOS	ER90SB3 1789	E 9018–B3 2205			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
10	WF–10(F–02U–11,F–02U–8 F–02U–7B,F–02U–6, F–02U–5+FC–1)	SPIRAL FURN–FRONT WALL + FURNACE SOFA FIN WELD PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 260NOS	ER90SB3 1898	E 9018–B3 2340			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	05.02.11	4–07–992–05196	00

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. : 00

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM(SPIRAL)

PAGE NO. : 2/8

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. TIG	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
11	WF–11(F–02U–6,F–02U–7A F–02U–7B,F–02U–8 + F–OFA)	SPIRAL FURN–FRONT WALL + FURNACE SOFA FIN WELD PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 176NOS	ER90SB3 1285	E 9018–B3 1584			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
12	WF–12(F–02L–10,F–02L–12 +FC–15)	FURN LWR SPIRAL FW PANEL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 115NOS	ER90SB3 794	E 9018–B3 1150			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
13	WF–13(F–02L–12,F–02L16+ F–02TI)	FURN LWR FRT SPIRAL FW PANEL + FURN LWR FRT SPIRAL TERMINAL TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 174NOS	ER90SB3 1200	E 9018–B3 1740			1013/01	150	–	–	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
14	WF–14(F–02L–1,F–02L–4+ F–02L–10,F–02L–13)	FURN LWR SPIRAL FW PANEL + FURN LWR SPIRAL FW PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 120NOS	ER90SB3 828	E 9018–B3 1200			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
15	WF–15(F–02L–4,F–02L–7+ F–02L–13,F–02L–16)	FURN LWR SPIRAL FW PANEL + FURN LWR SPIRAL FW PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 158NOS	ER90SB3 1091	E 9018–B3 1580			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
16	WF–16(F–02L–7,F–02L–9+ F–02TI)	FURN LWR FRT SPIRAL FW PANEL + FURN LWR FRT SPIRAL TERMINAL TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 71 NOS	ER90SB3 490	E 9018–B3 710			1013/01	150	–	–	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
17	WF–17(F–02L–9, F–02L–4+FC–8)	FURN LWR SPIRAL FW PANEL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 231NOS	ER90SB3 1594	E 9018–B3 2310			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
18	WF–18(F–02L–4+FC–1)	FURN LWR FRT SPIRAL FW PANEL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	8.2√ 4 NOS	ER90SB3 28	E 9018–B3 40			1013/01	150	–	–	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
19	WF–19(F–02L–4, F–02L–1+F–WB)	FURN LWR FRT SPIRAL FW WALL + FURNACE WINDBOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 125NOS	ER90SB3 863	E 9018–B3 1250			1013/01	150	–	–	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
20	WF–20(F–02L–1+ FC–11,FC–12,FC–13,FC14)	FURN LWR FRT SPIRAL FW WALL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 4 NOS	ER90SB3 28	E 9018–B3 40			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	05.02.11	4–07–992–05197	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. : 00

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM(SPIRAL WALL)

PAGE NO. : 3/8

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ELECTRODE FILLER SPEC. ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	REF. ACC NORM REF	RE–MARKS
21	WF–21(F–02I–4+FC–4, FC–5,FC–6,FC–7)	FURNLWR FRT SPIRAL FW WALL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ / 4 NOS	ER90SB3 / 28	E 9018–B3 / 40			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
22	WF–22(F–02TI+F–01)	FURN LWR FRT SPIRAL TERMINAL TUBES + FURN LWR FRT INLET HDR	SA213 T22 + SA213 T12	ø41.3 + ø41.3	7.4	TIG ARC	7.4⌒ / 258NOS	ER80SB2 / 1884	E 8018–B2 / 2322			1011/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
23	WF–23(F–08U–1TO+ FC–1)	SPIRAL/VERT TRANSION @ REAR WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ / 39 NOS	ER90SB3 / 285	E 9018–B3 / 351			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
24	WF–24(F–08U–1TO+F–08U–2, F–08U–3,F–08U–4)	SPIRAL/VERT TRANSION @ REAR WALL + FURN UPP REAR SPIRAL FW PANELS	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ / 128NOS	ER90SB3 / 935	E 9018–B3 / 1152			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
25	WF–25(F–08U–1TO+FC–1, FC–2,FC–3)	SPIRAL/VERT TRANSION @ REAR WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ / 31 NOS	ER90SB3 / 227	E 9018–B3 / 279			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
26	WF–16(F–08TO +F08F)	FURN UPP REAR SPIRAL TERMINAL TUBES + FURN SPIRAL WALL FITTINGS(REAR)	SA213 T22 + SA182F12CL2	ø38.1 + ø38.1	7.1	TIG ARC	7.1√ / 136NOS	ER80SB2 / 993	E 8018–B2 / 1224			1011/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
27	WF–27(F–08U–2,F–08U–6 F–08U–7ATO+FC–1)	SPIRAL FURN REAR WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ / 252NOS	ER90SB3 / 1840	E 9018–B3 / 2268			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
28	WF–28(F–08U–7A, F–08U–8,F–08U–17TO+F–WB	SPIRAL FURN REAR WALL + FURN WIND BOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ / 370NOS	ER90SB3 / 2701	E 9018–B3 / 3330			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
29	WF–19(F–08U–17TO+ FC–1)	SPIRAL FURN REAR WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ / 128NOS	ER90SB3 / 935	E 9018–B3 / 1152			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
30	WF–30(F–08U–17TO+ FC–9,FC–10)	SPIRAL FURN REAR WALL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ / 2 NOS	ER90SB3 / 15	E 9018–B3 / 18			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	05.02.11	4–07–992–05198	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. : 00

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM(SPIRAL WALL)

PAGE NO. : 4/8

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. TIG	ELECTRODE FILLER SPEC. ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	REF. ACC NORM REF	RE–MARKS
31	WF–21(F–08U–17, F–08U–11TO +F–WB)	SPIRAL FURN REAR WALL + FURNACE WIND BOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 245NOS	ER90SB3 1789	E 9018–B3 2205			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
32	WF–32(F–08U–11+F–08U–8, F–08U–7B,F–08U–6, F–08U–5 + FC–1)	SPIRAL FURN REAR WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 260NOS	ER90SB3 1898	E 9018–B3 2340			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
33	WF–33(F–08U–6,F–08U–7A, F–08U–7B,F–08U–8+F–OFA	SPIRAL FURN REAR WALL + FURNACE SOFA FIN WELD PANEL F–OFA	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 176NOS	ER90SB3 1285	E 9018–B3 1584			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
34	WF–34(F–08L–10, F–08L–12+FC–15)	FURN LWR REAR SPIRAL FW PANEL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 115NOS	ER90SB3 794	E 9018–B3 1150			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
35	WF–35(F–08L–12, F–08L–16+F–08TI)	FURN LWR REAR SPIRAL FW PANEL + FURN LWR REAR SPIRAL TERMINAL TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 174NOS	ER90SB3 1201	E 9018–B3 1740			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
36	WF–36(F–08L–1,F–08L–4+ F–08L–10+F–08L–13)	FURN LWR REAR SPIRAL FW PANEL + FURN LWR REAR SIPRAL FW PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 120NOS	ER90SB3 828	E 9018–B3 1200			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
37	WF–37(F–08L–4,F–08L–7 +F–08L–13,F–08L16)	FURN LWR REAR SPIRAL FW PANEL + FURN LWR REAR SIPRAL FW PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 158NOS	ER90SB3 1091	E 9018–B3 1580			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
38	WF–38(F–08L–7,F–08L–9 +F–08TI)	FURN LWR REAR SPIRAL FW PANEL + FURN LWR REAR SIPRAL FW PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 71 NOS	ER90SB3 490	E 9018–B3 710			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
39	WF–39(F–08L–9, F–08L–4+ FC–8)	FURN LWR REAR SPIRAL FW PANEL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 231NOS	ER90SB3 1594	E 9018–B3 2310			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
40	WF–40(F–08L–4+FC–1)	FURN LWR REAR SPIRAL FW PANEL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 4 NOS	ER90SB3 30	E 9018–B3 40			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	05.02.11	4–07–992–05199	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. : 00

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM(SPIRAL WALL)

PAGE NO. : 5/8

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. TIG	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	REMARKS
41	WF–41(F–08L–4,F–08L–1 +F–WB)	FURN LWR REAR SPIRAL FW PANEL + FURNACE WIND BOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4▽ 125NOS	ER90SB3 863	E 9018–B3 1250			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
42	WF–42(F–08L–1+FC–11, FC–12,FC–13,FC–14)	FURN LWR REAR SPIRAL FW PANEL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2▽ 4 NOS	ER90SB3 28	E 9018–B3 40			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
43	WF–43(F–08L–4+FC–4, FC–5,FC–6,FC–7	FURN LWR REAR SPIRAL FW PANEL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2▽ 4 NOS	ER90SB3 28	E 9018–B3 40			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
44	WF–44(F–08TI+F–07)	FURN LWR REAR SPIRAL FW PANEL + FURN LWR REAR INLET HDR	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4▽ 258NOS	ER90SB3 1884	E 9018–B3 2322			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
45	WF–45(F–17U–1+FC–1)	SPIRAL/VERT TRANSITION@ RIGHT SIDE WALL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4▽ 37 NOS	ER90SB3 271	E 9018–B3 333			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
46	WF–46(F–17U–1+F–17U–2, F–17U–3,F–17U–4)	SPIRAL/VERT TRANSITION@ RIGHT SIDE WALL + FURN UPP RIGHT SPIRAL FW PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4▽ 111NOS	ER90SB3 811	E 9018–B3 999			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
47	WF–47(F–17U–1+FC–1, FC–2,FC–3)	SPIRAL/VERT TRANSITION@ RIGHT SIDE WALL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4▽ 28 NOS	ER90SB3 205	E 9018–B3 252			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
48	WF–48(F–17TO+F–17F	FURN UPP SIDE SPIRAL TERM TUBES + FURN SPIRAL WALL FITTINGS	SA213 T22 + SA182F12CL2	ø38.1 + ø38.1	7.1	TIG ARC	7.1▽ 122NOS	ER80SB2 891	E 8018–B2 1098			1011/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
49	WF–49(F–17U–2,F–17U–8, F–17U–7A+FC–1)	SPIRAL FURNACE RIGHT SIDE WALL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4▽ 252NOS	ER90SB3 1840	E 9018–B3 2268			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
50	WF–50(F–17U–7A,F–17U–8, F–17U–16+F–WB)	SPIRAL FURNACE RIGHT SIDE WALL + FURNACE WINDBOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4▽ 370NOS	ER90SB3 2701	E 9018–B3 3330			1013/01	150			20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	05.02.11	4–07–992–05200	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. : 00

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM(SPIRAL WALL)

