



PRAGATI POWER CORPORATION LTD.
(A Government of NCT of Delhi Undertaking)

**C&M Department,
Pragati Power Station,
IP Estate, Ring Road,
New Delhi-110002
Fax: 011-23379164**

Vendor Code:100490

Company
TRIVENI ENGINEERING & INDUSTRIES LTD.
A-44, Hosiery Complex,
Phase-II Extension,
(India)
201305 NOIDA
INDIA
Tel No. 0821-4286506
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Purchase Order No.: 4020002767

PO Date: 10.06.2015

Subject:ANNUAL CONTRACT FOR OPERATION OF WATER TREATMENT PLANT AND LAB ANALYSIS WORK AT PPS-III, BAWANA.

LOI No CM/CS-II/PPS-III/1000006336/15-16/755 dt 08.06.2015

Our Enquiry No.: 1000006336

Your Offer No.:

Dear Sir,

We are pleased to accept your above cited offer along with correspondences thereof and place our Work Order No. 4020002767 dated 10.06.2015. Please arrange to execute the work as detailed in Annexure subject to terms and conditions specified in Annexure- 3 .

Duplicate copy of the Work Order may please be signed and returned back to us within 10 days of its receipt in token of acceptance of the same.

All other terms and conditions shall be as per our NIT.

Thanking You,

Yours faithfully,

V.Kumar
DGM(C&M)

Copy To:
DM(F) RPH Complex.

ANNEXURE - 1

Paying Authority: AM (Fin) Works. Rajghat Power House, Rajghat, New Delhi - 110002. Phone No. 011-23274396								
S.No.	Service Code	Description	Qty	UOM	Unit Rate	Discount%	Net Price	Total Amount
10		Contract for Operation of WTP at PPS,Baw	1.000	AU				9,949,999.96
Tax: SERVICE TAX @ 14% EXTRA								
10 .10	CH2200101 2C	OPERATION OF UF-RO-DM PLANT	12.000	MON	125,000.00	0.50	124,375.00	1492500.00
10 .20	CH2200101 3C	OPERATION OF PRETREATMENT PLANT& CHEMICA	12.000	MON	125,000.00	0.50	124,375.00	1492500.00
10 .30	CH2200101 4C	OPERATION OF EFFLUENT TREATMENT PLANT& C	12.000	MON	41,666.67	0.50	41,458.34	497500.04
10 .40	CH2200101 5C	OPERATION OF SEWAGE TREATMENT PLANT	12.000	MON	41,666.67	0.50	41,458.34	497500.04
10 .50	CH2200101 6C	OPERATION OF CHLORINATION PLANT	12.000	MON	33,333.33	0.50	33,166.66	397999.96
10 .60	CH2200101 7C	OPERATION OF C.W. TREATMENT PLANT& SIDE	12.000	MON	66,666.67	0.50	66,333.34	796000.04
10 .70	CH2200101 8C	OPERATION OF CHLORINE DI-OXIDE PLANT	12.000	MON	50,000.00	0.50	49,750.00	597000.00
10 .80	CH2200100 5C	Chemical Handling of WTP & House Keeping	12.000	MON	100,000.00	0.50	99,500.00	1194000.00
10 .90	CH2200100 6C	Operation of SWAS Lab.	12.000	MON	83,333.33	0.50	82,916.66	994999.96
10 .100	CH2200100 7C	Analysis work of Chemical Lab.	12.000	MON	83,333.33	0.50	82,916.66	994999.96
10 .110	CH2200101 9C	TO PROVIDE PPE & MISCELENEOUS FOR WTP C	12.000	MON	83,333.33	0.50	82,916.66	994999.96

Total Amount

INR 9,949,999.96

ANNEXURE - 2

PRAGATI POWER CORPORATION LTD.
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TECHNICAL DATA SHEET

S.No.	Service Code	Specification
10		Contract for Operation of WTP at PPS,Baw
10.10	CH22001012C	Operation of UF RODM plant
10.20	CH22001013C	Operation of Pretreatment Plant including chemical house.
10.30	CH22001014C	Operation of Effluent Treatment Plant including CMB.
10.40	CH22001015C	Operation of Sewage treatment Plant
10.50	CH22001016C	Operation of Chlorination Plant.
10.60	CH22001017C	Operation of C.W.Treatment Plant along with Side Stream Filtration.
10.70	CH22001018C	Operation of Chlorine Di-Oxide Plant
10.80	CH22001005C	Chemical Handling of WTP & House Keeping
10.90	CH22001006C	Monitoring of dry & wet SWAS panel and associated Analysis .
10.100	CH22001007C	Chemical Analysis and its Reports. Calibration of Instruments
10.110	CH22001019C	For consumables ,Uniforms & personal protective equipments to be provided by contractor

