

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION Technical specification for Pre-bid Tie-up	Std. / Doc. Number	
			PY51687	
			Rev. No.	00
			Sheet 1 of	

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.	SPECIFICATION FOR PRE-BID TIE UP WITH ZLD SYSTEM SUPPLIER FOR WATER PACKAGE TENDER OF M/s TALCHER FERTILISER LTD AT TALCHER, ODISHA (INDIA)				
	Revisions: Refer to record of revisions	Prepared by :	Checked by :	Approved by :	Date : 29.10.2020



PROJECT ENGINEERING & SYSTEMS DIVISION

Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 2 of 28

1.0.0 INTRODUCTION

GAIL (India) Limited (GAIL), Rashtriya Chemicals & Fertilizers Limited (RCF), Coal India Limited (CIL) and Fertilizer Corporation of India Limited (FCIL) have formed a Joint Venture company in the name of Talcher Fertilizers Limited (TFL). TFL intends to set up Raw Water Treatment Plant, DM Water, Condensate Polishing Unit, Effluent Treatment Plant with ZLD & Sewage Treatment Plant for its Coal gasification and Ammonia Urea Plant at Talcher Unit, Angul district, in the state of Odisha, India.

Projects & Development India Ltd. (PDIL) has been retained by TFL as Project Management Consultant for selection of a suitable Lump-Sum Turnkey (LSTK) Contractor for execution of the Raw Water Treatment, De-mineralized (DM), Condensate Polishing Unit, Sewage Treatment Plant (STP) and Effluent Treatment Plant (ETP) with ZLD.

BHEL intends to participate as a "Turnkey Contractor" in the above tender.

As per Tender requirement by M/s TFL, turnkey contractor (here BHEL) shall submit a "Technology Tie-up Agreement" in prescribed format with qualified ZLDS along with BHEL's Techno-commercial bid for evaluation by TFL.

1.1.0 INTENT OF SPECIFICATION:

BHEL is in the process of identifying "Qualified ZLD System Supplier (ZLDS)" to enter in to a Tie-up Agreement, which shall be part of BHEL's bid to TFL. BHEL will place an order on selected "ZLD System Supplier (ZLDS)", in case BHEL adjudged as successful EPC Bidder and awarded the "Project" by TFL. This "AGREEMENT" should be valid up to the completion period of BHEL for the plant as per contractual agreement with M/s TFL.

The intent of this specification is to elaborate the scope of "ZLDS" for the proposed 45m³/hr ZLD system for the ETP. The Prospective ZLDS will undertake that the ZLD technology shall conform to all technical specification requirements set forth in the tender attached and further agrees to abide by with the execution schedule.

In the event, BHEL is declared as successful EPC Bidder and awarded the "Project", the ZLDS shall be responsible for design, engineering, supply, erection, testing, pre-commissioning, commissioning, trial runs, sustained load test after commissioning and performance guarantee test run for 72 hrs. continuous operation, guaranteeing and handing over, all on turnkey basis as required & complete in all respect and demonstration of guarantees, calibration, spares & maintenance tools etc. for ZLD system of the said project.

BHEL is looking for a prospective ZLD System Supplier (ZLDS) qualified as per the requirements specified in this Technical Specification.

This specification specifies the requirement of Design, Engineering, Manufacturing, Assembling, Inspection, Testing at manufacturer's works and Delivery of properly packed and painted Zero Liquid Discharge (ZLD) system with all accessories as specified in the scope of work and as required for the safe and trouble-free operation of equipment to be installed at site.



PROJECT ENGINEERING & SYSTEMS DIVISION

Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 3 of 28

2.0.0 SPECIAL NOTES TO BIDDERS:

LEGEND

TFL	Talcher Fertilisers Ltd
BHEL	Bharat Heavy Electricals Limited
PE&SD	Project Engineering & Systems Division, Hyderabad, unit of BHEL
BQC	Bidder Qualification Criteria
PO	Purchase Order
LOI	Letter of Intent
Contractor	EPC Contractor
ZLDS	Qualified ZLD System Supplier

2.0.1 This specification shall read in conjunction with its enclosures. In case of any discrepancy arising between this specification & its enclosures, the most stringent of all shall be followed and shall over-ride others. Further, if a requirement in this specification or its enclosures, calls for decision of BHEL, it shall be bidder's sole responsibility to clearly bring out the same distinctively in his technical tender offer, to enable BHEL to furnish their decision. If such a requirement is not duly addressed by bidder during tender stage and same comes out during order execution stage, it shall be binding on the bidder to comply with the decision furnished by BHEL then, without any cost, delivery, or any other commercial implications.

- Bidders shall comply with various requirements of this specification. Bidders can bring out only those deviations, which are impractical to meet, for BHEL review.
- Bidders may please note that unless the deviations are specifically brought out under deviations clause, it will be considered that no deviations are taken, even if they are mentioned elsewhere directly/indirectly in the offer.

2.0.2 Any additional equipment, material, etc., which are not specifically mentioned here, but are required to make the supplied equipment complete in all respect, in accordance with the intent of this technical specification, contractual agreement, statutory requirements, relevant/applicable codes/standards, good engineering practices, and for safe and trouble-free operation, shall be deemed to be covered under the scope of this specification.

2.0.3 The Bidder shall accept full responsibility for the completeness and for the faultless working of all the equipment. These shall be executed on the basis of proven design principle and in accordance with the latest state of the art in such a manner that the purpose to be served by the equipment is fulfilled in every respect and a maximum of operational dependability and efficiency are assured. Standardization of equipment, materials etc. shall be employed in the design. Care shall be taken to ensure safe operation as well as simplicity of assembling and dismantling of all parts of the plant.

2.0.4 Bidder shall quote strictly as per the scope of supply and requirements of this specification. Unsolicited or Alternate offers from the bidders will not be entertained.

2.0.5 In case bidder feels that it is necessary to exclude some components of scope of supply or some of the features of specification requirements due to any technical constraints, bidder shall bring the same to the notice of purchaser during pre-bid stage and take their prior approval before submission of their bid.

2.0.6 In case Bidder is unable to offer due to any specific requirement of specification, Bidder shall bring out the same in their regret letter. Otherwise, it will be considered that non-participation by the bidder is attributable to reasons other than any specification requirements.

