

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

	TICEL BIOPARK LTD, TARAMANI, CHENNAI	
e-TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF AUTOMATED FERMENTOR SYSTEMS (650 L AND 100 L), CHILLER, STEAM GENERATOR AND DOSING VESSELS FOR THE BIOFOUNDRY SCALE-UP FACILITY AT TICEL BIO PARK, PHASE-II, CHENNAI, TAMIL NADU, INDIA		
VOLUME – I Conditions of Contract, Pre-Qualifications Criteria, & Technical Specifications etc.,		
e-Tender No: TICEL/2026-27/FEM/06		
Date of Issue:	04/08/2026	
Date for submission through website https://www.tntenders.gov.in/	On or before 04/09/2026 @ 3.00 PM	
August 2026		

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**TICEL BIO PARK LTD CONTENTS**

Section	Particulars	Page Nos.
1	Notice Inviting Tender (NIT)	3
2	Information about TICEL BIOPARK LTD	4
3	Pre-qualification Criteria	5
4	Tender Information summary	7
5	Instruction to Bidders	12
6	Conditions of Contract	25
7	Project completion period / Work execution schedule	73
8	Particulars of equipment specification	78
9	General specification	113
10	Hand Book on Health & Safety at Work	134

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Section 1: Notice Inviting Tender (NIT)**

 TICEL BIO PARK LTD (TIDCO Centre for Life Science) CIN: U45309TN2001PLC047979 No.5, CSIR Road, Taramani, Chennai - 600 113. Ph: +91 44 2254 2060, www.ticelbiopark.com Email: md@ticelbiopark.com scientific@ticelbiopark.com			
TICEL invites e-Tender for the following :			Date: 04.08.2026
Sl. No.	e-Tender No.	Description of tender	Closing Date
1.	TICEL/2026-27/FEM/06	Procurement of Fermentor Systems	04.09.2026
2.	TICEL/2026-27/CEN/07	Procurement of Floor Model Centrifuge	04.09.2026
Visit tenders.gov.in for more details.			
DIPR/...../Tender/2026			Managing Director

8 x 4 cm

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Section – 2 Information about TICEL Bio Park Ltd**

TICEL has constructed Bio technology park – I & II with a buildup area of 7.60 Lakhs Sq. ft in 5 acres of land at Taramani, Chennai- 600113. TICEL Biopark is a State-of-the-art building for Research and Development for Biotech activities.

A fully furnished incubation space has been developed at an affordable cost to support startups. In addition, we are planning to establish a Bioprocess scale -up facility at TICEL Biopark, Phase – II, Chennai. This centre will be equipped with essential process equipment to facilitate research and conduct scale-up study in the fields of industrial Biotechnology.

A. Project Location

The site proposed for the said TICEL Phase-II, Taramani, Chennai – 600113.

The Google Map Location: <https://maps.app.goo.gl/rskxdQyajSVee4ay7>

B. Linkage and Connectivity

The project site is at the prime location and is well connected to major cities through road and rail network.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Section 3: Pre-qualification Criteria**

TICEL BIOPARK LTD invites E-Tender for Supply, Installation, Testing and commissioning of automated Fermentor's, Chiller & Steam generator and dosing vessel in TICEL BIO PARK LTD, PHASE-II, Taramani, Chennai from experienced and eligible contractors, who meet the following Qualifying Criteria.

TICEL Bio Park Ltd Invites Tender from Manufacturers for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF AUTOMATED FERMENTOR'S (650L & 100L), CHILLER & STEAM GENERATOR AND DOSING VESSEL at **Biofoundry – Bioprocess scaleup facility in TICEL Phase-II, Taramani, Chennai, Tamil Nadu, India.**

a) Experience of the Manufacturers

The TENDERER should be a well-established Manufacturers, having experience of minimum 10 years in the field of Supply, Installation, Testing and Commissioning of Fermentors (Copy of the Certificate of Incorporation from Registrar of Companies (in case of company) or Copies of Acknowledgements issued by IT department for the last 10 year's (in case of firms) has to be enclosed by the Manufacturer for FY 2016-17 to 2025-26.

b) Experience in similar work (Supply, Installation, Testing and Commissioning of Fermentors):

The TENDERER should have satisfactorily completed the Supply, Installation, Testing and Commissioning of Fermentors with the equivalent specification as mentioned in tender document during any one of the last 5 years (FY 2021-22, 2022-23, 2023-24, 2024-25 & 2025-26) should be either of the following: -

- I. One similar completed work (Supply, Installation, Testing and Commissioning of Fermentors), costing not less than the amount equal to Rs. 150 Lakhs (without GST) in any one year.
or
- II. Two similar completed works (Supply, Installation, Testing and Commissioning of Fermentors), each costing not less than the amount equal to each Rs.112 Lakhs (without GST) in any one year.
or
- III. Three similar completed works (Supply, Installation, Testing and Commissioning of Fermentors), each costing not less than the amount equal to each Rs.75 Lakhs (without GST) in any one year.

The TENDERER should submit LOA or purchase order or Agreement and Work Completion

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

certificate for the above works as part of technical bid.

- c)** The tenderer shall have supplied, installed, tested, and commissioned an automated fermentor with a minimum capacity of 500 liters, under a single work order, in compliance with GMP standards, during any one of the last five financial years (i.e., FY 2021-22, 2022-23, 2023-24, 2024-25, or 2025-26). A copy of the purchase order and work completion certificate for the aforementioned work must be submitted as supporting documentation.

d) Annual Turnover

Annual Turnover of minimum Rs. 150 Lakhs by the legal entities /Firm/Company in any one of the last Five Financial Year 2021-22, 2022-23, 2023-24, 2024-25 & 2025-26.

The TENDERER should submit copy of Auditor's Certificate on Turnover as part of technical bid.

e) Banker Solvency

Should produce Banker Solvency for Rs.75 Lakhs from Nationalized / Scheduled bank obtained not earlier than 3 months from the last date of submission of Tender.

f) Consortium of bidders not allowed

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Section 4: Tender Information Summary(TIS)**

1.	Tender Title	e-TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR SYSTEMS (650 L AND 100 L), CHILLER, STEAM GENERATOR AND DOSING VESSELS FOR THE BIOFOUNDRY SCALE-UP FACILITY AT TICEL BIO PARK, PHASE-II, CHENNAI, TAMIL NADU, INDIA.
2.	Tender Reference Number	Tender No. TICEL/2026-27/ FEM/06
3.	Tender Type	Open Tender System
4.	Form of Contract	Item wise Contract
5.	Tender Category	Goods /works
6.	No. of Covers	Two Cover System (Online submission of Volume – I Technical Bid, Volume II Financial Bid - BOQ) through Website https://tntenders.gov.in
7.	Procuring Organization and their Address for any clarification	Managing Director, TICEL Bio Park Ltd, No.5, CSIR Road, Taramani, Chennai – 600 113. Any clarification in the tender shall be sought through e-mail before 6.00 PM on 18.08.2026 Email id1: md@ticelbiopark.com .
8.	Tender Inviting Authority	Managing Director, TICEL Bio Park Ltd,
9.	Tender Document Available to download	Website : https://tntenders.gov.in at free of cost From 04.08.2026 to 04.09.2026 UP TO 03.00 pm
10.	Earnest Money Deposit EMD	Rs. 2,00,000/- (Rupees two Lakhs only) The Earnest Money Deposit (EMD) shall be submitted in online mode only. i) The EMD amount must be exactly as specified. Any excess or short amount will render the bid invalid. ii) The EMD shall not carry any interest. iii) The EMD shall be refunded to all unsuccessful bidders after the final award of contract. iv) In respect of the successful bidder, the EMD shall

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

		be refunded (without interest) upon submission of the Performance Guarantee. v) Under any circumstances EMD will not be accepted in the form of fixed deposit receipts or insurance guarantees, etc. vi) The EMD shall be unconditional and without any reservations. vii) Bidders are advised to submit the EMD (Online) well in advance to avoid delays. viii) The EMD shall be payable to TICEL BIO Park Ltd. without any condition(s), recourse, or reservations. The Earnest Money Deposit made by Tenderer will be forfeited after tender opening: i) If the Tenderer withdraws their tender or backs out after acceptance of the tender or fails to remit the Security deposit. ii) If the Tenderer revises any of the terms quoted during the validity period. iii) If the Tenderer violates any of the conditions of the Tender specification. iv) If, the documents furnished with the offer are found to be bogus or the documents contain false particulars. v) If, the successful tenderer fails to execute the agreed contract /agreement. vi) If the Bid Qualification Requirements are found to be fraudulent/non-genuine, the EMD paid will be forfeited in addition to blacklisting in future contracts with TICEL BIO Park Ltd. vii) Undue delay in submission of performance guarantee
11.	Published Date	04.08.2026
12.	Bid Validity (Days from the date of Tender Opening)	120 Days from the date of Tender Opening
13.	Document Download Start Date	04.08.2026
14.	Document Download End Date & Time	04.09.2026 upto 3.00 PM
15.	Clarification End Date &	18.08.2026 upto 3.00 PM

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

	Time	
16.	bid Submission Start Date & Time	27.08.2026 at 3.00 PM
17.	bid Submission Closing Date & Time	04.09.2026 upto 3.00 PM
18.	Tender Opening (Techno-commercial bid) Date & Time	07.09.2026 at 4.00 PM
19.	Tender Opening (Financial bid) Date & Time	<i>[To be intimated later]</i>
20.	Pre-bid Meeting Date, Time and Venue	18.08.2026 at 11.00 AM @ TICEL Bio Park – Phase II, Taramani, Chennai.
21.	URL for online bid submission for e-tender	https://tntenders.gov.in
22.	Date of commencement of work	15 days from the date of issue of Letter of Award.
23.	Period of Contract	
	Execution of works for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S, CHILLER & STEAM GENERATOR AND DOSING VESSEL	Six months from the date of issue of LOA
24.	Performance Bank Guarantee	The successful Bidder shall furnish a Performance Bank Guarantee within 15 days of LOA in the format appended herein for an amount of 10% of the contract sum (excluding GST), valid till the end of warranty Period of two years from the date of satisfactory handing over of the completed works by the successful bidder to TICEL with provision for direct re-validation on demand by TICEL, when so called for, for the execution and due fulfillment of the Contract. The Performance Bond shall be returned after successful completion of Warranty period.
25.	Advance Bank Guarantee (ABG)	50% of the contract value shall be released as advance payment against submission of an Advance Bank Guarantee (ABG) equivalent to 50% of the contract value.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

		- The successful bidder shall submit the 50% Advance Bank Guarantee within fifteen (15) days from the date of receipt of the Letter of Award (LOA). - The Advance Bank Guarantee (ABG) shall remain valid for a period of six (6) months from the date of submission. In the event that TICEL Bio Park Limited grants an extension of the work completion period, the successful bidder shall, at its own cost, extend the validity of the ABG for the corresponding extended period and submit the renewed/extended ABG to TICEL before the expiry of the existing ABG. Failure to extend the validity of the ABG shall entitle TICEL Bio Park Limited to invoke the existing ABG and take such other actions as may be deemed appropriate under the terms of the Contract. - Upon receipt and acceptance of the ABG by TICEL Bio Park Limited, the 50% advance payment shall be released. - In the event of failure to deliver the equipment within the stipulated delivery period (including any approved extension), TICEL Bio Park Limited reserves the right to invoke and encash the Advance Bank Guarantee before its expiry. - Upon successful delivery of the equipment at the site and adjustment of the advance payment against the Contract, the Advance Bank Guarantee (ABG) shall be released and returned to the successful bidder, provided there are no outstanding claims or defaults under the Contract.
26.	Signing of Agreement	The Contract is concluded by issuing LOA and the Contractor has to comply with the requirements as per the Tender including signing of agreement within 15 days from the date of LOA.
27.	Liquidated Damages	0.1% (Zero decimal one per cent) of the contract sum per week of delay subject to a maximum of 10% of the contract Value (exclusive of GST). The period of delay shall be as opined by TICEL which is final and binding on the contractor.
28.	eProcurement Portal and helpdesk for	https://eprocure.gov.in/e-procure/app
		<i>Contact Number:</i> 0120-4001 002; 0120-4001 005;

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

	Document availability and submission		0120-6277 787 or support-eproc@nic.in
		www.ticelbiopark.com	044-22542060
29.	Cost of Tender Document (INR)	Nil	
30.	Office/ Contact Person/ email for clarifications	Mr. V. Senthil Kumar Designation: Manager (Scientific / Bio process) Email id scientific@ticelbiopark.com Contact Number 9445956402	

Note:

(i) The tender document can be downloaded from website <https://tntenders.gov.in>
“Corrigendum, if any, would appear only on the above web sites and not to be published in any Newspaper”.

Date:

Place:

Signature of the Tenderer with Seal

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Section – 5 Instructions to Bidders****Introduction:**

The bidding under this contract is electronic bid submission through website <https://tntenders.gov.in/only>. Detailed guidelines for viewing bids, enrollment and submission of online bids are given on the website. The tender notice is also available in <https://www.ticelbiopark.com>. Prospective bidders can login to this website and view the invitation for Bids and can view the details of works for which bids are invited. The website <https://tntenders.gov.in/> also has “bidder manual kit” with detailed guidelines on enrolment and participation in the online bidding process. The user manuals can be downloaded for ready reference. Queries pertaining to the e- tendering system may be addressed to the E-Tender Cell by sending an E-Mail to etender@tn.nic.in.

1. Registration:

- i) The bidders can enroll themselves on the website <https://tntenders.gov.in> using the “**Online Bidder Enrollment**”. This enrollment is free at this point of time.
- ii) The bidders are required to have enrollment/registration in the website by clicking on the link “Online bidder enrollment” which is free of charge.
- iii) As part of the enrollment process, the bidders are required to choose a unique username and assign a password for their accounts.
- iv) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These details would be used for any communication from the e-Portal.
- v) Possession of **valid Digital Signature Certificate (DSC)** (Class III Certificates with signing key usage) in the Company's name issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), is a prerequisite for registration and participation in the bid submission activities.
- vi) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC to others which may lead to misuse.
- vii) Bidder can login to the site through the secured login by entering their user ID / password and the password of the DSC / e-Token.
- viii) The website also has user manuals with detailed guidelines on enrollment and participation in the online bidding process which can be downloaded for ready reference.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

ix) Correspondence details:

For queries related to registration and online bidding (NIC): e-mail: support.etender@nic.in Contact No.: 044 – 24466495 24902580 Extn. 332 24917850	For queries related to tender enquiry / specification: 1) 044-22542060 2) Email: md@ticelbiopark.com
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2. Searching for Tender Documents

- i) There are various search options built in the Website, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc.
- ii) Once the bidders have selected the tenders they are interested in, they may download the required documents/tender schedules. These tenders can be moved to the respective “My Tenders” folder. This would enable the Tamil Nadu Govt. e-Procurement Portal, to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
- iii) The bidder should make a note of the unique Tender ID assigned to each tender; in case they want to obtain any clarification / help from the Helpdesk (NIC).

3. Preparation of Bids

- i) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
- ii) Bidders are requested to go through the NIT and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- iii) Bidder, in advance, should keep ready the bid documents to be submitted as indicated in the tender document and generally, they can be in PDF / XLS formats. **Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.**
- iv) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My space or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process. Anyhow, over and above the documents available in "My Space" option, it is the sole responsibility of the bidder to ensure the uploading /submitting required documents as called for in the tender.

- v) The completed bid comprising scanned copy of necessary technical and commercial documents should be uploaded on the website along with signed and scanned copies of requisite certificates, mentioned in the different sections in the tender document, with necessary attestation wherever called for, in the tender.
- vi) The bidder should submit the bid in two Volumes.
The first volume relates to **Technical Bid** submitting all the required details and documents complying with all the eligibility conditions and the other tender conditions/instructions in PDF Format.

The second volume relates to **Financial Bid** (BOQ) furnishing the rate for each item in XLS Format.

4. Electronic submission of bids:

The bidder shall submit online the requirements under qualification criteria, the Technical Documents required and Price Schedule/BOQ. All the documents are required to be signed digitally by the bidder. After electronic online bid submission, the system generates a unique bid reference number which is time stamped. This shall be treated as acknowledgement of bid submission.

5. Procedure for submission of bids:

- i) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- ii) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- iii) The Earnest Money Deposit (EMD) shall be submitted in **online mode only**.
- iv) A BOQ format for the price bid has been provided with the tender document to be filled by all the bidders. Bidders are requested to note that they should

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

necessarily submit their financial bids in the BOQ format provided and no other format is acceptable. Bidders are required to download the BOQ file, open it and complete the colored (Unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the file name. If the BOQ file is found to be modified by the bidder, the bid will be rejected.

- v) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
- vi) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid openers' public keys.
- vii) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- viii) Upon the successful and timely submission of bids, (i.e. after clicking "Freeze Bid submission" in the portal) the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- ix) The bidder is responsible to ensure they have sufficient time to submit an electronic bid prior to closing date and time including the payment of any fees including the Bid security and getting e-receipt. Contracting authority is not responsible for any failure, outside their control.
- x) TICEL BIOPARK Ltd may, at its discretion, extend the deadline for the submission of bids by amending the bidding document, in which case all rights and obligations of TICEL BIOPARK LTD and bidders subject to the previous deadline shall thereafter be subject to the extended deadline.

6. Late Bids

The Electronic bidding system would not allow any late submission of bids after due date and time as per server time.

7. Modification and withdrawal of bids:

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

- i) Bidders may modify their bids online before the deadline for submission of bids.
- ii) In case a bidder intends to modify his bid online before the deadline, the bidder need not make any additional payment towards the cost of bid processing. For bid modification and consequential re-submission, the bidder is not required to withdraw his bid submitted earlier. Modification and consequential re-submission of bids is allowed any number of times. The last modified bid submitted by the bidder within the bid submission time shall be considered as the bid. For this purpose, modification/withdrawal by other means will not be accepted. The bidder may withdraw his bid by uploading his request before the deadline for submission of bids, however, if the bid is withdrawn, the re-submission of the bid is not allowed.
- iii) No bid may be modified after the deadline for submission of Bids.

8. Assistance to Bidders:

Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

Any queries relating to the process of online bid submission or queries in general may be directed to the 24x7 e-Procurement Portal Helpdesk.

TICEL BIOPARK does not bind itself to accept the lowest or any tender and reserve to itself the right to accept or reject any or all the tenders, either in whole or in part, without assigning any reasons for doing so. Offers of Bidders who are under suspension / termination / banned / blacklisted by any PSU / Govt. Dept. or otherwise shall not be considered / accepted.

- a) The tender form must be filled in English. If any of the documents is missing, or unsigned, TICEL BIOPARK LTD, in its discretion may consider the tender invalid. All the pages of tender including pre bid clarification are to be signed and uploaded. If any missing of pages will lead to rejection of tender at initial stage itself.
- b) Any items left unpriced shall be deemed to be included for elsewhere in the BOQ or the schedule and hence the rate for that item will be taken as nil. No unsolicited advice of any change in rate or conditions after the opening of the tender will be entertained.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

- c) The rate quoted includes all expenses, cost of Manpower, tools & equipment etc., including overheads and profits for the lump sum prices quoted in the Bill of Quantities. However, statutory payment for taxes and levies such as Income Tax (TDS), surcharges, other taxes, if any, etc., will be deducted from bills at applicable rates prevailing from time to time. Taxes and Duties if any, introduced by the Govt. during the course of the contract will become payable.
- d) Each page of the tender documents should be signed by the person or persons with seal of authority submitting the tender in token of his/their having acquainted himself/themselves with the General Conditions of Contract, Specifications, Special Conditions, etc., as laid down. Tender documents not so signed will be rejected. Any additions/ deletions/corrections/ omissions/modifications/clarifications in the tender document will be intimated to the tenderer at the time of pre- bid meeting and the same will also form part of the tender document.

9. Earnest Money Deposit

- i) Intending Tenderer should pay an EMD amount as specified in the Tender Contract Data.
- ii) The Earnest Money Deposit (EMD) shall be submitted in **online mode only**.
- iii) The EMD will not carry any interest.
- iv) In respect of the successful tenderer, the EMD shall be returned (without any interest) by TICEL BIOPARK LTD. on submission of Performance Bank Guarantee.
- v) Any other mode of payment of EMD shall not be accepted.

The Earnest Money Deposit made by Tenderer will be forfeited after e-tender opening:

- i) If he withdraws his tender or backs out after acceptance of the tender or fails to remit the Security deposit.
- ii) If he revises any of the terms quoted during the validity period.
- iii) If he violates any of the conditions of the Tender specification.
- iv) If, the documents furnished with the offer are found to be bogus or the documents contain false particulars.
- v) If, the successful tenderer fails to execute the agreed contract / agreement.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

vi) If the Bid Qualification Requirements are found to be fraudulent/ non-genuine, the EMD paid will be forfeited in addition to black listing in future contracts with TICEL BIOPARK LTD.

vii) Undue delay in submission of performance Bank guarantee Under no circumstances, earnest money deposit shall be accepted in the form of fixed deposit receipts of Bank or Insurance guarantee or cheque.

10. Rejection of Tender**A) Tender will be summarily rejected if,**

- a. Received by Post / Courier / telex / telegram / Fax / E-mail/ any other mode other than e-submission.
- b. Not accompanied with attested copies of evidences for meeting the bid qualification requirement
- c. Does not meet Bid Qualification Requirement.
- d. Received from any blacklisted firm or contractor.
- e. Received from a tenderer whose past performance is not satisfactory.
- f. The documents furnished with the offer being found to be bogus or the documents contain false particulars.
- g. Price is indicated in Technical Bid
- h. Incomplete and evasive offer.
- i. Not in the prescribed Form & Procedure
- j. If at any stage before the acceptance of tender, it comes to the notice of the competent authority that the tenderer has been blacklisted / banned by any State / Central Government organizations, PSUs, institutions or joint ventures or associates of TICEL BIOPARK LTD and its promoters, or has left incomplete any contract awarded by these entities.

B) Tender is **LIABLE for rejection if,**

- a. Received without GSTIN NUMBER
- b. Not in conformity with TICEL BIOPARK LTD commercial terms

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

- c. With validity period less than that specified in the specification.
- d. Not containing all required particulars

11. Performance Bank Guarantee

The Tenderer shall furnish a Performance Bank Guarantee within 15 days of LOA in the format appended herein for an amount of 10% of the contract sum (excluding GST), valid till the end of warranty Period of two years from the date of satisfactory handing over of the completed works with further claim period of six months by the successful bidder to TICEL with provision for direct re-validation on demand by TICEL, when so called for, for the execution and due fulfillment of the Contract.

The Performance Bond shall be returned after successful completion of Warranty period plus six months or two months after the last notified defect had been rectified, whichever is later.

Performance Bank Guarantee Validity: 6 months for completing the work + 2 years of Warranty + 6 months re-validation.

12. Modifications/Clarifications to Tender Documents:

- a. At any time after the commencement of e-Tender and before the closing of the event, TICEL BIOPARK LTD may make any changes, modifications or amendments to the tender documents and same will be intimated to the concerned through corrigendum which can be downloaded from the login.
- b. In case any tenderer asks for a clarification on the tender documents before the date specified, TICEL BIOPARK LTD will clarify the same.
- c. If any tenderer raises clarifications after the opening of the tender, the clarification issued by TICEL BIOPARK LTD will be final and binding on the Tender.
- d. All information in the tender offer shall be in ENGLISH only. It shall not contain interlineations, erasures or overwriting except as necessary to correct errors made by the tenderer. Such erasures or other changes in the tender documents shall be attested by the persons signing the tender offer.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**13. Quotation of Rates**

- i) Rates should be quoted in figures i.e., integers only.
- ii) Offers giving lump sum price, without giving their breakup as per details indicated in the BOQ, shall be liable for rejection.

14. Incomplete Tenders

Tender, which is incomplete, obscure or irregular will be rejected.

The tender offer shall contain full information asked for, in the accompanying schedules and elsewhere in the specification.

Tenderers shall bear all costs associated with the participation in the e-Tender and TICEL BIOPARK LTD will in no case be responsible or liable for these costs.

No offer shall be withdrawn by the Tenderer in the interval between the deadline for submission and the expiry of the period of validity specified / extended validity of the tender.

15. Tender Opening**Opening of Technical Bids (Vol-I):**

The Tender offer except price Bid will be opened electronically at 15.00 Hrs. on the date notified by TICEL BIOPARK LTD through <https://tntenders.gov.in/>.

Tenderers need not visit this office during tender opening, whereas tenderers can witness the tender opening event through their login.

Opening of Price Bids (Vol - II):

The date and time of opening of Price Bids shall be later notified through registered e-mail to the Bidders who fulfil the pre-qualification criteria and whose bids are found to be technically acceptable.

In the event of the opening day of the tender if declared as a holiday / closed day/ or if tenders could not be opened due to unforeseen circumstances on that day, such as majeure, the tenders will be opened on the next appointed time and date to be notified later.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

In case, two or more technically qualified bidders quote the same amounts in the Financial/Commercial Bid, which is the Lowest (i.e. L1), then the tender would be Awarded based on the assessment of PQ conditions.

16. Information required and clarifications

In the process of examination, evaluation and comparison of tender offers, TICEL BIOPARK LTD may at its discretion, ask the Tenderer for a clarification of the offers. All responses to requests for clarifications shall be in writing to the point only. No change in the price or substance of the offer shall be permitted.

TICEL BIOPARK LTD will examine the tender offers to determine whether they are complete, whether any computational errors have been made, whether required documents have been furnished, whether the documents have been properly signed and whether the offers are generally in order.

The Tender offers shall be deemed to be under consideration immediately after they are opened and until such time official intimation of award / rejection is made by the Tender Accepting Authority to the tenderers.

The Tenderers shall not make attempts to establish unsolicited and unauthorized contact with the Tender Inviting Authority, Tender Accepting Authority or Tender Scrutiny Committee after the opening of the tender and prior to the notification of the award and any attempt by any tenderers to bring to bear extraneous pressures on the Tender Accepting Authority shall be sufficient reason to disqualify the tenderer.

Mere submission of any Tender offer connected with these documents and Specification shall not constitute any agreement. The tenderer shall have no cause of action or claim, against TICEL BIOPARK LTD for rejection of their offer. TICEL BIOPARK LTD shall always be at liberty to reject or accept any offer or offers at its sole discretion and any such action will not be called into question and the Tenderer shall have no claim in that regard against TICEL BIOPARK LTD.

17. Negotiation

Negotiation will be carried out with the L1 tenderer after opening of tenders.

