

Ref: BHE/PW/PUR/RGMT-BLR Unit#01/1780 & BHE/PW/PUR/RGMT-BLR Unit#02/1781/Corr-04 Date: 19/08/2017

To  
ALL BIDDERS

**Sub: Corrigendum-04: Amendment for IEM, Clarification, Issue of Revised Chapter-VIII: Taxes & Other Duties and amended PVC (Clause no 2.17 of Vol IC GCC) clause.**

**Job: PACKAGE - A:** Handling of materials at BHEL / Client's Stores / Storage Yard and transportation to site Erection, Testing and assistance for commissioning & Trial Operation including application of Insulation, Refractory, supply & application of final painting etc of

1. Boiler & auxiliaries, Air Pre Heaters, Ducts & Dampers, Boiler Integral Piping, Structure for bunker, Rotating Equipments, Auxillary boiler and its auxiliaries of **Unit-1** at 2X800 MW NTPC Ramagundam Project.

AND

2. Erection of Bunker & allied works (CHP and AHP Structure) including supply & installation of items as per BOQ of **Unit-1** at 2X800 MW NTPC Ramagundam Project.

**PACKAGE - B:** Handling of materials at BHEL / Client's Stores / Storage Yard and transportation to site Erection, Testing and assistance for commissioning & Trial Operation including application of Insulation, Refractory, supply & application of final painting etc.of

1. Boiler & auxiliaries, Air Pre Heaters, Ducts & Dampers, Boiler Integral Piping, Structure for bunker, Rotating Equipments, and its auxiliaries **Unit-2** at 2X800 MW NTPC Ramagundam Project.

AND

2. Erection of Bunker & allied works (CHP and AHP Structure) including supply & installation of items as per BOQ of **Unit-2** at 2X800 MW NTPC Ramagundam Project.

At

**NTPC LTD, RAMAGUNDAM, TELANGANA STPP, PHASE-I (2X800MW),  
DISTRICT- KARIMNAGAR, STATE-TELANGANA.**

SI No	E-Tender Specification Number	Unit Number & Project
1	BHE / PW / PUR / RGMT – BLR Unit#01/1780	800 MW NTPC RAMAGUNDAM Boiler Unit#01
2	BHE / PW / PUR / RGMT – BLR Unit#02/1781	800 MW NTPC RAMAGUNDAM Boiler Unit#02

Bidders to kindly take note of the following:

**AA) Amendment of the Independent External Monitor (IEM) of the Tender:**

Existing Details (As and where appeared) of Independent External Monitor (IEM) in Tender Documents	Amended As
Mrs. Pravin Tripathi, IA & AS (Retd.) D-243, Anupam Gardens Lane IB, Neb Sarai, Sainik Farms New Delhi – 110 068 Email: <a href="mailto:pravin.tripathi@gmail.com">pravin.tripathi@gmail.com</a>	Shri D R S Chaudhary, IAS (Retd), E-1/164 Arera Colony, Bhopal 462016 Email: <a href="mailto:dilip.chaudhary@icloud.com">dilip.chaudhary@icloud.com</a>

## **BB) ISSUE OF CLARIFICATIONS**

Please note that Page no 121 to 126 of Chapter-XXI Welding Schedule of Vol-IA TCC has been replaced with Annexure-W- field welding schedule which is attached with this Corrigendum 04.

## **CC) Revised Chapter-VIII: Taxes and Other Duties Rev-01 dated 19/08/2017 of Volume IA TCC :**

**Chapter-VIII: Taxes and Other Duties Volume IA TCC is amended and attached with this corrigendum as Revised Chapter-VIII: Taxes and Other Duties Rev-01 dated 19/08/2017 issued with Corrigendum 04. Revised Chapter VIII shall only form part of contract.**

## **DD) Amendment in clause 2.17 PVC of Vol-IC GCC:**

Clause no 2.17 PVC of Vol-IC GCC **STANDS DELETED.**

**Amended Clause no. 2.17 of Vol-IC GCC regarding PVC is attached herewith this corrigendum as "Clause 2.17 (Price Variation Compensation) of Vol-IC GCC Rev 01 dated 19/08/2017". Amended Clause no. 2.17 of Vol-IC GCC issued with this Corrigendum shall only form part of contract.**

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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.**

BIDDERS MAY PLEASE NOTE THAT SUBJECT TENDER IS E-TENDER AND THE OFFER IS TO BE SUBMITTED ONLY IN E-PROCUREMENT PORTAL → **<https://bheleps.buyjunction.in>**

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.

Ref: BHE/PW/PUR/RGMT-BLR Unit#01/1780 & BHE/PW/PUR/RGMT-BLR Unit#02/1781/Corr-04 Date: 19/08/2017

Thanking you,  
Yours faithfully,

AGM (Purchase)

Encl:

1. Annexure-W- Field Welding Schedule
2. Revised Chapter – VIII: Taxes and Other Duties Rev-01 dated 19/08/2017
3. Clause 2.17 (Price Variation Compensation) of Vol-IC GCC Rev 01 dated 19/08/2017

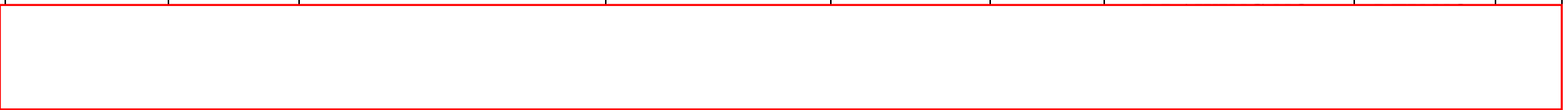
# Annexure-W- Field Welding Schedule



Name of Contractor / Subcontractor  
**FIELD WELDING SCHEDULE**

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 07  
 PG NAME : CIRCULATION (PP)  
 WELDING CODE : IBR / ASME  
 PAGE NO. : 1 OF 22

SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	TEMP. DEG C		
1 02	0-00-027-46934	F-01+F-16-L&R	FURN LOWER FRONT INLET HDR+FURN LOWER SIDE INLET HDR	406.4	76.2	SA106GrC + SA234WPC	GTAW SMAW	66.675	VV	2	1005/05	ER70S-A1	222	E7018-A1	60	100	542	150	620-650	170	100% RT	
2 02	0-00-027-46934	F-07+F-16-L&R	FURN LOWER REAR INLET HDR+FURN LOWER SIDE INLET HDR	406.4	76.2	SA106GrC + SA234WPC	GTAW SMAW	66.675	VV	2	1005/05	ER70S-A1	222	E7018-A1	60	100	542	150	620-650	170	100% RT	
3	0-00-027-46934	F-01+F-02TI	FURN LOWER FRONT INLET HDR + FURN LOWER FRONT SPIRAL INLET TERM TUBE	38.1	7.1	SA213T12 + SA213T12	GTAW SMAW	7.1	V	265	1009/03	ER80S-B2	1669.5	E8018-B2	2385			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
4	0-00-027-46934	F-02TI+F-02L	FURN LOWER FRONT SPIRAL INLET TERM TUBE+ FURN LOWER FRONT SPRL WALL PANEL	38.1 41.3	7.11 8.2	SA213T12 + SA213T12	GTAW SMAW	7.1	V	255	1009/03	ER80S-B2	1606.5	E8018-B2	2295			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
5 01	0-00-027-46981	CORNER-L+F-02L	FURN FRNT /REAR/SIDE LWR SPRL PANEL + LWR CORNER TUBES	38.1 41.3	7.11 8.2	SA213T22 + SA213T12	GTAW SMAW	7.1	V	125	1012/04	ER80S-B2	787.5	E8018-B2	1125			150	680-720	30	20%RT/MIN 2 WELD/WELDE/SHIFT	
6	0-00-027-46981	F-02L+BEND	FURN FRNT /REAR/SIDE LWR SPRL PANEL + LWR CORNER TUBES	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	305	1009/03	ER80S-B2	1921.5	E8018-B2	3050			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
7	0-00-027-46981	F-02L+CORNER-R	FURN FRNT /REAR/SIDE LWR SPRL PANEL + LWR CORNER TUBES	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	245	1009/03	ER80S-B2	1543.5	E8018-B2	2450			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
8	0-00-027-46980	CORNER-F +F-17L-R	FURN FRNT /REAR/SIDE LWR SPRL PANEL + LWR CORNER TUBES	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	245	1009/03	ER80S-B2	1543.5	E8018-B2	2450			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
9	0-00-027-46980	F-17L-R +CORNER-R	FURN FRNT /REAR/SIDE LWR SPRL PANEL + LWR CORNER TUBES	41.3 38.1	8.2 7.1	SA213T12 + SA213T22	GTAW SMAW	8.2	V	125	1012/04	ER80S-B2	787.5	E8018-B2	1125			150	680-720	30	20%RT/MIN 2 WELD/WELDE/SHIFT	
10	0-00-027-46934	F-07+F-08TI	FURN LOWER REAR INLET HDR + FURN REAR SPIRAL INLET TERM TUBE	38.1	7.1	SA213T12 + SA213T12	GTAW SMAW	7.1	V	265	1009/03	ER80S-B2	1669.5	E8018-B2	2385			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	





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 PAGE NO. : 2 OF 22

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				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	TEMP. DEG C		
11	0-00-027-46934	F-08TI+F-08L	FURN REAR SPIRAL INLET TERM TUBE + FURN LOWER REAR SPIRAL WALL PANEL	38.1 41.3	7.1 8.2	SA213T12 + SA213T12	GTAW SMAW	7.1	V	255	1009/03	ER80S-B2	1606.5	E8018-B2	2295			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
12	0-00-027-46981	CORNER-R +F-08L	CORNER + FURN LOWER REAR SPIRAL WALL PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	245	1009/03	ER80S-B2	1543.5	E8018-B2	2450			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
13	0-00-027-46981	F-08+BEND	FURN REAR SPIRAL WALL PANEL + BEND	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	305	1009/03	ER80S-B2	1921.5	E8018-B2	3050			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
14	0-00-027-46981	F-08L +CORNER-L	FURN LOWER REAR SPIRAL WALL PANEL + CORNER	41.3 38.1	8.2 7.1	SA213T12 + SA213T22	GTAW SMAW	8.2	V	125	1012/04	ER80S-B2	787.5	E8018-B2	1125			150	680-720	30	20%RT/MIN 2 WELD/WELDE/SHIFT	
15	0-00-027-46980	CORNER-F +F-17L-L	CORNER + FURN LOWER SIDE SPRL WALL PANEL	38.1 41.3	7.1 8.2	SA213T22 + SA213T12	GTAW SMAW	7.1	V	125	1012/04	ER80S-B2	787.5	E8018-B2	1125			150	680-720	30	20%RT/MIN 2 WELD/WELDE/SHIFT	
16	0-00-027-46980	F-17L-L +CORNER-R	FURN LOWER SIDE SPRL WALL PANEL + CORNER	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	245	1009/03	ER80S-B2	1543.5	E8018-B2	2450			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
17	0-00-027-46977	F-02U +BURNER/CORNER	FURN UPPER FRONT SPRL WALL PANEL + BURNER/CORNER	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	582	1009/03	ER80S-B2	3666.6	E8018-B2	5820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
18	0-00-027-46974	BURNRE/CORNER +F-17U-R	BURNER/CORNER + FURN UPPER SIDE SPRL WALL PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	582	1009/03	ER80S-B2	3666.6	E8018-B2	5820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
19	0-00-027-46974	F-17U-R +BURNER/CORNER	FURN UPPER SIDE SPRL WALL PANEL + BURNER/CORNER	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	582	1009/03	ER80S-B2	3666.6	E8018-B2	5820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
20	0-00-027-46978	BURNER/CORNER +F-08U	BURNER/CORNER + FURN UPPER REAR SPIRAL WALL PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	582	1009/03	ER80S-B2	3666.6	E8018-B2	5820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	



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				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	TEMP. DEG C		
21 01	0-00-027-46978	F-08U +BURNER/CORNER	FURN UPPER REAR SPIRAL WALL PANEL+ BURNER/CORNER	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	582	1009/03	ER80S-B2	3666.6	E8018-B2	5820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
22	0-00-027-46975	BURNER/CORNER +F17U-L	BURNER/CORNER + FURN UPPER SIDE SPRL WALL PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	582	1009/03	ER80S-B2	3666.6	E8018-B2	5820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
23	0-00-027-46975	F-17U-L+BURNE/CORNER	FURN UPPER SIDE SPRL WALL PANEL + BURNER/CORNER	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	582	1009/03	ER80S-B2	3666.6	E8018-B2	5820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
24	0-00-027-46977	BURNER/CORNER +F-02U	BURNER/CORNER + FURN UPPER FRONT SPRL WALL PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	582	1009/03	ER80S-B2	3666.6	E8018-B2	5820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
25	0-00-027-46977	F-02U+F-02X	FURN UPPER FRONT SPRL WALL PANEL + FURN FRONT SPRL TO VERT TRANS PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	145	1009/03	ER80S-B2	913.5	E8018-B2	1450			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
26	0-00-027-46978	F-08U+F-08X	FURN REAR FRONT SPRL WALL PANEL + FURN REAR SPRL TO VERT TRANS PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	145	1009/03	ER80S-B2	913.5	E8018-B2	1450			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
27	0-00-027-46953	F-17-L+F-17X-L	FURN LOWER SIDE SPRL WALL PANEL + FURN SIDE SPRL TO VERT TRANS PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	96	1009/03	ER80S-B2	604.8	E8018-B2	960			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
28	0-00-027-46953	F-17R+F-17X-R	FURN LOWER SIDE SPRL WALL PANEL + FURN SIDE SPRL TO VERT TRANS PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	96	1009/03	ER80S-B2	604.8	E8018-B2	960			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
29	0-00-027-46966	F-OFA+F-02U	F-OFA+ FURN UPPER FRONT SPIRAL WALL PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	182	1009/03	ER80S-B2	1146.6	E8018-B2	1820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
30	0-00-027-46966	F-OFA+F-08U	F-OFA+ FURN UPPER REAR SPIRAL WALL PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	182	1009/03	ER80S-B2	1146.6	E8018-B2	1820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	



