



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN – 02

Ref: PSER:SCT:SNX-B1458:TCN-02

Date: 30-04-2013

Sub	Tender change notice (TCN) 02	
Job	(i) PACKAGE-A: Erection, testing, commissioning, etc for the total scope as detailed in the tender specification for boiler, rotating machines, duct, ESP, Mills, critical piping, insulation etc & structural steel works of mill bunker bay structure, etc of unit # 1 for 2x150 MW units at Sintex Infra Projects Ltd, Maharashtra. (ii) PACKAGE-B: Erection, testing, commissioning, etc for the total scope as detailed in the tender specification for boiler, rotating machines, duct, ESP, Mills, critical piping, insulation etc & structural steel works of mill bunker bay structure, etc of unit # 2 for 2x150 MW units at Sintex Infra Projects Ltd, Maharashtra.	
Ref	1.0	Tender no PSER:SCT:SNX-B1458:13
	2.0	BHEL's NIT, vide reference no Ref: PSER:SCT:SNX-B1458:3246, dated 17-04-2013
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:SNX-B1458:TCN-01, dated 24-04-2013
	4.0	All other pertinent issues till date.

With reference to above, following points/ documents, relevant to tender, may please be noted and complied with while submitting offer.

- 1.0 Extension of due date of offer submission from 02-05-2013 to **06-05-2013**.
- 2.0 Clarification to bidder's query as per attached Annexure-I.
- 3.0 Schedule of changes/revision to Technical Spec-Boiler & Auxillaries as per attached Annexure-II.
- 4.0 LIST OF T&P TO BE PROVIDED BY CONTRACTOR as per ANNEXURE-B (REV-01), superseding the corresponding Annexure of tender document.
- 5.0 Painting Scheme as per attached Annexure-III.
- 6.0 Revised 'No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.
- 7.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

ENGR (SCT)

Encl

- 1.0 As above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION, DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : 23211691, 23211798, 23211796

ANNEXURE – I TO TCN-02

JOB	<p>(i)PACKAGE-A: Erection, testing, commissioning, etc for the total scope as detailed in the tender specification for boiler, rotating machines, duct, ESP, Mills, critical piping, insulation etc & structural steel works of mill bunker bay structure, etc of unit # 1 for 2x150 MW units at Sintex Infra Projects Ltd, Maharashtra.</p> <p>(ii)PACKAGE-B: Erection, testing, commissioning, etc for the total scope as detailed in the tender specification for boiler, rotating machines, duct, ESP, Mills, critical piping, insulation etc & structural steel works of mill bunker bay structure, etc of unit # 2 for 2x150 MW units at Sintex Infra Projects Ltd, Maharashtra.</p>
TENDER NO.	PSER:SCT:SNX-B1458:13

Sl. No.	Reference Clause of tender document (Page No.)	Subject	Bidder's query	BHEL's clarification
1	4.8 & 4.9 of TCC (5 of 53)	Paint	Whether supply of paint & primer is in the scope of Bidder.	YES
2	2.3.45 of Scope of Work, TS (38 of 76)	Approach Platform	You have mentioned that fabrication of 100 MT for 500 MW is to be involved, whereas in BOQ (Schedule-2, Sr. No. VIII on Page 3 of 13 & 3 of 13), fabrication of same item is mentioned as 40 MT. Please clarify.	PI refer revised clause in 'SCHEDULE OF CHANGES/REVISION TO TECHNICAL SPEC-BOILER &AUX ' & BOQ (SI No VII of Sch-2 of Price schedule)
3	2.3.50.3, 5 th Bullet of Scope of Work, TS (47 of 76)	Dewatering Pump	Our scope is limited to commissioning. Hence, we may not be able to arrange the Dewatering Pumps, 2 Nos. up to hand-over of Unit to Customer.	Dewatering pump is to be arranged as per requirement at site. PI refer revised clause in 'SCHEDULE OF CHANGES/REVISION TO TECHNICAL SPEC-BOILER &AUX.
4	Annexure-A, Group-VI-Piping, (35 of 53)	Welding Joints	Please provide us details of welding joints of P91 Piping	Tentative erection weld schedule has already been furnished in the tender .You may pl refer the same.
5	Annexure-B – T&P To be provided by Contractor, 01 (37 of 53)	Heavy Lift Crawler Crane	Please provide us duration of requirement.	Heavy lift crawler crane is meant for erection of upper tier components of Boiler structure & Ceiling girder erection and heavy mill material erection. Duration may

