भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(सार्वजनिक क्षेत्र का उपक्रम)
Bharat Heavy Electricals Limited
(A Public Sector Undertaking)

पावर सेक्टर- पश्चिमी क्षेत्र Power Sector-Western Region
श्रीमोहिनी काम्पलेक्स, 345 किंग्सवे, नागपुर Shreemohini complex, 345 Kingsway Nagpur - 440 001
फोन / Phone 0712- 3048600, फैक्स FAX: 0712- 3048699 www.bhelpswr.co.in

Ref: BHE/PW/PUR/NTPRT-BLR PCP ESP FDG - U3/2314/Corg-03 Date: 27/10/2020

To,

ALL BIDDERS,

Sub: Corrigendum-03: Clarifications

Job: 1. Erection, Testing and assistance for commissioning & Trial Operation including handling of materials at BHEL / Client's Stores / Storage Yard and transportation to site of; Boiler, ESP and its auxiliaries, Boiler integral piping, Critical Piping (P91, HP/LP piping), Structure for bunker (BHEL Mfg units Supplied items), Non Pressure Parts, Duct dampers and its support structure, Rotating Equipment's, Air Pre Heaters, ID/FD/PA fans, SCR and its auxiliaries, FGD and its auxiliaries, Lining and Insulation, Supply and application of touch-up painting, (As and wherever required) package OF UNIT#3 at 3X800 MW PVUNL PROJECT Patratu.
And
2. Erection of Bunker & allied works, including supply & installation of items as per BOQ of UNIT#3 at 3X800 MW PVUNL Project Patratu.

E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/NTPRT-BLR PCP ESP FDG - U3/2314

Bidders to kindly take note of the following:

AA) Clarifications:

Sl No	Reference clause of Tender Document-VOL I Tech Bid-2314	Existing provision	Bidder's Query	BHEL Clarifications
1	Sl no. 75 of Cl 4.1 Table of Chapter IV T& P and MMEs to be Deployed by contractor (Pg 71/266)	Sl no -75 - Men lifter -02 nos	Kindly provide specification details	Men lifter having minimum vertical reach up-to 40-45 m.
2	Point 1 of cl 14.14.7 of Chapter XIV Erection (Pg no. 200 /266)	1. Absorber tower have elevation …… casing panel have size (6mx4mx**0.5m**)	Please clarify, what is that 0.5m?	**Clause is amended as:** '1. Absorber tower have top elevation of approx. 47 mtr with 7 tier structure and average casing panels have size (6mx4mx**5mm**), 5mm –thickness of casing panels.'
3	CHAPTER IX - ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ) (Pg no. 140-142 / 266)	Cl no. B1502, A1504, B1505 Metal Deck Sheet type II…… (Deck Sheets shall be provided by BHEL	Please confirm that fasteners and fixing components in this item no. A1503, B1503, C1503 are	Fasteners & fixing components in the items no A1503, B1503, C1503 are to be used for items in B1502, A1504, A1508 etc. however if any additional fasteners required for

		except sheets other materials shall be in the agency scope - fasteners and fixing components)	to be used for items in B1502, A1504, A1508 etc., contractor need not supply fasteners at his cost for these items.	completion job shall be provided by the agency free of cost.
4	**Item no. F2301 of** Chapter IX Estimate weight for various system in scope of work BOQ (Pg 142/266) And of Chapter-XXII: Weightages / Factor of Section 2 - Bunker & Allied works (Pg 263/266) And Sl no. F2301 of 'Excel sheet for calculation purpose Only'	F 2301: Erection of structural steel of mild steel/High strength steel rolled section / …… of final finish paint coat **(Payment for final coat of payment shall be made separately as per Item No. B2304)** ……..DTI washers, gusset plates, stiffeners etc.	1. Pls clarify, any final painting involved in this scope and what is that item no. B2304. 2. Pls Clarify, DTI washer, Gussets plate, stiffener etc. going to permanent installation, so should be paid as per the tonnage rate.	Please refer Cl 18 Painting – Touch painting ……cleaning agents etc. of Chapter-XVIII –PAINTING and Cl 2.21 of Chapter - II: Scope of Works (Pg 52/ 266) DTI washers gusset plates & stiffeners weight already included in BOQ, no separate payment applicable. **The referred clause (at 3 places) is amended/replaced as:** 'Collection and Transportation of factory fabricated parts from BHEL store and assembly ,installation & Erection of structural steel of mild steel/High strength steel rolled section / built up section / combination of both conforming to IS:2062, pipe sections] true to line, level, plumb & dimension, rectification if any, including collection of factory fabricated parts from BHEL store and assembly, installation of erection/connection bolts ~~and application of final finish paint coat(Payment for final coat of payment shall be made separately as per Item No. B2304)~~ as per approved drawing, specification and approval of engineer in charge. Erection bolts shall

				be arranged by the bidder and is not payable. the work shall be satisfactorily completed with required tightening of HSFG bolts along with DTI (DIRECT TENSION INDICATOR) washers to be supplied by the bidder(Cost of DTI washer isincluded in this item and not payable). The prefabricated structure shall be supplied in variable length to the maximum length of 10 meters -12 metersand all erection work on ground or at any elevation is included in this item. Payment shall be made for weight of structure & splice plate but not for erection bolts & nuts, DTI washers, gusset plates, stiffeners etc. Pre Assembly:-20%, Erection:-40%, Alignment, bolt tightening/welding:-30%,Completion of structure:-10%'
5	Point iii) of 14.14.2 of Chapter-XlV: ERECTION, (Pg 196 of 266)	Tanks of various size…….Segments/plates.	Please confirm that all plates shall be supplied in Rolled sections only with Stiffeners welded. Kindly provide drawing also.	Flat Plates shall be supplied without stiffeners. Drawings shall be made available during Erection/Execution.
6	Cl.14.27.1 Of Chapter-XlV: ERECTION, (Pg 204 of 266)	Critical Piping (Power Cycle piping)……..	1. What are the various diameters of pipes? 2. What %age of total Quantity will need edge preparation?	1. Reference Welding Schedule is enclosed as **Annexure-6 'Erection and Field Welding Schedule for Power Cycle Piping'** which describes size and no. of joints. However please note that this welding schedule is tentative and for reference purpose only, Final Welding Schedule shall be made available during Erection and all the NDT shall be followed as per Patratu Project Welding Schedule for Power Cycle Piping. 2. Exact quantification of Edge preparation cannot be done. Kindly refer Chapter-XIV ERECTION, Chapter-XVI HYDRAULIC TEST, and Chapter-X etc. in the tender

				specification for edge preparation scope. **Tender conditions shall prevail.**

BB) Amendment

Sn	Existing Clause	Amendment / To be read as
1	Point no -77 of chapter Iv (T&Ps and MMEs to be deployed by Contractor) **'Circulating Pump:** 200T/Hr,200 M Head Centrifugal, single/multi stage back pull out design, impeller and casing made of cast steel with base frame, motor, starter, cables. essential spares etc - **qty 3 nos -** Remarks: **3 NOS** STARTER AND ALONG WITH REQURED CABLE AND LUGS' (Pg 71/266)	**'77. Circulating Pump: 200-300T/Hr,200-250 M** Head Centrifugal, single/multi stage back pull out design, impeller and casing made of cast steel with base frame, motor, starter, cables. essential spares etc- **qty 4 nos** Remarks: "**4 NOS** STARTER AND ALONG WITH REQURED CABLE AND LUGS"
2	Sl no. 01 of 'Corrigendum-01: EMD Clarification and Amendment ' ref: BHE/PW/PUR/NTPRT-BLR PCP ESP FDG - U3/2314/Corg-01 dtd 12/10/2020 '**EMD AMOUNT:** ***Rs. 5,00,000/- (Rupees Five Lakhs Only)*** *[To be submitted as described in the NIT below]* *Important Note: Bidders kindly to take note that EMD (Earnest Money Deposit) shall be furnished by MSE bidders as well, as per the amount and procedure indicated in the NIT/GCC.'*	**EMD amount is waived off. All relevant clauses shall be read accordingly.**

