

ESP-001-2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD	Doc. No: PY-AS-4-M098- 8710-01	
			Rev. No.	02
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COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.	JOB SPECIFICATION FOR 7.0 MLD SBR TECHNOLOGY BASED SEWAGE TREATMENT PLANT			

Revisions: Refer to record of revisions	Prepared by :	Checked by :	Approved by :	Date :
	Pradeepa	AKS	MSSN	16.09.2017

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The detailed specification of the Sewage treatment plant may be referred in the document PY 51264 attached herewith.

The plant specific details are elaborated below (covered under sections 1.0 & 2.0):

1.0 PROJECT DATA

Project	:	1 x 7.0 MLD Sequential Batch reactor (SBR) based Sewage Treatment Plant (STP)
Customer	:	M/s. BHEL-Haridwar (BHEL In-house requirement)
Project Location	:	BHEL-Haridwar Township
Plant Capacity	:	7.0 MLD (average flow)
Peak Factor	:	1.2
Peak Flow	:	8.4 MLD

2.0 DESIGN PARAMETERS

Raw Sewage Quality

Sl. No.	Parameter	Unit of Measurement	Range
1	Biological Oxygen Demand	mg/l	40-100
2	Chemical Oxygen Demand	mg/l	100-200
3	Total Suspended Solids	mg/l	100-200
4	Phosphorous as PO ₄	mg/l	2- 4
5	Total kjeldahl Nitrogen as N	Mg/l	6-22

Guaranteed Treated Sewage Quality:

Sl. No.	Parameter	Unit of Measure	Value after tertiary treatment
1	pH	-	6.5 – 9.0
2	Biological Oxygen Demand	mg/l	10
3	Chemical Oxygen Demand	mg/l	50
4	Total Suspended Solids	mg/l	10
5	NH ₄ – N	mg/l	5
6	N – total	mg/l	10
7	Fecal Coliform	MPN / 100ml	< 230
8	PO ₄ – P	mg/l	2

Note:

- Bidder to design the plant meeting the above guaranteed parameters without addition of any organic matter or sludge for the range of BOD indicated above in the raw sewage quality. In case of any observations on the above parameters, bidder may bring out during pre-bid stage for discussion and consideration accordingly.

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2. Bidder's design should be such that the total SBR basins volume including pre-react zones shall be 2920 m³ or lower.

3.0 P&ID:

A typical P&ID of the system is also enclosed as Annexure –A. Bidder to design the STP in line with this P&ID and quote accordingly. In case bidder is not able to offer in line with the P&ID, the same are to be discussed and settled during pre-bid stage only.

4.0 CHECK LIST

Bidder to note that Check List shall be completely filled and the data required in-line with Check List shall be submitted along with their Offer to enable Purchaser to evaluate the offer submitted.

S.No.	Description	Enclosed or [Yes/No]	Remarks/ Comments by Bidder
1	Bidder to confirm compliance with spec. PY-AS-4-M098-8710-01 and its annexure without any deviations.		
2	Bidder has already raised pre-bid queries (if any) on Purchase specification.		
3	Bidder Shall submit completely filled following Annexures enclosed with Technical Purchase Specification PY 51264 along with their offer Annexure-I: Key Information Annexure-II: List of Recommended Spare Parts Annexure-III: Special Tools and Tackles Annexure-IV: Deviation from specification		
4	Tentative Electrical Load List is enclosed with offer.		
5	Bidder shall furnish the list of Erection and commissioning spares along with their offer.		
6	Bidder to fill Deviation list (Refer Annexure-IV of PY 51264). Only those deviation indicated in this list will be considered during technical evaluation of offer. Bidder to indicate the deviations which are impractical.		
7	All other requirements except the deviations brought out under deviation list, have been taken into consideration in the offer.		
8	Bidder has submitted unpriced "Price bid format" with "Quoted" mentioned against price for each line item of Price Bid Format		

