

OVERHAULING OF BOILER FRONT PASS (Pass-I) -AOH of Unit-1, MPL

SCOPE OF WORK-

Front Pass (Pass- 1) Includes,

Water walls, extended water walls, Burner Panels, Radiant roof panels, Divisional Super heater (6 assemblies,48 Nos.), Platen(final) Super heater (24 Assemblies), Steam cooled spacers, Bottom S Panels, Goose neck (Arch Panel), Penthouse (first pass), Rear arch enclosure (Doghouse), Bottom enclosure (Cat house) front and rear, Top Headers of water wall, Divisional SH headers, Platen SH headers & BCW Pump & Motor.

DURATION: Total duration of Contract is 28 Days from issue of permit to Hydrotest. Time is the essence of the contract. Vender to ensure timely completion of all activities. Tentative Outage start date is **01/11/2024.**

PRICE SCHEDULE:

OVERHAULING OF BOILER FRONT PASS (Pr. Parts)					
SL. NO	CODE	JOB DISCRPTION	UOM	QTY	
10	4198826	Ash Removal & cleaning of Boiler pass - 1	AU	1	
20	4167695	Cutting and fixing of sample tubes	AU	1	
30	4072062	Ultrasonic thickness	EA	75000	
40	Cutting and Welding of Pressure Part Joints with RT (Water Wall, Platen SH, Divisional SH, Thickness basis)				
40.10	4167702	Welding & RT- OD 44.5 mm & Thickness 5mm to 7.1mm	EA	100	
40.20	4167703	Welding & RT- OD 51 mm & Thickness 5mm to 11mm	EA	380	
40.30	4167704	Welding & RT- OD 54 mm & Thickness 4mm	EA	25	
40.40	4167705	Welding & RT- OD 63.5 mm & Thickness 4mm to 12.5mm,	EA	100	
40.50	4167706	Welding, RT & PWHT- OD 44.5 mm & Thickness 5mm to 5.6mm	EA	50	
40.60	4167707	Welding, RT & PWHT- OD 51 mm & Thickness 7.1mm to 11mm	EA	15	
40.70	4167708	Welding, RT & PWHT- OD 54 mm & Thickness 4mm	EA	20	
40.80	4081416	Oxide Layer Measurement	NO	2000	
50	4081350	Boiler Pressure Parts Fin Welding-Only BY IBR welders	Meters	600	
60	4167709	Male- female connectors fixing & welding	EA	350	
70	WB Truss area attachment tubes Replacement			AU	1
70.10	4198688	WB area attachment WW tubes replacement	EA	16	
70.20	4167703	Welding & RT- OD 51 mm & Thickness 5mm to 11mm	EA	150	
70.30	4081350	Boiler Pressure Parts Fin Welding	Meters	250	
80	Replacement of water wall old erection joint area with new tube at 17Mtr (Total 100 numbers) in Pass-1				
80.1	4198825	Replacement of Spool at 18-meter S-Panel	EA	100	
80.20	4167703	Welding & RT- OD 51 mm & Thickness 5mm to 11mm	EA	200	
80.30	4081350	Boiler Pressure Parts Fin Welding-Only BY IBR welders	Meters	550	
90.00	Replacement of Burner top bends			AU	1
90.10	4167712	REPLACEMENT OF BURNER BENDS	EA	4	
90.20	4167703	WELDING & RT-OD 51 & TH 5 TO 11MM	EA	250	
90.30	4081350	Boiler Pressure Parts Fin Welding	M	250	
100	Platen Coil Bottom loop replacement by SS			AU	1
100.10	4268970	Replacement of Platen lower section U-Loop	EA	70	

100.20	4167707	Welding, RT & PWHT- OD 51 mm & Thickness 7.1mm to 11mm	EA	180
110		BCW Pump replacement		
110.1	4085387	Replacement of BCW Pump	AU	1
110.2	4270941	BCW Pump Motor Onsite Inspection	EA	2
120		Boiler peep hole door servicing	AU	1
120.10	4268969	Boiler peep hole servicing	NO	30
130		Refractory Work	AU	1
130.10	4165265	Refractory Work (Castable/Plastic)	MT	20
140		Erosion Shield(1M) on Burner Panel tube	AU	1
140.1	4268968	Erosion Shield on Burner Panel tubes	EA	200
150		S Panel Trapezoidal Fin Fix & Welding		
150.1	4268967	S Panel Trapezoidal Fin Fix & Welding	M	800