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All other Terms and conditions of the Tender Specification shall remain unaltered unless expressly amended by BHEL in writing. Bidders are requested to submit as a part of their offer, a copy of this corrigendum duly Digitally countersigned by the authorized signatory as a token of Bidder's unqualified acceptance of this corrigendum.

This letter is hosted as file titled "Corrigendum-03 Clarifications" against NIT-2314 on e-Procurement Portal of BHEL i.e. https://bhel.abcprocure.com.

BIDDERS MAY PLEASE NOTE THAT SUBJECT TENDER IS E-TENDER AND THE OFFER IS TO BE SUBMITTED ONLY IN E-PROCUREMENT PORTAL→ **www.bhel.abcprocure.com**

BIDDERS WHO HAVE ALREADY SUBMITTED THEIR OFFERS PRIOR TO ISSUANCE OF THIS CORRIGENDUM IN E-TENDER PORTAL ARE REQUIRED TO RE-SUBMIT THEIR OFFER AFTER TAKING COGNIZANCE OF THIS CORRIGENDUM.

Thanking you,
Yours faithfully,

AGM (Purchase)

Enclosure: 1) **Annexure-6** Erection and Field Welding Schedule for Power Cycle Piping

Annexure-6 Erection and Field Welding Schedule for Power Cycle Piping

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–300
SYSTEM : MS FROM SUPER HEATER HDR TO MS STOP VALVE

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS SIZE OD mm	DIMENSIONS THICK mm	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT) TIG	ELECTRODE FILLER SPEC. (ATT) ARC SPEC.			W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
								QTY(gms)	QTY(NOS.)										
		PART–1	PART–1				QTY	ø2.4	ø2.5	ø3.2	ø4.0								
		PART–2	PART–2																
01	1–80–300–21578 1–80–300–21579	MATCHING PIECE (BOILER END) PIPE BEND	SA182F92 SA335P92	OD457	112	TIG & ARC	112 4	9CRWV TIG 300	E9015–B92 24	32	5444	1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
02	1–80–300–21578 1–80–300–21579	PIPE PIPE BEND MATCHING PIECE PIPE	SA335P92 SA182F92 SA335P92	ID240	75	TIG & ARC	69 24	9CRWV TIG 1800	E9015–B92 168	192	15888	1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
03	1–80–300–21578 1–80–300–21579	PIPE PIPE BEND MATCHING PIECE PIPE	SA335P92 SA182F92 SA335P92	ID300	104	TIG & ARC	104 10	9CRWV TIG 930	E9015–B92 80	100	16090	1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
04	1–80–300–21578 1–80–300–21579	PIPE PIPE BEND VALVE PIPE	SA335P92 SA182F92 SA335P92	OD88.9	23	TIG & ARC	23 18	9CRWV TIG 342	E9015–B92 72	162	162	1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% RT & 100% MPI	*	*	100% HARDNESS
05	1–80–300–21578 1–80–300–21579	PIPE PIPE BEND FORGINGS PIPE	SA335P92 SA182F92 SA335P92	ID360	102/112	TIG & ARC	102 20	9CRWV TIG 2240	E9015–B92 200	240	36620	1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS

NOTES:

01. LPI / MPI ,UT WHEREVER APPLICABLE SHALL BE CARRIED AFTER PWHT. 03. **5HR+15MIN FOR EACH ADDITIONAL 25MM THICK ABOVE 125MM,ROH/ROC:140°c/Hr ABOVE/UPTO 305°c
02. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI	VIVEKANANDA YELLU	26.10.17	4–80–300–80765	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–301
SYSTEM : MS FROM BOILER STOP VALVE TO ESV

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART–1	PART–1					QTY(gms)	QTY(NOS.)										
		PART–2	PART–2				QTY	ø2.4	ø2.5	ø3.2	ø4.0								
01	1–80–301–21580	PIPE PIPE BEND	SA335P92	ID360	102/112	TIG & ARC	102	9CRWV TIG	E9015–B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
		FORGINGS PIPE	SA182F92 SA335P92				71	7952	710	852	130001								
02	1–80–301–21580	PIPE PIPE BEND	SA335P92	ID240	75	TIG & ARC	69	9CRWV TIG	E9015–B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
		FITTINGS PIPE	SA182F92 SA335P92				6	450	42	48	3972								
03	1–80–301–21580	MATCHING PIECE (TURBINE END)	SA182F92	ID405	140	TIG & ARC	140	9CRWV TIG	E9015–B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
		TURBINE NOZZLE	SA182F92				2	250	22	28	6056								

NOTES:
01. LPI / MPI ,UT WHEREVER APPLICABLE SHALL BE CARRIED AFTER PWHT. 03. **5HR+15MIN FOR EACH ADDITIONAL 25MM THICK ABOVE 125MM,ROH/ROC:140°c/Hr ABOVE/UPTO 305°c
02. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI	VIVEKANANDA YELLU	26.10.17	4–80–301–80766	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-303
SYSTEM : MS PIPING TO APRDS

