



Ref. Enquiry No.: PE/PG/BHU/E-6381/2019; Dated 13.02.2020

DUE DATE

24-FEB-2020

BY 02:00 PM

Dear Ma'am/Sir,

Subject: Tender Enquiry for "MISC. PUMPS-VERTICAL" as per Technical Specification No. PE-TS-415-100-N011-R0 for 1 X 660 MW BHUSAWAL TPS.

BHEL invites your offers for Design, Manufacture, Inspection and testing at Manufacturer's works, proper packing, alongwith supply of mandatory spares, special tools/tackles, commissioning spares, Sump Model Study, installation checks, supervision of replacement of gland packing with mechanical seal arrangement (if applicable) and PG Test at site, all accessories, auxiliaries etc. for **MISC. PUMPS (VERTICAL) for 1 X 660 MW BHUSAWAL TPS UNIT-06** as specified/ defined as per tender technical specification PE-TS-415-100-N011 Rev0, amendment & agreements till placement of order. Your offer shall be submitted in two parts strictly as per Clause-2.0 of the "Instructions to Bidders" of GCC Rev. 07, in sealed cover for the under mentioned equipment/system.

Item Description – MISC. PUMPS (VERTICAL)		
Sl. No.	Project	TECHNICAL SPECIFICATION No.
1	1 X 660 MW BHUSAWAL TPS UNIT-06	PE-TS-415-100-N011-R0 Detailed BOQ enclosed

Your best quotation/offer for the above requirement, in line with our terms and conditions, should be submitted **online via e-procurement system** (<https://bhel.abcpurchase.com>). It shall be the responsibility of the bidder to ensure that the tender is submitted **on or before the due date by 02:00 PM**. Part-I (Techno-commercial) bids shall be opened at **03:00 PM** on the due date.

Note: 1. Detailed tender documents have been uploaded at the following websites.

www.eprocure.gov.in , www.bhel.com, <https://bhel.abcpurchase.com> & <https://prasarak.bhelpem.com>

Bidders are requested to upload their best offer on <https://bhel.abcpurchase.com> only.

2. In case you are not interested to quote, please send us the regret by mail or letter.

ENQUIRY TERMS AND CONDITIONS:

Please refer BHEL-PEM GCC Rev-07 which are available on <https://www.bhelpem.com/gcc.aspx>, is enclosed. Bidders are requested to go through the same while submitting the offer.

- Offers should be submitted separately in two parts **online through e-procurement system** as follows:
Part-I: TECHNO-COMMERCIAL BID **Part-II: PRICE BID**
For detailed instructions, please see clause no. 1.0 & 2.0 of "Instructions to Bidders (Vol-I, GCC Rev. 07)".
- Bidders shall submit their offers meeting the requirements of the tender documents indicated in GCC, Rev. 07 and other Terms and Conditions included in this Enquiry Letter.
- Bidders to note that following form the part of tender documents:
 - General Conditions of Contract (GCC) Rev 07 comprising of: Instructions to Bidders and General Commercial Terms & Conditions
 - Technical Specifications.
 - Price format & Special Conditions of Contract (SCC Rev01).
 - Enquiry terms & conditions
 - Technical PQR
 - Other enclosures of the NIT

To expedite the technical evaluation, Bidders to submit documents as specified in the specification for submission of brief offers with only the following technical details:

BHEL/PS-Project Engineering Management,
Power Project Engineering Institute,
Plot no. 25, Sector – 16A, Noida (UP) 201301, INDIA
(OFF) +91-120-4368832/ 4368727/ 4368835

Regd. Office
BHEL House Siri Fort
New Delhi-110049

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- (a) Compliance certificate.
 - (b) Schedule of performance guarantees.
 - (c) GA & cross sectional drg. (along with details of weights, crane capacities and clearances required for installation and maintenance and Foundation plan – These are only for reference).
 - (d) Technical Deviation schedule
 - (e) Unpriced Price schedule.
4. Following services at Site are in bidder's scope:
- i) Installation checks for correctness of installation, alignment etc. at Site
 - ii) PG Testing at Site
 - iii) Sump Model Study for Raw Water Pump House and Clarified Water pump house (Non DM)
5. Any hidden conditions/deviations mentioned elsewhere in offer and standard pre-printed terms & conditions of the tenderers shall not be considered valid.
6. Tenders shall be submitted strictly in accordance with the requirements of the above mentioned tender documents. Deviations (Technical as well as Commercial), if any, shall be listed out separately in Annexure-II of GCC Rev-07 along with reasons for taking such deviations (Annexure-II to be filled in E-procurement portal only at the time of submission of bid). Any deviations (Technical as well as Commercial) not mentioned in the Annexure-II shall not be considered. Bidders to note all the points mentioned in "Notes" of Annexure-II to GCC Rev.07.
7. Unsolicited fresh/revised price bids shall not be entertained.
8. Purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any/all tender(s) in part or full without assigning any reason whatsoever.
9. Tenderers must enclose the Quality Plan in the prescribed format, for approval. Equipment will be dispatched only after Purchaser's/Owner's inspection of the hold points specified in the approved Quality Plan and issue of Material Dispatch Clearance Certificate (MDCC).
10. Offers should be submitted separately in two parts **online through e-procurement system only**, however, all correspondence thereof, shall be addressed to the undersigned by name & designation and sent at the following address:

MOHIT KUMAR GUPTA-DY. ENGR/ RAHUL BHATNAGAR-DY.MGR/ GAURAV JAIN-Sr. MANAGER
PG-III Deptt.
M/s. Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
Plot No 25, Sector-16 A, Noida-201301, U.P., INDIA
E-MAIL: mohitgupta@bhel.in ; rahulbhatnagar@bhel.in; gjain@bhel.in
Ph. No. +91-120-4368832 / 4368727/4368835

11. Delivery completion Schedule: -

a. Sump Model Study: Successful bidder shall carry out Sump model study in line with clause no. 2.2.3 of Technical specifications no. PE-TS-415-100-N011. Final report of such Study to be submitted to BHEL within six months of approval of procedure for Sump model study. Procedure for Sump model study shall be treated as primary document for Sump model study. This document is required to be submitted by bidder within one month of the BHEL PO. Delay in submission / re-submission of this document shall be reduced from the given delivery period. Delay in BHEL's comments/approval beyond 18 days shall also be considered for delay analysis. Successful bidder to carry out the study from reputed agency and arrange for necessary credentials for approval of agency from BHEL/End Customer. In case of delay in approval of agency beyond 15 days of submission of credentials, delivery completion schedule of Sump model study shall be extended accordingly.