ANNEXURE – I TO TCN-02

Sl. No.	Reference Clause of tender document (Page No.)	Subject	Bidder's query	BHEL's clarification
				be estimated accordingly.
6	Annexure-C – T&P to be made available by BHEL, 6 (40 of 53)	Induction Heating Machine	Whether complete set (along with accessories and consumables like compensating cables, etc.) of Induction Heating Machine shall be provided by BHEL.	Yes
7	Volume-IF – Scope of Work, Tech. Specs, 2.2.3.15 (32 of 76)	Performance of guarantee test	Whether deployment of 20 man-months for PG Test shall be for both the Units (i.e. Unit-1 & 2) and for all the activities like Boiler, ESP, Bunker Structure, etc.	Bidder to refer rate schedule for PG test assistance.PI refer revised clause in 'SCHEDULE OF CHANGES/REVISION TO TECHNICAL SPEC-BOILER &AUX '.
8	Volume-III A, Price Schedule, Sch-4, Group 2302a (11 of 13)	No. of coats	Please provide us no. of coats of the primer. Also please confirm whether this rate will be difference of deleted paint scheme and this paint scheme.	Bidder may refer painting schedule of various eqpts during execution.
9	43.8- Pg 32 of 53 Vol-1F_B1458	Fabrication/Galvanizing	All the fabrication of structural steel items (except nuts/bolts) shall be done in fabrication yard inside project premises. Bidders to note that all fasteners like MS/ HT/ HSFG bolts, nuts, lock nuts, washers etc. shall be supplied by bidder as per technical specification/ drawings Whether fabrication and supply limited to BOQ only	Supply & Fabrication to be made as per BOQ.
10	44.0 Pg 38 of 53 Vol1F_B1458	Guarantee Period	Even though the work will be carried under supervision of BHEL engineers, bidder will be responsible for the quality of the workmanship and shall guarantee the work done for a period of 12 months from the date of start of guarantee	Applicable for supply and service part

ANNEXURE – I TO TCN-02

Sl. No.	Reference Clause of tender document (Page No.)	Subject	Bidder's query	BHEL's clarification
			<p>period of the package, as certified by the engineer for good workmanship and shall rectify free of cost all defects due to faulty erection. In case bidder fails to repair the defective works within the time specified by engineer, BHEL may proceed to undertake the repairs of such defective works at contractor's risk and cost without prejudice to any other rights and recover the same from SD/ other dues. Kindly confirm whether clause is applicable for supply or not .</p>	
11	Annexure-B PG 37 of 53	List of T&Ps to provided by the contractor (Applicable for Package-A/Package-B)	<p>Heavy Lift Crawler Crane of suitable capacity-01(One) no To be deployed within 45 days from start of work Heavy lift crawler crane with critical load lifting capacity of 55 MT below hook at a height 60m below hook from ground level at an operating radius of 14m-16m for Boiler erection, Mill Bunker Erection etc .</p> <p>Kindly confirm the crane months or upto which milestone the contractor should deploy this crane.Also pl confirm the list of T&Ps is for one unit or two units.</p>	<p>Pl refer BHEL reply corresponding to SI No 5 above.</p> <p>List of T&Ps is for each package ,ie Package A/Package-B</p>
12	Annexure-B PG 37 of 53	List of T&Ps to provided by the contractor (Applicable for Package-A/Package-B)	<p>Strand Jack with ropes ,guides, anchors ,hydraulic drive unit including control panel complete in all respect- 1set for lifting of Boiler drum</p> <p>We prefer power winch for drum erection. Kindly confirm</p>	<p>Requirement of strand jack for boiler drum lifting has already been given in the tender. No deviation regarding same is acceptable.</p>

ANNEXURE – I TO TCN-02

Sl. No.	Reference Clause of tender document (Page No.)	Subject	Bidder's query	BHEL's clarification
			that.	
13	2.1.3.8 Details of scope of work Pg 12 of 76 TECHNICAL SPEC	2.1.3.8	Chemical cleaning, steam blowing and air drying of the connecting pipes for the lube oil system has to be carried out wherever required as per instruction manuals / drawings. Chemicals will be provided by BHEL. Kindly confirm chemical cleaning procedure	Chemical cleaning shall be as per normal practice of BHEL and procedure for the same shall be furnished at the time of erection.
14	2.3.47.1 TECHNICAL SPEC	PRESERVATION / TOUCH UP PAINTING	Contractor shall carryout cleaning and preservation / touch up painting as a part of erection work for the materials / equipments under this tender specification right from pre-assay stage, during erection and after erection till the equipment is cleared for final painting, wherever deficiency in painting / rusting is noticed. The primer paint shall be matching shop primer. supply and application of touch up paint, required manpower, other required consumables, T&P etc shall be provided by the contractor with in the quoted rate. PI confirm that all boiler components, ie equipments and piping of generator & auxillaries shall be supplied to us with proper blasting and primer painting from M/s BHEL's workshop or vendor's workshop .Only finish paint limited to two coats shall be done by bidder. Touch up paint wherever damaged by contractor is limited to our scope	As per tender
15	GENERAL	1	PI confirm whether BHEL	Suitable erection drgs