ANNEXURE - 3Terms and Conditions

1 .	Total Value	INR 9,949,999.96
2 .	Discount Value	INR 0.00
3 .	Order Value	INR 9,949,999.96
4 .	Payment Terms	Payment on monthly basis. The monthly bill shall be raised by contractor only after payment to the technician/workers deployed at PPCL in office of DGM(Chem) PPS-III bawana
5 .	Bank Charges	not applicable
6 .	Service Period	W.e.f 11.06.2015 Contract valid for one year.
7 .	Warranty / Guarantee	Not applicable.
8 .	PBG	Not applicable.
9 .	Recovery for Delay in Completion	. In the event of non execution of work >> PENALTY CLAUSE<< applicabe is as follows: a) In case of non-performance of any assigned work including House - keeping, a deduction shall be made@ limited to 5% of the contract value of that day. b) In case of non compliance with the safety measures(non-availability/use of PPE) a deduction shall be made @limited to 5% of the contract value of that day. c). Contractor has to provide atleast one Supervisor per shift & one Site -Incharge in day time, failing which a penalty limited to @ Rs.500/supervisor will be imposed. d).The wages to be disbursed by 10th of every month, failure of which will attract penalty @ 2% of the monthly RA bill. e). The contractor shall ensure compliance of all statutory and mandatory requirements of labour law.
10 .	Safety measures	Contractor shall ensure that safety rules are observed (as per NIT safety clause) to avoid any accident which may cause loss of life to contractor's or IPGCL/PPCL staff and damage to IPGCL/PPCL property. In case of violation of these safety instructions, safety codes and applicable Act & Rules, which are necessary to ensure safety of men, material, environment and equipment, or contractor's willful failure to comply with the instructions of Engineer in charge/Safety Engineer; IPGCL/PPCL shall impose a penalty @ 1% or Rs.500/-(Rs Five Hundred only) whichever is less for each instance of non-compliance subject to maximum 5% of the total contract value. IPGCL may provide the safety equipment to the contractor's employees at his request and the cost of which will be recovered from the contractor's bill.
11 .	Security Deposit	You are requested to deposit INR 298,500.00 as security deposit within 10 days in this office. The EMD submitted by you against this tender, if any, shall be adjusted towards security and balance amount is to be submitted. No interest will be paid on this amount and the same shall be released after satisfactory execution of order.
12 .	Contract Agreement	You have to execute a contract agreement within 10 days of receipt of this work order on non-judicial stamp paper of Rs. 100/- in accordance with the contract specification failing which contract is liable for rejection and earnest money deposited by you shall be forfeited.
13 .	Indemnity Bond	Indemnity Bond is to be executed to keep IPGCL/PPCL indemnified against any/all damages/loss caused by any employee of the contractor to life and property of IPGCL, as per NIT.
14 .	Others	1. The contractor shall keep one capable site in charge / supervisor round the clock for technical and administrative supervision of the works and manpower deployed under the contract. He shall also be

		<p>required to coordinate with PPCL Authorities on day to day basis for proper execution of work. He should be capable for looking after the safety of equipment, person working and nature of work handled, completing work in time .</p>
15 .	Scope of Work	<p>(1)OPERATION OF PRE TREATMENT PLANT AT PPCL-III,BAWANA</p> <p>**Suggestive Manpower :Skilled--3 nos. Semiskilled--3 nos.</p> <p>SCOPE OF WORK:</p> <p>i) Area covered under pre-treatment Plant is as follows: FROM AERATOR, STILLING CHAMBER, FLASH MIXERS, CLARIFIERS AND CHEMICAL HOUSE WITH A CONTROL ROOM AT CHEMICAL HOUSE.</p> <p>ii) OPERATION:-</p> <ol style="list-style-type: none"> 1. The scope of work includes complete operation of all the plants as above round the clock basis throughout the contract period. 2. The contractor will depute skilled & experienced staff capable of operation of the plants covered in this contract. 3. The contractor has to ensure round the clock monitoring of plant & equipments covered in the battery limit of the above plant 4. The Contractor shall be responsible for routine analysis to be carried out for proper operation & water chemistry of all the plants. 5. The staff provided shall coordinate & maintain the Raw water.Requirement with the operator of R.W. Pump House. 6.To monitor and recording the dosage conc. of Chlorine Dioxide at the stilling chamber. Coordinating and communicating with the operator at the Chlorine di-oxide plant. 7. To monitor, ensure and maintain the chemical dosing concentration through pumps for various chemicals namely: : Lime : Alum : Poly electrolyte : PAC : Ferric Chloride Solutions of these chemicals are to be prepared in their respective tanks and dosed through pumps. 8. The contractor will requisition chemicals one day before the requirement based on daily consumption and also ensure for charging various chemicals. The work should not be hampered due to non communication amongst the agencies. 9. Looking after all the auxiliaries at different sites of PTP and reporting defects if any; time to time to the supervisor. 10.Contractor will ensure de- sludging of clarifiers/ thickeners to be done and reported from time to time in the shift. 11. Contactor will carry out transfer of sludge from sludge Pit to thickeners & maintain the level of sludge Pit and upkeep of pumps. 12. The contractor will be responsible for maintaining the level of clarified water storage tank judiciously as per requirement . 13. In-house testing of raw water/clarified water and recording it in log books. 14. Maintaining log books for various plant activities /testing as recommended by the Contract operating authority. <p>(2) OPERATION OF U.F. R.O.D.M. PLANT</p> <p>**SUGGESTIVE MANPOWER:Supervisor-1 no; Skilled-3 nos; Semiskilled-3 nos.</p>

i) Scope of work :-

The coverage of area under this plant is as follows:-

STRAINERS; BIOREACTOR; MEMBRANE TANK; ULTRA FILTRATION TANK.

SOFTNERS; DEGASSERS; MIX-BEDS; R.O.#I & R.O.#II ;PERMEATE TANKS

D.M.TANKS; U.F. CLEANING SYSTEM; R.O. CLEANING SYSTEM; SOFTNER REGENERATION SYSTEM; MIX-BED REGN. SYSTEM. BULK STORAGE TANKS

FOR ACID, ALKALI, BRINE; NEUTRA PIT ; WASTE PIT; BRINE DISPOSAL PIT AND PERIPHERALS

ii) OPERATION

1. RODM Plant is fully P.L.C. based for which personnels provided should have sufficient acumen to operate.

2. The scope of work includes complete operation of the plant as above round the clock basis throughout the contract period.

The Operating Work Station located in main control room should be manned by personnel with adequate expertise & experience.

3. Besides plant operation, the personnel at RODM is also responsible for onsite testing of water quality to achieve required parameters as envisaged at various stages in the process routinely and logging it in the log books.