3.0 BIDDER QUALIFICATION CRITERIA

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION Technical specification for Pre-bid Tie-up	Std. / Doc. Number	
			PY51687	
			Rev. No.	00
			Sheet 4 of 28	

- 3.1 The Bidder should be have supplied One single contract for Evaporator System/ZLD system of installed capacity of at least 5 m3/hr as part of any Effluent Treatment /Zero Liquid Discharge plant
BHEL will associate with a ZLD system Supplier meeting above requirement, who shall also be the supplier of the ZLD System for this contract. In such an event, BHEL along with its techno-commercial bid, will furnish a letter of undertaking from above associate, as per format enclosed as Annexure, for successful performance of ZLD System, failing which BHEL will be disqualified and its bid shall be rejected.
- 3.2 The Unit(s) as referred at 3.1 above must have been commissioned within the last 10 years ending on last day of the month immediately previous to the month in which last date of bid submission falls (in case of extended bid submission date, original bid submission date shall be considered).
The units referred at 3.1 should also have been in operation for at least 1 (one) year after commissioning.

Copy of Detailed Letter of Acceptance (DLOA) / Work Order /relevant extract of work Order/ Contract Agreement alongwith Detailed scope of work and Completion / Acceptance Certificate reckoned from date of Acceptance / Commissioning of Plant. Further, a certificate in respect of minimum one year successful operation of the Plant issued by the Owner/End user shall also be submitted.

Financial Criteria

- 3.3.1 The average annual turnover of the ZLD System Supplier, in the preceding three (3) financial years as on the date of techno-commercial bid opening, should not be less than the **INR 9 Crores** (Rupees Nine Crores Only) or in equivalent foreign currency.
- 3.3.2 Audited financial statement have to be submitted for all the five years as indicated against clause above. If financial statements are not required to be audited statutorily, then instead of audited financial statements, financial statements are required to be certified by chartered accountant. Published Annual Report available in the public domain shall also be acceptable.
- 3.3.3 In case audited Financial statements have not been submitted any of five years as indicated above, then the applicable audited statements submitted by bidders against the requisite three years, will be averaged for five years i.e. total divided by five.
- 3.3.4 ZLDS shall not be under Holiday List/ Negative List/ Suspension List/ Banning List of TFL, BHEL.

4.0 DOCUMENTATION

- 4.1 The ZLDS shall furnish documentary proof in form of the copy of work order(s)/ contract agreement(s)/ relevant pages of contract document(s) mentioning the value and the scope of work, completion certificate(s) by owner/ Consultant indicating executed value and certificate(s) of commissioning of previous plants from owner/ Consultant, fulfilling the qualification criteria for themselves
- 4.2 A job completed by a bidder as a Sub-Contractor shall be considered for the purpose of meeting the technical and commercial experience criteria of BQC subject to submission of following documents in support of meeting the "Bidder Qualification Criteria":
- 4.2.1 Copy of work order along with Schedule Of Rates (SOR) issued by Main Contractor.

**PROJECT ENGINEERING & SYSTEMS DIVISION**
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 5 of 28

- 4.2.2 Bidder has to submit a Certificate from the End User/ Owner/Consultant of the Owner stating that the Main Contractor has intimated them about the engagement of Bidder as a Sub-Contractor OR the Bidder had been allowed/permitted as a Sub-Contractor in the concerned job(s).
- 4.2.3 Copies of Completion/Commissioning Certificates (as the case may be) issued by the Owner/ Owner's Consultant/Main Contractor. The said Certificates shall have details like work order no. /date, brief scope of work, ordered & executed value of the job, completion date etc. In case bidder is not able to furnish the completion certificates from the Owner/Owner's Consultant in his name then the Certificate issued in the name of Main Contractor shall also be considered as proof of completion of the relevant job.
- 4.3 A job executed by a ZLDS for its own plant/ projects cannot be considered as experience for the purpose of meeting requirement of BQC of the Bidding Document. However, jobs executed for Subsidiary/ Fellow subsidiary /Holding company will be considered as experience for the purpose of meeting BQC subject to submission of tax paid invoice(s) duly certified by Statutory Auditor of the bidder towards payments of statutory tax in support of the job executed. Such bidders shall submit these documents over and above the other required documents under the various Clauses of BQC

5.0 TERMS OF CONTRACT

- 5.1 Successful ZLDS will be finalized by BHEL considering lowest amount quoted by all the qualifying bidders to this enquiry, for the Total Engineering Sub-Contracting Work for subject TFL Tender.

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION Technical specification for Pre-bid Tie-up	Std. / Doc. Number	
			PY51687	
			Rev. No.	00
			Sheet 6 of 28	

- 5.2 **BHEL will place Order for Pre-bid Tie-up on successful ZLDS at the finalized cost, immediately after finalization of this enquiry and negotiation, if any.**
- 5.3 In the event of price reduction during negotiation by BHEL with TFL, corresponding reduction will be passed on to the successful ZLDS (on finalized Post-Order price).
- 5.4 **Order for supply of ZLD System will be placed on successful ZLDS after BHEL wins the contract from TFL, at price finalized with the successful ZLDS after reducing the corresponding discount passed on to TFL.**
- 5.5 Once finalized, the ZLDS shall enter into a Memorandum of Understanding (MoU) with BHEL for executing the Residual Process Design and Detail Engineering.
- 5.6 **However, BHEL reserves the right for ordering of either Pre Bid Engineering work or Post Bid Engineering work or both at its discretion, based on the status of Tender or time available for submitting BHEL's offer to TFL or as per business decision.**
- 5.7 **BHEL reserves the right to accept or reject any or all Offers without assigning any reasons thereof. BHEL also reserves the right to cancel the Tender wholly or partly without assigning any reason thereof. Also BHEL shall not entertain any correspondence from bidders in this matter**
- 5.8 **The successful ZLDS on whom LOI will be placed for ZLD system, shall deposit to BHEL within 30 days of signing the MOU, 1% of final agreed Price of ZLD system, towards Bid Bond (in the form of Bank Guarantee or Security Deposit etc, for continued commitment during the validity period of MOU.**
- 5.9 Memorandum of Understanding (MOU) between BHEL and ZLDS shall be for the ZLD System Supplier undertakes to execute the Evaporator System/ZLD system of TFL project should BHEL emerge as successful bidder. In case BHEL emerges as successful bidder, they will execute the Evaporator System/ZLD system only through the ZLD System supplier/vendor as per submitted MOU.
- 5.10 There shall be two MOUs between BHEL and ZLDS
- 5.10.1 MOU-1: This MOU between BHEL and successful ZLDS shall be for submission along with BHEL's offer to TFL and shall be valid for at least 04 (Four) years or till the Defect Liability Period whichever is later, from the date of scheduled bid submission.
- 5.10.2 MOU-2: This MOU between BHEL and successful ZLDS shall be the basis for future order for Post-order Engineering services and shall contain the major commercial clauses which shall be in-principal agreed by both BHEL and the successful ZLDS. Based on this agreement of terms and conditions, price bid shall be opened and negotiated if required and based on final mutually agreed price, this MOU will be formally signed on non-judicial stamp paper followed by submission of bid bond @1% of final agreed price within 30 days of signing of MOU or date of submission of BHEL bid to TFL, whichever is earlier. The initial validity of this bid bond shall be for 6 months from the date of MOU and shall be

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION Technical specification for Pre-bid Tie-up	Std. / Doc. Number	
			PY51687	
			Rev. No.	00
			Sheet 7 of 28	

kept valid till the validity of this MOU. The MOU will be converted to a definitive Agreement between BHEL and ZLDS within one month after award of job from TFL for execution of Post-Order Engineering, if BHEL gets order from TFL in above referred Tender.