PAGE NO. : 6/8

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. TIG	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	REF. ACC NORM REF	RE–MARKS
							QTY	QTY											
51	WF–51(F–17U–16+FC–1' FC–8))	SPIRAL FURN RIGHT SIDE WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 11NOS	ER90SB3 81	E 9018–B3 99			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
52	WF–52(F–17U–16, FC–17U–10+F–WB)	SPIRAL FURN RIGHT SIDE WALL + FURNACE WINDBOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 259NOS	ER90SB3 1891	E 9018–B3 2331			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
53	WF–53(F–17U–8,F–17U–7B F–17U–6,F–17U–4+FC–1)	SPIRAL FURN RIGHT SIDE WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 263NOS	ER90SB3 1920	E 9018–B3 2368			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
54	WF–54(F–17U–6,F–17U–7A F–17U–7B,F–17U–8+F–OFA)	SPIRAL FURN RIGHT SIDE WALL + FURNACE SOFA FIN WELD PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 176NOS	ER90SB3 1285	E 9018–B3 1584			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
55	WF–55(F–17L–1,F–17L–7 +FC–8)	FURN LWR RIGHT SIDE FW PANEL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 228NOS	ER90SB3 1574	E 9018–B3 2280			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
56	WF–56(F–17L–7+F–02TI)	FURN LWR RIGHT SIDE SPIRAL FW PANEL + FURN LWR FRT SIPRAL TERMINAL TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 10 NOS	ER90SB3 73	E 9018–B3 90			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
57	WF–57(F–17L–7+FC–17L–1+ FC–15,FC–9)	FURN LWR RIGHT SIDE SPIRAL FW PANEL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 118NOS	ER90SB3 815	E 9018–B3 1180			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
58	WF–58(F–17L–3+FC–1)	FURN LWR RIGHT SIDE SPIRAL FW PANEL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 9 NOS	ER90SB3 66	E 9018–B3 81			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
59	WF–59(F–17L–3,F–17L–1+ F–WB)	FURN LWR RIGHT SIDE SPIRAL FW PANEL + FURNACE WIND BOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 111NOS	ER90SB3 811	E 9018–B3 999			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
60	WF–60(F–17U–17+FC–1	SPIRAL/VERT TRANSION@ LEFT SIDE WALL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 37 NOS	ER90SB3 271	E 9018–B3 333			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	05.02.11	4–07–992–05201	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. : 00

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM(SPIRAL WALL)

PAGE NO. : 7/8

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. TIG	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	REF. ACC NORM REF	REMARKS
							QTY	QTY											
61	WF–61(F–17U–17+F–17U–18,) F–17U–19,F–17U–20)	SPIRAL/VERT TRANSION@ LEFT SIDEWALL + FURN UPP RIGHT SPIRAL FW PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 111NOS	ER90SB3 811	E 9018–B3 999			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
62	WF–62(F–17U–17+FC–1 FC–2,FC–3)	SPIRAL/VERT TRANSION@ LEFT SIDEWALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 28 NOS	ER90SB3 205	E 9018–B3 252			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
63	WF–63(F–17TO+F–17F)	FURN UPP SIDE SPIRAL TERM TUBES + FURN SPIRAL WALL FITTINGS	SA213 T22 + SA182F12CL2	ø38.1 + ø38.1	7.1	TIG ARC	7.1√ 122NOS	ER80SB2 891	E 8018–B2 1098			1011/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
64	WF–64(F–17U–18,F–17U–22 F–17U–23A,FC–1)	SPIRAL FURN LEFT SIDE WALL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 252NOS	ER90SB3 1840	E 9018–B3 2268			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
65	WF–65(F–17U–23A,F–17U–24, F–17U–32+F–WB)	SPRIAL FURN LEFT SIDE WALL + FURNACE WINDBOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 370NOS	ER90SB3 2701	E 9018–B3 3330			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
66	WF–66(F–17U–32+FC–1,) FC–4,FC–8)	SPIRAL FURN LEFT SIDE WALL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 11 NOS	ER90SB3 81	E 9018–B3 99			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
67	WF–67(F–17U–32,FC–17U–26, +F–WB)	SPIRAL FURN LEFT SIDE WALL + FURNACE WINDBOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 259NOS	ER90SB3 1891	E 9018–B3 2331			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
68	WF–68(F–17U–24,F–17U–24, F–17U–23B,F–17U–22, F–17U–20+FC–1,)	SPIRAL FURN LEFT SIDE WALL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 263NOS	ER90SB3 1920	E 9018–B3 2367			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
69	WF–69(F–17U–26,F–17U–23A, F–17U–23B,F–17U–24+ F–OFA)	SPIRAL FURN LEFT SIDE WALL + FURNACE SOFA FIN WELDED PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 176NOS	ER90SB3 1285	E 9018–B3 1584			1013/01	150	–		20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
70	WF–60(F–17L–8,F–17L–14+ F–17L–14+FC–8)	FURN LWR LEFT SIDE SPIRAL FW PANEL + LOOSE TUBE	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 228NOS	ER90SB3 1574	E 9018–B3 2280			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	05.02.11	4–07–992–05202	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 07

PG NAME : CIRCULATION (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. : 00

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : CIRCULATION SYSTEM(SPIRAL WALL)

PAGE NO. : 8/8

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. TIG	ELECTRODE FILLER SPEC. ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
							QTY	QTY											
71	WF–71(F–17L–14+F–08TI)	FURN LWR LEFT SIDE SPIRAL FW PANEL + FURN LWR REAR SPIRAL TERMINAL TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 10NOS	ER90SB3 73	E 9018–B3 90			1013/01	150	–	–	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
72	WF–72(F–17L–14,F–17L–8+ FC–15,FC–9)	FURN LWR LEFT SIDE SPIRAL FW PANEL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	8.2	TIG ARC	8.2√ 118NOS	ER90SB3 815	E 9018–B3 1180			1014/02	–	680 – 750	30	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
73	WF–73(F–17L–10+FC–1)	FURN LWR LEFT SIDE SPIRAL FW PANEL + LOOSE TUBES	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 9 NOS	ER90SB3 66	E 9018–B3 90			1013/01	150	–	–	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
74	WF–74(F–17L–10,F–17L–8+ F–WB)	FURN LWR LEFT SIDE SPIRAL FW PANEL + FURNACE WIND BOX PANEL	SA213 T22 + SA213 T22	ø41.3 + ø41.3	7.4	TIG ARC	7.4√ 111NOS	ER90SB3 766	E 9018–B3 1110			1013/01	150	–	–	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	
75	F–01+F–16 F–07+F–16	FURN LWR FRT IN.HDR + FURN LWR SIDE IN.HDR + FURN LWR REAR IN.HDR	SA106GR.C + SA234WPC	ø406.4 + ø406.4	76.2	TIG ARC	76 W 4 NOS	ER70SA1 440	E 7018–A1 120	200	950	1005/05	150	620 – 650	195	100% RT 100% MPI/LPI	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	05.02.11	4–07–992–05203	02

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

BHEL TIRUCHY

SUMMARY LIST OF SITE ELECTRODES

PROJECT: BARH–2x660MW CUSTOMER NO: 1700 & 1701

P:G: NO: 12

P.G. NAME: SUPERHEATER SYSTEM PRESSURE PARTS

SL. NO	TYPE OF ELECTRODE / WIRE	SIZE & QTY				TIG WIRE WT gm	REMARKS
		ø2.5	ø3.15	ø4.0	ø5.0		
01.	ER80S–B2					112116	
02	ER90S–B3					20392	
03	ER 347					33921	
04	ER 90S–B9					55536	
05	E 8018 B2	139458	81282	18472			
06	E 9018 B3	19803	149				
07	E 347	51861	1337				
08	E 9018 B9	74036	4641				
09	E 9015 B9	1860	2769	5100			
10	T23+T23(GTAW)					10911	
11	T23+T23(ARC)	14313					
12	ER70SA1					504	
13	E 7018–1	126	207	1350			
14	YT–304H					4050	

NOTES: –

1. RESERVE 50% ADDED.
2. QUANTITY GIVEN IS PER BOILER
3. THIS ERECTION WELDING SCHEDULE IS FOR REFERENCE PURPOSE ONLY.

ENCL : ERECTION WELDING SCHEDULE SHEETS
FROM 4–12–992–11131 TO 4–12–992–11145 &4–12–992–11279

CC: 1. PROJECT CO–ORDINATOR/CONTRACTS:
2. SR.MANAGER/WTC
3. WELDING SCHEDULE FILE

PREPARED	CHECKED(DESIGNS)	APPROVED(WTC)	DRAWING NO.
R.SIVARAMAN	N.KIRUBAKARAN	G. SUBRAMANIAN	4–12–992–11130/01

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 1/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	REMARKS
01	WS–124(F31+S–01)	SEPARATOR NOZZLE + SH.CONNPIPE(ELBOW)	SA182F22CL3 + SA234WP12CL1	ø273.1 + ø250NB	36.7	TIG	36 W	ER80S–B2	E 8018 B2			1012/03	150	680 – 720	95	100%RT/ 100% MPI/LPI	*	*	
						ARC	8 NOS	640	160	264	52								
02	WS–125(S–01+S–02)	SH.CONN PIPE + FUR.ROOF INLET HEADER(NOZZLE)	SA335 P12 + SA182F12CL2	ø273.1 + ø273.1	36.7	TIG	36 W	ER80S–B2	E 8018 B2			1010/05	150	655±15	95	100%RT/ 100% MPI/LPI	*	*	
						ARC	8 NOS	640	160	264	52								
03	WS–129(GAMA PLUG)	GAMAPLUG	SA182F12CL2 + SA234WP12CL1			ARC	7 ◺ 8 NOS		E 8018 B2 17			1102/00	120	–		100%MPI/LPI SHIFT	*	*	
04	WS–130(GAMA PLUG)	GAMAPLUG	SA182F12CL2 + SA234WP12CL1			ARC	7 ◺ 16NOS		E 8018 B2 34			1102/00	120	–		100%MPI/LPI SHIFT	*	*	
05	WS–131(S–02+S–24)	FUR.ROOF INLET HEADER(NOZZLE) + BP BYPASS PIPES	SA182F12CL2 + SA335 P12	ø273.1 + ø273.1	35.3	TIG	35 W	ER80S–B2	E 8018 B2			1010/05	150	655±15	95	100%RT/ 100% MPI/LPI	*	*	
						ARC	4 NOS	320	80	132	260								
06	WS–132(S–24+S–24)	BP BYPASS PIPES + BP BYPASS PIPES	SA335 P12 + SA335 P12	ø273.1 + ø273.1	35.3	TIG	35 W	ER80S–B2	E 8018 B2			1010/05	150	655±15	95	100%RT/ 100% MPI/LPI	*	*	
						ARC	4 NOS	320	80	132	260								
07	WS–133(S–24+S–05)	BP BYPASS PIPES + SH.FUR ROOF OULET HDR(NOZZLE)	SA335 P12 + SA335 P12	ø273.1 + ø273.1	35.3	TIG	35 W	ER80S–B2	E 8018 B2			1010/05	150	655±15	95	100%RT/ 100% MPI/LPI	*	*	
						ARC	4 NOS	320	80	132	260								
08	WS–135(S–02+S–03)	FUR.ROOF INLET HEADER(NIPPLE) + FUR.ROOF FIN WELDED PANELS	SA213 T22 + SA213 T23	ø50.8 + ø50.8	7.6	TIG	7.6 V	ER90S B3	E 9018–B3			1053/00	220	745±10	30	20%RT/MIN 2 WELD/ WELDER/ SHIFT	*	*	
						ARC	204NOS	1877	2652										
09	WS–136(S–03+S–03)	FUR.ROOF FIN WELDED PANELS(LOOSETUBES)+ FUR.ROOF FIN WELDED PANELS	SA213 T23 + SA213 T23	ø50.8 + ø50.8	7.6	TIG	7.6 V	2CRWV	E 9015–G(23)			1052/00	150	720–745	30		*	*	
						ARC	2 NOS	19	26										
10	WS–137(S–04+S–04)	FUR.ROOF FIN WELDED PANELS + FUR.ROOF(LOOSE TUBES)	SA213 T23 + SA213 T23	ø50.8 + ø50.8	7.6	TIG	7.6 V	2CRWV	E 9015–G(23)			1052/00	150	720–745	30		*	*	
						ARC	204NOS	1877	2652										

