

CONDITIONS OF CONTRACT FOR OPERATION AND MAINTENANCE

1.1. Scope during Trial run and Defect Liability period:

- 1.1.1. The scope of work under this contract includes trial run and maintenance of the STP(s) as a whole and its parts as an individual component as well. Under this the contractor has to run the scheme completely and will have to prove performance of each component individually and of whole scheme as per the standards laid down in contract. During this period the contractor shall have to appoint necessary staff for running and maintenance of scheme. The candidature of the staff being engaged by contractor shall have to be approved by the Engineer-in-Charge. During this period Engineer-in-Charge/Nagarpalika will appoint staff to check the performance of project and also get hands on training to run and maintain the scheme. Contractor and his staff will arrange training for the staff to the satisfaction of Engineer In-charge. The period of trial run, testing and commissioning will be three (03) calendar months from the date of actual completion of the scheme as certified by the Engineer In-charge. Defect liability period will start from successful commissioning of the Plant.

1.2. Commencement and Duration of O & M part of contract

- 1.2.1. "The O & M Period" shall commence from the date of issue of 'Certificate of successful commissioning' of the facilities including three calendar month trial run period and shall continue operation & maintenance of entire system for 5 years including three year defect liability period there from.
- 1.2.2. The O & M period may then be extended subject to mutual consent and on terms and conditions agreed to by both the Parties.

1.3. Applicable Law

- 1.3.1. The Contractor shall comply with all Applicable Law relevant to the Contractor's Personnel, including Applicable Law relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.
- 1.3.2. The Contractor shall require his employees to obey all Applicable Laws, including those concerning safety at work.
- 1.3.3. In the event Employer becomes liable to any Employers Personnel, any Governmental authority (including but not limited to any fines or penalties levied by or payable to such authority) or to any other third party under the provisions of any Applicable Law resulting from Contractor's failure to comply with such Applicable Law, Contractor shall reimburse Employer for all payments required to be made by Employer to such Employers Personnel, Governmental authority or any other third party, plus the actual expenses that Employer may incur in investigating, settling or defending any litigation or threatened litigation.

1.4. Assignment

The Contractor will not be entitled to sub-contract any part of his obligation under these Conditions to any third party without prior approval of the Employer. Neither

party may assign their rights and obligations under these Conditions without the consent of the other Party. However the Employer may assign any rights under these Conditions to any financial institution from whom any financial assistance/credit facilities have been availed by the Employer.

1.5. Safety

1.5.1. Emergencies

In the event of an emergency endangering any life or property, the Contractor shall immediately take such action as may be necessary to prevent, avoid or mitigate injury, damage or loss and shall, as soon as possible, report any such incidents, including his response thereto to the Employer.

1.5.2. Contractor Action

The Contractor shall utilize his personnel to take such action as may be necessary in accordance with Good Operating Practices in the event of an emergency. Notwithstanding anything to the contrary herein, the Contractor may incur any expenditure or take any other operating actions as the Contractor deems to be necessary (in accordance with Good operating practices) in the case of emergencies affecting the Facilities or the operation of the Facilities to counteract the effects where the Contractor considers immediate action is required to safeguard lives or property. In case such emergency was caused due to an Employer's Risk then the Employer shall reimburse such reasonable expenses that might have been incurred by the Contractor in relation thereto acting in accordance with Good Industry Practices.

1.6. Notification

- 1.6.1. In the event of an emergency the Contractor shall forthwith notify the Employer of the emergency, the expenditures made and the operating actions taken.
- 1.6.2. If the Employer considers that an emergency has arisen in relation to the Facilities, the Employer may give written notice to the Contractor specifying the nature of the emergency which it has identified and the manner in which it requests such emergency to be rectified. The Contractor shall rectify such defect with all due diligence. If such emergency is on account of an Employer's Risk then the Contractor shall be reimbursed all costs and expenses reasonably incurred by the Contractor for any actions taken by it pursuant to such direction or notice. If the Contractor fails to comply with such direction or notice promptly, the Employer shall be entitled to procure that it or any third party takes such actions as may be necessary to remedy such breach by the Contractor. Any costs that may be incurred by the Employer in this regard shall be reimbursed to him in full by the Contractor and shall be a debt due to him from the Contractor.

1.7. Inspections

Notwithstanding any provisions of these Conditions and without prejudice to any of the other rights vested by the Contractor under these Conditions, The Employer shall have the right at all times to inspect the Facilities and the Contractor shall co-operate in every manner with the representatives of the Employer inspecting the Facilities and allow them access to every part of the Facilities and produce any records requested.

2. OPERATION OF THE FACILITIES

2.1. Operation of the Facilities

- 2.1.1. On Employer appointing the Contractor to perform and undertake the O & M Services and all other obligations set out and in accordance with these Conditions during the O&M Period. The Contractor shall accept the appointment and acknowledges a duty to perform such obligations.
- 2.1.2. The Contractor shall be in complete charge of and have custody and control over and responsibility for the Facilities, and the Contractor shall perform or cause to be performed on behalf of the Employer all O & M Services for the Facilities and shall supply or cause to be supplied all materials required there for in accordance with the O & M Standard.
- 2.1.3. The Contractor shall also acknowledge that the Employer and the Employer's Personnel and other contractors may be carrying out work at the Facilities and shall endeavour to fully co-operate and work in a manner so as not to cause any obstruction or hindrance to them.
- 2.1.4. The Contractor shall remain an independent Contractor and not an agent, employee and nothing in these Conditions or the O & M part of contract shall be deemed to create a Joint Venture between the Employer and the Contractor.

2.2. Responsibility of the Contractor

The Contractor shall be solely and exclusively responsible for:

- 2.2.1. Obtaining all necessary permits and consents required by Applicable Law or any Governmental authority for the Contractor to carry out the O & M Services;
- 2.2.2. The procurement of all goods and services necessary to ensure compliance with his obligations under these Conditions,
- 2.2.3. Making available suitably qualified and trained personnel to perform the O & M Services;
- 2.2.4. Perform the O & M Services in accordance with the O & M Manuals prepared by the contractor and as approved by the Engineer in Charge / Nagarpalika, and maintain the Facilities in good repair and condition and ensure that the Facilities are well and suitably maintained at all times in accordance with Good Operating Practices and in accordance with these Conditions;
- 2.2.5. Procuring and administering all chemicals and other consumables, tools, equipment, spare parts and other materials (which shall be of good quality and unused) necessary for the operation and maintenance of the Facilities;
- 2.2.6. Maintaining a system of records to identify all inventories related to the Facilities and preparing and providing to the Employer a complete accounting of such inventory for every fiscal quarter;
- 2.2.7. Arranging for the testing and recalibration of all scales, meters, gauges and other measuring devices at the Facilities on an annual basis and maintain the Calibration certificates as records unless otherwise stated in the O & M part of contract; and
- 2.2.8. For providing any and all relevant information required by the Employer.
- 2.2.9. Contractor shall ensure that the treatment plant is run on continuous basis and shut down if any subject to obtaining prior permission / approval of the employer. Generally major repair encountered in any unit shall be attended as quickly as possible.
- 2.2.10. Contractor shall initiate and take adequate actions to ensure smooth and satisfactory performance/ running of the plants on a 24 hours/ round the clock basis.

- 2.2.11. For the smooth running of the plant all the required equipment, machineries, accessories, major and minor spares, consumables including chemicals, greases, lubricants, all cleaning agents, packing, rubber sheet, laboratory reagents, all hardware, required quantity of white wash, oil paint color, all types of epoxy paint, material required for house- keeping and cleaning etc. are to be brought by the contractor. The quality of all consumable and spare etc. i.e. technical requirements as per manufacture recommendation shall remain unchange.

3. DUTY OF CARE BY THE OPERATOR AND PERFORMANCE STANDARDS

3.1. Duty of Care

- 3.1.1. The Contractor shall manage, operate and maintain the Facilities in accordance with Good Operating Practices and in accordance with the O & M Standard so that the Facilities are capable of meeting the outputs and specifications set out in the Contract.
- 3.1.2. The Contractor shall take full responsibility for the care of the Facility from the date of start of O&M period, till the end of the O & M Period.
- 3.1.3. If any loss or damage happens to the Facility, during the O & M Period due to any breach by the Contractor of any of his obligations under these Conditions including any wilful misconduct, negligence and non-conformity with Good Operating Practices then the Contractor shall, at his own cost, rectify such loss or damage so that the Facility conforms in every respect with the provisions of these Conditions.
- 3.1.4. The Employer shall be liable only in case of any damage caused due to any Employer's Risk.

4. OBLIGATIONS AND RESPONSIBILITIES OF THE EMPLOYER

The Employer shall employ the Contractor to provide the O & M Services and shall:

- 4.1. following the issue of Certificate of Successful commissioning and trial run, handover the custody of the Facilities to the Contractor for its intended use during the O & M Period; and
- 4.2. Pay the Contractor all sums required to be paid in accordance with the terms of these Conditions. Notwithstanding anything else herein contained the Employer may set off any sums owed by the Contractor under the Contract for money owed to the Contractor by the Employer under these Conditions or as a debt due from the Contractor.

5. REPRESENTATIONS AND WARRANTIES OF THE CONTRACTOR

The Contractor hereby represents for the benefit of the Employer as follows:

5.1. Performance of O & M Services

- 5.1.1. that the Contractor has the required skills and capability to perform, and shall diligently perform, the O & M Services in a high quality, timely and professional manner utilizing sound engineering principles and project management procedures in accordance with Good Industry Practices;
- 5.1.2. that the Contractor shall perform his obligations hereunder in accordance with the requirements of these Conditions and shall meet the Performance Guarantee; and
- 5.1.3. That it shall not use any spare parts or material that are not new and which shall be of a quality that is in accordance with Good Industry Practices.

5.2. Knowledge of Adverse Information

5.2.1. As of the Commencement Date, Contractor is not aware of any facts, conditions or events which would affect the ability of Contractor to provide the O & M Services in accordance with these Conditions.

5.2.2. Contractor has familiarized himself with the nature and extent of the O & M Services required to be provided under these Conditions and with all other requirements under Applicable Law

5.3. Organization, Standing and Qualification

Contractor is validly existing and in good standing under Applicable Law and has all necessary power and authority to carry on its business as presently conducted and to perform its obligations under these Conditions. Contractor is, or will be prior to the date on which the O & M Services are to be commenced duly qualified or licensed to provide these services.

5.4. Due Authorization

5.4.1. Each of the execution, delivery and performance by the Contractor of all contracts entered into pursuant to these Conditions shall be duly authorized by all necessary action on the part of Contractor.

5.4.2. Neither the execution and delivery by Contractor of the O&M Contract, nor the consummation by Contractor of any of the transactions contemplated hereby, requires the consent or approval of, the giving of notice to, the registration with, the recording or filing of any document with, or the taking of any other action in respect of, any Governmental authority or agency, except:

- a) Such as have been duly obtained, given, registered, recorded, filed or taken and are in full force and effect or are not yet required; and
- b) Filings and recordings expressly required pursuant to the O & M part of contract. Contractor holds, or will obtain, any and all licenses, permits and approvals on a timely basis. Contractor has no reason to believe that any of those not yet required will not be readily obtainable or done in the ordinary course of business upon due application there for.