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b. Main Supply: Within Six (06) months from date of CAT-1 approval of Primary drawing/documents, subjected to drawing/document submission/re-submission schedule as stipulated at Annexure-1 in Technical Specifications No. PE-TS-415-100-N011. In case of any delay in submission/re-submission of Primary drawing/documents, then same shall be reduced from the given delivery period. Delay in BHEL's comments/approval beyond 18 days shall also be considered for delay analysis.

In case of requirement of final inspection of Pump with Job Motor at vendor's works (as per approved QP) and such Motor is in BHEL scope, vendor shall inform requirement of BHEL's motor at least one month in advance of Pump readiness, so that BHEL shall arrange motor at vendor's works within one month of such intimation. Time taken by BHEL in arranging motor at vendor's premises beyond one month of such intimation shall be considered for delay analysis.

Drawings submission shall be complete in all respects with revised drawing submitted incorporating all comments. Any incomplete drawing submitted shall be treated as non-submission with delays to bidder's account. For any clarification/ discussion required to complete the drawings, the bidder shall himself depute his personal to BHEL for across the table discussions/ finalizations/ submissions of drawings. Drawing submission schedules are to be adhered by the bidders and any delay in the same from bidder's end shall be deducted from delivery period indicated from document approval.

(c) Mandatory Spares: - Within Four (04) months from the date of BHEL clearance. Separate manufacturing clearance shall be given for mandatory spares.

(d) PG Test & Site activities (Installation checks & supervision of replacement of gland packing with mechanical seal): - Vendor to depute its service engineer for respective site activity within 15 days from BHEL's intimation (for deputing service engineer) for such site activity.

Liquidated Damages: - For 11(b), (c), (d) shall be as per cl. No. 16 of General commercial terms & conditions of GCC Rev 07, however, for Sl. No. 11(a), for delay in carrying out the Sump Model study beyond the scheduled completion, LD on Study portion shall be applicable @ ½ % of the total study portion contract value (excluding element of taxes) per week or part thereof, with applicable GST. However, total LD of 11a) to 11d) shall be (supply + site activities) shall be limited to 10% of cumulative total contract value excluding taxes and freight (study + supply + site activities).

The liquidated damages for shortfall in guaranteed KW during performance testing at manufacturer's works vis-à-vis quoted by vendor as per their guarantee schedules submitted as part of bid to BHEL shall be twice the bid evaluation rate specified in Datasheet A. For LD purpose, higher of the GPC quoted by the bidder or benchmark power shall be considered in line with complete cl no. 4.00.00 of Technical Specification Sec-IIA. This LD shall be over and above to the 10% of cumulative total contract value excluding taxes and freight (study + supply + site activities).

Following to be noted: -

- The end period specified is for completion of the deliveries. Deliveries to start progressively so as to meet the completion schedule.
- The delivery conditions specified are for contractual LD purposes, however BHEL may ask for early deliveries without any compensation thereof.

12. Payment Terms: -

- For Sump Model Study:** As per clause no. 9.5 of General Commercial Terms & Conditions of GCC Rev-07, i.e. 100% payment shall be released after successful completion of the Sump Model study, submission of Final report and its acceptance by BHEL PEM Engg.
- Main supply:** - As per clause no. 9.2 of General Commercial Terms & Conditions of GCC Rev-07.
- For Mandatory Spares:** - As per clause no. 9.1 of General Commercial Terms & Conditions of GCC Rev-07.
- For PG Test & Site activities (installation checks & replacement of gland packing):** -- As per clause no. 9.5 of General Commercial Terms & Conditions of GCC Rev-07.

13. BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of

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opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).

The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.

If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com)."

Link for RA guidelines to be followed as:

http://www.bhel.com/vender_registration/pdf/Guidelines%20for%20Reverse%20Auction-2016.pdf

IMPORTANT INSTRUCTION TO BIDDERS IN CASE OF REVERSE AUCTION

The Bidders has to quote the Single Price (i.e. **Total cost to BHEL excluding GST**) in Reverse Auction. Price are to be inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, Freight charges, Insurance charges (if applicable), Cost of withdrawal (if any), including loading (if any), De-loading (if any) shall be done in line with NIT terms

14. No CIF content is available for this package.
15. Bidder to note that this is a conditional Open Tender enquiry and the price bid (Part-II) opening/RA participation shall be subject to following condition:
 - A) Meeting of technical PQR, Techno-commercial qualification/recommendation of bidder by BHEL-PEM
 - B) Approval of bidder from End CustomerApproval of bidder shall be taken up by BHEL with End Customer based on credentials (as per end Customer MAHAGENCO format (copy enclosed)). Hence, bidders are requested to submit the credentials alongwith their offers.
16. The bidders (who are not registered with BHEL-PEM) -Online Registration Portal is operational in BHEL. Non-registered Vendors, who wish to apply for registration with BHEL-PEM, have to apply through Online Registration Portal available at www.bhelpem.com → vendor section → Online Supplier Registration. All credentials and/or documents duly signed and stamped related to registration has to be uploaded on the website and submit the application for registration. One set of hard copy of the filled-up SRF downloaded from Online Registration Portal duly signed and stamped has to be submitted'
17. **The Variation on overall package value due to changes in the scope shall be +/-10% of contract value which will prevail over the quantity variation % mentioned in clause no.6.0 indicated in the GCC rev 07.**
18. All Corrigenda, addenda, amendments, time extensions, clarifications etc. to the tender will be hosted on BHEL websites only (<https://bhel.abcpocure.com>) under subject tender reference. Bidders are requested to visit our

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websites from time to time to keep themselves updated. Bidders may go through the Sellers' manual & Help documents provided on E-Procurement Portal website & obtain required Digital Signature Certificate for participating in the subject Tender. For Bidders' convenience, the Helpdesk Nos. of E-Procurement Portal are also listed below:

Name	Contact Nos.	e-mail ID	Role	Location
Mukunthan	+91 6353215001	Trichy.bhel@eptl.in	Support Executive	Trichy
Tej Singh	+91 6353215002	Bhopal.bhel@eptl.in	Support Executive	Bhopal
Sanjeev Kumar	+91 6353215003	Jhansi.bhel@eptl.in	Support Executive	Jhansi
Gaurav Panwar	+91 6353215004	Haridwar.bhel@eptl.in	Support Executive	Haridwar
Mallikarjun	+91 6353215005	Bengaluru.bhel@eptl.in	Support Executive	Bangalore
Avinash Govu	+91 6353215007	Hyderabad.bhel@eptl.in	Support Executive	Hyderabad
Swapnil Hamilton	+91 7940270549	swapnil.h@eptl.in	Support Executive	HO – Ahmedabad
Hardik Oza	+91 7940270560	Hardik.oza@eptl.in	Support Executive	HO – Ahmedabad
Ankur Bhatt	+91 7940270590	ankur.bhatt@eptl.in	Support Executive	HO – Ahmedabad
Prashant Rajyaguru	+91 7940270545	prashant@eptl.in	Asst. Manager	HO – Ahmedabad
Dharam Rathod	+91 7940270596	dharam@eptl.in	Manager	HO – Ahmedabad
Pradip Parmar	+91 7940270532	pradip@eptl.in	Sr Mgr	HO – Ahmedabad
Devang Patel	+91 7940270576	devang@eptl.in	Sr Manager	HO – Ahmedabad

19. If any bidder uploads price bid in the unpriced section (techno-commercial attachment page) of the tender in e-procurement, in that case bidder(s) shall only be responsible for such mistake and any consequences thereof. Hence all bidders are requested to be more careful at the time of uploading the Unpriced and Price Bid for Part-I and Part-II respectively to avoid mismatch.
20. All the above Tender Documents shall automatically become a part of the Order/Contract after its finalisation.
21. **Evaluation** will be done on overall L1 (**Total cost to BHEL excluding GST**) basis, with necessary loading/de-loading as applicable.
22. Bidders are required to quote freight charges (in % of total Ex-Works Price) separately. Average Percentage of freight quoted by techno-commercially accepted bidders in subject tender shall be used to calculate freight factor at the time of reverse auction /price bid opening for evaluation purpose. (Bids with freight quoted as NIL/ Inclusive/NA shall be excluded in calculation of average freight).
23. The offers of the bidders who are on the banned list and also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL website <http://www.bhel.com>.
24. The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.
25. For this procurement, Public Procurement (preference to make in India), order 2017, Dt:- 15.07.17, 28.05.18 & 29.05.19 and subsequent orders issued by the respective nodal ministry shall be applicable even if issued after issue of this NIT but before finalization of contract/PO/WO against this NIT. In the event of any nodal ministry prescribing higher or lower percentage of purchase preference and / or local content in respect of this procurement, same shall be applicable. Vendors are requested to go through the above mentioned orders and confirm the following on their company letterhead:

"The local supplier at the time of tender, bidding, solicitation, shall be required to provide self-certification that the item offered meets the minimum local content as per above mentioned orders and shall give details of location(s) at which the local value addition is made."

Further, for implementation of make in India guidelines & circulars, please note the following:-

- i) Minimum Local content for this package is 100%.
- ii) Nature of Package is "Not divisible".

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- iii) Margin of Purchase Preference shall be 20%.
- iv) Procedure for preference to Make in India shall be as per clause No.-3-c of Public Procurement (preference to make in India), order 2017, Dt: - 15.07.17, 28.05.18, 29.05.19 & subsequent order/amendment if any.

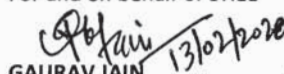
Note: -Bidders to submit **Certification regarding local content** as per format (Annexure-II of NIT) alongwith their offer.

- 26. Digital Signature: Bidders participating in subject tender will necessarily have to buy class III DSCs (Digital Signature Certificate) issued by the certifying authorities in India..
- 27. MSME/Start-up Vendors to submit applicable documents along with their offers for availing the benefits as per GOI guidelines. Further BHEL-PEM is already registered with RXIL(TReDS) Platform. Bidders are requested to get registered with RXIL(TReDS) Platform to avail the facility as per GOI guidelines"
- 28. Bidders to note Model Conciliation clause under BHEL conciliation Scheme, 2018 as available at BHEL PEM website at tender Section-Important instructions for Bidders.
- 29. Bidders to ensure that Third party/Customer issued certificates being submitted as proof of PQR qualification should have verifiable details of document/certificate issuing authority such as name & designation of issuing Authority, its organization contact number and E-mail Id etc. In case the same is found not available, Purchaser has the right to reject such document from evaluation.
- 30. Please note that during techno-commercial bid submission, detailed offers are to be submitted including the following along with the Price schedule as per BHEL format provided on E-Procurement portal: -
 - Acceptance of GCC, Rev.07.
 - Acceptance of Special Conditions of Contract (SCC Rev01).
 - Along with your offer, please submit a copy of this letter duly signed & stamped on each page as token of acceptance of all terms & instructions conveyed.
 - Technical & commercial deviations, if any alongwith cost of withdrawal-To be filled in a Deviation sheet (COST OF WITHDRAWAL) format provided in E-procurement portal in bidding form only.
 - Un-Priced price schedule (format) duly filled mentioning 'Quoted' or 'Q' in each column/row, wherein actual price has been quoted.
 - Technical PQR documents
 - Certification of Local Content as per format (Annexure-II of NIT)

Thanking You.

Yours faithfully,

For and on behalf of BHEL


GAURAV JAIN
(SR. MGR/PG-III/BHEL-PEM)

गौरव जैन / Gaurav Jain
ज्येष्ठ प्रबंधक (प्रियोजना प्रबन्धन) / Sr. Manager (Project Engineering)
भारत भारी बिजलीकरण लिमिटेड / Bharat Heavy Electricals Limited
पावर सेक्टर-प्रियोजना अंगण
Power Sector-Project Engineering
सीपीईआई भवन, एच आर डी अड्डा
प्लॉट नं. 25, सेक्टर-16, नोडा
Plot No. 25, Sec. 16

Enclosures:

- 1. Technical Specification No. PE-TS-415-100-N011-R0
- 2. SCC Rev 01 for 1 X 660 MW BHUSAWAL TPS UNIT-06
- 3. Bill of Quantities [Price schedule provided on E-Procurement portal after logging]
- 4. GCC Rev07 (available on www.bhelpe.com)
- 5. Technical PQR
- 6. Annexure-II for Certification regarding local content
- 7. Format for Vendor approval (of End Customer MAHAGENCO)