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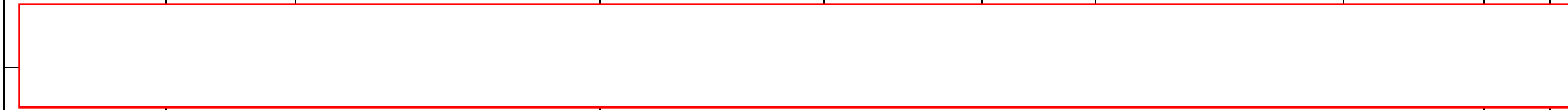
SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	TEMP. DEG C		
31	0-00-027-46966	F-OFA+F-17-L	F-OFA+ FURN LOWER SIDE SPIRAL WALL PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	182	1009/03	ER80S-B2	1146.6	E8018-B2	1820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
32	0-00-027-46966	F-OFA+F-17-R	F-OFA+ FURN LOWER SIDE SPIRAL WALL PANEL	41.3	8.2	SA213T12 + SA213T12	GTAW SMAW	8.2	V	182	1009/03	ER80S-B2	1146.6	E8018-B2	1820			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
33	0-00-027-46955	F-02X+F-02TO	FURN FRONT SPRL TO VERT TRANS PANEL + FURN FRONT SPRL OUTLET TERM TUBE	38.1	7.1	SA213T12 + SA213T12	GTAW SMAW	7.1	V	140	1009/03	ER80S-B2	882	E8018-B2	1260			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
34	0-00-027-46955	F-08X+F-08TO	FURN REAR SPRL TO VERT TRANS PANEL + FURN REAR SPRL OUTLET TERM TUBE	38.1	7.1	SA213T12 + SA213T12	GTAW SMAW	7.1	V	140	1009/03	ER80S-B2	882	E8018-B2	1260			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
35	0-00-027-46953	F-17X-L+F-17TO-L	FURN SIDE SPRL TO VERT TRANS PANEL + FURN SIDE SPR OUTLET TERM TUBE	38.1	7.1	SA213T12 + SA213T12	GTAW SMAW	7.1	V	125	1009/03	ER80S-B2	787.5	E8018-B2	1125			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
36	0-00-027-46953	F-17X-R+F-17TO-R	FURN SIDE SPRL TO VERT TRANS PANEL + FURN SIDE SPR OUTLET TERM TUBE	38.1	7.1	SA213T12 + SA213T12	GTAW SMAW	7.1	V	125	1009/03	ER80S-B2	787.5	E8018-B2	1125			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
37 02	0-00-027-46955	F-02X+F-04TI	FURN FRONT SPRL TO VERT TRANS PANEL + FURN FRONT VERT INLET TERM TUBE	38.1	8	SA213T22 + SA213T22	GTAW SMAW	8	V	420	1084/00	ER90S-B3	2394	E9018-B3	3780			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)
38 02	0-00-027-46955	F-08X+F-10TI	FURN REAR SPRL TO VERT TRANS PANEL + FURN REAR VERT INLET TERM TUBE	38.1	8	SA213T22 + SA213T22	GTAW SMAW	8	V	420	1084/00	ER90S-B3	2394	E9018-B3	3780			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)
39 02	0-00-027-46953	F-17X-L+F-19TI	FURN SIDE SPRL TO VERT TRANS PANE + FURN SIDE VERT INLET TERM TUBE	38.1	9.5	SA213T22 + SA213T22	GTAW SMAW	9.5	V	375	1084/00	ER90S-B3	1987.5	E9018-B3	5625			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)
40 02	0-00-027-46953	F-17X-R+F-19TI	FURN SIDE SPRL TO VERT TRANS PANE + FURN SIDE VERT INLET TERM TUBE	38.1	9.5	SA213T22 + SA213T22	GTAW SMAW	9.5	V	375	1084/00	ER90S-B3	1987.5	E9018-B3	5625			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)



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SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	TEMP. DEG C		
41 04	0-00-027-46955	F-02TO+F-03	FURN FRONT SPRL OUTLET TERM TUBE + FURN INTERM FRONT HEADER	38.1	7.1	SA213T12+ SA213T12	GTAW SMAW	7.1	V	140	1009/03	ER80S-B2	882	E8018-B2	1260			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
42 04	0-00-027-46955	F-08TO+F-09	FURN REAR SPRL OUTLET TERM TUBE + FURN INTERM REAR HEADER	38.1	7.1	SA213T12+ SA213T12	GTAW SMAW	7.1	V	140	1009/03	ER80S-B2	882	E8018-B2	1260			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
43 04	0-00-027-46975	F-17TO-L+F-18-L	FURN SIDE SPRL OUTLET TERM TUBE + FURN INTERM SIDE HEADER	38.1	7.1	SA213T12+ SA213T12	GTAW SMAW	7.1	V	125	1009/03	ER80S-B2	787.5	E8018-B2	1125			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
44 04	0-00-027-46974	F-17TO-R+F-18-R	FURN SIDE SPRL OUTLET TERM TUBE + FURN INTERM SIDE HEADER	38.1	7.1	SA213T12+ SA213T12	GTAW SMAW	7.1	V	125	1009/03	ER80S-B2	787.5	E8018-B2	1125			150	NIL		20%RT/MIN 2 WELD/WELDE/SHIFT	
45 04	0-00-027-46973	F-04TI+F-03	FURN FRONT VERT INLET TERM TUBE + FURN INTERM FRONT HEADER	38.1	8	SA213T22+ SA213T22	GTAW SMAW	8	V	420	1084/00	ER90S-B3	2394	E9018-B3	3780			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)
46 04	0-00-027-46973	F-10TI+F-09	FURN REAR VERT INLET TERM TUBE + FURN INTERM REAR HEADER	38.1	8	SA213T22+ SA213T22	GTAW SMAW	8	V	420	1084/00	ER90S-B3	2394	E9018-B3	3780			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)
47 04	0-00-027-46973	F-19TI-L+F-18-L	FURN SIDE VERT INLET TERM TUBE + FURN INTERM SIDE HEADER	38.1	9.5	SA213T22+ SA213T22	GTAW SMAW	9.5	V	375	1084/00	ER90S-B3	1987.5	E9018-B3	5625			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)
48 04	0-00-027-46973	F-19TI-R+F-18-R	FURN SIDE VERT INLET TERM TUBE + FURN INTERM SIDE HEADER	38.1	9.5	SA213T22+ SA213T22	GTAW SMAW	9.5	V	375	1084/00	ER90S-B3	1987.5	E9018-B3	5625			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)
49 01	0-00-027-46973	F-02X+F-04L	FURN FRONT SPRL TO VERT TRANS PANEL + FURN LOWER FRONT VERT WALL PANEL	38.1	8	SA213T22+ SA213T22	GTAW SMAW	8	V	420	1084/00	ER90S-B3	2226	E9018-B3	3780			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)
50 01	0-00-027-46973	F-04L+F-04U	FURN LOWER FRNT VERT WALL PANELS + FURN UPPER FRNT VERT WALL PANELS	38.1	8	SA213T22+ SA213T22	GTAW SMAW	8	V	420	1084/00	ER90S-B3	2226	E9018-B3	3780			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)





Name of Contractor / Subcontractor  
**FIELD WELDING SCHEDULE**

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 07  
 PG NAME : CIRCULATION (PP)  
 WELDING CODE : IBR / ASME  
 PAGE NO. : 6 OF 22

SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	TEMP. DEG C		
51 01	0-00-027-46973	F-04U+F-05	FURN UPPER FRNT VERT WALL PANELS + FURN UPPER FRNT OUTLET HEADER	38.1	11	SA213T23+SA213T22	GTAW SMAW	11	V	420	1053/04	ER90S-B3	2226	E9018-B3	6300			200	730-760	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV(Max)
52 01	0-00-027-46973	F-08X+F-11	FURN REAR SPRL TO VERT TRANS PANEL + FURN REAR ARCH FIN WELD PANEL	38.1	8	SA213T22+SA213T22	GTAW SMAW	8	V	420	1084/00	ER90S-B3	2226	E9018-B3	3780			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV(Max)
53 01	0-00-027-46973	F-11+F-12	FURN REAR ARCH FIN WELD PANEL + FURN REAR SCREEN TUBE	38.1	8	SA213T22+SA213T22	GTAW SMAW	8	V	280	1084/00	ER90S-B3	1484	E9018-B3	2520			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV(Max)
54 01	0-00-027-46973	F-12+F-14	FURN REAR SCREEN TUBE + FURN UPPER REAR OUTLET HDR	38.1	8	SA213T22+SA213T22	GTAW SMAW	8	V	280	1084/00	ER90S-B3	1484	E9018-B3	2520			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV(Max)
55 01	0-00-027-46973	F-11+F-13	FURN REAR ARCH FIN WELD PANEL+ FURN REAR HGR TUBE	38.1	8	SA213T22+SA213T22	GTAW SMAW	8	V	140	1084/00	ER90S-B3	742	E9018-B3	1260			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV(Max)
56 03	0-07-223-01578	F-13+F-14	FURN REAR HGR TUBE + FURN UPPER REAR OUTLET HDR	63.5	12.7	SA213T22+SA213T22	GTAW SMAW	12.7	V	140	1084/00	ER90S-B3	742	E9018-B3	1960	5194		200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV(Max)
57 03	0-06-759-03547	F-17X-L+F-19L-L	FURN SIDE SPRL TO VERT TRANS PANEL+ FURN LOWER SIDE VERTICAL WALL PANEL	38.1	9.5	SA213T22+SA213T22	GTAW SMAW	9.5	V	375	1084/00	ER90S-B3	1987.5	E9018-B3	5625			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV(Max)
58 03	0-00-027-46973	F-19L-L+F-19U-L	FURN LOWER SIDE VERT WALL PANEL + FURN UPPER VERT WALL PANEL	38.1	9.5	SA213T22+SA213T22	GTAW SMAW	9.5	V	375	1084/00	ER90S-B3	1987.5	E9018-B3	5625			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV(Max)
59 03	0-05-251-00595	F-19U-L+F-20L	FURN UPPER VERT WALL PANEL + FURN UPPER SIDE OUTLET HDR	38.1	9.5	SA213T22+SA213T22	GTAW SMAW	9.5	V	375	1084/00	ER90S-B3	1987.5	E9018-B3	5625			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV(Max)
60 03	0-06-759-03547	F-17X-R+F-19L-R	FURN SIDE SPRL TO VERT TRANS PANEL + FURN LOWER SIDE VERTICAL WALL PANEL	38.1	9.5	SA213T22+SA213T22	GTAW SMAW	9.5	V	375	1084/00	ER90S-B3	1987.5	E9018-B3	5625			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV(Max)





Name of Contractor / Subcontractor  
***FIELD WELDING SCHEDULE***

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 07  
 PG NAME : CIRCULATION (PP)  
 WELDING CODE : IBR / ASME  
 PAGE NO. : 7 OF 22

SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION SPEC	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM REF. SPEC.NO.*	REMARKS
				OUTSIDE DIA	THICK AT WELD							GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.	DIA 4.0 NOS.		TEMP. DEG C	Hold Time mins		
61 01	0-06-751-03692	F-19L-R+F-19U-R	FURN LOWER SIDE VERTICAL WALL PANEL + FURN UPPER VERT WALL PANEL	38.1	9.5	SA213T22+SA213T22	GTAW SMAW	9.5	V	375	1084/00	ER90S-B3	1987.5	E9018-B3	5625			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)
62 01	0-05-251-00596	F-19U-R+F-20R	FURN UPPER VERT WALL PANEL+ FURN UPPER SIDE OUTLET HEADER	38.1	9.5	SA213T22+SA213T22	GTAW SMAW	9.5	V	375	1084/00	ER90S-B3	1987.5	E9018-B3	5625			200	740 ± 10	60	20%RT/MIN 2 WELD/WELDE/SHIFT	100%HC 260HV (Max)
63	0-00-027-46925	F-05+F-06	FURN UPPER FRONT OUTLET HDR + FURN FRONT RISER	219.1	45	SA182F12C L2+SA335P12	GTAW SMAW	39.375	VV	4	1010/06	ER80S-B2	224	E8018-B2	72	100	260	150	650-670	120	100%RT 100%MPI/LPI/SHIFT	
64	0-07-318-01536	F-06+F-06	FURN FRONT RISER+FURN FRONT RISER	219.1	45	SA335P12+SA335P12	GTAW SMAW	39.375	VV	8	1010/06	ER80S-B2	448	E8018-B2	144	200	520	150	650-670	120	100%RT 100%MPI/LPI/SHIFT	
65	0-00-027-46925	F-06+F-31	FURN FRONT RISER + SEPEATOR	219.1	45	SA335P12+SA182F22C L3	GTAW SMAW	39.375	VV	4	1012/04	ER80S-B2	224	E8018-B2	72	100	260	150	680-720	120	100%RT 100%MPI/LPI/SHIFT	
66	0-00-027-46925	F-20+F-21	FURN UPPER SIDE OUTLET HDR + FURN SIDE RISER	219.1	45	SA182F12C L2+SA335P12	GTAW SMAW	39.375	VV	8	1010/06	ER80S-B2	448	E8018-B2	144	200	520	150	650-670	120	100%RT 100%MPI/LPI/SHIFT	
67	0-07-315-01540 TO 0-07-315-01543	F-21+F-21	FURN SIDE RISER+FURN SIDE RISER	219.1	45	SA335P12+SA335P12	GTAW SMAW	39.375	VV	26	1010/06	ER80S-B2	1456	E8018-B2	468	650	1690	150	650-670	120	100%RT 100%MPI/LPI/SHIFT	
68	0-00-027-46925	F-21+F-31	FURN SIDE RISER+ SEPERATOR	219.1	45	SA335P12+SA182F22C L3	GTAW SMAW	39.375	VV	8	1012/04	ER80S-B2	448	E8018-B2	144	200	520	150	680-720	120	100%RT 100%MPI/LPI/SHIFT	
69	0-00-027-46925	F-14+F-15	FURN UPPER REAR OUTLET HDR + FURN REAR RISER	219.1	45	SA182F12C L2+SA335P12	GTAW SMAW	39.375	VV	4	1010/06	ER80S-B2	224	E8018-B2	72	100	260	150	650-670	120	100%RT 100%MPI/LPI/SHIFT	
70	0-07-316-01539	F-15+F-15	FURN REAR RISER + FURN REAR RISER	219.1	45	SA335P12+SA335P12	GTAW SMAW	39.375	VV	12	1010/06	ER80S-B2	672	E8018-B2	216	300	780	150	650-670	120	100%RT 100%MPI/LPI/SHIFT	





Name of Contractor / Subcontractor  
**FIELD WELDING SCHEDULE**

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 07  
 PG NAME : CIRCULATION (PP)  
 WELDING CODE : IBR / ASME  
 PAGE NO. : 8 OF 22

SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	TERMP. DEG C		
71	0-00-027-46925	F-15+F-31	FURN REAR RISER + SEPEATOR	219.1	45	SA335P12+SA182F22CL3	GTAW SMAW	39.375	VV	4	1012/04	ER80S-B2	224	E8018-B2	72	100	260	150	680-720	120	100%RT 100%MPI/ LPI/SHIFT	
72	0-00-027-46941	F-31+F-32	SEPERATOR + LINK TO SEPERATOR STORAGE TANK	323.9	56	SA182F22CL3+SA335P12	GTAW SMAW	49	VV	4	1012/04	ER80S-B2	236	E8018-B2	96	156	576	150	680-720	130	100%RT 100%MPI/ LPI/SHIFT	
73	0-07-110-01522	F-32+F-32	LINK TO SEPEATOR STORAGE TANK+ LINK TO SEPEATOR STORAGE TANK	323.9	56	SA335P12+SA335P12	GTAW SMAW	49	VV	4	1010/06	ER80S-B2	236	E8018-B2	96	156	576	150	650-670	130	100%RT 100%MPI/ LPI/SHIFT	
74	0-00-027-46941	F-32+F-33	LINK TO SEPEATOR STORAGE TANK + SEPEATOR STORAGE TANK	323.9	56	SA335P12+SA182F22CL3	GTAW SMAW	49	VV	4	1012/04	ER80S-B2	236	E8018-B2	96	156	576	150	680-720	130	100%RT 100%MPI/ LPI/SHIFT	
75	0-00-027-46941	F-33+F-49	LINK TO SEPEATOR STORAGE TANK + FURN DOWNCOMER TO CONNECTING SPHERE	406.4	65	SA182F22CL3+SA335P12	GTAW SMAW	56.875	VV	2	1012/04	ER80S-B2	222	E8018-B2	60	100	542	150	680-720	140	100%RT 100%MPI/ LPI/SHIFT	
76	0-00-027-46941	F-49+F-50	FURN DOWNCOMER TO CONNECTING SPHEE + FURN CONNECTING SPHEE	406.4	65	SA335P12+SA182F12CL2	GTAW SMAW	56.875	VV	2	1010/06	ER80S-B2	222	E8018-B2	60	100	542	150	650-670	140	100%RT 100%MPI/ LPI/SHIFT	
77	0-12-850-02677 0-12-850-02678	F-31+S-01	SEPEATOR + SH CONNECTING PIPE	273	50	SA182F22CL3+SA335P12	GTAW SMAW	43.75	VV	8	1012/04	ER80S-B2	560	E8018-B2	160	264	968	150	680-720	120	100%RT 100%MPI/ LPI/SHIFT	
78	0-12-850-02677 0-12-850-02678	S-01+S-01	SH CONNECTING PIPE + SH CONNECTING PIPE	273	50	SA335P12+SA335P12	GTAW SMAW	43.75	VV	8	1010/06	ER80S-B2	560	E8018-B2	160	264	968	150	650-670	120	100%RT 100%MPI/ LPI/SHIFT	
79	0-12-850-02677 0-12-850-02678	S-01+S-01A	SH CONNECTING PIPE + LINK TO SH DESUPEHEATER	273	50	SA335P12+SA182F12CL2	GTAW SMAW	43.75	VV	8	1010/06	ER80S-B2	560	E8018-B2	160	264	968	150	650-670	120	100%RT 100%MPI/ LPI/SHIFT	

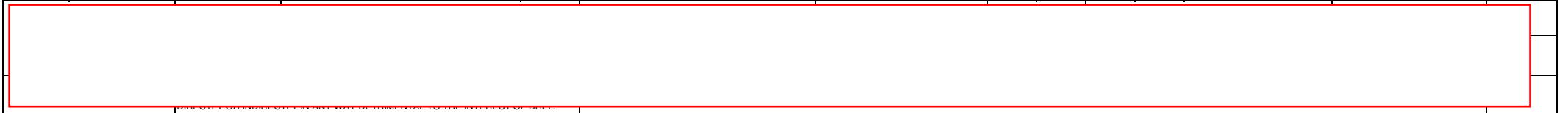




Name of Contractor / Subcontractor  
**FIELD WELDING SCHEDULE**

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 12  
 PG NAME : SH SYSTEM (PP)  
 WELDING CODE : IBR / ASME  
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SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	Temp. DEG C		
1	0-12-862-02586	S-01A+S-01A	DESUPERHEATING MANIFOLD + DESUPERHEATING MANIFOLD	508	80	SA335P12 + SA335P12	GTAW SMAW	70	VV	1	1010/06	ER80S-B2	149	E8018-B2	38	63	354	150	650-670	175	100% RT	
2	0-12-862-02586	S-01A+S-01B	DESUPERHEATING MANIFOLD + SH DESUPERHEATER-1	508	80	SA335P12 + SA335P12	GTAW SMAW	70	VV	2	1010/06	ER80S-B2	298	E8018-B2	76	126	708	150	650-670	175	100% RT	
3	0-12-862-02588	S-01B+S-01C	SH DESUPERHEATER-1 + SH DESH TO BYPASS TAP-OFF PT	508	80	SA335P12 + SA335P12	GTAW SMAW	70	VV	2	1010/06	ER80S-B2	298	E8018-B2	76	126	708	150	650-670	175	100% RT	
4	0-12-862-02588	S-01C+S-02	SH DESH TO BYPASS TAP-OFF PT + SH FURNACE ROOF INLET HEADER	406.4	60	SA335P12 + SA182F12CL2	GTAW SMAW	52.5	VV	2	1010/06	ER80S-B2	238	E8018-B2	60	100	386	150	650-670	135	100% RT	
5	0-00-027-46927	S-02+S-03	SH FURNACE ROOF INLET HEADER + SH FURN ROOF PANEL	50.8	8.13	SA213T12 + SA213T12	GTAW SMAW	8.13	V	210	1009/03	ER80S-B2	1911	E8018-B2	2940			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
6	0-00-027-46927	S-03+S-04-1	SH FURN ROOF PANEL + SH FURN ROOF TUBE	57.15	9.14	SA213T12 + SA213T12	GTAW SMAW	9.14	V	210	1009/03	ER80S-B2	2142	E8018-B2	2100	630		150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
7	0-00-027-46927	S-04-1+S-04-2	SH FURN ROOF TUBE + SH FURN ROOF TUBE	57.15	9.65	SA213T12 + SA213T12	GTAW SMAW	9.65	V	210	1009/03	ER80S-B2	2142	E8018-B2	2100	630		150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
8	0-00-027-46927	S-04-2+S-05	SH FURN ROOF TUBE + SH FURN ROOF OUTLET HDR	57.15	9.65	SA213T12 + SA213T12	GTAW SMAW	9.65	V	210	1009/03	ER80S-B2	2142	E8018-B2	2100	630		150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
9	0-00-027-46973	S-05+S-06	SH FURN ROOF OUTLET HDR + BP EXT SIDE INLET HDR	508	116	SA234WP12C L1 + SA234WP12C L1	GTAW SMAW	101.5	VV	2	1010/06	ER80S-B2	1950	E8018-B2	300	209	621	150	650-670	255	100%RT	
10	0-00-027-46974	S-06+S-07-L&R	BP EXT SIDE INLET HDR + BP EXT SIDE WALL PANEL	44.45	7.11	SA213T12 + SA213T12	GTAW SMAW	7.11	V	152	1009/03	ER80S-B2	1185.6	E8018-B2	1520			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
11	0-00-027-46974	S-07-L&R+S-08-L&R	BP EXT SIDE WALL PANEL + BP EXTENDED SIDE FLOOR PANEL	44.45	7.11	SA213T12 + SA213T12	GTAW SMAW	7.11	V	152	1009/03	ER80S-B2	1185.6	E8018-B2	1520			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	