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	25.08.10	4–12–992–11131	03

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 2/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	REMARKS
11	WS–138(S–04+S–05)	FUR.ROOF(LOOSE TUBES) + SH.FUR ROOF OUTLET HDR(NIPPLES)	SA213 T23 + SA213 T23	ø50.8 + ø50.8	7.6	TIG ARC	7.6 V 2CRWV / 204NOS 1877	E 9015–G(23) 2652				1052/00	150	720–745	30	20% RT/MIN 2 WELD/ WELDER/SHIFT	*	*	
12	WS–139(GAMA PLUG)	GAMAPLUG	SA182F22CL3 + SA335 P22			ARC	7 △ / 2 NOS	E 9018 B3 5				1103/00	150	–	–	100% MPI/LPI/ SHIFT	*	*	
13	WS–106(S–06+S–11)	BP.EXT SIDE INLET HEADER(TEE) + BP.UPP SIDE INLET HDR	SA234WP12CL1 + SA335 P12	ø406.4 + ø406.4	82.3	TIG ARC	82 W ER80SB2 / 2 NOS 222	E 8018 B2 60	100	542		1010/05	150	655±15	210	100% RT/ 100%MPI/LPI	*	*	
14	WS–107(S–06+S–05)	BP.EXT SIDE INLET HEADER(TEE) + FUR.ROOF OUTLET HDR	SA234WP12CL1 + SA335 P22	ø600NB + ø600	108.85	TIG ARC	108 W ER80SB2 / 2 NOS 1600	E 8018 B2 172	304	752		1012/03	150	680 – 720	275	100% RT/ 100%MPI/LPI	*	*	
15	WS–108(S–06+S–07)	BP.EXT SIDE INLET HEADER(NIPPLE) + BP.EXT.SIDE FIN WELDED PANELS	SA213 T22 + SA213 T23	ø57.2 + ø57.2	7.6	TIG ARC	7.6 V ER90S B3 / 108NOS 1167	E 9018–B3 1404				1053/00	220	745±10	30	20% RT/MIN 2 WELD/ WELDER/SHIFT	*	*	
16	WS–109(S–07+S–08)	BP.EXT SIDE FIN WELDED PANELS + BP.EXT.SIDE FLOOR FIN WELDED PANELS	SA213 T23 + SA213 T23	ø57.2 + ø57.2	7.6	TIG ARC	7.6 V 2CRWV / 108NOS 1167	E 9015–G(23) 1404				1052/00	150	720–745	30	20% RT/MIN 2 WELD/ WELDER/SHIFT	*	*	
17	WS–110(S–08+S–08TO)	BP.EXT.SIDE FLOOR FIN WELDED PANELS + BP.EXT.SIDE OUTLET TERM TUBES	SA213 T23 + SA213 T23	ø57.2 + ø57.2	7.6	TIG ARC	7.6 V 2CRWV / 108NOS 1167	E 9015–G(23) 1404				1052/00	150	720–745	30	20% RT/MIN 2 WELD/ WELDER/SHIFT	*	*	
18	WS–111(S–08T0+S–09)	BP.EXT.SIDE OUTLET TERM TUBES + BP.EXT.SIDE FLOOR OUT HEADER(NIPPLES)	SA213 T23 + SA213 T23	ø57.2 + ø57.2	7.6	TIG ARC	7.6 V 2CRWV / 108NOS 1167	E 9015–G(23) 1404				1052/00	150	720–745	30	20% RT/MIN 2 WELD/ WELDER/SHIFT	*	*	
19	WS–112(S–09+S–09)	BP.EXT.SIDE FLOOR OUT HEADER(EQ.NIPPLES) + BP.EXT.SIDE FLOOR OUT HEADER(EQUALIZING LINE	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8.0 V ER90SB3 / 1 NO 6	E 9018 B3 9				1013/01	150			20% RT/MIN 2 WELD/ WELDER/SHIFT	*	*	
20	WS–113(S–09+S–09)	BP.EXT.SIDE FLOOR OUT HEADER(EQ.NIPPLES) + BP.EXT.SIDE FLOOR OUT HEADER(EQUALIZING LINE	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8.0 V ER90SB3 / 1NO 6	E 9018 B3 9				1013/01	150			20% RT/MIN 2 WELD/ WELDER/SHIFT	*	*	

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Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 3/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
21	WS–114(S–09+S–10)	BP.EXT.SIDE FLOOR OUT HEADER(EQUALIZING LINE) + BP.EXT.SIDE CONN LINK (NIPPLE)	SA213 T22 + SA213 T22	ø38.1 + ø38.1	8.0	TIG ARC	8.0 V / 1 NO	ER90SB3 6	E 9018 B3 9			1013/01	150			20% RT/MIN 2 WELD/ WELDER/SHIFT	*	*	
22	WS–115(S–09+S–9A)	BP.EXT.SIDE FLOOR OUT HEADER + SC FUR ARCH SUPPORT INLET HDR(TEE)	SA335 P22 + SA234WP12CL1	ø508 + ø508NB	95.6	TIG ARC	95 W / 1 NO	ER80SB2 135	E 8018 B2 50	80	700	1012/03	150	680 – 720	240	100% RT/ 100% MPI/LPI	*	*	
23	WS–116(S–9A+S–9B)	SC FUR ARCH SUPPORT INLET HDR(NOZZLE) + SC FUR ARCH SUPPORT LINK	SA182F22CL2 + SA335 P12	ø168.3 + ø168.3	39.9	TIG ARC	39 W / 18NOS	ER80SB2 720	E 8018 B2 252	540	900	1012/03	150	680 – 720	100	100% RT/ 100% MPI/LPI	*	*	
24	WS–117(S–9B+S–9C)	SC FUR ARCH SUPPORT LINKS + SC.FUR.ARCH SUPPORT OUTLET HDR(NOZZLE)	SA335 P12 + SA182F12CL2	ø168.3 + ø168.3	39.9	TIG ARC	39 W / 18NOS	ER80SB2 720	E 8018 B2 252	540	900	1010/05	150	655±15	100	100% RT/ 100% MPI/LPI	*	*	
25	WS–118(S–9C+S–10)	SC FUR ARCH SUPPORT OUTLET HD(SPOOL PC) + BP EXT.SIDE CONN.LINK	SA335 P12 + SA335 P12	ø406.4 + ø406.4	53.4	TIG ARC	53 W / 2 NOS	ER80SB2 238	E 8018 B2 60	100	458	1010/05	150	655±15	135	100% RT/ 100%MPI/LPI	*	*	
26	WS–119(S–10+S–10)	BP.EXT SIDE CONN.LINK + BP.EXT.SIDE CONN.LINK ELBOW	SA335 P12 + SA234WP12CL1	ø406.4 + ø400NB	53.4	TIG ARC	53 W / 3 NOS	ER80SB2 357	E 8018 B2 60	100	687	1010/05	150	655±15	135	100% RT/ 100%MPI/LPI	*	*	
27	WS–120(S–10+S–14)	BP.EXT.SIDE CONN.LINK ELBOW + BP.LOWER FRONT HDR (SPOOL PIECE)	SA234WP12CL1 + SA335 P12	ø400NB + ø406.4	53.4	TIG ARC	53 W / 2 NOS	ER80SB2 238	E 8018 B2 60	100	458	1010/05	150	655±15	135	100% RT/ 100%MPI/LPI	*	*	
28	WS–121(GAMA PLUG)	GAMA PLUG	SA182F12CL2 + SA335 P22			ARC	7 △ / 1 NO		E 8018 B2 3			1102/00	120	–	–	100% MPI/LPI/ SHIFT	*	*	
29	WS–122(GAMA PLUG)	GAMA PLUG	SA182F12CL2 + SA335 P12			ARC	7 △ / 44 NOS		E 8018 B2 93			1102/00	120	–	–	100% MPI/LPI/ SHIFT	*	*	
30	WS–123(S–9A+S–44)	SC FUR ARCH SUPPORT INLET HDR NIPPLE + SH STEAM COOLED SPACER TUBES	SA213 T22 + SA213 T22	ø50.8 + ø50.8	7.6	TIG ARC	7.6 V / 3 NOS	ER90SB3 28	E 9018 B3 39			1013/01	150			20% RT/MIN 2 WELD/ WELDER/SHIFT	*	*	

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Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

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SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
31	WS–7(S–13+S–17)	BP.LOWER SIDE HDR ELBOW + BP.LOWER REAR HDR	SA234WP12CL1 + SA335 P12	ø355.6 + ø355.6	76.6	TIG ARC	76 W 2 NOS	ER80SB2 184	E 8018 B2 54	88	620	1010/05	150	655±15	195	100% RT/ 100% MPI/LPI	*	*	
32	WS–8(S–13+S–14)	BP.LOWER SIDE HDR ELBOW + BP LOWER FRONT HDR	SA234WP12CL1 + SA335 P12	ø355.6 + ø355.6	76.6	TIG ARC	76 W 2 NOS	ER80SB2 184	E 8018 B2 54	88	620	1010/05	150	655±15	195	100% RT/ 100% MPI/LPI	*	*	
33	WS–9(S–14+S–15)	BP.LOWER FRONT HDR (NIPPLE) + BP.FRONT FIN WELDED PANEL	SA213 T12 + SA213 T12	ø50.8 + ø50.8	10	TIG ARC	10 V 174NOS	ER80SB2 1392	E 8018 B2 1740	696		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
34	WS–9a(S–14+S–14)	BP.LOWER FRONT HDR (NIPPLE) + BP.LOWER FRONT HDR (INSERT TUBES)	SA213 T12 + SA213 T12	ø50.8 + ø50.8	10	TIG ARC	10 V 24NOS	ER80SB2 192	E 8018 B2 240	96		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
35	WS–9b(S–14+S–15)	BP.LOWER FRONT HDR (INSERT TUBES) + BP FRONT FIN WELDED PANEL	SA213 T12 + SA213 T12	ø50.8 + ø50.8	10	TIG ARC	10 V 24NOS	ER80SB2 192	E 8018 B2 240	96		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
36	WS–10(S–13+S–13)	BP.LOWER SIDE HDR (NIPPLE) + BP.LOWER SIDE HDR (INSERT TUBES)	SA213 T12 + SA213 T12	ø50.8 + ø50.8	10	TIG ARC	10 V 6 NOS	ER80SB2 48	E 8018 B2 60	24		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
37	WS–10a(S–13+S–15)	BP.LOWER SIDE HDR (INSERT TUBES) + BP FRONT FIN WELDED PANEL	SA213 T12 + SA213 T12	ø50.8 + ø50.8	10	TIG ARC	10 V 6 NOS	ER80SB2 48	E 8018 B2 60	24		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
38	WS–11(S–15+S–16)	BP FRONT FIN WELDED PANEL + BP FRONT SCREEN TUBES	SA213 T12 + SA213 T12	ø50.8 + ø50.8	10	TIG ARC	10 V 204NOS	ER80SB2 1632	E 8018 B2 2040	816		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
39	WS–12(S–16+S–22)	BP FRONT SCREEN TUBES + BP FRONT OUTLET HDR (NIPPLE)	SA213 T12 + SA213 T12	ø50.8 + ø50.8	10	TIG ARC	10 V 204NOS	ER80SB2 1632	E 8018 B2 2040	816		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
40	WS–13 (S–13(RH) + (S–12L(RH)	BP.LOWER SIDE HDR NIPPLE + BP.LOWER SIDE FIN WELDED PANEL	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4	TIG ARC	9 V 110NOS	ER80SB2 1122	E 8018 B2 1210	550		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	