4. To maintain log books for recording various stages of operation and monitoring of the plant.

5. Round the clock continuous monitoring of the plant and equipments covered in the battery limits of above plant.

6. Operator has to monitor on-line analyzers located at various plant sites as well as cross check it manually from time to time.

7. Operation also includes ensuring availability of required chemicals well in advance and communication of requisition if any should be made well in advance to the concerned authority.

8. Contractor will be responsible for general cleaning of all equipments covered under this plant, besides panel boards.

9. Contractor will be responsible for maintaining all necessary documentation and records such as log sheets, weekly, monthly, performance reports, consumption reports etc.

10. The Contractor shall arrange to provide basic tools/gadgets as required for day to day operation of plant.

11. Dosing of chemicals such as SMBS; ACID ;ANTI-SCALANT etc. has to be carried out based on lab analysis.

12. The Cleaning in place (C.I.P.) arrangement is provided for cleaning of STRAINERS/R.O./TMBR using Citric acid & sodium #hypo chlorite as scheduled.

13. The softeners and Mixed Bed should be regenerated as per the OEM after completion of its design run cycle.

14. Monitoring of running hrs. Of different pumps & schedule change -over has to be done and recorded properly.

15. Operation also include monitoring/analysis of effluent discharge to ETP by proper chemical dosing at Neutra pit and Waste Water sump through pumps.

16. The R.O.D.M plant should be operated as per the OEM MANUAL GUIDELINES

to meet desired water quality.

*****Guaranteed Parameters:**

a) Contractor shall adhere to ensure full compliance of the guaranteed parameters at each stage of plant operation .Parameters are provided separately in Technical details.

b) Contractor shall give guarantee to achieve the specified Quality & Quantity of DM water produced.

All the guarantees covered under this contract will be as per the design Parameters in technical details.

(3)CONTRACT FOR OPERATION OF SWAS LAB

****Suggestive manpower:Skilled-3 nos; Semiskilled--3 nos.**

The scope of work comprises of following areas:-

- A) SWAS PANEL INCLUDING WET & DRY PANELS.
- B) CHEMICAL DOSING SYSTEM FOR CONDITIONING

Operation:-

1. The scope of work includes complete monitoring and analysis of SWAS LAB round the clock basis throughout the contract period.

2. The Contractor will depute adequate skilled and experienced staff capable for monitoring of the lab covered under this contract.

3. The Contractor shall also be responsible for overall analysis and regulating chemical dosing accordingly to be carried out for proper functioning as per the laid water chemistry guidelines.

4. The Contractor should depute analyst having sufficient analytical experience of Water chemistry.

5. The analyst deputed should be conversant with the analytical instruments and the procedures.

6. Bi-Hourly analysis of water sample of different levels under battery limit of plant along with associated Chemical Dosing into boilers as & when required to maintain parameters.

7 Recording the reading of various on-line meters on SWAS panel and logging for the same in the specified log books at regular intervals.

8. Contractor shall ensure working in all the three shifts and dosing of chemicals and their solution preparation to maintain parameters.

9. The Contractor will submit records of all analysis in format as per requirement of PPCL.

10. Contractor will be responsible for maintaining all necessary documentation and records such as log sheets, weekly, monthly, performance reports, consumption reports etc. These documents shall be developed in consultation with PPCL.

11. The relevant important data shall be computerized for easy scrutiny of various parameters as well as in tabulated form as desired by PPCL Bawana. Contractor will facilitate monitoring of the performance on a monthly basis by the first week of every month whenever possible. The contractor shall submit all the records in Soft form to the in-charge before the end of the contract.

11. The contractor shall be responsible for round the clock monitoring of all on-line-analyzers & report for any discrepancies to the concerned authority.

12.The contractor shall carry out water conditioning of boiler, feed and steam system including monitoring and reporting proper functioning of SWAS Panel.

13. The reagent refill & regeneration of resin columns as & when required besides day to day calibration of different Analyzers.

(4) CONTRACT FOR ANALYSIS WORK IN CHEMICAL LAB.

**Suggestive manpower: Sr. Analyst-1 no; Analyst-3 nos; Semiskilled-2 nos.

The scope of work comprises of following areas:-

1. Routine cross check sample analysis for the whole water system.
2. Purity tests of Bulk Chemicals
3. Oil testing.
4. Environment Monitoring assistance and generation of associated reports.

Operation:-

1. The scope of work includes all analysis work of samples pertaining to all plants covered under this scope throughout the contract period.
2. The contractor will depute adequate skilled and experienced staff capable for analytical job of the lab covered under this contract.
3. The analyst deputed should be conversant with the analytical instruments and the procedures.
4. Collection and analysis of NOX measurement samples from the stack and online monitoring for the same.
5. Ambient air monitoring by high volume samplers at locations decided on the wind rose pattern as and when directed.
6. Compiling and generating reports related to environment monitoring & noise monitoring in desired format.
7. Collection and analysis of effluent samples from various locations of the plant and to maintain data and records.
8. Contractor will submit records of all analysis in format as per the requirement of PPCL.
9. Contractor will be responsible for maintaining all necessary documentation and records like monthly, performance reports, consumption reports and all other reports directed by contract operating authority.
8. The relevant important data shall be computerized for easy scrutiny of various parameters as well as in tabular form as desired by PPCL Bawana. Contractor will facilitate monitoring of the performance on a monthly basis by the first week of every month.