TICEL BIOPARK LTD reserves the right to carry out negotiation with the tenderer after opening of price bid.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**18. General**

- i) On receipt of Letter of Award (LOA) from TICEL BIOPARK LTD., within 15 days, the successful tenderer shall be bound to implement the contract with TICEL BIOPARK and sign an agreement in accordance with the draft agreement and the Schedule of Conditions but the written acceptance in the form of Letter of Award (LOA) by TICEL BIOPARK LTD. will constitute a binding contract between TICEL BIOPARK LTD., and the person/contractor submitting the tender whether such formal agreement is or not subsequently executed.
- ii) All compensation or other sums of money payable by the Contractor to TICEL BIOPARK under the terms of this Contract may be adjusted/deducted either from payment of amount due or by call of performance Bank guarantee if the amount due is not sufficient or such adjustment and the contractor fails to make good in cash, the amount within 15 days of intimation to do so by TICEL BIOPARK.
- iii) No portion of the Contract shall be given on subcontract except with the written consent of TICEL BIOPARK. In case of breach of these conditions, TICEL BIOPARK may serve a Notice in writing to the Contractor / rescinding the Contract whereupon the Performance Bank Guarantee shall stand forfeited to TICEL BIOPARK, without prejudice to its other remedies/rights against the Contractor.
- iv) The Contractor shall carry out all the work strictly in accordance with Documents, details and instructions of TICEL BIOPARK's Representative. Any changes desired by TICEL BIOPARK; the Contractor shall carry out the same without any extra charge. TICEL BIOPARK's decision in such cases shall be final and binding on the Contractor. The Contractor shall report to TICEL BIOPARK or its representative regarding day-to-day Operation, reporting, preventive and regular maintenance of equipment and components, replacement of spares (except consumables) as may be required, in an integrated manner so as to ensure a trouble free and smooth functioning of the complex in entirety and to ensure maximization of operative life of Plant and Machinery.
- v) The Schedule of Quantities is liable to alterations, omissions, deductions or additions in the scope of work and items of work at the discretion of TICEL BIOPARK. Each tender should contain not only the rates but also the value of each item of work entered in the amount column and all the items should be totaled in order to show the aggregate value of the entire tender. The value of each item worked out shall be rounded off to a nearest rupee ignoring paise below fifty.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

- vi) The tenderer must obtain for himself on his own responsibility and at his own expense all the information which may be necessary for the purpose of making a tender and for entering into a contract and must examine the Documents and must inspect the site of the work and acquaint himself with all local and site conditions, means of access to the job, nature of the job, nature of plant and machinery as well as services being installed; and the availability of any infrastructure and all matters appertaining thereto. Ignorance of the site conditions or the nature and details of existing contract or the specifications of any work falling within the ambit of the Contractor shall not be accepted by TICEL BIOPARK as a basis for any claim for compensation.
- vii) The successful tenderer is bound to carry out any related and connected work necessary for proper performance of the job even though such work(s) is or are not specifically mentioned or included in the item of work. No claim in this respect shall be entertained unless considered beyond the scope of the agreement by TICEL BIOPARK whose decision is binding on the Contractor.
- viii) The successful tenderer must note that all performance of the job shall be strictly in accordance with the requirements and fulfillments of the local/public authorities, statutory approvals and to the requirements of TICEL BIOPARK and no deviation on any account will be permitted.
- ix) The total rate quoted will be considered for the purpose of deciding the competitive tender.
- x) While making the tender, the tenderer should keep his rates firm till the completion of the job/end of the contract period and no price variation therefor shall be considered for any reason whatsoever.
- xi) Supply of water and electricity required for performance of Operation and Maintenance services shall be made available free of charge by TICEL BIOPARK. However, the successful tenderer shall bear all costs of extending supplies from the source of maintenance purposes to place of work, maintaining the supplies, etc. as required within the quoted rates.
- xii) The Contractor shall strictly comply with the provision of safety code and safety manual annexed hereto. The Contractor shall keep TICEL BIOPARK fully indemnified against any claims or liabilities arising out of Contractor's lapse in safety practices.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**19. Final Decision-Making Authority**

TICEL BIOPARK LTD. reserves the right to accept or reject any of the applications/tender(s) without assigning any reasons thereof. TICEL BIOPARK LTD., reserve the right to increase or decrease the scope of work and may split the scope of work and award the works to one or more agencies and as deemed necessary by TICEL BIOPARK LTD., decision of TICEL BIOPARK LTD. is final and binding.

All tenders, documents and other information submitted by the bidders to TICEL BIOPARK shall become the property of TICEL BIOPARK. Bidders shall treat all information furnished as strictly confidential. TICEL BIOPARK will not return any submission.

20. Pre-bid Meeting and Clarifications

Pre-Bid Meeting will be held at 18.08.2026 on 11:00 A.M at TICEL BIOPARK LTD, Phase-II, No:5, CSIR Road, Taramani, Chennai. Clarifications required by the Tenderers may be sought in writing from TICEL BIOPARK LTD before or during the Pre-bid Meeting. Clarifications issued by TICEL BIOPARK LTD and the minutes of Pre-Bid Meeting, which form part of the contract documents shall be uploaded in our websites. No queries written or oral shall be entertained after the Pre-bid Meeting.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Section 6: Conditions of Contract
(Definitions and Interpretation)****PART-A (General)****1. Interpretation clause:**

In construing these Conditions, the Technical Specifications, Schedule of Quantities and Contract Agreement, the following words shall have the meanings herein assigned to them except where the subject or context otherwise requires.

a)	"Owner"/" OWNER" / TICEL(Owner)	shall mean TICEL BIO PARK LIMITED, CHENNAI and shall include its assigns and successors
b)	"TENDERER" / "CONTRACTOR"	
	In the case of Company	"TENDERER"/ "CONTRACTOR" shall mean a company incorporated under act dated with CIN and having its registered office at and shall include its successors and permitted assigns.
	In the case of a partnership firm	"TENDERER"/ "CONTRACTOR" shall mean a firm trading as partners in the name and style of With registration number and having business at and shall include the partners for time being of the said firm and the legal representatives of a deceased partner.
c)	"bid" (including the term 'tender', 'offer', 'quotation' or 'proposal' in specific contexts)	means an offer to supply goods, services or execution of works made as per the terms and conditions set out in a document inviting such offers.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

d)	"Bidder" (including the term 'Bidder', 'consultant' or 'service provider' in specific contexts)	means any person or firm or company, including any agency branch or office controlled by such person, participating in a Tender Process.
e)	"Bill of Quantities" (including the term Price Schedule or BOQ)	means the priced and completed Bill of Quantities forming part of the bid.
f)	"Contract" or 'Letter of Award – LoA'	means a formal legal agreement in writing relating to the subject matter of procurement, entered into between the TICEL and the contractor on mutually acceptable terms and conditions and which are in compliance with all the relevant provisions of the laws of the country;
g)	"Day", "Month", "Year"	shall mean calendar day/ month or year (unless reference to financial year is clear from the context).
h)	"General Conditions"	means the General Conditions of Contract, also referred to as GCC
i)	"Parties"	The parties to the contract are the "Contractor" and the TICEL, as defined in this clause;
j)	Special Conditions	means Special Conditions of Contract, which override the General Conditions, also referred to as SCC.
k)	Tender"; "Tender Document"; "Tender Enquiry" or "Tender Process"	Tender Process' is the whole process from the publishing of the Tender Document till the resultant award of the contract. 'Tender Document' means the document (including all its sections, appendices, forms, formats, etc.) published by the Procuring Entity to invite bids in a Tender Process. The Tender Document and Tender Process may be generically referred to as "Tender" or "Tender Enquiry", which would be clear from context without ambiguity.
l)	"Works"	SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR, CHILLER AND STEAM GENERATOR.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**2. Contract Document**

The following documents shall constitute the contract document.

- i. Tender, Tender documents & all Tender Form, formats, annexures etc. as published
- ii. Article of Agreement
- iii. General Terms & Conditions of the Contract
- iv. Terms of reference
- v. Technical Specifications
- vi. Schedule of Quantities (Contract bills)
- vii. Special Conditions
- viii. Tender drawings duly signed by the tenderer
- ix. Letter and documents including the covering letter of the tenderer, minutes of meeting, if any, post tender and the letter of acceptance by the TICEL BIO PARK LTD and award letter by the OWNER.

Provided that facts mentioned in letter/document submitted by Contractor after getting Letter of Award shall not form part of the Contract Documents unless agreed by TICEL in writing. The Contract Document shall remain in the custody of the OWNER, so as to be available at all reasonable times for the inspection of the Contractor / Nominated Sub-Contractor.

All specialized equipment / services necessary for proper commissioning and performance testing of all equipment covered under this contract shall be provided by the Contractor. The cost of such equipment and services shall be included in the Contract price / rate.

3. Type of Contract

The Contract shall be for the items covered in the Schedule of Quantities referred as "Price Bid" in Volume – II of tender document. The Contract is for complete SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650 L & 100 L), CHILLER & STEAM GENERATOR AND DOSING VESSEL during warranty Period of two year from the date of handing over of the entire scope of the specialized works.

The scope of work for each item in the Schedule of Quantities is all inclusive for proper installation and operation of the respective items and shall include supportive items as required whether specifically mentioned or not.

The Schedule of Quantities shall be read together with technical specifications and drawings as well as special conditions of contract.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

Any variation either addition or deletion in any of the items required by the OWNER / TICEL Bio park Limited during execution of work will be based on the unit rates quoted.

4. Schedule of Quantities

The Schedule of Quantities given in Contract Bill are provisional and are meant to indicate the intent of the work and to provide a uniform basis for tendering. The OWNER reserves the right to increase or decrease any of the quantities or to totally omit any item of work and the Contractor/Nominated Sub-Contractor shall not claim any extras or damages on these grounds.

Any error in description or in quantity or omission of items from the Contract Bill shall not vitiate this Contract but shall be treated as a variation.

5. Contract Sum

The Contract sum shall not be adjusted or altered in any way whatsoever otherwise than in accordance with the express provisions of these conditions, and any error whether of Arithmetic or otherwise in the computation of the Contract Sum shall be deemed to have been accepted by the parties hereto.

6. Contract Bills

The quality and quantity of the work included in the contract sum shall be deemed to be that which is set out in the Contract Bills which Bills unless otherwise expressly stated in respect of any specified item shall be deemed to have been prepared in accordance with the principles of the standard method.

Any error in description or in quantity or omission of items from the Contract Bills shall not vitiate this Contract but shall be corrected and deemed to be a variation required by the Owner.

The general Character and the scope of the work is illustrated and defined by the Specification and Schedule of Quantities herewith attached. If the Contractor shall find any discrepancy in or divergence between the Contract Drawings and/or the Contract Bill, he shall immediately give to the OWNER a written notice specifying the discrepancy or divergence and the OWNER shall issue instructions in regard thereto.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**7. Site Visit:**

- a) Before tendering, the Contractors shall have visited and examined the site the place of work and satisfied himself as to the communication facilities and correct dimensions of the work and facilities for obtaining any special article called for in the Contract Document and shall have obtained generally his own information on all matters affecting execution of the work(s) as the project for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650 L & 100 L), CHILLER & STEAM GENERATOR AND DOSSING VESSEL(200L) in TICEL Biopark Ltd, Phase-II, Taramani, Chennai -600113, Tamil Nadu, India”.
- b) The site of work may be inspected by the TENDERER or his representative at his own cost, with prior intimation to TICEL Bio Park Ltd for proper assessment of the prospective assignment and get the site visit certification from TICEL or representative of TICEL.
- c) The Tenderer shall inspect the site and obtain required details for proper execution of work successfully within the specified time limit. The responsibility for obtaining all such data / details rests with the Tenderer and no claim to extra at a later date will be entertained by Owner due to the failure of the **Tenderer to make sufficient investigation prior to tender.**
- d) No extra charges made in consequence of any misunderstanding or incorrect information on any of these points, or on the grounds of insufficient description, will be allowed. Should the Contractor after visiting the place of work, find any discrepancies, omissions, ambiguities or conflict in or among the Contract Document, or be in doubt as to their meaning, he shall bring the question to the Owner attention, not later than pre bid meeting.

8. Possession:

The Owner shall give possession of all parts of the Site to the TENDERER. If possession of a part is not given by the date stated in the Contract documents the Owner is deemed to have delayed the start of the relevant activities and this will bear Compensation Event.

The TENDERER shall be allowed admittance to the site on the 'Date of Commencement' stated in the appendix and he shall thereupon and forthwith begin the work and shall regularly proceed with and complete the same on or before the 'Date of Completion' stated in the appendix subject nevertheless to the provision for extension of time hereinafter contained in the contract documents elsewhere of these conditions. The TICEL(Owner) or its Representative may issue instructions in regard to the postponement of any work to be executed under the provisions of this Contract.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**9. House Keeping:**

The Contractor shall be required to maintain the site and surroundings in a neat and orderly manner, free of accumulating debris, haphazard stacking of materials, unhygienic and unsafe environment, cleaning of site at all levels inside and outside, removal of unwanted materials, packing cases etc., shall be undertaken once on daily basis. Dedicated Housekeeping to be deployed and work area to be neat and clean on daily basis.

10. Payment to local bodies:

All payments to local bodies towards ESI, PF, Insurance etc. and for adhering to Contract Labor Laws shall be borne by the TENDERER within the quoted rates.

The Contractor is responsible for the above statutory payments for the entire contract period. The Contractor shall produce evidence of payments to TICEL as per its directions with Invoices. The Contractor shall indemnify the OWNER against any claim due to the above.

11. Statutory obligations, notices, fees and charges

The successful Tenderer shall ensure that all works under this Contract are carried out strictly in accordance with the approved drawings, technical specifications, and the defined scope of work. No deviation in design, materials, methods, or execution shall be permitted without prior written approval from the Owner. Any unauthorized deviation shall be treated as a breach of contract and may invite necessary action as per the contractual provisions.

The Tenderer shall be solely responsible for obtaining all required statutory approvals, clearances, and permissions from relevant authorities necessary for the execution of the work. This includes permissions from appropriate government departments, local municipal bodies, utility service providers, and any other public or regulatory authority having jurisdiction over the site. All works shall be carried out in full compliance with applicable laws, rules, regulations, by-laws, notifications, and directions issued by competent authorities from time to time. The Tenderer shall ensure the issuance of all necessary notices and shall undertake all actions required to fulfil these compliance obligations.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

In the event that any variation from the approved drawings or contract documentation is necessitated as a result of complying with legal or regulatory requirements, the Tenderer shall notify the Owner in writing within ten days, stating the reason for such variation. If the Tenderer does not receive any further instruction within the specified period, the work shall proceed in compliance with the said legal requirements, and such variation shall be treated as if it were instructed by the Owner.

All costs, fees, charges, and incidental expenses incurred in obtaining the necessary regulatory approvals and permissions shall be deemed to have been included in the Contractor's quoted price. No additional claims on these grounds shall be entertained by the Owner at any stage of the project. Furthermore, delays in obtaining approvals or clearances from statutory or local authorities shall not constitute a valid ground for time extension or increase in contract value.

The Contractor shall be responsible for payment of and shall indemnify the Owner against any lawful fees, taxes, duties, rates, charges, or levies arising under the applicable laws and regulations in connection with the execution of the works under this contract.

12. Royalties and patent rights

All royalties or other sums payable in respect of the supply and use in carrying out the Work as desired by or referred to in the Contract Bills of any patented articles, process or inventions shall be deemed to have been included in the Contract sum, and the Contractor shall indemnify the OWNER from and against all claims, proceedings, damages, costs and expense which may be brought or made against the OWNER or to which he may be put by reason of the Contractor infringing or being held to have infringed any patent rights in relation to any such articles, processes and inventions.

13. Sub-Contractor:

a) Any other specialized work identified by the OWNER during the execution of work that may arise may be got executed by other agency(s) engaged by the Contractor as Sub-Contractor(s) on approval of the OWNER after adopting the procedures given below.

b) All the terms and conditions under this Contract shall be equally enforceable on the Sub-Contractor for the trade and accordingly the Contractor

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL shall have a tie up with each of the Sub-Contractors.

14.0 Certificate and payments

Payment Terms:

i. 50% Advance Payment:

- 50% of the contract value shall be released as advance payment against submission of an Advance Bank Guarantee (ABG) equivalent to 50% of the contract value.
- The successful bidder shall submit the 50% Advance Bank Guarantee within fifteen (15) days from the date of receipt of the Letter of Award (LOA).
- The Advance Bank Guarantee (ABG) shall remain valid for a period of six (6) months from the date of submission. In the event that TICEL Bio Park Limited grants an extension of the work completion period, the successful bidder shall, at its own cost, extend the validity of the ABG for the corresponding extended period and submit the renewed/extended ABG to TICEL before the expiry of the existing ABG. Failure to extend the validity of the ABG shall entitle TICEL Bio Park Limited to invoke the existing ABG and take such other actions as may be deemed appropriate under the terms of the Contract.
- Upon receipt and acceptance of the ABG by TICEL Bio Park Limited, the 50% advance payment shall be released.
- In the event of failure to deliver the equipment within the stipulated delivery period (including any approved extension), TICEL Bio Park Limited reserves the right to invoke and encash the Advance Bank Guarantee before its expiry.

ii. 30% Payment

- 30% of the contract value shall be released after successful inspection, dispatch clearance by TICEL Bio Park Limited, and delivery of the equipment at the site.
- Upon successful delivery of the equipment at the site and adjustment of the advance payment against the Contract, the Advance Bank Guarantee (ABG) shall be released and returned to the successful bidder, provided there are no outstanding claims or defaults under the Contract.

iii. 20% Final Payment

- The remaining 20% of the contract value shall be released after successful Installation, Commissioning, Site Acceptance Test (SAT), and Training, duly certified by TICEL Bio Park Limited.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**14.1. Deduction for uncorrected work:**

If the OWNER deems it inexpedient to correct the work damaged or not done in accordance with the Contract, an equitable deduction from the Contract price and the amount of such loss which arose due to non-completion of the work in time shall be deducted from the payment of TENDERER.

14.2. Fluctuations

The Contractor shall not claim any extras for fluctuation of price and the Contract Price and item rates shall not be subject to any rise or fall of prices and shall be firm throughout the tenure of the contract.

14.3. Unfixed Goods and Materials:

Unfixed materials and goods intended for, delivered to and placed on or adjacent to the work shall not be removed except for use upon the work unless the TICEL(Owner) or its Representative has consented in writing to such removal which consent shall not be unreasonably withheld. Where the value of any such materials or goods has in accordance with these conditions been included in any Interim Certificate under the Contract for which the TENDERER has received payment, the title (but not the risk and possession) of or to such materials and goods shall pass to the Owner, the TENDERER shall remain responsible for loss or damage to the same.

14.4. Materials and Workmanship:

All materials and workmanship shall be as per the relevant code of I.S.I or BIS or relevant Specification and of approved type and the Contractor shall immediately remove from the work any material and/or workmanship which in the opinion of the OWNER are defective or unsuitable and shall substitute proper materials and/or workmanship at his own cost. The term approval used in connection with this contract shall mean the approval of the Owner.

The Contractor shall if required submit satisfactory as to the kind and quality of material.

Where special makes or brands are called for, they are mentioned as a standard. Others of equal quality may be used provided approval is first obtained in writing from the Owner. Unless substitutions are requested no deviation from the Specification will be permitted.

The TENDERER shall indicate the submit evidence in writing of those materials or articles called for in the Specifications that are not obtainable for installation in the work within the reasonable Time Limits of the performance of the job.

14.5. Inspection

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

All materials and workmanship shall be subject to inspection, examination, and test by the OWNER at any and all times during manufacture and/or construction. The Owner shall have the right to reject defective material and workmanship or require its correction. Rejected material and workmanship shall be satisfactorily replaced with proper material without additional charge therefore and the Contractor shall promptly segregate and remove the rejected material from the site. If the TENDERER fails to proceed at once with the replacement or rejected materials and /or the correction of defective workmanship, the Owner may by contract or otherwise replace such materials and/or correct such workmanship and charge the cost thereof to the Contractor, or may terminate after giving reasonable notice the right of the Contractor to proceed further with the work.

The Contractor shall furnish promptly without additional charge all reasonable facilities, labor and materials necessary for the safe and convenient inspection and test that may be required by the Owner.

14.6. Defects:

The Contractor shall make good at his own cost and to the satisfaction of the Owner, all defects, shrinkages or small faults, arising in the opinion of the Owner from work or materials not being in accordance with the Drawings or Specifications or Schedule of Quantities or the instruction of the Owner, which may appear within "Warranty Period" referred to in the appendix.

Such defects, faults shall upon directions in writing of the Owner / TICEL(OWNER) OR ITS REPRESENTATIVES, and within such reasonable time as shall be specified therein be amended and made good by the TENDERER, at his own cost unless the Owner shall decide that he ought to be paid for such amending and making good and in case of default the Owner may employ and pay other agency to amend and make good such defects, faults and all damages loss and expense consequent thereon or incidental thereto shall be made good and borne by the Contractor and such damage, loss or expense shall be recoverable from him by the Owner, upon the Owner's certificate together with any expenses the OWNER may have incurred in connection therewith.

14.7. Possession, completion and postponement:

On the date for commencement stated in the appendix to these condition possessions of the premises and buildings shall be given to the Contractor who shall thereupon begin the work regularly and, diligently proceed with the same, and who shall complete the same on or before the date of completion stated in the said appendix subject nevertheless to the provisions for extension of time contained in these conditions. The OWNER shall issue instructions in regard to the commencement of any work to be executed under the provisions of this Contract.

14.8. Extension:

Upon it becoming reasonably apparent that the progress of the Works is delayed,

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

the Contractor / Nominated Sub-Contractor shall forthwith give written notice of the cause of the delay to the Owner, and if in the opinion of the Owner, the completion of the Work is likely to be or has been delayed beyond the date for completion stated in the appendix to these conditions or beyond any extended time previously fixed under this clause.

By force majeure Or by reason of any exceptionally inclement weather or by reason of loss or damage occasioned by any one or more of the contingencies referred. Or by reason of civil commotion, local combination of workmen strikes or lockout affecting any of the trades employed upon the works or any of the traders engaged in the preparation, manufacture of transportation of any of the goods or materials required for the work. Or by reason of Owner's instructions issued under these Conditions. Or by reason of the Contractor / Nominated Sub-Contractor not having received in due time necessary instructions, drawings details or levels from the Owner for which he specifically applied in writing on a

date which having regard to the date for completion stated in the appendix to these conditions or to any extension of time then fixed under this clause was neither unreasonably distant from nor unreasonably close to the date on which it was necessary for him to receive the same. Or by delay on the part of Sub- Contractors which the Contractor has taken all practicable steps to avoid or reduce. Or by delay on the part of artists, tradesmen or others engaged by the OWNER in executing work not forming part of this Contract (OR)

By reason of the opening up for inspection of any work covered up or of the testing of any of the work, materials or goods in accordance with these conditions (including making good in consequence of such opening up or testing) unless the inspection of test showed that the work materials or goods were not in accordance with this Contract. Or by reason of the Contractor's / Nominated Sub-Contractor's inability for reason beyond his control and which he could not reasonably have foreseen at the date of this Contract to secure such labour, goods or materials as are essential to the proper carrying out of the works.

Then the Owner shall so soon as he is able to estimate the length of the delay beyond the date or time aforesaid make in writing a fair and reasonable Extension of Time for completion of the works, provided always that the Contractor / Nominated Sub- Contractor shall use constantly his best endeavors to prevent delay and shall do all that may reasonably be required to the satisfaction of the Owner to proceed with the work. No escalation/price variation will be provided to the Contractor / Nominated Sub-Contractor on account of such delay, including those arising due to reasons beyond their control or due to statutory approvals, unless otherwise specifically agreed upon in writing by the Owner.

14.8.1. Damages for non-completion

If the Contractor / Nominated Sub-Contractor fails to complete the works within the specified period or within any extended time fixed under these conditions and the OWNER certifies in writing that in his opinion the same ought reasonably so to have been completed, the Contractor / Nominated Sub- Contractor shall pay or

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

allow to the OWNER a sum calculated at the rate stated in the appendix as agreed Liquidated Damages (not as Penalty) for the period during which the said work shall so remain or have remained incomplete, the OWNER may deduct such damages from any monies otherwise payable to the Contractor / Nominated Sub-Contractor under this Contract. The amount of levy of liquidated damages (not as penalty) shall however be to the credit of TICEL Bio Park Ltd through the Main Contractor.

The tenderers are required to submit with the tender a preliminary Project completion period / work execution schedule activities with corresponding resource allocation and time planned for various activities to achieve a coordinated completion as per the specified completion period taking into account all local weather, site and other prevailing conditions. The progress of work will be constantly monitored by the OWNER. Time is the essence of the contract and the project is time bound.

On award of work the successful tenderer shall, in consultation with the OWNER produce a detailed and final work execution schedule indicating physical progress of work on a weekly basis. Upon acceptance of the work execution schedule by the OWNER the successful tenderer shall strive and maintain the planned progress most diligently.

If on the expiry of agreed contract period, the work remains incomplete, a liquidated damage will be imposed on the Contractor as stipulated in the first part of this condition.

14.8.2. Loss and expense caused by disturbance of regular progress of the works

If upon written application being made to him by the Contractor / Nominated Sub- Contractor the Owner is of the opinion that the Contractor / Nominated Sub- Contractor has been involved in direct loss and / or expense for which he would not be reimbursed by a payment made under any other provisions in this Contract by reason of the regular progress of the works or of any part thereof having been materially affected by:

The Contractor / Nominated Sub-Contractor not having received in due time necessary instructions, Drawings details or Levels from the Owner for which he specifically applied in writing on a date which having regard to the date for completion stated in the appendix to these conditions was neither unreasonably distant from nor unreasonably close to the date on which it was necessary for him to receive the same (OR)

The opening up for inspection of any work covered up or the testing of any work material or goods in accordance with these conditions (including making good in consequence of such opening up or testing), unless the inspection or test showed that the work materials or goods were not in accordance with this Contract; or

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

Any discrepancy or divergence between the Contract Drawings and / or the Contract Bills; or Delay on the part of the Artists Tradesmen or others engaged by the OWNER in executing work not forming part of this Contract; or Owner's instructions issued in regard to the postponement of any work to be executed under the provisions of this Contract; and if the written application is made within a reasonable time of it becoming apparent that the progress of the work or of any part thereof has been affected as aforesaid:

Then the Owner shall ascertain the reasonableness and if so admissible, the amount of such loss and / or expense. Any amount from time to time so ascertained shall be added to the amount which would otherwise be stated as due in such certificate.

The provisions of this condition are without prejudice to any other rights and remedies which the Contractor / Nominated Sub-Contractor may possess.

14.8.3. Payments withheld

The Owner may withhold or on account of subsequently discovered evidence nullify the whole or a part of any certificate to such extent as may be necessary in his reasonable opinion to protect the OWNER from loss on account of:

- i. Defective work not remedied.
- ii. Failure of the Contractor / Nominated Sub-Contractor to make payments properly to Sub-Contractor or for materials or labour.
- iii. A reasonable doubt that the Contract can be completed for the balance then unpaid.
- iv. Damage to another Contractor or sub-Contractor.
- v. Claims filed on reasonable evidence indicating probable filing of claims.
- vi. When the above grounds are removed payment shall be made for amounts withheld because of them.

14.8.4. Insurance

All insurance policies required by the TENDERERs shall be arranged & paid for by themselves. These policies shall be deposited with the Owner. The policies shall be in the joint names of the Owner and TENDERER. The Value of the TENDERER'S ALL RISK POLICY shall be that of the total value of work including O&M. The owner shall mention this overall amount to the TENDERER upon award of work to the TENDERER.

- a) The TENDERER will be responsible for the premium in connection with extending the period(s) of insurance covers in the event that the TENDERER fails

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL to complete the work within the stipulated time.