ANNEXURE – I TO TCN-02

Sl. No.	Reference Clause of tender document (Page No.)	Subject	Bidder's query	BHEL's clarification
			shall provide design drawings to prepare the fabrication drgs of Mill Bay & Pipe rack structure fabrication work.	shall be given during execution.
		2	PI provide us sectional Elevation Drg and Layout plan	Already furnished in the tender
		3	PI confirm whether all the material required for the scope mentioned is covered under the supply order issued by BHEL and no material supply is to be provided by bidder	As per tender.
		4	Kindly specify the scope of sand blasting. Is blasting required for complete painting work	As per painting schedule
		5	PI provide BHEL approved vendor list for the following items a)Paint material b)Structural steel material c)Electroforged galvanized gratings d)Mild steel bolts e)High strength structural bolts f)Grouting material	Shall be furnished during execution.
		6	Ceiling girder pieces shall be unloaded near the erection site by M/s BHEL and transportation of ceiling girder from BHEL store to erection site is not required.PI confirm.	PI refer revised clause in 'SCHEDULE OF CHANGES/REVISION TO TECHNICAL SPEC-BOILER &AUX '

SCHEDULE OF CHANGES/REVISION TO TECHNICAL SPEC-BOILER & AUXILLARIES

JOB	(i) PACKAGE-A: Erection, testing, commissioning, etc for the total scope as detailed in the tender specification for boiler, rotating machines, duct, ESP, Mills, critical piping, insulation etc & structural steel works of mill bunker bay structure, etc of unit # 1 for 2x150 MW units at Sintex Infra Projects Ltd, Maharashtra. (ii) PACKAGE-B: Erection, testing, commissioning, etc for the total scope as detailed in the tender specification for boiler, rotating machines, duct, ESP, Mills, critical piping, insulation etc & structural steel works of mill bunker bay structure, etc of unit # 2 for 2x150 MW units at Sintex Infra Projects Ltd, Maharashtra.
TENDER NO.	PSER:SCT:SNX-B1458:13

Sl. No.	Reference Clause of TECH SPEC (Page No.)	EXISTING CALUSE	REVISED CLAUSE
1	2.1.4.4 Pg 13 OF 76	Each of the ceiling girders will be sent in 3 pieces and will have to be assembled, welded and NDE & PWHT (SR) done on ground prior to their erection in position.	2Nos.of 50MTGirders & 2 Nos. of 33MT Girders shall be received at site store and will have to be assembled, welded and NDE & PWHT (SR) done on ground prior to their erection in position. Necessary transportation from BHEL site stores to erection site is in the scope of vendor .
2	Cl 2.2.3.15 (Pg 32 of 76)	Performance of guarantee test : The final performance and guarantee tests of the unit(s) to establish the guaranteed parameters shall be carried out by BHEL. Contractor shall assist BHEL by providing required manpower tools and consumables for carrying out the above tests. All preparatory works and temporary connections required for performing the above tests shall be carried out by the contractor free of cost. A deployment of 20 man-month approximately may be assumed by the vendor for this purpose and separate price may be quoted against the same in the rate schedule. In case assistance during performance guarantee test is not required, this amount will not be paid to the contractor.	Performance of guarantee test : The final performance and guarantee tests of the unit(s) to establish the guaranteed parameters shall be carried out by BHEL. Contractor shall assist BHEL by providing required manpower tools and consumables for carrying out the above tests. Vendor to quote separate price as per price schedule .All preparatory works and temporary connections required for performing the above tests shall be carried out by the contractor free of cost. In case assistance during performance guarantee test is not required, this amount will not be paid to the contractor.
3	CL 2.3.44 Pg 38 of 76	The contractor has to erect control valves and other items received from	The contractor has to erect control valves and other items received