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Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 5/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
41	WS–13a (S–13(RH) + (S–13(RH))	BP.LOWER SIDE HDR NIPPLE + BP.LOWER SIDE HDR (INSERT TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4	TIG ARC	9 V 8 NOS	ER80SB2 82	E 8018 B2 80	24		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
42	WS–13b (S–13(RH) + (S–12L(RH))	BP.LOWER SIDE HDR (INSERT TUBES) + BP LOWER SIDE FIN WELDED PANEL	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4	TIG ARC	9 V 8 NOS	ER80SB2 82	E 8018 B2 80	24		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
43	WS–14 (S–13(LH) + (S–12L(LH))	BP.LOWER SIDE HDR (NIPPLE) + BP.LOWER FIN WELDED PANEL	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4	TIG ARC	9 V 110NOS	ER80SB2 1122	E 8018 B2 1100	330		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
44	WS–14a (S–13(LH) + (S–13(LH))	BP.LOWER SIDE HDR (NIPPLE) + BP.LOWER SIDE HDR (INSERT TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4	TIG ARC	9 V 8 NOS	ER80SB2 82	E 8018 B2 80	24		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
45	WS–14b (S–13(LH) + (S–12L(LH))	BP.LOWER SIDE HDR (INSERT TUBES) + BP LOWER FIN WELDED PANEL	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4	TIG ARC	9 V 8 NOS	ER80SB2 82	E 8018 B2 80	24		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
46	WS–15 (S–12L(RH) + (S–12U(LH))	BP.LOWER SIDE FIN WELDED PANEL + BP.UPPER SIDE FIN WELDED PANEL	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4	TIG ARC	9 V 112NOS	ER80SB2 1143	E 8018 B2 1232	560		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
47	WS–16 (S–12L(LH) + (S–12U(LH))	BP.LOWER SIDE FIN WELDED PANEL + BP UPPER FIN WELDED PANEL	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4	TIG ARC	9 V 112NOS	ER80SB2 1143	E 8018 B2 1232	560		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
48	WS–17 (S–12U(RH) + (S–11(RH))	BP UPPER FIN WELDED PANEL + BP UPPER SIDE INLET HDR(NIPPLE)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4	TIG ARC	9 V 113NOS	ER80SB2 1153	E 8018 B2 1243	565		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
49	WS–18 (S–12U(RH) + (S–11(RH))	BP UPPER SIDE FIN WLD PANEL(INSERT TUBES)+ BP UPPER SIDE INLET HDR (NIPPLE)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	10.2 + 9.4	TIG ARC	9 V 5NOS	ER80SB2 51	E 8018 B2 55	25		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
50	WS–19 (S–12U(LH) + (S–11(LH))	BP.UPPER SIDE FIN WELDED PANEL + BP.UPPER SIDE INLET HDR(NIPPLE)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4	TIG ARC	9 V 113NOS	ER80SB2 1153	E 8018 B2 1153	565		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	

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Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

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WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

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SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG / QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
51	(S–12U(LH) + WS–20 + (S–11(LH)	BP.UP.SIDE FIN WELDED PANEL(INSERT TUBES)+ BP.UPPER SIDE INLET HDR(NIPPLE)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	10.2 + 9.4	TIG ARC	10 V 5 NOS	ER80SB2 51	E 8018 B2 55	25		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
52	(S–12U(RH) + WS–21 + (S–12L(RH)	BP UPPER SIDE FIN WELDED PANEL + BP LOWER FIN WELDED PANEL(AD–50 PENING)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4 + 10.2	TIG ARC	9 V 6 NOS	ER80SB2 62	E 8018 B2 66	30		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
53	(S–12U(LH) + WS–22 + (S–12L(LH)	BP.UPPER SIDE FIN WELDED PANEL + BP.LOWER SIDE FIN WLD PANEL(AD–50PENING)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4 + 10.2	TIG ARC	9 V 6 NOS	ER80SB2 62	E 8018 B2 66	30		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
54	(S–12U(RH) + WS–23 + (S–12L(RH)	BP.UPPER SIDE FIN WELDED PANEL + BP.LOWER SIDE FIN WLD PANEL(E–09OPENING)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4 + 10.2	TIG ARC	9 V 22NOS	ER80SB2 225	E 8018 B2 242	110		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
55	(S–12U(RH) + WS–24 + (S–12L(RH)	BP.UPPER SIDE FIN WELDED PANEL + BP LOWER SIDE FIN WLD PANEL(R–03OPENING)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4 + 10.2	TIG ARC	9 V 22 NOS	ER80SB2 225	E 8018 B2 242	110		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
56	(S–12U(LH) + WS–25 + (S–12L(LH)	BP.UPPER SIDE FIN WELDED PANEL + BP.LOWER SIDE FIN WLD PANEL(E–09OPENING)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4 + 10.2	TIG ARC	9 V 22 NOS	ER80SB2 225	E 8018 B2 242	110		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
57	(S–12U(LH) + WS–26 + (S–12L(LH)	BP.UPPER SIDE FIN WELDED PANEL + BP LOWER SIDE FIN WLD PANEL(R–03 OPENING)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	9.4 + 10.2	TIG ARC	9 V 22 NOS	ER80SB2 225	E 8018 B2 242	110		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
58	(S–17) + WS–27 + (S–20L)	BP LOWER REAR HDR(NIPPLE) + BP LOWER REAR FIN WELDED PANEL	SA213 T12 + SA213 T12	ø44.5 + ø44.5	8.0	TIG ARC	8 V 194NOS	ER80SB2 1436	E 8018 B2 2328			1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
59	(S–17) + WS–27a + (S–17)	BP LOWER REAR HEADER(NIPPLE) + BP LOWER REAR HDR (INSERT TUBES)	SA213 T12 + SA213 T12	ø44.5 + ø44.5	8.0	TIG ARC	8 V 4 NOS	ER80SB2 30	E 8018 B2 48			1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
60	(S–17) + WS–27b + (S–20L)	BP.LOWER REAR HDR (INSERT TUBES) + BP.LOWER REAR FIN WELDED PANEL	SA213 T12 + SA213 T12	ø44.5 + ø44.5	8.0	TIG ARC	8 V 4 NOS	ER80SB2 30	E 8018 B2 48			1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	

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R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	27.08.10	4–12–992–11136	00

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 7/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG / QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
61	(S–13) + WS–28 + (S–13)	BP.LOWER SIDE HEADER (NIPPLE) + BP.LOWER SIDE HEADER (INSERT TUBES)	SA213 T12 + SA213 T12	ø44.5 + ø44.5	8.0	TIG ARC	8 V ER80SB2 / 6 NOS 45	E 8018 B2 72				1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
62	(S–13) + WS–28a + (S–20L)	BP LOWER SIDE HEADER (INSERT TUBES) + BP LOWER REAR FIN WELDED PANEL	SA213 T12 + SA213 T12	ø44.5 + ø44.5	8.0	TIG ARC	8 V ER80SB2 / 6 NOS 45	E 8018 B2 72				1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
63	(S–20L) + WS–29 + (S–20U)	BP.LOWER FIN WELDED PANEL + BP.UPPER FIN WELDED PANEL	SA213 T12 + SA213 T12	ø44.5 + ø44.5	8.0	TIG ARC	8 V ER80SB2 / 204NOS 1510	E 8018 B2 2448				1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
64	(S–20U) + WS–30 + (S–21)	BP.UPPER REAR FIN WELDED PANEL + BP.ROOF FIN WELDED PANEL	SA213 T12 + SA213 T12	ø44.5 + ø44.5	8.0	TIG ARC	8 V ER80SB2 / 204NOS 1510	E 8018 B2 2448				1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
65	(S–21) + WS–31 + (S–22)	BP.ROOF FIN WELDED PANEL + BP FRONT OUTLET HEADER(NIPPLE)	SA213 T12 + SA213 T12	ø44.5 + ø44.5	8.0	TIG ARC	8 V ER80SB2 / 204NOS 1510	E 8018 B2 2448				1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
66	WS–32(GAMMA PLUGS)	GAMMA PLUGS	SA182F12CL2 + SA335 P12			ARC	7 △ / 8 NOS	E 8018 B2 18				1102/00	120	–		100% LPI/ MPI/ SHIFT	*	*	
67	(S–14) + WS–33 + (S–18)	BP.LOWER FRONT HDR (HANGER–NIPPLE) + BP STM COOLED HGR TUBES(LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V ER80SB2 / 204NOS 1694	E 8018 B2 2448	1632			1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
68	(S–18) + WS–34 + (S–06L)	BP STEAM COOLED HGR (LOOSE TUBES) + ECO.LOWER ASSY HGR TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V ER80SB2 / 204NOS 1694	E 8018 B2 2448	1632			1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
69	(S–06L) + WS–35 + (S–61)	ECO.LOWER ASSY HGR TUBES + ECO.INTER ASSY HGR TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V ER80SB2 / 204NOS 1694	E 8018 B2 2448	1632			1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
70	(S–61) + WS–36 + (S–06U)	ECO.INTER ASSY HGR TUBES + ECO.UPPER ASSY HGR TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V ER80SB2 / 204NOS 1694	E 8018 B2 2448	1632			1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	

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Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 8/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ELECTRODE FILLER SPEC. ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	REMARKS
71	WS–37 (E–06U) + (S–18)	ECO.UPPER ASSY HGR TUBES + BP.STEAM COOLED HGR (LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
72	WS–38 (S–18) + (R–04L)	BP.STEAM COOLED HGR (LOOSE TUBES) + LTRH LOWER ASSY HGR TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
73	WS–39 (R–04L) + (R–04LI)	LTRH LOWER ASSY HGR TUBES + LTRH LOWER INTER ASSY HGR TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
74	WS–40 (R–04LI) + (R–04UI)	LTRH LOWER INTER ASSY HGR TUBES + LTRH UPPER INTER ASSY HGR TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
75	WS–41 (R–04UI) + (R–04U)	LTRH UPPER INTER ASSY HGR TUBES + LTRH UPPER ASSY TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
76	WS–42 (R–04U) + (S–18)	LTRH UPPER ASSY HGR TUBES + BP.STEAM COOLED HGR (LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
77	WS–43 (S–18) + (S–18TO)	BP.STEAM COOLED HGR (LOOSE TUBES) + BP STEAM COOLED HGR (LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
78	WS–44 (S–18TO) + (S–26)	BP STEAM COOLED HGR (LOOSE TUBES) + BP STEAM COOLED SUPT OUTLET HDR(HGRNIPPLES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
79	WS–45 (S–17) + (S–18)	BP.LOWER FRONT HDR (HANGER NIPPLE) + BP.STEAM COOLED HGR TUBES(LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
80	WS–46 (S–18) + (E–06L)	BP.STEAM COOLED HGR TUBES(LOOSE TUBES)+ ECO.LOWER ASSY HGR TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	

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Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 9/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ELECTRODE FILLER SPEC. ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	REMARKS
81	WS–47 (E–06L) + (E–06I)	ECO.LOWER ASSY HGR TUBES + ECO.INTER ASSY HANGER TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
82	WS–48 (E–06I) + (E–06U)	ECO.INTER ASSY HANGER TUBES + ECO.UPPER ASSY HANGER TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
83	WS–49 (E–06U) + (S–18)	ECO.UPPER ASSY HANGER TUBES + BP.STEAM COOLED HGR TUBES(LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
84	WS–50 (S–18) + (R–04L)	BP.STEAM COOLED HGR TUBES(LOOSE TUBES)+ LTRH LOWER ASSY HGR TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
85	WS–51 (R–04L) + (R–04LI)	LTRH LOWER ASSY HGR TUBES + LTRH INTER ASSY HGR TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
86	WS–52 (R–0LI) + (R–04UI)	LTRH INTER ASSY HGR TUBES + LTRH UPPER INTER ASSY HGR TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
87	WS–53 (R–04UI) + (R–04U)	LTRH UPPER INTER ASSY HGR TUBES + LTRH UPPER ASSY HGR TUBES	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
88	WS–54 (R–04U) + (S–18)	LTRH UPPER ASSY HGR TUBES + BP.STEAM COOLED HGR TUBES(LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
89	WS–55 (S–18) + (S–18TO)	BP.STEAM COOLED HGR TUBES(LOOSE TUBES)+ BP.STEAM COOLED HGR TUBES(LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
90	WS–56 (S–18TO) + (S–26)	BP.STEAM COOLED HGR TUBES(LOOSE TUBES)+ BP.STEAM COOL SUPT OUTLET HDR(HGRNIPPLES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 204NOS	ER80SB2 1694	E 8018 B2 2448	1632		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	