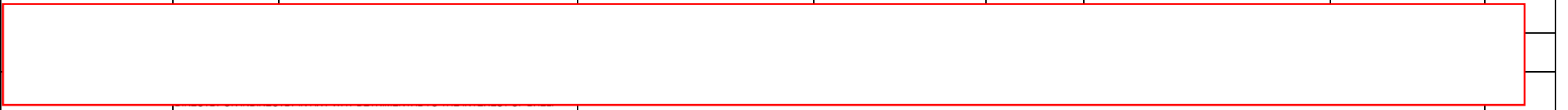
DIRECTOR GENERAL, INDIAN ARMY, DELHI



Name of Contractor / Subcontractor  
***FIELD WELDING SCHEDULE***

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 12  
 PG NAME : SH SYSTEM (PP)  
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SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SA	SA	SA	SA	SA	SA		SA	SA		
12	0-00-027-46974	S-08-L&R+S-09	BP EXT SIDE FLOOR PANEL + BP EXT SIDE FLOOR OUTLET HDR	44.45	7.11	SA213T12 + SA213T12	GTAW SMAW	7.11	V	152	1009/03	ER80S-B2	1185.6	E8018-B2	1520			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
13	0-00-027-46944	S-09+S-09A	BP EXT SIDE FLOOR OUTLET HDR + SC FURN ARCH SUPT INLET HEADER	355.6	80	SA335P12 + SA234WP12C L1	GTAW SMAW	70	VV	1	1010/06	ER80S-B2	92	E8018-B2	27	44	217	150	650-670	175	100%RT	
14	0-00-027-46944	S-09A+S-09B	SC FURN ARCH SUPT INLET HEADER + SC FURN ARCH SUPPORT LINK	168.3	47.6	SA182F12CL2 + SA335P12	GTAW SMAW	41.65	VV	18	1010/06	ER80S-B2	720	E8018-B2	252	450	594	150	650-670	105	100%RT	
15	0-00-027-46944	S-09B+S-09C	SC FURN ARCH SUPPORT LINK + SC FURN ARCH SUPT OUTLET HDR	168.3	47.6	SA335P12 + SA182F12CL2	GTAW SMAW	41.65	VV	18	1010/06	ER80S-B2	720	E8018-B2	252	450	594	150	650-670	110	100%RT	
16	0-00-027-46944	S-09C+S-10	SC FURN ARCH SUPT OUTLET HDR + BP EXT SIDE CONNECTING LINK	323.9	60	SA234WP12C L1 + SA335P12	GTAW SMAW	52.5	VV	2	1010/06	ER80S-B2	178	E8018-B2	48	78	288	150	650-670	135	100%RT	
17	0-00-027-46944 0-12-184-02643	S-10+S-10	BP EXT SIDE CONNECTING LINK + BP EXT SIDE CONNECTING LINK	323.9	60	SA335P12 + SA335P12	GTAW SMAW	52.5	VV	6	1010/06	ER80S-B2	534	E8018-B2	144	234	864	150	650-670	135	100%RT	
18	0-00-027-46976 0-00-027-46973 0-10-183-01563	S-06+S-11-L&R	BP EXT SIDE INLET HDR + BP UPPER SIDE INLET HDR	406.4	90	SA234WP12C L1 + SA335P12	GTAW SMAW	78.75	VV	2	1010/06	ER80S-B2	222	E8018-B2	60	100	542	150	650-670	200	100%RT	
19	0-00-027-46976	S-11-L&R+S-12U-L&R	BP UPPER SIDE INLET HDR + BP UPPER SIDE WALL PANEL	50.8	8.13	SA213T12 + SA213T12	GTAW SMAW	8.13	V	250	1009/03	ER80S-B2	2275	E8018-B2	3500			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
20	0-00-027-46976	S-12U-L&R+S-12L-L&R	BP UPPER SIDE WALL PANEL + BP INTERM SIDE WALL PANEL	50.8	8.13	SA213T12 + SA213T12	GTAW SMAW	8.13	V	250	1009/03	ER80S-B2	2275	E8018-B2	3500			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
21	0-00-027-46976	S-12L-L&R+S-12L-L&R	BP INTERM SIDE WALL PANEL + BP LOWER SIDE WALL PANEL	50.8	8.13	SA213T12 + SA213T12	GTAW SMAW	8.13	V	250	1009/03	ER80S-B2	2275	E8018-B2	3500			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
22	0-10-283-01586 0-00-027-46976	S-12L-L&R+S-13-L&R	BP LOWER SIDE WALL PANEL + BP LOWER SIDE HEADER	50.8	8.13	SA213T12 + SA213T12	GTAW SMAW	8.13	V	250	1009/03	ER80S-B2	2275	E8018-B2	3500			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	

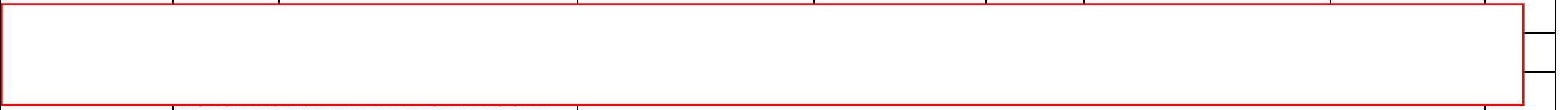




Name of Contractor / Subcontractor  
***FIELD WELDING SCHEDULE***

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 12  
 PG NAME : SH SYSTEM (PP)  
 WELDING CODE : IBR / ASME  
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SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	Temp. DEG C		
23	0-00-027-46945 0-10-185-01582	S-13-L+S-14	BP LOWER SIDE HEADER + BP LOWER FRONT HEADER	406.4	90	SA234WP12C L1 + SA335P12	GTAW SMAW	78.75	VV	1	1010/06	ER80S-B2	111	E8018-B2	30	50	271	150	650-670	200	100%RT	
24	0-00-027-46945	S-13-R+S-14	BP LOWER SIDE HEADER + BP LOWER FRONT HEADER	406.4	90	SA234WP12C L1 + SA335P12	GTAW SMAW	78.75	VV	1	1010/06	ER80S-B2	112	E8018-B2	30	50	271	150	650-670	200	100%RT	
25	0-00-027-46944	S-10+S-14	BP EXT SIDE CONNECTING LINK + BP LOWER FRONT HEADER	323.9	60	SA335P12 + SA234WP12C L1	GTAW SMAW	52.5	VV	2	1010/06	ER80S-B2	178	E8018-B2	48	78	288	150	650-670	135	100%RT	
26	0-00-027-46976	S-14+S-15L	BP LOWER FRONT HEADER + BP LOWER FRONT WALL PANEL	54	8.64	SA213T12 + SA213T12	GTAW SMAW	8.64	V	210	1009/03	ER80S-B2	1995	E8018-B2	1890			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
27	0-00-027-46976	S-15L+S-15U	BP LOWER FRONT WALL PANEL + BP UPPER FRONT WALL PANEL	54	8.64	SA213T12 + SA213T12	GTAW SMAW	8.64	V	210	1009/03	ER80S-B2	1995	E8018-B2	1890			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
28	0-00-027-46976	S-15U+S-16	BP UPPER FRONT WALL PANEL + BP FRONT SCREEN TUBE	54	8.64	SA213T12 + SA213T12	GTAW SMAW	8.64	V	210	1009/03	ER80S-B2	1995	E8018-B2	1890			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
29	0-00-027-46976	S-16+S-22	FRONT SCREEN TUBE + BP FRONT OUTLET HEADER	54	9.65	SA213T12 + SA213T12	GTAW SMAW	9.65	V	210	1009/03	ER80S-B2	1995	E8018-B2	1890			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
30	0-00-027-46945	S-13-L+S-17	BP LOWER SIDE HEADER + BP LOWER FRONT WALL PANEL	406.4	90	SA234WP12C L1 + SA335P12	GTAW SMAW	78.75	VV	1	1010/06	ER80S-B2	111	E8018-B2	30	50	271	150	650-670	200	100%RT	
31	0-00-027-46945	S-13-R+S-17	BP LOWER SIDE HEADER + BP LOWER FRONT WALL PANEL	406.4	90	SA234WP12C L1 + SA335P12	GTAW SMAW	78.75	VV	1	1010/06	ER80S-B2	111	E8018-B2	30	50	271	150	650-670	200	100%RT	
32	0-00-027-46976	S-17+S-20L	BP LOWER REAR HEADER+ BP LOWER REAR WALL PANEL	54	8.64	SA213T12 + SA213T12	GTAW SMAW	8.64	V	210	1009/03	ER80S-B2	1995	E8018-B2	1890			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
33	0-00-027-46976	S-20L+S-20I	BP LOWER REAR WALL PANEL+ BP INTER REAR WALL PANEL	54	8.64	SA213T12 + SA213T12	GTAW SMAW	8.64	V	210	1009/03	ER80S-B2	1995	E8018-B2	1890			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	

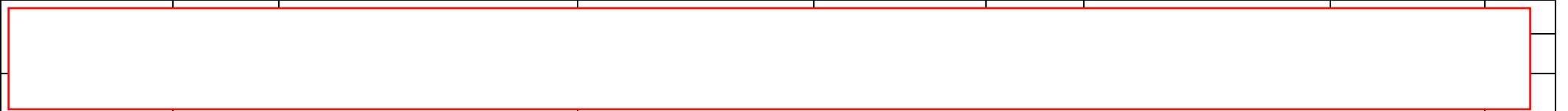




Name of Contractor / Subcontractor  
***FIELD WELDING SCHEDULE***

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 12  
 PG NAME : SH SYSTEM (PP)  
 WELDING CODE : IBR / ASME  
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SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	Temp. DEG C		
34	0-00-027-46976	S-20I+S-20U	BP INTER REAR WALL PANEL + BP UPPER REAR WALL PANEL	54	8.64	SA213T12 + SA213T12	GTAW SMAW	8.64	V	210	1009/03	ER80S-B2	1995	E8018-B2	1890			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
35	0-00-027-46976	S-20U+S-21	BP UPPER REAR WALL PANEL + BP ROOF PANEL	54	8.64	SA213T12 + SA213T12	GTAW SMAW	8.64	V	210	1009/03	ER80S-B2	1995	E8018-B2	1890			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
36	0-00-027-46982	S-21+S-22	BP ROOF PANEL + BP FRONT OUTLET HEADER	54	8.64	SA213T12 + SA213T12	GTAW SMAW	8.64	V	210	1009/03	ER80S-B2	1995	E8018-B2	1890			150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
37	0-00-027-46926	S-22+S-25A	BP FRONT OUTLET HEADER + LINK FROM BP FRONT OUTLET HEADER	457	80	SA234WP12C L1 + SA335P12	GTAW SMAW	70	VV	2	1010/06	ER80S-B2	260	E8018-B2	68	112	626	150	650-670	175	100%RT	
38	0-12-852-02587 1-12-852-01749	S-25A+S-25A	LINK FROM BP FRONT OUTLET HEADER + LINK FROM BP FRONT OUTLET HEADER	457	80	SA335P12 + SA335P12	GTAW SMAW	70	VV	4	1010/06	ER80S-B2	520	E8018-B2	136	224	1252	150	650-670	175	100%RT	
39	0-12-187-02567	S-01C+S-24	SH DESH LINK AFTER BYPASS TAP OFF+ BP BYPASS PIPE	273	55	SA182F12CL2 + SA335P12	GTAW SMAW	48.125	VV	2	1010/06	ER80S-B2	140	E8018-B2	40	66	242	150	650-670	120	100%RT	
40	0-12-187-02567	S-24+S-24	BP BYPASS PIPE + BP BYPASS PIPE	273	55	SA335P12 + SA335P12	GTAW SMAW	48.125	VV	4	1010/06	ER80S-B2	280	E8018-B2	80	132	484	150	650-670	120	100%RT	
41	0-00-027-46925	S-24+S-25A	BP BYPASS PIPE + LINK FROM BP FRONT OUTLET HEADER	273	55	SA335P12 + SA182F12CL2	GTAW SMAW	48.125	VV	2	1010/06	ER80S-B2	140	E8018-B2	40	66	242	150	650-670	120	100%RT	
42	0-00-027-46925	S-25A+S-26	LINK FROM BP FRONT OUTLET HEADER + SH PLATEN FRONT INLET HEADER	457	80	SA335P12 + SA234WP12C L1	GTAW SMAW	70	VV	2	1010/06	ER80S-B2	260	E8018-B2	68	112	626	150	650-670	175	100%RT	
43	0-10-176-01592 0-11-078-02603	S-26+S-27(1)	SH PLATEN FRONT INLET HEADER + SH PLATEN FRONT ASSY	57.15	7.62	SA213T22 + SA213T22	GTAW SMAW	7.62	V	34	1013/02	ER90S-B3	367.2	E9018-B3	442	0	0	150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
44	0-10-176-01592 0-11-078-02603	S-26+S-27(2-3)	SH PLATEN FRONT INLET HEADER + SH PLATEN FRONT ASSY	48.3	6.6	SA213T22 + SA213T22	GTAW SMAW	6.6	V	68	1013/02	ER90S-B3	618.8	E9018-B3	612	0	0	150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	