ANNEXURE – II TO TCN-02

Sl. No.	Reference Clause of TECH SPEC (Page No.)	EXISTING CALUSE	REVISED CLAUSE
		other Units of BHEL and to be erected on the piping system and approx. tonnage per 500 MW Unit is around 200 MT	from other Manufacturing Units of BHEL and to be erected on the piping system. Tonnage and other details available in relevant annexure of the tender.
4	2.3.45 (Pg 38 of 76)	Fabrication and erection of the approach platforms for accessing eqpts/valves/systems erected by the contractor are included in the scope of work.The approximate weight will be 100MT with a variation limit of +/- 20% for each 500MW unit. Necessary structural materials will be provided by BHEL.The work shall be paid as per relevant rates of the rate schedule.	Fabrication and erection of the approach platforms for accessing eqpts/valves/systems erected by the contractor are included in the scope of work. Approx tonnage details is as per relevant annexure of the tender doc. Necessary structural materials will be provided by BHEL. The work shall be paid as per relevant rates of the rate schedule.
5	2.3.50.3 SI No 5 Pg 47 of 76	The contractor has to arrange at least two no. of dewatering pumps of suitable capacity to take care of piping erection, commissioning jobs. This facility has to be retained by the vendor till handing over of the respective 500 MW Unit(s) to the customer.	The contractor has to arrange dewatering pumps (as required at site) of suitable capacity to take care of piping erection, commissioning jobs.
6	20.3.50.4.5,sl no V ,Pg 73 of 76 PRE-COMMISSIONING, COMMISSIONING AND POST COMMISSIONING OF THE UNIT :	The pre-commissioning activities will start prior to light up of the boiler and various trials, commissioning operations shall continue till the individual 500 MW Unit(s) is handed over to customer. Simultaneous commissioning checks, activities will be in progress in various areas like trial run of various equipment, checking of equipment erected, making ready for trial runs, filling up of lubricants, chemicals etc., all these works need specialized gangs including electricians in each area to render assistance to BHEL Commissioning staff. Contractor shall earmark separate manpower for various commissioning activities. This manpower shall not be disturbed or diverted. The mobilization of these commissioning gangs shall be	The pre-commissioning activities will start prior to light up of the boiler and various trials, commissioning operations shall continue till the individual 150 MW Unit(s) is handed over to customer. Simultaneous commissioning checks, activities will be in progress in various areas like trial run of various equipment, checking of equipment erected, making ready for trial runs, filling up of lubricants, chemicals etc., all these works need specialized gangs including electricians in each area to render assistance to BHEL Commissioning staff. Contractor shall earmark separate manpower for various commissioning activities. This manpower shall not be disturbed or diverted. The mobilization of these commissioning

ANNEXURE – II TO TCN-02

Sl. No.	Reference Clause of TECH SPEC (Page No.)	EXISTING CALUSE	REVISED CLAUSE
		<p>sufficient so that planned commissioning activities are taken up in time and also completed as per schedule and the work undertaken round the clock if required. It is the responsibility of the contractor to discuss on day to day / weekly / monthly basis the requirement of manpower, consumables, tools and tackles with BHEL Engineer and arrange for the same. If any time the requisite manpower, consumables, T&P are not arranged then BHEL shall make alternate arrangements and necessary recoveries will be made alongwith overhead charges of BHEL.</p>	<p>gangs shall be sufficient so that planned commissioning activities are taken up in time and also completed as per schedule and the work undertaken round the clock if required. It is the responsibility of the contractor to discuss on day to day / weekly / monthly basis the requirement of manpower, consumables, tools and tackles with BHEL Engineer and arrange for the same. If any time the requisite manpower, consumables, T&P are not arranged then BHEL shall make alternate arrangements and necessary recoveries will be made alongwith overhead charges of BHEL.</p>

ANNEXURE-B (REV-01)**LIST OF T&P TO BE PROVIDED BY CONTRACTOR FOR EACH UNIT/PACKAGE**

Contractors may please note that this list is not exhaustive & given for guidance purpose. The contractor may be required to deploy additional T&Ps not mentioned in this list at their own cost for proper execution of the job.