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 02

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP.	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD	THICK			TIG	ARC SPEC.					TEMP.	HOLD TIME				
		PART-1	PART-1	mm	mm		QTY	QTY(gms) ø2.4	QTY(NOS.) ø2.5	ø3.15	ø4.0		°C	°C					
		PART-2	PART-2																
01	1-80-303-21581	TEE PIPE	SA182F92 SA335P92	219.1	47	TIG & ARC	47	9CRWV TIG	E9015-B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
		VALVE/PIPE	SA182F92 SA335P92				14	300	24	32	5444								
02	1-80-303-21581	PIPE	SA335P91	609.6	20	TIG & ARC	20	ER90SB9	E 9015 B91			1050 REV 06	220	755 ±15	2.5 Mts PER mm min 60 min	100% UT & 100% MPI	*	*	100% HARDNESS
		VALVE	SA182F92				1	216	47	76	56								
03	1-80-303-21581	PIPE	SA335P91	609.6	20	TIG & ARC	20	ER90SB3	E9018B3			1035 REV 05	220	755 ±15	2.5 Mts PER mm min 60 min	100% UT & 100% MPI	*	*	
		FITTINGS	SA234WP22CL2				1	216	47	76	56								
04	1-80-303-21581	PIPE	SA335P22	609.6	20	TIG & ARC	20	ER90SB3	E9018B3			1014 REV 03	150	680 TO 720	2.5mtS PER mm minimum 60 min	RT 100%	*	*	3% HARDNESS
		PIPE FITTINGS	SA335P22 SA234WP22CL2				2	432	94	152	112								
05	1-80-303-21581	PIPE	SA335P22	609.6	20	TIG & ARC	20	ER80S-B2	E8018-B2			1012 REV 04	150	700 ±20	2.5mtS PER mm minimum 60 min	100% RT	*	*	
		PIPE	SA335P12				1	216	47	76	56								
06	1-80-303-21581	FITTINGS PIPE	SA234WPB SA106GRB	609.6	9.53	TIG & ARC	9.53	ER70SA1	E7018-1			1017 REV 03	125	--	--	100% RT	*	*	
		PIPE	SA335P12				3	608	140	218	-								

NOTES:
01. LPI / MPI ,UT WHEREVER APPLICABLE SHALL BE CARRIED AFTER PWHT. 03. **5HR+15MIN FOR EACH ADDITIONAL 25MM THICK ABOVE 125MM,ROH/ROC:140°c/Hr ABOVE/UPTO 305°c
02. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI	VIVEKANANDA YELLU	06.05.17	4-80-303-81446	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-303
SYSTEM : MS PIPING TO APRDS

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME

PAGE NO : 02 OF 02

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP.	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD	THICK			TIG	ARC SPEC.					TEMP.	HOLD TIME				
		PART-1	PART-1	mm	mm		QTY	QTY(gms) ø2.4	QTY(NOS.) ø2.5	ø3.15	ø4.0		°C	°C					
		PART-2	PART-2																
07	1-80-303-21581	FITTINGS	SA234WPB	558.5	9.53	TIG & ARC	9.53	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		VALVE	SA105				2	184	42	66	-								
08	1-80-303-21581	FITTINGS PIPE	SA234WPB SA106GRB	609.6	9.53	TIG & ARC	9.53	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		PIPE VALVE	SA106GRB SA105				10	2024	462	726	-								
09	1-80-303-21581	PIPE	SA106GRB	219.1	8.18	TIG & ARC	8.18	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		PLATE	SA515GR70				1	69	17	20	-								

NOTES:
01. LPI / MPI ,UT WHEREVER APPLICABLE SHALL BE CARRIED AFTER PWHT.
02. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI	VIVEKANANDA YELLU	06.05.17	4-80-303-81446	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–304
SYSTEM : HPBP UP STREAM PIPING

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART–1	PART–1					QTY(gms)	QTY(NOS.)										
		PART–2	PART–2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
01	2–80–304–14542	PIPE PIPE BEND	SA335P92	ID240	69/75	TIG & ARC	69	9CRWV TIG	E9015–B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
		HPBP VALVE PIPE	SA182F92 SA335P92				16	1200	112	128	10592								

NOTES:
01. LPI / MPI ,UT WHEREVER APPLICABLE SHALL BE CARRIED AFTER PWHT. 03. **5HR+15MIN FOR EACH ADDITIONAL 25MM THICK ABOVE 125MM,ROH/ROC:140°c/Hr ABOVE/UPTO 305°c
02. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI	VIVEKANANDA YELLU	26.10.17	4–80–304–80896	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–310
SYSTEM : HOT REHEAT PIPING

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS SIZE OD mm	DIMENSIONS THICK mm	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT) TIG	ELECTRODE FILLER SPEC. (ATT) ARC SPEC.			W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
								QTY(gms)	QTY(NOS.)										
		PART–1	PART–1				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
		PART–2	PART–2																
01	1–80–310–21628 1–80–310–21629	MATCHING PIECE (BOILER END)	SA182F92	813	80	TIG & ARC	80	9CRWV TIG	E9015–B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
		PIPE	SA335P92				2	400	36	44	3312								
02	1–80–310–21628 1–80–310–21629	PIPE PIPE BEND	SA335P92	ID600	38/41	TIG & ARC	41	9CRWV TIG	E9015–B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
		PIPE FORGING	SA335P92 SA182F92				87	16095	1392	1740	47154								
03	1–80–310–21628 1–80–310–21629	PIPE PIPE BEND	SA335P92	ID440	30	TIG & ARC	30	9CRWV TIG	E9015–B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
		PIPE FORGING	SA335P92 SA182F92				4	544	48	60	968								
04	1–80–310–21628 1–80–310–21629	MATCHING PIECE (TURBINE END)	SA182F92	ID670	127.5	TIG & ARC	128	9CRWV TIG	E9015–B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% RT & 100% MPI	*	*	100% HARDNESS
		PIPE	SA335P92				2	412	36	46	7478								

NOTES:
01. LPI / MPI ,UT WHEREVER APPLICABLE SHALL BE CARRIED AFTER PWHT. 03. **5HR+15MIN FOR EACH ADDITIONAL 25MM THICK ABOVE 125MM,ROH/ROC:140°c/Hr ABOVE/UPTO 305°c
02. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI		26.10.17	4–80–310–80897	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–312
SYSTEM : LOW PRESSURE BYPASS PIPING

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART–1	PART–1					QTY(gms)	QTY(NOS.)										
		PART–2	PART–2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
01	1–80–312–21630	PIPE PIPE BEND	SA335P92	ID600	38	TIG & ARC	38	9CRWV TIG	E9015–B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
		LPBP VALVE PIPE	SA182F92 SA335P92				22	4070	352	440	10648								
02	1–80–312–21630	PIPE PIPE BEND	SA335P92	ID600	41	TIG & ARC	41	9CRWV TIG	E9015–B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
		PIPE	SA335P92				8	1480	128	160	4336								
03	1–80–312–21630	PIPE PIPE BEND	SA335P92	ID600	46	TIG & ARC	46	9CRWV TIG	E9015–B92			1056 REV 02	220	755 ±15	2.5mtS PER mm minimum 60 min**	100% UT & 100% MPI	*	*	100% HARDNESS
		PIPE	SA335P92				3	555	48	60	1935								

NOTES:
01. LPI / MPI ,UT WHEREVER APPLICABLE SHALL BE CARRIED AFTER PWHT. 03. **5HR+15MIN FOR EACH ADDITIONAL 25MM THICK ABOVE 125MM,ROH/ROC:140°c/Hr ABOVE/UPTO 305°c
02. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI		26.10.17	4–80–312–80898	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA (2X800MW)
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-319
SYSTEM : PERMANENT STEAM BLOWING PPG

