

TENDER DOCUMENT
FOR
DESIGN, MANUFACTURE, & SUPPLY
AND FOR
INSTALLATION, TESTING & COMMISSIONING
OF
COW URINE PROCESSING PLANT
AT
RADHANPUR MILK CHILLING CENTRE,
Dist.: BANASKANTHA, GUJARAT



Reference No.: BNS/NNDP/2024/COW URINE

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POINTS BIDDERS SHOULD BEAR IN MIND

- ✓ BIDS CONTAINING DEVIATIONS FROM BIDDING DOCUMENT TERMS AND OTHER REQUIREMENTS MAY BE REJECTED.
- ✓ BIDS NOT ACCOMPANIED BY BID SECURITY (EARNEST MONEY DEPOSIT) SHALL BE SUMMARILY REJECTED.
- ✓ NON-COMPLIANCE WITH EVEN A MINOR TECHNICAL REQUIREMENT SHOULD BE SPECIFICALLY STATED BY THE BIDDERS.
- ✓ BIDDERS SHOULD FURNISH THEIR COMPLETE ADDRESS FOR THE PURPOSE OF FURTHER CORRESPONDENCE PERTAINING TO BIDDING DOCUMENT.
- ✓ CORRECTIONS IN THE TENDER BID SHOULD BE NOTED OVER AND INITIALED AT THE PLACE OF CORRECTIONS.
- ✓ NEGLIGENCE OF THE BIDDER IN PREPARING TENDER BID CONFERS NO RIGHT TO WITHDRAW THE BID AFTER IT WAS OPENED.
- ✓ SPECIFICATIONS, CONDITIONS, SCHEDULE AND DRAWINGS OF BIDDING DOCUMENT CONSTITUTE AN INTEGRAL PART OF THE BID.
- ✓ THE BID, ALONGWITH ENCLOSURES, DRAWINGS AND TECHNICAL LITERATURE, SHOULD BE IN ENGLISH ONLY.
- ✓ ALL EQUIPMENT, SYSTEM & COMPONENTS SHOULD BE DESIGNED TO PERFORM AS PER SPECIFICATIONS IN THIS BIDDING DOCUMENT UNDER TROPICAL CONDITIONS.
- ✓ THE BIDDING DOCUMENTS SHALL BE GOVERNED AND INTERPRETED ACCORDING TO THE LAWS OF THE UNION OF INDIA.
- ✓ BANAS DAIRY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY OR ALL BIDS WITHOUT ASSIGNING ANY REASON OR ANY EXPLANATION TO BIDDERS.

CHECK LIST FOR BID SUBMISSION

Table 1 Check List of Bid Submission		
SR NO	Requirement	Tick(√)
1	Have you submitted the Bid Security?	YES / NO
2	Have you submitted TECHNICAL BID and PRICE BID?	YES / NO
3	Have you quoted Bid Prices in terms of clause 11.2 of Instructions to Bidders (Section II)?	YES / NO
4	Have you given the Bid Form on your letterhead, Price Schedule summary sheet (Section VII) in the prescribed format and item wise break-up sheet?	YES / NO
5	Have you submitted the original Bidding Document completed in all respects, duly signed and sealed?	YES / NO
6	Have you submitted the Supporting Documents?	YES / NO
7	Have you quoted the delivery period correctly & precisely?	YES / NO
8	Have you furnished the Statement of Deviations (Preferably NIL) (Section XI Part A at B)?	YES / NO
9	Have you kept your bid valid for 90 days?	YES / NO
10	Manufacturers' Authorization Form	YES / NO
11	Power-of-attorney for Authorized signatory	YES / NO

Signature & Seal of the Bidder

SECTION – I
INVITATION FOR BID

SECTION – I INVITATION FOR BIDS



BANASKANTHA DISTRICT CO-OPERATIVE MILK PRODUCERS' UNION LTD.

BANAS DAIRY, P.B. No. 20, PALANPUR – 385001,

DIST.: BANASKANTHA, GUJARAT

PHONE: 02742-253881-85. FAX: 02742-252723

Date: 23/09/2024

TENDER NOTICE

Banaskantha District Co-operative Milk Producers' Union Limited, Banas Dairy, P.B. No. 20, Palanpur-385001, Gujarat invites sealed bids from reputed eligible contractors for the following works for Cow Urine Processing Plant at Milk Chilling Centre at Radhanpur, Dist.: Banaskantha, Gujarat on turnkey basis.

Sr. No.	Tender Reference	Name of work	Estimated Cost	Tender Fee & E.M.D.	Time Period
1	BNS/NND P/2024/C OW URINE	Design, Supply, Installation, Testing and Commissioning of Cow Urine Processing Plant at Milk Chilling Centre at Radhanpur, Dist.: Banaskantha, Gujarat on turnkey basis.	Rs. 192 Lakhs	Rs. 5000 & Rs. 1.92 Lakhs	08 months

Sale of the tender	:	23.09.2024 from 11:00 HRS
Pre-BID Meeting	:	01.10.2024 at 11:00 HRS
Last date for sale of tender	:	11.10.2024 up to 12:00 HRS
Last date & Time for submitting of Tender	:	11.10.2024 up to 14:00 HRS
Date of opening of Tender	:	11.10.2024 at 15:00 HRS At Banas Dairy, Palanpur.

Banas dairy does not bind itself to accept the lowest bid. Banas dairy reserves the right to award the job either in part or full. Banas dairy at its sole discretion and without assigning any reason thereof, also reserves the right to accept any or reject any or all bids.

MANAGING DIRECTOR

1. Eligibility and Qualification requirements:

The bidders must meet the following minimum qualification criteria:

Bidders' annual financial turnover in each of the last three financial years ending March 31 shall not be less than **500 Lakhs**.

The bidder, in the same name, style, during the last five financial years must have successfully designed, supplied, installed and commissioned number of contract(s) of similar nature with similar technology of work having SS Equipment design, Fabrication, Installation and Commissioning and not less than one contract of 200 lakh value.

All the bidders must submit completion certificate along with copy of PO towards proof of their eligibility and qualification requirements.

Where the works are executed for private company the bidder/s, in support of their eligibility should submit the copy of the relevant TDS certificate received from their clients for the works.

TDS certificate would not be applicable for work done abroad by foreign collaborator/ principal but they have to furnish the certificate from the owner of such plants having successfully completed/ under execution the work done by the foreign collaborator/principal.

Bidders shall submit the certified copy of the Annual report for the previous completed three years (audited balance sheet and profit & loss account) along with their PAN and GSTN registration Number.

2. Purchase of bidding Document:

Interested eligible bidders may obtain further information from Banaskantha District Co-operative Milk Producers' Union Limited, Banas Dairy, Palanpur, Dist.: Banaskantha, Gujarat.

Interested bidders can purchase the bidding documents either in person or by written request in their letter heads along with non-refundable tender fees as specified above.

Bidding document may be purchased by any interested eligible bidder on payment of Non-refundable tender fee plus 250 towards the inland courier

charges, if required by post, by a crossed demand draft in favour of Banaskantha District Co-operative Milk Producers' union Limited payable at Palanpur by person between 1200 -1600 hours on any working day with in tender sale period specified above. Banas Dairy may not be responsible for any delay in receipt of the bidding document sent by post.

3. Submission of bid

This invitation of bids is open to all suppliers who meet the minimum eligibility criteria specified in this bid document.