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Package : Misc. Pumps - Vertical



BILL OF QUANTITIES (FOR REFERENCE)

1x660 MW BHUSAWAL TPS U-6

SL. No.	DESCRIPTIONS OF WORKS OR EQUIPMENT	Unit	Qty
	Total price for design, manufacture, assembly, inspection and testing at manufacturer's and/or his sub-contractors works, proper packing for delivery and installation checks and replacement of gland packing with Mechanical Seal arrangement (if applicable) at site and PG Test at site for Miscellaneous Pumps along with mandatory spares complete with all accessories as per the requirements specified in this specification and also including Sump model study and any other services, etc. if called for elsewhere in the Technical specification (No: PE-TS-415-100-N001 Rev 00) for MISC PUMPS		
1.0	Pumps and Motor (Vertical Pumps):		
	(i) POTABLE WATER PUMPS (PLANT)		
	Pump price: including accessories (As applicable)	No's	2
	Motor price: including accessories (As applicable)	No's	2
	Mandatory Spares (as per Annexure -B)	Lot	1
	(ii) POTABLE WATER PUMPS (COLONY)		
	Pump price: including accessories (As applicable)	No's	2
	Motor price: including accessories (As applicable)	No's	2
	Mandatory Spares (as per Annexure -B)	Lot	1
	(iii) APH/ESP WASH PUMPS		
	Pump price: including accessories (As applicable)	No's	2
	Motor price: including accessories (As applicable)	No's	2
	Mandatory Spares (as per Annexure -B)	Lot	1
	(iv) SERVICE WATER PUMPS		
	Pump price: including accessories (As applicable)	No's	2
	Motor price: including accessories (As applicable)	No's	2
	Mandatory Spares (as per Annexure -B)	Lot	1
	(v) SCR PUMPS		
	Pump price: including accessories (As applicable)	No's	2
	Motor price: including accessories (As applicable)	No's	2
	Mandatory Spares (as per Annexure -B)	Lot	1
	(vi) CT MAKEUP PUMPS		
	Pump price: including accessories (As applicable)	No's	3
	Motor price: including accessories (As applicable)	No's	3
	Mandatory Spares (as per Annexure -B)	Lot	1
	(vii) AHP PUMPS		
	Pump price: including accessories (As applicable)	No's	2
	Motor price: including accessories (As applicable)	No's	2
	Mandatory Spares (as per Annexure -B)	Lot	1
	(viii) FGD PUMPS		
	Pump price: including accessories (As applicable)	No's	2
	Motor price: including accessories (As applicable)	No's	2
	Mandatory Spares (as per Annexure -B)	Lot	1
	(ix) INTAKE WATER BOOSTER PUMPS		
	Pump price: including accessories (As applicable)	No's	3
	Motor price: including accessories (As applicable)	No's	3
	Mandatory Spares (as per Annexure -B)	Lot	1
	(x) ASH WATER PUMPS		
	Pump price: including accessories (As applicable)	No's	2
	Motor price: including accessories (As applicable)	No's	2

		Mandatory Spares (as per Annexure -B)	Lot	1
	(xi)	RAW WATER PUMPS		
		Pump price: including accessories (As applicable)	No's	3
		Motor price: including accessories (As applicable)	No's	3
		Mandatory Spares (as per Annexure -B)	Lot	1
	(xii)	ACW PUMPS		
		Pump price: including accessories (As applicable)	No's	2
		Motor price:	BHEL'S SCOPE	
		Mandatory Spares (as per Annexure -B)	Lot	1
2.0		Cost of site visits for Installation Checks and replacement of Gland packing with Mechanical Seal (if applicable) as per technical specification/NIT)		
	a)	Charges per visit	Visit	9
	b)	Manday Charges	Days	27
3.0		PG Test at site	Lot	1
4.0		Sump Model Study for Raw water pump house and Clarified Water Pump House (Non DM)	Nos.	2
TOTAL (1.0+ 2.0 +3.0+4.0)				
NOTES:-				
	a)	Bidder to indicate cost of site visits for installation check & replacement of gland packing with Mechanical seal (as applicable), in their price in 2.0 above. Further additional site visit per day charges shall be as obtained prorata as 2.0 above.		
	b)	Unit price quoted by bidder, as above, shall be binding for any quantity variation, which is at the discretion of purchaser.		
	c)	Price of commissioning & erection spares, special Tools & tackle and other accessories not listed above shall be included in the price of pump & shall be supplied with the pump.		
	d)	Indicate all taxes, duties etc. stating whether included/ excluded in above prices.		
	e)	Please refer technical specification for details.		
	f)	Mandatory Spares Note: 1. Whenever the quantity is indicated as a percentage, it shall mean percentage of total population of that item in the station (project) unless specified otherwise, and the fraction will be rounded off to the next higher whole number. Wherever the requirement has been specified a 'set', it will include the total requirement of the item for a unit, module or the station or as specified. Where it is not specified, a 'set' would mean the requirement for the single equipment/system as the case may be. Also, the 'set' would include all components required to replace the item. 2. In case spares indicated in the list are not applicable to the particular design offered by the bidder, the bidder should offer spares applicable to offered design with quantities generally in line with the approach followed as above.		

C. P. Singh

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Package : Misc. Pumps - Vertical

BILL OF QUANTITIES

(ANNEXURE-B for MANDATORY SPARES)

