**Work: Handling of materials at BHEL/Client's stores/storage yard, transportation to site of Erection, Erection, Testing & Assistance for commissioning and Trial Operation, including supply and application of Final Painting, of Boiler and its Auxiliaries, Air Pre-heaters, Ducts and Dampers, Boiler Integral Piping, Fans, Bowl Mills, Rotating Equipment, etc. of 1x525 MW set at Tuticorin TPS Stage IV, Megha Engineering & Infrastructures Limited (MEIL), Tuticorin, Tamil Nadu**

A) The clause Sl No: 2 – PRICE VARIATION COMPENSATION (PVC) published in VOLUME-IA PART – II CHAPTER 1- CORRECTIONS / REVISIONS IN SPECIAL CONDITIONS OF CONTRACT, GENERAL CONDITIONS OF CONTRACT AND FORMS & PROCEDURES **stands deleted**.

B) The clause Sl No: 4 as mentioned below is added in VOLUME-IA PART – II CHAPTER 1- CORRECTIONS / REVISIONS IN SPECIAL CONDITIONS OF CONTRACT, GENERAL CONDITIONS OF CONTRACT AND FORMS & PROCEDURES

**Sl No: 4**

**PRICE VARIATION COMPENSATION (PVC)**

The PRICE VARIATION COMPENSATION (PVC) clause 2.17 published in General Conditions of Contract (Volume I Book-II) is revised as under.

**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 OIL. Commodity code:1200020005 (**See Note E**) | **5** | **3** | **5** | **5** | **5** |
| iii) | WELDING ROD | Name of Commodity : WELDING ROD Commodity code:1310030017 (**See Note E**) | | | | **15** | |
| iv) | CEMENT | Name of Commodity : GREY CEMENT Commodity code:1309030001 (**See Note E**) | | **20** | **30** | | |
| v) | STEEL (Structural and Reinforcement Steel) | Name of Commodity: a2. STEEL: LONG Commodity code:1310010200 (**See Note E**) | | **25** | | | |
| vi) | All OTHER MATERIALS (Other than Cement & Steel) | Name of Commodity: ALL COMMODITIES Commodity code:1000000000 (**See Note E**) | **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.( http://www.eaindustry.nic.in/download_data_0405.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.

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

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)

XN = Revised Index for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials for the billing month under consideration

Xo = 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 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 the 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, the 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 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 items due to quantity variation.

C) Some of the Bidders had raised queries in the published Tender Specification. The Clarifications issued by BHEL are furnished below:

| Sl No. | Reference Clause No. | Existing Provision | Bidder query | BHEL's clarification |
|---|---|---|---|---|
| 1 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– II- SCOPE OF WORKS, Clause No. 1.2.10 | The contractor shall submit a copy of license to undertake construction/ repair of Boilers & Piping issued by Boiler inspectorate before commencement of Pressure Parts / Piping Erection. | As this is only Erection of Boiler work, please confirm that copy of registration certificate to be issued by Boiler Inspectorate should only be for erection of Pr. Parts and not for repair. | License to undertake construction of Boilers shall be submitted. |
| 2 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– III- FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL (SCOPE MATRIX), Clause No. 1.3.1.2.2.4 | Living facilities for office use including charges | We do not understand this clause, Please clarify | Clause No. 1.3.1.2.2.4 of Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– III- FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL (SCOPE MATRIX) **stands deleted.** |
| 3 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– III- FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL (SCOPE MATRIX), Clause No. 1.3.1.2.2.2 and 1.3.4.4 | Cl. 1.3.1.2.2.2 Supply, installation..... operation and maintenance. Cl. 1.3.4.4 The require energy meter ..... by the contractor | The two clauses are contradictory, please confirm which clause should be applicable. | Supply, installation and connection of material of energy meter including operation and maintenance shall be in the scope of bidder. |
| 4 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– V- T&Ps & MMEs TO BE DEPLOYED BY BHEL ON SHARING BASIS, Clause No. 1.5.18.1 | Induction Heating Machine with accessories as indicated in Clause 1.5.1 above. | Please confirm that accessories will includes Main Panel, capacitor panel, Interconnection Power & Control cables between panel, 185 sq- mm special Connecting Cables from Capacitor panel out put etc. | Accessories like Main panel, Capacitor panel, Interconnection power & control cables between panel, 185 sq.mm special connecting cables from capacitor panel output etc. are applicable only for older model of Induction heating machines. If applicable, the same will be supplied by BHEL. |