- b) The TENDERER shall be responsible for all injury or damage to persons, animals or things and for all damage to property which may arise from any factor omission on the part of the TENDERER or any of their employees.
- c) The liability under this clause shall cover also, inter alia, any damage to structures, whether immediately adjacent to the work or otherwise, any damage to roads, streets, footpaths, bridges as well as damage caused to the buildings and other structures and work forming the subject matter of this Contract. The TENDERER shall also be responsible for any damage caused to the buildings and other structures and work forming the subject matter of this Contract due to rain, wind, frost or other inclemency of weather.
- d) The TENDERER shall indemnify and keep indemnified the Owner and hold him harmless in respect of all and any loss and expenses arising from any such injury or damage to persons or property as aforesaid and also against any claim made in respect of injury or damage, whether under any statute or otherwise and also in respect of any award or compensation or damage consequent upon such claim.
- e) The TENDERER shall, at his own expense, effect the insurance before commencing work with an insurance company as approved by the owner in the joint names of Owner and tenderer (name of the owner placed first in the policy) and maintain the same up to the issue of the actual completion certificate under this Contract.
- f) The TENDERER shall reinstate all damage of every sort mentioned in this clause so as to deliver up the whole of the work complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to property of third parties including neighboring buildings etc.
- g) The Owner shall also be protected against all claims in respect of damages to third parties including the Owner's staff, visitors, neighbors and other passers-by which may be made against the Owner by any person in respect of anything which may arise in respect of the work or in consequence thereof or due to accidents on account of the incidental risks which may occur during the execution of work and the TENDERER shall, at his own expense, effect and maintain, until the actual completion of the Contract, with an Insurance Company approved by the Owner a policy of Insurance in the joint names of the Owner and the TENDERER (name of the former being placed first in the policy) against such risks and deposit such policy or policies before commencement of the work. **The minimum limit of the coverage under the Policy shall be Rs. 5.00 lakhs (Rupees Five Lakhs Only) for every** accident or occurrence, there being no limit on the number of such occurrences. The same shall have currency through the

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

period of completion of all work as certified by the TICEL(Owner) or its Representatives.

h) The TENDERER shall also indemnify the Owner against all claims made upon the Owner, whether under the **Workmen's Compensation Act** or any other statute in force during the currency of this Contract or at Common Law in respect of any employee of the TENDERER or of any Sub-Contractor and shall at his own expense effect and maintain until the actual completion of the Contract, with an insurance company, approved by the Owner, a Policy of Insurance against such risks and deposit such policy or policies with the Owner from time to time during the currency of this Contract.

i) **Transit Insurance:** In respect of all items to be transported by the TENDERER to the site of work, the cost of transit insurance shall be borne by the TENDERER and the quoted price shall be inclusive of such cost.

j) All claim amounts against the policy shall be payable to the Owner and not to the TENDERER. The TENDERER shall keep the policy renewed from time to time until the Certificate of Completion is issued by the Owner. If at any time the policy so obtained and kept with the Owner expires, it shall be lawful for the Owner to stop further payments until the duly renewed policy is lodged with the Owner.

k) The TENDERER shall be responsible for any liability which may not be covered by the Insurance Policies referred to above and also for all other damages to any person, animal or defective carrying out of this Contract, whatever may be the reasons due to which the damage shall have been caused.

l) The TENDERER shall also indemnify and keep indemnified the Owner against all and any cost, charges or expenses arising out of any claim or proceeding relating to the work and also in respect of any award of damages or compensation arising there from.

m) Without prejudice to the other rights of the Owner against TENDERER in respect of such default, the Owner shall be entitled to deduct from any sums payable to the TENDERER the amount of any damages, compensation costs, charges and other expenses paid by the Owner and which are otherwise payable by the TENDERER under this clause.

n) The TENDERER shall, upon settlement by the Insurer of any claim made against the Insurer pursuant to a policy taken under this clause, proceed with due diligence to rebuild or repair the work destroyed or damaged. In this event all the monies received from the Insurer in respect of such damage shall be paid to the TENDERER and for the TENDERER shall not be entitled to any further payment in respect of the expenditure incurred for rebuilding or repairing of the materials or goods destroyed or damaged.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

- o) The TENDERER, in case of re-building or reinstatement after fire, shall be entitled to such extension of time for completion as the TICEL(Owner) or its Representative may deem fit, but shall, however, not be entitled to reimbursement by the Owner of any shortfall or deficiency in the amount finally paid by the insurer in settlement of any claim arising as set out herein.
- p) Without prejudice to his liability under this clause, the TENDERER shall also cause all Direct Sub-Contractors to effect, for their respective portions of the work, similar policies of insurance in accordance with the provisions of this clause and shall produce or cause to produce to the Owner such policies. The TENDERER shall not
- q) permit a Direct Sub- Contractor to commence work at the site unless the said insurance policies are submitted. In the event of failure of the Sub-Contractor to take out such a policy of insurance before commencing the work at the site, the TENDERER shall be responsible for any claim or damage attributable to the said Sub- Contractor.
- r) The TENDERER shall be responsible for the insurance of his plant, tools and equipment.

14.8.5. Injury to persons & property of owner:

The TENDERER shall be liable for and shall indemnify the Owner against any liability, loss, claim or proceedings whatsoever arising under any statute or at common law in respect of personal injury to or the death of any person whomsoever arising out of or in the course of or caused by the carrying out of the work, unless such claim arises due to any act or neglect of the Owner or of any person for whom the Owner is responsible.

Except for such loss or damages as is at the risk of the Owner, the TENDERER shall be liable for and shall indemnify the Owner against any expense, liability, loss, claim or proceedings in respect of any injury or damage whatsoever to any property movable or immovable in so far as such injury or damage arises out of or is in the course of or by reason of the carrying out of the work, and provided always that the same is due to any negligence, omission or default of the TENDERER, his servants or agents or of any Sub-Contractor, his servant or agent.

14.8.6. Insurance against Injury to Persons and Property

Without Prejudice to his liability to indemnify the Owner under these Conditions mentioned in this document, the TENDERER shall maintain and shall cause any Sub- Contractor to maintain:

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

Such insurances as are necessary to cover the liability of the TENDERER or as the case may be of such Sub-Contractor, in respect of personal injuries or deaths arising out of or in the course of or caused by the carrying out of the work; and such insurances as may be specifically required by the Contract Documents in respect of injury or damage to property movable or immovable arising out of or in the course of or by reason of the carrying out of the work, and caused by any negligence, omission or default of the TENDERER, his servants or agents or, as the case may be of such Sub-Contractor, his servants or agents.

The TENDERER shall produce or cause any Sub-Contractor to produce for inspection the relevant policy or policies of insurance together with the receipts in respect of premiums paid under such policy or policies as and when required so to do by the TICEL(Owner) or its Representative provided always that as and when may be reasonably required by the TICEL(Owner) or its Representative the

production by either the TENDERER or any Sub-Contractor of a current certificate of insurance from the company or firm which shall have issued the policy or policies aforesaid shall be a good discharge of the TENDERER's obligation to produce or to cause the production of the policy or policies and the receipts in respect of premium paid.

The TENDERER shall maintain in the joint names of the Owner and TENDERER for such insurances as may be required in respect of any expense, liability, loss, claim or proceedings which the Owner may incur or sustain by reason of injury or damage to property real or personal arising out of or in the course of or by reason of the carrying out of the work, and caused otherwise than by the negligence, omission or default of the TENDERER, his servants or agents or any Sub-Contractor, his servants or agents.

Any such insurance as is referred to in the immediately preceding paragraph shall be placed with insurers to be approved by the TICEL(Owner) or its Representative and the TENDERER shall have to deposit the policy or policies and the receipts in respect of premiums paid for scrutiny by the TICEL(Owner) or its Representative.

Should the TENDERER or any Sub-Contractor make default in insuring or in continuing to insure as provided in this clause of these Conditions the Owner may himself insure against any risk with respect to which the default shall have occurred and may deduct a sum equivalent to the amount paid in respect of premiums from any monies due to or to become due to the TENDERER.

14.8.7. Insurance of the Work against Fire Etc.

a) The TENDERER shall in the joint names of the Owner and themselves insure against loss or damage by fire, storm, tempest, lightning, flood, earthquake, aircraft or anything dropped there from, aerial objects, riot and civil commotion for the full value thereof all work executed and all unfixed materials and goods intended for, delivered to and placed on or adjacent to the work, but excluding

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

temporary building plant, tools and equipment owned or hired by the TENDERER or any Sub-Contractor and shall keep such work, materials and goods so insured until actual Completion of the work. Such insurances shall be with insurers approved by the TICEL(Owner) or its Representative and the TENDERER shall deposit with the TICEL(Owner) or its Representative, the policy or policies and the receipts in respect of premiums paid and should the TENDERER make default in insuring or continuing to insure as aforesaid the Owner may himself insure against any risk with respect of which the default shall have occurred and deduct a sum equivalent to the amount paid by him in respect of premium from any monies due to or to become due to the TENDERER.

b) Provided always that if the TENDERER shall independently of his obligations under this Contract maintain a policy of insurance which covers (inter alia) the said work, materials and goods against the aforesaid contingencies to the full value thereof then the maintenance by the TENDERER of such policy shall if the Owner's interest is endorsed thereon, be a discharge of the TENDERER's obligation to insure in the joint names of the Owner and TENDERER and the production by the TENDERER as and when may reasonably be required by TICEL(Owner) or its Representative of a current certificate of insurance from the company or firm which shall have issued the said policy shall be a discharge of the TENDERER's obligation to deposit with the TICEL(Owner) or its Representative a policy or policies and the receipts in respect of premiums paid.

c) Upon settlement of any claim under the insurances aforesaid the TENDERER with due diligence shall restore work damaged, replace or repair unfixed materials or goods which have been destroyed or damaged, remove or dispose of any debris and proceed with the carrying out and completion of the work. All monies received from such insurances shall be paid to the TENDERER by installments under certificates of the TICEL(Owner) or its Representative issued at the period of interim certificates named in the appendix to these Conditions. The TENDERER shall not be entitled to payment in respect of the restoration of work damaged, the replacement and repair of any unfixed materials or goods and the removal and disposal of debris other than the monies received under the said insurances.

d) All work executed and all unfixed materials and goods intended for, delivered to and placed on or adjacent to the work (except temporary buildings, tools and equipment owned or hired by the TENDERER or any Sub-Contractor) shall be at the sole risk of the TENDERER as regards loss or damage by fire, storm, tempest, lightning, flood, earthquake, aircraft or anything dropped there from, aerial objects, riot and civil commotion. If any loss or damage affecting the work or any part thereof or any such unfixed materials or goods is occasioned by any one or more of the said contingencies, then:

e) The occurrence of such loss or damage shall be disregarded in computing any amounts payable to the TENDERER under or by virtue of this Contract.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

The TENDERER with due diligence shall restore work damaged, replace or repair any unfixed materials or goods which have been destroyed or damaged, remove and dispose of any debris and proceed with carrying out and completion of the work. The restoration of work damaged, the replacement and repair of unfixed materials and goods and the removal and disposal of debris shall be deemed to be a variation required by the TICEL(Owner) or its Representative.

The existing structure together with all the contents thereof and the works and all unfixed materials and goods intended for, delivered to and placed on or adjacent to the works (except temporary buildings, plant, tools and equipment's owned or hired by the Contractor or any Sub-Contractor) shall be at the sole risk of the OWNER as regards loss or damage by fire, storm, tempest, lightning, flood, earthquake, aircraft or anything dropped therefrom, aerial objects, riot and civil commotion, and the OWNER shall maintain adequate insurance against that risk if any loss or damage affecting the work or any part thereof or any such unfixed materials or goods is occasioned by any one or more of the said contingencies then:

The occurrence of such loss or damage shall be disregarded in computing any amounts payable to the Contractor under or by virtue of this Contract.

(i) If it is just and equitable so to do the employment of the Contractor under this Contract may within 28 days of the occurrence of such loss or damage be determined at the option of either party by notice by registered post or recorded delivery from either party to the other. Within seven days of receiving such notice (but not thereafter) either party may give to the other a written request to concur in the appointment of an Arbitrator under these conditions in order that it may be determined whether such determination will be just and equitable.

(ii) Upon the giving or receiving by the OWNER of such a notice of determination or, where a reference to Arbitration is as aforesaid upon the Arbitrator upholding the notice of determination the provisions of this Clause of these Conditions shall apply.

(iii) If no notice of determination is served as aforesaid or where reference to Arbitration is made as aforesaid, if the Arbitrator decides against the notice of determination.

14.8.8. Termination

The Owner or the TENDERER may terminate the Contract if the other party causes a fundamental breach of the Contract.

14.8.8.1. Termination by the Owner**Default**

If the TENDERER shall make default in any one or more of the following respects,

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
that is to say: -

If he without reasonable cause wholly suspends the carrying out of the work before completion thereof, or

If he abandons the Contract, or

If he fails to proceed regularly and diligently with the work, or If he fails to adhere to the agreed program of schedule, or

If he fails to adhere to the terms and conditions of the contract documents, or

If he refuses or persistently neglects to comply with a written notice from TICEL(Owner) or its Representative requiring him to remove and redo / replace at his cost defective work or substandard work or improper materials or goods and by such refusal or neglect the work is materially affected, or

If the progress of any particular item or items is slow, or

If he has failed to execute the work in accordance with the terms and conditions of the Contract, or If he is persistently or flagrantly neglecting to carry out his obligation under the Contract, or

If he fails to take steps to employ competent or additional staff and labor or to deploy additional tools and plants and equipment's as required for scheduled completion of work.

Then TICEL(Owner) or its Representative / Owner may give him a notice by registered post or recorded delivery specifying the default, and if the TENDERER either shall continue such a default for 14 days after receipt of such a notice or does not commence and diligently to remedy such default with 14 days or shall at any time thereafter repeat such a default (whether previously repeated or not) or repudiates the Contract, then the Owner without prejudice to any other rights or remedies may within 10 days after such continuance or repetition of default by notice by registered post or recorded delivery forthwith determine the employment of the TENDERER under this Contract, provided that such notice shall not be given unreasonably or vexatious.

Bankruptcy of TENDERER: -

In the event of the TENDERER Becoming bankrupt or insolvent, or Making a composition or arrangement with or assignment in favor of his creditors, or Agreeing to carry out the Contract under a committee of inspection of his creditors, or Being a company, having a winding up order made or (except for purposes or reconstruction), a resolution for voluntary winding up passed, or a receiver or manager of his business or undertaking duly appointed or possession taken by or on behalf of the holders of any debentures secured by a floating

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

charge, of any property comprised in or subject to the floating charge, the employment of the TENDERER under this Contract shall be forthwith automatically determined but the said employment may be reinstated and continued if the Owner and the TENDERER, his trustee in bankruptcy, liquidator, receiver or manager as the case may be shall so agree.

Corrupt Practice: -

The Owner shall be entitled to terminate the employment of the TENDERER under this Contract

If the TENDERER shall have offered or given or agreed to give to any person any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any action in relation to the obtaining or execution of this Contract with the Owner, or

For showing or forbearing to show favor or disfavor to any person in relation to this Contract, or any other Contract with the Owner. Or if the like acts shall have been done by any person employed by the TENDERER or acting on his behalf (whether with or without the knowledge of the TENDERER), or if in relation to this Contract or any other Contract with the Owner the TENDERER or any person employed by him or acting on his behalf shall have committed any offence under the prevention of corruption act, or shall have given any fee or reward the receipt of which is an offence under the Local Government Act.

Consequences: -

In the event of the employment of the TENDERER being terminated as aforesaid and so long as it has not been reinstated and continued, the following shall be the respective rights and duties of the Owner and TENDERER.

The Retention money & Performance money shall stand forfeited in favor of the Owner.

The TENDERER shall deliver to TICEL(Owner) or it's Representative all drawings and

other documents made by or for the TENDERER in connection with the Work.

The Owner may employ and pay other persons to carry out and complete the work and he or they may enter upon the Work and use all temporary buildings, plant, machinery, appliances, goods and materials intended for, delivered to and placed on or adjacent to the work and may purchase all materials and goods necessary for the carrying out the completion of the Work.

The TENDERER shall if so, required by the Owner or TICEL(Owner) or its Representative within 14 days of the date of termination assign to the Owner without payment the benefit of any Agreement for the supply of materials or goods and/or for the execution of any work for the purposes of this Contract but on the terms that a supplier or Sub-Contractor shall be entitled to make any reasonable

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

objection to any further assignment thereof by the Owner. In any case the Owner may pay any supplier or Sub-Contractor for any materials or goods delivered or Work executed for the purpose of the Contract (whether before or after the date of determination), in so far as the price thereof has not already been paid by the TENDERER. Payments made under this paragraph may be deducted from any sum due or to become due to the TENDERER.

The TENDERER shall as and when required in writing by TICEL(Owner) or its Representative so to do (but not before) remove from the work any temporary buildings, plant, tool, equipment's, goods and materials belonging to or hired by him. If within a reasonable time after any such requirements has been made the TENDERER, has not complied therewith then the Owner may (but without being responsible for any loss or damage) remove and sell any such property of the TENDERER, holding the proceeds less all costs incurred to the credit of the TENDERER.

The TENDERER shall not be released from any of his obligations or liabilities under the Contract prior to the date of termination.

The TENDERER shall allow or pay to the Owner in the manner hereinafter appearing the amount of any direct loss and/or damage caused to the Owner by the termination. Until after completion of the work under this Clause the Owner shall not be bound by any provisions of this Contract to make any further payment to the TENDERER, but upon such completion and the verification within a reasonable time of the accounts thereof TICEL(Owner) or its Representative shall certify the amount of expense properly incurred by the Owner and the amount of any direct loss and/or damage caused to the Owner by the determination and if such amounts when added to the monies paid to the TENDERER before the date of determination exceed the total amount which would have been payable on due completion in accordance with this Contract, the difference shall be a debt payable to the Owner by the TENDERER and if the said amounts, when added to the said monies be less than the said total amount, the difference shall be a debt payable by the Owner to the TENDERER.

14.8.8.2. Termination by TENDERER

Without prejudice to any other rights and remedies which the TENDERER may possess, if the Owner does not pay to the TENDERER the amount due on any certificate within the period for honoring Certificates mentioned in these Conditions and continues such default for 15 days after receipt by registered post or recorded delivery of a notice from the TENDERER stating that notice of termination under this condition will be served if payment is not made within 15 days from receipt thereof; Or The Owner interferes with or obstructs the issuance of any certificate due under this Contract; Or The carrying out of the whole or substantially the whole of the uncompleted work is suspended for a continuous period of more than 3 (three) months by reason of:

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

Force majeure, or Loss or damage occasioned by any one or more of the contingencies referred of these conditions (if applicable) Or Civil commotion or by any injunction or other order of any Court of Law, Or TICEL(Owner) or its Representative 's instructions issued of these conditions, Or The TENDERER not having received in due time necessary instructions drawings, details or levels from TICEL(Owner) or its Representative for which he specifically applied in writing on a date which having regard to the date of completion stated in the appendix to these Conditions Or Delay on the part of Artists, Tradesmen or others engaged by the Owner in executing work not forming part of this Contract, or The opening up for inspection of any work covered up or of the testing of any of the work materials or goods (including making good in consequence of such opening up or testing) unless the inspection or test showed that the work materials or goods were not in accordance with this Contract.

Then TENDERER may thereupon by notice by registered post or recorded delivery to the Owner and TICEL(Owner) or its Representative forthwith determine the employment of the TENDERER under this Contract; provided to such notice shall not be given unreasonably or vexatious.

Upon such determination, then without prejudice to the accrued rights or remedies of either party or to any liability of the classes mentioned in these conditions which may accrue either before the TENDERER or any Sub-Contractor shall have removed his or their temporary buildings, plant, machinery, appliances, goods or materials or by reason of his or their so removing the same, the respective rights and liabilities of the TENDERER and the Owner shall be as follows that is to say:

The TENDERER shall with all reasonable diligence dispatch in such manner and with such precautions as will prevent injury, death or damage of the classes in respect for which before the date of determination he was liable to indemnify the Owner under these conditions remove from site all his temporary buildings, plant, machinery, appliances, goods and materials and shall give facilities for his Sub-Contractors to do the same but subject always to the provisions of this clause.

The TENDERER shall deliver to TICEL(Owner) or it's Representative all drawings and other documents made by or for the TENDERER in connection with the Work.

After taking into account amounts previously paid under this Contract the TENDERER shall be paid by the Owner.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**14.8.8.3. The total value of the work completed at the date of termination**

The total value of work begun and executed but not completed at the date of termination the value being ascertained mutatis mutandis in accordance with these Conditions.

The cost of materials or goods properly ordered for the work for which the TENDERER shall have paid or of which the TENDERER is legally bound to pay, and on such payment by the Owner materials or goods so paid for shall become the property of the Owner.

The reasonable cost of the removal under this clause.

In addition to all other remedies the TENDERER upon such determination may take possession of and shall have a lien upon all unfixed materials which may have become the property of the Owner until payment of all monies due to the TENDERER from the Owner.

The TENDERER shall not be released from any of his obligations or liabilities under the Contract prior to the date of termination.

14.8.9. Co-ordination of work

At the commencement of work, and from time to time, the Contractor shall confer with Sub-Contractors, persons, engaged on separate contracts in connection with the work, and with the Owner for the purpose of Co-ordination and execution of the various phase of the work.

The Contract shall ascertain the Sub-Contractors, persons engaged on separate contracts in connection with the Works, the extent of all chasings, cuttings and forming of all openings, holes, grooves, etc. as may be required to accommodate the various services, the Contractor Nominated Sub-Contractor shall ascertain the routes of all services and the positions of all floor outlets, traps, etc. in connection with the installation of plant and services and arrange for the Construction of work accordingly.

The breaking and cutting of completed upon the approval of owner.

14.8.10. Instructions

The TENDERER shall forthwith comply with and duly execute any work comprised in such instructions issued to them by the Owner/TICEL(Owner) or its Representative in regard to any matter in respect of which the TICEL(Owner) or its Representative is empowered by these conditions to issue instructions provided always that verbal instructions, directions and explanations given to the TENDERER or his work representative by the TICEL(Owner) or its Representative shall if involving a variation be confirmed in writing.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

If within seven days after receipt of a written notice from TICEL(Owner) or its Representative, requiring compliance with an instruction the TENDERER does not comply therewith, the Owner may employ and pay other persons to execute any work

whatsoever which may be necessary to give effect to such instructions and all cost incurred with such employment shall be recoverable from the TENDERER by the Owner as a debt or may be deducted by him from any monies due or to become due to the TENDERER under this Contract.

All instructions issued by TICEL (Owner) or its Representative shall be in writing. Any instruction issued orally shall be of immediate effect, but shall be confirmed in writing by the TICEL (Owner) or its Representative /Owners Engineer within seven days, and if not dissented from in writing by TICEL (Owner) or its Representative to the TENDERER within seven days from receipt of the TENDERER's confirmation shall take effect as from the expiration of the latter said seven days.

Provided always, that if TICEL (Owner) or its Representative within seven days of giving such an oral instruction shall himself confirm the same in writing, then the TENDERER shall not be obliged to confirm as aforesaid, and the said instruction shall take effect as from the date of the TICEL (Owner) or its Representative's / Owners Engineer's confirmation and provided always that if neither the TENDERER nor TICEL (Owner) or its Representative shall confirm such an oral instruction in the manner and at the time aforesaid but the TENDERER shall nevertheless comply with the same, then the TICEL (Owner) or its Representative / Owners Engineer may confirm the same in writing at any time prior to the issue of the Final Certificate, and the said instruction shall thereupon be deemed to have taken effect on the date on which it was issued.

14.8.11. Labour

The TENDERER shall employ no child labor under 18 years of age on the work. If female labor is engaged the TENDERER shall make necessary provision for safeguarding small children and keeping them clear of the site of operations. No laborer shall reside within the compound except authorized guards. Labor act issued by the state/central government from time to time has to be followed scrupulously.

14.8.12. Procedure for Disputes and Arbitration Dispute Resolution:

All disputes, differences or claims of any kind whatsoever arising out of or relating to, this Agreement, or its validity, construction, breach or performance between the parties to this Agreement shall be finally settled through Arbitration. However, the parties shall first endeavor to settle the same amicably in a spirit of co-operation.

- a) The arbitration shall be governed by the Arbitration & Conciliation Act, 1996 of India as amended up to date.
- b) The Sole arbitrator, as decided mutually, shall be appointed by the parties.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

The Parties shall ensure that Arbitrator shall satisfy the norms of independence as provided in Arbitration & Conciliation Act, 1996 and any amendment thereon.

c) The arbitration hearing and all proceedings in connection therewith shall take place in Chennai and the language of the arbitration shall be English. The arbitration proceeding shall be conducted under the aegis of the Madras High Court Arbitration Centre and the parties shall be governed by the Rules of the Centre.

d) The arbitration award shall be final and binding on the parties and shall be enforceable in any competent court of law, and the parties agree to be bound thereby and to act accordingly. The rights of the Parties shall remain suspended in relation to matters which are being arbitrated. Each party shall bear its own costs for the arbitration and any attorney's fees, unless declared otherwise by the arbitral award.

The Courts in Chennai shall have exclusive jurisdiction to try any and all disputes arising out of this agreement, including the Arbitration Agreement.

Protection and cleaning

The TENDERER shall protect and preserve the work from all damage or accident by providing any temporary coverings, boxing or other construction as required by the Owner. This protection shall be provided for all property adjacent to the site as well as on the site.

14.8.13. Tolerance

The TENDERER shall exercise every care to ensure that all structural members are sufficiently plumb and true to dimensions called for on the drawings to allow superstructure construction. The TENDERER, in this regard shall make post construction survey and report as soon as the structural work for each floor are completed duly checking all the dimensions as cast, vertically of the columns / walls, levels of slabs / beam soffits / stairs etc. Defects noticed beyond permissible tolerance shall be made good as per the instructions of TICEL(Owner) or its Representative. Rectification in the structural members or remaking or replacing shall be one at the risk and cost of the TENDERER.

14.8.14. Severability:

The invalidity of any portion of these Conditions shall not affect the remaining portions of these Conditions or any part thereof and these Conditions shall be construed as if such invalid portion or portions had not been inserted therein. The parties will replace an invalid provision or fill a gap with valid provisions, which most closely approximate the intent and economic effect of the invalid provision or, in case of a gap, the parties' presumable intentions.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**14.8.15. No Waiver:**

None of the terms or conditions of these Conditions shall be deemed or construed to have been waived by either of the parties unless such waiver is set forth in a written instrument signed by a duly authorized executive of such Party.

14.8.16. Discrepancies on Contract Documents:

Should there be any discrepancies, inconsistency, contradictions, errors or omission in the contract documents or all of them, the matter shall be referred to the Owner for their decision, which shall be final and conclusive and the TENDERER shall carry out the work in accordance with such decisions.

14.8.17. Entire Agreement:

The Contract Documents constitute the entire agreement between the parties as to the subject matter hereof and supersede any and all prior understandings between the parties on the subject matter hereof. The headings of these Conditions are for reference only and shall not be deemed to form part of these Conditions.

14.8.18. Headings:

All headings and marginal notes in any part of Tender document are solely for the purpose of facilitating reference and giving concise indication and not a summary of the contents thereof, and they shall never be deemed to be part thereof or be used in the interpretation or construction thereof or of the contract.

14.8.19. Singular / Plural:

In this contract document unless otherwise stated specifically, the singular shall include the plural and vice versa wherever the context so required.

14.8.20. Co-operation with other TENDERERS:

The successful tenderer must co-operate with the other TENDERERS appointed by the Owner so that the work shall proceed smoothly with least possible delay and to the satisfaction of the TICEL (Owner) or its Representative.

14.8.21. Delegation

The TICEL(Owner) or its Representative may delegate any of his duties and responsibilities to other people except to the Adjudicator after notifying the TENDERER and may cancel any delegation after notifying the TENDERER.

14.8.22. Communications

Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

14.8.23. Owner's and TENDERER's Risks

The Owner carries the risks which this Contract states are Owner's risks, and the

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
TENDERER carries the risks which this Contract states are TENDERER's risks.

14.8.23.1. Owner's Risks

The TICEL(Owner) or its Representative may withhold or on account of subsequently discovered evidence nullify the whole or a part of any certificate to such extent as may be necessary in his reasonable opinion to protect the Owner from loss on account of:

- A) Defective work not remedied.
- B) Failure of the TENDERER to make payments properly to or Direct sub-TENDERER or for materials or labor.
- C) A reasonable doubt that the Contract can be completed for the balance then unpaid
- D) Damage to another TENDERER or Other Specialist TENDERERs Claims filed on reasonable evidence indicating probable filing of claims.
- E) When the above grounds are removed, payment shall be made for amounts Withheld because of them.

14.8.24. Discrepancies on Contract Document:

Should there be any discrepancies, inconsistency, contradictions, errors or omission in the contract documents or all of them, the matter shall be referred to the TICEL (Owner) or its Representative s for their decision, not later than 30 days from the date of work order which shall be final and conclusive and the TENDERER shall carry out the work in accordance with such decisions.

14.8.25. Management Meeting:

Either TICEL (Owner) or it's Representative or the TENDERER may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

TICEL(Owner) or its Representative shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Owner. The responsibility of the parties for actions to be taken is to be decided by TICEL(Owner) or it's Representative either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

TICEL(Owner) or its Representative will convene site meetings weekly at a pre-arranged time to discuss or problems which may have arisen or seem likely to arise during the course of the work.

TICEL(Owner) or its Representative shall chair the meetings at which the TENDERER's Foreman and any other person whom the TICEL(Owner) or its Representative consider desirable, including the TENDERER's Sub Contractors shall be present, and the TENDERER shall make all arrangements to ensure their presence.

TICEL(Owner) or its Representative shall record the business of the meeting and shall arrange for copies to be distributed to all present prior to the next meeting. Quality assurance records shall be produced during site meetings. Site meeting will be called at regular intervals and the TENDERERs or his senior representative will be required to be present at such meetings to discuss progress of the work and other matters including any deviation from the drawings or specifications.

14.8.26. Early Warning

The TENDERER is to inform TICEL(Owner) or its Representative at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price or delay the execution of work. TICEL(Owner) or its Representative may require the TENDERER to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate is to be provided by the TENDERER as soon as reasonably possible.

The TENDERER shall cooperate with TICEL(Owner) or its Representative in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of TICEL(Owner) or its Representative.