GENERAL CONDITIONS OF CONTRACT

- Bidder shall follow all the IBR Guidelines as laid down by Jharkhand IBR authority.
- Bidder shall perform / assist in Hydro test to be carried out after the completion of annual overhauling, which will be witnessed by IBR authority.
- All other government statutory HR/IR requirements required to carry out the overhaul jobs will be in the scope of the bidder.
- Prebid discussion will be arranged at MPL site. Bidder shall participate to understand the job scope and sign pre-bid MOM. Without site visit and attending pre-bid discussion, bidder shall not be considered for the contract. Bidder should also understand the existing Gate pass and training formalities at MPL during site visit.
- Bidder shall mobilize at least 15 days in advance from Overhaul zero date for HR/IR and gate pass Formalities, safety orientation, TPSDI L1 training, Inspection of safety PPE, tools, statutory compliances, and pre-outage works. Complete manpower must be deployed before Outage zero date. Deployed manpower should not demobilize the site without the permission of MPL EIC.
- Job will be carried out round the clock basis.
- Bidder should submit detailed list of resources planned to be allocated for the job.
- Safety and Quality to be strictly followed as per MPL standard practice. All PPE's to be provided by Contractor. Penalty is applicable for Safety/ HR rules violation as per MPL standards. Typical safety observations related to scaffolding, PPE's, housekeeping, electrical observations etc should not take place. Otherwise, it may attract penalty deduction as per contract terms.
- Bidder must comply with the observations raised regularly by Safety Department and concerned engineers on a day-to-day basis. Penalty shall be applicable for noncompliance.
- Minimum 1 Safety supervisor per 50 workers is required. 1 Safety Head approved by MPL Safety department shall be deployed for the entire duration of job. He will closely monitor the work and report to MPL EIC/ Safety Department.
- Safety head and all safety supervisors should be mobilized prior to manpower mobilization at site and start of work.
- Bidder shall submit Daily progress report to EIC and concerned MMD engineers regularly.
- Bidder's IBR welders proposed for carrying out the outage jobs need to appear for test and qualification by MPL quality at site prior to zero date and subsequently these approved welders will be mobilized as per outage requirement. IBR welders should carry their original certificates and credentials for verification by MPL.

14. Regular welder wise failed joint mapping will be carried out and welders continuously failing more than 10% joints shall be disqualified. Contractor must mobilize replacement welder immediately upon disqualification, so that job progress does not hamper.
15. Radiography of all welded joints to be performed by the Bidder. Repairs if any are to be carried out and cleared as per IBR standard/ MPL satisfaction without cost implication on MPL.
16. Stress relieving of Welded joints to be carried out (If required) and shall be in the scope of bidder.
17. Bidder's Engineers/ Foreman/ workmen who will be working in critical areas need to be interviewed and approved for work in overhaul by MPL. This is to be completed before overhaul commencement.
18. The bidder shall deploy adequate machinery and resources, in terms of number and skill, for carrying out the work under the order.
19. If the bidder decides to sublet any part of job to other agency, prior approval needs to be taken from MMD EIC. No other agency shall be allowed on site without prior approval.
20. All tools and tackles and consumables required to carry out the work is in Bidder's scope, for example but not limited to:
 - a. Chain pulley blocks, pulleys, ropes, jacks, D shackles etc shall be in the scope of the bidder. Tools and tackles to be certified by MPL Engineers / Competent third party.
 - b. Hydra need to be pre-approved by MPL, prior to mobilization at site, also the equipment's should have valid statutory certification and driver should have proper license.
 - c. Winch Machines for executing the work, for shifting of materials and scaffolding is in Bidders scope. To be certified by MPL Engineers / Competent third party.
 - d. 440 V Welding machines (each with ELCB, sufficiently long cables and industrial plugs to fix on the sockets), industrial Distribution boards, electric heating and portable ovens, safety appliances, TIG sets, Gas cutting sets with flash back arrestor, welding accessories, welding cables, welding consumables, electrodes of approved make (D&H Secheron & Ador only), oxygen, acetylene and purging gases, Grinders, Aprons, stress relieving and NDT equipment's (PMI, Oxide Scale thickness & Ultrasonic thickness gauging Machine) and consumables, etc shall be in the scope of the bidder. Oxide Scale thickness machine minimum range should be 150 micron or less. All electrical equipment's to be inspected and approved by MPL.
 - e. 24 Volts lighting transformers, lighting fixtures with lamps and cables of sufficient length as per site requirement for illumination at work areas. Only 24 V lighting is permitted inside confined areas and shall be in the scope of bidder.
 - f. Hose pipes, clamps, headers, nozzles etc for Water/Air blast cleaning shall be in the scope of the bidder.
 - g. Consumables such as cotton waste, hand gloves, hacksaw blades, emery tape/paper, grinding wheels, lapping paste, Prussian blue, WD-40, paint remover, painting brushes, wire brushes, scrapers etc is in bidders' scope.
 - h. Enclosed sheds or suitable lockers for safe keeping of all tools, spare parts and consumables near work site.
 - i. Welding electrodes of reputed make approved by MPL (D&H Secheron & Ador only) should be arranged by the bidder.
 - j. Tarpaulins for making suitable enclosures/ sheds as required in bidder's scope.
 - k. HP jet Pumps for Boiler internal and external cleaning is in bidder's scope.