| Sl No. | Reference Clause No. | Existing Provision | Bidder query | BHEL's clarification |
|---|---|---|---|---|
| 5 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– V- T&Ps & MMEs TO BE DEPLOYED BY BHEL ON SHARING BASIS, Clause No. 1.5.7 | The day-to-day and routine maintenance including replacement of spares for the BHEL T&Ps will be carried out by the contractor at his own cost. However, BHEL shall supply spare parts free of charges for normal wear and tear only. | Please confirm that. Filters for BHEL'S cranes shall be provided by BHEL free of cost. | Filters are consumables and shall be arranged by the bidder at their cost. |
| 6 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– VIII- TAXES AND DUTIES, Clause No. 1.8.4.1 | In case Government imposes any new levy / tax after award of the work during the tenure of the contract, BHEL shall reimburse the same at actual on submission of documentary proof of payment subject to the satisfaction of BHEL that such new levy / tax is applicable to this contract.. | We feel that any new tax levy shall be reimbursed by BHEL after the date of submission of bid instead of award of work as the gap between submission of bid and award of work is not known | The clause 1.8.4.1 of Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– VIII- TAXES AND DUTIES is revised as follows:<br>In case Government imposes any new levy / tax **after technical bid opening,** during the tenure of the contract, BHEL shall reimburse the same at actual on submission of documentary proof of payment subject to the satisfaction of BHEL that such new levy / tax is applicable to this contract.. |
| 7 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– X- GENERAL, Clause No. 1.10.1, 1.10.2 | Bidder are requested<br>..... wc policv number | Please confirm that these document shall be submitted to BHEL after award of work | Bidder has to submit the documents mentioned immediately after issue of Letter of Intent. |
| 8 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– III- FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL | Clause 1.3.14.1<br>Adequate water less urinals [at least 2 nos per level] shall be arranged by the contractor within quoted rates, at site of construction at different level | As per clause no. 1.3.14.1 it is mentioned that 2 Nos. urinal per level where as in clause 1.10.4.1 it is indicated 4 Nos. per level, please confirm which is correct | Adequate water less urinals [atleast 2 nos per level] shall be arranged by the contractor within quoted rates, at site of construction at different level and different areas like boiler |

| Sl No. | Reference Clause No. | Existing Provision | Bidder query | BHEL's clarification |
|---|---|---|---|---|
| | (SCOPE MATRIX), Clause No. 1.3.14.1 and Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– X- GENERAL, Clause No. 1.10.4.1 | and different areas like boiler structure, with proper disposal arrangement.<br><br>Clause 1.10.4.1<br>Adequate water less urinals (at least 4 nos. per level) shall be arranged by the contractor within quoted rates, at site of construction at different level and different areas like boiler structure, bunker structure, bunker, ESP, with proper disposal arrangement. | | structure, with proper disposal arrangement. |
| 9 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– X- GENERAL, Clause No. 1.10.4.27 | Platforms ladders, canopies,…….....<br>ie., Rate schedule 1d 1.1 | We feel that it should be 1A instead of 1.1 please confirm | Rate Schedule ID may be read as 1A. |
| 10 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– II- SCOPE OF WORKS, Clause No. 1.2.16 and Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– XIII- MATERIAL HANDLING, TRANSPORTATION AND SITE STORAGE, Clause No. 1.13.2 | The main storage yard is located outside the Main Plant Boundary, at a distance of approximately 5 KM from the erection site. | Please confirm that we have to transport the material / component from the store within project premises? | The bidder shall transport all materials for erection from the location where it has been unloaded by BHEL- either in Main Storage Yard outside plant premises, or in the storage area within the plant premises. |