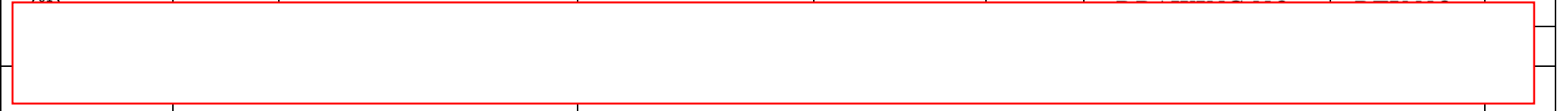




Name of Contractor / Subcontractor  
***FIELD WELDING SCHEDULE***

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 12  
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 WELDING CODE : IBR / ASME  
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SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	Temp. DEG C		
45	0-10-176-01592 0-11-078-02603	S-26+S-27(4-13)	SH PLATEN FRONT INLET HEADER + SH PLATEN FRONT ASSY	38.1	5.59	SA213T22 + SA213T22	GTAW SMAW	5.59	V	340	1013/02	ER90S-B3	2380	E9018-B3	2380	0	0	150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
46	0-10-176-01592 0-11-078-02603	S-26+S-27(14-19)	SH PLATEN FRONT INLET HEADER + SH PLATEN FRONT ASSY	33.4	6.1	SA213T22 + SA213T22	GTAW SMAW	6.1	V	204	1013/02	ER90S-B3	1142.4	E9018-B3	1428	0	0	150	NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
47 01	0-00-027-46939	S-27(1)+S-27TO(1)	SH PLATEN FRONT ASSY+ SH PLATEN OUTLET TERM TUBE	57.15	7.62	SA213T91 + SA213T91	GTAW SMAW	7.62	V	34	1036/08	ER90S-B9	367.2	E9015-B91	442	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
48 01	0-00-027-46939	S-27(2-6)+S-27TO(2-6)	SH PLATEN FRONT ASSY+ SH PLATEN OUTLET TERM TUBE	42.4	6.1	SA213T91 + SA213T91	GTAW SMAW	6.1	V	170	1036/08	ER90S-B9	1309	E9015-B91	1360	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
49 01	0-00-027-46939	S-27(7-11)+S-27TO(2-6)	SH PLATEN FRONT ASSY+ SH PLATEN OUTLET TERM TUBE	38.1	5.6	SA213T91 + SA213T91	GTAW SMAW	5.6	V	170	1036/08	ER90S-B9	1190	E9015-B91	1190	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
50 01	0-00-027-46939	S-27(12-19)+S-27TO(12-19)	SH PLATEN FRONT ASSY+ SH PLATEN OUTLET TERM TUBE	33.4	6.1	SA213T91 + SA213T91	GTAW SMAW	6.1	V	272	1036/08	ER90S-B9	1523.2	E9015-B91	1904	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
51 01	0-00-027-46939	S-27TO(1)+S-28(1)	SH PLATEN OUTLET TERM TUBE +SH PLATEN FRONT OUTLET HEADER	57.15	7.62	SA213T91 + SA213T91	GTAW SMAW	7.62	V	34	1036/08	ER90S-B9	367.2	E9015-B91	442	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
52 01	0-00-027-46939	S-27TO(2-6)+S-28(2-6)	SH PLATEN OUTLET TERM TUBE +SH PLATEN FRONT OUTLET HEADER	42.4	6.1	SA213T91 + SA213T91	GTAW SMAW	6.1	V	170	1036/08	ER90S-B9	1377	E9015-B91	1190	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
53 01	0-00-027-46939	S-27TO(2-6)+S-28(7-11)	SH PLATEN OUTLET TERM TUBE +SH PLATEN FRONT OUTLET HEADER	38.1	5.6	SA213T91 + SA213T91	GTAW SMAW	5.6	V	170	1036/08	ER90S-B9	1190	E9015-B91	1190	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	10%0 HC 300HV (MAX)
54 01	0-00-027-46939	S-27TO(12-19)+S-28(12-19)	SH PLATEN OUTLET TERM TUBE +SH PLATEN FRONT OUTLET HEADER	33.4	6.1	SA213T91 + SA213T91	GTAW SMAW	6.1	V	272	1036/08	ER90S-B9	1523.2	E9015-B91	1904	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
55 01	0-12-178-02574	S-28+S-29	SH PLATEN FRONT OUTLET HEADER + LINK TO SH DESUPERHEATER #2	559	70	SA234WP91 + SA335P91	GTAW SMAW	61.25	V	2	1050/06	ER90S-B9	336	E9015-B91	84	138	790	220	740-770	155	100% UT REFER NOTE	100% HC 300HV (MAX)





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***FIELD WELDING SCHEDULE***

DOC NO : 4410-001-102-QVM-V-001  
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SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.	DIA 4.0 NOS.		Temp. DEG C	Hold Time mins		
56 01	0-12-178-02574	S-29+S-29	LINK TO SH DESUPERHEATER #2 + LINK TO SH DESUPERHEATER #2	559	70	SA335P91 + SA335P91	GTAW SMAW	61.25	VV	2	1050/06	ER90S-B9	336	E9015-B91	84	138	790	220	740-770	155	100% UT REFER NOTE	
57 01	0-12-178-02574	S-29+S-30	LINK TO SH DESUPERHEATER#2 + SH DESUPERHEATER #2	559	70	SA335P91 + SA335P91	GTAW SMAW	61.25	VV	2	1050/06	ER90S-B9	336	E9015-B91	84	138	790	220	740-770	155	100% UT REFER NOTE	
58 01	0-12-178-02577	S-30+S-31	SH DESUPERHEATER + LINK FROM SH DESUPERHEATER #2	559	70	SA335P91 + SA335P91	GTAW SMAW	61.25	VV	2	1050/06	ER90S-B9	336	E9015-B91	84	138	790	220	740-770	155	100% UT REFER NOTE	
59	0-12-178-02577	S-31+S-32	LINK FROM SH DESUPERHEATER #2+ SH PLATEN REAR INLET HEADER	559	70	SA335P91 + SA234WP91	GTAW SMAW	61.25	VV	2	1050/06	ER90S-B9	336	E9015-B91	84	138	790	220	740-770	155	100% UT REFER NOTE	
60 01	0-10-178-01557	S-32(1)+S-33(1)	SH PLATEN REAR INLET HEADER + SH PLATEN REAR ASSY	57.15	7.62	SA213T91 + SA213T91	GTAW SMAW	7.62	V	34	1036/08	ER90S-B9	367.2	E9015-B91	442			220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
61 01	0-10-178-01557	S-32(2-3)+S-33(2-3)	SH PLATEN REAR INLET HEADER + SH PLATEN REAR ASSY	48.3	6.6	SA213T91 + SA213T91	GTAW SMAW	6.6	V	68	1036/08	ER90S-B9	618.8	E9015-B91	612			220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
62 01	0-10-178-01557	S-32(4-13)+S-33(4-13)	SH PLATEN REAR INLET HEADER + SH PLATEN REAR ASSY	38.1	5.6	SA213T91 + SA213T91	GTAW SMAW	5.6	V	340	1036/08	ER90S-B9	2380	E9015-B91	2380			220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
63 01	0-10-178-01557	S-32(14-19)+S-33(4-19)	SH PLATEN REAR INLET HEADER + SH PLATEN REAR ASSY	33.4	6.1	SA213T91 + SA213T91	GTAW SMAW	6.1	V	204	1036/08	ER90S-B9	1142.4	E9015-B91	1428			220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
64 02	0-00-027-34323	S-33(1)+S-33TO(1)	SH PLATEN REAR ASSY + SH PLATEN OUTLET TERM TUBE	57.15	7.62	SA213S304H + SA213S304H	GTAW SMAW	7.62	V	34	1054/01	YT304H	4500						NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
65	0-00-027-34323	S-33(2-6)+S-33TO(2-6)	SH PLATEN REAR ASSY + SH PLATEN OUTLET TERM TUBE	42.4	6.1	SA213TP347H + SA213TP347H	GTAW SMAW	6.1	V	170	1016/02	ER347	1377	E347	1190				NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
66	0-00-027-34323	S-33(7-11)+S-33TO(7-11)	SH PLATEN REAR ASSY + SH PLATEN OUTLET TERM TUBE	38.1	5.6	SA213TP347H + SA213TP347H	GTAW SMAW	5.6	V	170	1016/02	ER347	1190	E347	1190				NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	



Name of Contractor / Subcontractor  
***FIELD WELDING SCHEDULE***

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 12  
 PG NAME : SH SYSTEM (PP)  
 WELDING CODE : IBR / ASME  
 PAGE NO. : 15 OF 22

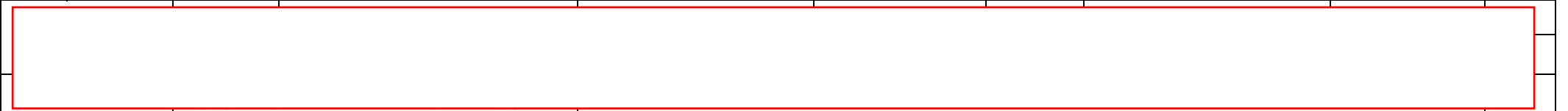
SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	Temp. DEG C		
67 01	0-00-027-34323	S-33(12-19)+S-33TO(12-19)	SH PLATEN REAR ASSY + SH PLATEN OUTLET TERM TUBE	33.4	6.1	SA213TP347H + SA213TP347H	GTAW SMAW	6.1	V	272	1016/02	ER347	1523.2	E347	1904				NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
68 01	0-00-027-34323	S-33TO(1)+S-34(1)	SH PLATEN OUTLET TERM TUBE + SH PLATEN REAR OUTLET HEADER	57.15	7.62	SA213T91 + SA213T91	GTAW SMAW	7.62	V	34	1036/08	ER90S-B9	367.2	E9015-B91	442	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
69 01	0-00-027-34323	S-33TO(2-6)+S-34(2-6)	SH PLATEN OUTLET TERM TUBE + SH PLATEN REAR OUTLET HEADER	42.4	6.1	SA213T91 + SA213T91	GTAW SMAW	6.1	V	170	1036/08	ER90S-B9	1377	E9015-B91	1190	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
70 01	0-00-027-34323	S-33TO(7-11)+S-34(7-11)	SH PLATEN OUTLET TERM TUBE + SH PLATEN REAR OUTLET HEADER	38.1	5.6	SA213T91 + SA213T91	GTAW SMAW	5.6	V	170	1036/08	ER90S-B9	1190	E9015-B91	1190	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
71 01	0-00-027-34323	S-33TO(12-19)+S-34(12-19)	SH PLATEN OUTLET TERM TUBE + SH PLATEN REAR OUTLET HEADER	33.4	6.1	SA213T91 + SA213T91	GTAW SMAW	6.1	V	272	1036/08	ER90S-B9	1523.2	E9015-B91	1904	0	0	220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
72 02	0-12-179-02674	S-34+S-35	SH PLATEN REAR OUTLET HEADER + LINK TO SH DESUPERHEATER	559	80	SA234WP91 + SA335P91	GTAW SMAW	70	VV	2	1050/06	ER90S-B9	336	E9015-B91	84	138	790	220	740-770	175	100% UT REFER NOTE	
73 02	0-12-179-02674	S-35+S-35	LINK TO SH DESUPERHEATER+ LINK TO SH DESUPERHEATER	559	80	SA335P91 + SA335P91	GTAW SMAW	70	VV	2	1050/06	ER90S-B9	336	E9015-B91	84	138	790	220	740-770	175	100% UT REFER NOTE	
74 02	0-12-179-02674	S-35+S-36	LINK TO SH DESUPERHEATER + SH DESUPERHEATER	559	80	SA335P91 + SA335P91	GTAW SMAW	70	VV	2	1050/06	ER90S-B9	336	E9015-B91	84	138	790	220	740-770	175	100% UT REFER NOTE	
75 02	0-12-179-02666	S-36+S-37	SH DESUPERHEATER + LINK TO FINISH SH	559	80	SA335P91 + SA335P91	GTAW SMAW	70	VV	2	1050/06	ER90S-B9	336	E9015-B91	84	138	790	220	740-770	175	100% UT REFER NOTE	
76 02	0-12-179-02666	S-37+S-37	LINK TO FINISH SH + LINK TO FINISH SH	559	80	SA335P91 + SA335P91	GTAW SMAW	70	VV	2	1050/06	ER90S-B9	336	E9015-B91	84	138	790	220	740-770	175	100% UT REFER NOTE	
77 02	0-12-179-02666	S-37+S-38	LINK TO FINISH SH + FINISH SH INLET HEADER	559	80	SA335P91 + SA335P91	GTAW SMAW	70	VV	2	1050/06	ER90S-B9	336	E9015-B91	84	138	790	220	740-770	175	100% UT REFER NOTE	
78 01	0-00-027-46957	S-38(1)+S-39TI(1)	FINISH SH INLET HEADER + FINISH SH INLET TERM TUBE	50.8	7.11	SA213T91 + SA213T91	GTAW SMAW	7.11	V	104	1036/08	ER90S-B9	988	E9015-B91	1248			220	730-760	30	100%RT	100% HC 300HV (MAX)



Name of Contractor / Subcontractor  
***FIELD WELDING SCHEDULE***

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 12  
 PG NAME : SH SYSTEM (PP)  
 WELDING CODE : IBR / ASME  
 PAGE NO. : 16 OF 22

SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSIDE DIA	THICK AT WELD							SPEC	GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	Temp. DEG C		
79 01	0-00-027-46957	S-38(2-8)+S-39TI(2-8)	FINISH SH INLET HEADER + FINISH SH INLET TERM TUBE	44.45	7.11	SA213T91 + SA213T91	GTAW SMAW	7.11	V	728	1036/08	ER90S-B9	5678.4	E9015-B91	7280			220	730-760	30	100%RT	100% HC 300HV (MAX)
80	0-00-027-46957	S-39TI(1-8)+S-39(1-8)	FINISH SH INLET TERM TUBE + FINISH SH FRONT ASSY	44.45	7.11	SA213S304H + SA213S304H	GTAW	7.11	V	832	1054/01	YT304H	6489.6						NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
81	0-00-027-46957	S-39(1-8)+S-39(1-8)	FINISH SH FRONT ASSY + FINISH SH FRONT ASSY	44.45	7.11	SA213S304H + SA213S304H	GTAW	7.11	V	832	1054/01	YT304H	6489.6						NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
82	0-00-027-46957	S-39(1-8)+S-40(1-8)	FINISH SH FRONT ASSY + FINISH SH REAR ASSY	44.45	7.11	SA213S304H + SA213S304H	GTAW	7.11	V	832	1054/01	YT304H	6489.6						NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
83 01	0-00-027-46957	S-40(1-4)+S-41(1-4)	FINISH SH REAR ASSY + SH OUTLET HEADER	44.45	10.67	SA213T91 + SA213T91	GTAW SMAW	10.67	V	416	1036/08	ER90S-B9	2662.4	E9015-B91	3328	1664		220	730-760	30	100%RT	100% HC 300HV (MAX)
84 01	0-00-027-46957	S-40(5)+S-41(5)	FINISH SH REAR ASSY + SH OUTLET HEADER	54	11.68	SA213T91 + SA213T91	GTAW SMAW	11.68	V	104	1036/08	ER90S-B9	863.2	E9015-B91	1040	520		220	730-760	30	100%RT	100% HC 300HV (MAX)
85 01	0-00-027-46957	S-40(6-8)+S-41(6-8)	FINISH SH REAR ASSY + SH OUTLET HEADER	44.45	10.67	SA213T91 + SA213T91	GTAW SMAW	10.67	V	312	1036/08	ER90S-B9	1996.8	E9015-B91	2496	1248		220	730-760	30	100%RT	100% HC 300HV (MAX)
86	0-10-135-01492	S-09A+S-44	SC FURN ARCH SUPPORT INLET HDR + FLUID COOLED SPACER TUBE	57.15	8.64	SA213T22 + SA213T22	GTAW SMAW	8.64	V	6	1014/03	ER90S-B3	61.2	E9018-B3	60	18		150	680-720	30	20%RT/MIN 2 WELD /WELDER/SHIFT	
87	0-00-027-46930 0-00-027-46931 0-00-027-46932	S-44+S-44	FLUID COOLED SPACER TUBE + FLUID COOLED SPACER TUBE	57.15	9.14	SA213TP347H + SA213TP347H	GTAW SMAW	9.14	V	40	1016/02	ER347	380	E347	440	200			NIL		20%RT/MIN 2 WELD /WELDER/SHIFT	
88 01	0-10-178-01557	S-44+S-32	FLUID COOLED SPACER TUBE + SH PLATEN REAR INLET HEADER	57.15	7.62	SA213T91 + SA213T91	GTAW SMAW	7.62	V	6	1036/08	ER90S-B9	64.8	E9015-B91	78			220	730-760	30	20%RT/MIN 2 WELD /WELDER/SHIFT	100% HC 300HV (MAX)
89			GAMMA PLUG + GAMMA PLUG			SA335P12+SA234WP12+SA182F12CL3	SMAW	7	F	60	1102/01			E8018-B2	75			200			100%MPI/ LPI/SHIFT	