21. Cleaning of ash at Boiler Zero meter from TG Bay to Back pass area below Eco Hopper will be in the scope of bidder. All surface drains in this area to be cleaned and ash lifting and shifting to designated place is in bidder scope. Tractor of Hyva for shifting the material is in Bidder scope.
22. Bidder shall ensure strict housekeeping of the work area on DAY-TO-DAY basis.
23. For entire scope of work- All insulation removed to be collected and packed in polythene bag and shifted to scrap yard on DAY-TO-DAY basis. Shifting and arranging Polythene bag is in Bidder's scope.
24. Post completion of shutdown, critical manpower as asked by MPL EIC must stay up to 3 days after synchronization or till plant reaches stable load condition.
25. Defect liability period for overhauling jobs shall be up to 12 months from the date of completion of overhauling activity. Any part found defective during this period, as consequence of bad workmanship shall be repaired, free of cost, by the vendor. Contractor shall report within 2 days from the date of intimation by the Order manager to attend the defect.

Penalty

Following penalties will be imposed:

1. Strict quality to be maintained for the job. Repair joints to be restricted within 5%. A penalty of 0.25% of respective area order value shall be imposed for every 1% increase in repair joint %, above limit of 5% repair.
2. Delay per days basis- In case the shutdown extends beyond stipulated shutdown days due to the lack of contractor's deputation/ repeat works/ Incomplete execution, then deduction will be imposed on per day basis as 0.5% of the contract value. However exact number of days of shutdown will be intimated before unit desynchronization. Contractor to maximise highly skilled work force and tools, tackles machineries to avoid the penalty deduction.
3. Ground level area cleaning & housekeeping of 1st pass will be done as instructed by EIC, any deviation will be penalised with minimum 2% of total contract value.

General Requirements

1. Physical verifications of the Lifting Tools & Tackles to be done by MPL EIC along with MPL Safety I/C. Rejection of defective elements with definite Colour codes. Accepted tools also will be Colour coded as per standard.
2. Load test certificate of the lifting tools & tackles and entire lifting system by Government approved/MPL registered Vendor to be obtained.
3. All required T&P, welding m/c, gas cutting, grinding, lifting tools and tackles, new generation hydra of suitable capacity shall be vendor scope.
4. **For the contract 1 new generation hydra (23 mt Capacity) with 24 hrs. Driver provision in in bidders' scope.**
5. **1 Number trailer/ truck/ Hyva dumper with 24 hrs. driver provision for shifting of Materials from store to site is in in bidder's scope.**
6. All welding consumables (complete TIG welding) shall be vendor's scope.
7. Welding consumables shall be of approved make only. (D&H Secheron only).

MPL scope:

1. All special tools, torque wrenches, hydraulic tensioning device, lifting, disassembly and assembly - fixtures supplied by the OEM.
2. Fasteners, spare parts, structural steel, plates & pipes etc for replacement. Paints for application.
3. Refractory & Insulation materials.
4. Welding electrodes and filler wires for stainless-steel welding.
5. 440/230V supply will be provided at nearest designated points.
6. Dark room facility only for RT film development However chemical and other requirement will be under party scope
7. Functional Workshop for general machining job, however if any complicated machining is required that will be under party scope.
8. Free of cost water and electricity will be provided by MPL.

10. Ash removal and cleaning of complete boiler Pass I (Internal and external):

10.10. Activity- Ash removal and cleaning of complete boiler Pass I (Internal and external) -
Quantity- **01 AU**

Bidder to quote for complete execution of the item 10.10. as per (but not limited to) following requirements.

1. Internal Cleaning- The cleaning of boiler consists and includes the complete and thorough cleaning of First pass, penthouse, deck slab roof area above penthouse, rear arch enclosure, bottom enclosure, etc. from inside of boiler from top to bottom elevation to the entire satisfaction of Engineer in Charge.
2. External cleaning- Boiler (Pass1) external cleaning by water using fire hydrant hose and nozzle. Cleaning comprises of boiler structure, furnace backstays and floor gratings from ceiling girder height to ground elevation. Hoses and fire nozzles shall be provided by MPL. After completion of cleaning if any left out material on the Buckstays, it is to be cleaned by engaging manpower.
3. After completion of overhaul activities, the entire job area including buckstays, floor area etc. to be cleaned by engaging manpower before area handover.
4. As a precautionary measure before water washing, all instruments/ actuators, welding machines shall be properly covered with Tarpaulin/polythene to prevent water/ash ingress.
5. Inside high-pressure water-jet cleaning of pass-1, goose neck, super-heaters, any left-out slag/scale after jet cleaning found deposited on tube/coil section must be cleaned by wire brush or coconut rope.
6. Cleaning of ash and damaged insulation from penthouse, rear arch enclosure, wind box and bottom enclosure.
7. Removal of ash collected over the buck stays.
8. Remove ash and insulation materials between the coils in the crown plate zones of SH inside penthouse.
9. All insulation removed to be collected and packed in polythene bag and shifted to scrap yard on DAY-TO-DAY basis. Shifting and Polythene bag is in Bidder's scope.
10. Ash to be collected in good quality leak proof gunny bags at different locations and brought down to the ground floor, proper care to be taken for any spillage of loose ash to boiler area and to be disposed to area designated (Ash Pond) by MPL.
11. Arrangement of gunny bags shall be done bidders.