| Sl No. | Reference Clause No. | Existing Provision | Bidder query | BHEL's clarification |
|---|---|---|---|---|
| 11 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– XV- WELDING, HEAT TREATMENT & RADIOGRAPHY AND NON-DESTRUCTIVE TESTING, Clause No. 1.15.17 | The contractor for radiography work shall use Iridium-192 / Cobalt 60; the geometric un-sharpness shall not exceed 1.5 mm. The contractor should take adequate safety precautions while carrying out radiography. Contractor at his cost shall arrange necessary safe guards required for radiography (including personnel from BARC). | Normally BARC do not allow the use of COBALT- 60, please confirm that contractor shall be allowed to use UT method. | EWS/ IBR norms to be followed. Radiography check with Iridium-192/ UT can be used after taking prior approval from BHEL Site. |
| 12 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– XVIII- PAINTING, Clause No. 1.18.1.1 | A) Cl. 1.18.1.1 - The scope of work shall..... in Chapter 3 & 4 of Part II in technical Specification of Contract (Volume-I Book-i) | Please confirm the following:<br>There is no mention of chapter 3 & 4 in the painting schedule. Please provide chapter 3 & 4. | The clause 1.18.1.1 is revised as follows:<br>'The scope of work shall also include supply and application of final painting of all the erected equipments as required and specified as per enclosed painting schedules in Chapters 3, 4 of Volume IA, Part II in Technical Conditions of Contract.'<br><br>Also refer Sl No. E of this Corrigendum for for XRP 1003 BOWL MILLS WITH PGB |
| 13 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– XVIII- PAINTING, Clause No. 1.18.1.5 and 1.18.1.11 | A) Cl. 1.18.1.5 -All the exposed metal .....BHEL/ customer official. | Please confirm the following:<br><br>A) Since the scope of this tender is limited to supply & application of final painting Surface cleaning by | A) Clause is applicable. If any parts/ surfaces found to be exposed while in custody of the contractor, the same shall be painted as per painting specification. |

| Sl No. | Reference Clause No. | Existing Provision | Bidder query | BHEL's clarification |
|---|---|---|---|---|
| | | | chemical and primer coat is not applicable, this clause should be deleted.<br><br>B) Since the scope of this tender is limited to supply & application of final painting, application of Primer and intermediate coat of paint is not applicable, this clause should be deleted.<br>Please confirm | B) Clause is applicable. |
| | | B) Cl 1.18.1.11 – Each coat (Primer, intermediate, finish)……arranged by the contractor. (Refer Painting Schedule for Required DFT). | | |
| 14 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– IV- T&Ps and MMEs TO BE DEPLOYED BY CONTRACTOR, Clause No. 1.4.5 | For transportation, material handling, loading & unloading of heavier components / equipments like Ceiling girders, large dia pipes etc., the contractor has to make his own arrangements at his own cost. BHEL will not provide any crane / T & Ps for unloading the above components. | Pls furnish the individual single piece weight of ceiling girder for calculating required trailer capacity and months | The details requested for is furnished under Sl No. D below. |
| 15 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– VI- TIME SCHEDULE, Clause No. 1.6.4 | The contract period for completion of entire work under scope shall be 26 (Twenty six) months from the "COMMENCEMENT OF CONTRACT PERIOD" as specified earlier for completion of the entire work. | We request to provide the Milestone Month for ceiling girder and drum lifting | Milestone month for ceiling girder erection and Drum Lifting will be 5th month from Boiler Erection Start. |

| Sl No. | Reference Clause No. | Existing Provision | Bidder query | BHEL's clarification |
|---|---|---|---|---|
| 16 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– III- FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL (SCOPE MATRIX), Clause No. 1.3.9 | In addition the material such as lube oil, grease required for commissioning the erected equipments and chemicals required for chemical cleaning of equipments will be supplied free of cost by BHEL. | Kindly confirm the scope of startup boiler and neutralisation pit | Start Up Boiler is not applicable.<br>Civil Works related to Neutralisation Pit will be carried out by BHEL. Any erection of piping/ valves etc. upto the neutralisation pit will be carried out by the bidder. |
| 17 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– III- FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL (SCOPE MATRIX), Clause No. 1.3.4.5 Pt No. 2 | 2) Demand charges @ Rs.350/- per KVA for the contracted demand. | We understand that maximum demand value recorded by the Meter in KVA for every month will be charged as demand charge for every month. Please confirm. | The bidder shall calculate their load requirement in advance and intimate the maximum demand per month to BHEL in writing. The same shall be used for calculating the demand charges. Charges for exceeding limits, if levied by TANGEDCO, also will be passed on to the bidder. |
| 18 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– III- FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL (SCOPE MATRIX), Clause No. 1.3.5.1 | Water shall be provided by BHEL at one point at chargeable basis at Rs 150/ KL. | Please confirm that water required for Hydro testing will be chargeable or not? Please also confirm that construction water shall be of Potable / Drinkable quality or not? | Water for hydro testing shall be provided by BHEL and will not be chargeable.<br>Construction water is being arranged by BHEL on chargeable basis and bidder shall make their own arrangement for drinking water. |
| 19 | Technical Conditions of Contract (TCC) Volume IA Part– II Chapter– 4 | Painting schedule for ESP, APH, Fan, Gates & Dampers | As per the scope of the Tender, we understand that ESP related works are not in vendor's scope. Please confirm that Painting of ESP related parts to be carried out or not?<br>If painting of ESP related parts are to be painted then please provide PGMA details of the same. | ESP related works, including painting of ESP is not covered in the scope of this tender. |