4. Bid Security / Earnest Money Deposit (EMD)

All bids must be accompanied by bid security (EMD) of Rs **1.92** Lakhs and the same should be in the form specified in the bidding document & incorporated in the technical bid (Cover I).

Bids not accompanied with EMD, shall be summarily rejected.

5. Opening of Bids

This is a two-stage bid. All the bidders shall submit the bids in Cover I – Technical bid and Cover II – Price Bid. The technical bid (Cover I) shall contain all the details except for the price. After evaluation of technical bids and confirming the requirements, the eligible bidders shall be notified the option of revising the price bid. Only technical bids shall be opened initially on the date and time specified above in the presence of representatives of interested bidders. The date and time of opening of the price bid (Cover II) & its revision, if any shall be communicated later to all eligible bidders.

6. Rights Reserved by Banas Dairy

Banaskantha District Co.-Operative Milk Producers' Union Ltd., Palanpur, Banas Dairy does not bind itself to accept the lowest bid. Banas Dairy reserves right to award the job either in part or full. Banas Dairy at its sole discretion and without assigning any reason thereof also reserves the right to accept any/or reject any/or all bids.

7. Address for Communication:

General Manager (BEST & NNDP)
Banaskantha District Co-Operative Milk Producers' Union Ltd.
Banas Dairy, Post box No-20, Palanpur -385 001, Gujarat (India)
Phone: 02742-253881-5 Ext 374/294, Fax :02742-252723
E mail: pravin@banasdairy.coop

8. Place of Opening of Bid (First and Second stage bids):

Banas Dairy, Palanpur- 385001

9. Project Site address:

Radhanpur Milk Chilling Centre,
Village: Sardarpura, Ta: Radhanpur
Dist.: Banaskantha, State: Gujarat

SECTION - II
INSTRUCTIONS TO BIDDERS

SECTION – II
INSTRUCTION TO BIDDERS

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Section – II
Instruction to Bidder

A. INTRODUCTION

1. Source of Funds

Banas Dairy shall undertake the expenditure from its own sources.

2. Eligible Bidders

This invitation of bids is open to all suppliers who meet the minimum eligibility criteria specified in this bid document.

3. Eligible Goods and Services

3.1. All goods and ancillary services to be supplied under the Contract shall have their origin in eligible source.

3.2. For purposes of this clause, "origin" means the place where the goods are mined, grown or produced or from which the ancillary services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.

3.3. The origin of goods and services is distinct from the nationality of the Bidder.

4. Cost of Bidding

The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Banaskantha District Co-operative Milk producers' Union Ltd. hereinafter referred to as "the Purchaser", will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

B. THE BIDDING DOCUMENTS

5. Content of Bidding Documents

5.1. The goods required, bidding procedures and contract terms are prescribed in the Bidding Documents. In addition to the Invitation for Bids, the Bidding Documents include:

- a) Instructions to Bidders
- b) General Conditions of Contract

- c) Special Conditions of Contract
- d) Schedule of Requirements
- e) Technical Specifications
- f) Bid Form and Price Schedules
- g) Bid Security Form
- h) Contract Form
- i) Performance Security Form
- j) Technical and commercial deviation statement forms
- k) Completion Certificate Form

5.2. The Bidder is expected to examine all instructions, forms, terms and specifications in the Bidding Documents. Failure to furnish all information required by the Bidding Documents or submission of a bid not substantially responsive to the Bidding Documents in every respect will be at the Bidder's risk and may result in the rejection of its bid.

6. Clarifications of Bidding Documents

6.1. A prospective Bidder requiring any clarification of the Bidding Documents may notify the Purchaser in writing or by fax at the Purchaser's mailing address indicated in the invitation for Bids. The Purchaser will respond in writing to any request for clarification of the Bidding documents, which it receives not later than 10 days prior to the deadline for the submission of bids prescribed by the Purchaser. Written copies of the Purchaser's response (including an explanation of the query but without identifying the source of inquiry) will be sent to all prospective Bidders, which have received the Bidding Documents.

7. Amendment of Bidding Documents

7.1. At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding documents by amendment.

7.2. The amendment will be noticed in writing or by fax or email or cable to all prospective Bidders, which have received the Bidding Documents and will be binding on them. The amendment will be attached to the bidding documents sold subsequently.

7.3. In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids.

C. PREPARATION OF BIDS

8. Language of Bid

8.1. The Bid prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in the English language, provided that any printed literature furnished by the Bidder may be written in another language so long as accompanied by an English translation of its pertinent passages in which case, for purpose of interpretation of the bid, the English translation shall govern.

9. Documents comprising the bid.

9.1. The Bid prepared by the Bidder shall comprise the following components – documents:

Cover I

- 1. A complete description of the goods and services the bidder intends to supply, install and commission.**
- 2. A Separate folder containing the documents in respect to qualification and eligibility criteria.**
- 3. EMD or bid security.**
- 4. Detailed technical offer with layouts, sections, GA Drawings. The complete tender document duly stamped and signed by the bidder shall be submitted and shall be part of technical bid. Bidders shall also submit the equipments with their quantities considered under import and also the list of indigenous equipments with their quantities.**

Cover II

- 1. A price schedule completed in accordance with clause No 10, 11 and 12.**

- 9.2. The documentary evidence of the Bidders qualifications to perform the Contract if its bid is accepted, shall establish to the Purchasers satisfaction:
- a) That, in the case of a Bidder offering to supply Goods under the Contract which the Bidder did not manufacture or otherwise produce, the Bidder has been duly authorized by the Goods manufacturer or producer to supply the goods in the Purchaser's country (original equipment manufacturer certificate).
 - b) That the bidder has the financial, technical and production capability necessary to perform the contract.
- 9.3. That, in case of a Bidder not doing business within the Purchasers country, the Bidder is or will be (if successful) represented by an agent in the purchaser's country equipped and able to carry out the Suppliers maintenance, repair and spare parts stocking obligations prescribed by the conditions of the Contract and/or Technical Specifications.
- 9.4. Even though the bidders meet the above criteria, they are subject to be disqualified if they have:
- Made untrue or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and or,
 - Record of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion, or financial failures etc.
- 9.5. Notwithstanding anything stated above, the purchaser reserves the right to assess the Bidders capabilities and capacity to execute the contract satisfactorily before deciding on award.
- 9.6. Documentary evidence established in accordance with Clause 3 that the Goods and ancillary Services to be supplied by the Bidder are eligible Goods and Services and conform to the Bidding Documents:
- a) The documentary evidence of the Goods and Services eligibility shall consist of a statement in the Price Schedule on the country of origin of the Goods and services offered which shall be confirmed by a certificate of origin issued at the time of shipment.
 - b) The documentary evidence of the Goods' and Services' conformity to the Bidding documents may be in the form of literature, drawings and data, and shall furnish:
 - I. A detailed description of the goods essential technical and performance characteristics.

- II. A list giving full particulars, including available sources of all spare parts, special tools, etc. Necessary for the proper and continuing functioning of the Goods for a period of two years, following commencement of use by the Purchaser, and
- III. A clause-by-clause commentary on the Purchaser's Technical specifications demonstrating the Goods and Services substantial responsiveness to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications in the format furnished in section XI (A).
- IV. Any exceptions the Bidder wishes to take to the delivery schedule given in the Schedule of Requirements, the payment schedule or any other aspect of the General or Special Conditions of Contract, including a justification for the exception in the format furnished in section XI (B).