20. Cutting and fixing of sample tubes:

20.10. Activity- Cutting and fixing of sample tubes – **Qty 1 AU**

1. Any scaffolding involved is in bidder's scope.
2. Sample tubes to be cut at different locations and elevations as shown and marked by MPL engineer. Indicative quantity (spool pieces) is as per below table

Sl.No	Description	UOM	Qty
1	Water wall – 8 Nos. (MOC – SA210GRC) -OD 51 x 5.6	EA	8
2	Divisional SH –1 No. (MOC- SA213 GR T22)- OD 44.5 x 5	EA	1
3	Platen SH - 1No. (MOC – SA213 GR T91- OD 51 X 7.1mm	EA	1

3. Tentative estimated joints are 20 numbers.
4. Restore the cut piece with new tube.
5. All fins welding, and NDT/RT shall be done by the bidder with no additional cost.

30. Ultrasonic Thickness measurement of Pressure Part Points:

30.10. Activity- Ultrasonic Thickness - Quantity- **75000 EA**

Note: Bidder to quote for quantity as stated above, however payment will be made based upon actual quantity executed.

1. The scope comprises of Thickness measurement of boiler tubes: Spot cleaning of boiler tubes and carry out thickness measurements by ultrasonic thickness measurement method at about 75000 (+- 10%) random spots as specified by MPL at the below mentioned locations.
 - a. At all four-burner panel, top & bottom burner bends
 - b. At top and bottom of goose neck
 - c. At 1 to 2 meters above burners
 - d. At soot blower locations
 - e. Divisional & Super heat coils
 - f. Water wall tubes
 - g. Water wall Tubes (Bottom ash Hopper area)
2. Ultrasonic thickness gang shall be arranged by the bidder (Minimum 8 nos.) to carry out the job. However, the bidder may arrange additional number of thickness gauges to complete the job in stipulated time.
3. Bidder need to deploy experienced and certified NDT expert for the ultrasonic thickness measurement job.
4. Report of thickness measurement shall be submitted to MPL in hard and soft copy (PDF & excel sheet).
5. Calibration certificate of ultrasonic thickness gauge to be submitted to MPL for approval.

Bidder must carry curvature probe to get exact thickness on lower diameter curved surface. Party must carry adequate number of curved probes for measuring these tubes.

PRESSURE PART INSPECTION & REPAIR (Item numbers 40,50,60,70,80,90,100)

Pressure part inspection by UT thickness & Oxide scale measurement to be carried out at Divisional, Platen SH, Water wall, steam cooled spacers etc. Based upon thickness measurement observations & Oxide thickness data, repair or replacement of tubes shall be carried out.

40. Cutting and Welding of Pressure Part Joints with RT:

40. Activity Cutting and Welding of Pressure Part Joints with RT- Total tentative quantity is as per below table.

Sl.no	Description	Quantity	Remarks
40.10.	Welding & RT- OD 44.5 mm & Thickness 5mm to 7.1mm	100	Welding + RT
40.20.	Welding & RT- OD 51 mm & Thickness 5mm to 11mm	380	Welding + RT
40.30.	Welding & RT- OD 54 mm & Thickness 4mm	25	Welding + RT
40.40.	Welding & RT- OD 63.5 mm & Thickness 4mm to 12.5mm	100	Welding + RT
40.50.	Welding, RT & PWHT- OD 44.5 mm & Thickness 5mm to 5.6mm	50	Welding + RT + PWHT
40.60.	Welding, RT & PWHT- OD 51 mm & Thickness 7.1mm to 11mm	15	Welding + RT + PWHT
40.70.	Welding, RT & PWHT- OD 54 mm & Thickness 4mm	20	Welding + RT + PWHT
		690	

Note: Bidder to quote for quantity as stated above, however payment will be made based upon actual quantity executed.

1. The scope of this item consists of- Repair and replacement of all damaged coils/tubes/hangers which includes all Water wall sections, Extended water wall, Burner transition tubes, Divisional coils, Platen SH, SH sections, steam cooled spacers etc. Vendor to quote for marking, Cutting, fit up, welding and RT/NDT/PWHT requirement of butt weld joints.
2. Damaged tubes cutting, replacement fit up etc. is included in the scope.
3. The quantity indicated above is expected quantity. There may be variation in the quantity based on actual condition. Bidder will be paid on actual number of joints welded. Repair Joints will be in vendors scope.
4. All Super heater joints up to 7mm thickness shall be done by TIG welding method only.
5. Welder test shall be carried out as directed by MPL EIC. Welders to be tested on 3 test pieces and at simulated actual welding condition within stipulated time. Welder should qualify on all 3 test pieces, else shall be disqualified.
6. Strict quality to be maintained for the job. Penalty shall be imposed according to Penalty clause of General condition of contract.
7. Bidder must provide the joint identification number with Welder's short name.
8. RT is in the scope of bidder. All repaired weld joints will be checked by conducting RT/SR test (to be arranged by the Bidder). The bidder will have to produce the RT film to MPL EIC for approval of finished joints.
9. Pre-heating and SR if applicable are in the scope of bidder.
10. No margin will be provided for defective joints & joint should be rectified by the bidder. In case repair is pointed out in any joint, repair work will be done by the bidder at no extra cost to MPL.
11. Sufficient RT sources of above 15 curies to be engaged in each shift on 24 hours working basis. Enough manpower (Minimum 6 technicians/helpers per source) for parallel activity of RT shoot and film development activity to be engaged by the bidder in each shift.