| Sl No. | Reference Clause No. | Existing Provision | Bidder query | BHEL's clarification |
|---|---|---|---|---|
| 20 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– III- FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL (SCOPE MATRIX), Clause No. 1.3.6 | Drinking Water | Bidder will be allowed to set Bore well inside the Plant premises or not? Please confirm | Bidder will be allowed to set bore well inside the plant premises for service water purpose. The potability of water cannot be guaranteed by BHEL. The bidder shall make their own arrangement for drinking water. |
| 21 | Technical Conditions of Contract (TCC) Volume IA Part– I Chapter– XVII- TESTING AND COMMISSIONING, Clause No. 1.17.8 | All items / material required for conducting hydraulic test, alkali boil out, acid cleaning/EDTA cleaning, steam blowing etc., will be supplied by BHEL / its customer. However, servicing, dismantling and returning of the same to stores is the responsibility of the contractor who is erecting the equipment / piping. The contractor may note that no separate payment shall be released for any temporary works that are to be carried out for conducting pre-commissioning and commissioning tests. Bidders are advised to include expenses on temporary works along with the rates being quoted by them. | Please provide tentative quantity for temporary piping works to be carried out for pre-commissioning and commissioning tests like hydraulic test, alkali boil out, acid cleaning/ EDTA cleaning, steam blowing etc. | Approximate tonnage will be 70 to 100 MT. |

D) The weight details of individual pieces of ceiling girder are as below:

| PGMA | DU | DU Desc | DSN Qty | Unit | DSN Wt (kg) |
|---|---|---|---|---|---|
| 35211 | 001 | GIRDER-A LEFT END | 1 | NO | 7009.13 |
| 35211 | 002 | GIRDER-A RIGHT END | 1 | NO | 7009.13 |
| 35211 | 003 | GIRDER-A MIDDLEPIECE | 1 | NO | 5682.9 |
| 35211 | 004 | GIRDER-B LEFT END | 1 | NO | 28757.67 |
| 35211 | 005 | GIRDER-B RIGHT END | 1 | NO | 28757.67 |
| 35211 | 006 | GIRDER-B MIDDLEPIECE | 1 | NO | 28125.38 |
| 35211 | 007 | GIRDER-C LEFT END | 1 | NO | 31196.14 |
| 35211 | 008 | GIRDER-C RIGHT END | 1 | NO | 31196.14 |
| 35211 | 009 | GIRDER-C MIDDLEPIECE | 1 | NO | 30019.47 |
| 35211 | 010 | GIRDER-D LEFT END | 1 | NO | 41364.41 |
| 35211 | 011 | GIRDER-D RIGHT END | 1 | NO | 41364.41 |
| 35211 | 012 | GIRDER-D MIDDLEPIECE | 1 | NO | 37574.84 |
| 35212 | 001 | GIRDER-E (LEFT PIECE) | 1 | NO | 39454.6 |
| 35212 | 002 | GIRDER-E (MIDDLE PIECE) | 1 | NO | 34606.5 |
| 35212 | 003 | GIRDER-E (RIGHT PIECE) | 1 | NO | 39454.6 |
| 35212 | 004 | GIRDER-F (LEFT PIECE) | 1 | NO | 16851.38 |
| 35212 | 005 | GIRDER-F (RIHT PIECE) | 1 | NO | 16851.38 |

E) The Painting Schedule for XRP 1003 BOWL MILLS WITH PGB for MEIL- TUTICORIN TPS Stage-IV (1x525 MW) attached herewith in the next 8 sheets below is added as VOLUME-IA PART – II CHAPTER 10.

F) All other conditions of the Tender Specification remain unchanged. Bidders are requested to consider this Corrigendum as part of the Tender Specification and quote accordingly.

-Sd-
(Sreenath N G)
Senior Engineer/ Subcontracts

**FICHTNER** Consulting Engineers (India) Private Limited

**VENDOR DOCUMENT REVIEW STATUS**

- ☐ Action - 1 Approved
- ☐ Action - 2 Approved except as noted. Revise and resubmit for final approval
- ☑ Action - 5 Retained for Information, Reference & Records

Review/Approval of document for the general compliance with the Contract does not constitute a blanket approval of the content of document.The Vendor / Contractor is responsible for correctness of design and details. Approval of document does not relieve the Vendor / Contractor of his responsibility in carrying out the work correctly and fulfilling the complete requirements of the contract, stated or implied, nor does it limit the Purchaser's rights under the Contract.