5.5. Litigation

In the aggregate, there are no pending or, to the knowledge of Contractor, threatened actions, investigations or proceedings before any court, Governmental authority or arbitrator, which would have material adverse effect on the ability of Contractor to perform its obligations under these Conditions

6. INSURANCE

6.1. General Conditions

6.1.1. Without limiting the Contractor's obligations, responsibilities and liabilities under these Conditions, the Contractor shall be required to provide and maintain in full force and effect, at his expense the insurance coverage's specified in Schedule [3] throughout for the O&M Period. Any deductibles on the insurance shall be to the account of the Contractor.

6.1.2. Maintenance of insurance shall not relieve the obligation of the Contractor to remedy or repair any damage to the Facility in case such damage is caused due to the fraud, negligence, wilful misconduct or breach of any obligations of the Contractor under these

Conditions (including failure to perform the O & M Services in accordance with Good Operating Practices) at the Contractors cost promptly and regardless of the extent of settlement of claims by the underwriters or the time taken for settlement of claims. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor to the extent any such liability or damage is caused due any breach of any obligations of these Conditions (including failure of the Contractor to perform the O & M Services in accordance with the Good Operating Practices) by the Contractor or any wilful misconduct, negligence on the part of the Contractor.

- 6.1.3. The terms of the Insurance shall be approved by the Employer.
- 6.1.4. The Contractor within the 14 days from work order shall submit to the Employer evidence that the insurances required under Schedule [3] of these Conditions has been obtained as approved by the Employer.
- 6.1.5. The Contractor shall not make any alteration to the terms of any insurance without the prior approval of the Employer. If the Contractor fails to effect and keep in force any of the insurance it is required to effect and maintain under these Conditions, or fails to provide satisfactory evidence and copies of policies in accordance with this Sub Clause, the Employer may effect insurance for the relevant coverage and pay the premiums due and may claim the same from the Contractor.

The insurances shall:

- a) shall be in the name of the Employer and the Employer shall be the sole loss payee,
 - b) shall be extended to cover liability for all loss and damage to the Employer's property arising out of the Contractor's performance of his obligations or failure to do so under these Conditions and any fraud, gross negligence or wilful misconduct on his part, and
- 6.1.6. If the Contractor fails to effect and keep in force insurance which is required to be maintained under these Conditions, and the Employer neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which would have been recoverable pursuant to such insurance shall be paid by the Contractor.
 - 6.1.7. The insurance shall cover all the electrical items, mechanical items, Instrumentation & automation items, all civil works, Storage structures etc. The insurance for the work of transmission main is optional. Since the responsibility of safety of all work lies with contractor, contractor may prefer to take the insurance of optional item also if deemed fit.

7. INDEMNIFICATION

7.1. Loss or Damage to Facilities

The Contractor shall at its own expense make good any physical loss or damage to the Facilities occasioned by it in the course of the performance of its obligations under these Conditions if and to the extent such loss or damage is caused by the negligence, wilful default or breach of statutory duty or failure to follow Good Industry Practices by the Contractor

7.2. Other Loss or Damage

- 7.2.1. Except as otherwise stated in this Clause 7.2 or covered by Clause 7.3, the Contractor shall indemnify, defend and hold harmless the Employer against any and all liabilities, losses,

damages and claims of whatever kind and nature, including all related costs and expenses incurred in connection therewith, in respect of personal injury to or death of third parties or any employee of the Employer or the in respect of loss of or damage to any third party property or property belonging to employee of the Employer by:

- i) any breach by the Contractor of its obligations hereunder and
- ii) any negligence, wilful default or breach of statutory duty on the part of Contractor

7.2.2. Except as otherwise stated in this Clause 7.2 or covered by Clause 7.3, the Employer shall indemnify, defend and hold harmless the Contractor for all claims and losses of whatever kind and nature, including all related costs and expenses incurred in connection therewith, in respect of personal injury to or death of third parties or of any person employed by the Contractor in respect of loss of or damage to any third party property or property belonging to any person employed by the Contractor to the extent that the same arises out of any Employer's Risk

7.3. Accidents or Injury to Workmen

7.3.1. The Contractor shall indemnify, defend and hold harmless the Employer or any Employer's Personnel against any and all claims for loss, damage and expense of whatever kind and nature (including all related costs and expenses) in respect of the death of or injury to any person employed by the Contractor in connection with the performance of the O&M Services and obligations hereunder except to the extent that such death or injury is caused by an Employer's Risk.

7.3.2. Neither Party shall be liable to the other Party for loss of use of the Facilities, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than under Sub-Clause [13] and this Clause [7].

7.3.3. The total liability of the Contractor to the Employer, under or in connection with these Conditions other than as provided in Clause 7.3.2 & 14 shall not exceed the sum of the O & M Price and the Delay Damages payable under these Conditions.

7.3.4. This Sub-Clause shall not limit liability of the Contractor in case of fraud wilful default, gross negligence and liabilities arising due to breach of Applicable Law and the liability under any other Clause of these Conditions that might impose a greater liability on the Contractor

8. INSPECTION

8.1. General Provisions

8.1.1. The Employer may check the operation of the Facilities or designate an organization of his choice to carry out inspections regularly. The Employer or the organization appointed by him shall check that the Contractor is performing the tasks for which he is responsible with due diligence. The Contractor shall at his cost provide all the assistance the Employer requires to complete these inspections

8.1.2. Before any inspection, the Employer shall give prior notice to the Contractor, indicating the name(s) of the person(s) empowered to carry out such inspection in the name of the Employer

8.2. Measurement and Analysis

8.2.1. The Employer has the right to perform any analysis or inspection he deems necessary. Before any inspection, the Employer shall give a prior written notice to the Contractor.

- 8.2.2. The sewage quantity, for any such test, analysis or inspection shall be measured by flow-meters installed at the Facility, which are acceptable to the Employer, provided they are maintained and calibrated as per requirements of this contract.
- 8.2.3. Other parameters like Pressure temperature and speed shall be measured by certified calibrated meters provided by the contractor and, which are acceptable to the Employer
- 8.2.4. The flow meters shall be inspected and certified upon their availability by the Employer and the Contractor. Thereafter, the said meters shall be tested and their accuracy verified once in every six (6) months by the Contractor. After each inspection, the flow-meters shall both be sealed in the presence of representatives of the Employer and the Contractor in a manner that is adequate to prevent the tampering of said meters by any person.
- 8.2.5. The Contractor shall be responsible for the security and protection of flow-meters at the designated point. If there is any malfunctioning of the meters, it should be repaired at the Contractor's cost, as per manufacturer's technical recommendations.

8.3. Plant Complex Visits

- 8.3.1. At the end of each month, or at the initiative of the Employer, a visit shall be organized so that both parties can check the condition of the installations at the facilities.
- 8.3.2. A report shall be drawn up to record the opinions of both Parties. The Employer reserves the right to call in equipment manufacturers or specialized technicians for these visits.
- 8.3.3. These visits shall provide an opportunity for examining maintenance programs and operating procedures and improvements requiring additional investments.
- 8.3.4. Any test, visit, analysis or inspection and any approval thereof shall not in any way alter/modify or dilute the responsibility of the Contractor to fulfil his obligations under these Conditions.

9. RECORDS AND REPORTS

9.1. Operating Records and Data

The Contractor shall:

- 9.1.1. Prepare and maintain, on a current basis and in accordance with generally accepted Indian accounting principles, proper, accurate and complete books and records and accounts of all transactions related to the Facilities including a log book at the site which shall contain inter alia the following details
 - a) Reading from the different meters, indicators and recorders (including but not limited to consumption of energy, volume of water conveyed, operating times of the different items of equipment etc which may be updated on a daily basis); and
 - b) Report of visits by persons other than those of the Employer and the Contractor to the Facility
- 9.1.2. Establish and maintain a weekly and monthly reporting system to provide storage and ready retrieval of operating data relating to the Facilities, including such information necessary to verify calculations made pursuant to these Conditions or the O & M part of contract and provide the same to the Employer on a monthly basis

- 9.1.3. Provide to the Employer or such persons notified by it access to the Facilities and to data in relation to the Facilities, at all times.
- 9.1.4. At the Employer's request, at the end of every month, make a copy of the system performance data for that month as recorded by the instrument and control system on CDs / DVDs and printed document there from and deliver the same to the Employer with one week.
- 9.1.5. Provide support to the Employer to meet the data requirements of all competent authorities and under Applicable Law

9.2. Reports

- 9.2.1. The Contractor shall submit the reports mentioned in Schedule [2] at times indicated in the said Schedule.
- 9.2.2. The Contractor shall also provide the Employer with such reports as are required by the Employer and shall comply with all reporting requirements prescribed under these Conditions and the O & M part of contract. In addition the Contractor shall submit the following information to the Employer.
- 9.2.3. Upon obtaining knowledge thereof, shall submit prompt written notice of:
 - i) Any litigation or material claims, disputes or actions, threatened or filed, concerning the Facilities or the services to be performed hereunder;
 - ii) Any refusal or threatened refusal to grant, renew or extend or any action pending or threatened that might affect the granting, renewal or extension of any clearance, permit or license;
 - iii) Notwithstanding the aforementioned materiality, all penalties or notices of violation issued by any authority under Applicable Law;
- 9.3. The Contractor shall promptly submit to the Employer any material information concerning new or significant aspects of the operations of the Facilities, any material complaint about the Facilities from any person or entity with a bonafide complaint who complains directly to the Contractor and, upon Employer's request, shall promptly submit any other information concerning the Facilities or the services performed by the Contractor.
- 9.3.1. The Employer may from time to time specify any changes to be made to any of the format of any report or plan required hereunder.
- 9.3.2. If the Contractor is required by any Applicable Law to produce any projection, report or any other document relating to the provision of the O & M Services of the Facilities or the Employer requests a report regarding other information relating to the Facilities, the Contractor shall prepare a draft of such document at the request of the Employer, as soon as practicable and in any event within any time limit prescribed by Applicable Law.
- 9.3.3. If the Contractor is required by any Applicable Law to produce any projection, report or any other document, it shall prepare such report diligently and submit the same to the Employer as soon as possible thereafter. Wherever practicable, such reports shall be submitted to the Employer for review seven days before the same is issued. The Contractor shall take into account any comments or revisions proposed by the Employer thereon.

9.4. Procurement

- 9.4.1. The Contractor is responsible for the procurement of all goods and services necessary to ensure compliance with its obligations under these Conditions.
- 9.4.2. The Contractor shall procure and keep in readiness spare parts required for urgent repairs, materials, supplies and other consumable items, and maintains an adequate inventory thereof Facilities.
- 9.4.3. The Contractor shall submit a report for every fiscal quarter to the Employer reflecting the status of the inventory for spare parts, materials and other consumable items.
- 9.4.4. The Contractor shall procure the Chlorine Gas Tonners. Necessary arrangement for procurement of Chlorine Gas in tonners / cylinders shall be made by the contractor. No extra charges shall be paid for hiring / Purchasing the tonners / Cylinders. The contractor shall ensure adequate storage of these materials, so that operations of the facilities do not affect for want of these materials.