50. Fin Welding in Pressure part:

50.10 Activity- Fin Welding in Pressure part Quantity- **600 Meters**

Note: Bidder to quote for quantity as stated above, however payment will be made based upon actual quantity executed.

1. Bidder must quote price for fin welding on per meter length of fin basis.
2. Welding and installing new fin plates as per requirement, is in bidder's scope.
3. Fin both side welding per unit length (mts) will be treated as unit Length for this activity. For example: if a fin of 2 mts length is welded on both sides, then only 2 meters shall be considered for measurement and NOT 2X2=4 mts.
4. Fin material will be provided by MPL.
5. Inspection by DP and rectification is in the scope of bidder.
6. If required party must erect scaffolding at the required place to carry out the job.
7. Payment will be done on actual job basis, carried out and duly verified by MPL EIC.

60. Male female connector fixing and rectification

60.10 Activity- Male- female connectors fixing & welding - Quantity- **350 EA**

Scope includes:

1. Fixing of male female connectors wherever required in the entire divisional & platen SH coils.
2. Any damaged or dis lodged connectors to be cut and rectified/ re positioned.
3. Welding to be done by TIG and after completion of welding DP test to be carried out.
4. Any defect after DP Test to be rectified by the bidder.

Inspection and correction of Divisional Super heater coils:

Scope includes: Cutting and replacement of tubes based on physical observation and thickness measurement.

1. All the coils are to be checked for their alignment. If found misaligned, it should be aligned thoroughly by replacement of spool piece/straightening and by providing new connectors. Payment for male- female connectors shall be made as per **item 60**. All connectors shall be TIG welded with the tube.
2. Fixing of pads at the place of tube-to-tube contact area will be done by bidder, and include in the activity, will not be paid separately.
3. UT will be paid as per **item 30**
4. Oxide Scale thickness measurement will be paid as per **item 40.80**
5. Welding with RT will be paid as per **item 40**.
6. For all new joints, 100% RT to be carried out.

Tentative repair joints anticipated in Divisional area are as under, however there may be variation in the quantity based upon condition-

Sl. No	Description	Material	Quantity
1	SA 213 T91 OD 51 X 7.1mm	T91	5
2	SA 213 T22 OD 44.5 X 5mm	T22	20
3	SA 213 T22 OD 44.5 X 7.1mm	T22	5
4	SA 213 TP347 H OD 63.5 X 8mm	SS	5
5	SA 213 T91 OD 44.5 X 5.6mm TO SA 213 T22 OD 44.5 X 5mm	T91 to T22	5
			40

Inspection and correction of Platen Super heater coils:

Scope includes:

1. Erection of scaffolding at different levels throughout the length of the coils.
2. Cutting and replacement of tubes based on physical observation and thickness measurement & oxide measurement.
3. All the coils are to be checked for their alignment. If found misaligned, it should be aligned thoroughly by replacement of spool piece/straightening and by providing new connectors. Payment for male- female connectors shall be made as per **item 60**. All connectors shall be TIG welded with the tube.
4. Fixing of pads at the place of tube to tube contact area will be done by bidder, and include in the activity, will not be paid separately.
5. UT will be paid as per **item 30**.
6. Oxide Scale thickness measurement will be paid as per **item 40.80**
7. Welding with RT will be paid as per **item 40**.
8. For all new joints, 100% RT to be carried out.
9. Additional erosion shield fixing may be carried out at outer loop lower section of coils, as per the instruction of MPL engineer.

Tentative repair joints anticipated in Platen SH area are as under, however there may be variation in the quantity based upon condition-

Sl. No	Description	Material	Quantity
1	SA 213 TP347 H OD 63.5 X 8mm	SS	5
2	SA 213 TP347 H OD 51 X 11mm TO SA 213 TP347 H OD 51 X 7.1mm	SS- Different OD	5
3	SA 213 TP347 H OD 63.5 X 12.5mm TO SA 213 TP347H OD 63.5 X 8mm	SS- Different OD	5
4	SA 213 T22 OD 51 X 9mm	T22	5
5	SA 213 T91 OD 51 X 7.1mm	T91	5
6	SA 213 TP347 H OD 51 X 7.1mm To S A213 T91 OD 51 X 7.1mm	SS to T91	5
			30

Inspection and correction of Steam cooled spacer tubes:

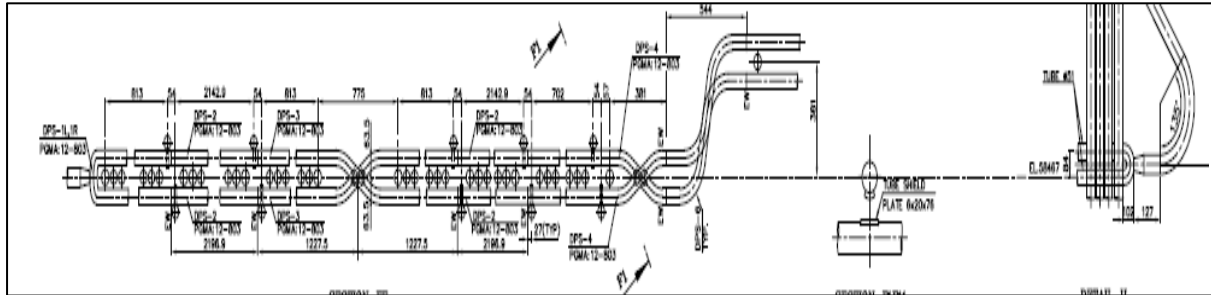
Scope includes:

1. Erection of scaffolding for inspection and thickness measurement.
2. Cutting and lowering of spacer (scissor) tube for the inspection and thickness measurement of Divisional coils and final super heater coils if felt required. It is to be repositioned after inspection and replacement of tubes.
3. The rubbing pad shall be inspected for its healthiness. If required new pad to be provided to prevent rubbing of tubes.
4. The rubbing pad shall be TIG welded with the tubes.
5. UT will be paid as per **item 30**.
6. Welding with RT will be paid as per **item 40**.
7. For all new joints, 100% RT to be carried out.

Tentative repair joints anticipated in Steam cooled spacer area are as under, however there may be variation in the quantity based upon condition-

Sl. No	Description	Material	Quantity
	Divisional & Platen Steam cooled Spacers		
1	SA 210 Gr C OD 51 x 5mm	CS	6
2	SA 213 Gr T11 OD 51 X 7.1mm	T11	12

3	SA 213 Gr T22 OD 63.5 X 9 mm	T22	12
4	SA 213 TP 347 H OD 63.5 X 8mm	SS	12
5	SA 213 TP347 H OD 51 X 7.1mm	SS	12
6	SA 213 TP347 H OD 63.5 X 8 mm TO SA213 TP347 H OD 51 X 7.1mm	SS- Different OD	5
7	SA 213 TP347 H OD 51 X 7.1mm TO SA 213 T11 OD 51 X 7.1mm	SS to T11	5
8	SA 213 TP347 H OD 63.5 X 8mm TO SA 213 T11 OD 51 X 7.1mm	SS to T11	5
			69



Inspection and correction of Water wall & Extended Water wall:

Scope includes:

1. Any extra scaffoldings if required will be in the scope of work.
2. Cutting and replacement of tubes based on physical observation and thickness measurement.
3. UT will be paid as per **item 30**.
4. Welding with RT will be paid as per **item 40**.
5. For all new joints, 100% RT to be carried out.
6. Fin cutting to be done and fixing of fin material to be performed at all required places. Fin welding shall be paid as per **item 50**.

Tentative repair joints anticipated in Water wall area are as under, however there may be variation in the quantity based upon condition-

Sl. No	Description	Material	Quantity
1	SA 210 Gr C OD 51X 5.6mm	CS	90
2	SA 210 Gr C OD 63.5X 7.1mm	CS	10
3	SA 210 Gr C OD 63.5X 12mm	CS	5
			115

70. Windbox Truss area attachment tubes Replacement in all four corners at all four elevations:

70.10. Activity- MECH, WB area attachment WW tubes replacement- Quantity- **16 EA**

Sl.no	Description	Quantity	Remarks
<u>70.10.</u>	WB area attachment WW tubes replacement	16 EA	

<u>70.20.</u>	Welding & RT- OD 51 mm X 5.6 mm	150 EA	Welding + RT
<u>70.30.</u>	Fin welding	250 Mts	

Scope Comprises-

1. Scaffolding erection to make approach at all four corners at four elevations.
2. Removal & reinstallation of wind box duct plate to expose & access the tubes.
3. Complete removal, grinding, reinstallation and welding of duct will be part of scope. No additional payment will be given separately.
4. Total 48 tubes at 16 locations at all four corners to be replaced.
5. Size of water wall tubes is SA 210 Gr C OD 51X 5.6mm.
6. **Payment will be done as per the actual basis of elevation and joints.**

80. Replacement of water wall old erection joints with new spool tube at 18Mtr (Total 100 no) in Pass-1

80	Replacement of water wall old erection joint area with new tube at 18Mtr (Total 100 no) in Pass-1				
80.10	4198825	Replacement of Spool at 18-meter S-Panel	100	EA	
80.20	4167703	Welding & RT- OD 51 mm & Thickness 5mm to 11mm	200	EA	
80.30	4081350	Boiler Pressure Parts Fin Welding-Only BY IBR welders	550	Meters	

Scope includes:

1. Scaffolding erection to be done from both inside and outside as per the position is in bidder's scope.
2. At EL-18M, Cutting and removal of 1000mm (approx) length of existing tubes.
3. Cutting, edge preparation and Fit up of New Tubes.
4. Size of water wall tubes is SA 210 Gr C OD 51X 5.6mm.
5. After RT clearance trapezoidal fins welding to be done.
6. **Rate for this item is per tube piece basis and will be paid as per item 80.10.**
7. **Welding and RT of tubes will be as per Item 80.20.**
8. **Trapezoidal Fin welding will be as per item 80.30.**

90. Replacement of Burner top bends

Activity: - Replacement of all burners bends at all four burner top corners

90		Replacement of Burner top bends	1	AU
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90.10	4167712	REPLACEMENT OF BURNER BENDS	4	EA
90.20	4167703	WELDING & RT-OD 51 & TH 5 TO 11MM	250	EA
90.30	4081350	Boiler Pressure Parts Fin Welding	250	M

Note: Bidder to quote for quantity as stated above, however payment will be made based upon actual quantity executed.