The TENDERER shall comply with and give all notices required by any Government authority, and instrument, rule or order made under any Act of Parliament or State Legislature or any regulation or Bye-law of any local authority relating to the work or with whose system the same is or will be connected. The TENDERER before making any variation from the Contract Drawings or Contract Bills necessitated by such compliance shall give to TICEL(Owner) or its Representative a written notice specifying and giving reasons for such variations and TICEL(Owner) or its Representative may issue instructions in regard thereto. If within 10 days of having given the said written notice the TENDERER does not receive any instructions in regard to the matters therein specified, he shall proceed with the work confirming to the Act of Parliament, or State Legislature instrument, rule, order, regulations or Bye- law in question and any variation thereby necessitated shall be deemed to be a variation required by TICEL(Owner) or its Representative.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

The TENDERER shall pay and indemnify the Owner against liability in respect of any fees or charges (including any rates and taxes) as existing or future legally demandable under any Act of Parliament, or State Legislature instrument, rule or order or any regulation or Bye-law or any local authority in respect of the Work.

14.8.27. Joint Inspection:

TICEL(Owner) or its Representative's representatives shall conduct joint inspection with the TENDERER's authorized representative at every stage of the work, immediately upon completion of such stage of work. The purpose of the joint inspection is to observe and record any deviations from the specified tolerances / levels, plumb or any quality defects or any such issues which require immediate attention / action from the TENDERER to make good or rectify such defects or observations jointly recorded. Such joint inspections can be held at any time as deemed fit and shall be binding on the TENDERER to act upon and implement without any extra cost the directions arising out of such joint inspections. Failure / delay in holding such joint inspections shall not absolve the TENDERER from his responsibilities to rectify any defects which may be subsequently noticed at any time after the respective stages of work.

Delay by Inclement Weather:

The TENDERER shall allow for inclement weather to occur throughout the contract period, and the preparation of the programmed shall include a sufficient period to accommodate any delays to the work which may be experienced as a result of weather conditions.

14.8.28. Working hours, working on holidays and night work:

All work shall be carried out between the normal working hour of each working day as adopted locally for similar work and also as per local labor regulations.

Permission of TICEL(Owner) or its Representative, will be required should the TENDERER wish to work outside normal working hours and on holidays. No extension of time may be granted should such permission be withheld for any cause.

Time is the essence of contract. To achieve the milestone completion dates, shift working and night working may become necessary.

In case night work is to be done due to the exigencies of the work, it is the TENDERER's responsibility.

To obtain advance permission from TICEL(Owner) or its Representative and also the security staff specifying the number of persons who will be employed and duration. To provide adequate area lighting for efficient execution of the work without accident risks and quality deterioration. The arrangements are to be the full satisfaction of TICEL(Owner) or its Representative. The TENDERER is wholly

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

responsible for any accidents or bad quality of work due to inadequate arrangements made by him and he will fully indemnify TICEL(Owner) or its Representative for any lapse. The TENDERER to avoid disturbance to neighbors.

No extra claim will be entertained for the overtime and night work and any expenditure incurred by him on this account.

14.8.29. Bill of Quantities

The Bill of Quantities given in Contract Bill is provisional and is meant to indicate the intent of the work and to provide a uniform basis for tendering. The owner reserves the right to increase or decrease any of the quantities or to totally omit any item of work and the TENDERER shall not claim any extras or damages on these grounds. Any error in description or in quantity or omission of items from the Contract Bill shall not vitiate this contract but shall be treated as a variation.

The Bill of Quantities shall contain items for the construction, installation, testing, and commissioning work to be done by the TENDERER.

The Bill of Quantities is used to calculate the Contract Price. The TENDERER is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

14.8.30. Warranty:

Wherever in this specification warranties are called for the TENDERER shall obtain a written warranty addressed to the Owner from the firm supplying the materials or doing the work or both, and shall deliver this to TICEL(Owner) or its Representative.

The warranty shall be valid for at least for the period of two years from the date of actual Completion of the work and any defect which shall arise during this period shall be made good and any expense or other work entailed by either defects or the making good old defects shall be borne by the warrantor.

All required warranty shall be submitted to TICEL(Owner) or its Representative by the TENDERER when requesting certification of accounts for payment by the Owner.

14.8.31. Cost of Repairs

Loss or damage to the Work or Materials to be incorporated in the Work between the Start Date and the end of the Defects Correction periods shall be remedied by the TENDERER at the TENDERER's cost if the loss or damage arises from the TENDERER's acts or omissions.

14.8.32. Taking Over

The Owner shall take over the Site after TICEL(Owner) or its Representative

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL issuing a certificate of Completion of entire work as per scope of contract work.

14.8.33. Final Account

The TENDERER shall supply to TICEL(Owner) or its Representative a detailed account of the total amount that the TENDERER considers payable under the Contract before the end of the Warranty Period. TICEL(Owner) or its Representative shall issue a Free from Defects Certificate and certify any Final Payment that is due to the TENDERER within 45 days of receiving the TENDERER's account if it is correct and complete. If it is not, TICEL(Owner) or its Representative shall issue within 45 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, TICEL(Owner) or its Representative shall decide on the amount payable to the TENDERER and issue a payment certificate within 45 days of receiving the TENDERER's revised account.

14.8.34. As built drawings & Maintenance Manuals

Three sets of as built drawings in hard copy & further one PDF, Auto CAD format copied in Soft Copy drive shall be submitted by TENDERER to TICEL upon completion of the installation of equipment

If the TENDERER does not supply the Drawings and/or manuals by the dates stated in the Contract documents, or they do not receive TICEL(Owner) or its representative's approval, TICEL(Owner) or its Representative shall withhold the amount stated in the Contract documents from payments due to the TENDERER.

14.8.35. Force Majeure:

If at any time during the continuance of this Contract the performance by either party under this Contract of any of its obligations is rendered impossible by reasons of Force Majeure such as acts of God, flood, fire, earthquake, explosion, war, riots, civil commotion etc. (here-in-after referred to as Force Majeure) then, provided written notice of the happening of the event of Force Majeure is given by the affected party to the other within 15 days, of the occurrence thereof and provided that such event of Force Majeure has not resulted from the negligence or failure of the affected party to perform its obligations, the affected party shall not be liable for fulfillment of any of its obligations pursuant to this Contract during the continuance of the event of Force Majeure. So soon as practicable, upon the cessation of the Force Majeure conditions, the affected party shall continue performance of its obligations under the Contract.

The affected party shall take steps to remedy and mitigate the effects of the Force Majeure event on its ability to perform its obligations under the Contract.

Time for performance of the relative obligation suspended by the Force Majeure shall then stand extended by the period for which such cause lasts.

If the Contract shall be terminated under the provision of the above clause, the

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

TENDERER shall with all reasonable diligence remove from the Site all the TENDERER's equipment and shall give similar facilities to his Sub Contractors to do so.

Any extension of time granted by the Owner in terms of above clause, shall neither entitle the TENDERER to any claim for increase in prices nor shall it release him from any of the obligations under the Contract. If the performance of the Contract as a whole is delayed by reason of the Force Majeure conditions continuing to persist for a continuous period exceeding 30 Working days, the Owner and the TENDERER shall discuss the matter and decide to discontinue or to continue its execution on such terms as may be agreed upon.

The Owner shall not be held responsible or be called upon to make good any losses / costs incurred by the TENDERER consequent to the happening of any of the event under clause above.

14.8.36. Suspension of Work Partly or Wholly

The TENDERER shall if ordered in writing by the TICEL(Owner) or its Representative, temporarily suspend the work or any part thereof for such period and such time as so ordered and shall not after receiving such written order proceed with work therein ordered to be suspended until he shall have received a written order to proceed therewith. The TENDERER shall during such suspension, properly protect and secure the work, so far as is necessary in the opinion of TICEL(Owner) or its Representative.

If such suspension delays the progress of the work to such an extent as to cause additional expense or loss to the TENDERER, the matter shall be mutually discussed and agreed to. As soon as the TENDERER finds that such extra cost is likely to be involved on account of suspension of such work or part thereof, he shall promptly notify the Owner accordingly, giving his estimates of such cost likely to be involved. Unless the Owner is so notified, he shall not be bound to entertain any subsequent or delayed claims on this account. However, no compensation for the first cumulative period of 30 days of suspension of work shall be payable by the Owner to the TENDERER. If the cumulative period of suspension of work exceeds 30 days, TICEL(Owner) or its Representative shall settle mutually and arrive and determine on mutual agreement the amount of compensation payable to the TENDERER for the period beyond the initial cumulative suspension period of 30 days in fair and reasonable manner.

An extension of time for completion corresponding with the delay caused by any such suspension of work as aforesaid will be granted to the TENDERER should he apply for the same provided that the suspension was not consequent to any default or failure on the part of the TENDERER.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

In case of suspension of work ordered in writing by the TICEL(Owner) or its Representative for a cumulative period of more than three (3) months, the TENDERER shall have the option to terminate the Contract, provided that the suspension was not consequent to any default or failure on the part of the TENDERER and that the TENDERER shall exercise such option forthwith.

14.8.37. Payment upon Termination

If the Contract is terminated because of a fundamental breach of Contract by the TENDERER, the TICEL(Owner) or its Representative shall issue a certificate for the value of the work done less advance payments received by the tenderer up to the date of the issue of the certificate, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract documents. Additional Liquidated Damages shall not apply. If the total amount due to the Owner exceeds any payment due to the TENDERER, the difference shall be a debt payable to the Owner. Further, in such an event, the performance bond/bank guarantee given by the Tenderer shall stand forfeited

If the Contract is terminated at the Owner's convenience or because of a fundamental breach of Contract by the Owner, TICEL(Owner) or its Representative shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the TENDERER's personnel employed solely on the Work, and the TENDERER's costs of protecting and securing the Work and less advance payments received by the tenderer up to the date of the certificate, less other recoveries due in terms of the contract, and less taxes due to be deducted at source as per applicable law. In such an event the performance money held by the owner shall be returned to the TENDERER, along with other settlement dues.

14.8.38. Property

All materials on the Site, Plant, Equipment, Temporary Work and Work are deemed to be the property of the Owner, if the Contract is terminated because of a TENDERER's default.

14.8.39. Release from Performance

If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Owner or the TENDERER, the TICEL(Owner) or its Representative shall certify that the Contract has been frustrated. The TENDERER shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made. The performance money in such an event is returned by the owner in the form as it was submitted.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**14.8.40. Fraud and Corruption**

The Owner requires the TENDERER to observe the highest standard of ethics during the procurement and execution of contracts. In pursuit of this policy, the Owner:

a) Defines, for the purposes of this provision, the terms set forth below as follows:

i) "Corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;

ii) "Fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;

iii) "Collusive practice" means a scheme or arrangement between two or more Tenderers, with or without the knowledge of the borrower, designed to establish Tender prices at artificial, non-competitive levels;

iv) "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract;

v) Will cancel the portion of the loan/benefit allocated to the tenderer if it determines at any time that representatives of the tenderer or of a beneficiary of the loan/benefit engaged in corrupt, fraudulent, collusive or coercive practices during the procurement or the execution of that contract,

14.8.41. Contract Documents

The contract documents are defined in the definition part above. The TENDERER shall keep at site one copy of the Specification, Descriptive schedule or other like document referred to in the clause and one copy of the Contract Document and connected As- Build Drawings, Manuals and such other details supplied to him from time to time and referred to in this clause.

14.8.42. Time Schedule for Commencement of Work:

Time allowed for carrying out the work as mentioned in the Memorandum shall be strictly observed by the TENDERER and it **shall be reckoned from 15th day** from the date of issue of LOA or handing over of possession of the site to the TENDERER whichever is earlier. The successful tenderer shall before commence work prepare a detailed work program.

14.8.43. Tender Validity:

The tender shall remain open for a period of 120 days from Date of Opening

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
Technical Bid.**14.8.44. Work Programme:**

Time is deemed to be the essence of this contract. The period of completion of whole Work shall be as stated in the Milestone activities. Summary of Notice Inviting Tender and Conditions. The tenderer shall furnish full details about his/their supply, installation, commissioning etc. management program, co-ordination with different specialized agencies, program schedule of various stages as per work execution schedule to achieve the target date of completion.

The TENDERER must follow his planning schedule and must adhere to the targets/ programs by deploying adequate resources.

The TENDERER shall mobilize all plant, machineries, equipment's etc. required to adhere to the time schedule of various activities.

The TENDERER shall submit progress report every week which shall indicate but not be limited to the following:

- a) Milestone of project accomplishment during the period under consideration
- b) Bottleneck if any and action proposed
- c) Actual v/s planned progress in percent
- d) Activities completed in the reporting period
- e) On-going current activities
- f) Critical activities to be undertaken and completed in current month
- g) 2 weeks & 4 weeks look ahead
- h) Slippages and action proposed

In the event of overall slippage exceeding permissible limit as decided by the TICEL(Owner) or its Representative the TENDERER shall submit a report for the slippages and shall revise their planning schedule. The TENDERER shall submit a report explaining course of action to be taken to overcome such slippages in future and steps taken to meet revised target dates.

14.8.45. All terms & conditions stipulated in the Tender documents are strictly applicable and in addition, the following conditions are applicable:

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

- ❖ As the site work is in a potentially critical area, it is of paramount importance to ensure all work are done in a professional manner giving top priority to Safety.
- ❖ Any safety violation shall lead to immediate stoppage of work and cancellation of contract.
- ❖ All extra items not contemplated in the original tenders should be claimed with rate analysis data and certified by the Engineer-in-charge
- ❖ ESI, PF shall be paid by the TENDERER under the TENDERER'S company code, and documents shall be made available for the inspection of TICEL(OWNER) OR ITS REPRESENTATIVE as per guidelines of Owner in this regard.
- ❖ All in-coming and consumable materials are to be tested for Quality Assurance and the Certificates are to be produced to TICEL(OWNER) OR ITS REPRESENTATIVE.
- ❖ All TENDERER'S Employees like Site Engineer, Supervisor, Store-keeper and Construction Workmen should be aware of the OWNER'S Safety Policy, EHS and Project Management Guidelines as relevant to the work site like Work permits, usage and maintenance of Personal Protective Equipment's, Ladder and Platforms etc.
- ❖ Before commencing the job, the TENDERER should submit the method statement for each construction activity detailing the safety measures taken.
- ❖ All workers should not work for more than 8 hrs. in a day. However, work can continue in multiple shifts with different sets of Employees
- ❖ On any given day and time, the number of workmen at site should not exceed the number for which RC has been obtained from the Inspector of Factories.
- ❖ The TENDERER shall maintain separate attendance register (Form-F) and Wage Register (Form-XVII) as per Statutory Format and minimum wages as per the labor regulations have to be paid
- ❖ None of the Employees should work for more than 6 days a week and the 7th day, he or she has to be given weekly "off".
- ❖ Child labor is not permitted.
- ❖ Labor should not be construed as OWNER'S labor or employee.
- ❖ The under mentioned Records to be maintained for Inspection by the E.C. and to be handed over at various stages of construction/as and when demanded Manufacturer's test certificates and other test certificates for all applicable items

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
as per Project Management guidelines of OWNER, and all tests to be performed as detailed in tender documents.

I hereby agree to adhere to above terms and conditions.

14.8.46. Watchmen:

The Tenderer shall make his own security arrangements to guard the Site and premises at all times, at his own expense. The security arrangements shall be adequate to maintain strict control on the movement of material and labor. The Tenderer shall extend the security arrangements to guard the material stored / fixed in position and completion till handing over finished work to TICEL.

14.8.47. Storage of Materials:

TICEL shall provide sufficient storage space.

14.8.48. Permission from Statutory Body:

Permission required to be obtained from local Government and connected bodies for establishing the site office and executing the work shall be Tenderer's responsibility.

14.8.49. Labour Regulations:

All rules and regulations of labor department, contract labor laws, Provident Fund & ESI and connected laws, Comprehensive All Risk Insurance requirements and all other laws of the land are to be complied with by the Tenderer.

14.8.50. Important Provisions:

The following important provisions in the Tender shall be noted before quoting for the work:

- a. Performance Bond in the form of Bank Guarantee from a Nationalized / Scheduled Bank Furnishing Bank Guarantee as Performance Bond in format appended, as envisaged in Conditions of Contract within 15 days from the date of issue of LOA from Owner
- b. Liquidated Damages (not as penalty) for delayed completion, mentioned elsewhere in Tender Document and as specified under summary of Notice Inviting Tender and Condition of Contract.
- c. Retention money from payment of running account bills at 10% of the bill value until it amounts to 5% of contract value as envisaged in Conditions of Contract.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

d. List of approved make(s) / manufacturer as mentioned in **Technical Specifications**. The approved makes wherever listed in the Tender documents are the preferred makes, based on their performance, reputation etc. The final choice of approving the make of any product will however rest with the TICEL(OWNER) OR ITS REPRESENTATIVE and his decision shall be final and binding on the successful Tenderer. The Tenderers are required to indicate on a separate annexure a list of items furnishing details of the manufacturer's name, conformity to IS / International Standards etc. for each product. Even where the Tenderers intend to use the same make as per approved list, the name(s) shall be repeated in the annexure. The Tenderers are allowed to furnish names of two manufacturers for each product in the order of preference. The Owner shall review the list furnished by the Tenderers and if the Owner is not satisfied with the make of the any particular item, the Owner shall reserve the right to insist on the desired make / manufacturer.

e. The Tender shall have no choice to change the make / manufacturer of any product mutually agreed upon prior to opening of Tender, thereafter. Evaluation of Tender shall be on the basis, which is in more conformity to the approved make(s) / manufacturer listed.

f. All major components / sub-systems / materials forming part of the work shall be duly tested at the place of manufacture / assembly before dispatch. The manufacturer shall have stringent quality control for the pre-delivery installation schedules and the product, when it leaves the manufacturing / assembly plant, be proved to be capable of performing to the specified criteria. The Owner/ TICEL(Owner) or its Representative reserve the right to be present at the time of testing of such major components / sub-systems / materials at the manufacturer's factory / assembly shops. For this purpose, the successful Tenderer shall submit a detailed schedule of manufacturing and testing of components / sub- systems / materials giving details of the expected dates of testing, location, duration of testing as well as nature of testing for the concurrence of the Owner/ Owner's Engineer/ TICEL(Owner) or its Representative.

14.8.51. Articles of value found:

Any treasures, antiques, valuable etc. found during excavation belong to the Owner and the same shall be handed over without causing any damage to them.

14.8.52. Scope:

A separate scope of services, describing the scope, intent and extent of the work put to tender as given in section - 7.

Post Installation/Commissioning Survey:

The successful TENDERER shall make post installation/ commissioning survey and report as soon as "SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
FERMENTOR, CHILLER AND STEAM GENERATOR in TICEL Phase-II, Taramani, Chennai, Tamil Nadu, India” for a period of 6 months. Any defects noticed beyond permissible tolerances shall be made good by the TENDERER as per instructions of the TICEL(Owner) or its Representative without any extra cost and time.

14.8.53. Submittal Formats:

Site Organization Chart, Program, proposed to be adopted during execution of work and Quality Assurance Programme shall be submitted along with the given in Submittal Formats.

14.8.54. Photographs and Video Cassettes:

The TENDERER shall take photos and video from the locations approved by the TICEL(Owner) or it's Representative to show the progress of work at monthly intervals throughout the construction period and furnish photographs and video cassettes of required duration duly indicating there in the specified number of negative / prints affixed in albums. Each photograph shall be marked with the description of the photograph and location from which it was taken.

The ownership and copy right of all photographs and negatives shall be vested in the Owner and are not to be used without his permission under any circumstances. Negatives and prints shall be handed over to the TICEL(Owner) or its Representative monthly.

14.8.55. Pollution and Site Hygiene:

Mechanical plant, equipment, etc. which emits smoke, fumes or other obnoxious gases will not be allowed on the site.

Provide and maintain temporary channels, drains and the like for keeping the Site clear of water.

Take all reasonable precautions to ensure the efficient protection of all streams and waterways against pollution arising out of or by reason of the execution of the Work.

The TENDERER shall not dump unwanted building debris, chemicals, any noxious or polluting matter on any vacant plot of land, roadside or drains thereby causing choke leading to mosquito breeding or causing contamination of the Site or the drainage system.

Comply with and pay all charges levied by any Government or Public Authority with jurisdiction on matters of pollution or site hygiene.

14.8.56. Fire Protection during Construction:

Provide and keep in working order adequate FIRE PROTECTION equipment

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
for emergency use.**14.8.57. Schedule of Quantities and Technical Specifications:**

In case of conflict between item description in “Bill of Quantities” and “Technical specifications” the following priority shall govern:

Bill of Quantities & Preamble Technical Specifications IS Code /Equivalent BS Codes/ Other codes

All-important drawings are to be mounted on boards and placed in racks and indexed.

14.8.58. Place of work:

Visit: Before tendering, the TENDERER shall have visited and examined the place of work and satisfied and understood himself as to the correct requirement of the work

/job and the facilities for obtaining any special articles called for in the tender / Contract Document and shall have obtained generally his own information on all matters affecting performance of the job.

No extra charge / claims made in consequence of any misunderstanding or incorrect information on any of these points, will be allowed nor entertained. Should the TENDERER after visiting the place of work, find any discrepancies, omissions, ambiguities or conflicts in or among the tender /Contract Document, or be in doubt as to their meaning, he shall bring the questions to the Owner's attention, not later than 5 (five) working days before the date of the Pre-Bid Meeting.

14.8.59. Possession:

The successful bidder shall be allowed admittance to the work place on the 'Date of Commencement' stated in the appendix and he shall thereupon and forthwith begin the work and shall regularly proceed with the performance of the job till the end of the contract period stated in the appendix subject nevertheless to the provision for renewal of time hereinafter contained.

14.8.60. Defect/Complaint cum Rectification Programme Chart:

The successful bidder shall follow the existing formats approved by the Owner on day- to-day basis. The charts indicate the method of Operation and Maintenance to be executed, the date of commencement and completion of each of the defect/complaint. If the TENDERER feels any improvement required in the existing formats, the same should be brought to the notice of the TICEL management and get approval before execution.

14.8.61. Acceptance, Deficient Service and Rejection:**a) Acceptance**

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

One month before the expiry of this contract, the TENDERER shall submit the following documentations:

Complete set of altered drawings if any including reproducible copies / soft copies in

Pen drives of TENDERER's drawings applicable.

Complete set of as-built drawings & manuals (issued to TENDERER at the beginning of contract) incorporating new additions / changes if any

Then TENDERER shall be entitled to request the Owner to carry out an examination of the services and the operating conditions of the facilities. The Completion Certificate shall then be issued by Owner, provided such examination was satisfactory to Owner/TICEL(OWNER) OR ITS REPRESENTATIVES subject to the signing of the Release Letter by TENDERER as per the format approved by the Owner.

14.8.62. Deficient Services and Rejection:

If at any time before issue of the completion certificate there becomes apparent any failure of the services or part thereof to conform to the warranties or any other defect or deficiency in the services for which TENDERER shall be responsible, TENDERER shall upon receipt of written notice from Owner and at his own expense promptly remedy the same at Owner's option, repair or replacement. Deficient services shall also include TENDERER's failure to respond with diligence and dispatch.

Even if TENDERERs shall fail to promptly effect the required remedy, then Owner shall be entitled to reject the part of the services affected and to replace the same at TENDERER's expense.

If Owner does not exercise its right under the immediately preceding paragraph within a reasonable time, TENDERER shall not be relieved from liability in respect of the relevant non-conformity or other defect or deficiency but his full and complete responsibility shall be limited to the repayment of all monies paid by Owner to him in respect of the part of the services affected thereby.

TENDERER shall, if required by Owner, search for the cause of any malfunction, defect or deficiency in the services and, if the same shall be found to be within the scope of TENDERER's remedial responsibility as aforesaid, the cost of the services carried out by TENDERER in searching shall be borne by TENDERER.

TENDERER's failure to perform any of his obligations under this Sub-article shall (without prejudice to any other rights which Owner shall have in the matter) result in Owner making demand under the performance Bank Guarantee and / or any monies in its possession.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**14.8.63. Financial Entitlements and Payments Contract Price**

In consideration of performing the SERVICES in full conformity with the Contract, OWNER shall pay to TENDERER the CONTRACT PRICE as specified in Schedule of Quantities in the manner set forth in sub-articles below as full and final remuneration.

14.8.64. Repetition of clauses:

In this document certain clauses may be repeated in several sections. In case of any discrepancy or contradictions, the same may be brought to the notice of the TICEL(Owner) or it's Representative whose decision regarding interpretation shall be final and binding on the TENDERER.

Place:

Date:

Signature of the Tenderer with Seal

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
PART-B**

Project Description

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650L & 100L), CHILLER & STEAM GENERATOR AND DOSSING VESSEL (200L) AT BIOFOUNDRY – BIOPROCESS SCALEUP FACILITY AT TICEL PHASE-II CHENNAI, TAMIL NADU, INDIA

Location Details:

- A. Project Site details (Location) – Third floor
- B. Total Area – 2700 Sq feet (Carpet area)
- C. Lab modules to be created – Raw material storage (Approx.100 Sq feet),
Media and Reagent preparation (Approx. 250 Sq Feet)
Incubation (Approx. 200 Sq feet)
Upstream Bioprocess (Approx. 700 Sq feet)
Downstream Bio Process (Approx. 500 Sq Feet)
- D. Fermentor to be installed at Upstream Bioprocess Lab (700 Sq feet).
- E. Dimension of the proposed Area – Width: 34 feet / Length : 65 Feet / Height : 4.0 Meter (Floor to floor)
- F. Current Status of the Area: Wharmshell.
- G. Interior – To be created as per clean room Requirements.
- H. RO water line, air compressors, and gas line provisions are available at the site for fermentor installation. Proper connections must be made to the fermentor as per equipment specifications.

APPENDIX

1	Date of commencement of work	Within 10 days from the date of issue of LoA.
2	Period of Contract	For Six months (Completion of the project) from the date indicated in the LOA
3	Performance Bond	An amount equivalent to 10% on the highest annual contract value (Basic Value) valid up to the two years (Warranty period) with additional irrevocable period of six Months. Bank Guarantee obtained from any Nationalized/Scheduled Bank.
4	Payment of bills by the Owner	Payment shall be made within 14 days from the date of receipt of correct invoice as per the payment terms.
5	Period of Final Payment	1 (One) month after completion of the installation and commissioning of the equipment.
6	Escalation in prices	No Escalation will be allowed other than the quoted prices during the contract

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Scope of work****1.1 Equipment Supply and Installation**

Vendors shall supply, deliver, install, and commissioning of Fermentor's (650L & 100L), Chiller & steam generator and Dosing vessel (200L) associated utilities within the facility. This includes:

- **Installation of Fermentor's, Chiller & steam generator, Dosing Vessel.**
- **Utility systems (RO water line, air compressors, and gas line provisions are available at the site for fermentor installation. Proper connections must be made to the fermentor's as per equipment specifications)**

2.2 Facility Installation Environment

All installations will be within a BSL-II/cleanroom-compliant environment (ISO Class 7 and 8) and must conform to minimum GMP and biosafety requirements.

3.3 Equipment Qualification

The vendor is responsible for the complete lifecycle qualification of Fermentor, including:

- **Design Qualification (DQ):**

Verification that the design meets user requirements, GMP, biosafety, and cleanroom standards.

- **Installation Qualification (IQ):**

Documentation and verification that equipment is received, installed, and connected as per specifications (including layout, utilities, material compatibility, etc.).

- **Operational Qualification (OQ):**

Testing and verification that the equipment operates according to its functional specifications.

- **Performance Qualification (PQ):**

Validation that the system performs reliably and consistently under actual operating conditions.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

All qualification documents must be prepared and submitted by tenderer.

4.4 FAT / SAT (Factory and Site Acceptance Testing)

- **FAT (Factory Acceptance Testing):**

Prior to delivery, Fermentor will undergo FAT at the manufacturer's site to verify basic functionality, build quality, and conformance with purchase specifications.

- **SAT (Site Acceptance Testing):**

Post-installation testing at the facility to verify system integrity, operational functionality, and integration with utility systems before IQ/OQ.

