



**BHARAT HEAVY ELECTRICALS LIMITED**  
**PROJECT ENGINEERING MANAGEMENT, NOIDA**

Date-7-Nov-19

**CORRIGENDUM- 03**

|                   |          |                                                |
|-------------------|----------|------------------------------------------------|
| <b>PROJECT</b>    | <b>:</b> | <b>1X660 MW UPRVUNL PANKI EXTN</b>             |
| <b>PACKAGE</b>    | <b>:</b> | <b>EFFLUENT TREATMENT PLANT</b>                |
| <b>ENQUIRY NO</b> | <b>:</b> | <b>PE/PG/PKI/E-6311/2019 Dated. 05.10.2019</b> |
| <b>SUBJECT</b>    | <b>:</b> | <b>TECHNICAL AMENDMENT</b>                     |

| Type of Corrigendum     |                                     |                          |                          |
|-------------------------|-------------------------------------|--------------------------|--------------------------|
| Technical Corrigendum - | <input checked="" type="checkbox"/> | Commercial Corrigendum - | <input type="checkbox"/> |

In reference to the above mentioned tender enquiry for **EFFLUENT TREATMENT PLANT** package, please note the following:

- 1. Amendment to technical specification is enclosed herewith. Kindly consider the same while submitting the offer.**

All the other terms and conditions of the tender enquiry shall remain unchanged. All the bidders are requested to quote accordingly.

Yours faithfully,

For and on behalf of BHEL

Upendra Chaudhary  
Manager



AMENDMENT ON TECHNICAL SPECIFICATION  
FOR  
EFFLUENT TREATMENT PLANT (ETP)  
1X660 MW PANKI THERMAL POWER STATION

SPECIFICATION NO.: PE-TS-426-164-A001  
AMENDMENT NO # 2  
REV. NO. 00  
DATE: 06/11/2019  
Page 1 of 3

ANNEXURE-A

The following modifications with respect to Technical Specification for EFFLUENT TREATMENT PLANT (ETP) BHEL's Technical specification no PE-TS-426-164-A001 shall apply. Bidder to note that existing clauses/ details as appearing in the specification stands deleted and clauses/details as mentioned in "Modified clause/details" column shall be applicable and complied by the bidder as listed below in **SCHEDULE A**.

SCHEDULE-A

MODIFIED CLAUSES/ PAGE NUMBERS:

| Sl no. | Vol. No. | Section/ Description | Clause no       | Page no    | Existing clause/details                                            | Modified clause/details                                                                                                                                                                                                                                                                                                          |
|--------|----------|----------------------|-----------------|------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | IIB      | SECTION- C1          | 1.20.00 ii)     | 120 of 519 | Type of Pumps - Submersible                                        | Type of Pumps - Vertical Turbine Type                                                                                                                                                                                                                                                                                            |
| 2.     | IIB      | SECTION- C1          | 4.25.00 iii)    | 127 of 519 | Fluid to be handled - UF Reject water & DMF Back wash<br>Note - 17 | Fluid to be handled - UF Reject                                                                                                                                                                                                                                                                                                  |
| 3.     | IIB      | SECTION- C1          | P&ID OF ETP R01 | 112 of 519 |                                                                    | Pipe distances shown in the table below are from one area pit/sump to another area. Bidder to consider piping and associated accessories in their scope for complete piping indicated in P&ID, technical specification and amendments/corrigendum. Interconnecting piping and associated accessories are also in bidder's scope. |

NEW CLAUSES / SCOPE ADDED:

| Sl no. | Vol. No. | Section/ Description | Clause no | Page no        | Description                                                                                                                                                                                                                                                                                                                                                             |
|--------|----------|----------------------|-----------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | IIB      | SECTION- C1          | 3.4.7.104 | Page 23 of 519 | One (1) no. two storey chemical house building to store chemicals for minimum 30 days requirements, all dosing tanks including acid alkali tanks, dosing pumps. The Civil Design & Construction work of Chemical House shall be in BHEL scope however Mechanical layout and electrical layout engineering shall be done by bidder. The chemical tanks (Other than RCC), |