(5) CONTRACT FOR OPERATION OF CHLORINATION PLANT<(> , <)>

**Suggestive Manpower: Skilled-03 nos; Semiskilled-01 no.

SCOPE OF WORK : CHLORINE DOSING SYSTEM

OPERATION

1. The scope of work includes complete operation of the plant as above round the clock basis throughout the contract period.
2. The contractor will depute adequate skilled and experienced staff capable for operation of the plant covered under this contract.
3. The contractor shall also be responsible for routine analysis to be carried out for proper operation as per water chemistry of the plant.
4. The plant consists of an automated control room having various On-line analyzers & equipments which need continuous monitoring.
5. The contractor shall depute experienced personnel to carry out the analysis in the lab provided by PPCL Bawana.
6. The contractor shall ensure working in all the three shifts for dosing of chemical.

	<p>7. The chemical i.e. Chlorine gas, will be dosed through chlorinator system.</p> <p>8. The contractor will record analysis results in the log-books and reporting to contract operating authority of PPCL.</p> <p>9. Contractor has to operate & monitor Chlorination System.</p> <p>10. For the Chlorination Plant the manpower should be conversant with the operation and its hazards.</p> <p>11. Monitoring & looking after various dosing pumps & dosing systems as incorporated in the plant manual.</p> <p>12. Contractor should ensure strict monitoring of chlorine Leak Detection System /Absorption System on continuous basis.</p> <p>13. Changeover of Chlorine tonners & stacking of empty tonner properly. The record of filled and empty tonner movement along with the tonner nos. should be maintained.</p> <p>14. The contractor will be responsible for maintaining all necessary documentation and records such as log sheets, consumption reports etc. These documents shall be developed in consultation with PPCL.</p> <p>(6) CONTRACT TO OPERATE CHLORINE DI-OXIDE-PLANT</p> <p>***Suggestive manpower: Supervisor-1 no; Skilled-3 nos; Semiskilled-1 no.</p> <p>SCOPE OF WORK</p> <p>Operation comprises of following areas:--</p> <p>A) CHLORINE DI-OXIDE GENERATOR PLANT B) CONTROL ROOM FOR DOSING SYSTEM</p> <p>OPERATION</p> <p>1. The scope of work includes complete operation of the plant as above round the clock basis throughout the contract period.</p> <p>2. The contractor will depute adequate skilled and experienced staff capable for operation of the plants covered under this contract.</p>
	<p>3. The contractor shall also be responsible for routine analysis to be carried out for proper operation as per water chemistry of the plant.</p> <p>4. The plant consists of a P.L.C. based control room having various On-line analyzers & equipments which need continuous monitoring.</p> <p>5. The contractor shall depute experienced personnel to carry out the analysis in the lab provided by PPCL Bawana.</p> <p>6. The contractor shall ensure working in all the three shifts for dosing of chemicals.</p> <p>7. The chemicals to be used are Hydrochloric acid & sodium chlorite.</p> <p>8. The contractor will ensure round the clock dosing & monitoring of C.W. parameters including online bio-fouling meter.</p> <p>9. The contractor will record analysis results in the log-books as per the requirement of contract operating authority of PPCL.</p> <p>10. For the Chlorine-di-oxide Plant the manpower should be conversant with the operation and its hazards.</p> <p>11. Monitoring & looking after various dosing pumps & dosing systems incorporated in the plant manual.</p> <p>12. The contractor will be responsible for maintaining all necessary documentation and records such as log sheets, consumption reports etc. These documents shall be developed in consultation with PPCL.</p> <p>(7) CONTRACT FOR OPERATION OF COOLING TOWER TREATMENT SYSTEM & SIDE-STREAM FILTERATION PLANT</p>

**Suggestive manpower:Skilled-3 nos;Semiskilled-1 no.

SCOPE OF WORK:.

OPERATION COMPRISES OF FOLLOWING AREAS:--

- A) SIDE STREAM FILTRATION UNITS
- B) COOLING TOWER DOSING SYSTEM

OPERATION

1. The scope of work includes complete operation of the plant as above round the clock basis throughout the contract period.
2. The contractor will depute adequate skilled and experienced staff capable for operation of the plants covered under this contract.
3. The contractor shall also be responsible for routine analysis to be carried out for proper operation as per water chemistry of the plant.
4. The plant consists of a P.L.C. based control room having various On-line analyzers & equipments which need continuous monitoring.
5. The contractor shall depute experienced personnel to carry out the analysis in the lab provided by PPCL Bawana.
6. The contractor shall ensure working in all the three shifts for dosing of chemicals and their solution preparation.
7. The chemicals dosed for Cooling water Treatment are: - Sulphuric acid, Corrosion inhibitor; Biocides; Anti-scalant;Anti corrosion agent.These chemicals are to be dosed through pumps regulated from the PLC.
8. The contractor will ensure round the clock dosing & monitoring of C.W. parameters.
9. Maintaining Cooling Tower sump level & Blow-down activities associated with it at regular intervals to achieve the required parameters as specified for C.T. basin.
10. Analysis at this plant level entails maintaining parameters like: Cycle of Concentration ; L.S.I.& R.I.etc. The monitoring of Biofouling monitor, corrosion test coupons and deposit monitor has to be done regularly.
11. The contractor will record analysis results in the log-books as per the requirement of contract operating authority of PPCL.
12. Monitoring & looking after various dosing pumps & dosing systems incorporated in the plant manual.
13. Monitoring the Side-Stream-Filtration System & evacuating its waste water into C.M.B. regularly.
14. Timely putting the available SSF into service should be strictly monitored.
15. The contractor will be responsible for maintaining all necessary documentation and records such as log sheets, consumption reports etc. These documents shall be developed in consultation with PPCL.

(8)CONTRACT FOR OPERATION OF EFFLUENT TREATMENT PLANT & C.M.B.