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : -- / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD / QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART-1	PART-1					QTY(gms)	QTY(NOS.)										
		PART-2	PART-2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
01	2-80-319-14606	FITTING	SA234WP22	273	9.27	TIG & ARC	9.27√V	ER90S-B3	E9018B3			1038 REV 05	220	730-770	2.5 Mts PER mm min 30min	RT 10%	*	*	
		VALVE	P92 EQUIVALENT				2	180	40	60	--								
02	2-80-319-14606	PIPE	SA335P22	273	9.27	TIG & ARC	9.27√V	ER90S-B3	E9018B3			1014 REV 03	150	700±20	2.5mts per mm min 1hr	RT 10%	*	*	
		FITTING/PIPE	SA335P22 SA234WP22				14	1260	280	420	--								

NOTES:
01. * REFER NDE MANUAL DOC NO. PSQ-NDM-COM REV NO.R00/04-02/AMD-02.
02. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV.
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI		09.01.18	4-80-319-81927	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–320
SYSTEM : COLD REHEAT PIPING

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 02

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART–1	PART–1					QTY(gms)	QTY(NOS.)										
		PART–2	PART–2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
01	1–80–320–21655	TURBINE NOZZLE	SA182F22	814	80	TIG & ARC	80 ▽	ER90SB3	E9018–B3			1014 REV 03	150	680 TO 720	2.5mtS PER mm minimum 60 min	RT 100%	*	*	3% HARDNESS
		MATCHING PIECE	SA234WP22				2	538	120	202	1725								
02	1–80–320–21655	PIPE FORGING	SA335P22 SA182F22	711.2	40/45	TIG & ARC	40 ▽	ER90SB3	E9018–B3			1014 REV 03	150	680 TO 720	2.5mtS PER mm minimum 60 min	RT 100%	*	*	3% HARDNESS
		PIPE	SA335P22				25	5866	1344	2208	6272								
03	1–80–320–21655	PIPE FITTING	SA335P22 SA234WP22	323.9	28	TIG & ARC	28 ▽	ER90SB3	E9018–B3			1014 REV 03	150	680 TO 720	2.5mtS PER mm minimum 60 min	RT 100%	*	*	3% HARDNESS
		PIPE PLATE	SA335P22 SA387GR22				4	412	100	160	220								
04	1–80–320–21655	FORGING	SA182F11	711.2	40	TIG & ARC	40 ▽	ER80SB2	E8018–B2			1012 REV 04	150	680 TO 720	2.5mtS PER mm minimum 60 min	RT 100%	*	*	
		FITTING	SA234WP22				2	469	108	177	502								
05	1–80–320–21655	FORGING	SA182F11	711.2	33	TIG & ARC	33 ▽	ER70SA1	E7018A1			1018 REV 04	150	660 ±10	2.5mtS PER mm minimum 60 min	100% RT	*	*	
		PIPE	SA106GRC				2	512	118	194	550								
06	1–80–320–21655	PIPE FITTING	SA106GRC SA234WPC	323.9	36	TIG & ARC	36 ▽	ER70SA1	E7018–1			1004 REV 04	100	610±15	2.5mtS PER mm minimum 30 min	RT 100%	*	*	
		PIPE PLATE	SA106GRC SA515GR70				4	400	100	160	348								

NOTES:
01. LPI / MPI ,UT WHEREVER APPLICABLE SHALL BE CARRIED AFTER PWHT.
02. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI		26.10.17	4–80–320–80968	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–320
SYSTEM : COLD REHEAT PIPING

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 02 OF 02

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART–1	PART–1					QTY(gms)	QTY(NOS.)										
		PART–2	PART–2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
07	1–80–320–21655 1–80–320–21656	PIPE PIPE BEND	SA106GRC	711.2	33	TIG & ARC	33 ▽	ER70SA1	E7018–1			1004 REV 04	100	610±15	2.5mtS PER mm minimum 30 min	RT 100%	*	*	
		PIPE/FORGING FITTING	106GRC/A105 SA234WPC				63	16380	3717	6111	13734								
08	1–80–320–21656	FITTING	SA234WPC	559	40	TIG & ARC	40 ▽	ER70SA1	E7018–1			1004 REV 04	100	610±15	2.5mtS PER mm minimum 30 min	RT 100%	*	*	
		RH HEADER	SA106GRC				2	366	84	140	392								
09	1–80–320–21656	FITTING	SA234WPC	660	29	TIG & ARC	29 ▽	ER70SA1	E7018–1			1004 REV 04	100	610±15	2.5mtS PER mm minimum 30 min	RT 100%	*	*	
		PIPE	SA106GRC				8	1780	400	657	1286								

NOTES:
01. LPI / MPI ,UT WHEREVER APPLICABLE SHALL BE CARRIED AFTER PWHT.
02. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI		26.10.17	4–80–320–80968	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–321
SYSTEM : HIGH PRESSURE BYPASS DOWNSTREAM PIPING

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
								QTY(gms)	QTY(NOS.)										
		PART–1	PART–1				QTY	ø2.4	ø2.5	ø3.2	ø4.0								
01	2–80–321–14566	HPBP VALVE	SA182F92	558.8	32	TIG & ARC	32 ▽	ER90SB3	E9018B3			1035 REV 04	220	755 ±15	2.5 Mts PER mm min 60 min	RT 100%	*	*	
		PIPE	SA335P22				2	376	84	140	270								
02	2–80–321–14566	PIPE FITTING	SA335P22 SA234WP22	558.8	32	TIG & ARC	32 ▽	ER90SB3	E9018B3			1014 REV 03	150	680 TO 720	2.5mtS PER mm minimum 60 min	RT 100%	*	*	3% HARDNESS
		PIPE FITTING	SA335P22 SA234WP22				16	3008	672	1120	2160								

NOTES:
01. LPI / MPI ,UT WHEREVER APPLICABLE SHALL BE CARRIED AFTER PWHT.
02. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI		26.10.17	4–80–321–80969	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–342
SYSTEM : AUXILIARY STEAM PIPING TO STEAM COIL AIR PRE–HEATER

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART–1	PART–1					QTY(gms)	QTY(NOS.)										
		PART–2	PART–2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
01	1–80–342–21988	FITTING PIPE	SA234WPB SA106GRB	273	9.27	TIG & ARC	9.27√V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCB SA106GRB/WPB				31	2637	620	930	–								
02	1–80–342–21988	PIPE/FITTING	SA106GRB/WPB	219.1	8.18	TIG & ARC	8.18√V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCB SA106GRB/WPB				92	6440	1564	1656	–								
03	1–80–342–21988	PIPE/FITTING	SA106GRB/WPB	114.3	6.02	TIG & ARC	6.02√V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCB SA106GRB/WPB				54	1458	1134	–	–								

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPANAIDU	R.SESHAGIRI		27.12.17	4–80–342–81882	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-343
SYSTEM : AUXILIARY STEAM PIPING TO SOOT BLOWING