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R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	27.08.10	4–12–992–11139	00

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 10/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ELECTRODE FILLER SPEC. ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
91	WS–57 (S–14) + (S–19B)	BP.LOWER FRONT HDR (HANGER–NIPPLE) + BP.ECO OUTLET HDR HGR(LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40 NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
92	WS–58 (S–19B) + (S–19B)	BP.ECO.OULET HDR HGR(LOOSE TUBES) + BP.ECO.OUTLET HDR HGR (LOOSE TUBES ECOZONE)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40 NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
93	WS–59 (S–19B) + (S–19B)	BP.ECO.OUTLET HDR HGR (LOOSE TUBESECOZONE)+ BP.ECO.OUTLET HDR HGR (LOOSE TUBES HDRZONE)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
94	WS–60 (S–19B) + (S–19B)	BP.ECO.OUTLET HDR HGR (LOOSE TUBES HDRZONE)+ BP.ECO OUTLET HDR HGR (LTRH ZONE)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
95	WS–61 (S–19B) + (S–19B)	BP.ECO.OUTLET HDR HGR (LTRH ZONE) + BP.ECO.OUTLET HDR HGR (LOOSE TBS ABOVE LTRH)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
96	WS–62 (S–19B) + (S–19BTO)	BP.ECO.OUTLET HDR HGR LOOSE TBSABOVE LTRH + BP.ECO OUTLET HDR HGR (LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40 NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
97	WS–63 (S–19BTO) + (S–26)	BP.ECO.OUTLET HDR HGR (LOOSE TUBES) + BP.STEAM COOLED SUPT OUTLET HDR(HGR NIPPLES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40 NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
98	WS–64 (S–17) + (S–19A)	BP.LOWER REAR HDR (HANGER NIPPLES) + LTRH INLET HDR HGR (LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40 NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
99	WS–65 (S–19A) + (S–19A)	LTRH INLET HDR HGR (LOOSE TUBES) + LTRH INLET HDR HGR (LOOSE TUBE ECO ZONE)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40 NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
100	WS–66 (S–19A) + (S–19A)	LTRH INLET HDR HGR (LOOSE TUB ECO ZONE)+ LTRH INLET HDR HGR (LOOSE TUBES HDRZONE)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40 NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	27.08.10	4–12–992–11140	00

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 11/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
101	WS–67 (S–19A) + (S–19A)	LTRH INLET HDR HGR (LOOSE TBS LTRHZONE)+ LTRH INLET HDR HGR (LOOSE TBS LTRH ZONE)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40 NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
102	WS–68 (S–19A) + (S–19A)	LTRH INLET HDR HGR (LOOSE TBS LTRHZONE)+ LTRH INLET HDR HGR (LOOSE TBS ABOVE LTRH)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40 NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
103	WS–69 (S–19A) + (S–19ATO)	LTRH INLET HDR HGR (LOOSE TBS ABOVE LTRH)+ LTRH INLET HDR HGR (LOOSE TUBES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
104	WS–70 (S–19ATO) + (S–26)	LTRH INLET HDR HGR (LOOSE TUBES)+ BP.STEAM COOL SUPT OUTLET HDR(HGR NIPPLES)	SA213 T12 + SA213 T12	ø57.2 + ø57.2	12.7	TIG ARC	12 V 40NOS	ER80SB2 340	E 8018 B2 480	320		1009/02	150	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
105	WS–1 (S–26) + (S–25A)	BP.SC SUPP OUTLET HDR (PIPE PIECE) + LINK FROM BP SC SUPP OUTLET HDR	SA335 P12 + SA335 P12	ø406.4 + ø406.4	53.4	TIG ARC	53 V 2 NOS	ER80SB2 238	E–8018 B2 60	100	458	1010/05	150	655±15	135	100% RT/ 100%MPI/LPI	*	*	
106	WS–2 (S–25A) + (S–25)	LINK FROM BP.SC SUPP OUTLET HDR(ELBOW) + LINK TO SH PLATEN (REDUCER)	SA234WP12 + SA234WP12	ø406.4 + ø406.4	53.4	TIG ARC	53 V 2 NOS	ER80SB2 238	E–8018 B2 60	100	458	1010/05	150	655±15	135	100% RT/ 100%MPI/LPI	*	*	
107	WS–3 (S–22) + (S–25B)	BP.FRONT OUTLET HDR (SPOOL PIECE) + LINK FROM BP.FRONT OUTLET HDR	SA335 P12 + SA335 P12	ø406.4 + ø406.4	53.4	TIG ARC	53 V 2 NOS	ER80SB2 238	E–8018 B2 60	100	458	1010/05	150	655±15	135	100% RT/ 100%MPI/LPI	*	*	
108	WS–4 (S–25B) + (S–25)	LINK FROM BP.FRONT OUTLET HDR + LINK TO SH.PLATEN (TEE)	SA335 P12 + SA234WP12CL1	ø406.4 + ø406.4	53.4	TIG ARC	53 V 2 NOS	ER80SB2 238	E–8018 B2 60	100	458	1010/05	150	655±15	135	100% RT/ 100%MPI/LPI	*	*	
109	WS–5 (S–25) + (S–32)	LINK TO SH.PLATEN + SH.PLATEN INLET HDR (SPOOL PIECE)	SA335 P12 + SA335 P12	ø457.2 + ø457.2	60.3	TIG ARC	60 V 2 NOS	ER80SB2 268	E–8018 B2 68	112	626	1010/05	150	655±15	150	100% RT/ 100%MPI/LPI	*	*	
110	WS–6 (GAMMA PLUGS)	(GAMMA PLUGS)	SA182F12CL2 + SA335 P12			ARC	7◺ 10 NOS		E–8018 B2 22			1102/00	120	–	–	100% MPI/LPI/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	27.08.10	4–12–992–11141	02

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 12/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG / QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
111	WS–71 (S–32) + (S–33T1)	SH.PLATEN INLET HEADER(NIPPLE) + SH.PLATEN INLET (TERM TUBES)	SA213 T22 + SA213 T22	ø57.2 + ø57.2	8.6	TIG ARC	8 V 33 NOS	ER90SB3 337	E 9018 B3 330	99		1014/02	–	680 – 750	30	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
112	WS–72 (S–32) + (S–33T1)	SH.PLATEN INLET HEADER(NIPPLE) + SH.PLATEN INLET (TERM TUBES)	SA213 T22 + SA213 T22	ø48.3 + ø48.3	8.1	TIG ARC	8 V 66 NOS	ER90SB3 555	E 9018 B3 792			1014/02	–	680 – 750	30	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
113	WS–73 (S–32) + (S–33T1)	SH.PLATEN INLET HEADER(NIPPLE) + SH.PLATEN INLET (TERM TUBES)	SA213 T22 + SA213 T22	ø42.4 + ø42.4	8.6	TIG ARC	8 V 363NOS	ER90SB3 2396	E 9018 B3 3993			1014/02	–	680 – 750	30	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
114	WS–74 (S–32) + (S–33T1)	SH.PLATEN INLET HEADER(NIPPLE) + SH.PLATEN INLET (TERM TUBES)	SA213 T22 + SA213 T22	ø38.1 + ø38.1	9.1	TIG ARC	9 V 330NOS	ER90SB3 1749	E 9018 B3 3960			1014/02	–	680 – 750	30	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
115	WS–75 (S–33T1) + (S–33)	SH.PLATEN INLET(TERM TUBES SAFE END) + SH.PLATEN TUBES ASSY	SA213TP347H + SA213TP347H	ø50.8 + ø50.8	9.6	TIG ARC	9 V 33 NOS	ER 347 287	E 347 297	99		1016/01	–	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
116	WS–76 (S–33T1) + (S–33)	SH.PLATEN INLET(TERM TUBES SAFE END) + SH.PLATEN TUBES ASSY	SA213TP347H + SA213TP347H	ø44.5 + ø44.5	7.1	TIG ARC	7 V 429NOS	ER 347 3347	E 347 4290			1016/01	–	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
117	WS–77 (S–33T1) + (S–33)	SH.PLATEN INLET(TERM TUBES SAFE END) + SH.PLATEN TUBES ASSY	SA213TP347H + SA213TP347H	ø38.1 + ø38.1	9.1	TIG ARC	9 V 330NOS	ER 347 1749	E 347 3960			1016/01	–	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
118	WS–78 (S–33) + (S–33TO)	SH.PLATEN TUBES ASSY + SH.PLATEN OUTLET(TERM TUBES SAFE END)	SA213TP347H + SA213TP347H	ø50.8 + ø50.8	9.6	TIG ARC	9 V 33 NOS	ER 347 288	E 347 330			1016/01	–	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
119	WS–79 (S–33) + (S–33TO)	SH.PLATEN TUBES ASSY + SH.PLATEN OUTLET(TERM TUBES SAFE END)	SA213TP347H + SA213TP347H	ø44.5 + ø44.5	8.7	TIG ARC	8 V 264NOS	ER 347 1875	E 347 2112	792		1016/01	–	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
120	WS–80 (S–33) + (S–33TO)	SH.PLATEN TUBES ASSY + SH.PLATEN OUTLET(TERM TUBES SAFE END)	SA213TP347H + SA213TP347H	ø38.1 + ø38.1	10.9 + 9.1	TIG ARC	9 V 495NOS	ER 347 2624	E 347 7425			1016/01	–	–		20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	

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R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	27.08.10	4–12–992–11142	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 13/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG / QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	REMARKS
121	WS–81 (S–33TO) + (S–34)	SH.PLATEN OUTLET (TERM TUBES) + SH.PLATEN INLET (TERM TUBES)	SA213 T91 + SA213 T91	ø57.2 + ø57.2	9.6	TIG ARC	9 V 33 NOS	ER90SB9 337	E 9018–B9 363	165		1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
122	WS–82 (S–33TO) + (S–34)	SH.PLATEN OUTLET (TERM TUBES) + SH.PLATEN OUTLET HEADER(NIPPLE)	SA213 T91 + SA213 T91	ø44.5 + ø44.5	8.1	TIG ARC	8 V 165NOS	ER90SB9 1221	E 9018–B9 1980			1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
123	WS–83 (S–33TO) + (S–34)	SH.PLATEN OUTLET (TERM TUBES) + SH.PLATEN OUTLET HEADER(NIPPLE)	SA213 T91 + SA213 T91	ø42.4 + ø42.4	9.1	TIG ARC	9 V 99 NOS	ER90SB9 634	E 9018–B9 1485			1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
124	WS–84 (S–33TO) + (S–34)	SH.PLATEN OUTLET (TERM TUBES) + SH.PLATEN OUTLET HEADER(NIPPLE)	SA213 T91 + SA213 T91	ø38.1 + ø38.1	9.1	TIG ARC	9 V 495NOS	ER90SB9 3168	E 9018–B9 7425			1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
125	WS–85 (S–34) + (S–35)	SH.PLATEN OUTLET HDR (SPOOL PIECE) + LINKS TO SH.DESH (ELBOW)	SA335 P91 + SA234WP91	ø558.8 + ø558.8	78.3	TIG ARC	78 W 2 NOS	ER90SB3 336	E 9015–B9 84	138	900	1034/04	220	750 – 770	200	100% RT/ 100% MPI/LPI	*	*	
126	WS–87 (S–35) + (S–36)	LINKS TO SH.DESH + SH.DESH	SA335 P91 + SA335 P91	ø558.8 + ø558.8	78.3	TIG ARC	78 W 2 NOS	ER90SB3 336	E 9015–B9 84	138	900	1034/04	220	750 – 770	200	100% RT/ 100% MPI/LPI	*	*	
127	WS–89 (S–36) + (S–37)	SH.DESH + LINKS TO FINISH SH	SA335 P91 + SA335 P91	ø558.8 + ø558.8	67.2	TIG ARC	67 W 2 NOS	ER90SB3 336	E 9015–B9 84	138	900	1034/04	220	750 – 770	170	100% RT/ 100% MPI/LPI	*	*	
128	WS–92 (S–37) + (S–38)	LINKS TO FINISH SH. CONCENTRIC REDUCER + FINISH SH.OUTLET HDR	SA234WP91 + SA335 P91	ø450NB + ø457.2	63.5	TIG ARC	63 W 2 NOS	ER90SB3 260	E 9015–B9 68	112	700	1034/04	220	750 – 770	160	100% RT/ 100% MPI/LPI	*	*	
129	WS–93 (S–38) + (S–44)	SH.FLUID COOLED SPACER(NIPPLE) + SH.FLUID COOLED SPACER(TUBES)	SA213 T91 + SA213 T91	ø50.8 + ø50.8	8.8	TIG ARC	8 V 3 NOS	ER90SB9 27	E 9018–B9 27	9		1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
130	WS–94 (S–38) + (S–39T1)	FINISH SH.INLET HEADER(NIPPLE) + FINISH SH.INLET (TERM TUBES)	SA213 TP91 + SA213 TP91	ø50.8 + ø50.8	6.1	TIG ARC	6 V 101NOS	ER90SB9 1030	E 9018–B9 1010			1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	27.08.10	4–12–992–11143	02