10. Bid Form

- 10.1. The Bidder shall complete the Bid Form and the Price Schedule furnished in the Bidding Documents, indicating the goods to be supplied, a brief description of the goods, their country of origin, quantity and prices.
- 10.2. Original bidding document duly signed and sealed should be submitted on or before the specified date and time at the office of Banas Dairy, Palanpur.

11. Bid Prices

- 11.1. The Bidder shall indicate on the Price Schedule attached to these documents, the unit prices and total Bid Prices of the goods it proposes to supply under the Contract. To this end, the Bidders are allowed to submit price bids specified in the "schedule of requirement" and to offer discount, if any. However, Bidders must submit a bid for the full quantity specified under technical specifications, failing which, such bids will not be taken into account for evaluation and comparison and will not be considered for award. The item wise quoted price should be inclusive of all applicable taxes and duties.
- 11.2. Prices indicated on the Price Schedule shall be entered separately in the following manner:
 - a) The item wise price of goods mentioned in the SOQ and basis of design to be supplied shall be on FOR site basis inclusive of applicable taxes &

duties. The item wise price shall also include the charges for packing and forwarding, transportation, transit insurance and all other local costs incidental to delivery of the goods to their final destination, storage insurance and safe custody at site.

- b) The item wise price of installation, testing and commissioning as described in the technical specifications/ SOQ / requirement mentioned in basis of design and in accordance with Special Conditions of Contract with regard to erection, testing and putting the equipment into satisfactory operation including successful completion of performance and guarantee tests to be performed at the final destination by the bidder should be indicated separately and shall be inclusive of applicable taxes and duties; and
- c) The bidder should also submit the price schedule summary.

11.3. The Bidders separation of price components in accordance with Para. 11.2 above will be solely for the purpose of facilitating the comparison of bids by the Purchaser and will not in any way limit the Purchasers right to contract on any of the terms offered.

11.4. Price

Bidder shall submit their offers in INR only.

There shall be no any variations in the exchange rate to be considered or paid separately. Bidder to submit offer in FOR INR price only

11.5. Price Break-up

The bidder shall also submit the itemized price breakup separately mentioning basic price, P&F, GST, Freight, Insurance, I&C, etc. as applicable which will be applicable for progressive payments. Items and works for which no break-up price is furnished by the bidder will not be paid for by the purchaser when supplied / executed and shall be deemed covered by the other break-up prices. Wherever items are mentioned in terms of length, prices should be quoted on per meter basis.

However, for evaluation purpose, prices quoted as indicated in Para 11.2 above only will be considered.

Wherever there is more than one item, unit rates should be indicated separately.

Any variation in taxes and duties during the delivery period shall be on the purchaser's account.

11.6. Notwithstanding anything stated elsewhere in the bidding documents, irrespective of mode of the contracting with the successful bidder, the successful bidder will be liable for the payment of Indian Income Tax, surcharge on Income Tax and any other Corporate Tax, turnover tax etc. if attracted under the provisions of the law. The purchaser shall not bear any tax liability whatsoever irrespective of the mode of contracting.

12. Bid Currencies

For all goods and services covered in this Bidding Document, prices shall be quoted in Indian Rupees only.

13. Documents Establishing Bidders' Eligibility and Qualifications

13.1. Pursuant to Clause 9, the Bidder shall furnish, as part of its bid, documents establishing the Bidder's eligibility to bid and its qualifications to perform the Contract if its bid is accepted.

13.2. The documentary evidence of the Bidder's eligibility to bid shall establish to the Purchasers satisfaction that the Bidder, at the time of submission of its bid is eligible to bid as defined under Clause 2.

13.3. The documentary evidence of the Bidders qualifications to perform the Contract if its bid is accepted, shall establish to the Purchaser's satisfaction:

- a) That, in the case of a Bidder offering to supply goods under the Contract which the Bidder did not manufacture or otherwise produce, the Bidder has been duly authorized by the goods' manufacturer or producer to supply the goods. The bid shall include Manufacturers' Authorization Form in their letterhead. Offers from other agencies, brokers and middlemen will not be accepted.
- b) That, the Bidder has the financial, technical and production capability necessary to perform the Contract. To this end, all bids submitted shall include the following information;

- I. Copies of original documents defining the constitution or legal status, place of registration and principal place of business of the company or firm or partnership etc.
 - II. Details of experience and past performance of the bidder on the contracts of similar nature within the last 5 years and details of current contracts in hand and other commitments. Bidder should meet the minimum qualifying criteria to be eligible for award of contract pursuant to Clause 9 above.
 - a. The Bidder should be a manufacturer/ authorized representative of a manufacturer who must have designed, manufactured, tested and supplied the equipment(s) similar to the type specified in the Schedule of Requirements which shall be in successful operation as on the date of bid opening.
 - b. Bidders shall invariably furnish documentary evidence (Client's certificate) in support of the satisfactory operation of the equipment as specified above.
 - III. The bidder should furnish a brief write-up, backed with adequate data, explaining his available capacity (both technical and commercial) for manufacture and supply, installation and commissioning of the required equipment within the specified time of completion, after meeting all their current commitments.
 - IV. The bidder should confirm that all the facilities exist in his factory for inspection and testing and these will be made available to the Purchaser or his representative for inspection.
 - V. Major items of plant and equipment available/ installed in the Bidder's factory premises;
 - VI. Qualification and experience of key personnel for successful execution of the contract;
 - VII. Reports on financial standing of the Bidder such as profit and loss statements, balance sheets and auditor's report of the past three years, bankers certificates etc;
 - VIII. Information regarding any current litigation in which the Bidder is involved.
- 13.4. Bidders who meet the criteria given above at 13.2 and 13.3 are subject to be disqualified, if they have made untrue or false representation in the forms, statements and attachments submitted in proof of the qualification

requirements or have record of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion or financial failure etc.

14. Documents Establishing Goods' Eligibility and Conformity to Bidding Documents

- 14.1. Pursuant to Clause 9.1 the Bidder shall furnish, as part of its bid, documents establishing the eligibility and conformity to the Bidding Documents of all goods and services, which the Bidder proposes to supply under the Contract.
- 14.2. The documentary evidence of the goods' and services' eligibility shall consist of a statement in the Price Schedule on the country of origin of the goods and services offered which shall be confirmed by a certificate of origin issued at the time of shipment.
- 14.3. The documentary evidence of the goods' and services' conformity to the Bidding Documents may be in the form of literature, drawing and data, and shall furnish:
 - 14.3.1. A detailed description of the goods' essential technical and performance characteristics, schematic drawings etc., if any.
 - 14.3.2. A list giving full particulars, including available sources and current prices, of all spare parts, special tools, etc. necessary for the proper and continuous functioning of the goods for a period of two years, following commencement of the goods' use by the Purchaser.
 - 14.3.2.1. A statement of deviations and exceptions to the provisions of the technical specification in the format furnished in the bidding document (Section XI (A) -Technical Deviation Statement Form) and a clause-by-clause commentary on the deviations demonstrating the goods' and services' substantial responsiveness to the purchasers specifications despite the deviations.
 - 14.3.2.2. Bidders wishing to offer technical alternatives to the requirements of the bidding document must also submit a bid which complies with the requirements of the bidding document, including the basic technical design as indicated in the drawings and specifications. In addition to submitting the basic bids, the bidder shall provide all information necessary for a complete evaluation of the alternative by the Purchaser, including design calculations,

technical specifications, break-up of the prices and other relevant details. Only the technical alternatives, if any, of the lowest evaluated bidder conforming to the basic technical requirements shall be considered by the purchaser.