01	Heavy Lift Crawler Crane of suitable capacity	01(One) To be deployed within 45 days from start of work Heavy lift crawler crane with critical load lifting capacity of 55 MT below hook at a height 60m below hook from ground level at an operating radius of 14m-16m for Boiler erection, Mill Bunker Erection etc .
02	75 T Crawler Crane	01(One) To be deployed immediately within 15 days from start of work
03	Tyre mounted/ crawler cranes with telescopic boom/ lattice boom-40T	01 (One) no To be deployed within 30 days from start of work
04	Pick & Carry Cranes-18T/25T	01(One) no To be deployed within 30 days from start of work
05	Crane 12 T Hydra	3 no
06	Passenger cum goods elevator (within 4 months of LOI)	1 no
07	Tractor-trailor 30T (with long bed)	1 no
08	Tractor-trailor 12T/15T (with long bed)	1 no
09	Truck 10T	1 no
10	Wheel barrows	1 no
11	Electrical winch 8T	As per reqmt.
12	Electrical winch 5T	As per reqmt.
13	Electrical winch 2T	As per reqmt.
14	Electrical winch 1T	As per reqmt.
15	3 Phase distribution board with complete set up for drawl of construction power-600Amp	As per reqmt.
16	Furnace maintenance platform	1(One)
17	Air compressor (electric) – 7 kg/cm ² /100 psi/ 80 cfm	As Reqd.
18	Chain pulley block 10T	As per requirement
19	Chain pulley block 5T, 3T, 2T	
20	Pull lift 6T, 5T, 3T, 1.5T	
21	Multipurpose pulling and lifting m/c 5T, 3T, 1.6T	
22	Hydraulic jack 100T, 50T, 20T, 10T, 5T	
23	Single sheave snatch pulley 10T, 5T	
24	Double sheave snatch pulley 10T, 5T	
25	D shackles 10T, 20T, 50T	
26	Turn buckles 3T, 5T, 8T, 10T, 15T, 20T	

ANNEXURE-B (REV-01)

27	Welding generator K320	
28	Oil cooled welding transformer 300 amp, 450 amp	
29	Air cooled welding transformer 300 amp	
30	Stress relieving transformer 600 amp	
31	TIG welding torch air cooled	As required
32	Tig welding torch water cooled	
33	High frequency unit	
34	Oxygen regulator	
35	Acetylene regulator	
36	Cutogen 5	
37	Oxygen hose 10 mm	
38	Acetylene hose 10 mm	
39	Electrode drying oven	
40	Portable electrode drying cabinet	
41	Copper welding cable 600 amp, 400 amp	
42	Aluminium cable 600 amp, 400 amp	
43	Temperature recorder	
44	Thermochalk 100 deg C to 800 deg C	
45	Air compressor 250 cfm, 80 cfm	
46	Stationery compressor 350 cfm	
47	Filling pump 80 M head, 15 ltr/sec (at least one month prior to Hydraulic test)	
48	Electrode baking oven	
49	Vernier theodolite – 1 sec accuracy	
50	Dumpy level	
51	Spirit level 12 inch, 0.1 mm accuracy	
52	Combination squares	
53	Micrometers of different sizes	
54	Vernier 2alipers of different size	
55	Dial guage	
56	Flood light with bulb	
57	Step down transformer	
58	Drilling m/c of different sizes	
59	Megger	
60	Tong tester	
61	Grinding m/c of different sizes	
62	Chamfering m/c of different sizes	
63	Trip torque wrench	
64	Aluminium telescopic ladder	
65	Manila ropes of different sizes	
66	Steel wire ropes of different sizes	
67	Drawing board	
68	Radiography equipment	
69	Moving platform	
70	Magnetic particle test equipment	

ANNEXURE-B (REV-01)

71	Ultrasonic flaw detector	
72	Dye Penetrant test kit	
73	Sheet grooving m/c for outer sheet casing	
74	Sheet bending m/c for outer sheet casing	
75	Recordable ultrasonic test equipment (UFD Krauft Kammer make USN-50 or higher version to meet the requirements)	1 Set.
76	Radiography arrangement including source- IR 192	1 Set.
77	Mechanized hydraulic pipe bending machine with die of various sizes	1 Set.
78	Gas burner arrangement	1 Set.
79	Hardness tester	1 Set.
80	Spot welding machine	1 Set.
81	Special slings for unloading drum and lifting ceiling Girder	As Reqd.
82	DG Set -250MVA or of Required Capacity	As Reqd.
83	Strand Jack with ropes ,guides,anchors,hydraulic drive unit including control panel complete in all respect	1set for lifting of Boiler drum
84	2 nos drill machine (all cut)	Within 60 days from LOI date
85	2 nos drill machine (al cut)	Within 75 days from LOI date
86	4 nos submerged arch welding machine	Within 30 to 100 days from LOI date
87	8 nos MIG machine	Within 30 to 100 days from LOI date
88	50 nos welding rectifier	Within 30 to 90 days from LOI date
89	30 nos welding rectifier	Within 60 days from LOI date
90	3 no power driven HSFG bolt tightening m/c	Within 120 days from LOI date
91	4 nos electric winch with building hoist	Within 150 days from LOI date
92	Power winch – 3T - 4 nos for structural erection	Within 120 days from LOI date
93	Power winch – 5T - 2 nos for structural erection	Within 120 days from LOI date
94	Portable fire extinguishers as below: Soda acid – 20 sets. Dry chemical powder – 20 sets CO2 – 15 sets. Water & sand bucket (4 buckets in one stand) – 10 sets. Fire hose with nozzle (50 M length) – 12 sets.	Within two months from LOI date