10. PAYMENT

- 10.1. The Contractor's request(s) for payment shall be made to Employer in writing, accompanied by invoice(s) along with presence sheet of personnel of particular month duly certified by our Engineer on site, claims etc. as appreciate.
- 10.2. Payment shall be made by Employer as per prevailing procedure subsequent to the submission of such invoice(s) / claim(s) by the Contractor.
- 10.3. Employer will deduct from the amount payable to the Contractor any amount paid by Employer on behalf of the Contractor (e.g., Himachal Pradesh State Electricity Board (HPSEB)/ Himachal Pradesh Power Transmission Corporation Limited (HPPTCL) or any authority penalty for Power factor or any other dues and liquidated damages as per clause and, as per tender terms and condition. Any telephone bills charged by telephone department towards contractor's usage, the payment of telephone bills will be made by Contractor.)
- 10.4. Contractor will provide Security Guards services for all assets in STP premises for 24 hours of a day and 365 days of the year for the whole contractor period'

11. LIQUIDATED DAMAGES

11.1. Effluent Quality:

Failure to achieve the specified effluent quality requirement at the outlet of the chlorine contact tank during the Operation and Maintenance (O&M) period

• **Performance Damages:** As Percent of the O & M Monthly payment (or, for Contracts with more than one STP, as Percent of the STP O & M Monthly payment for each STP that fails to pass the Tests during O & M period for each additional "quantum" (as defined below) of the effluent quality parameter, or part thereof, beyond the specified maximum concentration, present in the actual effluent produced during the Tests on Completion:

Parameter (Monthly Avg)	Specified maximum concentration	For each additional or part of parameter	Percent of (STP) O & M Monthly Payment
BOD	10 mg/l	2 mg/l, BOD	10%

		3 mg/l, BOD	20%
TSS	10 mg/ l	2 mg/l, TSS	10%
		3 mg/l, TSS	20%
TN	10 mg/l	2 mg/l, TN	10%
		3 mg/l, TN	20%
TP	2 mg/l	1 mg/l, TP	10%
		2 mg/l, TP	20%

For a given STP, Performance Damages shall not exceed 25% of that STP's STP O & M Contract Price. However, if more than one STP fails the performance requirement during O&M period, then the 25% Performance Damages limit shall apply separately to each STP. Further, all remedies other than performance damages, including but not limited to construction of additional facilities, additional equipment and repair and/or replacement of the installed equipment shall continue to be fully available to the Employer, and the Employer may choose to invoke any or all of them at any time in accordance with the terms of the Contract.

11.2. Penalty shall be levied on the basis of down time of machineries.

11.3. Power Consumption:

Power Consumption: Excess consumption of electrical energy for Operation and Maintenance of the constructed Works for each STP under the Contract.	1. If there is design average influent sewage flow and BOD conditions, then
	1(a). If the plant is achieving desired effluent parameter with power consumption lower than the guaranteed power requirement under design average influent sewage flow and BOD conditions as per Vol II, then payment shall be made as per actual power consumed.
	1(b). Damages payable by Contractor to Employer on a monthly basis shall be equal to the actual cost of the excess energy used for Operation and Maintenance of the Works for each STP under the Contract, based on the guaranteed consumption under design average influent sewage flow and BOD conditions, provided by the Contractor under the relevant Technical Schedules Volume II and the current rates charged to the Employer for electricity consumed.
	2. If there is reduction in inlet flow and/ or BOD, then
	2(a). If the plant is achieving desired effluent parameter with power consumption lower than the

	<p>guaranteed power requirement as per Vol II, then payment shall be made as per “Guaranteed not-to-exceed energy usage under actual monthly average influent sewage flow and BOD conditions” (formula below) or as per actual power consumed, whichever is lower.</p>
	<p>2(b). Damages payable by Contractor to Employer on a monthly basis shall be equal to the actual cost of the excess energy used for Operation and Maintenance of the Works for each STP under the Contract, based on the guaranteed not-to-exceed energy usage under actual monthly average influent sewage flow and BOD conditions provided by following formula and the current rates charged to the Employer for electricity consumed. Such payable will be assessed for each month during the O&M Period in which the actual power consumption exceeds the guaranteed power consumption as calculated below.</p>

Electrical Energy Usage

The Bidder guarantees that electrical energy usage of various components of the Works will not exceed the values listed in the table below, as demonstrated by the Tests after Completion and throughout the Operation and Maintenance Period. The actual electrical energy usage shall be directly metered and compared to guaranteed numbers on a monthly average basis.

Guaranteed not-to-exceed energy usage under <u>design</u> average influent sewage flow and BOD conditions, to be filled in by U_D (kWh per month)	Guaranteed not-to-exceed energy usage under <u>actual</u> monthly average influent sewage flow and BOD conditions, to be calculated as per formula below U_A (kWh per month)
STP Covered under this tender as per Vol IIID	$U_A = U_D \times \frac{Q_A + Q_A \times S_A}{Q_D + Q_D \times S_D}$

Symbol Definitions:

The following symbol definitions shall apply for the subsequent clauses of this schedule:

U_D = Guaranteed not-to-exceed energy usage under design average influent sewage flow and BOD conditions, to be filled in by bidder (kWh per month)

- U_A = Guaranteed not-to-exceed energy usage under actual monthly average influent sewage flow and BOD conditions, to be calculated as per formulae provided in subsequent clauses (kWh per month)
- Q_D = Design average influent sewage flow specified in bid documents (MLD)
- S_D = Design average influent sewage BOD concentration specified in bid document (mg/L)
- Q_A = Monthly average of actual metered influent sewage flow (MLD)
- S_A = Flow-weighted monthly average of actual measured influent sewage BOD concentrations (mg/L)

11.4. Plant Stoppage due to Process Upset/ Maintenance Issues

- a) Up to 8 hours, the penalty applicable would be 200% of the O & M charges (hourly) as per the Quoted price for the stoppage time of plant in hours rounded off to the next integer.
- b) More than 8 up to 24 hours, the penalty applicable would be 300% of the O & M (hourly) charges as per the Quoted price for the stoppage time of plant in hours rounded off to the next integer.
- c) More than 24 hours, the penalty applicable would be 400% of the O & M (hourly) charges as per the Quoted price for the stoppage time of plant in hours rounded off to the next integer.

Additional Conditions:

- I. The analysis for the Plant Performance Evaluation for Commissioning Certificate, Defect Liability Phase and Operation & Maintenance, should be carried out at the Third Party Reputed Laboratory as per the Engg-In- Charge Approval.

Note-

- a. The above stated analysis requirement are in addition to the routine analysis for commissioning or regular course of operation as per the tender document and can be done at plant scale.
- b. The Charges for the Third Party Laboratory Testing to be borne by MCS/Client (Respective Nagarpalika/Authority).
- c. The frequency of Sampling for
 - Completion/ Commissioning - Three(3) Composite Samples for a day, for Three(3) Consecutive Days (72 Hours)
 - Operation & Maintenance - Four (4) Nos. of Composite Sample for a day (Weekly Once).
- II. The statutory Charges from Himachal Pradesh Pollution Control Board (HPCB) or Central Pollution Control Board (CPCB) or any other Authority for any Compliance/

Liasoning should be paid by the Contractor on behalf of Client and would be reimbursed by client at actual.

III. Any Penalty imposed by HPCB/CPCB/ or any other Authority for Non-compliance of Effluent Quality Standard shall be recovered from Contractor at two times of the Penalty.

11.5. For the non-compliance of employment of key personnel

If the successful bidder does not recruit/depute the key personnel identified as per schedule, then liquidated damages will be deducted at double the rate of applicable scale of Client or the rate quoted, whichever is higher.

12. FORCE MAJEURE

In this Clause, 'Force Majeure' shall mean an event or circumstance, which materially and adversely affects the ability of the affected Party to perform its obligations.

- a) which is beyond a Party's control,
- b) which such Party could not reasonably have provided against before entering into the O & M part of contract;
- c) which, having arisen, such Party could not reasonably have avoided or overcome, and
- d) which is not attributable to the other Party

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

- i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies)
- ii) rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war,
- iii) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel and other employees of the Contractor;
- iv) As result of war, explosive materials, harmful radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio- activity, and
- v) Natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity. Heavy rainfall, cyclone, strike and lockout.

12.1. Notice of Force Majeure

12.1.1. If a Party is or will be prevented from performing any of its obligations under these Conditions by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 7 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.

12.1.2. The Party shall, having given notice, be excused performance of such obligations for so long as such Force Majeure prevents it from performing them.

- 12.1.3. Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

12.2. Duty to Minimize Delay

- 12.2.1 Each Party shall at all times use all reasonable endeavors to minimize any delay in the performance of the Contract as a result of Force Majeure.
- 12.2.2 A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.
- 12.2.3 Notwithstanding anything else herein contained the Employer may terminate the O & M part of contract if the Force Majeure event continues for more than a period of 90 days.

13. MATERIAL, TOOLS AND TEST EQUIPMENTS:

All materials required for the O&M of the project shall be new and of best quality and suitable for the purpose intended. These shall be got approved from the Engineer in charge before use.

17.1. Electricity Supply:

Contractor shall keep good liaison with Himachal Pradesh State Electricity Board (HPSEB)/ Himachal Pradesh Power Transmission Corporation Limited (HPPTCL) for power supply in case of electric power failure (break down/shut down) it shall be the responsibility of the agency to inform all the concerns as well as to contact concern authorities to restore the power supply. The vehicle kept at site by the contractor shall be provided for this purpose along with operation and maintenance staff in case of requirement as per direction of Engineer in charge or his representative without any extra claims.

17.2. Work Order Book

A bound half sheet size work order book shall be provided by the contractor and handed over to the owner for maintaining at the work site. This shall be a permanent record. The contractor or his Resident engineer shall sign against instructions & orders recorded by the Engineer in charge or his representative for the maintenance work. He may take out a copy thereof if necessary. He shall take prompt action as per the instruction/orders of the owner and necessary compliance shall be recorded against each instruction/order

17.3. Electrical Installations

All electrical work shall be carried out as per the provisions of Indian Electricity Act, Indian Electricity Rules, Instructions and requirement of authority/authorities i.e. Electrical Inspector and Himachal Pradesh State Electricity Board (HPSEB)/ Himachal Pradesh Power Transmission Corporation Limited (HPPTCL) or as mentioned in the Volume of General Condition for contract.

17.4. Accident on the works

The contractor shall be fully responsible for any accident that may occur to the labour on his work on duty and report the same to the Engineer in charge and concerned Govt. labour department authority and shall pay all necessary compensation as per rules. Contractor shall also be fully responsible for any loss to any individual or public property occurred due to him or his workers negligence under the scope of this contract.

17.5. Use of site

The contractor shall not unreasonably encroach the site with materials and equipment. The contractor shall not use land for any private purpose.

