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**Ref:** BHE/PW/PUR/DHJOI-BLR/966-967/Corrigendum 06 **Date 20**/03/2012



To
ALL BIDDERS

**Sub: Corrigendum -06 for Issue of Revision Pertaining to HRSG Chimney/Stack**

**JOB:** RECEIPT/COLLECTION/LOADING/UNLOADING/TRANSPORTATION OF MATERIALS FROM BHEL/CLIENT'S STORES/STORAGE YARD TO SITE OF WORK, ERECTION, TESTING, COMMISSIONING, SUPPLY OF PAINTS/PRIMER AND APPLICATION OF PAINTS FOR FINAL PAINTING AND HANDING OVER OF 220 TPH UTILITY BOILER (UB) + 110 TPH HEAT RECOVERY STEAM GENERATORS (HRSG) ALONG WITH ITS AUXILIARIES, STEEL STACK WITH COMPLETE PLATFORMS ETC INCLUDING ELECTRICAL WORK OF STACK, PIPING (POWER CYCLE PIPING, INTEGRAL PIPING, CONDENSATE & FEED WATER PIPING, DM WATER, HSD & NAPTHA PIPING, NATURAL GAS, COOLING WATER, REGENERATIVE CYCLE PIPING, INCLUDING PLANT AIR, INSTRUMENT AIR & SERVICE AIR PIPING ETC.) WITH ASSOCIATED FITTINGS, VALVES, HANGERS & SUPPORTS, APPLICATION OF THERMAL INSULATION OF UB AND HRSG WITH AUXILIARIES, STEEL STACK, PIPING WITH VALVES & FITTINGS INCLUDING GAS TURBINE AND STEAM TURBINE SET EQUIPMENTS – HEATERS, DE-AERATOR, TANKS, VESSELS & PIPING ETC FOR OPAL (ONGC PETRO ADDITIONS LIMITED) STEAM AND POWER GENERATION SYSTEM PACKAGE FOR DAHEJ PETROCHEMICAL COMPLEX, SPLIT AS (Block I) UTILITY BOILER 1, HRSG 2 AND 4, (Block II) UTILITY BOILER 2, HRSG 1 AND 3.

| Sl No | Tender Specification Number | Unit Number & Project |
|---|---|---|
| 1 | **BHE/PW/PUR/ DHJOI-BLR (BLOCK-I)/966** | UTILITY BOILER 1, HRSG 2 AND 4 **(Block I)** |
| 2 | **BHE/PW/PUR/ DHJOI-BLR (BLOCK-II)/967** | UTILITY BOILER 2, HRSG 1 AND 3 **(Block II)** |

Bidders to kindly take note of the following:

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## AA) INCREASE IN HEIGHT OF HRSG STACK/CHIMNEY

Height of HRSG Stack/Chimney has been **INCREASED** to **80 M** from 40 M.

AA.1) **Refer Clause 2.2 at Page 35 of Vol IA'TCC'**: Height of the HRSG Steel Stack / Chimney referred in the clause or else where in the tender may be Read as **80 M**

AA.2) **Refer Annexure I 'Tentative Weight Details', Page 86, 93-94 of Vol IA'TCC'**: Consequent upon the change in height of HRSG Steel Stack / Chimney, weight details of HRSG Steel Stack / Chimney referred in the clause and else where in the tender may be read in line with **Appendix I 'Revised Estimated Weight of HRSG Chimney for Each Unit (Ranipet Supply)'** attached with this corrigendum.

AA.3) **Refer Clause 3.3.1 'Details of Chimney' at Page 126 of Vol IA'TCC'**: Consequent upon change in height of HRSG Steel Stack / Chimney, **Revised Details** of HRSG Steel Stack / Chimney is also indicated in Appendix I attached with this corrigendum. Details of HRSG Steel Stack / Chimney mentioned else where in the tender shall also be read in-line with details furnished in Appendix I of this corrigendum.