FI Letter Ref. No. 1115182/ME/VDT/2050/0049 — Date: 15.07.2016

Signature — Initials: SS

# BHARAT HEAVY ELECTRICALS LIMITED
# RAMACHANDRAPURAM::HYDERABAD-32

## PULVERISERS ENGINEERING

## MEIL-TUTICORIN TPS Stage-IV (1x525 MW)

# PAINTING SCHEDULE FOR XRP 1003 BOWL MILLS WITH PGB

| | | | |
|---|---|---|---|
| PREPARED BY | N.D.SAMUEL | 24/06/16 | DOCUMENT NO:BA/PS/TUTICORIN<br>REV. NO: 00 , DATED: 23.06.2016<br>SHEET : 01 OF 08 |
| REVIEWED BY | AMAN SURIN | 24-06-16 | |
| APPROVED BY | SATISH GHATGE | 24/6/16 | |

# PAINTING SCHEME FOR XRP 1003 BOWL MILL MEIL-TUTICORIN Stage-IV (1X525 MW)

| SL. NO | SURFACE LOCATION & PGMAs | SURFACE PREPARATION | PRIMER | | INTERMEDIATE | | FINISH COAT | | | TOTAL DFT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | PAINT (mat.code) | NO.OF COATS | PAINT (mat.code) | No. OF COATS | PAINT (mat.code) | NO.OF COATS | SHADE | µm min. |
| 01 | Journal Assembly 61-000<br>a) Oil swept inside unmachined surfaces | Kerosene Cleaning | - | - | - | - | - | - | - | 75 |
| | b) Outer Surfaces | Kerosene Cleaning / Abrasive blast clean to Sa2½ (IS0:8501-1:) | Polyamide cured HB Zinc Phosphate (HY56100 06201) | 1 to a DFT of 75 µ | | | | | | |

# PAINTING SCHEME FOR XRP 1003 BOWL MILL MEIL-TUTICORIN Stage-IV (1X525 MW)

| SL. NO | SURFACE LOCATION & PGMAs | SURFACE PREPARATION | PRIMER | | INTERMEDIATE | | FINISH COAT | | | TOTAL DFT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | PAINT (mat.code) | NO.OF COATS | PAINT (mat.code) | No. OF COATS | PAINT (mat.code) | NO.OF COATS | SHADE | µm min. |
| 02 | Planetary Gear Box Assembly 61-101 | | | | | | | | | |
| | a) Oil swept inside surfaces | Kerosene Cleaning / Abrasive blast clean to Sa2½ (ISO:8501-1) | - | - | - | - | - | - | - | - |
| | b) Outer Surfaces | Abrasive blast clean to Sa2½ (ISO:8501-1) | Polyamide cured HB Zinc Phosphate (HY56100 06201) | 1 to a DFT of 75 µ | Polyamide cured high build MIO epoxy intermediate (HY5610006 074) | 1 to a DFT of 50 µ | Aliphatic Polyurethane (HY56100062 87) | 2 to a DFT of 60 µ | Grey RAL 9002 | 185 |

# PAINTING SCHEME FOR XRP 1003 BOWL MILL MEIL-TUTICORIN Stage-IV (1X525 MW)

| SL. NO | SURFACE LOCATION & PGMAs | SURFACE PREPARATION | PRIMER | | INTERMEDIATE | | FINISH COAT | | | TOTAL DFT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | PAINT (mat.code) | NO.OF COATS | PAINT (mat.code) | No. OF COATS | PAINT (mat.code) | NO.OF COATS | SHADE | µm min. |
| 03 | Mill Side and Liner Assembly 61-201 a) Inside surfaces | Abrasive blast clean to Sa2½ (ISO:8501-1) | Polyamide cured HB Zinc Phosphate (HY56100 06201) | 1 to a DFT of 75µ | - | - | | - | - | 75 |
| | b) Outer Surfaces | Abrasive blast clean to Sa2½ (ISO:8501-1) | Polyamide cured HB Zinc Phosphate (HY56100 06201) | 1 to a DFT of 75µ | Polyamide cured high build MIO epoxy intermediate (HY5610006 074) | 1 to a DFT of 50 µ | Aliphatic Polyurethane (HY5610006 287) | 2 to a DFT of 60 µ | Grey RAL 9002 | 185 |