**Suggestive Manpower: Supervisors-1nos; Skilled-3nos; Semiskilled-3 nos.

SCOPE OF WORK:---Covers following plant areas:-

- A) Effluent treatment Plant
- B) Dosing into CMB

OPERATION

1. The scope of work includes complete operation of the plant as above round the clock basis throughout the contract period.
2. The contractor will depute adequate skilled and experienced staff capable for operation of the plants covered under this contract.
3. Round the clock continuous monitoring of the plant and equipment covered in the battery limits of above plants. The battery limits shall be as per the process flow diagram and would cover all equipment within the same.
4. Contractor shall be responsible for routine analysis to be carried out for proper operation as per OEM manual and effluent chemistry as per the norms.
5. Contractor shall depute experienced Analyst to carry out the analysis in the lab provided by PPCL Bawana.
6. Contractor shall ensure working in all the three shifts for dosing of chemicals and their solution preparation.
7. The contractor shall ensure collection and analysis of samples of above plants in all three shifts.
8. Contractor will submit records of all analysis in format as per requirement of PPCL.
9. Contractor will be responsible for maintaining all necessary documentation and records such as log sheets, weekly, monthly, performance reports, consumption reports etc. These documents shall be developed in consultation with PPCL. Relevant important data shall be computerized for easy scrutiny of various parameters as well as in tabular form as desired by PPCL Bawana. Contractor will facilitate monitoring of the performance on a monthly basis by the first week of every month whenever possible. Contactor shall submit all the records in Soft form to the in- charge before the end of the contract.
10. Contractor will provide separate manpower for all the areas specified in the scope of work to do all the activities associated with plant operation.
11. The contractor will monitor, analyze and ensure the parameters of effluent discharge as per the consent conditions.

(9) CONTRACT TO OPERATE SEWAGE TREATMENT PLANT

SUGGESTIVE MANPOWER:Supervisor-1 no; Skilled-3 nos; Semiskilled-3 nos.

SCOPE OF WORK:--OPERATION:--

1. The scope of work includes complete operation of the plant as above round the clock basis throughout the contract period.
2. The contractor will depute adequate skilled and experienced staff capable for operation of the plants covered under this contract.
3. Round the clock continuous monitoring of the plant and equipment covered in the battery limits of above plants. The battery limits shall be as per the process flow diagram and would cover all equipment within the same.
4. Contractor shall be responsible for routine analysis to be carried out for proper operation as per OEM manual and sewage discharge norms.
5. Contractor shall ensure working in all the three shifts for dosing of chemicals and their solution preparation.
6. The contractor shall ensure collection and analysis of samples of above plants in all three shifts.
7. Contractor will submit records of all analysis in format as per requirement of PPCL.
10. Contractor will provide separate manpower for all the areas

	<p>specified in the scope of work to do all the activities associated with plant operation. 11. The contractor will monitor, analyze and ensure the parameters of sewage discharge as per the consent conditions.</p> <p>(10). CONTRACT FOR CHEMICAL HANDLING & HOUSE-KEEPING AT PPCL-III</p> <p>**Suggestive Manpower:Supervisor-1 no; Semiskilled-10 nos.</p> <p>SCOPE OF WORK Areas covered under the purview of this contract is as follows:- A) P.T.PLANT(CHEMICAL HOUSE) B) R.O.D.M. PLANT</p>
	<p>C) ClO₂/Cl₂/C.T. PLANT D) CHEMICAL HOUSE OF E.T.P/S.T.P./C.M.B. E) SWAS Lab.& Chemical Lab. F) CHEMICAL STORAGE AREA And any other area in vicinity.</p> <p>OPERATION/ACTIVITY :-</p> <ol style="list-style-type: none"> 1. Contractor will be responsible for overall loading-unloading & stacking of all types of chemicals at designated areas as directed by PPCL. 2. Contractor shall be responsible for stacking of used Chemical bags after Charging and depositing in the store. 3. All the chemical solution preparation will be in tanks of PTP, R.O. D.M.Plant, C.W.Treatment Plant, ETP, STP, Chlorination Plant and Chlorine di-oxide Plant. 4. All required chemicals to make available at RODM plant & charge them into their respective tanks whenever need arises. 5. All the unloading of bulk chemicals received at PPCL from the tankers to be done without delay by providing required manpower. 6. Topping-up and Removing of RESINS in Vessels of RODM Plant. 7. The safety items such as gum boots, gloves, goggles, lifting Hooks, helmets, aprons, & other required items are to be provided by the contractor during course of activity. 8. The manpower engaged in chemical handling should be well versed with safety instructions & tools. 9. Any accident arising while discharging the duty shall be on contractors end. 10. The contractor shall arrange for first aid and subsequent medical expenses to his staff suitably. 11. Chemicals will be provided by PPCL Bawana at the stipulated storage area of the plant and contractor will do further unloading /handling /stacking. Quantity of chemicals to be unloaded may vary as per requirement. Any demurrage due to delay in unloading and stacking will be borne by contractor. 12. Cleaning of TMBR tank/UF Product Water Tanks shall also be carried out as and when required. <p style="text-align: center;">HOUSEKEEPING</p> <p>Activity related to all plants covered in this scope is to be undertaken by the contractor. The list of plant is as follows:- R.O.D.M PLANT P.T. PLANT (CHEMICAL HOUSE) ClO₂/Cl₂/C.W.TREATMENT PLANT</p>

SWAS PANEL AREA
E.T.P./S.T.P./C.M.B.(Their Bldg. & Control rooms)
MAIN LAB BUILDING & PERIPHERY

1. Contractor shall undertake cleaning of plants including Sweeping of floor, washing, removal of cob-webs, cleaning of Urinals, Toilet, drains, roof, window panes, walls etc.
2. Used chemical containers / empty chemical bags and other unused items are to be placed /stacked at proper designated places.
3. Cleaning of panel boards/equipments/pumps & any other accessories attached with plant.
4. Contractor shall provide all consumables to be used for Housekeeping activities.
5. Contractor shall adhere to safety aspect as well, during the discharge of their duties since the work involves various type of chemicals (corrosive as well as hazardous in nature).
6. Contractor will ensure to provide stated manpower daily to do the work timely.
7. Mobilization of additional manpower should be ensured as & when need arises.