Security Deposit @ **1%** of the Contract value shall be submitted within 30 days from the date of issue of LOI/ WO by BHEL after which the BID bond furnished by successful bidder shall be returned discharged by BHEL.

Commented [KNK1]: Originally this was 5%.

5.11 ZLDS shall extensively use latest design software including 3D Modeling with PDS/PDMS software.

5.12 BHEL may depute its Engineers to office/factory of ZLDS to expedite design, supplies of the ZLDS

5.13 After start of construction, ZLDS shall position at work site a field engineering team essentially consisting of General Civil, Piping & Structures initially and followed by Electrical and Instrumentation, who have been involved in carrying out the design at the design office in order to closely coordinate with site construction group to resolve any issues related to design/ construction and provide additional drawings/ documents as required.

5.14 ZLDS shall note and comply to the applicable clauses in GCC/SCC of TFL's Tender Specification.

6.0 BID EVALUATION CRITERIA

6.1 The bidders are expected to meet the Bidder Qualification Criteria as detailed earlier in this specification (Annexure-2). The same shall be evaluated during technical bid scrutiny. The offers made by the bidders not meeting the BQC are liable for rejection.

6.2 The bid evaluation shall be on lowest value arrived among all the quoted bidders as per the data filled by bidders in Price Bid Format. Quotations submitted in partial will be summarily rejected. BHEL will not entertain any other expenses/ assumptions written separately elsewhere other than those specified in the price bid format.

6.3 The Price Factors shall be binding on the Bidders. No deviation shall be permitted.

6.4 Successful Bidder shall be awarded the LOI for Pre-Bid Tie-up. Subsequently PO for Gas Engines will be awarded to Successful bidder if BHEL bags the order as EPC contractor.

6.5 ZLDS shall not have any claim whatsoever on the Post-Order Engineering component, if BHEL is not successful in winning the Contract.

7.0 DELIVERABLES TO BE SUBMITTED DURING PRE-BID AND POST BID STAGE

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION Technical specification for Pre-bid Tie-up	Std. / Doc. Number	
			PY51687	
			Rev. No.	00
			Sheet 8 of 28	

- 7.1 For minimum deliverables in the scope of ZLDS in Pre-Bid Stage, refer Annexure-1 of this TCC
- 7.2 For deliverables in the scope of ZLDS in Post-Order Stage, refer TFL's Tender Specification.
- 7.3 In general, it is expected that the ZLDS shall maintain high standards of engineering, quality in deliverables submitted and accuracy in documentation submitted meeting the intended contractual requirements.
- 7.4 If the Bidder is in JV/corporation with the principal firm, all the drawings submitted by the bidder/ZLDS shall be vetted by the competent person in principal firm before submitting the deliverables to BHEL.
- 7.5 The detailed list of deliverables during the Pre-bid stage and during detailed engineering to be submitted along with offer
- 7.6 The deliverables of ZLDS shall be submitted to BHEL only, unless instructed otherwise.
- 7.7 BHEL will review the deliverables and furnish its observations, comments, if any to ZLDS for their incorporation and resubmission to BHEL.

ZLDS shall clarify, with all supporting details on any queries raised by BHEL on their deliverables

8.0 Delivery Schedule:

- 8.1.1 **Pre-bid Tieup** Engineering shall be completed within **2 weeks** from date of issue of LOI / Work order by BHEL.
- 8.1.2 Delivery schedule for **Post-Order Execution of Work** shall be mutually agreed between BHEL and ZLDS to meet the L2 network for project execution, after receipt of order by BHEL.

8.2 Penalty Clause

- 8.2.1 **Post-Order** Penalty for delay in supply shall be 0.5% of the total order value per week of delay or part thereof, subject to a maximum of **10 %** of the Order value for post-order Supply value.

9.0 PERFORMANCE GUARANTEE

- 9.1 ZLDS to furnish the guarantee performance in the attachment 10 & 10 A of Annexure-2 along with Technical & Price bid.
- 9.2 ZLDS is not responsible for the process guarantees of the LICENSOR. ZLDS However guarantees its Engineering as set forth in clause 12.0. If the UNIT does not achieve the results set forth in the LICENSOR's process guarantees due to defect(s) or deficiency(ies) in ZLDS's Engineering, ZLDS shall within scope of their work and responsibilities, carry out re-engineering and bear the cost of repair and/or replacement of such defective product(s).



PROJECT ENGINEERING & SYSTEMS DIVISION

Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No.

00

Sheet 9 of 28

- 9.3 ZLDS's guarantees shall also cover the mechanical performance of such equipment/ materials and their efficiencies affected primarily due to defective engineering by ZLDS. ZLDS shall bear the cost of replacement or alteration or repair in parts or components or wholly (including dismantling, transportation, erection, hook-up, commissioning and performance test) of such Equipment which does not perform to the guarantees, primarily due to defective engineering by ZLDS, within the relative scope of supply and/ or services at no extra cost to BHEL and without entitlement of extension of time to ZLDS.
- 9.4 ZLDS shall provide a list of laboratory test procedures and frequencies thereof required for validating Performance Guarantees.
- 9.5 Performance tests shall be started when the operation of the UNIT is stabilized under design conditions. The UNIT shall be operated and controlled in accordance with procedures set up beforehand. One or more performance test shall be carried out for a maximum of 120 hours under the technical direction of OWNER/LICENSOR and/or their designated representatives after successfully commissioning the UNIT in accordance with the procedures and conditions detailed in the Bid documents. At the end of the performance test, an uninterrupted period of 72 hours shall be selected by OWNER and average results obtained during that period shall form the basis of comparison between the actual performance and the guaranteed performance.
- 9.6 ZLDS's liabilities on account of not meeting the above said Engineering Guarantees and Performance Guarantees (because of Engineering related issues), **shall be limited to 10% (Ten percent) of the ZLD Supply** value between BHEL and ZLDS, payment of which is reserved against issue of Commissioning and Performance Test Certificate by OWNER.