5.5 Documentation and Deliverables

Vendor shall provide:

- **Design drawings and P&IDs**
- **Qualification Protocols and Reports (DQ, IQ, OQ, PQ)**
- **FAT/SAT Reports**
- **Operation and Maintenance Manuals**
- **Certificates of compliance for cleanroom compatibility and GMP**
- **Calibration certificates, and warranty details**

➤ **Mechanical Documentation**

As part of the mechanical engineering the following documentation will be prepared

- P&I diagrams
- General arrangement drawings for vessels

➤ **Instrumentation Documentation**

As part of the engineering for instrumentation the following documentation will be prepared

- Instrumentation Component lists
- Wiring Drawing & Control panel drawings
-

➤ **GENERAL DOCUMENT LIST**

- GA Drawing
- P&ID
- SOP
- MOC Certificates
- Component Specifications
- FAT Protocol
- IQ & OQ Protocol

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

- Test reports

➤ **Qualification Protocol**

- **Factory Acceptance Test**

- Overall system verification (GA and P&ID Verification)
- Vessel verification
- Components verification
- Pressure Hold test
- Hydro Test
- Verification of Agitator
- Internal mounting parts verification

6.6 Training

- **Onsite training to facility staff.**

7.7 Vendors must provide:

- **Costing as Separate line items for:**
 - **Chiller unit (capacity: 7.5 Ton or 7.5 TR Suitable for operation of 500 Lit Fermentor)**
 - **Steam generator (capacity: 150 Kg/Hr – Non-IBR Suitable for operation of 500 Lit Fermentor)**

Place:

Date:

Signature of the Tenderer with Seal

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Material Sourcing:**

The maker of materials mentioned in the Bid document are indicative only and are, by and large, from the Country of Origin / Manufactured as mentioned under Particulars of Fermentor Specification mentioned elsewhere in the tender document. Any other equivalent product of International Repute will be acceptable subject to the products satisfying the specified Technical and Operational parameters and subject to prior approval of the TICEL(Owner) or its Representative.

The Tenderer should strict to the source of material /equipment's as specified in Section – 8: PARTICULARS OF EQUIPMENT SPECIFICATION.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Section: 7 Project completion period / Work execution schedule****Project Completion Period:**

The entire Tender for Execution of works for **SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650L & 100L), CHILLER & STEAM GENERATOR AND DOSSING VESSEL (200L) AT TICEL BIO PARK – II, PHASE-II, TARAMANI,CHENNAI, TAMIL NADU, INDIA** shall be completed as given in Time of Six months from the date of issue of Letter of Award and schedules with mile stone given below:

WORK EXECUTION SCHEDULE WITH TIME FRAME FOR COMPLETION OF VARIOUS STAGES OF WORK		
Period	Activity	No. of days allotted from the date of issue of LOA
Phase 1	Design Qualification (DQ)	20 Days
Phase 2	Manufacturing & Factory testing + Factory Acceptance Test (FAT)	140days
Phase 3	Delivery, Installation and Site Acceptance Test (SAT) / Qualification activities (IQ, OQ and PQ) and Final documentation and submission.	180 days

Note: The warranty period starts after successful installation and commissioning of Fermentor.

Applicable LD Clause, if any, will be levied based on respective Milestone activities

Signature of Tenderer

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Travel accommodation to TICEL Officials:**

Tenderer has to clearly state the place and address of work where Equipment connected work are proposed to be manufactured. Tenderer shall make its own arrangement for Travel / Accommodation of TICEL officials at its own cost for FAT.

Liquidated Damages Clause:

0.1% (Zero decimal one per cent) of the contract sum per week of delay subject to a maximum of 10% of the contract Value (exclusive of GST). The period of delay shall be as opined by TICEL which is final and binding on the contractor.

Warranty

The contractor shall provide warranty of the manufacturer for the equipment for a period of 24 months from the date of installation & commissioning of Equipment. The warranty should be internationally enforceable in the country of manufacturer/India.

Assignment or giving Sub-Contract

No subcontracting is ordinarily permitted for items mentioned in the scope of work. In case of any specific requirements, Contractor shall not without the written consent of the Owner assign any responsibility needed to discharge the functions of the Contract as a subcontract.

- i. Provided that even in case of such subcontracting, the Contractor shall be solely responsible for the overall supervision, necessary domain knowledge support, service quality, system support on technology, training, validating day to day monitoring and overall management.
- ii. And also provided that on receipt of any request from the Contractor with proper reasons for approval of the Owner to give a portion of non-core activity or a specialized activity on sub-contract, the Owner shall not unreasonably delay their decision on giving consent for subcontracting such portion of work, to the prejudice of the Contractor.

Performance Bond: Capital Works:

The TENDERER shall deposit with the owner for due performance of the contract by bank guarantees for a sum equivalent to 10% of the contract sum of capital works within 15 days of LOA in the form of Bank Guarantee in the format acceptable to the owner / appended herein, valid till the end of Warranty Period of two year from the date of satisfactory handing over of the completed works by the TENDERER to the Owner with provision for direct re-validation on demand by the Owner, when so called for, for the execution and due fulfillment of the Contract.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Signing of Agreement:**

On receipt of intimation from the Owner of the acceptance of his/their Tender (Letter of Award), the successful Tenderer shall be bound to implement the contract and when called upon the successful Tenderer shall sign an agreement in accordance with the draft agreement and the Schedule of Conditions but the written acceptance by the Owner, of a Tender will constitute a binding contract between TICEL BIO PARK Ltd., Chennai, and the tenderer whether such formal agreement is or not subsequently executed. The agreement should be signed within 15 days from the date of the LOA issued after submission of valid Bank Guarantee as Appendix - A.

Insurance: - As per conditions of contract mention in this tender elsewhere:

TENDERER shall, prior to the commencement of any site activity submit the Insurance Confirmation letter as indicated in Appendix-C regarding the required Insurance Policies to be put in place by TENDERER as indicated in General Terms & conditions of the contract. Owner reserves the right to examine the policy wording and require evidence that the Policy Premium has been paid to the Insurers, and that it shall remain in force, throughout the duration of the Contract.

All deductions or liabilities in excess of the indemnities provided under the insurance arranged by TENDERER / Sub-Contractor and / or Owner shall be for the account of and paid by TENDERER and his Sub-Contractors.

Final Bill Payment:

The TENDERERs final bill shall be certified for settlement, within 30 days upon acceptance by TICEL(Owner) or it's Representative, and payments on this shall be effected within 90 days from the date of acceptance.

Statutory levies variation:

All taxes, duties and levies on Work Contract, if any, shall be to the contractor's account and no separate claim in this regard will be entertained by the Owner.

The taxes, duties, levies and charges as applicable including any exemption/concessional rate, as mentioned by bidder in the financial proposal (Price Bid/BOQ) are to be considered for evaluation. Bidders are required to ascertain correctness of amount mentioned in the bid as on date of techno – commercial bid opening. To add clause as passing of benefits, if any, on such variation to TICEL. Any new taxes and duties introduced or revision in respective applicable taxes and duties rates after the date of techno commercial bid opening shall be paid/ reimbursed by the Owner subject to submission of requisite

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
documentary evidence by the bidder.

The Proof for Payment of Taxes / Duties etc. shall be submitted. The Payment of Taxes / Duties form part of quote shall be paid at actual.

Currencies

All payments shall be made in Indian Rupees.

Payment Certificates:

Liquidated damages (not as a penalty) for non-completion

i. The progress of work will be constantly monitored by TICEL (Owner) or its Representative. Time is the essence of the contract and the project is time bound. The TENDERER shall provide sufficient work front to Other Specialist TENDERERS mentioned elsewhere in Tender Document in order to complete the overall project within the overall stipulated time of 6 months.

ii. The TENDERER shall prepare a detailed work progress schedule in the form of PERT CHART, for the whole work, within two weeks of the award of work, and seek the approval of the TICEL (Owner) or its Representative.

iii. Any modifications required in the opinion of TICEL (Owner) or its Representative, in the program so submitted, shall be duly incorporated by the TENDERER, which shall form the basis to track the project.

iv. Should there be delay in completion of the work in accordance with the Section No:7 Project completion period / Work execution schedule, then the TENDERER is liable to pay to the owner liquidated damages (though not as penalty) for non-achievement of work progress schedule.

v. If the TENDERER fails to complete the works within the specified period or within any extended time of these conditions and TICEL (Owner) or its Representative certifies in writing that in his opinion the same ought reasonably so to have been completed, the TENDERER shall pay or allow to the Owner a sum calculated at the rate stated as agreed Liquidated damages (not as a penalty) for the period during which the said work shall so remain or have remained incomplete, the Owner may deduct such damages from any monies otherwise payable to the TENDERER under this Contract.

vi. The TENDERER acknowledges and agrees that the sum specified above has been calculated by the parties as representing the likely daily loss to the Owner as a result of any delays, there being no other breaches under the Contract, and is accordingly by way of liquidated damages and not a penalty.

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

Settlement of TENDERER's Bills & Part Payment:

Once the equipment is installed and commissioned the TENDERER shall submit running bills for each activity mentioned in the scope of the work, to the TICEL (Owner) or its Representative for acceptance, due scrutiny & further approval. TICEL (Owner) or its Representative upon acceptance of bills from TENDERER shall immediately recommend certification for settlement of the amount claimed by the TENDERER as part payment. The bill shall then be certified for full settlement by TICEL (Owner) or its Representative not later than 15 days of acceptance of the bill.

The part payment for equipment shall be affected by owners, not later than 10 days upon receiving TICEL (Owner) or its Representative's certificate for payment. However, the bills shall be settled in full not later than 30 days from the date of submission to TICEL (Owner) or its Representative.

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

Section – 8 PARTICULARS OF EQUIPMENT SPECIFICATION

Technical Specification for 650L Fermentor:

This document outlines the detailed technical specifications for the procurement of a 650L (Geometric volume) fermentor intended for microbial culture applications. The proposed equipment will be installed in a shared biotech equipment facility (Clean Room) designed to support multiple startups and industries. The fermentor is expected to support diverse microbial cultures including yeast, bacteria, and fungi, and accommodate various process modes such as batch, fed-batch, continuous, and extended fed-batch processes. The unit must be compliant with GMP standards or equivalent and meet cleanroom Class B installation criteria under BSL II containment.

Specifications:

Parameters / Properties	Options / Units	Specification
No of units and capacity	Fermentor	650L = 1no (Geometric volume)
Feeding vessel / Dosing vessel and lines	200 Lit (1 Nos)	Provision to be given for up to 5 feeding Lines and these two dosing vessels to be integrated with Fermentor system.
Seed fermentor		100 L seed fermentor also to be integrated with the Fermentor control system.
Application	Microbial Culture	Multipurpose
Type of microorganism / cells	Yeast / Bacteria / Fungi	Multipurpose.
Product	-	Secreted / Non-Secreted / Inclusion body (IB), Protein, Biomass/ Bio fertilizer / Bio stimulants / Probiotics/ Industry enzymes.
Basis of Design & Fluid Data	Viscosity	1 to 15cp
	Density	1.0 to 1.1g/cc
	Effect of	BSL II

TENDER FOR **SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

	environment	
	Area of Installation	Class B
	Area safety Zone (Safe or Hazardous)	Safe
Sterilization	-	In-situ Media SIP (Full SIP)
Fermenter Size	Geometric volume	650 L
	Working Volume	500L
	Minimum Working Volume	200L
	Required Height / diameter ratio	3:1
Process Conditions	Operating Pressure (in Kg/cm ² G)	Upto - 2
	Maximum Pressure (in Kg/cm ² G)	3
	Jacket design pressure (in Kg/cm ² G)	4
	Jacket working pressure (in Kg/cm ² G)	3
	Operating Temperature (in °C)	15 to 50 (process)
	Maximum Temperature (in °C)	130 (SIP)
Agitator Data	Agitation Speed (in rpm)	Based on tip Speed
	Tip Speed (m/s)	Max 5.8 to 6
Mixing Impeller Type	-	Rushton Impeller
Measurements/ Sensors	Temperature (°C)	0 - 150
	pH	1 to 14

TENDER FOR **SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

Required	DO (%)	0 - 110
	Foaming	Yes, Required
	Pressure (Barg)	0 - 3
	Mass or Volumetric measurement	Volume (lt)
	Double wall vessel / Limpet / Dimple / Other	Double wall
	Standalone Utility / Central Utility	Central utility
Temperature Control	Utility notes	Steam generator - consider steam generator 1 no (150 Kg/Hr – Non-IBR). The system should support continuous operation. The steam generator system and insulated pipe lines to be supplied and installed (The distance between the fermentor and Utility equipment: Max 5 Meters).
		Compressed air - Central system is available at TICEL facility, connecting lines to be supplied and installed.
		Chiller (10 TR) - The system should support continuous operation and must include a separate circulator and chiller, both to be supplied and installed. The insulated piping lines to be supplied and installed. (The distance between the fermentor and Utility equipment: Max 5 Meters).
		Gas lines - O ₂ , N ₂ , and CO ₂
	Glycol chilling	Not required
	Temperature Shift	Capable of rapid temperature shift in growth phase to allow heat induction

TENDER FOR **SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

	Others	Chiller & steam generator to be provided for operating 650 L fermentor / Seed fermentor / dosing vessel
pH Control	-	Addition of Acid & Base (Both)
Dissolved Oxygen Control	DO controlled by	Impeller Speed, Gas Flow Rate, Back Pressure, Addition of O ₂ (cascading).
Applied Gases for Aeration	-	Air + O ₂ + N ₂
Airflow	Range in VVM	2VVM max
	Regulator / Rotameter (manual)	Required Rota meter (ERM) only for N ₂ .
	Volumetric / Mass Flow Controller (Automatic)	MFC & ERM (Electronic Rotameter) Required for Air and O ₂ (Bypass facility for MFC /ERM)
Aeration Delivery	Sparger Type	Ring sparger – to be placed at the bottom of the vessel under the impeller.
	Overlay / Sparger	Both (Considered both sparger and surface air with independent valve)
Vessel Material	—	SS316L (Certification to be provided)
Fluid Addition Ports	Number of Ports	Three (3) dedicated sterile addition ports for Acid, Base, and Antifoam dosing. Four (4) Nos. of aseptic 4-way addition ports, Total 7 ports.
Sampling	Number of sampling ports	1 No. (Sterile sampling port to be considered)
	Sampling Type	Both (Sterile / Aseptic). The sampling port should be closed system design to prevent the contamination and capable of doing CIP /SIP
Pre Air filter Housing with	—	

TENDER FOR **SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

pressure Gauze to hold 10-inch cartridge filter.		SS 316 L
Air Filter Housing with Pressure Gauze (SS 316 L) to hold 10-inch cartridge filter.	—	In-situ – Steam sterilizable.
Exhaust Filter Housing with Pressure gauze (SS 316 L) to hold 10 - inch cartridge filter.	—	In-situ – Steam sterilizable.
Cartridge filter	—	Pre filter – 0.45 or 1 μ . Air filter - 0.2 μ . Exhaust Filter - 0.2 μ . Filter size – 10 inch. End cap – HSF 226. Seal material –Silicone. Autoclave cycle – Minimum 70. Grade – Pharmaceutical grade. All filter should be double layered Steam sterilizable and to withstand heat up to 140°C.
Dosing Control	Peristaltic pump	Required
Software Compatibility	GMP (21 CFR Part 11)	Considered Non-CFR with 1. Secure user access control - Unique ID / Password Policies / Role based permission. 2. Batch management and Reports.
	SCADA	Required.
	Integration	Continuous monitoring of parameters (temperature / pH / DO / Agitation / Pressure etc.). User Interface: Touchscreen HMI + SCADA system with data historian.

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

		Alarm Management: Setpoint with real-time deviation alerts (visual and audible).
Power Supply	-	440V, 50Hz
Preferred Vendor	Automation	Siemens / Allen – Bradely / Schneider electric / Mitsubishi electric. -Common control panel.
	Valves	GEMU / Burkert / Alfa Laval / ITT pure Flo.
	Sensors / Instruments	Burkert / Hamilton / Emerson Rose mount
Connectors and joints	TC joints & connectors (Tri-clamp / sanitary connections) for all sampling, dosing and fluid connections	All connectors, joints and fittings used in process, CIP/SIP and utility lines must comply with GMP, ASME, BPE standards.
pH / DO probe	Preferable Make	Hamilton / Mettler Toledo
Surface finish	Fermentor Inner shell (wetted Part)	Internal Ra $\leq$ 0.4 μ m, Electropolished, ASME, BPE SF4 finish.
	Fermentor external shell	External Ra $\leq$ 0.8 μ m – ensures cleanability and avoids microbial build-up.
	Product contact Piping / Fittings	Ra $\leq$ 0.6 μ m, Electropolished, ASME, BPE SF2 or SF4 finish.
	Welded Joints internal	Post weld polished to Ra $\leq$ 0.6 μ m.
Welding:		All product contact welds shall be performed using Orbital/automatic welding with proper documentation. Welds must confirm to ASME, BPE Standards.
Gasket Material:		All product contact gaskets shall be made of PTFE or EPDM certified for use in SIP (Upto 135°C) and CIP (Chemical resistance) process. Gaskets must be compatible with standard Tri – clamp connection

TENDER FOR **SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

	and rated for repeated steam sterilization cycle.
Slope Bottom with Zero Dead Leg Outlet	Full drainage without holdup (FBV with Zero dead leg outlet)
Mobile CIP SKID - common for all fermentor & Dosing Vessels. (Inclusive of Circulation pump, Conductivity sensor and transmitter, pressure gauge, Flow switch, Flexible hoses, VFD and Necessary Pipelines and fittings).	Spray Ball: A fixed or rotary spray ball shall be integrated within the vessel. It should ensure 360° coverage for internal surface cleaning. (Riboflavin test for cleaning validation will conduct during FAT by Vendor) Pump Integration: The spray ball shall be connected to a CIP pump (either dedicated or shared as per design) capable of delivering sufficient flow rate and pressure to achieve validated cleaning performance.
SIP Mapping & Validation:	Steam-in-place port layout with validation documentation; thermocouple ports for temperature mapping.
Advanced Probes	Replaceable & sterilizable sensors for pH, DO, temperature, foam, pressure.
Redundant Sensors	One sensor for each parameter and one more additional port for each critical parameter (e.g., temperature, DO).
Digital HART/Profibus protocol support	Smart sensor compatibility with centralized SCADA
Material Traceability & Documentation	Material Test Certificates (MTC): For SS316L and all wetted components. FAT/SAT Protocols: Factory Acceptance Test and Site Acceptance Test documents. Validation Documents: DQ/IQ/OQ/PQ protocols / Documents and assistance.
Safety & Ergonomics	Pressure Relief Valve (PRV): Safety relief

TENDER FOR **SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

	system with certification. Sight Glass with LED Illumination: For visual monitoring without exposure risk. Accessible Valve Panels & Ports: For easy manual access while ensuring containment.
Filters	Applicable (Easily available) filters to be provided.
Utility Interface & Infrastructure	Integrated panels for compressed air, steam, water, gases etc.
Noise Control	Motor/gearbox mounted with vibration dampers and acoustic enclosures

Detailed Specifications:

- Designed for microbial cell culture for batch, fed batch and continuous operation. All wet parts in contact with fermentation broth/reagents/feed *etc.* should confirm to Regulatory requirements. To be used for the scale up process as well as for the validated production of biopharmaceuticals/ Agro products / Industrial enzymes.
- The plant should be equipped with sampling and bottom valve, double mechanical wet seal and a closed heating circuit. Direct steam to be employed for sterilization and cultivation temperatures.
- Fermenter vessel should be double jacketed vessel made of SS 316L on the inside and the lid should also be made of SS 316L with pressure proof ports. Control panel: SS304 for transmitters and switch gear. Air, chilled water and steam lines to be provided with pre-filter. Suitable safety device for the vessel and its utility lines.
- The fermentor system shall be equipped with **sanitary-grade 4- way valves** for the **addition of media supplements**, designed to ensure sterile and flexible routing of supplements during the fermentation. 4- way diaphragm or radial diaphragm valves made of 316L stainless steel with internal surface finish of $\leq 0.5 \mu\text{m Ra}$, electropolished. Valves must

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

comply with ASME BPE standards. Suitable for CIP and SIP cycles (minimum 121°C for 30 min).

➤ Acid / base / Antifoam addition ports - designed to ensure sterile and flexible routing of supplements during the fermentation. Ports made of 316L stainless steel with internal surface finish of $\leq 0.5 \mu\text{m Ra}$, electropolished. Valves must comply with ASME BPE standards. Suitable for CIP and SIP cycles (minimum 121°C for 30 min).

➤ Viewing Glass for vessel and lid with illumination.

➤ Six peristaltic pumps (Flow rate: Min 20 mL/Min & Max 100 mL/Min) with individual control unit and also, capability to be connected to PLC based control system for acid, alkali, antifoam and nutrients. Also, provide 6 suitable containers for acid and alkali (for pH control), antifoam (for foam control) and nutrients (for feeding) along with support stand.- Three fixed speed pump for acid , base and Antifoam and Three Variable speed for supplement addition.

➤ All electrical and electronic parts should be splash protected.

➤ Calibration certificates for all sensors to be provided.

➤ The vessel should be designed for:

- Automated Empty Vessel Sterilization
- Automated Full Vessel Sterilization.
- Independent sterilization of inlet filter, feed lines and vessel.
- Manual air and oxygen gas measurement, sampling and harvesting

➤ Fermenter system to be CIP/SIP design and cGMP and validation compliant.

➤ Feeding pumps (Peristaltic Pump) to have capacity to deliver Upto 1.0 atmosphere pressure.

➤ Mechanical documentation, flow charts and valve matrix, P&I diagram, general arrangement drawing and layout drawing, Operation and maintenance manual of the whole system are to be supplied.

➤ **Vessel Pressure:** Vessel working pressure 2.0 Kg/cm^2 / full vacuum, vessel design pressure 3.0 Kg/cm^2 , jacket working pressure 3 Kg/cm^2 and jacket design pressure 4.0 Kg/cm^2).

➤ Ports for Exhaust, Light glass, Pressure Gauge, Pressure Sensor,

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

Steam/ CIP, Safety Relief Valve, foam sensor, Level sensor, acid addition, alkali addition, antifoam addition, sparger air inlet, Jacket inlet and outlet, transfer line, temperature sensor, pH sensor, dissolved oxygen sensor, sampling, agitator, valves etc..

➤ **Piping:** The process piping should be made of SS 316L material and the utility piping of SS 304/ 316/ 316L.

➤ **Agitation System:**

- **Drive:** Top driven system with double mechanical wet seal with sterile air-cooling system. The seal assembly shall be of aseptic design, free of any crevices between the primary inner seal ring and shaft.
- **Type of impeller:** adjustable Rushton turbine impellers to provide good mixing and oxygen transfer for high cell density culture.
- **Agitation rate:** Based on OTR, agitator shall be suitable for the range of specified operating and ambient conditions and for variable speed operation with control by an independent control loop having an accuracy of $\pm 1\%$ of full scale. Feedback control for agitation control must be provided.
- Facility for easy removal of each agitator and its components from the vessel for maintenance and cleaning.
- Control: PID, feedback control of agitation rpm.
- Sensor: Photo-optical Encoder or Tachometer
- Indication: Digital

➤ **Seal Protection and Thermosyphon System**

- Double mechanical seal with sterile air-cooling system.

➤ **Aeration System:**

- Provision for mixing at least two gases (air and oxygen), necessary rotameters, valves, gas mix station to be included.
- MAX of not less than 2VVM.
- Separate TMFC (thermal mass flow controller) and Rotameter (Bypass) for measurement and control of gas flow (oxygen + air) for Dissolved Oxygen Control
- Air supply capacity:
Air: 2 VVM, Oxygen: 1 VVM MFC and Rota meter to be supplied.
- The air sparger and top airline in the vessel to be fitted to the air inlet line with a sterilizable-in-place air filter (with SS 316 L housing).
- Manual rotameter must be provided separately to both air and oxygen flow rate.

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

➤ **Dissolved Oxygen (DO):**

Probe (Optical): In-situ sterilizable fast response Dissolved Oxygen sensor with cable.

Control: PID Cascade control function with any one and any combination of four parameters (stirrer speed, aeration rate, gas mix and substrate feed) simultaneously. Capable of controlling DO in a range of 0 - 100% saturation (within 2% accuracy).

➤ **Exhaust System**

- Provide sterilizable-in-place air filter (with SS 316 L housing) and exhaust condenser (for removal of moisture to protect exhaust filter from getting wet).

Spares: Gasket / Diaphragm / TC connectors & Clamp (SS) / O Ring / Filters (Minimum 1 set) / Steam trap (1 No) / Rupture disc (1 No) and Tool Kit (1 Set).

➤ **Pressure Control System:**

- The exhaust line should be fitted with a Globe control valve (GC valve) for control of pressure in the vessel.
- The system shall include provision for bypass lines in select critical process areas where operational continuity or safety may be compromised due to component failure or clogging. Example (Scenario): In the exhaust filter line of the fermentor, a bypass line with suitable isolation valves shall be provided. This allows for uninterrupted exhaust or pressure relief in case of filter choking or failure, ensuring pressure safety and avoiding vessel over-pressurization. All bypass lines shall be constructed using SS 316L with hygienic design, drainability, and minimal dead legs. Bypass lines shall include sanitary-grade valves (manual or automated as required), preferably diaphragm valves for critical applications. Bypass routing shall not compromise GMP cleanliness, sterility, or pressure integrity. All bypass arrangements shall be included in the P&ID and approved during design review. Vendors shall clearly indicate locations, logic, and activation protocols for bypass lines in the system documentation.
- An electronic pressure sensor cum transmitter should be fitted on the vessel lid to monitor vessel pressure. Accuracy of pressure

**TENDER FOR SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

sensor: 50 mbar

- Temperature Control System for sterilization and cultivation:
 - Sensor: RTD/Pt 100.
 - Range: At least 10°C above cooling water temperature up to 130°C or, more with an accuracy of ± 1.0 °C.
 - Temperature to be controlled by steam/ built in steam / hot water generator and cooling/ chilled water. The exact temperature control mechanism, through use of valves, centrifugal pumps, heat exchangers, if any, should be clearly explained.
- **PH Control System:**
 - Control: PID, within 0.1 pH set points, with facility for dead band, control by addition of acid and base.
 - Indication: Digital display.
 - Probe: Fermenter in-situ sterilizable pH probe with plug and cable.
- **Foam Control System:**
 - Foam sensor with cable to be provided on the vessel to activate the peristaltic pump fitted in the antifoam inlet line to add the required quantity of antifoam agent.
- **Feeding Pumps and Load cells:**
 - At least 6 peristaltic pumps should be provided along with the system. These pumps must be “assignable” and should be able to deliver against 1 atmospheric pressure. At least 2 of the pumps should be of variable speed. The pumps must be configurable using the control system provided.
 - Load cell must be provided to control and monitor feeding of substrate and should be capable of coupling with SCADA system.

**TENDER FOR SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL****➤ Level control system: Radar Level Transmitter**

- One level sensor (other than foam sensor), for level measurement is to be provided.

➤ Sampling and Harvest System:

- Aseptic sampling system, steam supply valve and condensate trap for sterilization of sampling assembly before/ after every sampling.
- In case of harvest system different from sampling system, steam supply valve and condensate trap for sterilization of harvest assembly before and after harvest to be provided.

➤ Control System Design:

- The Control Platform for the equipment shall be an industry standard microprocessor based/ PLC control system, with operating panel for viewing set points, process parameters, necessary trends etc. supply UPS with atleast 30 mins backup suitable for control panel to prevent loss of set points in case of power failure.
- **The equipment to be designed for** Automated Empty Vessel Sterilization Automated Full Vessel Sterilization. Independent sterilization of inlet filter, feed lines and vessel. Automatic air and oxygen gas measurement, sampling and harvesting

➤ Measurement and control:

- Temperature, pH, Dissolved oxygen, agitator speed, Foam, Overhead Pressure level, gas (air and air + oxygen mixture).