38/06/2019  
06/11/19  
Bhupendra Verma  
06/11/19



AMENDMENT ON TECHNICAL SPECIFICATION  
FOR  
EFFLUENT TREATMENT PLANT (ETP)  
1X660 MW PANKI THERMAL POWER STATION

SPECIFICATION NO.: PE-TS-426-164-A001  
AMENDMENT NO # 2  
REV. NO. 00  
DATE: 06/11/2019  
Page 2 of 3

|    |     |            |           |                                                                                                                                                                                                                                                                                                                                                                                                       |
|----|-----|------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |     |            |           | dosing pumps, transfer pumps, instruments, piping, valves, platforms along with handrails, weighing & handling equipment, ladders, cable trays and accessories and support system (scope as per electrical scope matrix), piping supports, auxiliary structures for pipe fixing, electric hoist etc. inside the chemical house shall be in the scope of bidder.                                       |
|    |     |            |           | Clarified water pump shall pump water from ETP clarified water sump to following areas. Necessary piping, valves, fitting and installation shall be bidder's scope of work.                                                                                                                                                                                                                           |
|    |     |            |           | a) Plant Washing - ETP clarified water for Plant washing header shall be connected with the service water header of plant near to ETP. Pipe size and length shall be approx. 50 NB and 80 Mtr. Isolation valves and NRV shall be provided at both headers i.e. clarified water header and service water header by the bidders. Clarified water header is 80 Nb, hence valve size shall also be 80 Nb. |
|    |     |            |           | b) Ash Silo Dust Suppression - ETP clarified water for ash silo dust suppression shall be connected with the nearby BHEL header. Pipe size and shall be approx. 50 NB and 100 Mtr. Isolation valves and NRV shall be provided at both headers i.e. clarified water header and BHEL header by the bidders. BHEL header size is 50 Nb, Hence valve and NRV is of 50 Nb size.                            |
| 2. | IIB | SECTION-C1 | 3.4.7.105 | Page 23 of 519                                                                                                                                                                                                                                                                                                                                                                                        |
|    |     |            |           | c) CHP Dust Suppression - ETP clarified water for CHP dust suppression system shall be connected with the nearby BHEL header. Pipe size and length shall be approx. 150 NB and 270 Mtr. Isolation valves and NRV shall be provided at both headers i.e. clarified water header and BHEL header by the bidders. BHEL header size is 200 Nb, Hence valve and NRV is of 200 Nb size.                     |
|    |     |            |           | d) Green Belt - Pipe line from ETP clarified water discharge shall be provided in green belt. Pipe size and length shall be approx. 200 NB and 120 Mtr. Isolation valves shall be provided at the out let of pipe.                                                                                                                                                                                    |
|    |     |            |           | e) Bidder to note that min head for clarified water pump shall be 65 MWC, however actual requirement of pump head shall be decided during detailed engineering stage. In case of higher head requirement bidder shall meet the requirement without and commercial and delivery implication to BHEL/customer during contract stage.                                                                    |
| 3. | IIB | SECTION-C1 | 3.4.7.106 | Page 23 of 519                                                                                                                                                                                                                                                                                                                                                                                        |
|    |     |            |           | ETP sludge generated shall be transferred to PT plant sludge                                                                                                                                                                                                                                                                                                                                          |

Signature  
06/11/19

Signature  
06/11/19

Signature  
06/11/19



AMENDMENT ON TECHNICAL SPECIFICATION  
FOR  
EFFLUENT TREATMENT PLANT (ETP)  
1X660 MW PANKI THERMAL POWER STATION

SPECIFICATION NO.: PE-TS-426-164-A001  
AMENDMENT NO # 2  
REV. NO. 00  
DATE: 06/11/2019  
Page 3 of 3

|    |     |             |           |                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----|-----|-------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |     |             |           | sump. Supply & E&C of pipe, valves, instruments and fittings shall be ETP suppliers scope. Size and length of pipe shall be min. 200 Nb and 750 Mtr.                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|    |     |             |           | Please refer P&ID of ETP where in ETP sludge disposal is indicated as "To Ash slurry sump". Bidder to note that requirement shall be governed by above modification. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 4. | IIB | SECTION- C1 | Drawings  | 112 of 519                                                                                                                                                           | PH analyser shall be provided at the outlet header of RO feed pump.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 5  | IIB | SECTION- C1 | 3.4.7.107 | Page 23 of 519                                                                                                                                                       | One (1) no. ETP shed shall house all equipment including DMF System, UF System and RO System, associated dosing tanks and dosing pumps. Sumps, water tanks and associated pumps shall be located outside of ETP shed. The Civil Design & Construction work of ETP shed shall be in BHEL scope however Mechanical layout and electrical layout engineering shall be done by bidder. The chemical tanks (Other than RCC), dosing pumps, transfer pumps, instruments, piping, valves, platforms along with handrails, weighing & handling equipment, ladders, cable trays and accessories and support system ( scope as per electrical scope matrix), piping supports, auxiliary structures for pipe fixing, electric hoist etc. inside the ETP shed shall be in the scope of bidder. |

Signature  
06/11/19 2130h 06/11/19

Signature  
06/11/19