# PAINTING SCHEME FOR XRP 1003 BOWL MILL MEIL-TUTICORIN Stage-IV (1X525 MW)

| SL. NO | SURFACE LOCATION & PGMAs | SURFACE PREPARATION | PRIMER | | INTERMEDIATE | | FINISH COAT | | | TOTAL DFT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | PAINT (mat.code) | NO.OF COATS | PAINT (mat.code) | No. OF COATS | PAINT (mat.code) | NO.OF COATS | SHADE | µm min. |
| 04 | Separator Assembly 61-301<br>a) Inside surfaces | Abrasive blast clean to Sa2½ (ISO:8501-1) | Polyamide cured HB Zinc Phosphate (HY56100 06201) | 1 to a DFT of 75 µ | - | - | - | - | - | 75 |
| | b) Outer Surfaces | Abrasive blast clean to Sa2½ (ISO:8501-1) | Polyamide cured HB Zinc Phosphate (HY56100 06201) | 1 to a DFT of 75µ | Polyamide cured high build MIO epoxy intermediate (HY5610006 074) | 1 to a DFT of 50 µ | Aliphatic Polyurethane (HY5610006 287) | 2 to a DFT of 60 µ | Grey RAL 9002 | 185 |

# PAINTING SCHEME FOR XRP 1003 BOWL MILL MEIL-TUTICORIN Stage-IV (1X525 MW)

| SL. NO | SURFACE LOCATION & PGMAs | SURFACE PREPARATION | PRIMER | | INTERMEDIATE | | FINISH COAT | | | TOTAL DFT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | PAINT (mat.code) | NO.OF COATS | PAINT (mat.code) | No. OF COATS | PAINT (mat.code) | NO.OF COATS | SHADE | µm min |
| 05 | Mill Discharge Valve Assembly PGMA-61401<br><br>a) Outer Surfaces | Abrasive blast clean to Sa2½ (ISO:8501-1) | Polyamide cured HB Zinc Phosphate (HY56100 06201) | 1 to a DFT of 75µ | Polyamide cured high build MIO epoxy intermediate (HY561000 6074) | 1 to a DFT of 50 µ | Aliphatic Polyurethane (HY5610006 287) | 2 to a DFT of 60 µ | Grey RAL 9002 | 185 |

# PAINTING SCHEME FOR XRP 1003 BOWL MILL MEIL-TUTICORIN Stage-IV (1X525 MW)

| SL. NO | SURFACE LOCATION & PGMAs | SURFACE PREPARATION | PRIMER | | INTERMEDIATE | | FINISH COAT | | | TOTAL DFT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | PAINT (mat.code) | NO.OF COATS | PAINT (mat.code) | No. OF COATS | PAINT (mat.code) | NO.OF COATS | SHADE | µm min. |
| 06 | Coupling Guard 61-702<br>b) Inside surfaces | Abrasive blast clean to Sa2½ (ISO:8501-1) | Polyamide cured HB Zinc Phosphate (HY5610006201) | 1 to a DFT of 75 µ | - | - | | - | - | 75 |
| | b) Outer Surfaces | Abrasive blast clean to Sa2½ (ISO:8501-1) | Polyamide cured HB Zinc Phosphate (HY5610006201) | 1to a DFT of 75µ | Polyamide cured high build MIO epoxy intermediate (HY5610006074) | 1 to a DFT of 50µ | Aliphatic Polyurethane (HY5610006287) | 2 to a DFT of 60 µ | Grey RAL 9002 | 185 |

# PAINTING SCHEME FOR XRP 1003 BOWL MILL MEIL-TUTICORIN Stage-IV (1X525 MW)

| SL. NO | SURFACE LOCATION & PGMAs | SURFACE PREPARATION | PRIMER | | INTERMEDIATE | | FINISH COAT | | | TOTAL DFT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | PAINT (mat.code) | NO.OF COATS | PAINT (mat.code) | No. OF COATS | PAINT (mat.code) | NO.OF COATS | SHADE | µm min. |
| 07 | Seal Air Assembly, Coal Sampling Platform, PGMA-67400, Lube Oil System and Loose Items | | | | | | | | | |
| | a) Outer Surfaces | Abrasive blast clean to Sa2½ (ISO:8501-1) | Polyamide cured HB Zinc Phosphate (HY56100 06201) | 1 to a DFT of 75µ | Polyamide cured high build MIO epoxy intermediate (HY5610006074) | 1 to a DFT of 50 µ | Aliphatic Polyurethane (HY5610006287) | 2 to a DFT of 60 µ | Grey RAL 9002 | 185 |