MANDATORY SPARES FOR MISC PUMPS (VERTICAL) FOR 1 X 660 MW BHUSAWAL TPS UNIT-6

S. No.	ITEM DESCRIPTION	MANDATORY SPARES LIST	QTY
1.0	MANDATORY SPARES PRICES-PUMPS (VERTICAL)		
1.1	POTABLE WATER PUMPS (PLANT)	SPARES FOR PUMPS	
		1.1.1 Complete Bowl Assembly	1 Lot (One (1) Set for each type)
		1.1.2 Set of Impellers	1 Lot (One (1) Set for each type)
		1.1.3 Set of line & pump shafts	1 Lot (One (1) Set for each type)
		1.1.4 Casing wear rings	1 Lot (One (1) Set for each type)
		1.1.5 Impeller wear rings	1 Lot (One (1) Set for each type)
		1.1.6 Shaft sleeves	1 Lot (One (1) Set for each type)
		1.1.7 Shaft coupling	1 Lot (One (1) Set for each type)
		1.1.8 Shaft nuts and keys	1 Lot (Two (2) Sets for each type)
		1.1.9 Pins (for non-reversible ratchet) (as applicable)	1 Lot (Two (2) Sets for each type)
		1.1.10 Lantern rings	1 Lot (One (1) Set for each type)
		1.1.11 Bell mouth liner	1 Lot (One (1) Set for each type)
		1.1.12 Bearings Various types as applicable	1 Lot (Complete One (1) Set (one set means total requirements for one Pump) for each type)
		1.1.13 Coupling set (between pump and motor) with accessories	1 Lot (One (1) Set for each type)
		LT MOTOR SPARES	
		1.1.14 Terminal plates for motors for each rating	1 LOT (1 nos. For each type & rating of Motor)
		1.1.15 Heaters	1 LOT (1 set For each type & rating of Motor)
		1.1.16 Greasing arrangements	1 LOT (1 set For each type & rating of Motor)
		1.1.17 Motor of each type and rating	1 LOT (10% of the installed quantity or minimum 1 number whichever is higher)
		1.1.18 Bearings (DE and NDE)	1 LOT (1 set For each type & rating of Motor)
		1.1.19 End shield cover (driving and non driving end)	1 LOT (1 set For each type & rating of Motor)
		1.1.20 Cooling fan	1 LOT (1 set For each type & rating of Motor)
		1.1.21 Motor terminal block	1 LOT (1 set For each type & rating of Motor)
		1.1.22 Complete set of coupling	1 LOT (1 set For each type & rating of Motor)
		SPARES FOR PUMPS	
		1.2.1 Complete Bowl Assembly	1 Lot (One (1) Set for each type)
		1.2.2 Set of Impellers	1 Lot (One (1) Set for each type)

S. No.	ITEM DESCRIPTION		MANDATORY SPARES LIST	QTY
1.2	POTABLE WATER PUMPS (COLONY)	1.2.3	Set of line & pump shafts	1 Lot (One (1) Set for each type)
		1.2.4	Casing wear rings	1 Lot (One (1) Set for each type)
		1.2.5	Impeller wear rings	1 Lot (One (1) Set for each type)
		1.2.6	Shaft sleeves	1 Lot (One (1) Set for each type)
		1.2.7	Shaft coupling	1 Lot (One (1) Set for each type)
		1.2.8	Shaft nuts and keys	1 Lot (Two (2) Sets for each type)
		1.2.9	Pins (for non-reversible ratchet) (as applicable)	1 Lot (Two (2) Sets for each type)
		1.2.10	Lantern rings	1 Lot (One (1) Set for each type)
		1.2.11	Bell mouth liner	1 Lot (One (1) Set for each type)
		1.2.12	Bearings Various types as applicable	1 Lot (Complete One (1) Set (one set means total requirements for one Pump) for each type)
		1.2.13	Coupling set (between pump and motor) with accessories	1 Lot (One (1) Set for each type)
			LT MOTOR SPARES	
		1.2.14	Terminal plates for motors for each rating	1 LOT (1 nos. For each type & rating of Motor)
		1.2.15	Heaters	1 LOT (1 set For each type & rating of Motor)
		1.2.16	Greasing arrangements	1 LOT (1 set For each type & rating of Motor)
		1.2.17	Motor of each type and rating	1 LOT (10% of the installed quantity or minimum 1 number whichever is higher)
		1.2.18	Bearings (DE and NDE)	1 LOT (1 set For each type & rating of Motor)
		1.2.19	End shield cover (driving and non driving end)	1 LOT (1 set For each type & rating of Motor)
		1.2.20	Cooling fan	1 LOT (1 set For each type & rating of Motor)
		1.2.21	Motor terminal block	1 LOT (1 set For each type & rating of Motor)
		1.2.22	Complete set of coupling	1 LOT (1 set For each type & rating of Motor)
			SPARES FOR PUMPS	
		1.3.1	Complete Bowl Assembly	1 Lot (One (1) Set for each type)
		1.3.2	Set of Impellers	1 Lot (One (1) Set for each type)
		1.3.3	Set of line & pump shafts	1 Lot (One (1) Set for each type)
		1.3.4	Casing wear rings	1 Lot (One (1) Set for each type)
		1.3.5	Impeller wear rings	1 Lot (One (1) Set for each type)
		1.3.6	Shaft sleeves	1 Lot (One (1) Set for each type)
		1.3.7	Shaft coupling	1 Lot (One (1) Set for each type)
		1.3.8	Shaft nuts and keys	1 Lot (Two (2) Sets for each type)

S. No.	ITEM DESCRIPTION		MANDATORY SPARES LIST	QTY
1.3	APH/ESP WASH PUMPS	1.3.9	Pins (for non-reversible ratchet) (as applicable)	1 Lot (Two (2) Sets for each type)
		1.3.10	Lantern rings	1 Lot (One (1) Set for each type)
		1.3.11	Bell mouth liner	1 Lot (One (1) Set for each type)
		1.3.12	Bearings Various types as applicable	1 Lot (Complete One (1) Set (one set means total requirements for one Pump) for each type)
		1.3.13	Coupling set (between pump and motor) with accessories	1 Lot (One (1) Set for each type)
			LT MOTOR SPARES	
		1.3.14	Terminal plates for motors for each rating	1 LOT (1 nos. For each type & rating of Motor)
		1.3.15	Heaters	1 LOT (1 set For each type & rating of Motor)
		1.3.16	Greasing arrangements	1 LOT (1 set For each type & rating of Motor)
		1.3.17	Motor of each type and rating	1 LOT (10% of the installed quantity or minimum 1 number whichever is higher)
		1.3.18	Bearings (DE and NDE)	1 LOT (1 set For each type & rating of Motor)
		1.3.19	End shield cover (driving and non driving end)	1 LOT (1 set For each type & rating of Motor)
		1.3.20	Cooling fan	1 LOT (1 set For each type & rating of Motor)
		1.3.21	Motor terminal block	1 LOT (1 set For each type & rating of Motor)
		1.3.22	Complete set of coupling	1 LOT (1 set For each type & rating of Motor)
			SPARES FOR PUMPS	
		1.4.1	Complete Bowl Assembly	1 Lot (One (1) Set for each type)
		1.4.2	Set of Impellers	1 Lot (One (1) Set for each type)
		1.4.3	Set of line & pump shafts	1 Lot (One (1) Set for each type)
		1.4.4	Casing wear rings	1 Lot (One (1) Set for each type)
		1.4.5	Impeller wear rings	1 Lot (One (1) Set for each type)
		1.4.6	Shaft sleeves	1 Lot (One (1) Set for each type)
		1.4.7	Shaft coupling	1 Lot (One (1) Set for each type)
		1.4.8	Shaft nuts and keys	1 Lot (Two (2) Sets for each type)
		1.4.9	Pins (for non-reversible ratchet) (as applicable)	1 Lot (Two (2) Sets for each type)
		1.4.10	Lantern rings	1 Lot (One (1) Set for each type)
		1.4.11	Bell mouth liner	1 Lot (One (1) Set for each type)
		1.4.12	Bearings Various types as applicable	1 Lot (Complete One (1) Set (one set means total requirements for one Pump) for each type)