NB:- Since all the activities are inter related, the essence of the scope of work is to integrate operation and all its related activity for achieving desired parameters with optimum consumption of chemicals.

(11) CONSUMABLES, UNIFORM & PERSONAL PROTECTIVE EQUIPMENTS FOR THE CONTRACTOR'S STAFF UNDER THIS CONTRACT.

*SCOPE :-

1. Contractor has to provide separate set of uniforms (summer & winter) to all the staff deputed under this contract.
2. Colour code of uniforms has to be followed in the manner as follows:
Semiskilled: Trousers-blue; Shirt-blue
Skilled: Trousers-blue; shirts-Grey.
Supervisor: Trousers-grey; Shirts-grey.
3. Each uniform should bear company logo on it.
4. Contractor has to provide good quality safety shoes, gum boots, safety helmets, eyeguards, gloves for the staff deployed for various work. Replacement of essential safety items has to be ensured properly.
5. Contractor has to maintain a stock of consumables for use of housekeeping work such as toiletries, mopper, brooms, napkins, dusters, phenyls & to provide sufficient industrial dustbins at all plant locations for better housekeeping.
6. Since this costing is under separate service code, strict monitoring of above items has to be ensured.
7. Billing to this effect has to be on actual basis & any laxity will attract penalty provision.

ANNEXURE---I

Technical Specification:

DESIGN /SPECIFICATION :- PRE-TREATMENT PLANT
3 Nos. of Clarifiers:- Reactor type (2w+1s):

- Flow rate- 1780m³/hr/each
- 3% of sludge blowdown /shift with telescopic drain.
- Central agitator & Scrapper in each clarifier
- Stilling Chamber with three RCC weir gates & 3 nos. flash mixers (agitator & motor)
- provision of chemical dosing into stilling chambe(Alum;Lime;ClO₂;PE)
- Clarified water tank -900m³ x2 (RCC)+Service water tank-450m³

CHEMICAL HOUSE:-

- One no. overhead service water tank (150m³)---RCC
- __ Lime Slaking tank---2 nos (RCC)
- __ Lime Preparation tank-3 nos (RCC)
- __ Alum Preparation Tank#3 nos (RCC)
- __ Coagulant Tank #2 nos (500 lts)
- Lime slurry transfer pump---2 nos(15m³/hr)
- ___ Lime dosing pumps ---- 2 nos. (4m³/hr)
- Alum dosing pumps # 3w+1s (50lts/hr)
- Coagulant dosing pumps-3w+1s{ with 2 nos of pumps(1w+1s)}
(Blowers are also provided wherever required)

GUARANTEED PARAMETERS: PRE TREATMENT PLANT

CLARIFIER OUTLET PARAMETERS

Org. matter - <0.05 ppm
 Iron - <0.3 ppm
 Turbidity.- <10 NTU

>> DESIGN PARAMETER OF U.F.R.O. DM PLANT <<(><<)>>

- 1) TMBR(Ultra filter system) Designed capacity----- 80m³/h

T.D.S. < 1120mg/ltr 2)

Softener unit (2w +1s)

Designed capacity per unit---- 36m³/hr
 T.D.S. <112 mg/ltr

- 3) R.O. stage I (2 streams both working)
Permeate flow at 25 deg C---- 56 m³/hr
- 4) Degassed Tower (1w +1s)
Designed flow rate----- 60 m³/hr
- 5) R.O.stage II (2streams both working)
Permeate flow at 25 deg C ___ 51m³/hr
- 6) Mixed Bed exchanger (2w +1s)
Designed flow rate ---- 50m³/hr
 Conductivity at 25 deg C---- <0.1 micro simens/cm
 TDS --- < 0.1 mg/ltr
 PH --- 6.8 to 7.3
 Reactive silica as Sio₂ --- <0.02 mg/ltr
 Iron as Fe -- Not detectable
 Total Hardness at CaCo₃ ___ Not detectable
 Free Co₂ as Co₂ ___ Not detectable

NOTE: 1.

TMBR (UF) is comprised of the following unit processes:

- # UF Feed pump (2w+1s)
- # Feed & Pre-treatment (Basket Strainer- 1w+1s)
- # Zee Weed Trains (Membrane Tank, Permeate/ Backpulse pump)
- # Backpulse Equipment, (Backpulse Tank)
- # Aeration Equipment (Aeration/Bioreactor Tank)

- # Clean-In-Place (CIP) Equipment, (NaOCl & Citric Acid Dosing system (2) Softener Unit is comprised of following unit processes:
 - # Softener Feed Pump (2w+1s)
 - # Softener Regeneration Pump (1w+1s)
 - # Salt saturator transfer Pump (1w+1s)
 - # Brine measurement Tanks(2 NO)+salt Saturator
- 3. R.O.stage-I is comprised of following unit processes:
 - # R.O.-I Feed Pump (2w+1s)
 - # Cartridge Filter (1w+1s)
 - # R.O.-I High Pressure Pump (1w+1s)
 - # R.O.-I Vessel (Bank-1, Bank-2, Bank-3)
 - # RO Dosing System (SBS, Antiscalent, Acid Dosing System)
- 4. R.O.stage-II is comprised of following unit processes:
 - # R.O.-II Feed Pump (2w+1s)
 - # Cartridge Filter (1w+1s)
 - # RO-II High Pressure Pump (1w+1s)
 - # RO-II Vessel (Bank-1, Bank-2, Bank-3)
 - # RO Dosing System (SBS, Antiscalent, Acid dosing System)
- 5. MB Exchanger System is comprised of following unit processes:
 - # MB Feed Pump (2w+1s)
 - # MB Exchanger (2w+1s)
 - # MB Air Blower (1w+1s)
 - # MB Regeneration Pump (1w+1s)
 - # Acid Dosing/Handling System
 - # Alkali Dosing/ Handling / Preparation System
 - # Neutralizing Pit/ Waste Water Pit/ Brine Pit