17.6. Compliance

The contractor shall be bound by all ordinance acts, codes, rules, regulations and orders of which in any way affects conduct of works, or workmen engaged for the work. The contractor shall be responsible for any violation of any govt. rules & regulations. It shall be the responsibility of the contractor against any claim or liability arising from violation of above.

17.7. Accommodation for Staff

Contractor shall provide necessary accommodation to their labours & engineers at his own cost.

17.8. Transportation

Contractor shall have to make his own arrangements for conveyance of his staff at his cost. No facility will be provided by the owner.

17.9. Medical

Contractor shall provide medical facility to his staff at his cost.

14. CONTRACTOR'S STAFF & THEIR CONDUCT ETC.:

18.1. Nationality & Address

All employees shall be Indian Nationality and it shall be contractor's responsibility to give temporary and permanent address: Convicted or penalized person shall not be employed.

18.2. Salary to Employees

Contractor shall strictly follow labour laws and shall also ensure regular monthly salary payment to his staff. The owner will not take any liability of any of his employees appointed for operation and maintenance under this contract. Contractor shall submit monthly certificate for full payment to his staff on or before 10th of every month. Owner reserves the right to conform the contents of the certificate from contractor's employee for their last pay. The owner will not be responsible for any delayed payment/ compensation/ overtime or any other claims by employees of contractor during the tender period and even after the tender period.

18.3. Identification Dress Code with Badge/ Identity Card

Contractor shall have to provide special dress code with identification badge with name plate strip to be displayed on front pocket to each staff as approved by Engineer in charge along with Identity Card etc.

18.4. Holidays and Leave

Holidays and leaves shall be given to staff as per relevant labour rules. During holidays/ casual leave/earned leaves etc. and contractor shall arrange for the substitute. The owner shall not make any separate payment of overtime for these substitutes provided by the contractor during above periods.

18.5. Conduct

All employees of the contractor shall follow the instruction of Engineer in charge. If any employee misbehaves with Engineer in charge he/she shall be immediately removed from duty and substitute for that shall be employed by the contractor. If contractor fails to do so, non-refundable penalty of Rs.200/- (Rupees Two hundred only) per day per such case will be levied, this amount shall be recovered from the bill or any due amount of agency.

18.6. Visitors

The plant is one of its own kinds. Visitors are expected to visit this plant. It is expected that all staff and Engineers be present and follow the directives of Engineer in charge.

SCHEDULE 1

Operation and Maintenance Services

The Contractor shall be required to perform the following services under these Conditions:

The Contractor shall be responsible for corrective and preventive maintenance of civil, hydraulic, mechanical, and electrical and instrumentation equipment as well as miscellaneous equipment.

The Contractor shall be responsible for carrying out regular servicing and lubrication of rotary machines, complying with maintenance instructions as defined in the Operation and Maintenance Manual and ensuring that electromechanical equipment and motors operate correctly at all times.

The Contractor shall ensure that all measurement systems are calibrated, within the valid period of certification and operate correctly at all times.

The Contractor is responsible for the maintenance of the internal plant roads, landscaped areas inside the Employer plant fences.

The Contractor shall be responsible for maintenance of civil structures including primary and secondary treatment, pump houses, plant pipelines, administration buildings, chlorine building, sludge dewatering building, garages, etc.

The Contractor will operate and maintain in a state of continuous operational readiness all plant and systems to meet the flow requirements. It shall remain the Contractor's responsibility to ensure that plant systems are at all times able to operate to the designed capacity of plant.

Provided here are certain standard services that AMC could require. However AMC may wish to review this and make changes depending on the exact nature of services they require from the Contractor.

The Contractor shall be entitled to appoint a representative who shall together with Employer's Representative on the last day of each month or if such day is not a working day on the following day, jointly carry out a reading of water meters and jointly certify the record of such readings.

For the duration of the O & M period, the Contractor will be responsible for the supply and control of lubricants, spare parts and consumable materials including Electrical Power, necessary for the continuous operation of the works.

The Contractor will manage the consumables and utilities services to ensure their most economic consumption and to minimize wastage.

The quantities of all the unutilized spare parts and consumable materials will be fully handed-over to the Employer at the end of the O&M period.

The stores inventory, the issuing and recording of spare parts will be the responsibility of the Contractor.

The Contractor is also responsible for providing spare parts and material required for the operation and maintenance during the operation period, and shall bear the cost for the same, including the cost of storing and safeguarding.

The Contractor will make all necessary arrangements to ensure the continuous supply of spare parts and material for the works; and the rate of advance supply of these materials shall be in such quantities and amounts as would ensure uninterrupted operation.

All the furniture and administrative office equipment etc. required shall be furnished by the Contractor. Costs of operating administrative office and supplies shall be borne by the Contractor.

The Contractor shall take out subscriptions for standard telephone lines / wireless sets etc. Running cost for the telephone / wireless sets will be borne by the Contractor. The Key maintenance staff should have mobile phones in operating conditions for better co-ordination of the maintenance activities.

Cost of operation and maintenance and housekeeping of housing complexes including domestic water supply and drainage, roads, gardens, electrical installations, etc. will be borne by the contractor.

The Contractor will provide staff personnel for the full term of O & M as per schedule of establishment given as per **Volume - IV**.

Contractor has to do painting to all Civil Structures including pipeline, channels, etc. with the same quality of paint used while construction of the structures or as directed by Employer at a regular interval of every two years.

SCHEDULE- 2

REPORTS

1. MONTHLY REPORT

The monthly report shall include but not be limited to:

Volume of Sewage treated.

Inlet and outlet sewage characteristics BOD, Total Suspended solids and any other data required by the Engineer in Charge

All the problem areas in the facility,

O & M works carried out during the month.

Monthly materials consumption statement

2. ANNUAL REPORT

The Contractor shall provide the Employer by March 31 of the current year (n) with an annual report for the preceding year (n- 1). This report shall include:

*A statement of works carried out during the preceding year n- 1 in connection with the contractor's obligations under these conditions.

NOTE: The Employer may consider if it requires these reports or requires reports and provide for the same. This will need to be looked at in the light of reporting requirements in these Conditions. The Employer will also need to determine what information is required in these reports

SCHEDULE- 3

Insurances

Insurance against Injury to Persons and Damage to Property:

The Contractor shall insure against each liability for any loss, damage, death or bodily injury which may occur to any physical property (mechanical, electrical, automation work, all civil works, Storage etc. excluding pipe line) or to any person which may arise out of the Contractor's performance of his obligations under these Conditions during the O & M Period.

This insurance shall be for a limit of per occurrence of not less than the amount of **Rs. 5 lakh**, with no limit on the number of occurrences.

Insurance for Contractor's Personnel

The Contractor shall effect and maintain insurance against liability for arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.

The Employer shall also be indemnified under the policy of insurance, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel.

Contractor shall have to take insurance for Electrical, Mechanical and instrumentation equipment under this packages and whereas the insurance of other component like sump, pipeline will be optional. This General Insurance for the work will be in the name of MCS. The depreciated value is to be considered for the purpose of insurance for respective year. The insurance for skilled, semi- skilled and unskilled labour is compulsory. The same should be taken by agency as per labour act laws in force.

SECTION B

SPECIAL TERMS AND CONDITIONS FOR

O&M

SECTION B: SPECIAL CONDITIONS OF CONTRACT FOR OPERATION & MAINTENANCE

A. TECHNICAL CONDITIONS

- 1) The operation and maintenance of all the works included in this tender as per details given should be carried out by contractor at his own cost.
- 2) All electric bills for operating all plant and equipment installed in this contract will be paid by the employer.
- 3) All the required electrical goods / fixtures like bulb, tube light, chock, starter, fuse, wire etc. required for operation and maintenance shall be procured by contractor at his own cost and lighting arrangement should be kept in good condition.
- 4) Any type of valve or part of the valve not working properly after repairing and requires replacement, as per opinion of Engineer in Charge or his representative, then required valve will be replaced by the Contractor.
- 5) During the period of contract, a person other than responsible representative of contractor or persons employed by him should not enter into the premises of the STP site. Every care should be taken by contractor to prevent such type of unauthorized entry or interruption in the premises or surrounding the property STP.
- 6) At any time during the visit of Engineer in charge or his representative if it is observed that the operation and maintenance is not carried out properly, Sewage treatment is stopped and contractor is responsible for it recovery will be made at double rate of contract for that particular day or contract will be terminated.
- 7) All the works executed under this project & covered in the scope of this tender will be deemed to have handed over to contractor from the date of successful commissioning of the facility. Proper operation and maintenance of the same works/components shall be carried out by contractor and at the time of completion of contract period or termination of contract, contractor should have to give possession of all the work and components back to MCS in good condition. Before handing over the possession to MCS, account of contract will not be finalized and deposit will not be refunded to contractor. For all type of legal activities and expenditure for the same, contractor will be fully responsible.
- 8) During the period of contract for any type of dispute, decision of Client, will be final and binding to both the parties.
- 9) Prescribed registers as maintained by agency during the period of operation and maintenance period shall be submitted to the MCS.
- 10) Proper care is to be taken by contractor to keep neat and clean. Every component of head work sites and maintenance of all the components shall be done by contractor.

- 11) Servicing of all the piping & valves cleaning of all civil works and maintenance shall be carried out regularly by contractor and entered into the concerned registers.
- 12) History sheet shall be maintained by contractor for replacement of material in pipeline, or valves, spare parts of Electro-mechanical equipment.
- 13) All the works included in the scope of work shall be oil painted once during contract period at the cost of contractor.
- 14) All the gardens and plants situated at STP site shall be supplied water and maintained properly by contractor. No any extra payment will be made on account of this work.
- 15) Telephone/ wireless message shall be received and entered in the register and message should be conveyed to concern party for action. If any interruption in the system of any important message should convey immediately to concerned Engineer in charge.
- 16) All the information regarding labors, staff, vehicles etc. is incorporated in this tender for preparation of estimate. As per list staff having proper qualification/labours and vehicles shall be deployed by contractor. If due to negligence of contractor for providing sufficient staff and vehicles sewage is not supplied properly remaining labors/staff and vehicles will be deployed by MCS at the risk and cost of contractor and recovery for such expenditure will be made from the bill of contractor.
- 17) The contractor has to make all the arrangements required for the proper operation, maintenance and safety of all the works included in this contract at his own cost during the whole contract period.
- 18) Any damage / breakage found from mischievous element found in the system, the contractor should lodge police case immediately under intimation to concern Nagarpalika.
- 19) Material consumption register in prescribed format should be maintained by the contractor. During the visit of Engineer- in- charge if required it should be produced.
- 20) The Contractor will be required to pay following bills.
 - a) Electricity bills for all equipment installed by the Contractor for proposed STP.
 - b) Telephone bills will have to be paid by the Contractor. No reimbursement shall be made.
 - c) Electric /Battery operated flow meters have to be maintained by Contractor In case failure of batteries, same shall have to be replaced by contractor at his own cost.
- 21) All miscellaneous items, for example, vehicles, tools, testing equipment, cleaning or green keeping equipment, security and safety equipment, electrical fixtures, etc shall be provided by the Contractor at his expense.
- 22) The Curriculum Vitae (CV) /Resumes of the Contractors personnel shall be submitted to the Engineer for acceptance at least 7 days before the anticipated commencement of

the O & M, period. Any change of personnel shall be promptly informed to the Engineer within a day's time. Normal time duty hours for the contractors' operation & maintenance personnel may be modified as necessary and agreed by the Engineer. A rotating shift schedule shall be established by the Contractor and agreed by the Engineer which will ensure that an adequate number of the Contractor's staff, fluent in Hindi is on duty at Plants 24 hours per day, 7 days per Week, including all holidays