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART-1	PART-1					QTY(gms)	QTY(NOS.)										
		PART-2	PART-2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
01	2-80-343-15495	FITTING PIPE	SA234WPB SA106GRB	168.3	7.11	TIG & ARC	7.11√	ER70SA1	E7018-1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCB SA106GRB/WPB				45	2385	675	405	–								
02	2-80-343-15495	PIPE	SA106GRB	168.3	7.11	TIG & ARC	7.11√	ER70SA1	E7018-1			1017 REV 03	125	–	–	100% RT	*	*	
		FITTING	SA335P12				1	53	15	9	–								
03	2-80-343-15495	VALVE	WC9	127	12.5	TIG & ARC	12.5√	ER80S-B2	E8018-B2			1012 REV 04	150	700 ±20	2.5mtS PER mm minimum 60 min	100% RT	*	*	
		FITTING	SA335P12				1	27	12	17	–								

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV.
RP SINGH	KONDAPANAIDU	R.SESHAGIRI		26.12.17	4-80-343-81870	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–351
SYSTEM : AUXILIARY STEAM PIPING TO MILL INERTING

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART–1	PART–1					QTY(gms)	QTY(NOS.)										
		PART–2	PART–2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
01	1–80–351–21987 1–80–351–21989	FITTING PIPE	SA234WPB SA106GRB	355.6	9.53	TIG & ARC	9.53V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCB SA106GRB/WPB				9	1035	243	369	–								
02	1–80–351–21987 1–80–351–21989	PIPE/FITTING	SA106GRB/WPB	219.1	8.18	TIG & ARC	8.18V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCB SA106GRB/WPB				108	7560	1836	1926	–								
03	1–80–351–21987 1–80–351–21989	PIPE/FITTING	SA106GRB/WPB	323.9	9.53	TIG & ARC	8.18V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCB SA106GRB/WPB				46	4784	1104	1564	–								
04	1–80–351–21987 1–80–351–21989	PIPE/FITTING	SA106GRB/WPB	273	9.27	TIG & ARC	8.18V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCB SA106GRB/WPB				14	1218	280	420	–								

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPANAIDU	R.SESHAGIRI		05.01.18	4–80–351–81898	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–370
SYSTEM : HP DRAIN FLASH TANK & FLASH TANK VENT TO ATMOSPHERE

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : – / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART–1	PART–1					QTY(gms)	QTY(NOS.)										
		PART–2	PART–2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
01	1–80–370–21910	PIPE	SA515GR70	2032	16	TIG & ARC	16V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		PIPE/NOZZLE MITRE BEND	SA515GR70				17	12359	2618	4284	1428								
02	1–80–370–21910	PIPE	SA106GRB	323.9	9.53	TIG & ARC	9.53V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		PIPE FITTING	GRB/WPB				13	1352	312	481	–								

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
PRASANTH	KONDAPANAIDU	R.SESHAGIRI		27.10.17	4–80–370–81439	01

ERECTION/FIELD WELDING SCHEDULE

PROJECT:	1X800 MW TANGEDCO NORTH CHENNAI TPP STAGE-III BTG	**CUST. NO:**	7311
		PGMA:	80-395
NAME OF THE CUSTOMER:	TAMILNADU GENERATION & DISTRIBUTION CORPORATION LIMITED 5th FLOOR ,WESTERN WING,NPKRR MAALIGAI, 144,ANNA SALAI,CHENNAI-600002	**CUST. DOC. NO.**	
		SYSTEM DESCRIPTION:	AUXILIARY STEAM PIPING TO FUEL OIL ATOMISATION

Sl.No.	Drg. No. for weld location	Description of parts to be welded	Matl. Spec.	Dimensions		Process of Welding	Type of weld	Electrode filler spec.				W.P.S no.	Min pre heat temp.	Heat Treatment		NDT method/Quantum	Ref. Spec. No.	Acc. Norm. Ref.	Remarks
				ID/OD	Thick			TIG	Arc spec					Temp.	Hold time per mm in minutes				
		Part-1	Part-1	Size				Qty (gms)	Qty(nos)										
		Part-2	Part-2	mm	mm		Qty	Dia2.4	Dia2.5	Dia3.2	Dia4.0		in deg C	in deg C					
1	3-80-395-33895	PIPE	SA106GRB	OD	6.02	TIG & ARC	6.02	ER70S-A1	E7018-1			1003/REV04	20	NIL	NIL(NIL)	10% RT	REFER NOTE-1	REFER NOTE-1	REFER NOTE-3
	3-80-395-33895	FITTING	SA234WPB	114.3			4	107	84	0	0								
2	3-80-395-33895	PIPE	SA106GRB	OD	6.02	TIG & ARC	6.02	ER70S-A1	E7018-1			1003/REV04	20	NIL	NIL(NIL)	10% RT	REFER NOTE-1	REFER NOTE-1	REFER NOTE-3
	3-80-395-33895	VALVE	SA216WCB	114.3			2	54	42	0	0								
																			REFER NOTE-3
																			REFER NOTE-3
																			REFER NOTE-3
																			REFER NOTE-3
																			REFER NOTE-3
																			REFER NOTE-3

Notes:
(1) Refers to NDE Manual no. PSQ-NDEM-COM-2010/R01
(2) Drain & vent piping: 100% RT upto the last root valve. Beyond the last root valve, 10% RT is applicable.
(3)100% LPI on all Butt welds after PWHT for Non-P91 piping. 100% MPI on all Butt welds after PWHT for P91 piping.

Rev.no.	Date:	Altered:		Rev.no.	Date:	Altered:	
		Approved:				Approved:	

PREPARED BY	DESIGN/CHD.	DESIGN/APPD.	QA-CHD./APPRD.	DATE	DRAWING NO:	SHEET NO:		REV. NO.
PREETHIVI	S.ARUN SHARMA	P.SURESH	VIVEKANANDA YELLU	01-08-2018	4-80-395-81589	01	OF 01	00

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–451
SYSTEM : BOILER INTEGRAL PIPING DRAINS

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME
PAGE NO : 01 OF 02

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART–1	PART–1					QTY(gms)	QTY(NOS.)										
		PART–2	PART–2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
01	1–80–451–22270	PIPE	SA335P91	88.9	15.24	TIG & ARC	15.24√	ER90SB9	E9015–B91			1036 REV 08	220	745 ±15	2.5 Mts PER mm min 30 min	100% RT & 100% MPI	*	*	100% HARDNESS
		FITTING/VAL	SA234WP91/F91				68	1685	564	704	352								
02	3–80–451–34391	PIPE	SA335P22	48.3	10.16	TIG & ARC	10 √	ER90SB3	E9018B3			1014 REV 03	150	680 TO 720	2.5mts PER mm MINIMUM 60 MIN	RT 10%	*	*	HARDNESS 3%
		FITTING	SA234WP22				~84	672	756	840	–								
03	3–80–451–34391	PIPE	SA106GRC	33.4	9.09	TIG & ARC	9.09 √	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		FITTING	SA234WPC				~50	200	700	–	–								
04	3–80–451–34391	PIPE/FITTING	SA106GRC/WPC	88.9	15.24	TIG & ARC	15√	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCC SA106GRC/WPC				10	240	80	100	50								
05	1–80–451–22271 2–80–451–15522	PIPE	SA106GRC	168.3	10.97	TIG & ARC	10.97√	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		FITTING	WPC				70	3366	990	1518	–								
06	2–80–451–15523	PIPE/FITTING	SA106GRC/WPC	73.0	14.02	TIG & ARC	14√	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCC SA106GRC/WPC				16	426	137	172	35								