Annexure#II

GUARANTEED PARAMETETS

AT UltraFiltration outlet:- T.D.S----<(><<>>10

AT R.O stage-II outlet:-

Recovery ----90%

Silica

--<0.02ppm

Silt density Index--<2.0

BOD ----Below detection limit

COD---- Below detection limit

Organic Matter- Below detection limit

Turbidity--Below detection limit

Feed water- flow, pressure, t.d.s., pH, Silica

TMBR inlet---- 89 30 1120 7.4 N/A

TMBR outlet ----80 10 1120 7.4 N/A

Softner Inlet-- 72 35 1120 7.4 N/A

Softner outlet- 72 15 <1120 7.4 N/A

RO-1 inlet -- 72 15 <1120 7.4 N/A

RO-1 Outlet---- 56 10 80 5.8 N/A

RO-2 Intet -- 56 30 80 6.8 N/A

RO-2 Outlet --- 51 10 10 5 N/A

MB Inlet --- 50 35 10 5 N/A

MB Outlet ---- 50 20 0.1 6.8~7.3 0.02

TECHNICAL SPECIFICATION:---- ClO₂/C.W. Treatment PLANT:

CORROSION INHIBITOR DOSING TANK# 2000LTS x2
 -----DO ---- PUMPS-----50LTS/HR(2W+1S)
 AGITATORS ----- 2 NOS

SCALE INHIBITOR DOSING TANK--- 2000LTS x2
 ---DO ---- INJECTION PUMPS---- 50 lts/hr(2w+1s)
 Agitators - 2 nos

Biocide Dosing Tank--- 1000 lts x2
 Biocide Dosing pumps-- 50 lts/hr(2w+1s)
 Agitators - 2 nos

Bulk H₂SO₄ Tanks-- 35m³ x3 nos.
 H₂SO₄ unloading pumps-- 10m³/hr(2w+1S)
 H₂SO₄ Dosing pumps--- 500 lts/hr (2w+1s)

ClO₂ Dosing System Package-- 70kg/hr (1w+1s)
 NaClO₂ (31%) Storage Tanks - 25m³ x2
 NaClO₂ unloading pumps -- 10 m³/hr (1w+1s)
 HCl(33%) Storage tanks - 25 m³ x2
 HCl unloading pumps -- 10m³/hr (1w+1s)

Safety showers - 2 nos
 C.W. Treatment N.Pit - 1 no

For C.T.dosing system ---- 35kg/hr flow rate
 Reagent dosing skids x 2(1 working+1spare)
 ----- ClO₂ Generators x2

For P.T.plant system ----25kg/hr flow rate
 -----Reagent Dosing skid x2(1 working+1 spare)
 -----ClO₂ generators x2

TECHNICAL DETAILS:---Effluent Treatment Plant.

API Separator 2Nos
 (2x100%)--Flow -25m³/hr
 Capacity 12.5m³/hr(each)
 TPI Separator 2x50%
 Capacity 13m³/hr
 Central Monitoring Basin --- 1No,
 Twin section; capacity 850m³/each
 Effluent disposal pumps 8Nos.
 350m³/hr
 Sludge thickeners 2Nos.
 Centrifuge (2W+1S,) 3nos.
 Cap.25-30m³/hr
 Thickened Sludge Sump Cap. 60m³

Tube settlers	2Nos.
Filter backwash recycle pumps	2Nos.
Sludge pumps to thickeners	4Nos.
Effluent disposal piping Lot	
Thickened sludge transfer PP	(2W+1S ,Cap. 30m3/hr)
Sludge Collection Sump	Capacity 30m3
ETP sludge Pumps	2nos. (6m3 each)
Chemical Solution Preparation Tank	
Lime Slaking	Lime Prepn. Alum Prepn. Coagulant aid
2Nos.	3Nos. 3nos. 2nos.
Effluents to C.M.B:	
CW blowdown	1428m3/hr (max.)
N-Pit waste of DM plant	3.5m3/hr
RO Stage-I and UF backwash	19m3/hr
Treated water from Lamella clarifier	200m3/hr
Brine holding effluent	16m3/hr

Effluent Quality as per PCB norms

Oil and grease -- < 10mg/l
 Suspended solids -- < 100mg/l
 pH ----- 6.5~8.5

SEWAGE TREATMENT PLANT:-- Designed Parameters:

Sewage collection sumps---10 m3 x2 &15m3 x2
 Common coll. Sump-----25m3 x1
 Aerator tank-----46m3
 Hopper Clarifier---9.3m3
 Sludge dewatering beds----
 Clear water tank -----5.4m3
 Centrifuge pumps 10 m3/hr (1w+1s)
 Each sump is provided with two nos of pumps(1w+1s).
 Blowers are also provided wherever
 required.

** CHEMICALS TO HANDLE

The main list of chemicals to be handled under this contract is listed below(however the list is not exhaustive & may vary during course of activity/operation).