NOTE REGARDING ANNEXURE-B

ANNEXURE-B (REV-01)

- 1) In case the bidder fails to mobilize the above T&P as per requirement and the work progress/safety is affected for non-mobilization of any required T&P, gadgets, equipment, system; BHEL shall inform the bidder writing that BHEL shall provide the required items and recover the actual cost of providing such item / system plus BHEL's overhead as per rule.
- 2) The Make of these items has to be approved either by BHEL and/or by Client. The same has to be tested/calibrated/certified by statutory authorities as the case may be.
- 3) One crane shall be provided (refer Annexure-C) along with Heavy lift Crawler crane of vendor for boiler drum unloading.

ANNEXURE-III TO TCN-02
TENDER NO. PSER:SCT:SNX-B1458:13

SINTEX INFRA PROJECTS LTD
VENDOR DRAWING REVIEW STATUS

- Action-1: Approved drawing and resubmit for records.
- Action-2: Approved except as noted on drawing revise drawing and resubmit for records.
- Action 3: Returned with comments. Resubmit for approval.
- Action 4: Not approved. Resubmit for review.
- Action 5: For Information / Noted & kept for records.

This document has been reviewed as noted with regard to general conformity with the contract specification and requirements. The Vendor / Contractor is responsible for correctness of design, calculation and details. Approval for correctness of design, calculation and details. Approval of this document does not relieve the Vendor/ Contractor of his responsibility in carrying out the work correctly and fulfilling the complete requirements of the contract nor does it limit the Purchaser's rights under the Contract.

Ref No: *217/B* Date: *21/12/13*

HEAVY LIMITED
CHENNAI-17
OFFICE & CONTROL DEPT.

PROJECT NAME : - SINTEX INFRA PROJECTS LIMITED - 2 X 150 MW
BHEL CUSTOMER Nos : 7186, 7187.

QPN0: 7186.QPC:1
REV.NO: 02
Date : 13.02.2013

PAINING SCHEME FOR PIPING

CUSTOMER DOC.No: SHI-BTG-VM-Q-PC-003

Sl. No	Surface Preparation & Surface Profile	Primer coat			Intermediate coat			Finish coat			REMARK:
		Primer	No of coats & DFT	Paint	No of coats & DFT	Shade	Paint	No of coats & DFT	Shade	Total DFT Microns (Min.)	
1	SSPC-SP3/ Power Tool Cleaning	Red oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	2 (30 microns per coat.)	-----	-----	-----	-----	-----	Red Oxide	60	100 @shot + 20 @site.
2	SSPC-SP3/ Power Tool Cleaning	Red oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	2 (30 microns per coat.)	-----	-----	-----	-----	-----	Smoke grey shade to 692 of IS 5	100	80 @shot + 20 @site.
3	SSPC-SP3/ Power Tool Cleaning	Red oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	2 (30 microns per coat.)	-----	-----	-----	-----	-----	Smoke grey shade to 692 of IS 5	100	80 @shot + 20 @site.
4	Abrasive Blast cleaning to Sa 2 1/2 (35-50 microns)	Epoxy Zinc rich primer to IS 14589 Gr.II, % VS = 35 Min	1 (40 microns per coat)	-----	-----	-----	-----	-----	Phirozi Blue Shade No.176 of IS 5	70	Refer Note
5	SSPC-SP3/ Power Tool Cleaning	Red oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	1 (30 microns per coat.)	-----	-----	-----	-----	-----	Smoke Grey Shade No 692 of IS 5	70	Refer Note
6	SSPC-SP3/ Power Tool Cleaning	Red oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	1 (30 microns per coat.)	-----	-----	-----	-----	-----	Refer Note	70	Refer Note
7	Stainless steel / Galvanized items										

\$\$\$:- Out of Two coats of finish paint one coat of 20 microns shall be at manufacturing centres and other coat of 20 microns shall be at site.

Note:- Smoke grey shade for Carbon Steel ; White shade for Alloy Steel Clamps.