10.0 OTHER INSTRUCTIONS

- 10.1 Since speedy completion of project is essential for a tight project schedule, it shall be responsibility of ZLDS to ensure timely delivery of all milestones.
- 10.2 ZLDS shall familiarize fully with the standard/ procedures/ practice of BHEL/OWNER, to avoid any dispute at later date and after order placement.
- 10.3 BHEL shall not pay any amount, other than the fee specifically agreed, towards any cost incurred by ZLDS by way of salaries to their employees (income and taxes), insurance of any nature, benefits/ bonus to the employees, etc. BHEL's liability is limited to the amount contracted for the services to be rendered under the scope of work defined.

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION Technical specification for Pre-bid Tie-up	Std. / Doc. Number	
			PY51687	
			Rev. No.	00
			Sheet 10 of 28	

- 10.4 ZLDS shall not commit any expenditure on behalf of BHEL without BHEL's consent in writing, during the execution of the work defined in the scope.
- 10.5 ZLDS shall bear all expenses/ fee penalties if it infringes on patents/ licenses of any persons/ organizations or in case of suits, court proceedings, damage claims etc., due to any reason whatsoever.
- 10.6 ZLDS shall ensure that it possesses the latest revisions of various national and international standards, codes of practices, statutory & environmental regulations etc. as applicable, for execution of the work. BHEL shall not provide any such documents to ZLDS. Engineers of ZLDS assigned for this project shall have familiarity on relevant documents as mentioned above for their use and applications.
- 10.7 ZLDS shall maintain at their own cost the personal accidents policy, life insurance and / or any such insurance required in respect of their personnel deputed to outstation visits for the given contract.
- 10.8 BHEL reserves the right to terminate or suspend the contract or withdraw part of the scope of the work at any stage of its execution, if it is found that ZLDS has not met its obligation for the performance / progress is not up to the expected standards and overall work is likely to suffer. In such an event, BHEL shall give 15 days' notice in writing. In such case all costs incurred accordingly by BHEL to complete any work forming part of the contract shall be recovered from ZLDS. In case of such premature termination of contract, BHEL reserves the right to claim damages from ZLDS including the initiation of judicial proceedings.
- 10.9 ZLDS shall keep all information/data/drawings etc. related to the work as confidential information and shall not divulge or use the information indirectly or directly in any way detrimental to the interest of BHEL. All drawings, documents, manuals, design calculations including all originals prepared or obtained during the work shall remain the property of BHEL and shall be handed over to BHEL on demand.
- 10.10 ZLDS shall comply with the laws and regulations of the country, the state and territories concerned, during the progress of the work.
- 10.11 ZLDS shall submit progress report on the status of the work entrusted to them periodically and as mutually agreed upon.
- 10.12 ZLDS shall ensure optimal & economic design while executing the work, but without sacrificing the customer specification requirements/ Statutory regulations/ code provisions/ safety aspects.

TECHNICAL REQUIREMENTS

I. GENERAL DESCRIPTION:

The Effluent Treatment Plant (ETP) receives contaminated liquid effluent generated from various sources in fertilizer complex. They shall be treated in the ETP to achieve zero liquid discharge (ZLD) from the complex.

The various sources of generated effluent are listed below:

- a) Cooling tower blow down and side stream filter backwash



PROJECT ENGINEERING & SYSTEMS DIVISION
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 11 of 28

- b) Liquid effluent from coal gasification unit
- c) Effluent from Purification from coal gasification unit.
- d) Process Effluent from Ammonia and Urea Unit
- e) Effluent from DM & CPU plant
- f) Effluent from SGP
- g) Intermittent effluent

The ETP system consists of clarification, media filtration, ultra-filters and RO membranes for treating the above indicated effluents. The RO reject from the final RO stream of ETP shall be treated in ZLD (Zero liquid discharge) system. The final RO reject shall be collected in RO reject sump which shall be treated further in thermal evaporators using low pressure steam to evaporate the RO reject. The condensate shall be collected in RO permeate tank and sludge from evaporator shall be fed to crystallizers to concentrate sludge in powder form. Concentrate from salts from evaporator shall be suitable for crystallization operation (up to 50%).

II. SCOPE OF WORK (SUPPLY & SERVICES) OF ZLDS:

The capacity of ZLD system: **45 m³/hr.** (tentatively). The scope of work of ZLDS, indicating supply and services, is listed below:

- a. Technology tie-up agreement during bid submission to M/s TFL, by BHEL
Enter into Tie-up agreement with BHEL in the prescribed sample format attached with the specification.
 - b. Pre-Bid Engineering services by ZLDS (during bid submission by BHEL, to TFL):
 - 1. Support BHEL for Pre-bid engineering of the ZLD system by providing required inputs, data sheets, drawings etc. for "Tender Purpose" to submit along with BHEL bid.
Detailed BOQ estimation and cost estimation for Civil is in the scope of BHEL.
 - 2. Support BHEL for Technical closure of bid with customer pertaining to ZLD system.
 - c. Scope of ZLDS during project execution:
 - 1. Design, engineering, manufacture, testing, supply, erection, commissioning of complete ZLD system consisting of following major equipment:
 - 1.1 Evaporator feed pumps: (N working + 2 standby)
 - 1.2 **Thermal evaporator:** (N working with 20% overdesign) – It shall be of multiple effect evaporator system suitable for continuous operation.
 - a) Heat Exchanger shell shall be of SS-316L,
Tube shall be of Titanium Grade 2,
Tube sheet shall be of SS-316L.
 - b) Vessels with Brine solution of Super Duplex stainless steel (SDSS),
 - c) Recirculation pump of SDSS,
 - d) Thermal vapour re-compressor of SS-316.
- The evaporator shall be designed for continuous operation of 7 days with maximum downtime of 4 hrs./week.*

- 1.3 Crystallizer (N working with 20% overdesign) consisting of settling tank, pusher centrifuge and mother liquor tank.
 - a) Settling Tank – 1no.
MOC – SS316
 - b) Pusher Centrifuge – 2 Nos. (1W + 1S)
MOC – SS316



PROJECT ENGINEERING & SYSTEMS DIVISION

Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 12 of 28

c) Mother Liquor Tank: As per Requirement

Bidder shall indicate crystallizer sludge storage shed (BHEL Scope) sufficient for 1 Month storage.