- 23) The Contractor's duties with respect to Safety shall include the following
- a) Utilize safety awareness procedures in every element of operation and maintenance.
 - b) Give emphasis to site including:
 - i) Safe working and safety procedures as per rules and regulations of Governments regarding use of protective clothing, gloves, boots and helmet etc.
 - ii) Cleanliness of the plants as a whole.
 - iii) Awareness of hazardous conditions and accident reporting and necessary compliance.
 - iv) Safe practice in Sewage Pumping Stations, if any.
 - v) Safe practice in Sewage Treatment Plants.
- 24) The Contractor shall adhere to the manufacturers' recommendations with respect to equipment maintenance, the type and grades of lubricants to be used. Frequency of lubrication, adjustments to be made regularly and recommended spares to be held in store.
- 25) The Contractor's duties with respect to general building maintenance and housekeeping shall include the following:
- a) The maintenance of electrical, ventilation and air conditioning, plumbing and drainage installations.
 - b) Full maintenance of the site services, cabling and earthing systems, together with the site road lighting system. Painting of all Civil, Mechanical, Electrical structures which are open to sky every three year
 - c) Site maintenance including the upkeep of landscaped areas
 - d) The building services and house-keeping maintenance shall be undertaken on all building and services installation.
 - e) The Contractor shall ensure that all unwanted or redundant items are removed from the building and sites. Depending on their condition such items shall either be placed into storage or disposed off site.
- 26) Contractor's duties with respect to store inventory & spares shall include the following

- a) The stores inventory, the issuing and recording of spare parts will be the responsibility of the Contractor.
 - b) The Contractor is also responsible for providing spare parts and material required for the operation and maintenance during the operation period, including the cost of storing and safeguarding.
 - c) The Contractor will make all necessary arrangements to ensure the continuous supply of spare parts and material for the works, and the rate of supply of these materials shall be in such quantities and amounts as would ensure uninterrupted operation.
 - d) Spare parts shall be supplied by the Contractor and the same will be used during Operation and Maintenance Contract period.
 - e) The contractor shall have to procure the required spares from original manufacture or authorized dealer at his cost.
 - f) The required spare parts which will be available with MCS will be issued to the contractor from its stock and subsequently contractor shall have to replace the same without any extra cost.
- 27) Inspection register will have to be maintained, wherein inspection officers will note their instructions duly dated signature. Successful bidder has to follow the instructions strictly.
- 28) On the date of Contract Completion or if the Contract is terminated, all the installations, works and equipment placed under the Contractor's responsibility shall be handed over to the Employer, at no cost, in good working order. The Employer may perform any inspections, tests or expert appraisals he shall consider necessary with a view to checking that the property is in good working order and will certify to that effect to the Contractor while taking over.
- 29) Contractor shall have to bear the expense for annual inspection fee for Electrical installation during the O&M contract period. No extra payment shall be given. Energy audit has been made mandatory by the Government of Himachal Pradesh; contractor shall have to carry out energy audit as per the said regulation in the first year and thereafter strictly as per prevailing regulation.
- 30) Repair of PLC based instrumentation and Automation work shall have to be carried out by System Integrator. The agency for System Integrator should be approved first prior to commence the work of such special type of job.
- 31) Contractor should provide security guard round the clock with uniform. He should also maintain register for visitors.
- 32) If any work specified in the scope of tender but not carried by the contractor, the recovery will be done at the double the market rate from the contractor.
- 33) **Handing over-** After successful completion of O & M period (to be certified by the Engineer in Charge) the scheme as a whole and its components individually will be

handed over to the MCS or the agency nominated to take over the charge for further operation and maintenance. The MCS will not take any responsibility of the employees engaged by the contractor to run the scheme during O&M period, whatsoever. The scheme and all its components individually shall be handed over to the MCS in a very good maintained condition. Decision of Engineer-in-Charge will be final.

- 34) Before handing over the components to MCS or its nominated agency all the structures shall be maintained by painting as per specifications given in the agreement and all the Electrical & Mechanical equipments shall be maintained by all standard maintenance procedure as per specifications and these must be in good running conditions. It will be the responsibility of the contractor to show that all stipulated Service Level Standards have been fulfilled and are up to the mark on the date of handing over the works to MCS. The MCS will not take any responsibility of the employees engaged by the contractor to run the scheme during trial run, defect liability period and O&M period. The scheme and all its components individually shall be handed over to MCS or its nominated agency in a very good maintained condition.

SECTION C

**TECHNICAL SPECIFICATION AND
SCOPE OF SERVICES FOR O&M
WORKS**

SECTION C: TECHNICAL SPECIFICATIONS & SCOPE OF SERVICES FOR OPERATION AND MAINTENANCE OF STP(s)

1. SCOPE OF SERVICES:

The Scope of work / service to be done / provided by the contractor under this bid will be as under

The Contractor shall operate and maintain the entire Plant & associated works for a total operation and maintenance period of 10 years including three year defect liability period from the date of successful commissioning of plant. All necessary repairs, maintenance, overhaul, replacements etc, shall be made during the O & M to maintain the Plant at the status of formal handing over after the commissioning. At the end of O & M period the plant shall be handed over to the Employer in fully functional and new condition except normal wear and tear.

The price for O & M bill shall include supply of all tools, tackles, spares, lubricants, laboratory chemical, glassware and any other chemical required for the successful operation of the plant. The scope shall include but not limited to the following items.

1. Operation and Maintenance including Civil, Electrical, Mechanical and all allied works.
2. Repairs; Refurbishments & Replacement required during O & M period for satisfactory running of plant.
3. Sampling and testing of influent sewage based on the tests and frequency desired by the Engineer-In-Charge as per specifications stipulated in Volume IIIA and in general in accordance with the latest CPHEEO manual on Sewerage and Sewage Treatment.

Sampling and testing of additional samples for the day to day O & M of the STP and as mutually agreed from time to time between the Contractor and the Engineer-In-Charge.

Sampling of final treated effluent to ensure that the guarantee parameters are as stipulated in the bid document. The sampling frequency to be as per relevant norms of Himachal Pradesh Pollution Control Board or higher as decided by Engineer-In-Charge. The Employer reserves right to collect samples at random at the will of the Employer through any agency nominated by him. Employer shall have right to seek part of sample collected by the Contractor without any prior intimation to cross check the results on random basis. However the analysis charges of such samples shall be borne by Employer.

O & M of all functional and utility buildings, infrastructure and common areas within the Plant campus.

Proper maintenance of Water Supply, Sewerage, Roads, Paths, lawns including trimming and upkeep of gardens etc.

Maintenance of Proper records of sampling as per approved Performa.

Loading, Unloading and Transportation of screenings, Wet sludge and wet grit out of treatment Plant site at contractor's own cost as directed by Engineer-In-Charge within 20 km from the Plant to the place as directed by the Engineer-In-Charge from time to time. The wet sludge shall be

collected and disposed of by the contractor. Any revenue accruals by sale of sludge shall be to the benefit of the Employer.

Maintenance of log books of all the machinery not connected to the PLC / SCADA shall be done separately & collectively at the STP. Fortnightly and monthly reports of all such machinery and parameters monitored by the PLC shall be generated and hardcopy along with soft copy shall be got approved from the Engineer-In-Charge. These reports shall contain sufficient appropriate and adequate data to make the records meaningful and amenable to analysis for evaluating the performance of the Plant as well as to help in O & M decisions.

Security of the campus and contents therein shall be Contractor's responsibility.

The records maintained by the Contractor shall be produced periodically to the Engineer-In-Charge for proper monitoring. The Engineer-In-Charge's remarks shall be attended to on next submission. Consolidated summary reports shall be furnished to the Employer monthly, quarterly and yearly containing salient features.

The Contractor shall also maintain history sheets of overhauling, maintenance, replacement of all the important electrical and mechanical equipment

The O & M shall include the appropriate preventive maintenance of equipment as per the manufacturer's recommendation.

The operation, maintenance and repairs services shall be performed according to the following.

Down time:

The Plant shall never be operated at less than 50% of its design capacity due to maintenance and repair reasons. The period of such exceptional operation shall not exceed two consecutive days and shall not be more than three days a week. The maximum downtime of the whole Plant shall not exceed 8 hours. The periods for repairs and maintenance have to be communicated to the Engineer-In-Charge at least one month in advance. For machinery and equipment which requires maintenance to be carried out by manufacturer/ manufacturer's authorized representative, the down time shall not exceed 30 days. Employer reserves the right to impose penalty, should there be any default by Contractor on this account. The penalty amount will be deducted in the subsequent O & M bill if adequate reasons are not furnished by the Contractor for delay.

Operation of the Plant as per O & M Manual:

The Plant shall be operated according to the rules and procedures laid down in the O & M manual. The Plant must be in position to work at the design capacity at any time.

Awareness & Cleanliness

The Contractor and his staff shall maintain a high degree of awareness in operation and maintenance of the Plant and all relevant safety codes and procedures. At all times the Plant, its equipment and surrounds shall be kept clean and in order including the buildings, floors, walls, roofs, windows, and garden etc.

Frequency of Preventive maintenance

The preventive maintenance shall be carried out according to the preventive maintenance schedule of the Plant. The regular staff may be reinforced with short- term specialists by the Contractor for special maintenance tasks, after duly informing the Engineer-In-Charge of the need and the schedule.

Repairs

Repairs shall be made as and when needed very promptly on the spot or at the Contractor's / Manufacturer's workshop. The need of repair on the spot or at the Contractor's workshop has to be defined in co-ordination with the Engineer-In-Charge and according to the status of spare parts availability.

Replacement

Spare parts

The Contractor shall keep a reasonable stock of spare parts so that the down time of equipment can be kept within the limits specified. The contents of the stock and the reorder level of the inventory have to be approved by the Engineer-In-Charge.

Transportation

All necessary transportation shall be arranged and made by the Contractor at his own expense.

Consumables

The Contractor has to ensure that there is always there is sufficient stock of 15 days of consumables, laboratory chemical, Chlorine gas tonners, glass ware etc.,

Chemicals

The Contractor has to ensure that there is always there is minimum stock of 30 days requirement of all chemical required for the successful operation of the plant.

2. GENERAL OBLIGATION

The Contractor shall operate and maintain the plant under this contract for the period specified in this contract which shall be extendable for a further period of five years at the Employer's option.

The Contractor will submit a detailed operation and maintenance plan for approval of Engineer-In-Charge. All operation and maintenance activities shall be carried out strictly in accordance with the approved plan.

The services shall include but not be limited to the following items:

- a) Operation and maintenance of the sewage treatment plant(s) from the inlet chamber up to disposal point.
- b) Training for the O & M staff designated by Employer's requirement.