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 14/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	REMARKS
131	WS–95 (S–38) + (S–39T1)	SH.FINISH SH.INLET HEADER(NIPPLE) + FINISH SH.INLET (TERM TUBES)	SA213 T91 + SA213 T91	ø44.5 + ø44.5	5.6	TIG ARC	5 V 707NOS	ER90SB9 6151	E 9018–B9 5656			1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
132	WS–96 (S–38) + (S–39T1)	SH.FINISH SH.INLET (TERM TUBES) FINISH SUPERHEATER (FRONT ASSEMBLY)	SA213 T91 + SA213 T91	ø44.5 + ø44.5	7.1	TIG ARC	7 V 101NOS	ER90SB9 788	E 9018–B9 1010			1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
133	WS–97 (S–39T1) + (S–39)	FINISH SH INLET (TERM TUBES) + FINISH SUPERHEATER (FRONT ASSEMBLY)	SA213 T91 + SA213 T91	ø44.5 + ø44.5	5.6 + 7.1	TIG ARC	5 V 707NOS	ER90SB9 6151	E 9018–B9 5656			1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
134	WS–98 (S–39) + (S–39TO)	FINISH SUPERHEATER (FRONT ASSEMBLY) + FINISH SUPERHEATER (CROSS OVER)TUBES	SA213 T91 + SA213 T91	ø44.5 + ø44.5	8.1	TIG ARC	8 V 808NOS	ER90SB9 5980	E 9018–B9 9696			1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
135	WS–99 (S–39TO) + (S–40)	FINISH SUPERHEATER (CROSS OVER)TUBES + FINISH SUPERHEATER (REAR ASSEMBLY)	SA213TP347H + SA213TP347	ø44.5 + ø44.5	7.1	TIG ARC	7 V 808NOS	ER347 6303	E347 8080			1016/01	–	–	–	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
136	WS–100 (S–40) + (S–40TO)	FINISH SUPERHEATER (REAR ASSEMBLY) + FINISH SH.OUTLET TERM TUBES(SPOOL PIECESSAFE END)	SA213TP347H + SA213TP347H	ø44.5 + ø44.5	7.6	TIG ARC	7 V 808NOS	ER347 6141	E347 8080			1016/01	–	–	–	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
137	WS–101 (S–40TO) + (S–41)	FINISH SH.OUTLET TERM TUBES + FINISH SH.OUTLET HEADER(NIPPLE)	SA213 T91 + SA213 T91	ø57.2 + ø57.2	9.1	TIG ARC	9 V 101NOS	ER90SB9 1031	E 9018–B9 1111	505		1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
138	WS–102 (S–40TO) + (S–41)	FINISH SH.OUTLET (TERM TUBES) + FINISH SH.OUTLET HEADER(NIPPLE)	SA213 T91 + SA213 T91	ø50.8 + ø50.8	8.1	TIG ARC	8 V 101NOS	ER90SB9 920	E 9018–B9 1414			1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
139	WS–103 (S–40TO) + (S–41)	FINISH SH.OUTLET (TERM TUBES) + FINISH SH.OUTLET HEADER(NIPPLE)	SA213 T91 + SA213 T91	ø44.5 + ø44.5	7.6	TIG ARC	7 V 606NOS	ER90SB9 4606	E 9018–B9 6060			1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
140	WS–104 (S–41)	FINISH SH.OUTLET HEADER(NIPPLE) + MAIN STEAM PIPE CUSTOMER CONN	SA335 P91 + SA182F91	ø609.6 + ø609.6	108.9	TIG ARC	108 W 2 NOS	ER90SB3 4200	E 9015–B9 920	1320		1034/04	220	750 – 770	275	100% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	

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R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	27.08.10	4–12–992–11144	02

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 15/15

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
141	WS–105 (S–39TO) + (S–39TO)	FINISH SUPERHEATER (CROSS OVER)TUBES + FINISH SUPERHEATER (CROSS OVER)TUBES	SA213 T91 + SA213 T91	ø44.5 + ø44.5	8.1	TIG ARC	8 V / 808NOS	ER90SB9 / 5980	E 9018–B9 6464	2424		1050/01	220	760±10	120	20% RT/ MIN 2WELD/WELDER/ SHIFT	*	*	
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PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	27.08.10	4–12–992–11145	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 12

PG NAME : SUPERHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. : 00

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : SUPERHEATER SYSTEM

PAGE NO. : 1/1

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
01	WS–56(F–31+F–32)	SEPARATOR NOZZLE + FURN LINK TO STORAGE TANK(PIPE LINE)	SA182F22CL3 + SA335 P12	ø355.6 + ø355.6	45	TIG ARC	45 W 4 NOS	ER80SB2 432	E 8018 B2 112	180	584	1012/03	150	680 720	120	100% RT/ 100% MPI/LPI	*	*	
02	WS–57(F–32+F–32)	FURN LINK TO STORAGE TANK(PIPE LINE) + FURN LINK TO STORAGE TANK(PIPE LINE ELBOW)	SA335 P12 + SA234WP12CL1	ø355.6 + 300 NB	45	TIG ARC	45 W 4 NOS	ER80SB2 432	E 8018 B2 112	180	584	1010/05	150	655±15	120	100% RT/ 100% MPI/LPI	*	*	
03	WS–58(F–32+F–33)	FURN LINK TO STORAGE TANK(PIPE LINE) + STORAGE TANK (SIDE NOZZLE)	SA335 P12 + SA182F22CL3	ø355.6 + ø355.6	45	TIG ARC	45 W 4 NOS	ER80SB2 432	E 8018 B2 112	180	584	1012/03	150	680 720	120	100% RT/ 100% MPI/LPI	*	*	
04	WS–59(F–33+F–49)	STORAGE TANK (BOTTOM NOZZLE) + FURNACE DOWNCOMER TO CONN.SPHERE	SA182F22CL3 + SA335 P12	ø355.6 + ø355.6	45	TIG ARC	45 W 2 NOS	ER80SB2 216	E 8018 B2 56	90	292	1012/03	150	680 720	120	100% RT/ 100% MPI/LPI	*	*	
05	WS–61(F–49+F–50)	FURNACE DOWNCOMER + RECIRCULATION FURN CONNECTING SPHERE	SA335 P12 + SA182F12CL2	ø355.6 + ø355.6	45	TIG ARC	45 W 2 NOS	ER80SB2 216	E 8018 B2 56	90	292	1010/05	150	655±15	120	100% RT/ 100% MPI/LPI	*	*	
06	WS–62(GAMA PLUG)		SA182F12CL2 + SA335 P12			ARC	 14NOS	 	E 8018 B2 35			1102/00	150	–	–	100% RT/ 100% MPI/LPI	*	*	
07	WS–63(F–50+F–51)	FURNACE CONNECTING SPHERE + WATER STORAGE DOWNCOMER	SA182F12CL2 + SA106 GR.C	ø558.8 + ø558.8	67.3	TIG ARC	67.3V 2 NOS	ER70SA1 336	E 7018–1 84	138	900	1033/02	150	655±15	170	100% RT/ 100% MPI/LPI	*	*	
08	WS–140 TO WS–160 (S–44 +S–44)	SH/RH.FLUID COOLED SPACERTUBES + SH/RH.FLUID COOLED SPACERTUBES	SA213S304H + SA213S304H	ø50.8 + ø50.8	7.6	TIG	7.6V 21 NOS	YT–304H 2700				1054/00	–	–	–	20% RT/MIN 2WELD/WELDER/ SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	05.02.11	4–12–992–11279	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

BHEL TIRUCHY

SUMMARY LIST OF SITE ELECTRODES

PROJECT: BARH–2x660MW

CUSTOMER NO: 1700 & 1701

P:G: NO: 17

P.G. NAME: REHEATER SYSTEM

PRESSURE PARTS

SL. NO	TYPE OF ELECTRODE / WIRE	SIZE & QTY				TIG WIRE WT gm	REMARKS
		ø2.5	ø3.15	ø4.0	ø5.0		
01.	ER 70S–A1					78610	
02	ER 90S–B3					4233	
03	T23+T23(GTAW)					155120	
04	ER 80S–B2					232715	
05	E 9015–B9	3582	1542	3423			
06	ER 347					19180	
07	E 347	975					
08	E 7018–A1	228	378	564			
09	E 7018	8					
10	ER 90S–B9					351734	

NOTES:–

1. RESERVE 50% ADDED.
2. QUANTITY GIVEN IS PER BOILER
3. THIS ERECTION WELDING SCHEDULE IS FOR REFERENCE PURPOSE ONLY.

ENCL : ERECTION WELDING SCHEDULE SHEETS
FROM 4–17–992–02702
TO 4–17–992–02705

CC: 1. PROJECT CO–ORDINATOR/CONTRACTS:
2. SR.MANAGER/WTC
3. WELDING SCHEDULE FILE

PREPARED	CHECKED(DESIGNS)	APPROVED(WTC)	DRAWING NO.
R.SIVARAMAN	N.KIRUBAKARAN	G. SUBRAMANIAN	4–17–992–02701/01

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 17

PG NAME : REHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : REHEATER SYSTEM