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

**LIST OF COMPONENTS/PARTS WITH APPROVED MAKES FOR THE
FERMENTOR**

S.No.	Component	Make
1	Safety relief valve	Spirax (UK), Herose, Leser (Germany), Goetze (Germany) / INOXPA / Forbes marshall
2	Ball valve	Modentic (Taiwan), Alfa Laval (Sweden), Habonim (Israel)
3	Steam trap	Spirax, Forbes Marshall (UK), ITT, TLV (Japan), Armstrong (USA) / Forbes Marshall
4	Sampling valve	Gemu, Burkert (Germany/UK), Alfa Laval (Sweden), Neumo (Germany) / Millipore
5	Diaphragm valve (Auto)	Gemu (Germany), Saunders, Burkert (Germany), Alfa Laval (Sweden)/ ITT
6	Diaphragm valve (Manual)	Gemu, Burkert, Saunders, ITT (USA), Neumo (Germany)
7	Angle seat valve	Gemu (Germany), Spirax (UK), Burkert (Germany), Parker (USA) / Forbes Marshall
8	Needle valve	Modentic (Taiwan), Swagelok (USA), Parker (USA)
9	Non-Return valve	Modentic (Taiwan), Check-All (USA), Alfa Laval (Sweden)/ Forbes Marshall
10	Bottom Drain valve	Novaseptic (France), Steridose, Aerre Inox, Neumo (Germany), Andronaco (USA) / Millipore / Burkert
11	Pressure regulating Valve	Festo (Germany), SMC (Japan), Burkert (Germany)
12	Filter cartridges	Pall, Millipore (USA), Sartorius (Germany), Parker, 3M (USA), Donaldson (USA)
13	pH sensor & transmitter	Mettler Toledo (Switzerland), Hamilton
14	DO sensor & Transmitter	Mettler Toledo, Hamilton
15	Temperature sensor	Negele (Germany), Wika, Anderson, Radix, E+H (Germany), Jumo (Germany)
16	Temperature Transmitter	Yokogawa (Germany), Wika, Siemens (Germany), E&H (Germany) / Radix
17	Pressure gauge	Wika (Germany), Baumer (Switzerland), Ashcroft (USA)

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

18	Pressure sensor	Wika, Anderson, Baumer, E&H (Germany), Keller (Switzerland), IFM
19	Pressure switch	Wika (Germany), Baumer (Switzerland), Danfoss (Denmark) / Festo
20	Rotameter	Gemu (Germany), Krohne, Yokogawa (Japan), Omega (USA) / Kytola
21	Circulation pump	Grundfos (Denmark), Ebara (Japan), Lowara (Italy) / Fristam
22	Agitator	PRG (Germany), Zeta (Germany), Ekato (Germany), Lightnin/SPX (USA)
23	Peristaltic pump	Watson Marlow, Cole-Parmer, Ismatec (Germany), Gilson (France)
24	Foam sensor	E&H (Germany), Hamilton (Switzerland), Negele (Germany)/Anderson Negele
25	Mass flow controller	Burkert (Germany), Bronkhorst, Alicat (USA), Sierra Instruments (USA)
26	Sampling bottles	Schott-Duran (UK), Nalgene, Wheaton (USA), Pyrex (UK)
27	Heat exchanger	SWEP (Sweden), Alfa Laval, Biofab, HRS, GEA (Germany), API Heat Transfer (USA)
28	Control valve	Gemu, Burkert (Germany), Samson (Germany), Alfa Laval
29	VFD	Siemens, Fuji, ABB (Germany/Japan), Schneider Electric (France), Danfoss (Denmark)
30	PLC	Siemens (Germany), Allen-Bradley (USA), Mitsubishi (Japan) / Unitronics
31	SCADA	Siemens (Germany), Wonderware (AVEVA, USA), GE iFIX
32	Spray ball	Hake (Germany), Alfa Laval (Sweden), Toftejorg (Denmark) / Lechler
33	Sight glass	Scientific Devices, Technik Fluids, GEA (Germany), Lumiglas (Germany)
34	Lamp	Respective supplier or Waldmann (Germany), Rittal (Germany)
35	HMI	Siemens (Germany), Allen-Bradley (USA), Schneider (France) / Unitronics
36	Silicon Hose	BBS System, Watson-Marlow (UK), Saint-Gobain (France) / Venair / Ami Polymer
37	Basic operating panel	Siemens (Germany), Schneider Electric (France), ABB (Germany), Rittal
38	Vessel	Respective supplier bidder

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

39	Thermosyphon	Respective supplier or AESSeal (UK), EagleBurgmann (Germany)
40	CIP cap	Respective supplier or Alfa Laval (Sweden), Neumo (Germany)
41	Sparger	Respective supplier or GEA (Germany), Zeta (Germany)
42	Pneumatic components	Festo (Germany), SMC (Japan), Norgren (UK)
43	Mechanical seal	AESSeal (UK), Eagle Burgmann (Germany), John Crane (USA)
44	Motor	Bonfiglioli (Italy), SEW-Eurodrive (Germany), ABB (Switzerland) / Siemens

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

Technical Specification for 100L Fermentor:

This document outlines the detailed technical specifications for the procurement of a 100L (Geometric volume) fermentor intended for microbial culture applications. The proposed equipment will be installed in a shared biotech equipment facility (Clean Room) designed to support multiple startups and industries. The fermentor is expected to support diverse microbial cultures including yeast, bacteria, and fungi, and accommodate various process modes such as batch, fed-batch, continuous, and extended fed-batch processes. The unit must be compliant with GMP standards or equivalent and meet cleanroom Class B installation criteria under BSL II containment.

Specifications:

Parameters / Properties	Options / Units	Specification
No of units and capacity	Fermentor	100L = 1no (Geometric volume)
Application	Microbial Culture	Multipurpose
Type of microorganism / cells	Yeast / Bacteria / Fungi	Multipurpose.
Product	-	Secreted / Non-Secreted / Inclusion body (IB), Protein, Biomass/ Bio fertilizer / Bio stimulants / Probiotics/ Industry enzymes.
Basis of Design & Fluid Data	Viscosity	1 to 15cp
	Density	1.0 to 1.1g/cc
	Effect of environment	BSL II
	Area of Installation	Class B
	Area safety Zone (Safe or Hazardous)	Safe
Sterilization	-	In-situ Media SIP (Full SIP)
Fermenter Size	Geometric volume	100 L

TENDER FOR **SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

	Working Volume	80 L
	Minimum Working Volume	50 L
	Required Height / diameter ratio	3:1
Process Conditions	Operating Pressure (in Kg/cm ² G)	Upto - 2
	Maximum Pressure (in Kg/cm ² G)	3
	Jacket design pressure (in Kg/cm ² G)	4
	Jacket working pressure (in Kg/cm ² G)	3
	Operating Temperature (in °C)	15 to 50 (process)
	Maximum Temperature (in °C)	130 (SIP)
Agitator Data	Agitation Speed (in rpm)	Based on tip Speed
	Tip Speed (m/s)	Max 5.8 to 6
Mixing Impeller Type	-	Rushton Impeller
Measurements/ Sensors Required	Temperature (°C)	0 - 150
	pH	1 to 14
	DO (%)	0 - 110
	Foaming	Yes, Required
	Pressure (Barg)	0 - 3
	Mass or Volumetric measurement	Volume (lt)

TENDER FOR **SUPPLY, INSTALLATION, TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**

	Double wall vessel / Limpet / Dimple / Other	Double wall
	Standalone Utility / Central Utility	Central utility
Temperature Control	Utility notes	Steam generator – Pls Refer 650 L fermentor.
		Compressed air - Central system is available at TICEL facility, connecting lines to be supplied and installed.
		Chiller - Pls Refer 650 L fermentor.
		Gas lines - O ₂ , N ₂ , and CO ₂
	Glycol chilling	Not required
	Temperature Shift	Capable of rapid temperature shift in growth phase to allow heat induction
pH Control	-	Addition of Acid & Base (Both)
Dissolved Oxygen Control	DO controlled by	Impeller Speed, Gas Flow Rate, Back Pressure, Addition of O ₂ (cascading).
Applied Gases for Aeration	-	Air + O ₂ + N ₂
Airflow	Range in VVM	2VVM max
	Regulator / Rotameter (manual)	Required Rota meter (ERM) - for N ₂ and O ₂
	Volumetric / Mass Flow Controller (Automatic)	MFC & ERM (Electronic Rotameter) Required for Air (Bypass facility for MFC /ERM)
Aeration Delivery	Sparger Type	Ring sparger – to be placed at the bottom of the vessel under the impeller.
	Overlay / Sparger	Both (Considered both sparger and surface air with independent valve)
Vessel Material	—	SS316L (Certification to be provided)

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

Fluid Addition Ports	Number of Ports	Three (3) dedicated sterile addition ports for Acid, Base, and Antifoam dosing. Two (2) Nos. of aseptic 4-way addition ports, Total 5 ports.
Sampling	Number of sampling ports	1 No. (Sterile sampling port to be considered)
	Sampling Type	Both (Sterile / Aseptic). The sampling port should be closed system design to prevent the contamination and capable of doing CIP /SIP
Pre Air filter Housing with pressure Gauze to hold 10-inch cartridge filter.	—	SS 316 L
Air Filter Housing with Pressure Gauze (SS 316 L) to hold 10-inch cartridge filter.	—	In-situ – Steam sterilizable.
Exhaust Filter Housing with Pressure gauze (SS 316 L) to hold 10 - inch cartridge filter.	—	In-situ – Steam sterilizable.
Cartridge filter	—	Pre filter – 0.45 or 1 μ . Air filter - 0.2 μ . Exhaust Filter - 0.2 μ . Filter size – 10 inch. End cap – HSF 226. Seal material –Silicone. Autoclave cycle – Minimum 70. Grade – Pharmaceutical grade. All filter should be double layered Steam sterilizable and to withstand heat up to 140°C.
Dosing Control	Peristaltic pump	Required

TENDER FOR **SUPPLY, INSTALLATION, TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**

Software Compatibility	GMP (21 CFR Part 11)	Considered non-CFR with 3. Secure user access control - Unique ID / Password Policies / Role based permission. 4. Batch management and Reports.
	SCADA	Required.
	Integration	Continuous monitoring of parameters (temperature / pH / DO / Agitation / Pressure etc.). User Interface: Touchscreen HMI + SCADA system with data historian. Alarm Management: Setpoint with real-time deviation alerts (visual and audible).
Power Supply	-	440V, 50Hz
Preferred Vendor	Automation	Siemens / Allen – Bradely / Schneider electric / Mitsubishi electric. -Common control panel.
	Valves	GEMU / Burkert / Alfa Laval / ITT pure Flo.
	Sensors / Instruments	Burkert / Hamilton / Emerson Rose mount
Connectors and joints	TC joints & connectors (Tri-clamp / sanitary connections) for all sampling, dosing and fluid connections	All connectors, joints and fittings used in process, CIP/SIP and utility lines must comply with GMP, ASME, BPE standards.
pH / DO probe	Preferable Make	Hamilton / Mettler Toledo
Surface finish	Fermentor Inner shell (wetted Part)	Internal Ra $\leq$ 0.4 μ m, Electropolished, ASME, BPE SF4 finish.
	Fermentor external shell	External Ra $\leq$ 0.8 μ m – ensures cleanability and avoids microbial build-up.

TENDER FOR **SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

	Product contact Piping / Fittings	Ra $\leq$ 0.6 μ m, Electropolished, ASME, BPE SF2 or SF4 finish.
	Welded Joints internal	Post weld polished to Ra $\leq$ 0.6 μ m.
Welding:		All product contact welds shall be performed using Orbital/automatic welding with proper documentation. Welds must confirm to ASME, BPE Standards.
Gasket Material:		All product contact gaskets shall be made of PTFE or EPDM certified for use in SIP (Upto 135°C) and CIP (Chemical resistance) process. Gaskets must be compatible with standard Tri – clamp connection and rated for repeated steam sterilization cycle.
Slope Bottom with Zero Dead Leg Outlet		Full drainage without holdup (FBV with Zero dead leg outlet)
CIP capable		Spray Ball: A fixed or rotary spray ball shall be integrated within the vessel. It should ensure 360° coverage for internal surface cleaning. (Riboflavin test for cleaning validation will conduct during FAT by Vendor) Pump Integration: The spray ball shall be connected to a CIP pump (either dedicated or shared as per design) capable of delivering sufficient flow rate and pressure to achieve validated cleaning performance.
Advanced Probes		Replaceable & sterilizable sensors for pH, DO, temperature, foam, pressure.
Redundant Sensors		One sensor for each parameter and one more additional port for each critical parameter (e.g., temperature, DO).

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

Digital HART/Profibus protocol support	Smart sensor compatibility with centralized SCADA
Material Traceability & Documentation	Material Test Certificates (MTC): For SS316L and all wetted components. FAT/SAT Protocols: Factory Acceptance Test and Site Acceptance Test documents. Validation Documents: DQ/IQ/OQ/PQ protocols / Documents and assistance.
Safety & Ergonomics	- Pressure Relief Valve (PRV): Safety relief system with certification. - Sight Glass with LED Illumination: For visual monitoring without exposure risk. Accessible Valve Panels & Ports: For easy manual access while ensuring containment.
Filters	Applicable (Easily available) filters to be provided.
Utility Interface & Infrastructure	Integrated panels for compressed air, steam, water, gases etc.
Noise Control	Motor/gearbox mounted with vibration dampers and acoustic enclosures

Detailed Specifications:

- Designed for microbial cell culture for batch, fed batch and continuous operation. All wet parts in contact with fermentation broth/reagents/feed *etc.* should confirm to Regulatory requirements. To be used for the scale up process as well as for the validated production of biopharmaceuticals/ Agro products / Industrial enzymes.
- The plant should be equipped with sampling and bottom valve, single mechanical seal and a closed heating circuit. Direct steam to be employed

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

for sterilization and cultivation temperatures.

- Fermenter vessel should be double jacketed vessel made of SS 316L on the inside and the lid should also be made of SS 316L with pressure proof ports. Control panel: SS304 for transmitters and switch gear. Air, chilled water and steam lines to be provided with pre-filter. Suitable safety device for the vessel and its utility lines.
- The fermentor system shall be equipped with **sanitary-grade 4- way valves** for the **addition of media supplements**, designed to ensure sterile and flexible routing of supplements during the fermentation. 4- way diaphragm or radial diaphragm valves made of 316L stainless steel with internal surface finish of $\leq 0.5 \mu\text{m Ra}$, electropolished. Valves must comply with ASME BPE standards. Suitable for CIP and SIP cycles (minimum 121°C for 30 min).
- Acid / base / Antifoam addition ports - designed to ensure sterile and flexible routing of supplements during the fermentation. Ports made of 316L stainless steel with internal surface finish of $\leq 0.5 \mu\text{m Ra}$, electropolished. Valves must comply with ASME BPE standards. Suitable for CIP and SIP cycles (minimum 121°C for 30 min).
- Viewing Glass for vessel and lid with illumination.
- Six peristaltic pumps (Flow rate: Min 20 mL/Min & Max 100 mL/Min) with individual control unit and also, capability to be connected to PLC based control system for acid, alkali, antifoam and nutrients. Also, provide 6 suitable containers for acid and alkali (for pH control), antifoam (for foam control) and nutrients (for feeding) along with support stand. - Three fixed speed pump for acid, base and Antifoam and Three Variable speed for supplement addition.
- All electrical and electronic parts should be splash protected.
- Calibration certificates for all sensors to be provided.
- The vessel should be designed for:
 - Automated Empty Vessel Sterilization
 - Automated Full Vessel Sterilization.
 - Independent sterilization of inlet filter, feed lines and vessel.
 - Manual air and oxygen gas measurement, sampling and harvesting

TENDER FOR **SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

- Fermenter system to be CIP/SIP design.
- Feeding pumps (Peristaltic Pump) to have capacity to deliver Upto 1.0 atmosphere pressure.
- Mechanical documentation, flow charts and valve matrix, P&I diagram, general arrangement drawing and layout drawing, Operation and maintenance manual of the whole system are to be supplied.
- **Vessel Pressure:** Vessel working pressure 2.0 Kg/cm^2 / full vacuum, vessel design pressure 3.0 Kg/cm^2 , jacket working pressure 3 Kg/cm^2 and jacket design pressure 4.0 Kg/cm^2).
- Ports for Exhaust, Light glass, Pressure Gauge, Pressure Sensor, Steam/ CIP, Safety Relief Valve, foam sensor, Level sensor, acid addition, alkali addition, antifoam addition, sparger air inlet, Jacket inlet and outlet, transfer line, temperature sensor, pH sensor, dissolved oxygen sensor, sampling, agitator, valves etc.
- **Piping:** The process piping should be made of SS 316L material and the utility piping of SS 304/ 316/ 316L.
- **Agitation System:**
 - **Drive:** Top driven system with single mechanical seal with sterile air-cooling system. The seal assembly shall be of aseptic design, free of any crevices between the primary inner seal ring and shaft.
 - **Type of impeller:** adjustable Rushton turbine impellers to provide good mixing and oxygen transfer for high cell density culture.
 - **Agitation rate:** Based on OTR, agitator shall be suitable for the range of specified operating and ambient conditions and for variable speed operation with control by an independent control loop having an accuracy of $\pm 1\%$ of full scale. Feedback control for agitation control must be provided.
 - Facility for easy removal of each agitator and its components from the vessel for maintenance and cleaning.
 - Control: PID, feedback control of agitation rpm.
 - Sensor: Photo-optical Encoder or Tachometer
 - Indication: Digital
- Seal Protection and Thermosyphon System
 - Single mechanical seal with sterile air-cooling system.
- Aeration System:
 - Provision for mixing at least two gases (air and oxygen), necessary rotameters, valves, gas mix station to be included.

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

- MAX of not less than 2VVM.
- TMFC (thermal mass flow controller) and Rotameter (Bypass) for measurement and control of gas flow (air only) for Dissolved Oxygen Control. For Oxygen and Nitrogen – Rotameter is enough.
- Air supply capacity:
Air: 2 VVM, Oxygen: 1 VVM MFC and Rota meter to be supplied.
- The air sparger and top airline in the vessel to be fitted to the air inlet line with a sterilizable-in-place air filter (with SS 316 L housing).
- Manual rotameter must be provided separately to both air and oxygen flow rate.

➤ Dissolved Oxygen (DO):

Probe (Optical): In-situ sterilizable fast response Dissolved Oxygen sensor with cable.

Control: PID Cascade control function with any one and any combination of four parameters (stirrer speed, aeration rate, gas mix and substrate feed) simultaneously. Capable of controlling DO in a range of 0 - 100% saturation (within 2% accuracy).

➤ Exhaust System

- Provide sterilizable-in-place air filter (with SS 316 L housing) and exhaust condenser (for removal of moisture to protect exhaust filter from getting wet).

Spares: Gasket / Diaphragm / TC connectors & Clamp (SS) / O Ring / Filters (Minimum 1 set) / Steam trap (1 No) / Rupture disc (1 No) and Tool Kit (1 Set).

➤ Pressure Control System:

- The exhaust line should be fitted with a Globe control valve (GC valve) for control of pressure in the vessel.
- The system shall include provision for bypass lines in select critical process areas where operational continuity or safety may be compromised due to component failure or clogging. Example (Scenario): In the exhaust filter line of the fermentor, a bypass line with suitable isolation valves shall be provided. This allows for uninterrupted exhaust

**TENDER FOR SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

or pressure relief in case of filter choking or failure, ensuring pressure safety and avoiding vessel over-pressurization. All bypass lines shall be constructed using SS 316L with hygienic design, drainability, and minimal dead legs. Bypass lines shall include sanitary-grade valves (manual or automated as required), preferably diaphragm valves for critical applications. Bypass routing shall not compromise GMP cleanliness, sterility, or pressure integrity. All bypass arrangements shall be included in the P&ID and approved during design review. Vendors shall clearly indicate locations, logic, and activation protocols for bypass lines in the system documentation.

- An electronic pressure sensor cum transmitter should be fitted on the vessel lid to monitor vessel pressure. Accuracy of pressure sensor: 50 mbar

➤ Temperature Control System for sterilization and cultivation:

- Sensor: RTD/Pt 100.
- Range: At least 10°C above cooling water temperature up to 130°C or, more with an accuracy of ± 1.0 °C.
- Temperature to be controlled by steam/ built in steam / hot water generator and cooling/ chilled water. The exact temperature control mechanism, through use of valves, centrifugal pumps, heat exchangers, if any, should be clearly explained.

➤ PH Control System:

- Control: PID, within 0.1 pH set points, with facility for dead band, control by addition of acid and base.
- Indication: Digital display.
- Probe: Fermenter in-situ sterilizable pH probe with plug and cable.

➤ Foam Control System:

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

- Foam sensor with cable to be provided on the vessel to activate the peristaltic pump fitted in the antifoam inlet line to add the required quantity of antifoam agent.
- Feeding Pumps:
 - At least 6 peristaltic pumps should be provided along with the system. These pumps must be “assignable” and should be able to deliver against 1 atmospheric pressure. At least 2 of the pumps should be of variable speed. The pumps must be configurable using the control system provided.
- Level control system: Radar Level Transmitter
 - One level sensor (other than foam sensor), for level measurement is to be provided.
- Sampling and Harvest System:
 - Aseptic sampling system, steam supply valve and condensate trap for sterilization of sampling assembly before/ after every sampling.
 - In case of harvest system different from sampling system, steam supply valve and condensate trap for sterilization of harvest assembly before and after harvest to be provided.
- Control System Design:
 - The Control Platform for the equipment shall be an industry standard microprocessor based/ PLC control system, with operating panel for viewing set points, process parameters, necessary trends etc. supply UPS with atleast 30 mins backup suitable for control panel to prevent loss of set points in case of power failure.
 - **The equipment to be designed for** Automated Empty Vessel Sterilization Automated Full Vessel Sterilization. Independent sterilization of inlet filter, feed lines and vessel. Automatic air and oxygen gas measurement, sampling and harvesting
- Measurement and control:

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

- Temperature, pH, Dissolved oxygen, agitator speed, Foam, Overhead Pressure level, gas (air and air + oxygen mixture).

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

**LIST OF COMPONENTS/PARTS WITH APPROVED MAKES FOR THE
FERMENTOR**

S.No.	Component	Make
1	Safety relief valve	Spirax (UK), Herose, Leser (Germany), Goetze (Germany) / INOXPA / Forbes marshall
2	Ball valve	Modentic (Taiwan), Alfa Laval (Sweden), Habonim (Israel)
3	Steam trap	Spirax, Forbes Marshall (UK), ITT, TLV (Japan), Armstrong (USA) / Forbes Marshall
4	Sampling valve	Gemu, Burkert (Germany/UK), Alfa Laval (Sweden), Neumo (Germany) / Millipore
5	Diaphragm valve (Auto)	Gemu (Germany), Saunders, Burkert (Germany), Alfa Laval (Sweden)/ ITT
6	Diaphragm valve (Manual)	Gemu, Burkert, Saunders, ITT (USA), Neumo (Germany)
7	Angle seat valve	Gemu (Germany), Spirax (UK), Burkert (Germany), Parker (USA) / Forbes Marshall
8	Needle valve	Modentic (Taiwan), Swagelok (USA), Parker (USA)
9	Non-Return valve	Modentic (Taiwan), Check-All (USA), Alfa Laval (Sweden)/ Forbes Marshall
10	Bottom Drain valve	Novaseptic (France), Steridose, Aerre Inox, Neumo (Germany), Andronaco (USA) / Millipore / Burkert
11	Pressure regulating Valve	Festo (Germany), SMC (Japan), Burkert (Germany)
12	Filter cartridges	Pall, Millipore (USA), Sartorius (Germany), Parker, 3M (USA), Donaldson (USA)
13	pH sensor & transmitter	Mettler Toledo (Switzerland), Hamilton
14	DO sensor & Transmitter	Mettler Toledo, Hamilton
15	Temperature sensor	Negele (Germany), Wika, Anderson, Radix, E+H (Germany), Jumo (Germany)
16	Temperature Transmitter	Yokogawa (Germany), Wika, Siemens (Germany), E&H (Germany) / Radix
17	Pressure gauge	Wika (Germany), Baumer (Switzerland), Ashcroft (USA)

TENDER FOR **SUPPLY, INSTALLATION,
TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

18	Pressure sensor	Wika, Anderson, Baumer, E&H (Germany), Keller (Switzerland), IFM
19	Pressure switch	Wika (Germany), Baumer (Switzerland), Danfoss (Denmark) / Festo
20	Rotameter	Gemu (Germany), Krohne, Yokogawa (Japan), Omega (USA) / Kytola
21	Circulation pump	Grundfos (Denmark), Ebara (Japan), Lowara (Italy) / Fristam
22	Agitator	PRG (Germany), Zeta (Germany), Ekato (Germany), Lightnin/SPX (USA), GMM pfaudler
23	Peristaltic pump	Watson Marlow, Cole-Parmer, Ismatec (Germany), Gilson (France)
24	Foam sensor	E&H (Germany), Hamilton (Switzerland), Negele (Germany)/Anderson Negele
25	Mass flow controller	Burkert (Germany), Bronkhorst, Alicat (USA), Sierra Instruments (USA)
26	Sampling bottles	Schott-Duran (UK), Nalgene, Wheaton (USA), Pyrex (UK)
27	Heat exchanger	SWEP (Sweden), Alfa Laval, Biofab, HRS, GEA (Germany), API Heat Transfer (USA)
28	Control valve	Gemu, Burkert (Germany), Samson (Germany), Alfa Laval
29	VFD	Siemens, Fuji, ABB (Germany/Japan), Schneider Electric (France), Danfoss (Denmark)
30	PLC	Siemens (Germany), Allen-Bradley (USA), Mitsubishi (Japan) / Unitronics
31	SCADA	Siemens (Germany), Wonderware (AVEVA, USA), GE iFIX
32	Spray ball	Hake (Germany), Alfa Laval (Sweden), Toftejorg (Denmark) / Lechler
33	Sight glass	Scientific Devices, Technik Fluids, GEA (Germany), Lumiglas (Germany)
34	Lamp	Respective supplier or Waldmann (Germany), Rittal (Germany)
35	HMI	Siemens (Germany), Allen-Bradley (USA), Schneider (France) / Unitronics
36	Silicon Hose	BBS System, Watson-Marlow (UK), Saint-Gobain (France) / Venair / Ami Polymer
37	Basic operating panel	Siemens (Germany), Schneider Electric (France), ABB (Germany), Rittal

**TENDER FOR SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

38	Vessel	Respective supplier bidder
39	Thermosyphon	Respective supplier or AESSeal (UK), EagleBurgmann (Germany)
40	CIP cap	Respective supplier or Alfa Laval (Sweden), Neumo (Germany)
41	Sparger	Respective supplier or GEA (Germany), Zeta (Germany)
42	Pneumatic components	Festo (Germany), SMC (Japan), Norgren (UK)
43	Mechanical seal	AESSeal (UK), Eagle Burgmann (Germany), John Crane (USA)
44	Motor	Bonfiglioli (Italy), SEW-Eurodrive (Germany), ABB (Switzerland) / Siemens

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL****Dosing Vessel (200 L) with Variable Speed Agitator (Mobile & Integrable)****1. General Description**

The system shall consist of a 200 L dosing vessel designed for preparation, storage, and sterile transfer of media/supplements. The vessel shall be movable (trolley-mounted) and capable of interfacing with the fermentor system as and when required.