- c) Generation and maintenance of periodic reports.
- d) O & M and up keeping all installed equipments at all STP's with data back up in operational condition.

3. OPERATION

3.1 Operational services

The Contractor shall operate the complete sewage treatment Plant and associated services on a continuous 24-hour basis. The Contractor shall operate and utilize the control and monitoring systems provided. If found necessary, he shall make adjustments (within the operation range) of the control system and equipment, so that the Plant operation matches the treatment process requirements.

If it is determined that the facility is not capable of meeting the design parameters for any reason beyond the Contractor's control and not attributable to him, the Contractor shall determine the specific cause of failure/ abnormality in the Plant functioning and report to the Engineer-In-Charge and seek his directives on the necessary corrective action to be taken/adopted.

The Contractor will be required to furnish the details of electricity consumption in the format prescribed by the Engineer-In-Charge.

All consumables, necessary chemicals and spares required for operating and maintaining the plant in good condition shall provided by the contractor. The grit, Screenings, dewatered sludge and other garbage generated in the plant shall be removed from the site on daily basis. No accumulation of such residues shall be permitted within the Plant campus without express application by Contractor giving adequate reasons as well as permission of Engineer-In-Charge. The Contractor shall such residues in conformity to Environmental regulations/rules in force. The Engineer-In-Charge may, if required, decide the mode and timing of disposal of such residues in consultation with concerned Environmental and Civic Authorities. Such directions shall be followed by the Contractor promptly, both in letter and spirit, without any reservations and without any increase in O&M /other costs. The loading, unloading and transportation cost of these shall be borne by the Contractor and shall be included in the price quoted by the Contractor for O&M.

The Contractor at his own expense shall provide all tools, cleaning, and housekeeping equipment, security and safety equipment

3.2 Laboratory services

- a) The Contractor shall perform all tests, sampling and analyses regularly as approved by the Employer's requirement and as per the O & M standards
- b) The Contractor will submit in his offer, a complete list of laboratory equipment and materials in accordance with the analysis program required, if in addition to the mandatory list of laboratory equipment.

3.3 Manpower

The Contractor shall provide experienced managerial, technical, supervisory, laboratory, administrative, and non-technical personnel and labour necessary to operate and maintain the treatment Plant and works properly, safely and efficiently on a continuous 24 hour basis for the full term of the O & M period. While doing so due consideration shall be given to the labour laws in force.

The qualification and capability of Contractor's personnel shall be appropriate for the tasks they are assigned to perform. The staff provided shall be fully trained in the operation of the works before being given responsibility. If, in opinion of the Engineer-In-Charge, a member of Contractor's staff is considered to be insufficiently skilled or otherwise inappropriate for the assigned task, and Engineer-In-Charge informs the Contractor in writing, the Contractor shall replace him with a person of appropriate skills and experience for the task, approved by the Engineer-In-Charge, within one month of being so informed.

The bidder shall propose in his tender a staff management structure for the operation and maintenance of works. The minimum manpower requirement shall be as per tender requirement.

Key staff: The Employer may require a suitable change in the structure on the basis of design, automation and other relevant parameters it deems fit.

The Contractor shall provide all secretarial support, printing and publishing services, office furniture and office supplies as required. It shall also ensure that all labour welfare laws and regulations are followed, including weekly rests, rotation of duties

The C V resumes of the Contractor personnel shall be submitted to the Engineer-In-Charge for acceptance at least two months before anticipated commencement of the pre-commissioning of test. Normal time duty hours for the Contractor's O & M personnel may be modified as necessary and agreed by the Engineer-In-Charge. A rotating shift schedule shall be established by the Contractor and approved by the Engineer-In-Charge who will ensure that an adequate number of the Contractor's staff will be available for duty at Plant 24 hours each day, 7 days week, including national holidays.

In the event that it is necessary for more than one of the Contractor 's O & M personnel to be absent from the Plant , for whatever reason, the Contractor shall provide a qualified replacement at his own expense and ensure that specified project duty coverage is maintained. If substitute key personnel are required for a period longer than 15 days, their CV must be approved in advance by the Engineer-In-Charge.

The O & M personnel shall be dedicated solely to the specified duties and responsibilities and shall not be diverted to perform Contractor's administrative duties, construction arrangement, office management, or other non- O & M activities. Adequate supports staff shall be provided by the Contractor in order avoid any such diversion.

The bidder shall provide justification of the labour cost proposed by him for all personnel

The Contractor shall include in his cost medical and accident insurance expenses of all the staff employed by him along with all provisions of the labour welfare acts prescribed from time to time by the State and Central Government. Adequate insurance cover shall also be maintained during

O & M period for all short-term employees, as well as casual, temporary employees and visitors.

Employer is not liable for any situation arising due to any accident/mishap of whatever nature occurring in the Plant premises.

3.4 Safety

The Contractor shall be responsible for safety of his staff during O & M of the Plant and shall procure, provide and maintain all safety equipment necessary for satisfactory O & M such as gasmasks, gloves, boots, mats etc.,

1. The Contractor shall utilize safety awareness procedures in every element of operation and maintenance.
2. The Contractor shall emphasize site safety including adoption of
 - (a) Safe working procedures
 - (b) Cleanliness and care of the plant as a whole
 - (c) Accident and hazardous conditions prevention and reporting.
 - (d) Safe practice while working near digester / gas holder areas

The Contractor shall impart safety training to all members at regular intervals, especially for new comers.

The Contractor shall provide Notice boards and display boards at appropriate locations detailing precautions to be taken by O & M personnel to work in conformity to regulations and procedures and by the visitors to the Plant.

The Contractor shall notify the Engineer in Charge representative immediately if any accident occurs whether on-site or off site in which Contractor is directly involved and results in any injury to any person, whether directly concerned with the site or a third party. Such initial notification may be verbal and shall be followed comprehensive report within 24 hours of the accident.

3.5 Reporting

The Contractor shall prepare consolidated daily reports, weekly and monthly reports on Plant operation and maintenance and submit to the Engineer-In-Charge. The daily reports are to be submitted within first working hour of the next day. The monthly reports shall be submitted on the first day of the next month and within two working hours with monthly record data to EIC.

Overall reporting formats shall be approved by Engineer-In-Charge and may have to be modified from time to time as required and approved by Engineer-In-Charge. Contractor may have to prepare and submit additional reports on particular matters and incidents as and when required by the Engineer-In-Charge for each significant occurrence.

4. MAINTENANCE

4.1 Maintenance of Installed Plant

The Contractor shall ensure the continuity of the Plant operations and the breakdown or the deterioration in performance of the Plant under normal operating conditions of any items of the Plant and equipment and component parts thereof shall be minimized.

The classes of maintenance provided shall comprise full Operational maintenance and standby Maintenance.

Full operational maintenance comprises the planned and regular maintenance carried out by the Contractor on a day-to-day basis, including cleaning, lubricating, minor adjustment, together with the preventive and corrective maintenance plan for those items of the Plant and equipment within the treatment works which have been commissioned and made operational.

Standby maintenance comprises the planned and regular maintenance carried out by the Contractor including cleaning, lubricating, periodic, and minor adjustment of all items of Plant and equipment within the treatment works which have been installed but have not yet been made operational.

The Contractor shall carry out the maintenance of the Plant installations in accordance with the requirements of the O & M Manual and to the approved maintenance plan. The Contractor shall strictly adhere to the manufacturers' recommendations with respect to equipment maintenance, and only use types and grades of lubricants to be used. The frequency of lubrication, adjustments to be made regularly, and recommended spare parts by the equipment/machine/instrument manufacturer/supplier shall be carried out and appropriate inventory shall be held in store.

4.2 Building and Site Maintenance

The Contractor shall be responsible for:

The full maintenance of building and all electrical, ventilation, plumbing and drainage installation in the building.

Building and housekeeping maintenance.

Full maintenance of the site water and wastewater services, cabling and earthing systems, and the site road lighting system.

Site maintenance including the upkeep of landscaped areas/ tree Plantation etc.,

The telephone installations in all buildings.

The building services and housekeeping maintenance shall be undertaken on all buildings and services installations.

Routine housekeeping maintenance shall be carried out in accordance with procedures specified in the Operation and Maintenance Manual which shall be approved by the Engineer-In-Charge.

4.3 Preventive Maintenance

The Contractor shall plan the day-to-day and the preventive maintenance. This planning must include for each equipment the estimated necessary hours in preventive maintenance and break down maintenance. It shall also include the qualification of the foreseen maintenance personnel.

The Contractor shall provide the yearly requirement of spare parts and consumable needed for the maintenance of each piece of equipment for the day - to-day maintenance, preventive maintenance, and foreseen break down maintenance/overhaul, if any.

5. TRAINING

5.1 General

- (a) The Contractor shall be responsible for instruction and training of all his personnel in all aspects of Plant operation and maintenance till the end of the operation and maintenance period. The Contractor shall also be responsible for training personnel designated by the Employer who will operate the Plant at the expiry of the contract.

The Contractor will make available for this purpose competent staff and as well as propose schedule information that may be necessary for effective execution of the training programs.

The training shall be organized in two (2) stages as follows:

Basic technical training education to be carried out during the final stages of the erection period of the contract through literature, manuals, handouts demonstration at site, etc.

Intensive on-the- job training during commissioning and maintenance period.

- (b) By the end of this training period these personnel should be able to carry out their respective duties efficiently under the supervision of Engineer-In-Charges and supervisory staff of the Employer.

The Contractor shall provide at his cost all local transportation, literature, computers, CDs and other related hardware and stationery to be used by trainers and trainees during the training period.

- (c) Towards end of O & M contract period, training shall be conducted once again to Employer's personnel or their authorized personnel. This training shall be for duration of 30 working days.

6. Operation and Maintenance records

The following are a typical sample form of records (not an exhaustive and comprehensive) that are required to be maintained by the O & M Contractor. The details of complete records shall be prepared and submitted by the O & M Contractor to the Engineer-In-Charge for approval prior to commissioning.

6.1. Performance data of Sewage Treatment Plant

The performance data sheet shall contain the records of the analytical results at the inlet and outlet values of all the parameters. These parameters are BOD, TSS, TN, TP and parameters as

per volume IIIA, Part-2. A table on performance data of STP based on the effluent parameters will be provided by the employer.

Month: Year:

Date	Unit/ Basin	a	b	c	d	e	f	g	Officer on duty	Operator

a : BOD

b : COD

c : Total Nitrogen

d : Total Phosphorus

e : Suspended Solids/ MLSS

f : Dewatered Sludge Concentration

g : Dewatered Sludge Coliform

6.2 Other Records

The contractor shall maintain detailed record of consumption of Polyelectrolyte and other scrubbing chemicals (if used). Record of wet sludge transported out of the plant site shall be maintained. Similarly record of material movement shall also be maintained as appropriate and approved by Engineer-In-Charge.

These records shall be available to the Engineer-In-Charge for scrutiny and copies shall be furnished on demand

SUB SECTION:-III

OPERATION AND MAINTENANCE MANUAL AND AS-BUILT DRAWINGS

The submission of the As-built drawings and the operation and maintenance manual for the system is the precondition for the final payment.