2. Assist in obtaining the approvals of various engineering documents from customer during contract stage.
3. Furnish required input details for the civil design of the ETP and ZLD system (detail BOQ, design and execution by BHEL)
4. Establishing plant performance guarantees as per the tender specification.
5. Visit of experts to meetings at intimated location and also at project site for support, if required.
6. Supply E&C spares for ZLD equipment. It shall form part of the main equipment supply.
7. Supply of special tools and tackles of ZLD system. The scope of such tools shall form part of the main equipment supply and a separate list for the same shall be furnished along with bid.

III. SCOPE MATRIX BETWEEN ZLDS AND BHEL

Sl. No.	Description	Basic Engineering	Detail Engineering	Supply	Execution
1	ZLD system	ZLDS	ZLDS	ZLDS	ZLDS

1) **Basic Engineering:** means conceptual design, sizing criteria.

2) **Detail Engineering:** Procurement,

3) **Execution:** means erection, commissioning and establishing performance guarantee.

Note: The civil design and civil works are in the scope of BHEL. However, ZLDS shall provide all the necessary civil inputs.

The process scheme and detailed technical specification of the ZLD system is attached as Annexure (TFL tender document).

IV. INFLUENT WASTE WATER CHARECTERISTICS

The influent waste water characteristics to ZLD, are indicated below:

Sr. No.	Parameters	Unit	Concentration in RO Reject
1	pH		5.0 - 8.0
2	Odour and colour		Odour and colourless
3	Suspended solid	ppm	14.39
4	Oil and grease	ppm	123.28


PROJECT ENGINEERING & SYSTEMS DIVISION
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 13 of 28

5	Ammonical Nitrogen as N	ppm	549.65
6	Nitrate nitrogen as N	ppm	169.08
7	Total Kjeldahl nitrogen as N	ppm	993.64
8	TDS	ppm	28997.61
9	Free ammonia (as NH ₃)	ppm	39.14
10	Total residual chlorine	ppm	3.91
11	Conductivity	Umho/cm	4891.88
12	Turbidity	NTU	98.60
13	Total Alkalinity as CaCO ₃	mg/l	2935.13
14	P. Alkalinity as CaCO ₃	ppm	0.00
15	Total Hardness	mg/l	9783.77
16	Ca Hardness as CaCO ₃	ppm	6153.98
17	Mg Hardness as CaCO ₃	ppm	5533.74
18	Chloride (as Cl)	mg/l	12268.51
19	Total Iron (Fe)	mg/l	9.78
20	Corrosion rate	MPY	14.68
21	Silica as SiO ₂	ppm	1322.21
22	Nitrate as NO ₃	ppm	2980.93
23	Sulphate as SO ₄	mg/l	8076.38
24	SRB count		< 20 per 100 ml
25	Manganese as Mn	mg/l	0.98
26	Phosphate as PO ₄	ppm	107.62
27	Total Phosphate	ppm	136.97
28	Turbidity	NTU	0.76
29	Na Hardness as CaCO ₃	ppm	229.01
30	K Hardness as CaCO ₃	ppm	61.07
31	Methanol	ppm	0.00
32	BOD	ppm	386.77
33	COD	ppm	580.16
34	Total Organic Carbon	ppm	241.73
35	Total inorganic Carbon	ppm	58.02
36	Na ⁺	ppm	4834.63

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION Technical specification for Pre-bid Tie-up	Std. / Doc. Number	
			PY51687	
			Rev. No.	00
			Sheet 14 of 28	

37	CN (free)	ppm	0.39
38	CN (complex)	ppm	0.39
39	SCN	ppm	9.67

The water quality furnished is worst water quality considered from ETP. The complete ETP process details and input water quality of various streams coming into ETP are enclosed as Annexure.

V. TREATED WATER REQUIREMENTS AND GUARANTEES

The treated parameters at the outlet of ZLD, are indicated below:

Multiple effect evaporator

- The TDS in condensate water will be within 300 mg/L.
- Recovery to be ensured > 90 %
- Fluoride in condensate water will be <1.5 ppm.
- MEE will be steam heated

Thermal Evaporators

- Solid waste consistency : Minimum 50%
- Process condensate TDS : 150 ppm
- Final salt from ZLD System shall be Free Flowing powder form.

All other guarantees such as utilities, power consumption etc. shall be as indicated in the M/s TFL tender document, attached as Annexure.

VI. TECHNICAL SPECIFICATION

- Mechanical: The complete design, supply, erection, commissioning and establishing the performance parameters of all the equipment (as per the enclosed ZLD tender scheme) needed to treat the incoming effluent to ZLD to meet the guarantee parameters. If any equipment is required over and above the scheme, for meeting the outlet parameters, is to be considered by the Bidder. The scheme indicated is minimum.
- Electricals: Complete electrical system consisting of motors, MCC panel, cables, cable trays, earthing, etc. for the ZLD are in the scope of Bidder. The detailed specification of these electrical are indicated in the attached TFL tender document.
- C&I: All the instruments, as detailed in the attached TFL specification, PLC panel, instrument cables etc. are in the scope of Bidder only. The detailed specification is indicated in the attached TFL tender document.

VII. OPERATION AND CONTROL PHILOSOPHY:

- The evaporator and crystallizer plant shall be operated, monitored and controlled through one central programmable logic controller (PLC) with complete automation to perform normal operation, sludge removal, valve operation etc. However, the total plant shall have provision of manual Intervention and operation of the same, locally or from remote. PLC based control system shall be provided to start, stop, monitor and control the plant from one central place. All the local push buttons required for the plant shall be housed near the plant. Temperature measurement for various as mentioned above shall be sensed by individual temperature indicating transmitter and displayed in the panel/monitor. Operator can read those temperatures



PROJECT ENGINEERING & SYSTEMS DIVISION
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 15 of 28

automatically in sequence or manually at any of the above points randomly to operate the plant effectively.

2) An interlock sequence shall be provided for starting and stopping of the plant in predetermined correct sequence only and not otherwise due to any mistake in operation.

3) An alarm annunciator indicates tripping of any drive and also abnormal parameters if any in the plant. This will provide extra facility to monitor the plant from panel and operate the plant correctly in manual mode.

4) An automatic PID based level control loop shall be provided for evaporator to regulate product flowing out from the evaporator. This ensures constant level in the system and avoids Fluctuations in performance of total plant. The loop consists of level sensor (indicating transmitter), PID controller (electronic type), I/P converter to convert electronic signal to pneumatic signal and pneumatic control valve.

5) An automatic PID pressure control loop at inlet of live steam line to ensure uniform steam supply at desired condition to the plant. This also ensures exact required temperature of 1st effect.

6) A control valve (or double solenoid valve) shall be provided which will control the flow to ensure the safe boiling temperature in calendria. These safe temperatures ensures no overheating of product at any stage, which otherwise may cause undesired fouling in the tubes.