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV.
RP SINGH	P KONDAPA NAIDU	R.SESHAGIRI		28.02.18	4–80–451–81996	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–451
SYSTEM : BOILER INTEGRAL PIPING DRAINS

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : IBR / ASME

PAGE NO : 02 OF 02

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD mm	THICK mm			TIG	ARC SPEC.					TEMP. °C	HOLD TIME				
		PART–1	PART–1					QTY(gms)	QTY(NOS.)										
		PART–2	PART–2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
07	2–80–451–15524	PIPE/FITTING	SA106GRC/WPC	168.3	27.5	TIG & ARC	27.5√	ER70SA1	E7018–1			1004 REV 04	100	610±15	2.5mtS PER mm minimum 30 min	RT 100%	*	*	
		VALVE PIPE/FITTING	WCC SA106GRC/WPC				24	1080	336	576	480								
08	3–80–451–34393	PIPE	SA106GRC	114.3	20	TIG & ARC	20 √	ER70SA1	E7018A1			1004 REV 04	10	610±15	2.5mtS PER mm minimum 30 min	RT 100%	*	*	
		FITTING/VAL	SA234WPC/WPC				6	186	72	84	36								
09	3–80–451–34390	PIPE	SA106GRC	60.3	5.54	TIG & ARC	5.54√	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		FITTINGS	SA234WPC				107	1349	1070	–	–								
10	1–80–451–22275	PIPE	SA335P22	73	14.02	TIG & ARC	14 √	ER90SB3	E9018B3			1014 REV 03	150	680 TO 720	2.5mtS PER mm minimum 60 min	RT 100%	*	*	3% HARDNESS
		FITTING	WP22				82	2067	1640	1200	–								

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV.
RP SINGH	P KONDAPA NAIDU	R.SESHAGIRI		28.02.18	4–80–451–81996	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80–454
SYSTEM : SCAPH DRAIN TO FLASH TANK

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : –– / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP.	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD	THICK			TIG	ARC SPEC.					TEMP.	HOLD TIME				
		PART–1	PART–1	mm	mm			QTY(gms)	QTY(NOS.)										
		PART–2	PART–2				QTY	ø2.4	ø2.5	ø3.15	ø4.0		°C	°C					
01	1–80–454–22248	FITTING PIPE	SA234WPB SA106GRB	114.3	6.02	TIG & ARC	6.02√V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		PIPE/FITTING	SA106GRB/WPB				21	575	454	–	–								
02	1–80–454–22248	PIPE/FITTING	SA106GRB/WPB	88.9	5.49	TIG & ARC	5.49√V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		PIPE/FITTING	SA106GRB/WPB				40	800	612	–	–								
03	1–80–454–22248	PIPE/FITTING	SA106GRB/WPB	48.3	5.08	TIG & ARC	5.08√V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCB SA106GRB/WPB				~230	2300	2070	–	–								
04	1–80–454–22248	PIPE	SA106GRB	48.3	5.08	ARC	10△	––	E7018–1			1021 REV 02	10	–	–	LPI/ MPI 10%	*	*	–
		VALVE	WCB				~66	––	150	–	–								
05	1–80–454–22248	PIPE/FITTING	SA106GRB/WPB	60.3	5.54	TIG & ARC	5.54√V	ER70SA1	E7018–1			1003 REV 04	20	–	–	RT 10%	*	*	
		VALVE PIPE/FITTING	WCB SA106GRB/WPB				~20	260	220	–	–								

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III–NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. – QA	DATE	DRAWING NO.	REV .
RP SINGH	KONDAPANAIDU	R.SESHAGIRI		05.01.18	4–80–454–81908	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-455
SYSTEM : DRAIN FROM UNLISTED EQPT/VESSEL -SG SCOPE

DOC.NO. : -
REV. NO. : 00
WELDING CODE : - / ASME
PAGE NO : 01 OF 03

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS SIZE OD mm	DIMENSIONS THICK mm	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT) TIG	ELECTRODE FILLER SPEC. (ATT) ARC SPEC.			W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
		PART-1	PART-1					QTY(gms)	QTY(NOS.)										
		PART-2	PART-2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
01	2-80-455-15498	PIPE	SA106GRB	457	9.53	TIG & ARC	9.53V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				32	4800	1088	1696	-								
02	1-80-455-22249	PIPE	SA106GRB	323.9	9.53	TIG & ARC	9.53V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				40	4160	960	1480	-								
03	1-80-455-22249	PIPE	SA106GRB	457	9.53	TIG & ARC	9.53V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				13	1950	442	689	-								
04	1-80-455-22249	PIPE	SA106GRB	219.1	8.18	TIG & ARC	8.18V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				20	1400	340	360	-								
05	1-80-455-22254	PIPE	SA106GRB	323.9	9.53	TIG & ARC	9.53V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				~12	1248	288	444	-								
06	1-80-455-22254	PIPE	SA106GRB	355.6	9.53	TIG & ARC	9.53V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				30	3450	810	1230	-								

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV.
R.P.SINGH	KONDAPANAIDU	R.SESHAGIRI		08.01.18	4-80-455-81911	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-455
SYSTEM : DRAIN FROM UNLISTED EQPT/VESSEL -SG SCOPE

DOC.NO. : -
REV. NO. : 00
WELDING CODE : - / ASME
PAGE NO : 02 OF 03

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS SIZE OD mm	DIMENSIONS THICK mm	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT) TIG	ELECTRODE FILLER SPEC. (ATT) ARC SPEC.			W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
		PART-1	PART-1					QTY(gms)	QTY(NOS.)										
		PART-2	PART-2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
07	1-80-455-22254	PIPE	SA106GRB	88.9	5.49	TIG & ARC	5.49V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				10	250	150	-	-								
08	3-80-455-34326	PIPE	SA106GRB	609.6	9.53	TIG & ARC	9.53V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				11	2233	517	803	-								
09	3-80-455-34326	PIPE	SA106GRB	60.3	5.54	TIG & ARC	5.54V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				8	104	80	-	-								
10	2-80-455-15525 2-80-455-15528	PIPE	SA106GRC	273	15.09	TIG & ARC	15.09V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPC/GRC				28	2268	560	924	280								
11	1-80-455-22256	PIPE	SA106GRB	114.3	6.02	TIG & ARC	6.02V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				35	945	735	-	-								
12	1-80-455-22256	PIPE	SA106GRB	219.1	12.7	TIG & ARC	12.7V	ER70SA1	E7018-1			1017 REV 03	125	-	-	RT 10%	*	*	
		NOZZLE	P11 EQUIVALENT				01	67	17	25	8								

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV.
R.P.SINGH	KONDAPANAIDU	R.SESHAGIRI		08.01.18	4-80-455-81911	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-455
SYSTEM : DRAIN FROM UNLISTED EQPT/VESSEL -SG SCOPE