14.4. Pursuant to Clause 14.3 (c) above, the Bidder shall note that standards for workmanship, material and equipment, and references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications are intended to be descriptive only and not restrictive.

15. Bid Security (Earnest Money Deposit)

15.1. Pursuant to Clause 9.0 the Bidder shall furnish, as part of its bid, bid security as specified in the Schedule of Requirements.

15.2. The bid security is required to protect the Purchaser against the risk of Bidder's conduct, which would warrant the security's forfeiture, pursuant to Clause 15.7.

15.3. The bid security shall be denominated in Indian Rupees only, and shall be in one of the following forms:

15.3.1.1. A bank guarantee issued by a Nationalized Indian bank / other banks treated/approved by RBI to be at par with Nationalised Banks for the limited purpose of acceptance of guarantee in the form provided in the Bidding Documents and valid for 30 days beyond the validity of the bid from the last date of receipt of bids.

OR

15.3.1.2. A demand draft/bankers cheque issued by a Indian Nationalized Bank/ Scheduled Bank drawn in favour of Banas Dairy, payable at Palanpur.

15.4. Any bid not accompanied with bid security in accordance with paras. 15.1 And 15.3 will be rejected by the Purchaser treating it as non-responsive, pursuant to Clause 24.

15.5. Unsuccessful Bidder's bid security will be discharged / returned as promptly as possible but not later than 30 days after the expiration of the period of bid validity prescribed by the Purchaser, pursuant to Clause 16.

15.6. The successful Bidder's bid security will be discharged upon the Bidders executing the Contract, pursuant to Clause 33, and furnishing the performance security, pursuant to Clause 34.

15.7. The bid security may be forfeited

- a) If a Bidder withdraws or modifies its bid during the period of bid validity specified by the Bidder on Bid form; or
- b) In the case of this successful Bidder, if the Bidder fails:
 - I. To sign the Contract in accordance with Clause 33; or
 - II. To furnish performance security in accordance with Clause 34.

16. Period of Validity of Bids

- 16.1. Bids shall remain valid for 180 days after the last date of receipt of bid prescribed by the Purchaser, pursuant to Clause 19. A bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.
- 16.2. In exceptional circumstance, the Purchaser may prior to the expiry of initial validity period solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing (or by fax or email). The bid security provided under Clause 15 shall also be suitably extended. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request will not be required nor permitted to modify its bid.

17. Format and Signing of Bid

- 17.1. The Bidder shall prepare two copies of the bid, clearly marking each one as "Original Bid" and "Copy of Bid" as appropriate. In the event of any discrepancy between them, the original shall govern.
- 17.2. The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract. The letter of authorization shall be indicated by written power-of-attorney accompanying the Bid. All pages off the bid, except for unamended printed literature, shall be initiated by the person or persons signing the bid.
- 17.3. The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case corrections shall be initiated by the person or persons signing the bid.

D. SUBMISSION OF BIDS

18. Sealing and Marking of Bids

- 18.1. The Bidders shall seal the original and each copy of the bid in an inner and an outer envelope, duly marking the envelopes as "original" and "copy."
- 18.2. The inner and outer envelopes shall be sealed as described
 - 18.2.1. The outer envelope shall:
 - 18.2.1.1. Be addressed to the Purchaser at the following address:

Banaskantha District Co-operative Milk Producers' Union Limited
Banasa Dairy,
PB NO :20
Palanpur - 385001 (Gujarat)
Kind Attention: GM (P&E)

18.2.1.2. **Please mention on the envelope as under**

“Design, Supply, installation, testing and commissioning of Cow Urine Processing Plant at Milk Chilling Centre at Sardarpura, Radhanpur, Dist.: Banaskantha, Gujarat on turnkey basis”

18.2.2. The inner envelope shall be sealed and shall contain "Original" and "Copy":

Cover I: ORIGINAL TECHNICAL BID (EXCEPT FOR PRICE BID)
AND COPY

Cover II: ORIGINAL PRICE BID AND COPY.

18.3. The inner envelope shall indicate the name and address of the Bidder to enable the bid to be returned unopened in case it is declared "late."

18.4. If the outer envelope is not sealed and marked as required by Clause 18.2, the Purchaser will assume no responsibility for the bid's misplacement or premature opening. A bid opened prematurely for this cause will be rejected by the Purchaser and returned to the bidder,

18.5. Telex or cable or facsimile bids will be rejected.

19. DEADLINE FOR SUBMISSION OF BIDS

19.1. Bids must be received by the Purchaser at the address specified under Clause 18.2 not later than the time specified for receipt of the bids in the Invitation for Bids (Section I).

19.2. The Purchaser may, at its discretion, extend this deadline for the submission of bids by amending the Bidding Documents in accordance with Clause 7, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

20. LATE BIDS

Any bid received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser, pursuant of Clause 19, will be rejected and returned unopened to the Bidder.

21. Modification and Withdrawal of Bids.

- 21.1. The Bidder may modify or withdraw its bid after the bid's submission, provided that written notice of the modification or withdrawal is received by the Purchaser prior to the deadline prescribed for submission of bids.
- 21.2. The Bidder's modifications or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of Clause 18 with the outer and inner envelopes additionally marked "modification" or "withdrawal" as appropriate. A withdrawal **notice** may also be sent by telex or cable or fax but followed by a signed confirmation copy by post, marked not later than the deadline for submission of bids.
- 21.3. No bid may be modified subsequent to the deadline for submission of bids.
- 21.4. No bid may be withdrawn interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Form. Withdrawal of a bid during this interval may result in the Bidder's forfeiture of its bid security, pursuant to Clause 15.7.

E. BID OPENING AND EVALUATION

22. Opening of Bids by Purchaser

- 22.1. Bid Opening and Evaluation
- 22.2. This being Single stage bid there will be Pre-Bid Meeting with the Bidders at the time and date indicated in the (Section I) at the office of Banas Dairy, Palanpur - 385 001 (Gujarat). And envelopes containing documents towards eligibility criteria, technical bid with technical deviations, commercial deviations shall be opened on the due date in the presence of Bidders representative who choose to attend, at the time and date indicated in the (Section I) at the office of Banas Dairy, Palanpur - 385 001 (Gujarat). The bidder's representatives who are present shall sign a sheet / register evidencing their attendance.

23. Clarification of Bids

- 23.1. To assist in the examination, understanding, clarification, evaluation of the bids the Purchaser may, at its discretion, ask the Bidders for a clarification of its bids and may call for discussion. The request for clarification and the

response shall be in writing and no change in the substance of the bid or increase in price shall be sought, offered or permitted unless asked for.