1. OPERATION AND MAINTENANCE MANUAL

The Contractor has to submit an operation and maintenance manual (SEPARATE FOR EACH STP) after the physical completion of the work. This manual will be submitted as draft at the date of physical completion and as final version one month after commissioning. It shall include all the experience made during the tests and the training given to the operators during the commissioning period. The Contractor will prepare this manual in cooperation with his suppliers and subcontractors and after consultation with the Employer's representative for detailed contents. It will at least contain the following items.

The Contractor shall compile operating, maintenance and overhauling instructions for the whole of the Plant.

The instructions shall consist of one volume of:

- (a) General descriptive text (including drawings for illustration) of the Works described section by section.
- (b) Complete operational instructions for the sewage treatment plant. This shall be termed the Operators Manual. It shall be aimed at the operational staff and shall be written in clear unambiguous text complete with drawings which necessary for clarification of any issues. The manual shall comprehensively detail what to do on a day to day basis and also what to do in the event of faults develop. It shall in addition provide a complete list of the process maintenance tasks the operator should carry out including the intervals between these tasks.
- (c) Essential instructions for mechanical and electrical maintenance of the Plant. These instructions shall be short and concise and set out in a consolidated schedule the inspection, lubrication, cleaning and any other type of servicing operations required. The Contractor shall prepare typical maintenance log sheets that the Employer can subsequently use for daily, weekly, monthly or other periodic maintenance and shall form record sheets of plant maintenance operations.
- (d) Instructions for use of skilled maintenance personnel in fault location, carrying out routine replacements, withdrawing, dismantling, overhauling, re-assembling and testing the various items of Plant.
- (e) Manufacturer's Technical Documentation subdivided into categories for:
 - civil;
 - process;
 - electrical;
 - electrical building services;
 - mechanical building services;
 - Instrumentation and control.

- (f) Civil As-Built Drawings.
- (g) Comprising the FDS and PLC code.
- (h) Electrical As-Built Drawings: The electrical drawings shall be complete sets including all information necessary for maintenance and spares replacement.
- (i) Control and instrumentation As-Built Drawings: The drawings shall be complete sets including all information necessary for maintenance and spares replacement.
- (j) Mechanical As-Built Drawings: The mechanical drawings shall be complete sets including all information necessary for maintenance and spares replacement.
- (k) Electrical and mechanical building services As-Built Drawings: The drawings shall be complete sets including all information necessary for maintenance and spares replacement.
- (l) FAT (Factory Acceptance Test) records for the Plants and Works.
- (m) SAT (Site Acceptance Test) records for the Plants and Works.

Each volume shall be subdivided (relating to areas of plant) into sub sections or sub-volumes in order to ease the location of plant details. Each volume or sub volume shall be provided with a comprehensive index for the volume or sub-volume concerned and the O & M manual as a whole.

Each volume shall be enclosed within A4 and A3 ring binders having tough grease resistant covers suitable for use on site and designed to permit the easy removal and insertion of the contents. The front cover and spine of each volume shall show details of the project, Employer, Engineer and a volume title.

Text shall generally be enclosed in A4 ring binders, A3 drawings shall be enclosed within A3 ring binders except where they accompanies A4 text in which case they shall be folded. A1 drawings shall generally be folded and enclose in A4 box files. Where A1 drawings accompany text they shall be folded and enclosed in an A4 plastic wallet, one wallet per drawing.

2. AS – BUILT DRAWING

These drawings shall be compiled by the Contractor and shall constitute a permanent record of the Works as executed. These shall include all such drawings, schedules, documentation and calculations as necessary for a complete understanding of the Works design, operation and maintenance.

The As-Built Drawings shall consist of the fully up-dated versions of the approved Construction Documents incorporating any additional information which will assist the Employer in operating, maintaining and if necessary modifying or extending the Works at a later date. These drawings should extend and supplement the information given in the Operating and Maintenance Manuals.

A3 and smaller sized As-Built Drawings shall be provided on durable paper for reproduction by photocopier. As-Built Drawings larger than A3 sized shall be provided as a paper copy and also produced in the form of black lines on a durable translucent film from which further paper prints

can be taken by others as required. In addition drawings shall be provided as an AutoCAD software copy in editable form in Compact Disc (CD) in two sets.

Other related information shall be provided in hardcopy as well as editable softcopy format (Microsoft Word, Excel, Access, or Project).

SPECIAL CONDITIONS OF CONTRACT – PART “B”

1. DEFINITIONS

1.1 ADVERSE OPERATING PERIOD

The period, during which waste water and/is not provided by the department at the pump stations.

1.2 BILLING PERIOD

Billing Period means each calendar month, except:

- (1) For the first Billing Period shall begin on the Date commencement of contract as defined in clause 1.3 below and shall continue till the last day of the respective month;
- (2) The last Billing Period shall start on the first date of the month of expiry of contract and end on the date of expiry of contract as defined in clause 1.10 below.

Any computation made on the basis of a Billing Period shall be adjusted on a pro rata basis to take into account any Billing Period of less than the actual number of days in the month to which such Billing Period relates.

1.3 COMMENCEMENT OF O&M PERIOD

From the date of successful completion and commissioning of the plant.

1.4 OPERATION AND MAINTENANCE CONTRACT PERIOD

Ten years from the commencement of O&M period (Including 3 year Defect Liability Period) as per clause 1.3 above.

1.5 DATE OF ISSUE OF TAKING OVER CERTIFICATE

After the completion of 10 years O&M Period (Including 3 year defect liability period), for contract as per clause 1.4 above, provided that the contractor has fulfilled the provision of Tender Document.

1.6 GOOD ENGINEERING PRACTICE

In respect of the Contractor, its subcontractors, and all other such third party agents of the Contractor, practices, methods, techniques and standards, as changed from time to time, that are generally accepted for use internationally for water treatment facility, pump house along with its electrical &-mechanical equipment(s), all type of pipe line and pipe appurtenances, all type of meters and control equipment(s), power sub-stations, and all other facility during construction, development, operations and maintenance, taking into account conditions in India.

1.7 NON-CONFORMANCE EVENT

Any occasion on which the Contractor does not treat the sewage as per plant effluent criteria and does not meet performance requirement.

1.8 OPERATION AND MAINTENANCE COMPLETION CERTIFICATE

As defined in Clause of Tender Document of this Project.

1.9 OPERATIONS AND MAINTENANCE SERVICES

All Services which are the responsibility of the Contractor and are required to fulfil the obligation of bid document and/or in the approved operation and maintenance manual and as defined in any other clauses of this contract.

1.10 EXPIRY OF CONTRACT PERIOD

As per Clause 1.4 above (or) as extended, as per the provisions TD.

1.11 PRICE ESCALATION FOR THE O&M PERIOD

Deleted.

2. EXTENSION & EXPIRY OF CONTRACT

2.1 EXTENSION OF OPERATION AND MAINTENANCE PERIOD

2.1.1. The Operations & Maintenance Period can be extended for another period of 5 years based on such terms as acceptable to both Parties ("The Contractor" and the "Employer")

2.1.2. In such an event, either Party ("The Contractor" or the "Department") shall notify its intention to extend the Operations & Maintenance Period at least six months before its expiry and commence discussions with the other Party to arrive at a mutually agreed basis of terms and conditions for the extended period.

2.2 EXPIRY OF THE OPERATION AND MAINTENANCE PERIOD & TAKING OVER BY THE EMPLOYER

2.2.1. Six months prior to the expiry period, the Employer will notify the contractor, the maintenance required for the facilities including all structures and road, plants, materials and equipment(s) therein, so that the facilities may be taken over in an acceptable physical conditions (physical conditions in reference to the initial physical condition at the start of O&M period, after accounting reasonable wear and tear during operation) and in operation conditions.

2.2.2. Notwithstanding to the notification done by department as per clause 2.2.1 above, the contractor shall repair, maintain and operate the facilities as per the terms and conditions of this contract, till 12.00 Noon up to the date of expiry of contract period.

2.2.3. The contractor, shall be liable for all defects, faults, blockages in sewer/chambers etc occurred or noticed prior to the 12.00 Noon, up to the date of expiry of contract, even if the facilities are taken over by the department subsequently, due to expiry of contract period, as per clause 2.2.2 above. However, the Employer has to notify all such defects/liabilities of contractor within 30 days of taking over of facilities.

2.2.4. Till the date of expiry of contract period, the contractor shall do all routine and

periodic/break-down maintenance as prescribed in the O&M manual, in force, at the time of expiry of contract.

- 2.2.5. On expiry of contract, the contractor shall hand over all spares, tools and for which he has been paid.
- 2.2.6. After, expiry of the contract, the contractor shall provide two copies of the updated O&M manual. The components of communication system used during O&M period in operating condition, the T&P required for maintenance of facilities.
- 2.2.7. If the contractor does not comply with any of the provisions from 2.2.1 through 2.2.6 above, or any other requirement in pursuance of Good Industrial Practices, the Engineer –In-charge shall estimate the cost of liabilities due to violation of any of the provisions of this contract. Such estimates made by Engineer-In-Charge shall be final and binding for the contractor. However, in a reasonable endeavour, such estimates shall be communicated to the contractor, within 30 days of expiry of the contract. The contractor shall be given an opportunity to rectify the damages through his staff/agents, or for supply of required material provided such rectification of defects on maintenance do not require any shut down of the system, within 60 days of such notification of estimates by department.
- 2.2.8. Within 120 days of expiry of the contract period as per clause 1.4, the Department shall prepare the final estimates for recovery from the contractor and shall prepare the final bill for the work.
- 2.2.9. If the recoveries to be done by Department are more than the final bill to be paid, the contractor shall deposit the required amount to be recovered from contractor or this amount shall be recovered from the securities/guarantees etc. with the department as deemed suitable.
- 2.2.10. After the date of expiry of contract and recoveries of all dues payable by the contractor, the Engineer-In-Charge shall issue a "Certificate of Taking over."

3. PAYMENTS

3.1 BASIC SERVICE CHARGE (BS)

- 3.1.1 The Basic Service Charges shall comprise all expenses for operation and maintaining the Facilities, as provided in the scope of work for O&M in "Scope of Work and Technical Specifications" of bid document. In addition to the cost of material/equipment spares, repair/replacement of equipment and labour, all other expenses such as expenses for patrolling, administration and management, permanent & temporary staff, running office, maintenance of all structures, updating of operation and maintenance manual, etc. and all other incidental and indirect expenses for the works detailed in "Scope of Work for O&M" in bid document or for works otherwise required as per good engineering practices for Operation and Maintenance of the entire system including Electricity cost are included in this Basic Service Charges.
- 3.1.2 Reduction of rates (RR) for non function of STP Units
 - 3.1.2.1. In case of STP or any unit of associated works is non functional for 2 hrs then Rs. 2000.0

per happening will be deducted from O&M bill. If non function period is more than 2 hrs and up to 4 hrs Rs. 5000.0 per happening will be deducted from O&M bill. If any unit of PS/STP is non functional more than 4 hrs then one day O&M cost plus Rs. 5000.0 as penalty will be deducted from O&M bill.