PTPlant
 Ø ALUM
 Ø LIME
 Ø POLYELECTROLYTE
 Ø SODIUM HYDROXIDE

**RO DM Plant:

Ø HCl
 Ø SMBS
 Ø CITRIC ACID
 Ø SODIUM HYPO CHLORITE
 Ø ANTI- SCALANT
 Ø BRINE

		<p>Ø LIME/ACID FOR N.PIT # RESIN</p> <p>**Chlorination Plant, Chlorine Di oxide Pant and Cooling Water Treatment : Ø CHLORINE TONNERS Ø CORROSION INHIBITOR Ø BIOCIDES Ø SULPHURIC ACID Ø ANTISCALANT Ø HYDROCHLORIC ACID @ SODIUM CHLORITE</p> <p>SWAS LAB.(Boiler Conditioning Chemicals) Ø LIQ. AMMONIA Ø HYDRAZINE-HYDRATE Ø PHOSPHATE</p>
<p>16 .</p>	<p>Special Terms & Conditions</p>	<p>1. EDUCATIONAL QUALIFICATION for of the contract staff for operation of the Plant has been >>ATTACHED<< seperately.</p> <p>2. Suggestive manpower Detail/Strength is also >>ATTACHED<<(><<)> seperately.</p> <p>3. In the event of non execution of work >> PENALTY CLAUSE<< applicabe is as follows:</p> <p>a) In case of non-performance of any assigned work including House - keeping, a deduction shall be made@ limited to 5% of the contr act value of that day.</p> <p>b) In case of non compliance with the safety measures(non-availability/use of PPE) a deduction shall be made @limited to 5% of the contract value of that day.</p> <p>c). Contractor has to provide atleast one Supervisor per shift & one Site -Incharge in day time, failing which a penalty limited to @ Rs.500/supervisor will be imposed.</p> <p>d).The wages to be disbursed by 10th of every month, failure of which will attract penalty @ 2% of the monthly RA bill.</p> <p>e). The contractor shall ensure compliance of all statutory and mandatory requirements of labour law.</p> <p style="text-align: center;">SAFETY MEASURES</p> <p>1 > The safety of the Contractors staff is the responsibility of the contractor itself.</p> <p>2 > The contractor shall provide all safety equipment such as safety helmet, shoes,gum boots, dust respirator, hand gloves. Breather etc. as per the work requirement and as felt necessary by the Sectional Incharge or safety engineer.</p> <p>3> The site Incharge of PPCL or contractor shall take adequate step to ensure the proper use of the safety equipment by contractors# staff at all time failing which penalty will be applicable on contractor.</p> <p>4> Uses of match box, lighter and smoking or other such act, which may cause fire, are strictly prohibited.</p> <p>5> All cases of serious accident to the Contractors staff or any one of them however caused and whenever on the work site, the Contractor shall immediately report to the Engineer In-charge and other statutory Authority and shall make adequate arrangement for rendering all possible act to the victims of the accident.</p> <p>6> The contractor shall produce certificate of physical fitness of all his employees and shall employ only fit and healthy person.</p>

- 7>. The site shall be maintained, cleaned and with good sanitary conditions at all cost by the contractor.
- 8> Contractor shall ensure that safety rules are observed (as per NIT safety clause) to avoid any accident which may cause any loss of life to contractor's or PPCL-IPGCL staff and damage to the property. Non compliance of safety rules by contractor willful failure will attract penalty at the rate mentioned under

INDEMNITY DAMAGE & INSURANCE

1. The contractor shall indemnify and make harmless the owner or the Engineer In -Charge, their agent or employee from or against all losses and all claims, demands, payments, suits, actions, recoveries & judgements of every nature and description brought or recovered against him.
2. The contractor shall pay all costs and maintain throughout the contract period, the public liability and property damage liability insurance with the following coverage :
 3. Public liability limit for bodily injury or death not less than Rs.100000/= for the person and Rs.20000/= for each accident.
 4. Property liability limit for each accident not less than Rs. 100000/=
5. The contractor shall submit all policies of insurance to the Engineer -In -Charge for approval.
6. The Contractor shall submit all challans related to EPF/ESI. Also furnish evidence of payment of Bonus@8.33 and grant Earned Leave or wages in lieu of E/L, should also be submitted along with the bills to maintain good IR practice.

Entry Passes/Identity Cards

All such materials , which are required to be used by contractor , shall be brought with proper gate pass and similar authentic document that shall be got inspected by engineer along with material as per security rule in force, contractor shall be responsible for antecedents of his workman and for getting the gate passes. The security wing of the plant shall issue gate pass to them .

SUGGESTIVE MANPOWER REQUIREMENT LIST

SR.No.	PLANT DESCRIPTION	STAFF REQUIREMENT			DETAILS
		ANALYST CUM SUPERVISOR	OPERATOR	Semiskilled (LABOUR)	
1.	R.O.D.M.PLANT*	01	03	03	
2.	P.T.PLANT*		03	03	
3.	OPERATION OF SWAS LAB (--	03	03
4.	ANALYSIS WORK IN CHEMICAL LABORATORY	01		03	02
5.	OPERATION OF CL2 PLANT			03	01
6.	OPERATION OF ClO2 PLANT	01		03	01
7.	OPERATION OF C.W.TREATMENT/				

		<p>S.S.F.PLANT - 03 01</p> <p>8.OPERATION OF E.T.P./C.M.B. 01 03 03</p> <p>9.OPERATION OF S.T.P. 01 03 03</p> <p>10.HOUSEKEEPING & CHEMICAL HANDLING 01 -- 10</p> <p>11. SR.SUPERVISOR --- 1 NO.</p> <p>TOTAL 07 27 30</p> <p>TOTAL MANPOWER 64.</p> <p>The contractor should get themselves registered in Labour Deptt under the relevant Act (i.e. Contract Labour (Regulation & Abolition)Act, 1970) for executing labour contract and will be required to obtain Contract Labour license in accordance with prevalent Labour laws.</p>
17 .	Execution & Billing By	<p>Company TRIVENI ENGINEERING & INDUSTRIES LTD. A-44, Hosiery Complex, Phase-II Extension, (India) 201305 NOIDA INDIA</p>