24. Preliminary Evaluation

- 24.1. The Purchaser will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.
 - 24.1.1. Where the bidder has quoted and the bid security furnished is inadequate, the bid will be treated as non-responsive.
 - 24.1.2. The purchaser will also examine whether the bid is complete. If the prices (of second stage bid) of certain components / sub-assemblies / spare parts are not included and if the goods or equipment are otherwise considered functional, the Purchaser will load the bid with the cost of these exclusions as estimated by the Purchaser or as quoted by the other responsive bidders, whichever is higher for evaluation.
- 24.2. If the Purchaser considers that with these omissions, the offered goods / equipment is not functional, then the bid will be treated as incomplete and non-responsive.
- 24.3. Where the bidder has quoted for more than one pack / item and if the bid security furnished is inadequate for all the packs / items, the purchaser shall take the price bid into account only to the extent the bid is secured. For this purpose, the extent to which the bid is secured shall be determined by evaluating the requirement of bid security to be furnished for the packs/ items included in his bid (offer) in the serial order off the schedule of requirements of the bidding document.
- 24.4. Arithmetical errors will be rectified on the following basis. If there is a difference between the rates in figures and in words, the rates in words shall be taken as correct. Similarly, if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the Bidder does not accept the correction of the errors, its bid will be rejected. If there is a discrepancy between words and figures, the amount in words will prevail.

- 24.5. Prior to the detailed evaluation, the Purchaser will determine the substantial responsiveness to the bidding documents. For purposes of these clauses, a substantially responsive bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviations. A material deviation is one which affects in any substantial way the functionality, scope, quality or performance of the deliveries or which limits in any substantial way inconsistent with the bidding documents, the Purchaser's rights or the bidder's obligations under the contract and the rectifications of which deviations would affect unfairly the competitive position of other bidders presenting substantially responsive bids. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- 24.6. A bid determined as not substantially responsive will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non-conformity.
- 24.7. The Purchaser may waive any minor informality or non-conformity or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of the Bidder.

25. CONVERSION TO SINGLE CURRENCY

- 25.1. All bid prices shall be in Indian Rupees only.
- 25.2. The offer prices shall be firm however, variation as described at 11.4 of this section shall be considered.

26. EVALUATION AND COMPARISON OF BIDS

- 26.1. The Purchaser will evaluate & compare the bids previously determined to be substantially responsive, pursuant to Clause 24 81 25. No bid will be considered if the complete requirement covered under the pack/item is not included in the bid. The discounts if any offered by the bidder will be taken into account in the evaluation of bids so as to determine the lowest evaluated cost for the Purchaser in deciding award(s).
- 26.2. The evaluation and comparison of bids will be done on the basis of item wise quoted price inclusive of supply, installation, testing & Commissioning including applicable taxes and duties as mentioned in price schedule & clause 11.2.
- 26.3. The comparison shall be on free delivery at site basis including unloading and inclusive of all taxes (sales, works contract, service etc.) and duties (customs, countervailing, GST etc.) of the goods offered. Such price to

include all costs as well as taxes and duties paid or payable on components and raw material incorporated in goods as well as taxes and duties payable on finished goods and the installation & commissioning costs as per the provisions in the technical specifications.

27. Contacting the Purchaser

- 27.1. Subject to Clause 23, no Bidder shall contact the Purchaser on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded.
- 27.2. Any effort by a Bidder to influence the Purchaser in the bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidder's bid.

F. AWARD OF CONTRACT

28. Post Qualification

- 28.1. In the absence of prequalification, the Purchaser will determine to its satisfaction whether the Bidder selected as having submitted the lowest evaluated responsive bid is qualified to satisfactorily perform the Contract.
- 28.2. The determination will take into account the Bidder's financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the Bidders qualifications submitted by the Bidder, pursuant to Clause 13, as well as such other information as the Purchaser deems necessary and appropriate including details of experience and records of past performance.
- 28.3. An affirmative determination will be a prerequisite for award of the Contract to the Bidder. A negative determination will result in rejection of the Bidder's bid, in which event; the Purchaser will proceed to the next lowest evaluated bid to make a similar determination of that Bidder's capabilities to perform satisfactorily.
- 28.4. If felt necessary negotiation with eligible lowest or all the eligible bidders shall also be carried out.

29. Award Criteria

- 29.1. Subject to clause 31, the Purchaser will award the contract to the successful bidder whose bid has been determined to be substantially

responsive provided further the bidder is determined to be qualified to perform the contract satisfactorily as per clause 28.

30. Purchasers Right to Vary, Quantities at the Time of Award.

30.1. The Purchaser reserves the right to vary the quantities at the time of award of the contract, if the need arises, in consultation with the successful bidder.

31. Purchasers Right to Accept Any Bid and to Reject Any or All Bids

31.1. The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Purchaser's action.

32. Notification of Award

32.1. Prior to expiration of the period of bid validity, the Purchaser will notify the successful Bidder in writing by registered letter / courier / fax / e-mail / cable, to be confirmed in writing by registered letter / courier, that its bid has been accepted.

32.2. The notification of award will constitute the formation of the Contract.

32.3. Upon the successful Bidders furnishing of performance security pursuant to Clause 32, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to Clause 15.

33. Signing of Contract

33.1. At the same time as the Purchaser notifies the successful Bidder that its bid has been accepted, the Purchaser will request the Bidder to submit the Contract Form/s as provided in the Bidding Documents, incorporating all agreements between the parties.

33.2. Within 30 days of receipt of the Contract Form / Purchase Order, the successful Bidder shall sign and date the Contract/s and return it/them to the Purchaser.

34. Performance Security

34.1. Within 30 days of the receipt of notification of award from the Purchaser, the successful Bidder shall furnish the performance security in accordance with the Conditions of Contract, in the Performance Security Form provided in the Bidding Documents or another form acceptable to the Purchaser.

34.2. Failure of the successful Bidder to comply with the requirement of Clause 33 or Clause 34 shall constitute sufficient grounds for the annulment of the

award and forfeiture of the bid security, in which event the Purchaser may make the award to the next lowest evaluated bidder or call for new bids.

- 34.3. If the bid of the successful bidder is seriously unbalanced in relation to BANAS DAIRY's estimate of the real cost of the work to be performed under the contract, BANAS DAIRY may require additional performance security to protect BANAS DAIRY against financial loss in the event of subsequent default of the successful bidder under the contract. The value of the additional performance security shall be decided by the Purchaser based on mutual discussions with the successful bidder. The additional performance security shall be valid until the delivery of such items or as the Purchaser may decide. This security shall be released on a pro rata basis with respect to completion of execution of those items against which the additional security is obtained.

35. Import of goods

- 35.1. No import licence shall be provided by the purchaser for the goods offered against this bid. **EPCG licence also cannot be provided for import of machines/equipments of foreign origin. Therefore, equipments to be imported against full duty payment.** Bidders should indicate/identify in their bids the items with their cost they propose to import without EPCG licence at full duty payment.

SECTION - III

GENERAL CONDITIONS OF CONTRACT

SECTION III

GENERAL CONDITIONS OF CONTRACT

1. Definitions

1.1. In this Contract, the following terms shall be interpreted as indicated

- a) "The Contract" means the agreement entered into between the Purchaser and the Supplier, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein;
- b) "The Contract Price" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations;
- c) "The Goods" means all of the equipment, machinery, and/or other materials, which the Supplier is required to supply to the Purchaser under the Contract;
- d) "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other such obligations of the Supplier covered under the Contract;
- e) "The Purchaser" means the Organisation purchasing the Goods and services and would include the term "Owner";
- f) "The Supplier" means the individual or firm supplying the Goods and services under this Contract; and
- g) "Engineer-in-charge" means the Engineer designated as such or other Engineer appointed from time to time by the Purchaser and notified in writing to the Supplier to act as Engineer-in-charge for the purposes of contract
- h) "Works" means all goods to be provided and work (Services) to be done by the supplier under the contract.