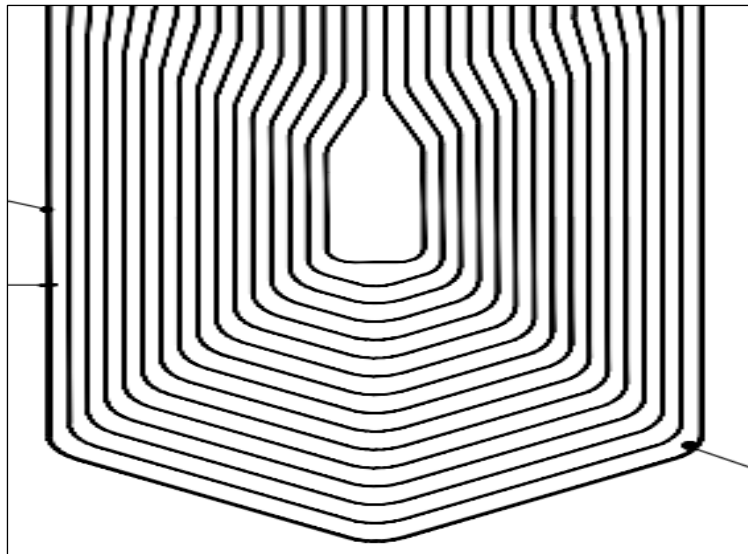
Scope includes:

1. The work is to be done at 4 places (Burner top Corner 1,2,3 & 4).
2. Total number of bends is 100 approx. (considering 25 numbers at one corner).
3. Size of burner bend tubes is SA 210 Gr C OD 51X 5.6mm.
4. Scaffolding required to access the burner bends will be in bidder's bidder scope.
5. Removal of thermal insulation shall be in bidders' scope of work.
6. All insulation removed to be collected and packed in polythene bag and shifted to scrap yard on DAY TO DAY basis. Shifting and Polythene bag is in Bidder's scope.
7. Removal of burner external skin casing, chipping and removal of refractory materials to expose the burner top and bottom bends.
8. Cutting and removal of Burner bends and fins at top and bottom area.
9. Fixing of new bends after cleaning and edge preparation.
10. **Welding and RT of bend tubes will be as per Item 90.20.**
11. If additional spool is required to be fixed for installation and matching of the bend, the same is included in the scope and rate of the item.
12. Installation and welding of fin plates to be done- **Fin welding will be as per item 90.30.**
13. Application of refractory after clearance from MPL- **Refractory removal and application rate per ton as per item 130.**
14. Fixing of external skin casing plates, NDT and rectification.
15. Fixing of Insulation pins to be done after completion of work to be included in scope.
16. Reapplication of insulation with cladding after completion of job and clearance by MPL to be done by bidder. Insulation material shall be provided by MPL.
17. Bend materials, tubes, fins refractory and insulation materials are in scope of MPL.

100. Platen Coil Bottom loop replacement by SS loop (SA213 TP 347 H) (Figure No-1)

Sl.no	Description	Quantity	Remarks
<u>110.10</u>	Replacement of Platen lower section U-Loop	70 EA	
<u>110.20.</u>	Welding, RT & PWHT- OD 51 mm & Thickness 7.1mm to 11mm	180 EA	Welding + RT+PWST

Figure No-1



The scope includes:

1. Entire work to be carried out in 20 days' time after issuance of permit.
2. After clearance from EIC total rear arch to be cleaned by fire water.
3. Scaffolding material to be shifted from yard to boiler area. Scaffolding material will be provided by MPL. Consumable required for scaffolding shall be in bidder scope.
4. Shifting of SS tube and bottom loop bends to done from MPL store to boiler zero meter by hydra & truck. Hydra & truck will be in bidder scope.
5. Lifting of scaffolding materials at 60 M Elevation and Erection of scaffolding at different level to be done throughout the length of the Platen coil.
6. Lifting of bends from ground floor to boiler 60 M to be done by lift/ rope & pulley.
7. Marking, cutting and removal of all Platen bottom bends to be done as instructed EIC as marked in Fig-1.
8. Installation and welding of new bends to be done in place of removed bends. Welding procedure will be provided by MPL.
9. Filler rods for welding shall be provided by MPL.
10. Payment of Platen bottom loop will be done as per Sl. No-100.10. (On the basis of each loop)
11. Payment of joints will be done as per Sl. No-100.20
12. After welding completion, tubes alignment and locking shall be done with the help of Male- Female connector/ binders. Male -Female connector/ binder will be provided by MPL.
13. Male- Female connector welding shall be done by TIG & DP test will be done. DPT consumable will be in bidder scope.
14. 100% RT of all joints will be mandatory.
15. Pre heat and PWHT (Post welding Heat Treatment) as applicable will be done by automatic heat treatment machine.
16. RT & Heat treatment machine & service will be in bidder scope.
17. Radiography machine capacity shall not be less than 15 curies.
18. All 70-platen loop and coils to be aligned by fixing binders/ male – female connector at different elevation as instructed by EIC of MPL.