PAGE NO. : 1/4

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. TIG	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC NORM REF	REMARKS
							QTY	QTY											
01	WR–01(R–01+R04T1)	LTRH INHDR NIPPLE + LTRH INLET(TERM TUBES)	SA210GR.C + SA213 T12	ø63.5 + ø63.5	4.0	TIG	4 ∇ 808NOS	ER70S–A1 51712				1018/02	150	–		20% RT MIN 2 WELD/ WELDER/SHIFT	*	*	
02	WR–02(R–04T1+R04L)	LTRH INLET(TERM TUBES) + LTRH LOWER TUBES ASSY	SA213 T12 + SA213 T12	ø63.5 + ø63.5	4.0	TIG	4 ∇ 808NOS	ER80S–B2 51712				1009/02	125			– do–	*	*	
03	WR–03(R–04L1+R04L1)	LTRH LOWER TUBES ASSY + LTRH LOWER INTERMEDIATE TUBES ASSY	SA213 T12 + SA213 T12	ø63.5 + ø63.5	4.0	TIG	4 ∇ 808NOS	ER80S–B2 51712				1009/02	125			– do–	*	*	
04	WR–04(R–04L1+R04U1)	LTRH LOWER INTERMEDIATE TUBES ASSY + LTRH UPPPER INTERMEDIATE TUBES ASSY	SA213 T12 + SA213 T23	ø63.5 + ø63.5	4.0	TIG	4 ∇ 808NOS	ER80S–B2 51712				GTA–GTAA 4.5–2291– REV–02	150	704 – 732	15	– do–	*	*	COLLABORATOR WPS
05	WR–05(R–04U1+R04U)	LTRH UPPER INTERMEDIATE TUBES ASSY LTRH UPPPER TUBE ASSY	SA213 T23 + SA213 T23	ø63.5 + ø63.5	4.0	TIG	4 ∇ 808NOS	2CRWV 51712				1052/00	150	720 – 745	30	– do–	*	*	
06	WR–06(R–04U+R–07)	LTRH UPPPER TUBE ASSY + LTRH PENDANT TUBE ASSY	SA213 T23 + SA213 T91	ø63.5 + ø63.5	4.0	TIG	4 ∇ 808NOS	2CRWV TIG 51712				GTA–GTAA 5.5–2290– REV–01	150	746 – 782	30	– do–	*	*	COLLABORATOR WPS
07	WR–07(R–07+R–07T0)	LTRH PENDANT TUBE ASSY + LTRH OUTLET(TERM TUBES)	SA213 T91 + SA213 T91	ø63.5 + ø63.5	4.0	TIG	4 ∇ 404NOS	ER90S–B9 25856				1036/06	220	750 – 770	90	– do–	*	*	
08	WR–08(R–07+R–07T0)	LTRH PENDANT TUBE ASSY + LTRH OUTLET(TERM TUBES)	SA213 T91 + SA213 T91	ø50.8 + ø50.8	4.5	TIG	4.5 ∇ 404NOS	ER90S–B9 29100				1036/06	220	750 – 770	90	– do–	*	*	
09	WR–09(R–07T0+R–08)	LTRH OUTLET(TERM TUBES) + LTRH OUTLET HDR NIPPLE	SA213 T91 + SA213 T91	ø63.5 + ø63.5	4.5	TIG	4.5 ∇ 303NOS	ER90S–B9 21820				1036/06	220	750 – 770	90	– do–	*	*	
10	WR–10(R–07T0+R–08)	LTRH OUTLET(TERM TUBES) + LTRH OUTLET HDR NIPPLE	SA213 T91 + SA213 T91	ø50.8 + ø50.8	4.5	TIG	4.5 ∇ 404NOS	ER90S–B9 29100				1036/06	220	750 – 770	90	– do–	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	21–10–10	4–17–992–02702	03

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 17
PG NAME : REHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)
DOC.NO: 9560–102–01–TR–PVM–W–044
CONTRACTOR : BHEL
REV.NO. :
CONTRACT NO:
WELDING CODE : IBR/ASME
SYSTEM : REHEATER SYSTEM
PAGE NO. : 2/4

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	REMARKS
11	WR–11(R–07TO+R–08)	LTRH OUTLET(TERM TUBES) + LTRH OUTLET HDR NIPPLE	SA213 T91 + SA213 T91	ø76.2 + ø76.2	4.5	TIG	4.5 ▽ 101NOS	ER90SB9 8888				1036/06	220	750 – 770	90	20% RT MIN 2 WELD/ WELDER/SHIFT	*	*	
12	WR–12(R–08+R–09)	LTRH OUTLET HDR NIPPLE + REDUCED END LEAD TO RH DESUPERHEATER	SA335 P91 + SA234 WP91	ø660.4 + ø650NB	35.5	TIG ARC	35 W 2 NOS	ER90SB3 428	E 9015–B9 100	160	400	1034/04	220	750 – 770	120	100% RT 100% MPI/LPI	*	*	
13	WR–13(R–09+R10)	LEAD TO RH.DESH + RH.DESH	SA335 P91 + SA335 P91	ø711.2 + ø711.2	22.8	TIG ARC	22 W 2 NOS	ER90SB3 490	E 9015–B9 108	176	202	1034/04	220	750 – 770	120	– do–	*	*	
14	WR–15(R–10+R11)	RH.DESH + LINK TO FINISH RH	SA335 P91 + SA335 P91	ø711.2 + ø711.2	22.8	TIG ARC	22 W **2 NOS**	ER90SB3 490	E 9015–B9 108	176	202	1034/04	220	750 – 770	120	– do–	*	*	
15	WR–18(R–11+R–11)	LINK TO FINISH RH + LINK TO FINISH RH	SA335 P91 + SA335 P91	ø711.2 + ø711.2	22.8	TIG ARC	22 W 2 NOS	ER90SB3 490	E 9015–B9 108	176	202	1034/04	220	750 – 770	120	– do–	*	*	
16	WR–19(R–11+R–12)	LINK TO FINISH RH RE.END + FINISH RH.INLET HDR	SA234 WP91 + SA335 P91	ø600NB + ø609.6	34.0	TIG ARC	34 W 2 NOS	ER90SB3 404	E 9015–B9 92	152	376	1034/04	220	750 – 770	120	– do–	*	*	
17	WR–20(R–12+R–13T1)	FINISH RH.INLET HDR + FINISH RH.INLET HDR (TERM TUBES)	SA213 T91 + SA213 T91	ø76.2 + ø76.2	5.1	TIG ARC	5.1 ▽ 100NOS	ER90SB9 1690	E 9015–B9 1100			1036/06	220	750 – 770	90	20% RT MIN 2 WELD/ WELDER/SHIFT	*	*	
18	WR–21(R–12+R–13T1)	RH.INLET.HDR NIPPLE + FINISH RH.INLET HDR (TERM TUBES)	SA213 T91 + SA213 T91	ø63.5 + ø63.5	4.2	TIG	4.2 ▽ 100NOS	ER90SB9 7040				1036/06	220	750 – 770	90	20% RT MIN 2 WELD/ WELDER/SHIFT	*	*	
19	WR–22(R–12+R–13T1)	FINISH RH.INLET.HDR NIPPLE + FINISH RH.INLET HDR (TERM TUBES)	SA213 T91 + SA213 T91	ø50.8 + ø50.8	4.2	TIG	4.2 ▽ 150NOS	ER90SB9 9000				1036/06	220	750 – 770	90	20% RT MIN 2 WELD/ WELDER/SHIFT	*	*	
20	WR–23(R–12+R–13T1)	FINISH RH.INLET.HDR NIPPLE + FINISH RH.INLET HDR (TERM TUBES)	SA213 T91 + SA213 T91	ø44.5 + ø44.5	4.2	TIG	4.2 ▽ 250NOS	ER90SB9 13750				1036/06	220	750 – 770	90	20% RT MIN 2 WELD/ WELDER/SHIFT	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	21–10–10	4–17–992–02703	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 17

PG NAME : REHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : REHEATER SYSTEM

PAGE NO. : 3/4

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. TIG	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
							QTY	QTY											
21	WR–24(R–13T1+R–13)	FINISH RH.INLET HDR (TER TUBES SAFE ENDS) + FINISH RH TUBES ASSY	SA213TP347H + SA213TP347H	ø76.2 + ø76.2	5.5	TIG ARC	5.5 ∇	ER 347	E 347			1016/01	–	–	–	20% RT MIN 2 WELD/ WELDER/SHIFT	*	*	
							50 NOS	840	650										
22	WR–25(R–13T1+R–13)	FINISH RH.INLET HDR (TER TUBES SAFE ENDS) + FINISH RH TUBES ASSY	SA213TP347H + SA213TP347H	ø63.5 + ø63.5	4.2	TIG	4.2 ∇	ER 347				1016/01	–	–	–	– do –	*	*	
							150NOS	11100											
23	WR–26(R–13T1+R–13)	FINISH RH.INLET HDR (TER TUBES SAFE ENDS) + FINISH RH TUBES ASSY (SAFE END)	SA213 T91 + SA213 T91	ø50.8 + ø50.8	4.2	TIG	4.2 ∇	ER90SB9				1036/06	220	750 – 770	90	– do –	*	*	
							150NOS	9000											
24	WR–27(R–13T1+R–13)	FINISH RH.INLET HDR (TERM TUBES) + FINISH RH TUBES ASSY (SAFE END)	SA213 T91 + SA213 T91	ø44.5 + ø44.5	4.2	TIG	4.2 ∇	ER90SB9				1036/06	220	750 – 770	90	– do –	*	*	
							250NOS	13500											
25	WR–28(R–13+R–13TO)	FINISH RH TUBES ASSY + FINISH RH.OUTLET HDR (TER TUBES SAFE ENDS)	SA213TP347H + SA213TP347H	ø76.2 + ø76.2	5.5	TIG ARC	5.5 ∇	ER 347	E 347			1016/01	–	–	–	– do –	*	*	
							50 NOS	840	650										
26	WR–29(R–13+R–13TO)	FINISH RH.TUBES ASSY (SAFE ENDS) + FINISH RH.OUTLET (TERM TUBES)	SA213 TP91 + SA213 TP91	ø 57.2 + ø 57.2	4.2	TIG	4.2 ∇	ER90SB9				1036/06	220	750 – 770	90	– do –	*	*	
							200NOS	13200											
27	WR–30(R–13+R–13TO)	FINISH RH.TUBES ASSY (SAFE ENDS) + FINISH RH.OUTLET (TERM TUBES)	SA213 T91 + SA213 T91	ø44.5 + ø44.5	4.2	TIG	4.2 ∇	ER90SB9				1036/06	220	750 – 770	90	– do –	*	*	
							350NOS	19250											
28	WR–31(R–13TO+R–14)	FINISH RH.OUTLET (TERM TUBES) + FINISH RH.OUTLET HDR (NIPPLE)	SA213 T91 + SA213 T91	ø76.2 + ø76.2	5.1	TIG ARC	5.1 ∇	ER90SB9	E 9015B9			1036/06	220	750 – 770	90	– do –	*	*	
							50 NOS	845	550										
29	WR–32(R–13TO+R–14)	FINISH RH.OUTLET (TERM TUBES) + FINISH RH.OUTLET HDR (NIPPLE)	SA213 T91 + SA213 T91	ø57.2 + ø57.2	4.2	TIG	4.2 ∇	ER90SB9				1036/06	220	750 – 770	90	– do –	*	*	
							200NOS	13200											
30	WR–33(R–13TO+R–14)	FINISH RH.OUTLET (TERM TUBES) + FINISH RH.OUTLET HDR (NIPPLE)	SA213 T91 + SA213 T91	ø44.5 + ø44.5	4.2	TIG	4.2 ∇	ER90SB9				1036/06	220	750 – 770	90	– do –	*	*	
							350NOS	19250											

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	21–10–10	4–17–992–02704	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 17

PG NAME : REHEATER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : REHEATER SYSTEM