An automatic PID feed flow control loop shall be provided in the feed line of the plant so that operator is able to control the feed rate to the plant. (Flow control valve shall be provided in HRSCC feed pump discharge).

8) With the PID control loop arrangement constant feed rate to the plant and constant supply of steam to the plant can be ensured.

9) All equipment and valve status (On/off/trip status or open/close) should be indicated.

Necessary failure in operation/trip shall have visual and sound alarms.

10) The local push buttons with control boxes of individual pumps, equipment shall have selector switches with position of manual and automatic.

11) The remote selection facility at the HMI shall have the override over the local selector switch position in the local control boxes.

12) Preparation and dosing of chemical (Operation of pump from local control panel) shall be controlled manually.

13) All pumps shall work on level sensing.

14) In general operating pumps selected shall be rotated on a daily basis or after fixed time interval.

15) PLC shall have indications of all instrument/transmitter readings in HMI.

NOTE:

For detail Instrumentation and control system, refer Instrument design philosophy (section:5.4)

- Specification of equipment and design data are general in nature and may require changes based on specific selection and application. Tenderer is required to make their own judgment for proper selection of equipment in their offer or during detail engineering if LOA is placed on them. Tenderer is required to submit proper design calculation.
- Responsibility of selection of equipment rests entirely on the tenderer considering that tenderer is required to provide guarantee on the equipment selected, which will undergo performance testing at site during PG test.



PROJECT ENGINEERING & SYSTEMS DIVISION

Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 16 of 28

- Where specification of all equipment required for completeness of the system is not specified herewith, tenderer is required to make selection of proper equipment based on their judgment.

VIII. Quality & Inspection

Quality Assurance Program

To ensure that the equipment and services under the scope of contract whether manufactured or assembled within the ZLDS's works or at his Sub-Vendor's premises or at the Owner's site or at any other place or work are in accordance with the specifications, ZLDS shall adopt suitable quality assurance program to control such activities at all points, as necessary. Such program shall be outlined by the ZLDS and shall be finally accepted by the Owner / Authorized representative after discussions before the award of Contract. The QA program shall be generally in line with ISO-9002/IS-14001. A quality assurance program of the ZLDS shall generally cover the following:

System for shop manufacturing and site erection control including process controls, fabrication and assembly controls.

Quality Assurance Documents

The ZLDS shall submit required no. of copies of the following Quality Assurance documents

- Material test reports on components as specified by the specification and approved Quality Plans.
- The inspection plan with verification, inspection plan check points, verification sketches, if used and method used to verify that the inspection and testing points in the inspection plan were performed satisfactorily.
- Sketches and drawings used for indicating the method of traceability of the radiographs to the location on the equipment.
- Non-destructive examination results, reports including radiography interpretation reports.
- Factory tests results for testing required as per applicable codes and standards referred in the specification and approved Quality Plans.
- Inspection reports duly signed by QA personnel of the customer and ZLDS for the agreed customer hold points.

The equipment shall be guaranteed to meet performance requirements required by this specification and rectification shall be carried out until satisfactory results are obtained. The Owner reserves the right to reject the equipment should the performance values fall short of those indicated in the schedule of Technical data sheets.

Quality Plan:

ZLDS to furnish Quality Plan [Supply Quality plan] to BHEL along with offer in their standard format for general review by BHEL. During Detailed engineering, in addition to various tests indicated in this specification, Quality plan will be reviewed with respect to standard Inspection, standard Engineering practices, applicable standards, code etc. Accordingly, various tests required, stages of inspection and appropriate agencies for Inspection will be intimated. ZLDS to abide by the same.



PROJECT ENGINEERING & SYSTEMS DIVISION
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 17 of 28

1. Tests & Inspection:

The manufacturer shall conduct all tests required to ensure that the equipment furnished shall conform to the requirements of this specification and in compliance with requirements of applicable codes and standards.

The particulars of the proposed tests and the procedures for the tests shall be submitted to the Purchaser/Consultant for approval before conducting the tests.

2. Test at Manufacturer's work (as applicable):

Material Tests

Other Tests

Site Performance Test:

3. Inspection agency:

BHEL/Third Party appointed by BHEL/Customer. The various inspection stages will be witnessed by individual agencies (or) Group of Agencies as per above, in line with approved quality plan.

IX. PROTECTION FOR SHOP FABRICATED ITEMS:

- a) All coated surfaces shall be protected against abrasion, impact, discoloration and any other damages. All exposed threaded portions shall be suitably protected with either a metallic or non-metallic protecting device. The parts which are likely to get rusted due to exposure to weather, should also be properly treated and protected in a suitable manner. All exposed metallic surfaces subject to corrosion shall be protected by shop application of suitable coatings. All surfaces which will not be easily accessible after the shop assembly, shall beforehand be treated and protected for the life of the equipment. All surfaces shall be thoroughly cleaned of all mill scale, oxide and other coatings and prepared in the shop.
- b) The surfaces that are to be finish-painted after installation or require corrosion protection until installation, shall be shop painted with at least two coats of primer. The finished colors shall be as per manufacturer's standards.
- c) Shop primer for all steel surfaces which will be exposed to operating temperature below 95°C shall be selected by the ZLDS after obtaining specific approval of the Purchaser regarding the quality of primer proposed to be applied.
- d) All other steel surfaces which are not to be painted shall be coated with suitable rust preventive compound subject to the approval of the Purchaser.
- e) All material shall be delivered in a clean and usable condition. Openings shall be securely covered against entry of foreign material where appropriate.

X. PACKING AND TRANSPORTATION:

All equipment shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit, handling and storage at site till the time of erection. ZLDS shall follow necessary road safety rules and shall obtain permission from highway authorities for goods movement. However, these aspects shall be taken into consideration in the design of the packing for the system.

XI. NAME PLATES & TAG PLATES:

- A. Components whose identity is important for operation and maintenance of the plant shall be provided with permanently attached tag bearing the Purchaser's coding together with relevant text clearly inscribed.



PROJECT ENGINEERING & SYSTEMS DIVISION
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 18 of 28

- a) A corrosion-resistant nameplate shall be attached to each unit in a clearly visible, easily accessible location. The nameplate shall be stamped with the following information: **Manufacturer's name**
- b) Manufacturer's model number
- c) Manufacturer's serial number
- d) Purchaser's equipment tag number (item No.)
- e) Service name
- f) Weight (kg)
- g) Hydrostatic test pressure, Bar. (g)
- h) Other design information of the flow media like flow rate, temperature, pressure etc.
- B. Nameplates shall be 3 mm (0.12") thick engraved plate of sufficient rigidity with lettering of a minimum height of 4 mm (0.16"). The method of implementation and labelling will be informed for all components after award of contract.
- C. Identification tags shall be provided and placed on all ZLDS furnished items. Tags shall be corrosion resistance, having a larger than diameter of 3 cm, and shall have black identification figures stamped thereon. Figure height shall be larger than 0.5 cm. Tags shall bear the component system designation symbol shown on the ZLDS's drawings.