DOC.NO. : -
REV. NO. : 00
WELDING CODE : - / ASME
PAGE NO : 03 OF 03

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS SIZE OD mm	DIMENSIONS THICK mm	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT) TIG	ELECTRODE FILLER SPEC. (ATT) ARC SPEC.			W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
		PART-1	PART-1					QTY(gms)	QTY(NOS.)										
		PART-2	PART-2				QTY	ø2.4	ø2.5	ø3.15	ø4.0								
13	2-80-455-15528	PIPE	SA106GRC	273	15.09	TIG & ARC	15.09V	ER70SA1	E7018-1			1018 REV 04	150	650 TO 670	2.5 mts PER mm MINIMUM 60 min	RT 10%	*	*	
		NOZZLE	P11 EQUIVALENT				1	81	20	33	10								
14	2-80-455-15528	PIPE	SA335P22	273	15.09	TIG & ARC	15.09V	ER80SB2	E8018B2			1012 REV 04	150	700 ±20	2.5mtS PER mm minimum 60 min	RT 10%	*	*	
		NOZZLE	P11 EQUIVALENT				1	81	20	33	10								
15	2-80-455-15528	PIPE	SA335P22	273	15.09	TIG & ARC	15.09V	ER90SB3	E9018B3			1014 REV 03	150	680 -720	2.5 Mts PER mm 60 min	RT 10%	*	*	3% HARDNESS
		PIPE/PLATE	SA335P22/GR22				2	162	40	66	20								

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV.
R.P.SINGH	KONDAPANAIDU	R.SESHAGIRI		08.01.18	4-80-455-81911	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-460
SYSTEM : SG AUX. COOLING WATER UNIT SYSTEM

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : - / ASME
PAGE NO : 01 OF 05

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS SIZE OD mm	DIMENSIONS THICK mm	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT) TIG QTY(NOS)	ELECTRODE FILLER SPEC. (ATT) ARC SPEC. QTY(NOS.) #2.4	#2.5	#3.15	#4.0	W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
		PART-1	PART-1																	
		PART-2	PART-2				QTY													
01	--	PIPE	IS3589-410MPA	323.9	6	ARC	6 V	E 7018	E 7018				1213 REV 00	10	-	-	RT 10%	*	*	
		PIPE FITTING	IS3589-410MPA SA 234 WPB				~12	144	288	180	-									
02	--	PIPE	IS3589-410MPA	219.1	6	ARC	6 V	E 7018	E 7018				1213 REV 00	10	-	-	RT 10%	*	*	
		PIPE FITTING	IS3589-410MPA SA 234 WPB				~150	1200	5550	-	-									
03	--	PIPE	IS1239 BLACK	150	5.4	ARC	5.4 V	E 6013	E 7018				1001 REV 01	10	-	-	RT 10%	*	*	
		PIPE FITTING	IS1239 BLACK				~80	480	1200	720	-									
04	--	PIPE	IS1239 BLACK	100	5.4	ARC	5.4 V	E 6013	E 7018				1001 REV 01	10	-	-	RT 10%	*	*	
		PIPE FITTING	IS1239 BLACK IS1239 BLACK				~15	45	315	-	-									
05	--	PIPE	IS1239 BLACK	80	4.8	ARC	4.8 V	E 6013	E 7018				1001 REV 01	10	-	-	RT 10%	*	*	
		PIPE FITTING	IS1239 BLACK IS1239 BLACK				~460	1380	6900	-	-									
06	--	PIPE	IS1239 BLACK	50	4.5	ARC	4.5 V	E 6013	E 7018				1001 REV 01	10	-	-	RT 10%	*	*	
		PIPE	IS1239 BLACK				~110	220	1100	-	-									

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV.
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI	--	06.03.2018	4-80-460-81491	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-460
SYSTEM : SG AUX. COOLING WATER UNIT SYSTEM

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : - / ASME
PAGE NO : 02 OF 05

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS SIZE OD mm	DIMENSIONS THICK mm	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT) TIG QTY(NOS)/ QTY(grm)	ELECTRODE FILLER SPEC. (ATT) ARC SPEC. QTY(NOS.) #2.4	#2.5	#3.15	#4.0	W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
		PART-1	PART-1																	
		PART-2	PART-2				QTY													
07	--	PIPE	IS1239 BLACK	25	4.0	ARC	4.0 V	E 6013	E 7018				1001 REV 01	10	-	-	RT 10%	*	*	
		PIPE	IS1239 BLACK				~220	220	1100	-	-									
08	--	PIPE	IS1239 BLACK	15	3.2	ARC	3.2 V	E 6013	E 7018				1001 REV 01	10	-	-	RT 10%	*	*	
		PIPE	IS1239 BLACK				~280	280	-	-	-									
09	--	PIPE	IS1239 BLACK	40	4.0	ARC	4.0 V	E 6013	E 7018				1001 REV 01	10	-	-	RT 10%	*	*	
		PIPE	IS1239 BLACK				~110	110	880	-	-									
10	--	PIPE	IS3589-410MPA	406.4	6	ARC	6 V	E 7018	E 7018				1213 REV 00	10	-	-	RT 10%	*	*	UNIT #01 ONLY
		PIPE FITTING	IS3589-410MPA SA 234 WPB				~230	3450	6900	4830	-									
11	--	PIPE	IS3589-410MPA	273	6	ARC	6 V	E 7018	E 7018				1213 REV 00	10	-	-	RT 10%	*	*	UNIT #01 ONLY
		PIPE FITTING	IS3589-410MPA SA 234 WPB				~65	650	1300	585	-									
12	--	PIPE	SA106GRB	323.9	8.38	TIG&ARC	6.35 V	ER70SA1	E7018				1003 REV 04	20	-	-	RT 10%	*	*	UNIT #01 ONLY
		PIPE FITTING	SA106GRB SA234WPB				~45	4815	1080	675	-									

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV.
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI	--	06.03.2018	4-80-460-81491	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-460
SYSTEM : SG AUX. COOLING WATER UNIT SYSTEM

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : - / ASME
PAGE NO : 03 OF 05