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S. No.	ITEM DESCRIPTION		MANDATORY SPARES LIST	QTY
1.4	SERVICE WATER PUMPS	1.4.13	Coupling set (between pump and motor) with accessories	1 Lot (One (1) Set for each type)
			LT MOTOR SPARES	
		1.4.14	Terminal plates for motors for each rating	1 LOT (1 nos. For each type & rating of Motor)
		1.4.15	Heaters	1 LOT (1 set For each type & rating of Motor)
		1.4.16	Greasing arrangements	1 LOT (1 set For each type & rating of Motor)
		1.4.17	Motor of each type and rating	1 LOT (10% of the installed quantity or minimum 1 number whichever is higher)
		1.4.18	Bearings (DE and NDE)	1 LOT (1 set For each type & rating of Motor)
		1.4.19	End shield cover (driving and non driving end)	1 LOT (1 set For each type & rating of Motor)
		1.4.20	Cooling fan	1 LOT (1 set For each type & rating of Motor)
		1.4.21	Motor terminal block	1 LOT (1 set For each type & rating of Motor)
		1.4.22	Complete set of coupling	1 LOT (1 set For each type & rating of Motor)
1.5	SCR PUMPS		SPARES FOR PUMPS	
		1.5.1	Complete Bowl Assembly	1 Lot (One (1) Set for each type)
		1.5.2	Set of Impellers	1 Lot (One (1) Set for each type)
		1.5.3	Set of line & pump shafts	1 Lot (One (1) Set for each type)
		1.5.4	Casing wear rings	1 Lot (One (1) Set for each type)
		1.5.5	Impeller wear rings	1 Lot (One (1) Set for each type)
		1.5.6	Shaft sleeves	1 Lot (One (1) Set for each type)
		1.5.7	Shaft coupling	1 Lot (One (1) Set for each type)
		1.5.8	Shaft nuts and keys	1 Lot (Two (2) Sets for each type)
		1.5.9	Pins (for non-reversible ratchet) (as applicable)	1 Lot (Two (2) Sets for each type)
		1.5.10	Lantern rings	1 Lot (One (1) Set for each type)
		1.5.11	Bell mouth liner	1 Lot (One (1) Set for each type)
		1.5.12	Bearings Various types as applicable	1 Lot (Complete One (1) Set (one set means total requirements for one Pump) for each type)
		1.5.13	Coupling set (between pump and motor) with accessories	1 Lot (One (1) Set for each type)
			LT MOTOR SPARES	
		1.5.14	Terminal plates for motors for each rating	1 LOT (1 nos. For each type & rating of Motor)
		1.5.15	Heaters	1 LOT (1 set For each type & rating of Motor)
		1.5.16	Greasing arrangements	1 LOT (1 set For each type & rating of Motor)

S. No.	ITEM DESCRIPTION		MANDATORY SPARES LIST	QTY
		1.5.17	Motor of each type and rating	1 LOT (10% of the installed quantity or minimum 1 number whichever is higher)
		1.5.18	Bearings (DE and NDE)	1 LOT (1 set For each type & rating of Motor)
		1.5.19	End shield cover (driving and non driving end)	1 LOT (1 set For each type & rating of Motor)
		1.5.20	Cooling fan	1 LOT (1 set For each type & rating of Motor)
		1.5.21	Motor terminal block	1 LOT (1 set For each type & rating of Motor)
		1.5.22	Complete set of coupling	1 LOT (1 set For each type & rating of Motor)
			SPARES FOR PUMPS	
		1.6.1	Complete Bowl Assembly	1 Lot (One (1) Set for each type)
		1.6.2	Set of Impellers	1 Lot (One (1) Set for each type)
		1.6.3	Set of line & pump shafts	1 Lot (One (1) Set for each type)
		1.6.4	Casing wear rings	1 Lot (One (1) Set for each type)
		1.6.5	Impeller wear rings	1 Lot (One (1) Set for each type)
		1.6.6	Shaft sleeves	1 Lot (One (1) Set for each type)
		1.6.7	Shaft coupling	1 Lot (One (1) Set for each type)
		1.6.8	Shaft nuts and keys	1 Lot (Two (2) Sets for each type)
		1.6.9	Pins (for non-reversible ratchet) (as applicable)	1 Lot (Two (2) Sets for each type)
		1.6.10	Lantern rings	1 Lot (One (1) Set for each type)
		1.6.11	Bell mouth liner	1 Lot (One (1) Set for each type)
		1.6.12	Bearings Various types as applicable	1 Lot (Complete One (1) Set (one set means total requirements for one Pump) for each type)
		1.6.13	Coupling set (between pump and motor) with accessories	1 Lot (One (1) Set for each type)
			LT MOTOR SPARES	
		1.6.14	Terminal plates for motors for each rating	1 LOT (1 nos. For each type & rating of Motor)
		1.6.15	Heaters	1 LOT (1 set For each type & rating of Motor)
		1.6.16	Greasing arrangements	1 LOT (1 set For each type & rating of Motor)
		1.6.17	Motor of each type and rating	1 LOT (10% of the installed quantity or minimum 1 number whichever is higher)
		1.6.18	Bearings (DE and NDE)	1 LOT (1 set For each type & rating of Motor)
		1.6.19	End shield cover (driving and non driving end)	1 LOT (1 set For each type & rating of Motor)
1.6	CT MAKEUP PUMPS			