2. Application

2.1. These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

3. Country of Origin

3.1. For purpose of this Clause "origin" means the place where the Goods were mined, grown or produced, or from which the Services are supplied. Goods

are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognised new product results that is substantially different in basic characteristics or in purpose or utility from its components. The origin of Goods and Services is distinct from the nationality of the Supplier.

4. Standards

4.1. The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned institution.

5. Use of Contract Documents and Information

5.1. The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only as far as may be necessary for purposes of such performance.

5.2. The Supplier shall not, without the Purchaser's prior written consent, make use of any document or information enumerated in Para 5.1 except for purposes of performing the Contract.

5.3. Any document, other than the Contract itself, enumerated in Para 5.1 shall remain the property of the Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so required by the Purchaser.

6. Patent Rights

The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from

7. Performance Security

7.1. Within 30 days after the Supplier's receipt of notification of award of the Contract, the Supplier shall furnish performance security to the Purchaser in the amount specified in the Special Conditions of Contract.

7.2. The proceeds of the performance security shall be payable to the Purchaser as compensation for any loss resulting from the Suppliers failure to complete its obligations under the Contract.

7.3. The Performance Security shall be denominated in the currency of the Contract or in a freely convertible currency acceptable to the Purchaser, and shall be in the following form:

7.3.1. A bank guarantee, issued by a Nationalised Indian Bank/other banks treated/approved by RBI to be at par with Nationalised Banks for the limited purpose of acceptance of guarantee or a foreign bank having branch in India.

OR

7.3.2. Demand Draft or Banker's Cheque in favour of Banas Dairy payable at Palanpur.

Such bank guarantees shall be valid till the expiry of the warranty period.

7.4. The performance' security will be discharged by the Purchaser and returned to the Supplier not later than 30 days following the date of completion of the Supplier's performance obligations, including any warranty obligations, under the Contract.

8. Inspection and Tests

8.1. The Purchaser or its representative shall have the right to inspect and or test the Goods to confirm their conformity to the Contract. The Special Conditions of Contract and / or the Technical Specifications shall specify what inspections and tests the Purchaser requires and where they are to be conducted. The Purchaser shall notify the Supplier in writing of the identity of any representatives, if retained for these purposes.

8.2. The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery and I or at the Good's final destination. Where conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance including access to drawings and production data shall be furnished to the inspectors at no charge to the Purchaser. In case of any defects or deficiency notified by the

Purchaser's inspection authority, the Supplier will rectify and make good the same without delay and not proceed with further processing of such item(s) of Goods without obtaining approval from the inspection authority.

8.3. Should any inspected or tested Goods fail to conform to the Specifications, the Purchaser may reject them and the Supplier shall either replace the rejected Goods or make all alterations necessary to meet specification requirements free of cost to the Purchaser.

8.4. The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at the destination shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment from the country of origin.

8.5. Tests upon completion (for Supply, installation & commissioning contracts)

8.5.1. The Supplier shall give to the Purchaser 21 days notice of the date after which he will be ready to make the tests of completion (the Test). Unless otherwise agreed, the Tests shall take place within 14 days after the said date on such day or days, as the Purchaser shall notify the Supplier.

8.5.2. If the Purchaser fails to appoint a time after having been asked to do so, or does not attend at the time and place appointed, the Supplier shall be entitled to proceed with the Tests in his absence. The tests shall then be deemed to have been made in the presence of the Purchaser and the results of the Tests shall be accepted as accurate.

8.5.3. If the Tests are being unreasonably delayed by the Supplier the Purchaser may give notice requiring the Supplier to make the tests within 21 days after the receipt of such notice. The supplier shall make the Tests on such days within that period as the Supplier may fix and of which he shall give notice to the Purchaser.

If the Supplier fails to make the Tests within 21 days the Purchaser may himself proceed with the Tests. All tests so made by the Purchaser shall be at the risk and cost of the Supplier and the cost thereof shall be deducted from the Supplier's price. The test shall then be deemed to have been made in the presence of the Supplier and results of the tests shall be accepted as accurate.

8.5.4. If the Goods/services or any section fails to pass the Tests, the Supplier may require such tests to be repeated on the same terms and

conditions. All costs to which the Purchaser may be put to by the repetition of the tests under this sub-clause or under sub-clause 8.5.14 shall be deducted from the Contract Price.

8.5.5. If the Purchaser and the Supplier disagree on the interpretation of the test results each shall give a statement of his views to the other within 14 days after such disagreement arises. The statement shall be accompanied by all relevant evidence. The Purchaser will review both the statements and render a final decision within a further period of fourteen (14) days, which shall be binding on the Supplier,

8.5.6. If the Goods/Services or any Section fails to pass the Tests on the repetition thereof under sub-clause 8.5.4 the Purchaser after due consultation with the Supplier, shall be entitled to:

a) Order one further repetition of the Tests under the conditions of sub-clause 8.5.4

OR

b) Reject the Goods or a section thereof in which event the Purchaser shall have the same remedies against the Supplier as are provided under sub-clause 8.5.12.

c) Issue a taking over certificate, if the Purchaser so wishes, notwithstanding that the Goods are not complete. The Supplier's price shall then be reduced by such amount as may be agreed to by the Purchaser and the Supplier or failing an agreement, as may be determined through arbitration.

8.5.7. In considering the results of tests carried out under sub-clause 8.5.11 and 8.5.14 and the Purchaser shall make allowances for the effect of any use of the Goods by him on the performance or other characteristics of the Goods.

8.5.8. As soon as the Goods and Services or any section thereof has passed the tests, the Purchaser shall issue a certificate to the Supplier to that effect.

8.5.9. The Goods and Services shall be accepted by the Purchaser when they have been completed in accordance with the contract, except in minor respects that do not affect the use of the Goods for their intended purposes and having passed the tests on completion and a taking over certificate has been issued or deemed to have been issued in accordance with-sub-clause 85.10.

8.5.10. The Supplier may apply by notice to the Purchaser for a taking over certificate not earlier than 14 days before the goods will in the Supplier's opinion be complete and ready for taking over under sub-clause 8.5.9. The Purchaser shall within 28 days after the receipt of the Supplier's application either:

- a) Issue the taking over certificate to the Supplier stating the date on which the works were complete and ready for taking over, or
- b) Reject the application giving his reasons and specifying the work required to be done by the Supplier to enable the taking over certificate to be issued.

If the Purchaser fails either to issue the taking over certificate or to reject the Suppliers application within the period of 28 days he shall be deemed to have issued the taking over certificate on the last day of that period.

If the services are divided by the Contract into sections the Supplier shall be entitled to apply for separate taking over certificate for each such section.

8.5.11. The Purchaser shall not use any part of the Goods unless taking over certificate has been issued in respect thereof.

8.5.12. If never the less the Purchaser uses any part of the Goods that part which is used shall be deemed to have been taken over at the date of such use. The Purchaser shall on request of the Supplier issue a taking over certificate accordingly. If the Purchaser uses any part of the Goods before taking over, the Supplier shall be given the earliest opportunity of taking such steps as may be necessary to carry out the tests on completion.

If the Supplier fails to remedy a defect or damage pointed out by the Purchaser within a reasonable time, the Purchaser may fix a final time for remedying the defect or damage.