AA.4) **Refer Sl No 3.2 'Steel Stack' of Volume II Price Bid Specification Rev 02 dated 03/03/2012**: Quantity of 'Steel Stack' indicated in Price Bid rev 02 dated 03/03/2012 may be read as **780 MT** instead of 219 MT. Total price based on

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the 'Single Notional Rate' quoted in the price bid Rev 02 dated 03/03/2012 shall be derived based on the revised quantity of 'Steel Stack'.

## BB) REVISED CHAPTER VI 'TIME SCHEDULE' OF VOL IA 'TCC'

Chapter VI 'Time Schedule' of Vol IA 'TCC' has been revised and attached with this corrigendum as file titled **'Chapter VI- Time Schedule Rev 01 dated 20/03/2012'**

**Revised Chapter VI 'Time Schedule' Rev 01 dated 20/03/2012 shall only be considered for further processing of tender.**

==========

All other Terms and conditions of the Tender Specification shall remain unaltered unless expressly amended by BHEL in writing.

Bidders are requested to submit as a part of Technical Bid, a copy of this corrigendum duly countersigned by the authorized signatory and stamped with the Official seal as a token of Bidder's unqualified acceptance of this corrigendum.

This letter is hosted as file titled "Corrigendum-06 (Stack)" against NIT-11425 in BHEL web page (www.bhel.com→Tender Notifications → View Corrigendum).

Thanking you,

Yours faithfully,

AGM (Purchase)

Encl:

1. Appendix I 'Revised Estimated Weight of HRSG Chimney for Each Unit (Ranipet Supply)'
2. Revised Chapter VI 'Time Schedule' Rev 01 dated 20/03/2012

# APPENDIX I TO CORRIGENDUM 06 DATED 20/03/2012

## Revised Estimated Weight of HRSG Chimney for Each Unit (Ranipet Supply)'

**ESTIMATED WEIGHT OF HRSG CHIMNEY FOR EACH UNIT (Ranipet Supply)**

| PGMA | Description | Design Wt (MT) |
|---|---|---|
| 87010 | CHIMNEY FDN MATERIAL | 24.7 |
| 87100 | CHIMNEY SHELL | 270.0 |
| 87150 | CHIMNEY STRAKES | 52.0 |
| 87200 | PAINTER TROLLEY | 1.0 |
| 87300 | PLATFORMS & LADDERS | 20.0 |
| 87930 | AVIATION LAMPS | 1.0 |
| 87950 | CHIMNEY INSULATION | 12.5 |
| 87960 | CHIMN INS FIX COMP | 8.8 |
| | **TOTAL FOR ONE UNIT** | 390.0 |
| | | |

**Note:**

**The OPAL-Dahej, HRSG chimney (ID- 5.6 mtr, Ht-80.0 mtr) details are as follows:**

1) Total no. of shell involved in one steel stack - 32 no.s, each shells will be supplied in two halves. The total number of half shells per chimney will be 64 and each shell height (vertical) will be 2.5m.

2) Bottom shell ID=5.6m, OD=5.664m, Wt. of each half shell=6.5MT (Maximum wt.), shells will be supplied in two halves.

3) ID, OD & weight of Top most shell - Top shell ID=3.5m, OD=3.52m, Wt. of each half shell=1.5MT (Minimum wt.), shells will be supplied in two halves.

4) Heaviest weight shell - Bottom most shell, Wt. of each half shell=6.5MT (Maximum wt.), shells will be supplied in two halves.

5) Chimney height/Elevation of top most shell - Chimney height=80.0m, Elevation of top most shell=80.5m.

6) Chimney configuration - Flared with bottom ID 5.6m, ID gradually reduces to 3.5m @ 50.0m height, and top 30.0m is cylindrical with ID 3.5m.

# Revised Chapter VI 'Time Schedule' Rev 01 dated 20/03/2012 Issued with Corrigendum 06 dated 20/03/2012



## 6.1 TIME SCHEDULE & MOBILIZATION

### 6.1.1 INITIAL MOBILIZATION

After receipt of fax **Letter of Intent (LOI),** Contractor shall discuss with Project Manager / Construction Manager regarding initial mobilization. Contractor shall mobilize necessary resources within 2 weeks of issue of fax letter of intent or as per the directive of Project Manager / Construction Manager. Such resources shall be progressively augmented to match the schedule of milestones and commissioning.