For Customer use

APPROVED BY: *M.S. Muralidharan*
M.S.MURALIDHARAN, MGR / QA

PREPARED BY: *Vivekananda Yellu*
VIVEKANANDA YELLU, Sr. ENGR/QA

FOR TENDERING PURPOSE ONLY

DOCUMENT TRANSMITTAL LETTER

Transmittal Ref. No.: **SHI/BHEL/1198**

Date : - 02/03/2013

**SINTEX INFRA PROJECTS LIMITED
2 X 150 MW COAL BASED POWER PLANT
DHULE DISTRICT, MAHARASHTRA**

Dear Sir,

Please find enclosed the following drawing(s) / document(s) issued with the action code as indicated for your necessary action.

Sr. No.	SIPL Doc. No.	Consultant / Vendor Doc.No.	Rev. No.	Description	Copies	Category	Action
1	SHI-BTG-VM-Q-PC-001	7186:QPC:01	R2	Quality Plan for Piping Fabrication (Non-IBR)	Soft	A	A1
2	SHI-BTG-VM-Q-PC-002	7186:QPC:02	R2	Quality Plan for Tanks & Vessels	Soft	A	A1
3	SHI-BTG-VM-Q-PC-003	7186:QPC:11	R2	Painting Scheme for Piping	Soft	A	A1

Note: Action Code

A1 - Approved

A2 - Approved except as noted on drawing / document. Revise drawing and resubmit for records.

A3 - Returned with comments. Resubmit for approval

A4 - Not Approved. Returned for review.

I - For Information / Noted and kept for records

Thanking you

Yours truly,
For Sintex Infra Projects Ltd.


Atul Garg
VP

Encl.: As above

FOR TENDERING PURPOSE ONLY



**Painting schedule for APH ESP FAN and Gates & Damper for
SINTEX INFRA PROJECTS LIMITED 2X150 MW ,DHULE , MAHARASHTRA
(BHEL RPT WORK ORDER NO. R155,R156)
Doc. No.SHI-BTG-VM-Q-BAP-006-R2**

**PS SIPL R155-R156
Rev 02 DT 21 12 2011
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SI No	Description	Surface preparation	Primer/ DFT	Intermediate DFT	Finish DFT	Total DFT
1.0	Insulated surfaces of APH, ESP FAN	Power Tool Cleaning to St3 (SSPC-SP3)	Two coats of Heat resistant Aluminum paint as per IS13183 Gr II DFT 2x20 =40 µm (min)	NIL	NIL	40 µm (min)
2.0	Gas swept surfaces and UN insulated of APH, ESP FAN and GD	Power Tool Cleaning to St3 (SSPC-SP3)	Two coats of Red oxide Zinc phosphate primer as per IS 12744 DFT 2x30 =60 µm (min)	NIL	NIL	60 µm (min)
3.0	Insulated and Gas swept surfaces of Gates and Dampers	Power Tool Cleaning to St3 (SSPC-SP3)	Two coats of Heat resistant Aluminum paint as per IS13183 Gr II DFT 2x20 =40 µm (min)	NIL	NIL	40 µm (min)
4.0	Misc. Items Surfaces exposed to Atmosphere of APH ESP FAN (@@)	Power Tool Cleaning to St3 (SSPC-SP3)	Two coats of Red oxide Zinc phosphate primer as per IS 12744 DFT 2x30 =60 µm (min)	NIL	Two coats of Synthetic enamel as per IS 2932 SHADE 692 of IS 5 DFT 2x25=50µm (min)	110µm (min)
(@@) APH: 52.100 Rotor drive assy, 52.211 Air seal pipe, 52.212 Observation port, 52.217 Rotor stoppage alarm, 52.220 General tool and tackles, 52.261 Guide bearing assembly, 52.262 support bearing assy., 52.271, 52.272 oil piping, 52.274 Oil circulation system, 52.301, 52.302 Wash pipe assy, 52.340 Cleaning device assy.52.988 Commissioning spares) FAN: Bearing pedestal, Damper, control frames, Lub oil system, coupling guard ESP: 7X 010 GD Drive arrangement, 7X 017 Drive arrangement for Emit sys., 7X 026 CE rapping mechanism drive, 7X 042 Outer Roof of EP, 7X 055 Pent House. 7X 061 EP performance test Equipments., 7X 066 Water washing system, 7X 988 Commissioning spares 7X 996 Tools and Tackles .						
5.0	Supporting structures of ESP (X81 column and Bracings)	Blast cleaning to Sa 2 ½ (Near white metal) with surface profile 35-50µm	Two coats of Epoxy Zinc phosphate primer DFT 2x25 = 50 µm (min)	One coat High build epoxy polyamide MIO /TIO2 pigmented Intermediate coat DFT 1x100=100 µm (min)	Two coats of Epoxy high build polyamide finish paint DFT 2x100 =200 (min) Shade : smoke grey shade 692 of IS 5(Volume of solid 40% (min)	350µm