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PRICE SCHEDULE

SL. NO.	DESCRIPTION	QTY.	UNIT PRICE (Rs)	TOTAL PRICE (Rs)
1.0	DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, ERECTION SUPERVISION & COMMISSIONING			
1.1	Design, Engineering, Manufacture, Supply of the proprietary items of Biological treatment system of SBR.	1 set		
1.1.1	Decanter Assembly for SBR Basins			
1.1.2	Diffuser with air grid for SBR Basins			
1.1.3	Diffuser with air grid for Sludge sump			
1.1.4	PLC system for entire STP			
1.1.5	Special Tools & Tackles for Bidder supplied items as per the specification	1 set		
1.1.6	Commissioning and erection spares [Item wise list of commissioning and erection spares with unit rate and quantity for supply items listed under Sl. No. 1.1 above to be furnished by bidder)	1 set		
1.2	Engineering services for the design of the primary, secondary, tertiary and sludge handling system as per the specification.	1 Set		
1.3	Erection supervision and commissioning including performance guarantee of the plant as per the specification.	1 Set		
1.3.1	Per Diem rates per Service Engineer including Boarding, Lodging & Local Travel for the erection supervision and commissioning of all the three sets	8 days		
1.3.2	Travel expenses from vendor works to project site and back for Service Engineer/Technician (this shall include charges if any for travel time) for the Scope of Service defined in Technical Specification (Doc. No. PY-AS-4-M098-8710-01) and all its annexure	2		
	TOTAL (for Sl. No. 1.0)			
2.0	Recommended Spares (optional price)			
2.1	2 years recommended spares along with their quantities and unit rate for normal trouble free operation of the system described in Sl. No. 1.1 above based on bidders' experience. <i>Note: List for recommended spares and it's unit rate to be furnished by bidder.</i>	RO		

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NOTES:-

1. Bidder to quote strictly as per BHEL's NIT requirements.
2. Bidder to note that this is a LUMP SUM Turn-Key Order. Any additional claim after placement of order will not be entertained under any circumstances.
3. Bidder to quote the base rates only. All Applicable taxes and duties shall be indicated separately for the Supply Portion and Erection supervision & Commissioning Portion.
4. Bidder shall also submit unpriced copy of the Price-Bid Format with "Quoted" against each line item of the format along with the technical offer.
5. Bidder to quote strictly in the price bid format with line wise itemized price and quantity, failing which the bidder's offer shall be liable for rejection.
6. For the purpose of tender evaluation, a total of 8 man-days for 2 visits have been considered. However, either or both of the number of man days or no of visits may change on either side based on the actual site requirement.
7. Bidder to quote separately, in an identical format, 2 years operational spares compulsorily (for Bidder's supply items) item wise with recommended quantity and unit rate. However ordering of the same shall be at the sole discretion of BHEL.
8. Bidder in their offer shall consider the price of Engineering Services portion (Sl. No. 1.2) as 10% of the Total Prices quoted by the bidder for Supply, Engineering Services & Erection supervision & Commissioning (Sl. No. 1.0) of price bid format.
i.e. Total Price for Engineering services shall be considered as $0.10 \times \text{Sl.No.1.0}$

Signature of Bidder's
Authorized representative

Date.....

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TENDER DRAWINGS/DOCUMENTS

Sl No.	Description	Drg. / Doc. No.	Rev. No.
1	Technical Purchase Specification for design of STP and supply of SBR components (Biological Treatment)	PY-51264	01
2	Technical Specification for Programmable Logic controllers (PLC)	PEIC-04269	00
3	Scheme of Sewage Treatment Plant		00
4	Typical QAP Format		00

NOTE: The bidder to comply with all the above specifications without any deviation.

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RECORD OF REVISIONS				
Rev. No.	Date	Revision Details	Revised By	Approved By
00	18.09.17	First Issue	AKS	MSSN
01	12.10.17	Price Schedule revised	AKS	MSSN
02	27.10.17	Spec. Clause 2.0 revised, Note 2 added	AKS	MSSN