### 6.1.2 MOBILIZATION FOR ERECTION, TESTING, ASSISTANCE FOR COMMISSIONING ETC.

The activities for Erection, Testing etc. shall be started as per directions of Construction Manager of BHEL. Contractor shall mobilise further resources (in addition to those required for activities under clause no. 6.1.1) as per requirement to commence the work of erection, testing etc. of boiler and auxiliaries and progressively augment the resources to match schedule of the project.

### 6.1.3 COMMENCEMENT OF CONTRACT PERIOD AND TENTATIVE SCHEDULE

Erection/placement on its designated foundation / location, of the first major permanent equipment / component / column covered in the scope of these specifications shall be recognized as **"Start of Contract Period".** Smaller items like packer plates, shims, anchors, inserts etc. will not be considered as start of contract period.

The Contractor has to subsequently augment his resources in such a manner that following major milestones of erection & commission are achieved on specified schedules:
According to the contract between BHEL and Owner the schedule of important milestones is as follows:

**For Block I (UB1, HRSG 2 & 4) :**

**Major Milestone for UB 1 and HRSG 2 & 4 of OPaL Dahej Project**

| SL No. | Milestones | Date of completion Assuming DOS: 01/04/12 |
|---|---|---|
| | **UTILITY BOILER # 1** | |
| 1 | Erection Start | 1st week of Apr'12 |
| 2 | Drum Lifting | 3rd week of May'12 |
| 3 | Hydro Test | 2nd week of Aug'12 |
| 4 | Boiler Light Up (BLU) | 2nd week of Oct'12 |
| 5 | Safety Valve Floating | 3rd week of Nov'12 |
| 6 | Synchronization | 1st week of Dec'12 |
| 7 | Completion of Trail run | Jan'2013 |
| 8 | Completion of all Facilities | Jan'2013 |

| SL No. | Milestones | Tentative completion Schedule |
|---|---|---|
| | **HRSG # 2** | |
| 1 | HRSG Erection Start | 3rd week of Apr'12 |
| 2 | HRSG Drum Lifting | 3rd week of Aug'12 |
| 3 | Hydraulic Test | 2nd week of Dec'12 |

| | | |
|---|---|---|
| 4 | Gas In and Alkali boil Out | 3rd week of Feb'13 |
| 5 | Safety Valve Floating & Steam Blowing | 3rd week of Mar'13 |
| 6 | Co-Gen Commissioning (GTG 1 + HRSG 1) | 3rd week of Apr'13 |
| 7 | Reliability Run Completion | Apr'2013 |
| 8 | Completion of all Facilities | Apr'2013 |
| | | |
| | **HRSG # 4** | |
| 1 | HRSG Erection Start | 1st week of Aug'12 |
| 2 | HRSG Drum Lifting | 1st week of Dec'12 |
| 3 | Hydraulic Test | 1st week of Apr'13 |
| 4 | Gas In and Alkali boil Out | 2nd week of Jun'13 |
| 5 | Safety Valve Floating & Steam Blowing | 2nd week of Jul'13 |
| 6 | Co-Gen Commissioning (GTG 3 + HRSG 3) | 1st week of Aug'13 |
| 7 | Reliability Run Completion | Aug'2013 |
| 8 | Completion of all Facilities | Aug'2013 |