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS SIZE OD mm	DIMENSIONS THICK mm	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT) TIG QTY(NOS)/ QTY(grm)	ELECTRODE FILLER SPEC. (ATT) ARC SPEC. QTY(NOS.) #2.4	#2.5	#3.15	#4.0	W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
		PART-1	PART-1																	
		PART-2	PART-2				QTY													
13	---	PIPE	SA106GRB	88.9	5.49	TIG&ARC	6.35 V	ER70SA1	E7018-1				1003 REV 04	20	-	-	RT 10%	*	*	UNIT #01 ONLY
		PIPE FITTING	SA106GRB SA234WPB				~15	300	225	-	-									
14	---	PIPE	SA106GRB	219.1	6.35	TIG&ARC	6.35 V	ER70SA1	E7018-1				1003 REV 04	20	-	-	RT 10%	*	*	UNIT #01 ONLY
		PIPE FITTING	SA106GRB SA234WPB				~65	4615	2405	-	-									
15	---	PIPE	IS1239 BLACK	150	5.4	ARC	5.4 V	E 6013	E 7018				1001 REV 01	10	-	-	RT 10%	*	*	UNIT #01 ONLY
		PIPE FITTING	IS1239 BLACK IS1239 BLACK				~80	480	1200	720	-									
16	---	PIPE	IS3589-410MPA	323.9	6.4	ARC	6 V	E 7018	E 7018				1213 REV 00	10	-	-	RT 10%	*	*	UNIT #01 ONLY
		PIPE FITTING	IS3589-410MPA SA 234 WPB				~170	2160	4320	2700	-									
17	---	PIPE	APISLGRB	711.2	12.7	ARC	6 V	E 7018	E 7018				1213 REV 00	10	-	-	RT 10%	*	*	
		PIPE FITTING	APISLGRB IS3589-410MPA				~3	720	162	105	-									
18	---	PIPE	IS3589-410MPA	610	6	ARC	6 V	E 7018	E 7018				1213 REV 00	10	-	-	RT 10%	*	*	
		PIPE FITTING	IS3589-410MPA SA 234 WPB				~10	220	460	720	-									

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV.
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI	--	06.03.2018	4-80-460-81491	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-460
SYSTEM : SG AUX. COOLING WATER UNIT SYSTEM

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : - / ASME
PAGE NO : 04 OF 05

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS SIZE OD mm	DIMENSIONS THICK mm	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT) TIG QTY(NOS)/ QTY(grm)	ELECTRODE FILLER SPEC. (ATT) ARC SPEC. QTY(NOS.) #2.5	#3.15	#4.0	W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
		PART-1	PART-1																	
		PART-2	PART-2				QTY	#2.4												
19	--	PIPE	IS3589-410MPA	508	6	ARC	6 V	E 7018	E 7018			1213 REV 00	10	-	-	RT 10%	*	*		
		PIPE FITTING	IS3589-410MPA SA 234 WPB				~50	900	1900	1250	-									
20	--	PIPE	IS3589-410MPA	406.4	6	ARC	6 V	E 7018	E 7018			1213 REV 00	10	-	-	RT 10%	*	*		
		PIPE FITTING	IS3589-410MPA SA 234 WPB				~60	900	1800	1260	-									
21	--	PIPE	APISLGRB	355.6	6	ARC	6 V	E 7018	E 7018			1213 REV 00	10	-	-	RT 10%	*	*		
		PIPE FITTING	APISLGRB SA 234 WPB				~30	390	810	550	-									
22	--	PIPE	SA335P11	273	6.35	TIG&ARC	6.35 V	ER80SB2	E80SB2			1009 REV 03	150	-	-	RT 10%	*	*		
		PIPE	SA335P11				~10	90	200	90	-									
23	--	PIPE	SA335P11	273	6.35	TIG&ARC	6.35 V	ER70SA1	E7018-1			1017 REV 03	125	-	-	RT 10%	*	*		
		FITTING	SA 234 WPB				~20	180	400	180	-									
24	--	PIPE	SA106GRB	114.3	6.02	ARC	6 V	E 6013	E 7018			1001 REV 01	10	-	-	RT 10%	*	*		
		PIPE FITTING	SA106GRB IS1239				~30	90	630	---	-									

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV.
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI	--	06.03.2018	4-80-460-81491	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-460
SYSTEM : SG AUX. COOLING WATER UNIT SYSTEM

DOC.NO. : NA
REV. NO. : 00
WELDING CODE : - / ASME
PAGE NO : 05 OF 05

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS SIZE OD mm	DIMENSIONS THICK mm	PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT) TIG QTY(NOS)/ QTY(grm)	ELECTRODE FILLER SPEC. (ATT) ARC SPEC. QTY(NOS.) #2.5	#3.15	#4.0	W.P.S NO.	MIN. PRE HEAT TEMP. °C	HEAT TREATMENT TEMP. °C	HEAT TREATMENT HOLD TIME	NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
		PART-1	PART-1																	
		PART-2	PART-2				QTY	#2.4												
25	---	PIPE	SA312TP304H	88.9	3.05	TIG&ARC	3.05 V	ER347	E347			1016 REV 02	10	-	-	RT10% LPI100%	*	*		
		PIPE FITTING	SA312TP304H SA403WP304H				~50	1050	650	-	-									
26	---	PIPE	SA312TP304H	114.3	3.05	TIG&ARC	3.05 V	ER347	E347			1016 REV 02	10	-	-	RT10% LPI100%	*	*		
		PIPE FITTING	SA312TP304H SA403WP304H				~50	1050	650	-	-									
27	---	PIPE	SA312TP304H	33.4	3.38	TIG&ARC	3.38 V	ER347	E347			1016 REV 02	10	-	-	RT10% LPI100%	*	*		
		PIPE FITTING	SA312TP304H SA403WP304H				~60	360	300	-	-									
28	---	PIPE	SA312TP304H	60.3	3.91	TIG&ARC	3.91 V	ER347	E347			1016 REV 02	10	-	-	RT10% LPI100%	*	*		
		PIPE FITTING	SA403WP304H				~5	65	45	-	-									

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT:24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV.
RP SINGH	KONDAPA NAIDU	R.SESHAGIRI	--	06.03.2018	4-80-460-81491	01

ERECTION / FIELD WELDING SCHEDULE

PROJECT : TELANGANA 2X800MW
CONTRACTOR : M/S BHEL

CUST. NO : 7313 & 7314
PGMA : 80-545
SYSTEM : LP CONDENSATE PIPING WITHIN TG HALL

DOC.NO. : -
REV. NO. : 00
WELDING CODE : - / ASME
PAGE NO : 01 OF 01

SL. NO.	DRG NO. FOR WELD LOCATION IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATL.SPEC. (ATT)	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC. (ATT)				W.P.S NO.	MIN. PRE HEAT TEMP.	HEAT TREATMENT		NDT METHOD/ QUANTUM	REF. SPEC. NO.	ACC. NORM REF.	REMARKS
				SIZE OD	THICK			TIG	ARC SPEC.					TEMP.	HOLD TIME				
		PART-1	PART-1	mm	mm			QTY(gms)	QTY(NOS.)										
		PART-2	PART-2				QTY	ø2.4	ø2.5	ø3.15	ø4.0		°C	°C					
01	1-80-545-22250	PIPE	SA106GRB	457	9.53	TIG & ARC	9.53V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				43	6450	1462	2279	-								
02	1-80-545-22250	PIPE	SA106GRB	508	12.7	TIG & ARC	9.53V	ER70SA1	E7018-1			1003 REV 04	20	-	-	RT 10%	*	*	
		FITTING/PIPE	WPB/GRB				8	1336	304	480	-								

NOTES: 01. * REFER NDE MANUAL NO. AA/CQ/GL/011 PART III-NDEM REV 00 DT: 24.10.16

PREPARED	DESIGN/CHD.	DESIGN/APPD.	CHD./APPD. - QA	DATE	DRAWING NO.	REV.
R.P.SINGH	KONDAPANAIDU	R.SESHAGIRI		08.01.18	4-80-545-81922	01