2. Capacity

- Working Volume: 200 L minimum

3. Construction & Material

- Product contact parts: SS316L
- Non-contact parts: SS304 / SS316 as applicable
- Surface finish (internal): $Ra \leq 0.8 \mu m$ (electropolished preferred)
- External finish: Matt / polished ($Ra \leq 1.6 \mu m$)
- All welds: Orbital welding, ground and polished as per ASME BPE

4. Vessel Design

- Vertical cylindrical vessel with dished top and bottom
- Designed for:
 - CIP (Clean-In-Place)
 - SIP (Steam-In-Place)
- Operating pressure: 0 to 2 bar (minimum)
- Design pressure: ≥ 3 bar
- Equipped with:
 - Spray ball (CIP)
 - Vent filter ($0.2 \mu m$ hydrophobic)
 - Pressure relief valve

5. Agitation System

- Top-mounted agitator
- Variable speed drive (VFD controlled)
- Speed range: 50 – 300 rpm (or suitable for application)
- Mechanical seal: Single mechanical seal
- Impeller type: Ruston Turbine

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL****6. Mobility**

- Mounted on SS trolley with wheels (castors)
- Wheels:
 - Lockable
 - Suitable for cleanroom (non-marking, SS or PU wheels)
- Design shall ensure:
 - Easy movement between areas
 - Stable positioning during operation
- Provision for levelling / locking during operation

7. Transfer & Integration with Fermentor

- Vessel shall support flexible connection to fermentor:
 - Tri-clamp / aseptic connectors
 - Silicone/PTFE tubing
- Transfer options:
 - Peristaltic pump-based transfer (preferred) OR
 - Pressure transfer (sterile air/gas)
- Shall include:
 - Dedicated outlet valve (diaphragm type – GMP)
 - Sampling port
 - Sterile connection port compatible with fermentor feed line
- **Integration requirement:**
 - Provision to connect/disconnect without contamination risk
 - Compatible with fermentor dosing port

8. Instrumentation

- Temperature sensor (RTD/PT100)
- Level indication.
- Pressure gauge

TENDER FOR **SUPPLY, INSTALLATION,
TESTING**

**AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING
VESSEL**

9. CIP/SIP Requirements

- Internal spray ball for CIP coverage
- SIP capability up to 121°C
- All connections shall be drainable and dead-leg free

10. Control System

- Local control panel with:
 - Agitator speed control (VFD)
 - Start/stop controls
 - Interface with fermentor PLC/SCADA for dosing control

11. Valves & Connections

- All product contact valves: Diaphragm valves (SS316L)
- Connections: Tri-clamp (TC) / aseptic fittings
- Gaskets: EPDM / PTFE / Silicone (FDA compliant)

12. Documentation

Vendor shall provide:

- GA Drawing
- P&ID
- Material certificates (MOC)
- Surface finish certificate
- Weld logs (if applicable)
- Calibration certificates

13. Compliance

- Designed as per:
 - ASME BPE guidelines
 - GMP requirements

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Section – 9 GENERAL SPECIFICATIONS****Drawings:**

The work shall be proceeded with, the preparation of the general arrangement drawings based on the site/building plans handed over for the purpose and submission of the same for approval of the owner according to the time Schedule specified. Any doubt on dimensions shall be got cleared by verifying at site/building under construction.

Project Information/Data:

Design ambient for electrical equipment is 40°C.

Variations in Power Supply:

All equipment's shall be capable of working efficiently under conditions of Voltage and frequency variations. The range of variation is as below:

Voltage: + 10% Frequency: + 5% Combined Voltage and Current: - 10%

Work Co- ordination:

The Work shall be co-ordinate well in advance with the TICEL (Owner) or its Representative in all respect for satisfactory installation of the equipment and supporting structures shall be made at no extra cost and loss or damage of the equipment or the accessories until handing over of the Equipment shall be made good without claiming any extra. Unless otherwise provided for in the Bid / Contract specifically.

TENDER FOR **SUPPLY, INSTALLATION, TESTING**
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

APPENDIX – A

BANK GUARANTEE FORMAT

Tender for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650L & 100L), CHILLER & STEAM GENERATOR AND DOSSING VESSEL (200L) in TICEL Phase-II, Taramani, Chennai. (The Guarantor shall have to be provided in Nationalized Bank drawn at Chennai at Rs.100/- Non-Judicial Stamp Paper. The Draft Format filled in all respect is suggested to be approved from TICEL)

To
Ticel Biopark Limited
No. 5, CSIR Road Taramani
Chennai – 600 113

In consideration of the Ticel Biopark Limited (hereinafter called "TICEL") awarded the contract to, a company under the Companies Act, 1956 and having its registered office at (hereinafter called "the said Contractor" which expression shall unless the context requires otherwise include its successors and assigns) as per terms and conditions contained in the contract documents of Tender for Comprehensive Maintenance for 6 Years at Ticel Biopark.

WE.....BANK, HAVING BRANCH AT..... (HEREINAFTER REFFERED TO AS "THE BANK" WHICH EXPRESSION SHALL UNLESS REPUGNANT TO THE CONTEXT OR MEANING THEREOF, INCLUDE ITS SUCCESSORS, EXECUTORS AND ADMINISTRATORS) AT THE REQUEST OF.....DO HEREBY IRREVOCABLY UNDERTAKE TO PAY TO THE TICEL AN AMOUNT NOT EXCEEDING RS..... /- (RUPEES ONLY) ON DEMAND BY TICEL.

We the Bank, do hereby undertake to pay the amounts due and payable under this guarantee without any demure, merely on a demand from the TICEL stating that the amount claimed is required to meet the recoveries due or likely to be due from the said Contractor. Any such demand made on the Bank shall be conclusive & binding as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs /- (Rupees Only).

We undertake to pay to the TICEL, the amount due under this Guarantee so demanded notwithstanding any dispute or disputes raised by the Contractor in any suit or proceeding pending before any Court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under.

TENDER FOR **SUPPLY, INSTALLATION, TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**

We, the bank, further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till the dues of the TICEL under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till the period TICEL certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor accordingly discharges this guarantee.

We, the bank, branch further agree with the TICEL, that the TICEL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the TICEL against the said Contractor and to forbear or enforce any of terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Contractor or for any forbearance act or omission on the part of the TICEL or any indulgence by the TICEL to the said Contractor or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

We hereby waive the necessity of your demanding the Contractor before presenting us with the demand.

We, the bank, lastly undertake not to revoke this guarantee except with the previous consent of TICEL in writing.

This guarantee shall be valid up to (for entire contract period plus 6 months) unless extended on demand by TICEL Notwithstanding anything contained herein before, our liability against this guarantee is restricted to Rs...../- (Rupees.....Only) and it will remain in force till unless a claim or demand in writing is made against us under this guarantee before the expiry of six months from the aforesaid date that is before , all your rights under the said guarantee shall be forfeited and we shall be relieved and discharged from all liability hereunder.

Notwithstanding anything contained herein:

Our liability under this Bank Guarantee shall not exceed Rs...../- (RupeesOnly).

This Bank Guarantee shall be valid up to (for entire contract period plus 6 months) unless this guarantee is extended for further period on demand from Tichel Biopark Limited.

TENDER FOR **SUPPLY, INSTALLATION, TESTING**

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if you serve upon us a written claim or demand on or before ----- or within the period extended thereafter based on the demand from Ticel Biopark Limited.

IN WITNESS WHEREOF I/We of the Bank signed and sealed this guarantee on the day of.....being herewith duly authorized by the Bank.

Witness:

For and on behalf of the Bank

Name:

Address:

TENDER FOR **SUPPLY, INSTALLATION, TESTING
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**

**APPENDIX – B
LETTER OF TRANSMITTAL**

To
The Managing Director
Ticel Biopark Limited
No. 5, CSIR Road Taramani
Chennai – 600 113

Sub: Submission of Tender for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650L & 100L), CHILLER & STEAM GENERATOR AND DOSSING VESSEL (200L) in TICEL Phase-II, Chennai.

I / We having examined the details given in the Invitation to TENDERERS; we hereby submit the following information and relevant documents.

- a. I/We hereby certify that all the statements, information and data provided in the enclosed formats A to G. And accompanying statements are true and correct to the best of my / our knowledge.
- b. I/We..... have read the instructions appended with the Prequalification document and I/We understand that any contract made between ourselves and TICEL BIOPARK Ltd on the basis of the information given by me / us is liable to be cancelled if any false information is detected at a later date.
- c. I/We have also no objection if enquiries are made on all the projects and work listed by me / us in the accompanying sheets or any other enquiry on the information furnished herewith in the accompanying sheets.
- d. I/We have furnished all information and details as asked for and have no further pertinent information to provide.
- e. I/We submit the requisite certified solvency certificate and authorize TICEL BIOPARK Ltd to approach the Bank issuing the solvency certificate to verify the correctness thereof. I/We also authorize TICEL BIOPARK Ltd to approach individuals, employers, companies, and corporation to verify my / our competency and general reputation.
- f. I/We submit in Format – D the certificates in support of my / our suitability, technical know-how and capability for having successfully completed the work during the last seven years.
- g. I/We also agree that the decision of TICEL Bio park Ltd in the Qualification and

TENDER FOR SUPPLY, INSTALLATION, TESTING

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

selection of TENDERERS will be final and binding upon me / us.

- h. I/We agree TICEL BIOPARK Ltd reserves the right to qualify any TENDERER or to cancel the exercise without assigning any reason for doing so or to incur any liability to any party whatsoever.
- i. I/We agree not to withdraw from the contract after issue of LOA and before signing the agreement. If so, we Tenderer by the condition that Earnest Money Deposit will be forfeited.
- j. I/We have gone through the drawings supplied to us in hard / soft copy and has considered the details in the drawings while arriving at the quoted rates.
- k. I/We agree to produce performance bond within 15 days and execute agreement in 15 days from the date of LOA.
- l. The following are enclosed as enclosures to the letter of transmittal.
 - 1. Certificate of Incorporation from Registrar of Companies.
 - 2. Memorandum of Association.
 - 3. Annual Report / Audited Balance Sheet & Profit and Loss Statement for the past 5 years.
 - 4. Solvency Certificate from Bankers for the value of Rs.75 lakhs, current and dated not earlier than three months from the last date for the submission of tender.
 - 5. Support Certificate from Bankers for Credit facilities available.
 - 6. Proofs issued by IT Department for the firms having filed Income Tax for the past FIVE years.
 - 7. Formats 'A' to 'Y' with complete details and any certificates other than that listed above.

I / we hereby agree to Tenders by decisions of TICEL BIOPARK Ltd in all matters relating to this Qualification.

Date of Submission

Signature of TENDERER with Seal

TENDER FOR **SUPPLY, INSTALLATION, TESTING
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**

APPENDIX – C

INSURANCE CONFIRMATION LETTER

(To be typed on TENDERER's Letter Head, Signed & Stamped by Authorized Person)

To
TICEL BIOPARK LTD
5, CSIR Road Taramani
Chennai – 600 113

Dear Sir,

Sub: Confirmation of Insurance Policies Contract / Agreement No for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S, CHILLER & STEAM GENERATOR AND DOSSING VESSEL in TICEL Phase-II, Chennai.

We hereby confirm that we have effected valid Insurance policy (ies) expiring on..... which comply (ies) with all the requirements and conditions stipulated in the Insurance and Indemnity Article of the above Contract / Agreement including inter-alia: -

Waiver of subrogation against its servants, agents, employees, subsidiaries and all other companies in TICEL (Owner) or its representatives and Being included / named as an additional insured in the capacity of principal which are endorsed to the insurance policy (ies.)

Corporate or Company Seal Authorized Signature

Name of TENDERER

By: Title

TENDER FOR **SUPPLY, INSTALLATION, TESTING**
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

APPENDIX – D
AFFIDAVIT

We have submitted Bank Guarantee for the work providing E -Tender for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650L & 100L), CHILLER & STEAM GENERATOR AND DOSSING VESSEL (200L) in TICEL Phase-II, Taramani, Chennai.

Agreement No. _____ From _____ (Name of the Bank) branch to the
TICEL, Limited, Chennai with a view to furnish Performance Bond. This Bank Guarantee
expires on ... We undertake to keep the validity of the Bank Guarantee in force by getting
it extended from time to time at our own initiative up to a further period of six months or
as directed by TICEL.

We also indemnify TICEL, against any losses arising out of non-encashment of the Bank Guarantee if any towards Tender for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650L & 100L), CHILLER & STEAM GENERATOR AND DOSSING VESSEL (200L) in TICEL Phase-II, Taramani, Chennai.

TENDER FOR **SUPPLY, INSTALLATION, TESTING**
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
FORMAT-A

TENDER SUBMISSION FORM

To
The Managing Director
Ticel Biopark Ltd
No.5, CSIR Road Taramani
Chennai – 600113

Dear Sir,

Sub: Tender for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650L & 100L), CHILLER & STEAM GENERATOR AND DOSSING VESSEL (200L) in TICEL Phase-II, Taramani, Chennai.

.

Ref: Tender Notice dated

We confirm that we have examined the tender documents including drawings, specifications and bill of quantities relating to the execution of the work specified in the memorandum hereinafter set out and having visited and examined the site of the work specified in the said memorandum and having acquired the requisite information relating thereto as affecting the tender, We hereby offer to execute the work specified in the said memorandum within the time specified in the said memorandum at the rates mentioned in the attached bill of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in conditions of tender, the Articles of Agreement, Special Conditions, Bill of Quantities and Conditions of Contract and with such materials as are provided for, by, and in all other respects in accordance with such conditions so far as they may be applicable.

MEMORANDUM

Description of work: SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650L & 100L), CHILLER & STEAM GENERATOR AND DOSSING VESSEL (200L) in TICEL Phase-II, Taramani, Chennai.

.

- a. Should this tender be accepted by TICEL BIOPARK Ltd, we M/s hereby agree to abide by and fulfill the terms and provisions of the said Conditions of Contract

TENDER FOR SUPPLY, INSTALLATION, TESTING

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

annexed hereto so far as they may be applicable or in default thereof to forfeit and pay to TICEL BIOPARK Ltd, TARAMANI, Chennai, the amount mentioned in the said contract.

b. We agree to abide by this tender for the period of 6 months from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period without any additional cost.

c. We undertake that, in the event of this tender being accepted by TICEL BIOPARK Ltd, we agree to execute an Agreement after submission of valid Bank Guarantee as below in the form annexed hereto, within 15 days from the date of issue of LOA.

d. I / We have deposited sum of Rs. _____ /- (Rupees _____ only) as Earnest Money Deposit from _____ Bank. Should I / We fail to execute the contract when called upon to do so, I / We do hereby agree that this sum shall be forfeited by me /us to the TICEL BIOPARK Ltd, Chennai.

e. If this tender is accepted by TICEL BIOPARK Ltd, we agree to provide a Bank Guarantee from a Nationalized / scheduled bank as performance bond for a sum equivalent to 10% of the contract value for the due performance of the contract under the terms of the condition of contract within 15 days from the date of issue of LOA.

f. Unless and until a formal agreement is prepared & executed, this tender together with your written acceptance thereof shall constitute a binding contract between us.

g. We agree that TICEL BIOPARK Ltd reserves the right to accept / reject any one / all the tenders without assigning any reason thereof.

h. We confirm that we are not terminated / blacklisted / banned by TICEL Bio Park Ltd / its JV or associate companies / related companies or Government of Tamil Nadu / its agencies or any PSU's and currently if the ban is effective as on date of Bid opening

i. For the purpose of this tender, 'related companies' mean any company promoted by the major promoters of TICEL Bio Park Limited, viz, TIDCO & ELCOT

j. Our Main bankers are: (Kindly state Name, Address & Phone No.)

- i.
- ii.

TENDER FOR **SUPPLY, INSTALLATION, TESTING**
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

k. Names of partners of our firm / Directors of our company are: (Kindly state Name, Address & Phone No.)

The Names of the partner of the firm / Directors of our company authorized to Sign:

Or

Name of person having power of attorney to sign the contract (certified true copy of power of attorney should be attached) (Kindly state name, address & phone)

Yours faithfully,

Signature of Tenderer with Company Seal

**TENDER FOR SUPPLY, INSTALLATION, TESTING
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**

FORMAT – B

ARTICLES OF AGREEMENT

(Note: The given format is a sample one. However, before signing, the draft format filled in all respect is to be approved from the TICEL. On approval, the same shall have to be executed in Rs.100/- Non-Judicial Stamp Paper)

ARTICLES OF AGREEMENT made on this..... day of 2022 between TICEL BIOPARK LIMITED having its office at No-5, CSIR Road, Taramani, Chennai –600 113 (Hereinafter called "TICEL" which includes its Successors, Administrator, Executers etc.) represented by its Executive Managing Director, Mr. of the one part and of the other part whose registered office is situated at (Hereinafter called "The Contractor" which includes its Successors, Administrator, Executers etc.) represented by its Managing Director/Director/Authorized official or partner(s) Mr.

WHEREAS the Owner is desirous of getting the SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650L & 100L), CHILLER & STEAM GENERATOR AND DOSSING VESSEL (200L) in TICEL Phase-II, Taramani, Chennai.

TICEL Issues the Tender for the above work

AND WHEREAS the contract documents provided in the said Tender have been duly signed by TICEL BIOPARK LIMITED & Contractor;

AND WHEREAS the contractor in response to said tender, submitted their bids for providing the aforesaid material / service issued in Tender No. TICEL/2024-25/Fermentor (Hereinafter "said tender") & TICEL has awarded to M/s..... as theContractor for such services with effect from AND WHEREAS the Contractor has furnished Bank Guarantee as follows:

Bank Guarantee for a sum of Rs..... (Rupees) vide

No...drawn ondated, valid for up to (contract period including warranty plus claim period of 6 months) and the same shall be extended in the manner as mentioned in the Contract Documents;

AND WHEREAS the Contractor has supplied the Owner with a fully priced copy (ies) of the said Schedule of Quantities (which copy is hereinafter referred to as "the Contract Bills")

AND WHEREAS the said contract documents and Contract Bills have been duly signed by or on behalf of the parties hereto.

**TENDER FOR SUPPLY, INSTALLATION, TESTING
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**

NOW IT IS HEREBY AGREED AS FOLLOWS:

For the consideration hereinafter mentioned the Contractor will upon and subject to the Conditions mentioned herein carry out and complete the job shown upon the Contract Document and described by or referred to in the Contract Bills and in the said Conditions. The Owner will pay the Contractor the said contract amount Rs.....(Rupees Only) (hereinafter referred to as "the Contract Sum") or such other sum as shall become payable hereunder at the times and in the manner specified in the said Conditions.

The contract documents, conditions thereto shall be read and construed as forming part of this Agreement, and the parties hereto shall respectively abide by, submit themselves to the Conditions and perform the agreements on their parts respectively in such Conditions contained.

The agreement and contract documents shall form the basis of this Contract

This Contract is neither a fixed Lump Sum Contract nor a Piece Work Contract but is a Contract to carry out the work as detailed in the said Tender in respect of provision for the above mentioned work / systems at Tichel Biopark Building complex and its services & Facilities to be paid in accordance to actual service / material performed / delivered and work done at the lump sum rates contained in the Schedule of Quantities or as provided in the said Conditions.

The Owner reserves the right of altering the Documents and nature of the work by adding to or omitting any items of work or having portions of the same carried out without prejudice to this Contract. There shall be changes ordered by the Owner on the scope and the Contractor shall not be entitled to any compensation or claim due to such change (s) / Order (s) by the Owner. The Contractor will only be paid for the actual services performed and work done payable at the accepted unit rates.

Time shall be considered as the essence of this contract and the contractor hereby agrees to commence the work from the date of acceptance / awarded letter issued by TICEL BIOPARK LTD as provided for in the said conditions and to complete the entire work within the stipulated period or the extended period as granted by the owner.

The contractor should have the required license to install Fermentor and should have Insurance Policy to cover their workmen deployed and the associated risk for the assigned work at Tichel Biopark for Installation, Commissioning and Testing etc.

TENDER FOR **SUPPLY, INSTALLATION, TESTING**

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

All payments by Owner under this contract will be made only through banking Channel at Chennai in Indian Rupees.

Except as in the circumstances/manner below, all disputes and differences of any kind whatsoever arising out of or in connection with the agreement shall be deemed to have arisen at Chennai and only courts in Chennai shall have jurisdiction to resolve the same.

On any dispute or difference whatsoever arising between the parties out of or relating to the construction, meaning, scope, operations or effect of this contract or the validity or the breach thereof, the parties shall first endeavor to settle the same amicably in a spirit of co-operation. If the dispute cannot be amicably settled either party shall as soon as practicable but not earlier than 3 months give to the other party notice in writing of the existence of such dispute or difference, specifying the nature and the point at issue and the same shall be settled by Arbitration in accordance with the Arbitration and conciliation Act 1996 as amended time to time. The dispute or difference shall be referred to the Sole Arbitrator appointed in accordance with the direction of the Managing Director of Ticel Biopark Ltd and the Contractor shall not raise any objection in this regard. The governing law shall be the laws in State of Tamil Nadu and India, as applicable. The Venue of Arbitration shall be in Chennai.

Except as above, all matters arising under this agreement shall be subject to the exclusive jurisdiction of the Courts at Chennai only.

That the several parts of this Contract have been read by the Contractor and fully understood by the Contractor.

If the Contractor is a partnership or an individual:

IN WITNESS WHEREOF the Owner and the Contractor have set their respective hands to these presents and hereof the day and year first herein above written.

If the Contractor is a Company:

IN WITNESS WHEREOF the Owner has set its hand to these presents through its duly authorized official and the Contractor has caused its thro Managing Director/ Director/ Authorized official these presents and hereof to be executed on its behalf, the day and year first herein above written with witness whereof.

Signature Clause

TENDER FOR **SUPPLY, INSTALLATION, TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**

SIGNED AND DELIVERED by the Owner M/s. TICEL BIOPARK LTD by hand of its Managing Director	SIGNED AND DELIVERED by the Contractor M/s..... by hand of its
Signature	Signature
Name and Designation	Name and Designation
Address WITNESSES	Address WITNESSES
1. Signature	1. Signature
Occupation	Occupation
Address	Address
2. Signature	2. Signature
Occupation	Occupation
Address	Address

Note: If the Contractor is a partnership firm, this agreement should be signed by all or on behalf of all the partners.

In case of company, if the signatory of the Contractor is other than Managing Director, the same should be in accordance with Articles of Association of the company. If so, a copy of the certified Resolution and Articles of Association evidencing the Authorized Director/officials should be provided.

In case of Authorized Signatory Being Power of Attorney (POA), a certified Copy of POA should be provided and should sign and delivered by the Contractor by the hands of Shri And duly constituted Attorney.

TENDER FOR **SUPPLY, INSTALLATION, TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
FORMAT – C****PRE-QUALIFICATION CRITERIA****DETAILS REQUIRED TO SATISFY THE ELIGIBILITY CLAUSE 3(a)**

The TENDERER should be a well-established manufacturer, having experience of minimum 10 years in the field of SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR (Copy of the Certificate of Incorporation from Registrar of Companies (in case of company) or Copies of Acknowledgements issued by IT department for the last 10 year's (in case of firms) has to be enclosed by the contractor.

Sl. No	Year	Company Turnover	Major Work carried out	Value in Indian Rupees	Submitted
1.					Yes / No
2.					Yes / No
3.					Yes / No
4.					Yes / No
5.					Yes / No
6.					Yes / No
7.					Yes / No
8.					Yes / No
9.					Yes / No
10.					Yes / No

Signature of TENDERER with Official Seal

**TENDER FOR SUPPLY, INSTALLATION, TESTING
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
FORMAT-D**

PRE-QUALIFICATION CRITERIA

DETAILS REQUIRED TO SATISFY THE ELIGIBILITY CLAUSE 3(b)

The TENDERER should have satisfactorily completed the SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR, CHILLER AND STEAM GENERATOR with the equivalent specification as mentioned in tender document during any one of the last 5 years (FY 2021-22, 2022-23, 2023-24, 2024-25 & 2025-26) should be either of the following: -

I. One similar completed work (SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR, CHILLER AND STEAM GENERATOR), costing not less than the amount equal to Rs.150 lakhs (without GST) in any one year.

or

II. Two similar completed works (SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR, CHILLER AND STEAM GENERATOR s), each costing not less than the amount equal to each Rs.112 lakhs (without GST) in any one year.

or

III. Three similar completed works (SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR, CHILLER AND STEAM GENERATOR s), each costing not less than the amount equal to each Rs.75 lakhs (without GST) in any one year.

Sl. No	Description	One Similar work	Two Similar work	Three Similar work
1	Year of work for PQ			
2	Name of the Client			
3	Nature and Scope of Work			
4	LOA Date			
5	Agreement Date			
6	Period of Contract			
7	Value of the Work			

TENDER FOR **SUPPLY, INSTALLATION, TESTING****AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**

8	Date of Works Completion			
9	Any Other Details			

Letter of Award (LOA) or Agreement executed details & Work Completion Certificate from the client to satisfy Eligibility Clause 3 (b)

Signature of TENDERER with Official Seal

**TENDER FOR SUPPLY, INSTALLATION, TESTING
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
FORMAT-E**

PRE-QUALIFICATION CRITERIA

DETAILS REQUIRED TO SATISFY THE ELIGIBILITY CLAUSE 3(d)

The bidder should have an Annual Turnover of minimum Rs.150 Lakhs by the legal entities /Firm/Company in any one of the last Five Financial Year 2021-22,2022-23, 2023-24, 2024-25 & 2025-26.

Sl. No	Year	Annual Turnover	Name of the Project	Value in Indian Rupees
1.				
2.				
3.				
4.				
5.				

Auditor's Certificate/Annual Report/Income Tax Returns so satisfy Eligibility Clause A (c).

Signature of TENDERER with Official Seal

TENDER FOR **SUPPLY, INSTALLATION, TESTING**
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
FORMAT-F

PRE-QUALIFICATION CRITERIA

DETAILS REQUIRED TO SATISFY THE ELIGIBILITY CLAUSE 3(e)

The bidder should produce Banker's Solvency Certificate for value of Rs.75 Lakhs) obtained not earlier than Three Months from the Last Date for Submission of Tender (as prescribed in Tender Documents)

BANKER'S SOLVENCY CERTIFICATE FORMAT

To
The Managing Director
Ticel Biopark Ltd
Taramani,
Chennai – 600 113

Dear Sir,

SOLVENCY CERTIFICATE

This is to certify that to the best of our knowledge and information, M/s....., (address), a customer of our Bank is respectable and be treated as good for an engagement up to a sum of Rs. (Solvency amount) only as on..... (Date of certificate) This certificate has been issued without any risk and responsibility on the part of the Bank or any of its officers.

This certificate is issued at the specific request of the customer.

Yours faithfully

For Bank

Bank Officer with designation

Signature of TENDERER with Official Seal

TENDER FOR **SUPPLY, INSTALLATION, TESTING
AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**

FORMAT -G On Rs.20 Stamp Paper

DECLARATION – CUM – UNDERTAKING

We, pursuant to our Tender submission on ----- towards Tender for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR'S (650L & 100L), CHILLER & STEAM GENERATOR AND DOSSING VESSEL (200L) in TICEL Phase-II, Taramani, Chennai is in complete compliance with the tender documents, drawings, specifications, Bill of Quantities and subsequent pre tender meeting minutes. Our offer does not deviate from any of the Technical and Commercial requirement of the Tender documents. We hereby agree to withdraw all conditions/deviation in case any such conditions / deviations have been specified by us in the technical or price Tender which have either direct or indirect impact on the price quoted.

Thanking and assuring you of our best services at all times.

We further declare that, in case the contract is awarded to us, and at a later date any of the above certificates, agreements, information and other details are found to be false or incorrect, Ticel Biopark Ltd., has full rights to terminate the Contract with immediate effect, without any notice and without assigning any reason therefore, besides initiating actions such as forfeiting the Earnest Money Deposit, invoking the Performance Bank Guarantee etc.

We further undertake that in the event of such termination, we would indemnify Ticel Biopark Ltd., against the consequential losses, damages etc., as claimed by Ticel Biopark Ltd., for having furnish such false/incorrect certificate, agreements, information and other details.

Place:

Signature:

Date:

Name:

Designation:

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**Section – 10****HAND BOOK ON HEALTH AND SAFETY AT WORK****1. Introduction**

This document defines the operations undertaken by TENDERERS on Project premises, which can give rise to hazards to those engaged in the work and others who may be working, standing or passing in the vicinity.

It is the Owner's endeavor to secure a high standard of safety at site. Therefore, TENDERERS must know their duties under common law, both for establishments, and their own employees and to conduct their business and methods of work to conform to the best practices.

Before the Owner, allows any contracting or sub- contracting firm to carry out work on its premises, the Owner insists that TENDERERS understand their duties regarding safe practices for themselves, others and regulations covering the type of work they will be carrying out.

In furtherance to this policy, rules herein have been devised to bring to the notice of TENDERERS, some of the more common hazards, and appropriate preventive measures in connection with the construction, cleaning, painting, alteration or demolition of plant, machinery and buildings.

The Owner is confident that the observance of these rules will be no hindrance to progress the work, but will assist in the avoidance of accidents.

IT IS IN A TERM OF ALL CONTRACTS BETWEEN THE CLIENT AND TENDERERS THAT THEY AND ANY SUB-CONTRACTORS, APPOINTED BY THEM COMPLY WITH THESE RULES AND THEIR CO-OPERATION IS THEREFORE OBLIGATORY IN CARRYING OUT THE PRECAUTIONS LAID DOWN.

All TENDERERS Supervisors will make sure that the Engineering Services / Safety Manager on Project site are notified as and when he and others (Sub- Contractors) are reporting for work on that site.