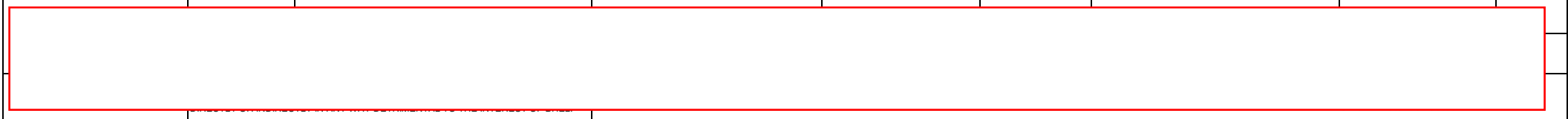




*Name of Contractor / Subcontractor*  
**FIELD WELDING SCHEDULE**

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 17  
 PG NAME : RH SYSTEM (PP)  
 WELDING CODE : IBR / ASME  
 PAGE NO. : 17 OF 22

SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		SPEC	PROCE SS OF WELDI NG	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM	REMARKS
				OUTSI DE DIA	THICK AT WELD							GTAW SPEC	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.	DIA 4.0 NOS.		Temp. DEG C	Hold Time mins		
1 03	1-15-136-00272	R-03+R-03	LTRH INLET HEADER +LTRH INLET HEADER	508	32	SA335P12 + SA335P12	GTAW SMAW	28	VV	2	1010/6	ER80S-B2	344	E8018-B2	76	126	188	150	650-670	70	100% RT	
2	1-15-136-00272	R-03+R-04TI	LTRH INLET HEADER + LTRH INLET TERM TUBE	69.85	4.57	SA213T12 + SA213T12	GTAW SMAW	4.57	V	64	1009/3	ER80S-B2	1004.8	E8018-B2	640			150	NIL		20%RT/MIN 2 WELD/WELDER	
3	0-00-027-46922	R-03+R-04L	LTRH INLET HEADER + LTRH LWR ASSY	69.85	4.57	SA213T12 + SA213T12	GTAW SMAW	4.57	V	768	1009/3	ER80S-B2	12058	E8018-B2	7680			150	NIL		20%RT/MIN 2 WELD/WELDER	
4	0-00-027-46922	R-04TI+R-04L	LTRH INLET TERM TUBE + LTRH LWR ASSY	69.85	4.57	SA213T12 + SA213T12	GTAW SMAW	4.57	V	64	1009/3	ER80S-B2	1004.8	E8018-B2	640			150	NIL		20%RT/MIN 2 WELD/WELDER	
5	0-00-027-46922	R-04L+R-04LI	LTRH LWR ASSLY + LTRH LWR INTERM ASSY	69.85	4.57	SA213T12 + SA213T12	GTAW SMAW	4.57	V	832	1009/3	ER80S-B2	13062	E8018-B2	8320			150	NIL		20%RT/MIN 2 WELD/WELDER	
6	0-00-027-46922	R-04LI+R-04UI	LTRH LWR INTERM ASSY + LTRH UPPER INTERM ASSY	69.85	4.57	SA213T12 + SA213T22	GTAW SMAW	4.57	V	832	1011/01	ER80S-B2	13062	E8018-B2	8320			150	NIL		20%RT/MIN 2 WELD/WELDER	
7 01	0-00-027-46922 0-16-201-02041 0-16-202-02045	R-04UI+R-04U	LTRH UPPER INTERM ASSY + LTRH UPPER ASSY	69.85	5.08	SA213T22 + SA213T22	GTAW SMAW	5.08	V	832	1013/02	ER90S-B3	12813	E9018-B3	9152			150	NIL		20%RT/MIN 2 WELD/WELDER	
8 03	0-00-027-46922 0-16-201-02041 0-16-270-02061	R-04U+R-07	LTRH UPPER ASSY + LTRH PENDANT ASSY	69.85	5.08	SA213T91 + SA213T91	GTAW SMAW	5.08	V	832	1036/08	ER90S-B9	12813	E9015-B91	9152			220	730-760	30	100%RT	100%HC 300HV (MAX)
9 03	0-00-027-46922	R-07(1-2)+R-08(1-2)	LTRH PENDANT ASSY + LTRH OUTLET HEADER	50.8	4.5	SA213T91 + SA213T91	GTAW SMAW	4.5	V	208	1036/08	ER90S-B9	2246.4	E9015-B91	1664			220	730-760	30	100%RT	100%HC 300HV (MAX)
10 03	0-00-027-46922	R-07(3-5)+R-08(3-5)	LTRH PENDANT ASSY + LTRH OUTLET HEADER	50.8	7.11	SA213T91 + SA213T91	GTAW SMAW	7.11	V	312	1036/08	ER90S-B9	2964	E9015-B91	3744			220	730-760	30	100%RT	100%HC 300HV (MAX)
11 03	0-00-027-46922	R-07(6-7)+R-08(6-7)	LTRH PENDANT ASSY + LTRH OUTLET HEADER	50.8	4.5	SA213T91 + SA213T91	GTAW SMAW	4.5	V	208	1036/08	ER90S-B9	2246.4	E9015-B91	1664			220	730-760	30	100%RT	100%HC 300HV (MAX)

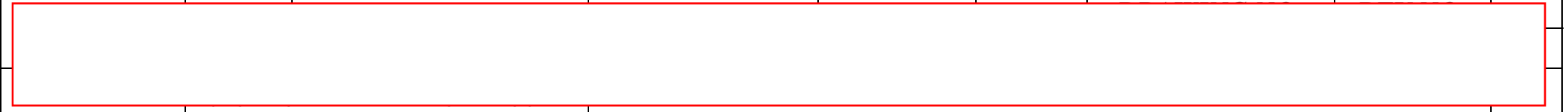




Name of Contractor / Subcontractor  
**FIELD WELDING SCHEDULE**

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 17  
 PG NAME : RH SYSTEM (PP)  
 WELDING CODE : IBR / ASME  
 PAGE NO. : 18 OF 22

SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION SPEC	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM REF. SPEC.NO.*	REMARKS
				OUTSIDE DIA	THICK AT WELD							GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.	DIA 4.0 NOS.		Temp. DEG C	Hold Time mins		
12 02	0-00-027-46922	R-07(8)+R-08(8)	LTRH PENDANT ASSY + LTRH OUTLET HEADER	76.2	4.57	SA213T91 + SA213T91	GTAW SMAW	4.57	V	104	1036/08	ER90S-B9	1788.8	E9015-B91	1040			220	730-760	30	100%RT	100%HC 300HV (MAX)
13 02	1-17-174-00523	R-08+R-09	LTRH OUTLET HEADER + LINK TO RH DESUPERHEATER	813	102	SA335P22 + SA335P22	GTAW SMAW	89.25	VV	2	1014/03	ER90S-B3	2800	E9018-B3	420	292	870	150	680-720	225	100%RT	
14 02	1-17-174-00523	R-09+R-09	LINK TO RH DESUPERHEATER + LINK TO RH DESUPERHEATER	813	70	SA335P22 + SA335P22	GTAW SMAW	61.25	VV	2	1014/03	ER90S-B3	1350	E9018-B3	208	145	430	150	680-720	155	100%RT	
15 02	1-17-174-00523	R-09+R-10	LINK TO RH DESUPERHEATER + RH DESUPERHEATER	813	70	SA335P22 + SA335P22	GTAW SMAW	61.25	VV	2	1014/03	ER90S-B3	1350	E9018-B3	208	145	430	150	680-720	155	100%RT	
16 02	0-17-174-00517	R-10+R-11	RH DESUPERHEATER + LINK TO FINISH RH	813	70	SA335P22 + SA335P22	GTAW SMAW	61.25	VV	2	1014/03	ER90S-B3	1350	E9018-B3	208	145	430	150	680-720	155	100%RT	
17 02	0-17-174-00517	R-11+R-11	LINK TO FINISH RH + LINK TO FINISH RH	813	70	SA335P22 + SA335P22	GTAW SMAW	61.25	VV	4	1014/03	ER90S-B3	1350	E9018-B3	208	145	430	150	680-720	155	100%RT	
18 02	0-17-174-00517	R-11+R-12	LINK TO FINISH RH + FINISH RH INLET HEADER	762	90	SA234WP22 CL1 + SA335P22	GTAW SMAW	78.75	VV	2	1014/03	ER90S-B3	2010	E9018-B3	310	216	640	150	680-720	200	100%RT	
19 01	0-16-278-02052 0-00-027-46921	R-12(1)+R-13(1)	FINISH RH INLET HEADER + FINISH RH ASSY	76.2	5.6	SA213T22 + SA213T22	GTAW SMAW	5.6	V	51	1013/02	ER90S-B3	851.7	E9018-B3	663			150	NIL		100%RT	
20 01	0-16-278-02052 0-00-027-46921	R-12(2)+R-13(2)	FINISH RH INLET HEADER + FINISH RH ASSY	63.5	4.5	SA213T22 + SA213T22	GTAW SMAW	4.5	V	51	1013/02	ER90S-B3	714	E9018-B3	408			150	NIL		100%RT	
21 01	0-16-278-02052 0-00-027-46921	R-12(3-5)+R-13(3-5)	FINISH RH INLET HEADER + FINISH RH ASSY	57.15	4.19	SA213T22 + SA213T22	GTAW SMAW	4.19	V	153	1013/02	ER90S-B3	1866.6	E9018-B3	1224			150	NIL		100%RT	
22 01	0-16-278-02052 0-00-027-46921	R-12(6-7)+R-13(6-7)	FINISH RH INLET HEADER + FINISH RH ASSY	50.8	4.19	SA213T22 + SA213T22	GTAW	4.19	V	102	1013/02	ER90S-B3	5171.4					150	NIL		100%RT	





[Redacted Contractor/Client Information]

*Name of Contractor / Subcontractor*  
**FIELD WELDING SCHEDULE**

DOC NO : 4410-001-102-QVM-V-001  
 PG(S) : 12  
 PG NAME : RH SYSTEM (PP)  
 WELDING CODE : IBR / ASME  
 PAGE NO. : 19 OF 22

SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION SPEC	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/REV	ELECTRODE/ FILLER SPEC./QTY.					MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM REF. SPEC.NO.*	REMARKS	
				OUTSIDE DIA	THICK AT WELD							GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.		DIA 4.0 NOS.	Temp. DEG C			Hold Time mins
23 01	0-16-278-02052 0-00-027-46921	R-12(8-12)+R-13(8-12)	FINISH RH INLET HEADER + FINISH RH ASSY	44.45	4.19	SA213T22 + SA213T22	GTAW	4.19	V	255	1013/02	ER90S-B3	11246				150	NIL		100%RT		
24	0-16-278-02052 0-00-027-46921	R-13(1)+R-13TO(1)	FINISH RH ASSY + FINISH RH OUTLET TERM TUBE	76.2	5.6	SA213S304H + SA213S304H	GTAW	5.6	V	51	1054/02	YT304H	851.7					NIL		100%RT		
25	0-16-278-02052 0-00-027-46921	R-13(2-12)+R-13TO(2-12)	FINISH RH ASSY + FINISH RH OUTLET TERM TUBE	63.5	4.5	SA213S304H + SA213S304H	GTAW	4.5	V	561	1054/02	YT304H	7854					NIL		100%RT		
26 02	1-16-379-01762 0-15-278-00332	R-13TO(1)+R-14(1)	FINISH RH OUTLET TERM TUBE + RH OUTLET HEADER	76.2	5.59	SA213T91 + SA213T91	GTAW SMAW	5.59	V	51	1036/08	ER90S-B9	851.7	E9015-B91	663			220	730-760	30	100%RT	100% HC 300HV (MAX)
27 02	1-16-379-01762 0-15-278-00332	R-13TO(2-12)+R-14(2-12)	FINISH RH OUTLET TERM TUBE + RH OUTLET HEADER	63.5	4.57	SA213T91 + SA213T91	GTAW SMAW	4.57	V	561	1036/08	ER90S-B9	7854	E9015-B91	4488			220	730-760	30	100%RT	100% HC 300HV (MAX)
28			GAMMA PLUGS			SA182F12CL2 +SA335P12	SMAW	7	F	10	1102/01	E8018-B2		E8018-B2	30			200			100%LPI OR 100%MPI	