XII. SITE METROLOGICAL DATA

1	Atmospheric Pressure	
	Average	1008 mbar
2	Ambient Temperature	
	Maximum Dry Bulb Temperature	46.3
	Minimum Dry Bulb Temperature	1.0
	Wet Bulb Temperature	29
3	Rainfall	
	Average Annual rainfall	1329mm
	Design in 1 hour	116mm
4	Relative Humidity	
	Maximum	100%

XIII. VENDOR DOCUMENTATION:

1. At Pre-Bid Stage:

Following data to be furnished by ZLDS for civil engineering by BHEL:

- a) Civil inputs (sizes of various process structures, foundation, building etc.)

Following documents to be furnished by ZLDS for "**Tender Purpose**" which shall be included with BHEL's bids to TFL:



PROJECT ENGINEERING & SYSTEMS DIVISION
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 19 of 28

- a) Overall Process Flow Diagram /P&IDs
- b) Process write up
- c) Control/ Operation/ Design Philosophy
- d) Functional guarantees of the plant as per TFL "Guarantee Schedule"
- e) Data sheet for Process for Tender Purpose as per TFL specification.
- f) List of Spares (for items supplied by ZLDS)

2. During Project Execution:

Documents to be submitted by ZLDS after receipt of order:

Sl.No	DRG/DOC. NAME	Submission by
MECHANICAL		
M.01	P&ID of ZLD system	1 week from PO
M.02	System write-up (Including Control Philosophy)	1 week from PO
M.03	Design Basis and Sizing Criteria including Process Calculations	1 week from PO
M.04	Equipment Layout and list	2 weeks from PO
M.05	List of Terminal Points	2 weeks from PO
M.06	Individual equipment GA drg.	3 weeks from PO
M.07	Data sheet of complete equipment	3 weeks from PO
M.08	Overall Layout of ZLD system	2 weeks from PO
M.09	Painting Specification	4 weeks from PO
M.10	Piping layout	4 weeks from PO
ELECTRICAL		
E.01	Electrical Load List with normal and emergency power requirement	1 week from PO
E.02	GA and Datasheet of motors	2 weeks from PO
E.03	Cable datasheet	2 weeks from PO
E.04	Cable tray layout	3 weeks from PO
E.05	MCC panel GA and Wiring diagram	3 weeks from PO
E.06	Earthing details	3 weeks from PO
INSTRUMENTATION		
I.01	Instrument Index with BOQ, range, set points etc.,	2 weeks from PO
I.02	Instrument Hook up drawings	4 weeks from PO
I.03	Technical data sheet of Instruments	3 weeks from PO
I.04	PLC Configuration Diagram, GA & Wiring diagram	4 weeks from PO
I.05	PLC I/O List	5 weeks from PO
I.06	PLC Logic Diagram	5 weeks from PO
I.07	PLC Control Room Layout	5 weeks from PO
I.08	PLC Power Supply AC Inputs requirement	5 weeks from PO
I.09	PLC interconnection diagrams	5 weeks from PO
CIVIL		
C.01	Civil input drawings for structures	4 weeks from PO
C.02	Civil input drawings for all building	4 weeks from PO
C.03	Civil input drawings for all Tanks, pits and chambers etc.	4 weeks from PO
MISCELLANEOUS		



PROJECT ENGINEERING & SYSTEMS DIVISION

Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 20 of 28

MIS.01	Commissioning spares	5 weeks from PO
MIS.02	Recommended spares	5 weeks from PO
MIS.03	Consumable list (Chemicals, oil, grease etc.)	5 weeks from PO
MIS.04	O&M manual	5 weeks from PO
MIS.05	Performance Test Procedure	5 weeks from PO

Note: The date of first submission is indicated above. ZLDS shall submit all subsequent revision within 5 working days of comments. BHEL shall provide review/approval in 7 working days

3. The O&M manuals shall contain the following details as minimum in addition to those indicated in the above table: -
 - Identification details of the equipment like BHEL PO NO., Vendor's Sl. No., Vendors contact address with tel., fax details.
 - Description of the equipment.
 - Final Data sheets and Drawings of the equipment as per the list mentioned in this specification.
 - Recommended 2 years operational spares.
 - Test reports.
4. The erection documentation shall consist of
 - All drawings/documents,
 - All such drawings/documents, not submitted for review, but essential for erection/ commissioning, e.g. assembly drawings, etc.
 - Master document list
 - Site dispatchable B.O.M.

XIV. Performance Guarantees

The guarantees shall form contract guarantees to be demonstrated through an approved performance test procedure (to be furnished by the Bidder, as per the tender) after the completion of the Plant. The schedule shall be finalized during the detail engineering stage.

XV. Terminal/ Interface Points between ZLDS and BHEL.

Sl. No.	Equipment	Terminal Point
Mechanical		
1	Influent waste water	At RO reject sump. The ZLD feed pump is in the scope of the Bidder.
2	LP steam, return condensate, CW in and out	At one point near the battery limit. The pipe counter flanges along with stud nuts and gaskets at battery limit are in the scope of Bidder.
Electrical		
1	Power Supply 415 V	Incomer to MCC. The required cable glands and lugs are in the scope of the Bidder.
Control & Instrumentation		
1	Power supply to PLC	At one (1) point in PLC panel incomer. Further distribution to all associated equipment including HMI, Printer etc. shall be taken care by ZLDS.



PROJECT ENGINEERING & SYSTEMS DIVISION
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 21 of 28

XVI. Information to be submitted along with offer

- 1.0 Filled in Annexures (Key Information, Recommended spares, special tools & tackles and Deviations)
- 2.0 Checklist
- 3.0 Unpriced price-bid format

ANNEXURE – I**KEY INFORMATION**

1.	Name of the Bidding Company		
2.	Registered in (mention the name of the Country)		
3.	Name, designation, telex & telephone number and postal address of responsible officer of ZLDS to whom all reference shall be made for expeditious co-ordination		
4.	Name, designation, telex & telephone number and postal address of responsible officer of Indian Agent.		
5.	ZLDS's proposal number		
6.	ZLDS's proposal date		
7.	Validity of offer, counted from the date of opening of bid		
8.	Guaranteed completion period, counted from date of issuance of LOI/TOI		
9.	Confirm that Scope of supply and services are exactly as per specification requirement		Yes/No
10.	Confirm Technical Compliance with Specification		Yes/No
11.	Confirm that Guarantees are as per Job Specification		Yes/No
12.	Confirm that List of Recommended Spares has been furnished as per Annexure-II		Yes/No
13.	Confirm that List of Special Tools & Tackles has been furnished as per Annexure-III		Yes/No
14.	Confirm that deviations ,if applicable, have been furnished as per Annexure-IV		Yes/No

Signature of ZLDS's

Authorized representative

Date.....