110. Replacement of BCW Pump

110		BCW Pump Replacement		
110.10	4085387	BCW Pump Replacement	1	AU
110.20	4270941	BCW Pump Motor Onsite Inspection	1	EA

110.10. Activity- Replacement of BCW Pump- Quantity- 1 EA

1. The bidder has to quote for the replacement of one BCW pump assembly.
2. The bidder will have to arrange for necessary and required scaffolding, tools, tackles and manpower for BCW replacement.
3. Expert service engineer for BCW replacement job will be arranged by MPL.
4. The bidder will have to execute the job as per advice of service engineer deployed and MPL EIC.
5. The bidder will have to shift the BCW assembly along with spares from MPL stores to work site in Boiler.
6. Dismantling, erection, alignment, commissioning are in scope of bidder.
7. The bidder will also have to remove and shift the dismantled BCW pump at location specified by MPL EIC.

110.20. Activity- Servicing/Overhauling of BCW Pump Motor- Quantity- 2 EA

1. Bidder will arrange the scaffolding materials and erect the scaffolding where required for the repairing job.
3. Cutting of all pipe connection from cooler and motor.
3. Removal and dismantling of LP cooler (Motor Cooler).
4. Removal and dismantling of Magnetic filter.
5. Cleaning of motor cooler & magnetic cooler after dismantling as instructed by service engineer and reassembled.
6. Installation of Motor cooler and Magnetic filter.
7. Removal of BCW bottom flange for inspection and cleaning of strainer.
8. Cleaning of bottom strainer and flushing of heat barrier LP lines.
9. Replacement of spare parts as required and reassembly of motor bottom part.
10. Connection of all pipelines. (Welding to be done by IBR only and all joints RT to be done).
11. If any joint need rectification, joint rectification will be done by bidder without any additional cost.
12. Any other work related to BCW pump/motor servicing/overhauling as instructed by service engineer will be included in this scope. No extra payment will be claim by bidder.
13. Commissioning of BCW Motor/ Pump after servicing/ overhauling as instructed by service engineer.

120. Boiler peep hole door servicing

Activity- Boiler peep hole door servicing-1AU

120	Boiler peep hole door servicing		1	AU
120.10	4268969	Boiler peep hole door servicing	30	NO

Following are the job associated in this activity.

1. Removal of all Boiler Peep Hole door.
2. Dismantling and Cleaning of all removed door.
3. If some maintenance required for freeness of door will be included in this activity.
4. Installation of all peep hole doors after maintenance.
5. Old rope removal and installation of new rope with Holdtite in all peep hole doors.
6. Holdtite will be in bidder scope.
7. Insulation removal for removal and installation of Peep hole door will be in bidder's scope.
8. All repaired and reinstalled doors should operate & closed properly.
9. Payment will be done as per the actual.

130. Refractory Work:

130.10. Activity- Refractory Work - Quantity- **20 MT**

Note: Bidder to quote for quantity as stated above, however payment will be made based upon actual quantity executed.

1. Area for application of refractory - Radiant roof, Corner Transition tubes, Scaffold doors, Access Doors, Peepholes, soot blower openings, burner panels, screen tubes, goose neck and the area shown by MPL engineer.
2. Inserts or anchor fixing required for the refractory work is included in the scope.
3. Any Scaffolding requirement will be in bidders' scope.
4. Any chipping and removal of existing refractory is included in the scope.
5. Bidder shall mobilize all the necessary skilled manpower to perform the activity to the satisfaction of MPL EIC.
6. Supply of refractory materials, anchors and steel plates is in the scope of MPL.

140. Fixing of erosion shield on burner panel tubes

140		Fixing of Erosion Shield at Burner Panel	1	AU
140.10	4268967	Erosion Shield on Burner Panel tubes	200	EA

The scope includes the following activity.

- 1.Scaffolding erection if required.
- 2.Fabrication of erosion protection shield in the form of bends profile.
- 3.Installation of fabricated shield on the individual bends/ as instructed by EIC.
4. Complete welding of shield with tubes as instructed by EIC.
5. Welding of shields will be done only by IBR welders and by TIG welding only.
6. Finishing of job to be done as instructed by EIC.
- 7.Payment will be done as the actual.

150. S Panel Trapezoidal fins fixing and welding

150		S Panel Trapezoidal Fins Fix & Welding	1	AU
150.10	4098423	S Panel Trapezoidal Fin Fix & Welding	800	M

Scope includes:

1. Scaffolding erection to be done as per the position is in bidder's scope.
2. Cleaning of area where trapezoidal fins to be installed.
3. Fixing of trapezoidal between the S-Panel tubes.
4. Complete welding of trapezoidal fins from both sides.
5. DP test of fins welding to be done.
6. All the consumable for welding and DP test will be in bidder's scope.