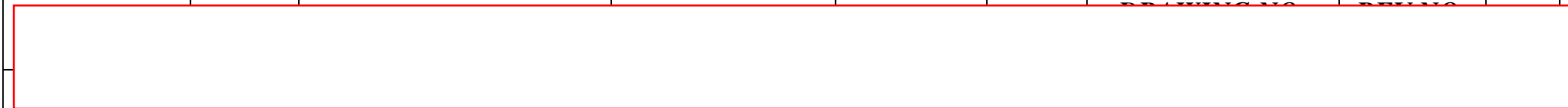
[Redacted Remarks/Notes]



Name of Contractor / Subcontractor  
**FIELD WELDING SCHEDULE**

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SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION SPEC	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/R EV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM REF. SPEC.NO.*	REMARKS
				OUTSIDE DIA	THICK AT WELD							GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.	DIA 4.0 NOS.		Temp. DEG C	Hold Time mins		
1	0-19-850-01845	VALVE+E-04 E-04+VALVE VALVE+E-04 E-04+E-04 E-04+E-05	VALVE+ECON INLET LINK ECON INLET LINK+VALVE VALVE+ECON INLET LINK ECON INLET LINK+ECON INLET LINK ECON INLET LINK+ECON INLET HEADER	610	80	SA106GrC+ SA106GrC	GTAW SMAW	70	VV	11	1005/05	ER70S-A1	1694	E7018-A1	462	759	6501	100	620-650	135	100% RT	
2	0-00-027-46922	E-05+E-06TI	ECO. I/L HR NIPP. +ECON INLET TERM TUBE	44.45	6.6	SA210GrC+ SA210GrC	GTAW SMAW	6.6	V	940	1002/03	ER70S-A1	7614	E7018-1	8460				NIL		20%RT/MIN 2 WELD/WELDE R/SHIFT	
3	0-00-027-46922	E-06TI+E-06L	ECON INLET TERM TUBE+ECON LOWER PLAIN TUBE ASSY	44.45	6.6	SA210GrC+ SA210GrC	GTAW SMAW	6.6	V	940	1002/03	ER70S-A1	7614	E7018-1	8460				NIL		20%RT/MIN 2 WELD/WELDE R/SHIFT	
4	0-00-027-46922	E-06L+E-06I	ECON LOWER PLAIN TUBE ASSY+ECON INTERM PLAIN TUBE ASSY	44.45	6.6	SA210GrC+ SA210GrC	GTAW SMAW	6.6	V	940	1002/03	ER70S-A1	7614	E7018-1	8460				NIL		20%RT/MIN 2 WELD/WELDE R/SHIFT	
5	0-00-027-46922	E-06I+E-06U	ECON LOWER PLAIN TUBE ASSY+ECON UPPER PLAIN TUBE ASSY	44.45	6.6 7.1	SA210GrC+ SA210GrC	GTAW SMAW	6.6	V	940	1002/03	ER70S-A1	7332	E7018-1	8460				NIL		20%RT/MIN 2 WELD/WELDE R/SHIFT	
6	0-00-027-46922	E-06U+E-06TO	ECON UPPER PLAIN TUBE ASSY+ECON OUTLET TERM TUBE	44.45	7.1	SA210GrC+ SA210GrC	GTAW SMAW	7.1	V	940	1002/03	ER70S-A1	7332	E7018-1	8460				NIL		20%RT/MIN 2 WELD/WELDE R/SHIFT	
7	0-00-027-46922	E-06TO+E-07	ECON OUTLET TERM TUBE+ECON JUNCTION HEADER	44.45	7.1	SA210GrC+ SA210GrC	GTAW SMAW	7.1	V	940	1002/03	ER70S-A1	7332	E7018-1	8460				NIL		20%RT/MIN 2 WELD/WELDE R/SHIFT	
8	0-00-027-46922 0-00-027-46952	E-05A+E-06A-TI	ECO WATER COOLED HGR INLET HDR + ECO WATER COOLED INLET HANGER TERM TUBE	44.45	12.5	SA210GrC+ SA210GrC	GTAW SMAW	12.5	V	472	1005/05	ER70S-A1	2454.4	E7018-A1	4248	2360			620-650	35	20%RT/MIN 2 WELD/WELDE R/SHIFT	
9	0-00-027-46922 0-00-027-46952	E-06ATI+E-06ATI	ECO WATER COOLED INLET HANGER TERM TUBE + ECO WATER COOLED INLET HANGER TERM TUBE	44.45	12.5	SA210GrC+ SA210GrC	GTAW SMAW	12.5	V	472	1005/05	ER70S-A1	2454.4	E7018-A1	4248	2360			620-650	35	20%RT/MIN 2 WELD/WELDE R/SHIFT	
10	0-00-027-46922 0-00-027-46952	E-06A-TI+E-06L-HGR	ECO WATER COOLED INLET HANGER TERM TUBE + ECO LOWER HANGER	44.45	12.5	SA210GrC+ SA210GrC	GTAW SMAW	12.5	V	472	1005/05	ER70S-A1	2454.4	E7018-A1	4248	2360			620-650	35	20%RT/MIN 2 WELD/WELDE R/SHIFT	
11	0-00-027-46922	E-06L-HGR+E-06I-HGR	ECO LOWER HANGER + ECO INTER HANGER	44.45	12.5	SA210GrC+ SA210GrC	GTAW SMAW	12.5	V	472	1005/05	ER70S-A1	2454.4	E7018-A1	4248	2360			620-650	35	20%RT/MIN 2 WELD/WELDE R/SHIFT	





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SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION SPEC	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/R EV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM REF. SPEC.NO.*	REMARKS
				OUTSIDE DIA	THICK AT WELD							GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.	DIA 4.0 NOS.		Temp. DEG C	Hold Time mins		
12	0-00-027-46922	E-06I-HGR+E-6U-HGR	ECO INTER HANGER + ECO UPPER HANGER	44.45	12.5	SA210GrC+SA210GrC	GTAW SMAW	12.5	V	472	1005/05	ER70S-A1	2454.4	E7018-A1	4248	2360		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
13	0-00-027-46922	E-06U-HGR+E-06U-TO-HGR	ECO UPPERT HANGER + ECO UPPER HANGER TERM OUTLET	44.45	12.5	SA210GrC+SA210GrC	GTAW SMAW	12.5	V	472	1005/05	ER70S-A1	2454.4	E7018-A1	4248	2360		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
14	0-00-027-46922	E-06U-TO-HGR+E-07	ECO UPPER HANGER TERM OUTLET + ECON JUNCTION HEADER	44.45	12.5	SA210GrC+SA210GrC	GTAW SMAW	12.5	V	472	1005/05	ER70S-A1	2454.4	E7018-A1	4248	2360		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
15	0-00-027-46922 0-00-027-46951	E-07+E-08L	ECON JUNCTION HEADER+ECON LOWER HGR TUBE	63.5	12.7	SA210GrC+SA210GrC	GTAW SMAW	12.7	V	416	1005/05	ER70S-A1	4118.4	E7018-A1	5824	2912		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
16	0-00-027-46922	E-08L+E-08L-R-04L	ECON LOWER HGR TUBE +ECON LOWER HGR TUBE -LTRH LOWER ASSY	63.5	12.7	SA210GrC+SA210GrC	GTAW SMAW	12.7	V	416	1005/05	ER70S-A1	4118.4	E7018-A1	5824	2912		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
17	0-00-027-46922	E-08L-R-04L+E-08L-R-04I	ECON LOWER HGR TUBE -LTRH LOWER ASSY+ECON LOWER HGR TUBE -LTRH INTERM ASSY	63.5	12.7	SA210GrC+SA210GrC	GTAW SMAW	12.7	V	416	1005/05	ER70S-A1	4118.4	E7018-A1	5824	2912		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
18	0-00-027-46922	E-08L-R-04I+E-08L-R-04U	ECON LOWER HGR TUBE -LTRH INTERM ASSY+ ECON LOWER HGR TUBE -LTRH UPPER ASSY	63.5	12.7	SA210GrC+SA210GrC	GTAW SMAW	12.7	V	416	1005/05	ER70S-A1	4118.4	E7018-A1	5824	2912		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
19	0-00-027-46922	E-07+E-08LA	ECON JUNCTION HEADER+ ECON LOWER HGR TUBE	63.5	12.7	SA210GrC+SA210GrC	GTAW SMAW	12.7	V	44	1005/05	ER70S-A1	435.6	E7018-A1	616	308		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
20	0-00-027-46922	E-08LA+E-08LB	ECON LOWER HGR TUBE +ECON LOWER HGR TUBE	63.5	12.7	SA210GrC+SA210GrC	GTAW SMAW	12.7	V	44	1005/05	ER70S-A1	435.6	E7018-A1	616	308		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
21	0-00-027-46922	E-08L-R-04U+E-08U	ECON LOWER HGR TUBE-LTRH UPPER ASSY + ECON UPPER HGR TUBE	63.5	12.7	SA210GrC+SA210GrC	GTAW SMAW	12.7	V	416	1005/05	ER70S-A1	4118.4	E7018-A1	5824	2912		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
22	0-00-027-46922	E-08LB+E-08U	ECON LOWER HGR TUBE+ ECON UPPER HGR TUBE	63.5	12.7	SA210GrC+SA210GrC	GTAW SMAW	12.7	V	44	1005/05	ER70S-A1	435.6	E7018-A1	616	308		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
23	0-00-027-46922 0-00-027-46947	E-08U+E-08U	ECON UPPER HGR TUBE+ECON UPPER HGR TUBE	63.5	12.7	SA210GrC+SA210GrC	GTAW SMAW	12.7	V	460	1005/05	ER70S-A1	4554	E7018-A1	6440	3220		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		





**Name of Contractor / Subcontractor**

**FIELD WELDING SCHEDULE**

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SL.NO.	DRAWING NO.	IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	SIZE in mm		MATERIAL SPECIFICATION SPEC	PROCESS OF WELDING	WELD SIZE mm	WELD TYPE	NO.OF WELDS	WPS/R EV	ELECTRODE/ FILLER SPEC./QTY.						MIN PRE HEAT DEG C	POST WELD HEAT		NDE METHOD / QUANTUM REF. SPEC.NO.*	REMARKS
				OUTSIDE DIA	THICK AT WELD							GTAW SPEC.	QTY in GRAMS	SMAW SPEC.	DIA 2.5 NOS.	DIA 3.15 NOS.	DIA 4.0 NOS.		Temp. DEG C	Hold Time mins		
24	0-00-027-46922 0-00-027-46947	E-08U+E-08TO	ECON UPPER HGR TUBE+ECON HGR TERM TUBE	63.5	12.7	SA210GrC+SA210GrC	GTAW SMAW	12.7	V	460	1005/05	ER70S-A1	4554	E7018-A1	6440	3220		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
25	0-00-027-46922 0-00-027-46947	E-08TO+E-09	ECON HGR TERM TUBE+ECON OUTLET HEADER	63.5	12.7	SA210GrC+SA210GrC	GTAW SMAW	12.7	V	460	1005/05	ER70S-A1	4554	E7018-A1	6440	3220		620-650	35	20%RT/MIN 2 WELD/WELDER/SHIFT		
26 01	0-00-027-46922	E-05A+E-04LINK	ECO WATER COOLED HANGER INLET HDR + ECO INLET LINK	219.1	36	SA106GrC+SA106GrC	GTAW SMAW	31.5	VV	3	1005/05	ER70S-A1	177	E7018-A1	54	75	165	100	620-650	90	100%RT	
27 01	0-00-027-46922 0-00-027-46944	E-09+EF-01	ECON OUTLET HEADER+ECON OUTLET LINK	508	90	SA106GrC+SA106GrC	GTAW SMAW	78.75	VV	2	1005/05	ER70S-A1	270	E7018-A1	76	126	1056	150	620-650	200	100%RT	
28 01	0-00-027-46922 0-00-027-46944	EF-01+EF-01	ECON OUTLET LINK+ECON OUTLET LINK	508	65	SA106GrC+SA106GrC	GTAW SMAW	56.875	VV	20	1005/05	ER70S-A1	2980	E7018-A1	760	1260	7080	100	620-650	145	100%RT	
29 01	0-00-027-46922 0-00-027-46944	EF-01+EF-02	ECON OUTLET LINK+ECON MIXING LINE	508	65	SA106GrC + SA234WPC	GTAW SMAW	56.875	VV	2	1005/05	ER70S-A1	298	E7018-A1	76	126	708	100	620-650	145	100%RT	
30 01	0-00-027-46922 0-00-027-46944	EF-02+EF-03	ECON MIXING LINE+ ECON WW INLET LINK	508	65	SA234WPC + SA106GrC	GTAW SMAW	56.875	VV	2	1005/05	ER70S-A1	298	E7018-A1	76	126	708	100	620-650	145	100%RT	
31 01	0-00-027-46922 0-00-027-46944	EF-03+EF-03	ECON WW INLET LINK+ ECON WW INLET LINK	508	65	SA106GrC+SA106GrC	GTAW SMAW	56.875	VV	4	1005/05	ER70S-A1	596	E7018-A1	152	252	1416	100	620-650	145	100%RT	
32 01	0-00-027-46922 0-00-027-46944	EF-03+F-01	ECON WW INLET LINK+FURN LOWER FRONT INLET HEADER	508	65	SA106GrC + SA234WPC	GTAW SMAW	56.875	VV	1	1005/05	ER70S-A1	149	E7018-A1	38	63	354	100	620-650	145	100%RT	
33 01	0-00-027-46922 0-00-027-46944	EF-01+F-07	FURN LOWER FRONT INLET HEADER+ FURN LOWER REAR INLET HEADER	508	65	SA106GrC+SA234WPC	GTAW SMAW	56.875	VV	1	1005/05	ER70S-A1	149	E7018-A1	38	63	354	100	620-650	145	100%RT	
34 01			GAMMA PLUG			SA106GrC + SA105	SMAW	7	F	28	1101/01			E7018	80			150			100%LPI OR 100%MPI	