**For Block II (UB2, HRSG 1 & 3) :**

**Major Milestone for UB 2 and HRSG 1 & 3 of OPaL Dahej Project**

| SL No. | Milestones | Date of completion Assuming DOS: 01/04/12 |
|---|---|---|
| | **HRSG # 1** | |
| 1 | HRSG Erection Start | 1st week of Apr'12 |
| 2 | HRSG Drum Lifting | 3rd week of Jun'12 |
| 3 | Hydraulic Test | 2nd week of Oct'12 |
| 4 | Gas In and Alkali boil Out | 3rd week of Dec'12 |
| 5 | Safety Valve Floating & Steam Blowing | 2nd week of Jan'13 |
| 6 | Co-Gen Commissioning (GTG 1 + HRSG 1) | 3rd week of Feb'13 |
| 7 | Reliability Run Completion | Mar'2013 |
| 8 | Completion of all Facilities | Mar'2013 |
| **SL No.** | **Milestones** | **Tentative completion Schedule** |
| | **HRSG # 3** | |
| 1 | HRSG Erection Start | 1st week of Jun'12 |
| 2 | HRSG Drum Lifting | 3rd week of Aug'12 |
| 3 | Hydraulic Test | 2nd week of Dec'12 |
| 4 | Gas In and Alkali boil Out | 3rd week of Feb'13 |
| 5 | Safety Valve Floating & Steam Blowing | 2nd week of Mar'13 |
| 6 | Co-Gen Commissioning (GTG 3 + HRSG 3) | 3rd week of Apr'13 |
| 7 | Reliability Run Completion | May'2013 |
| 8 | Completion of all Facilities | May'2013 |
| | | |

| | | |
|---|---|---|
| | **UTILITY BOILER # 2** | |
| 1 | Erection Start | 3rd week of Jul'12 |
| 2 | Drum Lifting | 1st week of Oct'12 |
| 3 | Hydro Test | 3rd week of Jan'13 |
| 4 | Boiler Light Up (BLU) | 3rd week of Mar'13 |
| 5 | Safety Valve Floating | 1st week of May'13 |
| 6 | Synchronization | 2nd week of Jun'13 |
| 7 | Completion of Trail run | Jul '2013 |
| 8 | Completion of all Facilities | Aug '2013 |
| | | |

In order to meet above schedule in general, and any other intermediate targets set, to meet customer/ project schedule requirements, Contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL.

### 6.1.4 CONTRACT PERIOD

The contract period for completion of entire work under scope shall be **17 (Seventeen)** months for **Block I** (UB 1, HRSG 2 & 4) and 17 **(Seventeen)** months for **Block II** (UB 2, HRSG 1 & 3) from the "start of contract period" as specified earlier.

The period from the commencement of preparatory work for erection till the actual "start of contract period" shall not be reckoned for the above purpose.

**Note:**

- **Agency should note that the construction works for both the stream viz UBs and HRSGs along with its auxiliaries shall have to go parallely to match with the commissioning schedule of the plant. For this it will necessary to deploy "Dedicated Resources" like Manpower, Machineries and Materials Area wise to execute the woks simultaneously.**

- **Bidders are requested to submit Resource deployment plan Area wise with detail program in line with above schedule in the form of Bar Chart / MS project planer along with their offer.**

### 6.1.5

IN ORDER TO MEET ABOVE SCHEDULE AND OTHER INTERMEDIATE TARGETS/ACTIVITIES AS SET **BY BHEL ENGINEER IN CHARGE** AT SITE & TO MEET CUSTOMER REQUIREMENTS/PROJECT SCHEDULE, CONTRACTOR SHALL ARRANGE ALL NECESSARY RESOURCES AND WORK FORCE IN CONSULTATION WITH BHEL ENGINEER AT SITE TO UNDERTAKE WORKS CONCURRENTLY IN ALL POSSIBLE FRONTS AS MADE AVAILABLE TO CONTRACTOR.

CONTRACTOR SHALL NOTE THAT INDIVIDUAL MILESTONES AS ABOVE SHALL BE ACHIEVED AS PER SCHEDULE FURNISHED ABOVE. **THE DATE OF START OF FIRST MAJOR PERMANENT EQUIPMENT / COMPONENT / COLUMN COVERED IN THE SCOPE SHALL BE RECKONED AS THE START OF CONTRACT PERIOD FOR THIS PURPOSE.**