**PROJECT ENGINEERING & SYSTEMS DIVISION**
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 22 of 28

ANNEXURE – II**LIST OF RECOMMENDED SPARE PARTS**

ZLDS shall tabulate in the proforma below list of all spare parts as recommended by the respective manufacturer for regular, reliable operation. In case the ZLDS has to add any other relevant information, the same shall be indicated herein. Continuation sheets of like size and format may be used as per ZLDS's requirements.

Sl. No	Description	Quantity	Unit Price	Total Price	Delivery Period	Remarks
-----------	-------------	----------	---------------	----------------	--------------------	---------

Signature of ZLDS's
Authorized representative

Date.....

**PROJECT ENGINEERING & SYSTEMS DIVISION**
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 23 of 28

ANNEXURE – III**LIST OF SPECIAL TOOLS AND TACKLES**

ZLDS shall tabulate in the proforma below list of all tools and tackles as recommended by the respective manufacturer for regular, reliable operation. In case the ZLDS has to add any other relevant information, the same shall be indicated herein. Continuation sheets of like size and format may be used as per ZLDS's requirements.

Sl.No.	Description	Quantity	Remarks
a			
b			
c			
d			

Signature of ZLDS's
Authorized representative

Date.....

**PROJECT ENGINEERING & SYSTEMS DIVISION**
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 24 of 28

ANNEXURE – IV**DEVIATION FROM SPECIFICATION**

If the proposal submitted has got any deviation from the technical stipulations in the bidding document, the ZLDS shall tabulate below the full particulars of such deviations and shall sign below. Additional sheets may be enclosed, if necessary. Deviation is to be furnished with mention of specific clause numbers. Technical and commercial deviations to scope of supply and services, shall be indicated separately. ZLDSs shall bring put only those deviations which are impractical to meet (or) not advisable

Sl.No .	CLAUSE NO.	DESCRIPTION AS PER SPECIFICATION	DEVIATION BY ZLDS

We confirm that all the deviations/exceptions to the Technical Specification PY51687, Job Specification and enclosures including reference documents attached are listed in this Annexure only. No other deviations or exceptions even if mentioned elsewhere shall be considered for any technical/ commercial evaluation or for ordering.

Signature of ZLDS's
Authorized representative.....

Date



PROJECT ENGINEERING & SYSTEMS DIVISION
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 25 of 28

1.0 CHECK LIST

ZLDS 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 ZLDS
1	ZLDS to confirm compliance with spec. and its annexure without any deviations.		
2	ZLDS has already raised pre-bid queries (if any) on Purchase specification.		
3	ZLDS Shall submit completely filled following Annexures enclosed with Technical Purchase Specification PY 51687 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	ZLDS shall furnish the list of Erection and commissioning spares along with their offer.		
5	ZLDS to fill Deviation list (Refer Annexure-IV of PY 51687). Only those deviations indicated in this list will be considered during technical evaluation of offer. ZLDS to indicate the deviations which are impractical.		
6	All other requirements except the deviations brought out under deviation list, have been taken into consideration in the offer.		
7	ZLDS has submitted unpriced "Price bid format" with "Quoted" mentioned against price for each line item of Price Bid Format		



PROJECT ENGINEERING & SYSTEMS DIVISION
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No. 00

Sheet 26 of 28

PRICE SCHEDULE

SL. NO.	DESCRIPTION	QTY.	UNIT PRICE (Rs.)	TOTAL PRICE (Rs.)
1.0	DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, ERECTION & COMMISSIONING			
1.1	Design, Engineering, Manufacture, Supply, E&C of the ZLD system.	1 set		
1.2	Special Tools & Tackles for ZLDS's supplied items as per the specification	1 set		
1.3	Commissioning and erection spares [Item wise list of commissioning and erection spares with unit rate and quantity for supply items to be furnished by ZLDS)	1 set		
2.0	Erection and commissioning including performance guarantee of the ZLD system as per the specification.	1 set		
	TOTAL (1.0 + 2.0) for L1 Evaluation			

NOTES: -

1. ZLDS to quote strictly as per BHEL's NIT requirements.
2. ZLDS 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. ZLDS to quote the base rates only. All Applicable taxes and duties shall be indicated separately for the Supply Portion and Erection & Commissioning Portion.
4. ZLDS 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. ZLDS to quote strictly in the price bid format with line wise itemized price and quantity, failing which the ZLDS's offer shall be liable for rejection.

Signature of ZLDS's

Authorized representative

Date.....

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION Technical specification for Pre-bid Tie-up	Std. / Doc. Number	
			PY51687	
			Rev. No.	00
			Sheet 27 of 28	

ATTACHMENTS

Sl. No.	Description	Drg. / Doc. No.	Rev. No.
1	TFL Tender Document of ETP system	Annexure 1	00
2	Tender Scheme	Annexure 2	
3	QAP Guidelines		

XVII. Material Code

Sl. No	Description	Material code
1.	ZLD Pre-bid Tie-up for Talcher Fertilizers Ltd.	PY9851687006



PROJECT ENGINEERING & SYSTEMS DIVISION
Technical specification for Pre-bid Tie-up

Std. / Doc. Number

PY51687

Rev. No.	00
----------	----

Sheet 28 of 28

RECORD OF REVISIONS

[illegible]

Filename: Talcher_Prebid Tieup_specification
Directory: C:\Users\6198732\AppData\Local\Microsoft\Windows\Temporary
Internet Files\Content.Outlook\IARUXI4G
Template: C:\Users\6198732\AppData\Roaming\Microsoft\Templates\Normal.dot
m
Title:
Subject:
Author: Y N BABU DINAKAR
Keywords:
Comments:
Creation Date: 3/22/2016 1:32:00 PM
Change Number: 138
Last Saved On: 11/21/2020 5:00:00 PM
Last Saved By: Srinivas K
Total Editing Time: 1,103 Minutes
Last Printed On: 11/21/2020 6:55:00 PM
As of Last Complete Printing
Number of Pages: 28
Number of Words: 8,398
Number of Characters: 45,022 (approx.)