2. Rules for General Operations ACCESS:

Nothing shall be done or omitted to be done by TENDERERS or their employees to render unsafe or obstruct:

- Any means of access to the places at which people are required to Work.
- The passage of people and / or vehicles whether on a defined gangway or not, unless

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
permission is obtained from the designated TICEL Designated Officer.

- access for emergency apparatus, such as FIRE PROTECTION equipment.
- TENDERERS shall nevertheless provide adequate fencing, lighting and warning signs to ensure safety at all times.

3. ACCIDENT AND INCIDENT REPORTING:

All notifiable accidents, dangerous occurrences and potential hazard situations shall be reported to the TICEL Designated Officer at site. Injuries are to be treated by experienced medical staff available at site.

4. TENDERERS' TOOLS AND EQUIPMENTS:

All TENDERERS tools and equipment's must comply with statutory regulations and approved codes of practices.

5. HAZARDOUS MATERIALS:

The TENDERER must inform the TICEL Designated Officer, prior to commencement of work, procurement of materials connected with the contract work of a hazardous nature. The TENDERER will have to secure storage for any such material.

6. DUST AND FUME CONTROL:

TENDERERS must inform the TICEL Designated Officer at the Project site of all processes producing dust or fumes, and under the conditions as laid down in the relevant Act of Government the safety precautions are to be fulfilled.

7. FIRE HAZARDS AND PRECAUTIONS:

When at site, all fire regulations, as well as regulations under relevant Sections of the relevant Act of Government of must be observed at all times.

8. MACHINERY SAFETY:

TENDERERS working at the Project site must not remove or displace any guard, fencing or other safety equipment which is designed to protect personnel or machinery or any place where safety equipment has been provided without the written permission of the TICEL Designated Officer or his designated representative.

On completion of any work, any guards that had to be removed must be replaced immediately and whilst work is being carried out, machinery must not be operated. The requirement of the relevant Act must be followed:

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**9. HOUSE-KEEPING:**

The House-keeping standards employed by TENDERERs, must be as good as the Owner. Care must be taken by all responsible people to ensure that the standard of house-keeping for all establishments is known and understood.

Housekeeping and hygiene go hand in hand with safe working practices. TENDERERs must leave work areas in a clean, tidy and safe condition at the end of each working period.

Special attention must be paid to potential fire hazards, trip points and equipment left in a hazardous condition.

Contamination of any product (by drill swarf sawdust, oil, salient, paints and materials etc.) must be avoided at all costs, and the officers of the Owner are empowered to stop any activity which could result in contamination.

10. NOISE:

TENDERERs working at the Project site must obtain permission from the TICEL Designated Officer if the processes being employed to carry out that work significantly increase the ambient noise level in that area being worked.

11. OVERHEAD WORKING:

No work may be carried out above the heads of people or over gangways or roads, until all precautions have been taken to ensure the safety of the persons below, and until permission is given by the TICEL Designated Officer. Each specific site of overhead working will require consent from the TICEL Designated Officer. This will be given after satisfactory inspection.

Work may be carried out in the vicinity of power cables only when permission is obtained from the TICEL Designated Officer and/or Owner Project Engineer.

Work connected with overhead safety includes the movement of long metal objects, machinery, jibs, masts, arms or other elevated parts.

12. WORKING AT HEIGHT:

All temporary structure, erected by TENDERERs for the purpose of allowing their staff to work at heights of more than 2 M. above floor level, must be constructed in accordance with the Safety Regulations laid down.

Whenever possible, ladders are to be made of wood and in good condition. Metal ladders must not be used where there is any possibility of the ladder coming into contact with an electrical conductor.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
Roof working must be properly supervised.

13. SAFETY CLOTHES AND EQUIPMENT:

This will be supplied by TENDERERs who are working on sites and must be adequate for the wellbeing of their staff engaged in the type of work contracted for.

The equipment and its use must comply with the regulations and codes of practice as laid down that apply to the conditions of work being undertaken.

TENDERERs will be responsible for the use of any tools and equipment that is supplied by them, or their staff to the exclusion of all responsibility of the Owner. Tools will be maintained to the highest standard of safety. Whilst in the possession of such tools, the person so using said tools is responsible for the continued maintenance of safety standards.

It is the individual's responsibility to ensure that the tools he work with are suitable for the job and in a safe condition prior to work commencement. All necessary tools and equipment to complete a contract should be supplied by the TENDERER. Due provision must be made during contract preparation.

14. PLANT SERVICES:

Before using plant services such as electricity, permission to do so must be obtained from the appropriate authority, Owner Project Engineer or TICEL Designated Officer.

15. SUPERVISION:

TENDERERs working at the Project site, must ensure that their staff are adequately supervised.

16. WARNING SIGNS AND NOTICES:

Suitable warning signs are to be displayed warning of potential hazards. Tender for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FERMENTOR, CHILLER AND STEAM GENERATORs in TICEL Phase-II, Chennai. Tenderer shall at his own expense arrange for complying with all the occupational safety, health and welfare legislations of Government including the Electrical code and the Occupational Safety, Health and Welfare Act.

17. TOOLS

ELECTRICALLY DRIVEN PORTABLE TOOLS

Permission is to be obtained from the nominated person before any TENDERER's electrical

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
hand tools can be connected to the electricity supply.

Connection must be by 3-core and 3-pin plugs and sockets, except when tools are double insulated on a 2-wire supply. Where the supply is 3-phase, 4-core cable and 4-pin plugs and sockets with earth connections must be used.

Make-shift connections are prohibited.

The use of extension cables is discouraged, but sometimes necessary.

Portable electric lamps must be the 'Gripper' type with caged wire protection for the bulk and precautions as laid down under relevant section of the relevant Act of Government must be observed.

In all cases, with the exception of double insulated tools, the metal work of the tools must be effectively earthed, also any flexible metallic cable coverings must be earthed.

COMPRESSED AIR TOOLS

TENDERERS must obtain permission to use any compressed air supply at the Project site.

TENDERERS must also provide suitable noise suppression for pneumatic hammers, drills etc.

PERCUSSION CARTRIDGE TOOLS

Permission to use percussion tools must be obtained from the designated safety representative prior to the use of these tools.

Also, when using percussion tools, it is the individual's duty to ensure that the charges used in said tools are correct. These tools are to be handled as dangerous weapons, never leave tools unattended, never leave tools charged or store charged, never point tools at personnel, always lock up when finished both tool and charges.

18. HOISTING AND LIFTING

Permission must be obtained prior to the use of Plant and equipment, from the Owner Project Engineer or other nominated responsible person.

Equipment must be adequate for the purpose required and anchorage approved by the site TICEL Designated Officer.

All equipment so used must have been examined by a competent person, and where necessary a certificate obtained in accordance with relevant sections of the relevant Act of Government. No object is to be left unattended whilst using lifting equipment.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**19. MOVEMENT OF PLANT AND MACHINERY**

Permission must be obtained prior to the movement of construction materials, plant or equipment in and around Project site.

20. POWERED INDUSTRIAL TRUCKS

Permission must be obtained prior to the use of lift-trucks by TENDERERS at the Project site.

Trucks must only be driven by competent licensed personnel, and must comply with statutory regulations.

MODEL RULES FOR THE PROTECTION OF HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS EMPLOYED BY TENDERERS**1. FIRST-AID-FACILITIES**

At every work place there shall be provided and maintained, so as to be easily accessible during working hours, first-aid boxes at the rate of not less than one box for 150 labour or part thereof ordinary employed.

The first-aid box shall be distinctly marked with a red cross on white back ground and shall contain the following.

For work places in which the number of labour employed does not exceed 50, each first-aid box shall contain the following.

6 small sterilized dressings
3 medium size sterilized dressings 3 large size sterilized dressings
3 large size sterilized burn dressings
1 (30 ml.) bottle containing a two per cent alcoholic solution of iodine.
1 (30 ml.) bottle containing Sal volatile having the dose and mode of administration indicated on the label.
1 snakebite lancet
1 (30 gms.) bottle of potassium permanganate crystals 1 pair scissors
1 copy of the first-aid leaflet issued by the Director General, Factory Advice Service and Labor Institutes, Government of India.
1 bottle containing 100 tablets (each of 5 gms.) of aspirin. Ointment for burns
A bottle of suitable surgical antiseptic solution

For work places in which the number of labour exceed 50. Each first-aid box shall contain the following.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

12 small sterilized dressings

6 medium size sterilized dressings 6 large size sterilized dressings

6 large size sterilized burn dressings

6 (15 gms.) packets sterilized cotton wool

1 (60 ml.) bottle containing a two per cent alcoholic solution of iodine.

1 (60 ml.) bottle containing Sal volatile having the dose and mode of administration indicated on the label.

1 roll of adhesive plaster 1 snakebite lancet

1 (30 gms.) bottle of potassium permanganate crystals 1 pair scissors

1 copy of the first-aid leaflet issued by the Director General, Factory Advice Service and Labor Institutes / Government of India.

A bottle containing 100 tablets (each of 5 gms.) of aspirin. Ointment for burns A bottle of suitable surgical antiseptic solution

Adequate arrangements shall be made for immediate recoupment of the equipment when necessary. Nothing except the prescribed contents shall be kept in the First-aid box. The first-aid box shall be kept in charge of a responsible person who shall always be readily available during the working hours of the work place.

A person in charge of the First-aid box shall be a person trained in First aid treatment, in the work places where the number of contract labor employed is 150 or more.

In work places where the number of contract labor employed is 750 or more and hospital facilities are not available within easy distance from the work. First-aid posts shall be established and run by a trained Compounder. The Compounder shall be on duty and shall be available at all hours when the workers are at work.

Where work places are situated in places which are not towns or cities, a suitable motor transport shall be kept readily available to carry injured person or person suddenly taken ill to the nearest hospital.

2. DRINKING WATER

In every work place, there shall be provided and maintained at suitable places, easily accessible to labor, a sufficient supply of water fit for drinking.

Where drinking water is obtained from an intermittent public water supply, each work place shall be provided with storage where such drinking water shall be stored.

Every water supply or storage shall be at a distance of not less than 50 feet from any latrine drain or other source of pollution. Where water has to be drawn from an existing well which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap door which shall be dust and waterproof.

A reliable pump shall be fitted to each covered well, the trap door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL**3. WASHING FACILITIES**

In every work place adequate and suitable facilities for washing shall be provided and maintained for the use of labor employed and supervisory staff separately therein.

Separate and adequate cleaning facilities shall be provided for the use of male and female labours and supervisory staff.

Such facilities shall be conveniently accessible and shall be kept in clean and hygienic condition.

4. LATRINE AND URINALS

Latrines shall be provided in every work place on the following scale namely:

Where females are employed, there shall be at least one latrine for every 25 females.

Where males are employed, there shall be at least one latrine for every 25 males.

Provided that where the number of males or females exceeds 100, it shall be sufficient if there is one latrine for 25 males or females as the case may be up to the first 100, and one for every 50 thereafter.

Every latrine shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings.

Construction of latrines: the inside walls shall be constructed of masonry or some suitable heat-resisting nonabsorbent materials and shall be cement washed inside and outside. Standard sanitary fixtures & fittings shall be provided.

Where workers of both sexes are employed, there shall be displayed outside each block of latrine and urinal, a notice in the language understood by the majority of the workers" For Men only" or "For Women only" as the case may be.

The notice shall also bear the figure of a man or of a woman, as the case maybe.

There shall be at least one urinal for male workers up to 50 and one for female workers up to fifty employed at a time, provided where the number of male or female workmen, as the case may be exceeding 500, it shall be sufficient if there is one urinal for every 50 males or females up to the first 500 and one for every 100 or part thereafter.

The latrine and urinals shall be adequately lighted and shall be maintained in a clean and sanitary condition at all times.

Latrine and urinals other than those connected with a flush sewage system shall comply with the requirements of the Public Health Authorities.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

Water shall be provided by means of tap or otherwise so as to be conveniently accessible in or near the latrine and urinals.

Disposal of excreta shall be arranged either by connection to a municipal sewer with permission from the local sanitary authority, or by providing connection to a covered soak pit.

The TENDERER shall at his own expense, carry out all instructions issued to him by the TICEL (OWNER) OR ITS REPRESENTATIVE to effect proper disposal of night soil and other conservancy work in respect of the TENDERER's workmen or employees on the site. The TENDERER shall be responsible for payment of any charges which may be levied by Statutory Authority for execution of such on his behalf.

5. PROVISION OF SHELTER DURING REST

At every place there shall be provided, free of cost, four suitable sheds, two formals and the other two for rest separately for the use of men and women labor. The height of each shelter shall not be less than 3 meters from the floor level to the lowest part of the roof. These shall be kept clean and the space provided shall be on the basis of 0.6 sq. m per head.

Provided that the TICEL (OWNER) OR ITS REPRESENTATIVE may permit subject to his satisfaction, a portion of the building under construction or other alternative accommodation to be used for the purpose.

6. CRECHES

At every work place, at which 20 or more women worker are ordinarily employed; there shall be provided two rooms of reasonable dimensions for the use of their children under at the age of six years. One room shall be used as a play room for the children and the other as their bedroom. The rooms shall be constructed with painted masonry walls with light weight roofing.

The rooms shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean.

The TENDERER shall supply adequate number of toys and games in the play room.

The TENDERER shall provide one ayah to look after the children in the crèche when the number of women workers does not exceed 50 and two when the number of women workers exceeds 50.

The use of the rooms earmarked as crèches shall be restricted to children, their attendants and mothers of the children.

7. CANTEENS

In every work place where the work regarding the employment of labor is likely to

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL continue for six months and where in contract labor numbering **one hundred** or more is ordinarily employed, an adequate canteen shall be provided by the TENDERER for the use of such labor.

The canteen shall be maintained by the TENDERER in an efficient manner.

The canteen shall consist of at least a dining hall, kitchen, pantry and washing places separately for workers and utensils.

The canteen shall be sufficiently lighted at all times when any person has access to it.

The floor shall be made of smooth and impervious materials and inside walls shall be lime-washed or color washed.

The premises of the canteen shall be maintained in a clean and sanitary condition.

Waste water shall be carried away in suitable covered drains and shall not be allowed to accumulate so as to cause a nuisance.

Suitable arrangements shall be made for the collection and disposal of garbage.

The floor area of the dining hall shall be suitably provided with furniture.

Sufficient tables, stools, chair or benches shall be available for the number of diners to be accommodated.

There shall be provided and maintained sufficient utensils crockery, furniture and any other equipment's necessary for the efficient running of the canteen.

The furniture utensils and other equipment shall be maintained in a clean and hygienic condition.

Suitable clean clothes for the employees serving in the canteen shall be provided and maintained.

A service counter, if provided, shall have top of smooth and impervious material.

Suitable facilities including an adequate supply of hot water shall be provided for the cleaning of utensils and equipment's.

The food stuffs and other items to be served in the canteen shall be in conformity with the normal habits of the contract labor.

The charges for food stuffs, beverages and any other items served in the canteen shall be based on 'No Profit, No Loss' and shall be conspicuously displayed in the canteen.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

In arriving at the price of foodstuffs, and other article served in the canteen, the following items shall not be taken into consideration as expenditure namely: -

The depreciation and maintenance charges for the building and equipment's provided for the canteen.

The cost of purchase, repairs and replacement of equipment's including furniture, crockery, cutlery and utensils.

The water charges and other charges incurred for lighting and ventilation. The interest and amounts spent on the provision and maintenance of equipment's provided for the canteen.

8. Minimum Safety Requirements (To be made a part of Tender conditions and BOQ of work-related package to address the inclusion of PPE, Scaffold, Electrical safety measures, House Keeping as a minimum)

Prior to commencing work on Site, the TENDERER must make himself aware of all the requirements for the Work and the Site relating to Environment, Health & Safety (EH&S) matters including all relevant legislation and standard codes of practice.

TENDERER shall comply with all the EH&S Requirements listed below which shall be deemed a fundamental condition of this Contract.

TENDERER must comply in full with all applicable Health & Safety (H&S) local and national legislation. (e. g. Labor License, Insurance Policy under workmen compensation Act, etc.)

In circumstances where there is a conflict between local or national legislation and these Minimum Safety Requirements (MSR), the higher (more protective) requirement shall prevail.

Guardrails are to be provided at all working places and other locations where persons or materials could fall more than 2.0m / 6'6". Where this can physically not be achieved, suitable and sufficient fall protection devices that do not rely on individuals should be provided and used to establish a safe place of work. (Examples include Safety Nets closely installed under height work, stretched wire ropes installed to hook up safety harnesses while workers move from one location to another at height, Use of full body safety harnesses with double lanyards etc.)

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

Full body harness with double lanyard Proper Access to work platform

All persons working on suspended scaffolds/cradles/gondolas must wear and use appropriate fall prevention equipment so as to protect them effectively at all times when they are at risk from any failure of any part of the scaffold/cradle/gondola, including its suspension system.

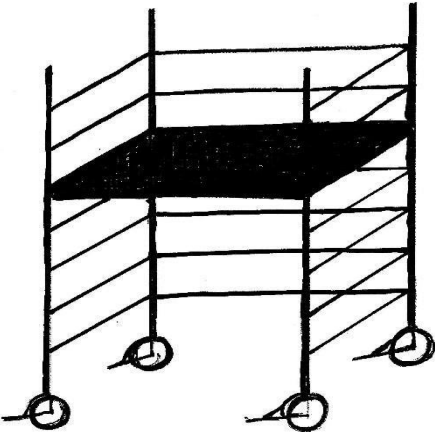
Free-standing scaffold towers used externally must not be higher to the top platform level than three times the minimum base dimension, unless secured to a permanent structure. For internal use only, the height to platform may rise to 3.5 times the minimum base dimension. Wheels must be locked when towers are in use. No person is permitted to remain on a tower platform while a tower is being moved.

Mobile Scaffolds

Holes, shafts and edges from or through which persons could fall a distance of more than 2 meter /6ft 6in must be clearly marked with signage or other means and be adequately protected by covers or barriers so as to prevent falls of persons and materials.

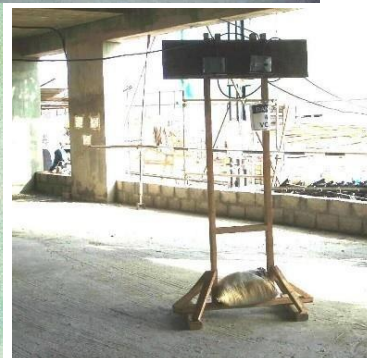
All temporary electrical circuits must include a Residual Current Device, Earth Leakage Circuit Breaker or Ground Fault Circuit Interrupter at source.

AND COMMISSIONING OF FERMENTOR’S/CHILLER & STEAM GENERATOR/ DOSING VESSEL



AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

Rising Main Unit and Transformer



Temporary Electrical System

Powered Lifts and hoists, aerial platforms and scissors lifts must have a competent driver, certified by a qualified third party. Additionally, the above items must be certified as safe to use by a local government approved third

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

party. Adequate lighting must be provided to enable safe access to and egress from every place on a site where persons are liable to work, this is in addition to task lighting.

Induction/Orientation

All workers shall receive site-specific safety induction/orientation, before they are involved in any activity at site. They must be made aware of site safety rules, provisions of first aid and welfare facilities such as drinking water, washing place, toilets, rest rooms, etc.

Task related Safety Instruction

TENDERER shall ensure all workers shall receive at least one specific task- related training/skilling session per week. This may be achieved by using Toolbox talks &/or induction to Safe Work Method Statement.

Incident/Injury Reporting & Investigation

TENDERER shall report and record all incidents, which have potential to cause injuries and damages and also injuries including first aid cases.

Lost Time Injury (LTI) or serious injury must be intimated immediately as soon as possible by phone. (If an injured person doesn't likely to report to work in his next following shift, it is to be recorded as Lost Time Injury)

Job Safety Analysis & Safe Work Method Statement

TENDERER must produce detailed Job Safety Analysis / Safe method of work for approval and use only approved work methods only. No work shall start without approved Job Safety Analysis / Safe Work Method Statement. All workers and supervisors must be inducted to Job Safety Analysis / Safe method of work. Oxygen / Acetylene / Fuel Gases/ Compressed or Liquefied Gases. All gas cylinders shall be stored, transported and handled as per the equipment's of Gas Cylinder Rules, 1981.

The Tenderer shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labor, local or other, and for their payment, housing, feeding and transport.

No women labor shall be employed by the Tenderer for the purpose of executing work at site & further as per labor law statutes, no child labor shall be employed by the Tenderer.

The Tenderer shall, if required by the TICEL (Owner), deliver to the TICEL (Owner) or its Representative a return in detail, in such form and at such intervals as the TICEL (Owner) or its Representative may prescribe, showing the staff and the numbers of the several classes of labor from time to time employed by the Tenderer on the Site and such

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL
other information as the TICEL (Owner) or its Representative may require.

9. COMPLIANCE WITH LABOR REGULATIONS

During continuance of the contract, the Tenderers shall a Tenderer at all times by all existing labor enactments and rules made thereunder, regulations, notifications and bye laws of the State or Central Government or local authority and any other labor law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labor law in future either by the State or the Central Government or the local authority. Salient features of some of the major labor laws that are applicable to construction industry are given below. The Tenderer shall keep the Owner indemnified in case any action is taken against the Owner by the competent authority on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments. If the Owner is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/ Acts/ Rules/ regulations including amendments, if any, on the part of the Tenderer, the TICEL (Owner) or its Representative shall have the right to deduct any money due to the Tenderer including his amount of performance security. TICEL (Owner) or its Representative shall also have right to recover from the Tenderer any sum required or estimated to be required for making good the loss or damage suffered by the Owner.

The employees of the Tenderer in no case shall be treated as the employees of the Owner at any point of time.

SALIENT FEATURES OF SOME MAJOR LABOUR LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTION WORK.

- a) Workmen Compensation Act 1923: The Act provides for compensation in case of injury by accident arising out of and during the course of employment.
- b) Payment of Gratuity Act 1972: Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years of service or more or on death the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.
- c) Employees P.F. and Miscellaneous provision Act 195: The Act Provides for monthly contributions by the owner plus workers @ 10% or 8.33%. The benefits payable under the Act are:
 - (i) Pension or family pension on retirement or death as the case may be. (ii) Deposit linked insurance on the death in harness of the worker. (iii) Payment of P.F. accumulation on retirement/death etc.
- d) Maternity Benefit Act 1951: - The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.
- e) Contract Labor (Regulation & Abolition) Act 1970: The Act provides for certain

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

welfare measures to be provided by the Tenderer to contract labor and in case the Tenderer fails to provide, the same are required to be provided, by the Principal Owner by Law. The principal Owner is required to take Certificate of Registration and the Tenderer is required to take license from the designated Officer. The Act is applicable to the establishments or Tenderer of Principal Owner if they employ 20 or more contract labor.

f) Minimum Wages Act 1948: The Owner is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, Runways are scheduled employment.

g) Payment of Wages Act 1936: It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.

h) Equal Remuneration Act 1979: The Act provides for payment of equal wages for work of equal nature to Male and Female workers and for not making discrimination against Female employees in the matters of transfers, training and promotions etc.

i) Payment of Bonus Act 1965: The Act is applicable to all establishments employing 20 or more workmen. The Act provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 20% of wages to employees drawing Rs.3500/- per month. or less. The bonus to be paid to employees getting Rs.2500/- per month or above up to Rs.3500/- per month. shall be worked out by taking wages as Rs.2500/- per month only. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of the Act.

j) Industrial Disputes Act 1947: The Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

k) Industrial Employment (Standing Orders) Act 1946: It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Owner on matters provided in the Act and get the same certified by the designated Authority.

l) Trade Unions Act 1926: The Act lays down the procedure per registration of trade unions of workmen and owners. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.

m) Child Labor (Prohibition & Regulation) Act 1986: The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulations of employment of children in all other occupations and processes. Employment of Child Labor is prohibited in Building and Construction Industry.

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

- n) Inter-State Migrant workmen's (Regulation of Employment & Conditions of Service) Act 1979: - The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as Housing, Medical-Aid, Travelling expenses from home up to the establishment and back etc.
- o) The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996: All the establishments who carry on any building or other construction work and employs 10 or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Owner of the establishment is required to provide safety measures at the Building or construction work and other welfare measures, such as Canteens, First-Aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Owner to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.
- p) Factories Act 1948: The Act lays down the procedure for approval at plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power engaged in manufacturing process.

10. SUB-CONTRACTING

The Tenderer shall not sub-contract any part of the Work without prior consent of the TICEL (Owner) or its Representative. Any such consent shall not relieve the Tenderer from any liability or obligations under the contract and he shall be responsible for the acts, defaults and neglects of any Sub- Contractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the Tenderer, his agents or workmen.

The TICEL (Owner) or its Representative should satisfy whether (a) the circumstances warrant such sub-contracting; and (b) the Sub-Contractors so proposed for the Work possess the experience, qualifications and equipment necessary for the job proposed to be entrusted to them in proportion to the quantum of work to be sub-contracted.

Protection of Environment:

The Tenderer shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

During continuance of the contract, the Tenderer and his Sub-Contractors shall attend at all times by all existing enactments on environmental protection and rules made there

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

under, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

Salient features of some of the major laws that are applicable are given below:

The Water (Prevention and Control of Pollution) Act, 1974, this provides for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. 'Pollution' means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms.

The Air (Prevention and Control of Pollution) Act, 1981, this provides for prevention, control and abatement of air pollution. 'Air Pollution' means the presence in the atmosphere of any 'air pollutant', which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The Environment (Protection) Act, 1986, this provides for the protection and improvement of environment and for matters connected therewith, and the prevention of hazards to human beings, other living creatures, plants and property. 'Environment' includes water, air and land and the inter- relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.

The Public Liability Insurance Act, 1991, This provides for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for matters connected herewith or incidental thereto. Hazardous substance means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act 1986, and exceeding such quantity as may be specified by notification by the Central Government.

Site Office for Tenderer

The Tenderer shall provide temporary office, stores, laboratory and workshops at the location approved by the TICEL (Owner) or its Representative. All temporary construction shall be put up after prior approval from Owner & TICEL (Owner) or it's Representative.

The Tenderer shall provide necessary approaches, fencing and other facilities at his own cost and within the quoted rates and with the prior approval of the TICEL. No other land

AND COMMISSIONING OF FERMENTOR'S/CHILLER & STEAM GENERATOR/ DOSING VESSEL shall be occupied by the Tenderer without the written permission of TICEL. The Tenderer shall not use or allow to be used the land for any purpose other than that of executing the work. The Tenderer shall dismantle and clear all dismantle all materials and hand over the vacant possession of the area allowed to him before leaving the site after completion of the contract.

11. TENDERERS AND SUB-CONTRACTORS GUIDELINES

- a. Safe working practices must be observed at all times.
- b. It is the responsibility of the TENDERERS and staff to use appropriate personal protection. It is the TENDERERS obligation to supply necessary protective equipment and clothing.
- c. Certain areas are designated hazardous (eg. noisy areas) and warning signs must be obeyed.
- d. Where the TENDERERS work presents a potential hazard, appropriate notices must be supplied and displayed, and the area made secure as far as is reasonably possible.
- e. The Owner will not provide tools, materials, lifting or access equipment, fixings or raw materials, unless by previous arrangement.
- f. Any equipment brought to site by TENDERERS must not be used by untrained persons, and attention is drawn to the indemnity clause of the Owner orders, which states that the TENDERER is liable for any consequent damage or loss to people, equipment or buildings.
- g. All welding, burning and grinding operations which could potentially cause fire must be reported to security.
- h. No alcohol is permitted at site, and anyone deemed to be under the influence of alcohol will be required to leave the site.
- i. Vehicle parking will be in designated areas only.
- j. No smoking is allowed in work areas.
- k. No food is to be consumed or left in work areas.
- l. Warning signs and speed restrictions must be observed.
- m. Place of work to be left in a tidy and safe condition at the end of each work period.
- n. Care to be taken against contamination of any product of paint, oil, etc.

AND COMMISSIONING OF FERMENTOR’S/CHILLER & STEAM GENERATOR/ DOSING VESSEL

- o. All injuries must be reported to the authorities as per law applicable.

- p. A health and TICEL Designated Officer shall be employed on such conditions as Circumstances require.

The above has been received and read by Tenderer. We agree to comply with these Rules

Tenderer.....

Company

Date