S. No.	ITEM DESCRIPTION		MANDATORY SPARES LIST	QTY
		1.6.20	Cooling fan	1 LOT (1 set For each type & rating of Motor)
		1.6.21	Motor terminal block	1 LOT (1 set For each type & rating of Motor)
		1.6.22	Complete set of coupling	1 LOT (1 set For each type & rating of Motor)
			SPARES FOR PUMPS	
		1.7.1	Complete Bowl Assembly	1 Lot (One (1) Set for each type)
		1.7.2	Set of Impellers	1 Lot (One (1) Set for each type)
		1.7.3	Set of line & pump shafts	1 Lot (One (1) Set for each type)
		1.7.4	Casing wear rings	1 Lot (One (1) Set for each type)
		1.7.5	Impeller wear rings	1 Lot (One (1) Set for each type)
		1.7.6	Shaft sleeves	1 Lot (One (1) Set for each type)
		1.7.7	Shaft coupling	1 Lot (One (1) Set for each type)
		1.7.8	Shaft nuts and keys	1 Lot (Two (2) Sets for each type)
		1.7.9	Pins (for non-reversible ratchet) (as applicable)	1 Lot (Two (2) Sets for each type)
		1.7.10	Lantern rings	1 Lot (One (1) Set for each type)
		1.7.11	Bell mouth liner	1 Lot (One (1) Set for each type)
		1.7.12	Bearings Various types as applicable	1 Lot (Complete One (1) Set (one set means total requirements for one Pump) for each type)
		1.7.13	Coupling set (between pump and motor) with accessories	1 Lot (One (1) Set for each type)
			LT MOTOR SPARES	
1.7	AHP PUMPS	1.7.14	Terminal plates for motors for each rating	1 LOT (1 nos. For each type & rating of Motor)
		1.7.15	Heaters	1 LOT (1 set For each type & rating of Motor)
		1.7.16	Greasing arrangements	1 LOT (1 set For each type & rating of Motor)
		1.7.17	Motor of each type and rating	1 LOT (10% of the installed quantity or minimum 1 number whichever is higher)
		1.7.18	Bearings (DE and NDE)	1 LOT (1 set For each type & rating of Motor)
		1.7.19	End shield cover (driving and non driving end)	1 LOT (1 set For each type & rating of Motor)
		1.7.20	Cooling fan	1 LOT (1 set For each type & rating of Motor)
		1.7.21	Motor terminal block	1 LOT (1 set For each type & rating of Motor)
		1.7.22	Complete set of coupling	1 LOT (1 set For each type & rating of Motor)

S. No.	ITEM DESCRIPTION	MANDATORY SPARES LIST	QTY
1.8	FGD PUMPS	SPARES FOR PUMPS	
		1.8.1 Complete Bowl Assembly	1 Lot (One (1) Set for each type)
		1.8.2 Set of Impellers	1 Lot (One (1) Set for each type)
		1.8.3 Set of line & pump shafts	1 Lot (One (1) Set for each type)
		1.8.4 Casing wear rings	1 Lot (One (1) Set for each type)
		1.8.5 Impeller wear rings	1 Lot (One (1) Set for each type)
		1.8.6 Shaft sleeves	1 Lot (One (1) Set for each type)
		1.8.7 Shaft coupling	1 Lot (One (1) Set for each type)
		1.8.8 Shaft nuts and keys	1 Lot (Two (2) Sets for each type)
		1.8.9 Pins (for non-reversible ratchet) (as applicable)	1 Lot (Two (2) Sets for each type)
		1.8.10 Lantern rings	1 Lot (One (1) Set for each type)
		1.8.11 Bell mouth liner	1 Lot (One (1) Set for each type)
		1.8.12 Bearings Various types as applicable	1 Lot (Complete One (1) Set (one set means total requirements for one Pump) for each type)
		1.8.13 Coupling set (between pump and motor) with accessories	1 Lot (One (1) Set for each type)
		LT MOTOR SPARES	
		1.8.14 Terminal plates for motors for each rating	1 LOT (1 nos. For each type & rating of Motor)
		1.8.15 Heaters	1 LOT (1 set For each type & rating of Motor)
		1.8.16 Greasing arrangements	1 LOT (1 set For each type & rating of Motor)
		1.8.17 Motor of each type and rating	1 LOT (10% of the installed quantity or minimum 1 number whichever is higher)
		1.8.18 Bearings (DE and NDE)	1 LOT (1 set For each type & rating of Motor)
		1.8.19 End shield cover (driving and non driving end)	1 LOT (1 set For each type & rating of Motor)
		1.8.20 Cooling fan	1 LOT (1 set For each type & rating of Motor)
		1.8.21 Motor terminal block	1 LOT (1 set For each type & rating of Motor)
		1.8.22 Complete set of coupling	1 LOT (1 set For each type & rating of Motor)
		SPARES FOR PUMPS	
		1.9.1 Complete Bowl Assembly	1 Lot (One (1) Set for each type)
		1.9.2 Set of Impellers	1 Lot (One (1) Set for each type)
		1.9.3 Set of line & pump shafts	1 Lot (One (1) Set for each type)
		1.9.4 Casing wear rings	1 Lot (One (1) Set for each type)
		1.9.5 Impeller wear rings	1 Lot (One (1) Set for each type)