If the Supplier fails to do so, the Purchaser may:

- a) Carry out the work himself or by others at the Supplier's risk and cost, provided that he does so in a reasonable manner. The costs properly incurred by the Purchaser in remedying the defect or damage shall be deducted from the Contract Price, but the Supplier shall have no responsibility for such work, or

- b) Require the Supplier to grant the Purchaser a reasonable reduction in the Contract Price to be agreed or fixed by arbitration or
- c) If the defect or damage is such that the Purchaser has been deprived of substantially the whole of the benefits of the Goods or a part thereof, he may terminate the Contract, in respect of such parts of the Goods as cannot be put to the intended use. The Purchaser shall, to the exclusion of any remedy be entitled to recover all sums paid in respect of such parts of the Goods together with the cost of dismantling the same, clearing the site and returning plant to the Supplier or otherwise disposing of it in accordance with the Suppliers instructions.

8.5.13. If the defect or damage is such that repairs cannot be expeditiously carried out on the site, the Supplier may with the consent of the Purchaser remove from the site for the purpose of repair any part of the works which is defective or damaged, after furnishing a suitable guarantee as may be prescribed by the Purchaser.

8.5.14. If the replacement or renewals are such that they may affect the performance of the services, the Purchaser may request that the tests on completion be repeated to the extent necessary. The request shall be made by notice within 28 days after the replacement or renewal. The tests shall be carried out in accordance with clauses 8.5.1 to 8.5.3.

8.5.15. Until the final certificate of commissioning has been issued, the Supplier shall have the right of access to all parts of the Goods and to the records of the working and performance of the Goods and Services. Such right of access shall be during the Purchaser's normal working hours at the Supplier's risk and cost. Access shall also be granted to any duly authorized representative of the Supplier whose name has been communicated in writing to the Supplier.

Subject to the Purchasers approval, the Supplier may also at his own risk and cost make any tests, which he considers desirable.

8.5.16. The Supplier shall not be liable for any defect resulting from designs furnished or specified by the Purchaser.

8.5.17. The Supplier shall, if required by the Purchaser in writing, search for the cause of any defect, under the directions of the Purchaser. Unless the defect is one for which the Supplier is liable under this clause, the

cost of the services carried out by the Supplier in searching for the cause of the defect shall be added to the Contract Price.

8.6. Nothing in the clause 8 shall in any way relieve the Supplier from any warranty or other obligations under this Contract.

9. Packing and Marking

9.1. The Supplier shall provide such packing off the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to temperature, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2. The packing, marking and documents, within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and, subject to Clause 18 and any subsequent instructions given by the Purchaser.

9.3. Each package shall be marked to indicate:

- | | |
|------------------------------------|--|
| a) Name of the Supplier | d) Purchase Order number |
| b) Details of items in the package | e) Gross, net and tare weights of the item |
| c) Name of the Consignee | f) Destination |

10. Delivery and Documents

10.1. Delivery of the Goods shall be made by the Supplier in accordance with the terms specified by the Purchaser in its Schedule of Requirements and the Special Conditions of Contract.

11. Insurance

11.1. The Goods supplied under the Contract shall be fully insured in Indian Rupees or a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage at site, delivery, installation, testing commissioning and up to handing over of the plant and equipment in the manner specified in the Special Conditions of Contract.

- 11.2. In supply only contracts, where delivery of the Goods is required by the Purchaser on a CIF basis, the Supplier shall arrange and pay for marine insurance naming the Purchaser as the beneficiary.
- 11.3. The Supplier shall provide a copy of the insurance policy along with invoice to the purchaser who will make arrangements to extend the validity of the policy, if necessary.
- 11.4. Should any loss or damage occur, the Supplier should –
 - a) Initiate and pursue claim till settlement, and
 - b) Promptly make arrangements for repair and/or replacement of any damaged items irrespective of settlement of claim by the underwriters.

12. Transportation

- 12.1. Where the Supplier is required under the Contract to deliver the Goods FOR Destination, as specified in the schedule of requirements, transportation shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.
- 12.2. Where the Supplier is required to affect delivery under any other terms, for example, by post or to another address in the source country, the Supplier shall be required to meet all transport and storage expenses until delivery.
- 12.3. In all the cases, transportation of the Goods up to the project site shall be the responsibility of the Bidder and the cost thereof shall be included I indicated in the contract price.
- 12.4. Where the Supplier is required under the Contract to deliver the Goods CIF, no further restriction shall be placed on the choice of the ocean carrier.

13. Incidental Services

- 13.1. As specified in the Special Conditions of Contract, the Supplier may be required to provide any or all of the following services:
 - a) Performance or supervision of on-site assembly and/or start-up of the supplied Goods;
 - b) Furnishing of tools required for assembly and/or maintenance of the supplied goods;
 - c) Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods; and manuals covering the operation and maintenance of automation software and control systems.

- d) Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
 - e) Conduct of training of the Purchaser's personnel, at the Supplier's plant and/ or on-site, in assembly, start-up operation, maintenance and/or repair of the supplied Goods.
- 13.2. Prices charged by the Supplier for the preceding incidental services, if not included in the price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged from other parties by the Supplier for similar services.

14. Warranty/Guarantee

- 14.1. The Supplier warrants that the Goods and equipment, supplied, installed and commissioned under the Contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that the Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except insofar as the design or material is required by the Purchaser's Specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions obtaining in the country of final destination. The Supplier also guarantees that the Goods supplied shall perform satisfactorily as per the signed/rated/installed capacity as provided for in the Contract.
- 14.2. This warranty/guarantee shall remain valid for 12 months after the Goods have been delivered at site, installed and the plant successfully tested, commissioned and accepted by the Purchaser. The automation systems, instruments and controls will be guaranteed against system malfunction for a period of one year from the date of commissioning. The Supplier shall also submit a quotation along with the bid towards warranty for one extra year. This will be used at the option of the Purchaser.
- 14.3. The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

14.4. Upon receipt of such notice, the Supplier shall, with all reasonable speed, repair or replace the defective Goods or parts thereof, without costs to the Purchaser other than, where applicable, the cost of inland delivery of the repaired or replaced Goods or parts from the port of entry to the final destination. If the Supplier, having been notified, fails to remedy the defect(s) within a reasonable period, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

15. Payment

15.1. The method and conditions of payment to be made to the Supplier under the Contract shall be specified in the Special Conditions of Contract.

15.2. The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by shipping documents, submitted pursuant to Clause 10, and fulfilment of other obligations stipulated in the Contract.

15.3. Payments shall be made promptly by the Purchaser within thirty (30) days of submission of an invoice/claim by the Supplier.

15.4. All payments under this contract shall be made in Indian Rupees only.

16. Prices

16.1. Shall be as per clause No.11.4 of section II: Instruction to bidders

17. Change Orders

17.1. The Purchaser may, at any time, by a written order given to the Supplier pursuant to Clause 31, make changes within the general scope of the Contract in any one or more of the following:

- a) Drawings, designs or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
- b) The method of shipment or packing;
- c) The place of delivery; or
- d) The Services to be provided by the Supplier

17.2. If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any part of the work under

the Contract, whether changed or not changed by the order, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of the Purchaser's change order.

18. Contract Amendment

18.1. Subject to Clause 18, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

19. Assignment

19.1. The Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchasers prior written consent.

20. Subcontracts

20.1. The Supplier shall notify the Purchaser in writing of all subcontracts awarded under the Contract if not already specified in his bid. Such notification, in his original bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.