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

Revised Chapter – VIII: Taxes and Other Duties Rev-01 dated 19/08/2017

## Taxes and Other Duties

- 1) **All taxes excluding GST, GST Cess & BOCW Cess** but including, Royalties, fees, license, deposits, commission, any State or Central Levy and other charges whatsoever, if any, shall be borne by you and shall not be payable extra.
- 2) Any increase of the taxes excluding GST, GST Cess & BOCW **Cess**, at any stage during execution including extension of the contract shall have to be borne by the contractor. Quoted/ accepted rates/ price shall be inclusive of all such requirements. Please note that since GST on output will be paid by BHEL separately as enumerated below, your quoted rates/ price should be after considering the Input Credit under GST law at your end.

3) GST :

GST along with Cess (as applicable) legally leviable & payable by the successful bidder as per GST Law, shall be paid by BHEL. Hence Bidder shall not include GST along with Cess (as applicable) in their quoted price.

The successful bidder shall furnish proof of GST registration. Registration should also bear endorsement for the premises from where the billing shall be done by the successful bidder on BHEL for this project/ work.

- 4) GST charged in the Tax Invoice/Debit note by the contractor shall be released separately to the contractor only after contractor files the outward supply details in GSTR-1 on GSTN portal and input tax credit of such invoice is matched with corresponding details of outward supply of the contractor and has paid the GST at the time of filing the monthly return
- 5) Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred there under) wherein the 'Bill To' details will as below :-

BHEL GSTN – As per **annexure -1**

NAME -- Bharat Heavy Electricals Limited

ADDRESS – Site address

- 6) Bidder to immediately intimate on the day of removal of Goods(in case of any supply of goods) to BHEL along with all relevant details and a scanned copy of Tax Invoice to below email ids to enable BHEL to meet its GST related compliances :-

Email id ---- to be intimated later on.

In case of delay in submission of the abovementioned documents on the date of despatch, BHEL may incur penalty /interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from the successful bidder, if such delay is not attributable to BHEL.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Revised Chapter – VIII: Taxes and Other Duties Rev-01 dated 19/08/2017

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- 7) In case of raising any Supplementary Tax Invoice (Debit / Credit Note) Bidder shall issue the same containing all the details as referred to in Section 34 read with Rule 53.
- 8) Bidder shall comply with the Time limit prescribed under the GST Law and rules thereof for raising of the tax invoice.
- 9) Bidder shall note that in case GST credit is delayed/ denied to BHEL due to delayed / non receipt of goods and /or tax invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reasons not attributable to BHEL, GST amount shall be recoverable from the vendor along with interest levied / leviable on BHEL, as the case may be.
- 10) Bidder shall upload the Invoices raised on BHEL in GSTR-1 within the prescribed time as given in the GST Act. Bidder shall note that in case of delay in declaring such invoice in your return and GST credit availed by BHEL is denied or reversed subsequently as per GST Law , GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from the bidder along with interest levied / leviable on BHEL.
- 11) Way Bill: Successful Bidder to arrange for way bill / e-waybill for any transfer of goods for the execution of the contract.

The Bidder has to make their own arrangement at their cost for completing the formalities, if required, with Issuing Authorities, for bringing materials, plants & machinery at site for execution of the works under this contract, Road Permit/ Way Bill, if required, shall be arranged by the contractor and BHEL will not supply any Road Permit/ Way Bill for this purpose.

- 12) **New taxes and duties**:-Any New taxes & duties, if imposed subsequent to due date of offer submission as per NIT & TCN, by statutory authority during contract period including extension, if the same is not attributable to you, shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, you shall obtain prior approval from BHEL before depositing new taxes and duties.

Benefits and/or abolition of all existing taxes must be passed on to BHEL against new Taxes, if any, proposed to be introduced at a later date.

In case any new tax/levy/duty etc. becomes applicable after the date of bidder's offer but before opening of the price bid, the bidder must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of the price bids. Claim for any such impact after opening the price bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.

- 13) For transportation work, GST is payable under reverse charge and same shall not be paid to bidder , however in case of GST registered transporter ,the amount to the extent of goods and service tax will be retained till BHEL avails the credit of GST. Bidder shall provide necessary assistance required by BHEL to avail credit of GST.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

Revised Chapter – VIII: Taxes and Other Duties Rev-01 dated 19/08/2017

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14) TDS under Income Tax shall be deducted at prevailing rates on gross invoice value from the running bills unless exemption certificate from the appropriate authority/ authorities is furnished.

15) TDS under GST (as & when applicable) shall be deducted at prevailing rates on applicable value from the running bills.

## Annexure-1

### State wise GSTIN no.s of BHEL

Sl.No	Projects under state	GSTIN
1	Andhra Pradesh	37AAACB4146P7Z8
2	Bihar	10AAACB4146P1ZU
3	Chhattisgarh	22AAACB4146P1ZP
4	Gujarat	24AAACB4146P1ZL
5	Jharkhand	20AAACB4146P5ZP
6	Madhya Pradesh	23AAACB4146P1ZN
7	Maharashtra	27AAACB4146P1ZF
8	Orissa	21AAACB4146P1ZR
9	Telangana	36AAACB4146P1ZG

## Clause 2.17 (Price Variation Compensation) of Vol-IC GCC Rev 01 dated 19/08/2017

### 2.17 PRICE VARIATION COMPENSATION

2.17.1 In order to take care of variation in cost of execution of work on either side, due to variation in the index of LABOUR, HIGH SPEED DIESEL OIL, WELDING ROD, CEMENT, STEEL, MATERIALS, Price Variation Formula as described herein shall be applicable (*only for works executed during extended period, if any, subject to other conditions as described in this section*)

2.17.2 85% component of Contract Value shall be considered for PVC calculations and remaining 15% shall be treated as fixed component. The basis for calculation of price variation in each category, their component, Base Index shall be as under:

SL NO.	CATEGORY	BASE INDEX	PERCENTAGE COMPONENT ('K')				
			CIVIL PACKAGES (See Note A/B/C)			MECHANICAL PACKAGES	Electrical , C&I Material Management/ Handling and other labour oriented packages
			A	B	C		
i)	LABOUR (ALL CATEGORIES)	'MONTHLY ALL-INDIA AVERAGE CONSUMER PRICE INDEX NUMBERS FOR INDUSTRIAL WORKERS' published by Labour Bureau, Ministry of Labour and Employment, Government of India.  (Website: labourbureau.nic.in)	40	25	30	65	80
ii)	HIGH SPEED DIESEL OIL	Name of Commodity: HSD  Commodity Code: 1202000005 ( <b>See Note E</b> )	5	3	5	5	5
iii)	WELDING ROD	Name of Commodity: MANUFACTURE OF BASIC METALS  Commodity Code: 1314000000 ( <b>See Note E</b> )				15	
iv)	CEMENT	Name of Commodity: ORDINARY PORTLAND CEMENT  Commodity Code: 1313050003 ( <b>See Note E</b> )		20	30		
v)	STEEL (Structural and Reinforcement Steel)	Name of Commodity: MILD STEEL: LONG PRODUCTS  Commodity Code: 1314040000 ( <b>See Note E</b> )		25			
vi)	All OTHER MATERIALS (Other than Cement & Steel)	Name of Commodity: ALL COMMODITIES  Commodity Code:1000000000 ( <b>See Note E</b> )	40	12	20		

**Note: A) Cement & Steel : Free Issue (BHEL Scope)**

**B) Cement & Steel : In Contractor Scope**

**C) Cement in Contractor Scope, and Steel is Free Issue (BHEL Scope)**

**D) For Composite packages (i.e. Civil+Mechanical+Electrical and/or CI or Civil+Mechanical or Mechanical+Electrical and/or CI), the COMPONENT ('K') for various categories shall be as per respective packages as above.**

**E) As per the 'MONTHLY WHOLE SALE PRICE INDEX' for the respective Commodity and Type, published by Office of Economic Adviser, Ministry of Commerce and Industry, Government of India. (Website: <http://eaindustry.nic.in/home.asp>). Revisions in the index or commodity will be re adjusted accordingly.**

2.17.3 #

2.17.4 Payment/recovery due to variation in index shall be determined on the basis of the following notional formula in respect of the identified COMPONENT ('K') viz LABOUR, HIGH SPEED DIESEL OIL, WELDING ROD, CEMENT, STEEL, MATERIALS.

## **Clause 2.17 (Price Variation Compensation) of Vol-IC GCC Rev 01 dated 19/08/2017**

$$P = K \times R \times \frac{(X_N - X_0)}{X_0}$$

Where

P = Amount to be paid/recovered due to variation in the Index for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials

K = Percentage COMPONENT ('K') applicable for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials

R = Value of work done for the billing month (Excluding Taxes and Duties if payable extra)

X<sub>N</sub> = Revised Index for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials for the billing month under consideration

X<sub>0</sub> = Index for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials as on the Base date

- 2.17.5 **Base date shall be the calendar month of the schedule completion date (i.e. Actual start date + Scheduled Contractual completion period as per Letter of Intent/award and/or work order).**
- 2.17.6 PVC shall not be payable for the ORC amount, Supplementary/Additional Items, Extra works. However, PVC will be payable for items executed under quantity variation of BOQ items under originally awarded contract.
- 2.17.7 The contractor shall furnish necessary monthly bulletins in support of the requisite indices from the relevant websites along with his Bills.
- 2.17.8 The contractor will be required to raise the bills for price variation payments on a monthly basis along with the running bills irrespective of the fact whether any increase/decrease in the index for relevant categories has taken place or not. In case there is delay in publication of bulletins (final figure), the provisional values as published can be considered for payments and arrears shall be paid/recovered on getting the final values.
- 2.17.9 PVC shall be applicable only, during the extended period of contract (if any) after the scheduled completion period and for the portion of work delayed / backlog for the reasons not attributable to the Contractor.  
However total quantum of Price Variation amount payable/recoverable shall be regulated as follows:
- i. For the portion of shortfall/ backlog not attributable to contractor, PVC shall be worked out on the basis of indices applicable for the respective month in which work is done. Base index shall be applicable as defined in clause 2.17.5
  - ii. In case of Force majeure, PVC shall be regulated as per (a) or (b) below:
    - a) Force majeure is invoked before "base date"/"revised base date" (as explained below) OR immediately after "base date"/"revised base date" in continuation (i.e. during the period when PVC is not applicable):
      1. Base date shall be revised: Revised base date = Previous base date + duration of Force majeure.  
No PVC will be applicable for the work done till revised base date.
      2. PVC will be applicable for the work done after "base date"/"revised base date" as the case may be (during extended period when delay is not attributable to contractor). PVC shall be

## **Clause 2.17 (Price Variation Compensation) of Vol-IC GCC Rev 01 dated 19/08/2017**

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worked out on the basis of indices applicable for the respective month in which work is done with base index as on “base date”/“revised base date” as the case may be.

- b) Force majeure is invoked after “base date”/ “revised base date” as the case may be (during extended period when delay is not attributable to contractor) -
  - 1. PVC shall be applicable for the work done after revocation of force majeure.
  - 2. PVC for the work done after revocation of force majeure shall be worked out on the basis of indices applicable for the respective month in which work is done excluding the effect of change in indices during total period of Force majeure(s) invoked after “base date”/ “revised base date” as the case may be. Base index shall be taken as on “base date”/ “revised base date” as the case may be.
- iii. The total amount of PVC shall not exceed 15% of the cumulatively executed contract value. Executed contract value for this purpose is exclusive of PVC, ORC, Supplementary/Additional Items and Extra works except extra items due to quantity variation.