Prepared by *[Signature]* Reviewed and approved by *[Signature]*

[Handwritten mark]

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SI No	Description	Surface preparation	Primer/ DFT	Intermediate DFT	Finish DFT	Total DFT
6.0	Floor grills of ESP and Gates & Dampers (PG MA 89 610, 89 611,7X X65 ,57 466	Hot dip Galvanizing to 610gms/SQ. M to a coating thickness of 85 microns (min) (*)				
7.0	Hand rails, Post and Ladder of ESP & Gates and Dampers. Etc (Items other than In SL No 6)	Power Tool Cleaning to St3	One coat of Mastic epoxy DFT 1x1.25=125 µm (min)	Two coats of Modified polyamide finish paint 2x100 =200µm (min)	Two coats of aliphatic acrylic polyurethane DFT =60µm(min)	385 µm (min)
8.0	Foundation materials of, Fan ESP, collecting electrode, Shims of ESP, All machined Components, Gate Blades	Temporary rust preventive	(Dry type)			
9.0	Heating elements of APH	Dipped in Rust preventive oil (Non dry type)				


(*) Items indicated in SL No. 6 for galvanizing is indicative only. Actual shall be as per Engineering GMS/Drawing

Notes

1. Painting of APH ESP, Fan and G&D commissioning spares and Mandatory spares shall be as per respective items as above.
2. No painting for SS, Aluminum and Galvanized items.
3. All components covered under different PGMA's are to be painted. In case any component is left out; the same shall be deemed to be included under the relevant section.

Record of revision	Rev 00 DT 12 09 2011 Original Issue. Prepared in line with M/s ABHIJEET Projects, 2x150 MW Visakhapatnam. Vide email DTD 12 09 2011 from marketing
	Rev 01 DTD 21.11.2011 Revised based on customer comments vide Drawing /Document transmittal note No. 03 DTD 29 09 2011
	Rev 02 DTD 21 12 2011 Revised based customer comments . Requirement of Flue gas swept surfaces of Gates and Dampers added

**SINTEX INFRA PROJECTS LTD
VENDOR DRAWING REVIEW STATUS**

- Prepared by** 
- Action-1: Approved
 Action-2: Approved except as noted on drawing. Revise drawing and resubmit for records.
 Action 3: Returned with comments. Resubmit for approval.
 Action 4: Not approved. Resubmit for review.

This document has been reviewed as noted with regard to general conformity with the contract specification and requirements. The Vendor / Contractor is responsible for correctness of design, calculation and details. Approval for correctness of design, calculation and details. Approval of this document does not relieve the Vendor/ Contractor of his responsibility in carrying out the work correctly and fulfilling the complete requirements of the contract nor does it limit the Purchaser's rights under the Contract.

Ref No.:  Date: 27.12.11
 Signature:  Initials: JG

Reviewed and approved by 

FOR TENDERING PURPOSE ONLY

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
Power Sector - Eastern Region,
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	(i) PACKAGE-A: Erection, testing, commissioning, etc for the total scope as detailed in the tender specification for boiler, rotating machines, duct, ESP, Mills, critical piping, insulation etc & structural steel works of mill bunker bay structure, etc of unit # 1 for 2x150 MW units at Sintex Infra Projects Ltd, Maharashtra. (ii) PACKAGE-B: Erection, testing, commissioning, etc for the total scope as detailed in the tender specification for boiler, rotating machines, duct, ESP, Mills, critical piping, insulation etc & structural steel works of mill bunker bay structure, etc of unit # 2 for 2x150 MW units at Sintex Infra Projects Ltd, Maharashtra.	
Ref	1.0	Tender no PSER:SCT:SNX-B1458:13
	2.0	BHEL's NIT, vide reference no Ref: PSER:SCT:SNX-B1458:3246, dated 17-04-2013
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:SNX-B1458:TCN-01, dated 24-04-2013
	4.0	BHEL's TCN-02, vide reference no PSER:SCT:SNX-B1458:TCN-02, dated 30-04-2013
	5.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized
representative of the bidder)