PAGE NO. : 4/4

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
31	WR–34(R–03+R–03)	LTRH INLET HDR + LTRH INLET HDR	SA 106GR.C + SA 106GR.C	ø508 + ø508	26.4	TIG ARC	26 W / 2 NOS	ER70SA1 / 348	E 7018–A1 76	126	188	1005/05	100	635±15	70	100% RT 100% MPI/LPI	*	*	
32	WR–35	GAMMA PLUGS	SA 105 + SA 106GR.C			ARC	7◺ / 2 NOS		E 7018 5			1101/00	150	–	–	100% MPI/LPI	*	*	
33	WR–36(R–03+CLIENTS)	LTRH INLET HDR + CLIENTS CONN	SA 106GR.C + SA 105	ø508 + ø508	26.4	TIG ARC	26 W / 2 NOS	ER70SA1 / 348	E 7018–A1 76	126	188	1005/05	100	635±15	70	100% RT 100% MPI/LPI	*	*	
34	WR–37(R–14+CLIENTS)	FINISH RH.OUTLET HDR + CLIENTS CONN	SA 335 P91 + SA 182 F91	ø762 + ø762	71.4	TIG ARC	71 W / 2 NOS	ER90SB3 / 520	E 9015–B9 114	188	900	1034/04	220	750 – 770	180	100% RT 100% MPI/LPI	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	21–10–10	4–17–992–02705	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

BHEL TIRUCHY

SUMMARY LIST OF SITE ELECTRODES

PROJECT: BARH–2x660MW

CUSTOMER NO: 1700 & 1701

P:G: NO: 19

P.G. NAME: ECONOMISER SYSTEM

PRESSURE PARTS

SL. NO	TYPE OF ELECTRODE / WIRE	SIZE & QTY				TIG WIRE WT gm	REMARKS
		ø2.5	ø3.15	ø4.0	ø5.0		
01.	ER 70S–A1					62352	
02	E 7018–A1	2091	3456	16965			
03	E 7018	63					
04	E 7018–1	87696					

NOTES:–

1. RESERVE 50% ADDED.
2. QUANTITY GIVEN IS PER BOILER
3. THIS ERECTION WELDING SCHEDULE IS FOR REFERENCE PURPOSE ONLY.

ENCL : ERECTION WELDING SCHEDULE SHEETS
FROM 4–19–992–06226 ,4–19–992–06227 & 4–19–992–06318

CC: 1. PROJECT CO–ORDINATOR/CONTRACTS:
2. SR.MANAGER/WTC
3. WELDING SCHEDULE FILE

PREPARED	CHECKED(DESIGNS)	APPROVED(WTC)	DRAWING NO.
R.SIVARAMAN	N.KIRUBAKARAN	G. SUBRAMANIAN	4–19–992–06225/01

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 19

PG NAME : ECONOMISER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : ECONOMISER SYSTEM

PAGE NO. : 1/2

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD / QTY	ELECTRODE FILLER SPEC. TIG QTY	ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. / REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
01	WEF–01(EF01+EF–01)	ECO.OUT LINK ELL + ECO.OUT LINK	SA234WPC + SA106GR.C	ø500NB + ø508	63.1	TIG ARC	63 W / 2 NOS	ER70SA1 / 300	E 7018–A1 / 76	126	708	1005/05	100	635±15	160	100% RT/ 100% MPI/LPI	*	*	
02	WEF–02(EF01+EF–01)	ECO.OUT LINK + ECO.OUT LINK	SA106GR.C + SA106GR.C	ø508 + ø508	63.1	TIG ARC	63 W / 2 NOS	ER70SA1 / 300	E 7018–A1 / 76	126	708	1005/05	100	635±15	160	100% RT/ 100% MPI/LPI	*	*	
03	WEF–03(EF01+EF–01)	ECO.OUT LINK + ECO.OUT LINK ELL	SA106GR.C + SA234WPC	ø508 + ø500NB	63.1	TIG ARC	63 W / 4 NOS	ER70SA1 / 600	E 7018–A1 / 152	252	1416	1005/05	100	635±15	160	100% RT/ 100% MPI/LPI	*	*	
04	WEF–05(EF01+EF–02)	ECO.OUT LINK + ECO.MIX LINE U.EQ.TEE	SA106GR.C + SA234WPC	ø508 + ø500NB	63.1	TIG ARC	63 W / 2 NOS	ER70SA1 / 300	E 7018–A1 / 76	126	708	1005/05	100	635±15	130	100% RT/ 100% MPI/LPI	*	*	
05	WEF–07(EF02+EF–03)	ECO.MIX LINE ECC REDUCER + ECO.WW INLET LINK	SA234WPC + SA106GR.C	ø400NB + ø406.4	50.6	TIG ARC	50 W / 2 NOS	ER70SA1 / 238	E 7018–A1 / 60	100	458	1005/05	100	635±15	130	100% RT/ 100% MPI/LPI	*	*	
06	WEF–08(EF03+EF–03)	ECO.WW INLET LINK + ECO.WW INLET ELL	SA106GR.C + SA234WPC	ø406.4 + ø400NB	50.6	TIG ARC	50 W / 2 NOS	ER70SA1 / 238	E 7018–A1 / 60	100	458	1005/05	100	635±15	130	100% RT/ 100% MPI/LPI	*	*	
07	WEF–09(EF03+EF–03)	ECO.WW INLET LINK + ECO.OUT LINK ELL	SA106GR.C + SA234WPC	ø406.4 + ø400NB	50.6	TIG ARC	50 W / 2 NOS	ER70SA1 / 238	E 7018–A1 / 60	100	458	1005/05	100	635±15	130	100% RT/ 100% MPI/LPI	*	*	
08	WEF–10(EF03+F–16)	ECO.WW INLET LINK + FURN LS INHDR EQ.TEE	SA106GR.C + SA234WPC	ø406.4 + ø400NB	50.6	TIG ARC	50 W / 2 NOS	ER70SA1 / 238	E 7018–A1 / 60	100	458	1005/05	100	635±15	130	100% RT/ 100% MPI/LPI	*	*	
09	WEF–11	GAMA PLUG	SA 105 + SA106GR.C			ARC	7 ◺ / 20 NOS		E 7018 / 42			1101/00	100	-	-	100% MPI/LPI	*	*	
																	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	19–10–10	4–19–992–06226	02

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 19

PG NAME : ECONOMISER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. :

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : ECONOMISER SYSTEM

PAGE NO. : 2/2

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC.				WPS NO.	MIN. PRE.	HEAT TREATMENT		NDT METHOD / QUANTUM	REF.		RE–MARKS
				SIZE	THICK			TIG	ARC SPEC. QTY										
							QTY	QTY	ø2.5	ø3.15	ø4.0	REV. NO.	HEAT TEMP	TEMP. °C	HOLD. TIME		SPEC. NO.	ACC NORM REF	
10	ECO.COIL (E–05+E–06TI)	ECO.IN HDR NIPPLE + ECO.IN TERM TUBE	SA210GR.C + SA210GR.C	ø44.5	8.0	TIG ARC	8 V 812NOS	ER70SA1 6010	E 7018–1 9744			1002/03	–	–	–	20% RT/ MIN 2WELD/ WELDER/SHIFT	*	*	
11	ECO.COIL (E–06TI+E–06L)	ECO.IN TERM TUBE + ECO.COIL LOWER	SA210GR.C + SA210GR.C	ø44.5	8.0	TIG ARC	8 V 812NOS	ER70SA1 6010	E 7018–1 9744			1002/03	–	–	–	20% RT/ MIN 2WELD/ WELDER/SHIFT	*	*	
12	ECO.COIL (E–06L+E–06I)	ECO.COIL LOWER + ECO.COIL INTER	SA210GR.C + SA210GR.C	ø44.5	8.0	TIG ARC	8 V 812NOS	ER70SA1 6010	E 7018–1 9744			1002/03	–	–	–	20% RT/ MIN 2WELD/ WELDER/SHIFT	*	*	
13	ECO.COIL (E–06I+E–06U)	ECO.COIL INTER + ECO.COIL UPPER	SA210GR.C + SA210GR.C	ø44.5	8.0	TIG ARC	8 V 812NOS	ER70SA1 6010	E 7018–1 9744			1002/03	–	–	–	20% RT/ MIN 2WELD/ WELDER/SHIFT	*	*	
14	ECO.COIL (E–06U+E–06TO)	ECO.COIL UPPER + ECO.COIL TERM OUT TUBE	SA210GR.C + SA210GR.C	ø44.5	8.0	TIG ARC	8 V 812NOS	ER70SA1 6010	E 7018–1 9744			1002/03	–	–	–	20% RT/ MIN 2WELD/ WELDER/SHIFT	*	*	
15	ECO.COIL (E–06TO+E–09)	ECO.COIL TERM OUT TUBE + ECO.OUT HDR NIPPLE	SA210GR.C + SA213T12	ø44.5	8.0	TIG ARC	8 V 812NOS	ER70SA1 6010	E 7018–1 9744			1017/03	125	–	–	20% RT/ MIN 2WELD/ WELDER/SHIFT	*	*	
																	*	*	

PREPARED	CHECKED (DESIGN)	CHECKED (W.T.C)	APPROVED	DATE	DRAWING NO:	REV.NO.
R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	19–10–10	4–19–992–06227	01

* REFER NDE MANUAL No.PS: CMX: 002 REV.No.01/12–98

Name of Contractor/Subcontractor

FIELD WELDING SCHEDULE

PG(S) : 19

PG NAME : ECONOMISER (PP)

PROJECT : BARH– 2x660MW (CUST.NO.1700 & 1701)

DOC.NO: 9560–102–01–TR–PVM–W–044

CONTRACTOR : BHEL

REV.NO. : 00

CONTRACT NO:

WELDING CODE : IBR/ASME

SYSTEM : ECONOMISER SYSTEM

PAGE NO. : 1/1

SL. NO.	DRG NO. FOR WELD LOCAION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS SIZE	DIMENSIONS THICK	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. TIG QTY	ELECTRODE FILLER SPEC. ARC SPEC. QTY ø2.5	ø3.15	ø4.0	WPS NO. REV. NO.	MIN. PRE. HEAT TEMP	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD. TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC NORM REF	RE–MARKS
01	WF–105(F61C+E–04)	BLR RECIRC.LINK TO ECON(PIPE)+ ECON INLET LINK	SA106GR.C + SA105	ø355.6 + ø355.6	46.3	TIG ARC	46.3Ⓦ	ER70SA1	E 7018–A1			1005/05	100	635±15	120	100% RT/ 100% MPI/LPI	*	*	
							1 NO	108	28	45	152								
02	WF–113(F–66A–1+F–66A–1)	STARTUP FEED WATER LINE(PIPE)+ ECO.INLET LINK	SA106GR.C + SA105	ø323.9 + ø323.9	43.6	TIG ARC	43.6Ⓦ	ER70SA1	E 7018–A1			1005/05	100	635±15	110	100% RT/ 100% MPI/LPI	*	*	
							1 NO	92	24	39	132								
03	WE–07(E–05+E–04A&E–04B1)	ECO.INLET HDR + ECO.INLET LINKS	SA106GR.C + SA106GR.C	ø457.2 + ø457.2	49.1	TIG ARC	49.1Ⓦ	ER70SA1	E 7018–A1			1005/05	100	635±15	130	100% RT/ 100% MPI/LPI	*	*	
							2 NOS	276	68	112	446								
04	WE–08(E–09+EF–01)	ECO.OUT HDR + ECO.OUTLET LINK	SA335 P22 + SA106GR.C	ø508 + ø508	63.1	TIG ARC	63 Ⓦ	ER70SA1	E 7018–A1			1041/01	150	695±15	160	100% RT/ 100% MPI/LPI	*	*	
							2 NOS	300	76	126	720								
05	0–19–850–00892	ECO.FEED PIPE +PIPE+ELBOW/TEE	SA106GR.C+ SA106GR.C+ SA234WPC	ø457.2 + ø457.2	55.5	TIG ARC	49 Ⓦ	ER70SA1	E 7018–A1			1005/05	100	635+15	140	100% RT/ 100% MPI/LPI	*	*	
							17NOS	2280	578	952	4488								

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R.SIVARAMAN	N.KIRUBAKARAN	G.SUBRAMANIAN	N.KIRUBAKARAN	05.02.11	4–19–992–06318	01

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