- 3.1.2.2. A token compensation of Rs. 1000 for unattended breakdown /over flow of any water retaining structure of Associated works of STP per occurrence shall be leviable if the delay in satisfactory completion of repair is beyond 12 hours from the time of each notice by the Employer.
- 3.1.2.3. In event of non compliance of any of the effluent parameters stipulated in Tender during O & M period, Liquidated damages as per clause 11 of Volume IIB shall be applicable during O&M period.

3.2 BILLING AND PAYMENT PROCEDURE

- 3.2.1. Commencing with the first Billing Period of the Operations & Maintenance period and for each Billing Period thereafter during the Operations & Maintenance Period,
- 3.2.2. The payment shall be in accordance with the following formula: $SF = BS - RR$

Where:

SF = Service Fee

BS = Basic Service Charges, as per clause 3.1

RR = Reduction in Rates or any other deduction as per terms and conditions of contract if any

- 3.2.3. The Fee payable shall be computed in accordance with this Clause and shall be adjusted from time to time, due to the provisions of clause of Tender Document or any other provisions in the contract. The Service Fee is and shall be considered to be a Single Fee payable for O&M of the system. The Department shall pay the Contractor the Service Fee with respect to each Billing Period during the Operations & Maintenance Period, but shall have no obligation to pay the Service Fee till the commencement of O&M period as per bid document. The Service Fee constitutes the entire compensation of the Contractor for performing the Operation & Maintenance Services, as per the scope of work and other obligations due to this contract.

3.3 TAXES AND DUTIES

- 3.3.1. The Contractor shall be responsible for paying all taxes/duties/cess including service tax, cess or any other levies imposed by the Government and assessed as due and payable by the Contractor associated with the carrying out of the services. Notwithstanding the provisions of any Clause of this Conditions of Contract for Operation and Maintenance, the Department shall be entitled to withhold or deduct from payment to the Contractor any amount demanded by the competent authority.

3.3.2. All statutory deductions shall be made from all the payments done to the contractor.

3.4.1 Inspection by Employer

- 3.4.1.1. The Department may periodically check the operation of the Facility or designate an organization of its choice at the cost of Employer to carry out inspections of the Facility to satisfy itself that the Contractor is performing its obligations with due diligence.
- 3.4.1.2. The Contractor at its own cost shall provide any assistance required for such inspection of the Facility.
- 3.4.1.3. The Employer representative can inspect the facility at any moment during the O&M period.

4. TERMINATION

4.1 CONTRACTOR'S DEFAULT

- 3.1.1 The Employer shall be entitled to terminate this Contract for the following reasons attributable to the Contractor, unless arising as a result of a Force Majeure Event, or any cause related to the obligations of the Department.
 - a) Repudiation of this Contract by the Contractor or the evidencing of an intention by the Contractor not to be bound by the terms of this Contract.
 - b) Appointment of a provisional liquidator in providing for winding up of the Contractor unless such appointment has been set-aside within 45 days.
 - c) The Contractor is ordered to be wound up by a court or files a petition for voluntary winding up except for the purpose of amalgamation or reconstruction provided that such amalgamation or reconstruction does not adversely affect the ability of the amalgamated or reconstructed entity to perform its obligations under this Contract, the successor has assumed in writing unconditional responsibility for the performance of the Contractor's obligations and the technical, financial and operating capability of the successor is satisfactory to the Department.
 - d) The Contractor abandons the operation of the Facility.
 - e) Under conditions expressly mentioned in any Clause of this Conditions of Contract for Operation and Maintenance.

4.2 CONSEQUENCES OF TERMINATION BY DEPARTMENT

If the Employer, with reasonable grounds, terminates the contract under clause 6.1 above, the Secured Advances, and any other sums of the contractor with the Department, shall be forfeited and action shall be taken against him as per clause 3 of General Conditions of Contract, if deemed appropriate.

5. INDEMNIFICATION

- 5.1. The Contractor to indemnify the Department against the following:

- a) The Contractor shall at its own expense make good any physical loss or damage to the Facility occasioned by it in the course of the performance of its obligations under this Contract if and to the extent such loss or damage is caused by the wilful misconduct or failure to follow Good Engineering Practices of the Contractor, any sub-contractor or their respective agents or employees.
 - b) The Contractor shall indemnify, defend and hold harmless the Department and its officers, employees, agents and affiliates against any and all claims of loss, damage and expense of whatever kind and nature, including all related costs and expenses incurred in connection therewith, in respect of personal injury to or death of third parties and in respect of loss of or damage to any third party to the extent that the same arises out of:
 - i) Any breach by the Contractor of its obligations hereunder;
 - ii) Any negligent act or omission on the part of the Contractor, its subcontractors or their respective agents or employees; and
 - iii) Any wilful misconduct or breach of statutory duty on the part of the Contractor, its subcontractors or their respective agents and employees.
 - iv) Any other event where such indemnification has been expressly mentioned in this Conditions of Contract for Operation and Maintenance.
 - c) The Contractor shall indemnify, defend and hold harmless the Department and its, officers, employees, agents and affiliates against any and all claims of loss, damage and expense of whatever kind and nature, including all related costs and expenses incurred in connection therewith in respect of the death or injury to any person employed by the Contractor or its subcontractors in connection with the performance of the Contractor's obligations.
- 5.2. The Contractor shall indemnify the Department against all losses and claims in respect of:
- (a) Death of or injury to any person, or,
 - (b) Loss of or damage to any property (other than the Works).which may arise out of / in consequence of the Operation and Maintenance of the Facility and the remedying of any defects therein, and against all claims proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto, subject to the exceptions below
 - i) The permanent use or occupation of land by the Facility, or any part thereof.
 - ii) The right of the Department to execute the Facility, or any part thereof, on, over, under, in or through any land.
 - iii) Damage to property that is the unavoidable result of the execution and completion of the Works, or the remedying of any defects therein, in accordance with the contract.

6. INTELLECTUAL PROPERTY

- 6.1. All Intellectual Property conceived, originated, devised, developed or created by the

Contractor specifically for the Facility or the carrying out of the obligations under this Contract shall vest in the Department as sole beneficial owner and shall be disclosed to the Department upon its [the Intellectual Properties] coming into existence.

- 6.2. Source code for computer programmers and associated documentation, storage media shall be made available to the Department by the Contractor free of cost
- 6.3. Any Intellectual Property of the Department that is required in connection with the performance of the obligations of the Contractor shall be made available to the Contractor free of charge for the purposes of this Contract alone
- 6.4. The Contractor shall, at its own cost and expense, ensure availability at all times during the Term of this Conditions of Contract for Operation and Maintenance, of any proprietary spares/consumables/equipment that it may have sourced for purposes of ensuring proper functioning of the Facility as per this Conditions of Contract for Operation and Maintenance.
- 6.5. The Contractor shall, as far as practicable, use its best efforts
 - (a) To procure that Intellectual Property owned or developed by third parties and utilized by the Contractor in connection with the performance of its obligations under this Contract for the production of treated water from the Facility and otherwise for the Facility but for no other purpose on reasonable terms
 - (b) To ensure that no Intellectual Property of a third party is otherwise used in the performance of the Contractor's obligations under this Contract without the approval from the Department.
- 6.6. On Termination of this Conditions of Contract for Operation and Maintenance, the Contractor shall transfer all such Intellectual Property whatsoever to the Department and/or to the Successor Operator at the discretion of the Department.

7. DOCUMENTS RECORDS / LOG BOOK

- The contractor will be responsible for keeping up to date records of documents including History Card for equipment and maintaining every day log book relating to various analysis performed and to prepare and submit a daily report of Pumping Station performance. The contractor shall maintain an updated log book and details of operational parameters like pumping hours, Amperes, Flow meter reading, H.T. Voltage, Power Factor, energy meter reading, pressure and other reading required are recorded in every shift at regular interval e.g. hourly or as agreed mutually (by SJPNL).
- Printing of log sheets, registers and all necessary stationery required for maintaining records of operations and maintenance has to be arranged by the Contractor at his cost. Format of log sheets, registers will be made available to the successful tenderer by SJPNL.

8. ADDITIONAL SCOPE OF WORK

- For additional work, if any, which is not included in the scope at present shall be executed by the contractor on authorization in writing from SJPNL;.

- The rate of such additional work will be worked out by the Contractor based on the cost of materials and labour and shall be furnished to MCS. The contractor shall be entitled for full cost of materials, direct labour and cost of operation of equipment/machinery etc. required to execute the work.
- For such additional work, the contractor shall maintain time sheets of personnel engaged and equipment/machinery used for the execution of work. Only such labour and other costs based on the above records shall be applicable to the rates payable for above additional work.

9. GENERAL ROUTINE MAINTENANCE

General routine preventive maintenance schedule for various equipment shall be adopted from O&M Manual. However the general routine maintenance to be carried out by the Contractor's personnel will include but not limited to the following:

- a) Replacement of gland packing for the valves etc. whenever required.
- b) Greasing of bearing and lubricating all moving parts as per the schedule.
- c) Tightening of all loose nuts, bolts and other fasteners.
- d) Cleaning of sump at regular intervals.
- e) Lubricating and test operation of the valves.
- f) General cleaning of all equipment.

10. PREVENTIVE MAINTENANCE CHECKS:

The contractor shall adopt a preventive maintenance check's schedule as per original equipment manufacturer O & M schedule under intimation to the Employer. The preventive maintenance checks and their tasks frequencies will not be limited to the following:

Checks to be performed daily

- a) Tightness
- b) Working of gauges and other measuring devices.

Checks to be performed weekly

- a) Pipeline leakages
- b) Tightness of all electrical connections
- c) Tightness of all cable connections
- d) Operation of all sluice and butterfly valves, scour and pressure relief valves, gates and air valves.
- e) Contractor shall be equipped with dewatering pump of required capacity of pumping sewage, the unit shall also consist of power generating set.

- f) All parts of the machinery and electrical equipments liable to wear and tear shall be replaced by the contractor as per direction of engineer in charge.
- g) Current and voltages in all electrical equipments.

Checks to be performed monthly

- a) Gland packing
- b) Wear and tear of moving parts.
- c) Maintenance of Valve actuator, Battery, etc. shall be carried out as approved by the Engineer-in-charge.

Checks to be performed bi-annually

- a) Battery and Battery charger

Checks to be performed annually

- a) Overhauling requirement of all equipment
- b) Improvement required if any in operation of plant
- c) Testing and calibration of all instruments

11. COMPUTER MONTHLY REPORT

The contractor has to provide at site one computer with printer to keep all the records, data maintenance schedules, spares available for the plant. Monthly statements for, total quantity of sewage entering to STP in MLD, plant effluent performance data, Lab test results, stock on chemicals, manpower list available at site, routine test result, monthly consumable and repair maintenance during the month shall be furnished by the contractor.

(Note: In case of sample failure as per the report of HP-PCB the sample failure deduction of 40,000/- will be deducted from each failed sample and any penalty imposed on SJPNL due to bad performance of STP by any state Govt or central Govt organization/NGT will be recovered from contractor.)