S. No.	ITEM DESCRIPTION		MANDATORY SPARES LIST	QTY
1.9	INTAKE WATER BOOSTER PUMPS	1.9.6	Shaft sleeves	1 Lot (One (1) Set for each type)
		1.9.7	Shaft coupling	1 Lot (One (1) Set for each type)
		1.9.8	Shaft nuts and keys	1 Lot (Two (2) Sets for each type)
		1.9.9	Pins (for non-reversible ratchet) (as applicable)	1 Lot (Two (2) Sets for each type)
		1.9.10	Lantern rings	1 Lot (One (1) Set for each type)
		1.9.11	Bell mouth liner	1 Lot (One (1) Set for each type)
		1.9.12	Bearings Various types as applicable	1 Lot (Complete One (1) Set (one set means total requirements for one Pump) for each type)
		1.9.13	Coupling set (between pump and motor) with accessories	1 Lot (One (1) Set for each type)
			LT MOTOR SPARES	
		1.9.14	Terminal plates for motors for each rating	1 LOT (1 nos. For each type & rating of Motor)
		1.9.15	Heaters	1 LOT (1 set For each type & rating of Motor)
		1.9.16	Greasing arrangements	1 LOT (1 set For each type & rating of Motor)
		1.9.17	Motor of each type and rating	1 LOT (10% of the installed quantity or minimum 1 number whichever is higher)
		1.9.18	Bearings (DE and NDE)	1 LOT (1 set For each type & rating of Motor)
		1.9.19	End shield cover (driving and non driving end)	1 LOT (1 set For each type & rating of Motor)
		1.9.20	Cooling fan	1 LOT (1 set For each type & rating of Motor)
		1.9.21	Motor terminal block	1 LOT (1 set For each type & rating of Motor)
		1.9.22	Complete set of coupling	1 LOT (1 set For each type & rating of Motor)
			SPARES FOR PUMPS	
		1.10.1	Complete Bowl Assembly	1 Lot (One (1) Set for each type)
		1.10.2	Set of Impellers	1 Lot (One (1) Set for each type)
		1.10.3	Set of line & pump shafts	1 Lot (One (1) Set for each type)
		1.10.4	Casing wear rings	1 Lot (One (1) Set for each type)
		1.10.5	Impeller wear rings	1 Lot (One (1) Set for each type)
		1.10.6	Shaft sleeves	1 Lot (One (1) Set for each type)
		1.10.7	Shaft coupling	1 Lot (One (1) Set for each type)
		1.10.8	Shaft nuts and keys	1 Lot (Two (2) Sets for each type)
		1.10.9	Pins (for non-reversible ratchet) (as applicable)	1 Lot (Two (2) Sets for each type)
		1.10.10	Lantern rings	1 Lot (One (1) Set for each type)

S. No.	ITEM DESCRIPTION		MANDATORY SPARES LIST	QTY
1.10	ASH WATER PUMPS	1.10.11	Bell mouth liner	1 Lot (One (1) Set for each type)
		1.10.12	Bearings Various types as applicable	1 Lot (Complete One (1) Set (one set means total requirements for one Pump) for each type)
		1.10.13	Coupling set (between pump and motor) with accessories	1 Lot (One (1) Set for each type)
			LT MOTOR SPARES	
		1.10.14	Terminal plates for motors for each rating	1 LOT (1 nos. For each type & rating of Motor)
		1.10.15	Heaters	1 LOT (1 set For each type & rating of Motor)
		1.10.16	Greasing arrangements	1 LOT (1 set For each type & rating of Motor)
		1.10.17	Motor of each type and rating	1 LOT (10% of the installed quantity or minimum 1 number whichever is higher)
		1.10.18	Bearings (DE and NDE)	1 LOT (1 set For each type & rating of Motor)
		1.10.19	End shield cover (driving and non driving end)	1 LOT (1 set For each type & rating of Motor)
		1.10.20	Cooling fan	1 LOT (1 set For each type & rating of Motor)
		1.10.21	Motor terminal block	1 LOT (1 set For each type & rating of Motor)
		1.10.22	Complete set of coupling	1 LOT (1 set For each type & rating of Motor)
1.11	RAW WATER PUMPS		SPARES FOR PUMPS	
		1.11.1	Complete Bowl Assembly	1 Lot (One (1) Set for each type)
		1.11.2	Set of Impellers	1 Lot (One (1) Set for each type)
		1.11.3	Set of line & pump shafts	1 Lot (One (1) Set for each type)
		1.11.4	Casing wear rings	1 Lot (One (1) Set for each type)
		1.11.5	Impeller wear rings	1 Lot (One (1) Set for each type)
		1.11.6	Shaft sleeves	1 Lot (One (1) Set for each type)
		1.11.7	Shaft coupling	1 Lot (One (1) Set for each type)
		1.11.8	Shaft nuts and keys	1 Lot (Two (2) Sets for each type)
		1.11.9	Pins (for non-reversible ratchet) (as applicable)	1 Lot (Two (2) Sets for each type)
		1.11.10	Lantern rings	1 Lot (One (1) Set for each type)
		1.11.11	Bell mouth liner	1 Lot (One (1) Set for each type)
		1.11.12	Bearings Various types as applicable	1 Lot (Complete One (1) Set (one set means total requirements for one Pump) for each type)
		1.11.13	Coupling set (between pump and motor) with accessories	1 Lot (One (1) Set for each type)
			LT MOTOR SPARES	

S. No.	ITEM DESCRIPTION		MANDATORY SPARES LIST	QTY
1.11	PUMPS	1.11.14	Terminal plates for motors for each rating	1 LOT (1 nos. For each type & rating of Motor)
		1.11.15	Heaters	1 LOT (1 set For each type & rating of Motor)
		1.11.16	Greasing arrangements	1 LOT (1 set For each type & rating of Motor)
		1.11.17	Motor of each type and rating	1 LOT (10% of the installed quantity or minimum 1 number whichever is higher)
		1.11.18	Bearings (DE and NDE)	1 LOT (1 set For each type & rating of Motor)
		1.11.19	End shield cover (driving and non driving end)	1 LOT (1 set For each type & rating of Motor)
		1.11.20	Cooling fan	1 LOT (1 set For each type & rating of Motor)
		1.11.21	Motor terminal block	1 LOT (1 set For each type & rating of Motor)
		1.11.22	Complete set of coupling	1 LOT (1 set For each type & rating of Motor)
1.12	ACW PUMPS		SPARES FOR PUMPS	
		1.12.1	Set of Impellers	1 set (as required for one pump)
		1.12.2	Set of line & pump shafts	1 set (as required for one pump)
		1.12.3	Casing wear rings	1 set (as required for one pump)
		1.12.4	Impeller wear rings	1 set (as required for one pump)
		1.12.5	Shaft sleeves	1 set (as required for one pump)
		1.12.6	Bearings Various types as applicable	1 set (as required for one pump)
		1.12.7	Gaskets, dust seals and 'O' ring etc.	2 sets (as required for one pump)
		1.12.8	Nut and bolts etc	1 set (as required for one pump)
			C&I SPARES	
		1.12.9	RTDs of each type & length	10% or 2 nos. whichever is more
		1.12.10	Thermowell for T/C & RTDs	10% or 1 no. of each type, rating, length used in the system whichever is more