20.2. Sub contracts must comply with the provisions of clause 3

21. Delays in the Supplier's Performance

21.1. Delivery of the Goods and performance of Services shall be made by the Supplier accordance with the time schedule specified by the Purchaser in its Schedule Requirements.

21.2. An un-excused delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to any or all of the following sanctions:

Forfeiture of its performance security, imposition of liquidated damages, and/or termination of the Contract for default

21.3. If at any time during performance of the Contract, the supplier or its subcontractors should encounter conditions impeding timely delivery of the Goods 8. Performance of Services the Supplier shall promptly notify the Purchaser in writing of the fact the delay its likely duration and its cause(s) As soon as practicable after receipt the Suppliers notice, the Purchaser

shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in which case the extension on shall be ratified by the parties by amendment of the Contract.

22. Liquidated Damages

22.1. Subject to Clause 25, if the Supplier fails to deliver any or all the goods or perform the services within the time period(s) specified in the Contract the Purchaser shall without prejudice to its other remedies under the Contract, deduct from the contract prices, as liquidated damages, a sum equivalent to:

- 1) 0.5% of the full contract value for every completed week (week comprising of 7 Days including holidays and any incomplete week shall be ignored for the calculations of liquidated damages) of delay in the supplies/commissioning.
- 2) The total amount so deducted shall not exceed 10% of the Contract value. Once the maximum is reached, the Purchaser may consider termination of contract pursuant to clause 24.

22.2. Any incremental taxes and levies on account of delay in performance of the Contract by the Supplier shall be to the Supplier's account.

23. Termination for Default

23.1. Suppliers default:

23.1.1. If the supplier shall assign the Contract, without the consent in writing of that Purchaser first obtained, or if in the opinion of the Purchaser, the Supplier:

- a) Has abandoned the Contract,
Or
- b) Without reasonable excuse has failed to commence the Works
Or
- c) Has Suspended the progress of the works for twenty-eight days after receiving from the purchaser written notice to proceed,
Or
- d) Despite previous warnings by the Purchaser in writing, is not executing the works in accordance with the Contract,
Or
- e) Neglecting to carry out his obligations under the contract so as seriously to affect the carrying out of the Works.

Then the Purchaser may, after giving fourteen days notice in writing to the Supplier, enter upon the Site and expel the Supplier there from without thereby voiding the contract, or releasing the Supplier from any of his obligations or liabilities under the contract, or affecting the

rights and powers conferred by the Contract on the Purchaser and may himself complete the works or may employ any other Supplier to complete the Works without prejudice to any other remedy of the Purchaser. The Purchaser or such other Supplier shall have free use for such completion of so much of the Supplier's Equipment as may be on the Site in connection with the works without being responsible to the Supplier for fair wear and tear thereof and to the inclusion of any right of the Supplier over the same.

23.1.2. The Purchaser shall, as soon as may be practicable after any such entry and expulsion by the Purchaser, fix and determine by or after reference to the parties, or after such investigation or enquiries as he may think fit to make or institute, and shall certify what amount, if any, had at the time of such entry and expulsion been reasonably earned by or would reasonably accrue to the Supplier in respect of work then actually done by him under the Contract and the value of any unused or partially used materials on the Site.

23.1.3. If the Purchaser shall enter and expel the Supplier under this Clause; he shall not be liable to pay to the Supplier any money on account of the Contract until the costs of execution and all other expenses incurred by the Purchaser have been ascertained and the amount thereof certified. The Supplier shall then be entitled to receive only such sum or sums, if any, as the Purchaser may certify would have been payable to him upon due completion by him after deducting the said amount. If such amount shall exceed the sum which would have been payable to the Supplier on due completion by him, then the Supplier shall, upon demand, pay to the Purchaser the amount of such excess and it shall be deemed a debt due by the Supplier to the Purchaser and shall be recoverable accordingly.

23.1.4. If the Purchaser pursuant to this Clause takes the Works or part thereof out of the Supplier's hands the Supplier's Liability under Clause for delay in completion shall immediately cease, without prejudice to any such liability that may at that time already be recoverable from the Supplier by the Purchaser.

23.1.5. Consequent to such termination of Contract, the Purchaser shall also be entitled to recover the advance paid, if any, to the Supplier along

with interest 13% per annum compounded quarterly on the last day of March, June, September and December on the advance paid for the entire period for which the advance was retained by the Supplier.

23.2. Default of the Purchaser

23.2.1. In the event of the Purchaser:

- a) Failing to pay to the Supplier the amount due within 60 days after the shall have become due under the terms of the Contract subject to any deduction that the Purchaser entitled to make under the Contract, or
- b) Becoming bankrupt or (being a company) going into liquidation other than for the purpose of a scheme of reconstruction or amalgamation, or
- c) Being unable to continue to meet his contractual obligations for unforeseen reasons due to economic dislocation

23.2.2. The supplier shall be entitled without prejudice to any other rights or remedies (and in respect of paragraph (a) above as alternative to the provisions of clause 16 for payment to terminate his employment under the contract by giving 30 days prior notice in writing to the purchaser.

Upon the giving of such notice the Supplier shall with all reasonable dispatch remove from the Site all suppliers' equipment brought by him thereon.

23.2.3. In the event of such termination the Purchaser shall be under the same obligations notice in writing to the Purchaser. to the Supplier in regard to payment as if the Contract had been terminated the provisions of Sub-Clause 25.4.2 hereof but in additions payment spec' therein, the Purchaser shall pay to the Supplier the amount of any reasonable y or damage to the Supplier arising out of or in connection with or by consequence such termination.

23.2.4. Nothing in this clause contained shall prejudice the right of the Supplier to exercise either in lieu of or in addition to the rights and remedies specified in this Clause, other rights or remedies to which the Supplier may be entitled.

24. Force Majeure

24.1. Notwithstanding the provisions of Clauses 22, 23, 24, the Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination default, if and to the extent that, it's delay in performance or

other failure to perform obligations under the Contract is the result of an event of Force Majeure.

24.2. For purposes of this clause, "Force Majeure" means an event beyond the control the Supplier and not involving the Suppliers fault or negligence and not foreseeable Such events may include, but are not restricted to, acts of the Purchaser either in sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

24.3. If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

24.4. Termination in Consequence of Force Majeure

24.4.1. If circumstances of Force Majeure have occurred and shall continue for a period of 182 days then, notwithstanding that the Supplier may by reason thereof have been granted an extension of Time for Completion of the Works, either party shall be entitled to serve upon the other 28 days' notice to terminate the Contract. If at the expiry of the period of 28 days Force Majeure shall still continue the Contract shall terminate.

24.4.2. If the Contract shall be terminated as aforesaid the Supplier shall be paid by the Purchaser for all work executed prior to the date of termination at the rates and prices provided in the Contract and in addition:

- a) The amounts payable in respect of any preliminary items, so far as the work or service comprised therein has been carried out or performed, and a proper proportion as certified by the Purchaser of any such items the work or service comprised in which has been partially carried out or performed.
- b) The cost of materials or goods reasonably ordered for the Works or for use in connection with the Works which shall have been delivered to the Supplier or of which the Supplier is legally liable to accept delivery (such materials or goods becoming the property of the Purchaser upon such payment being made by him).

- c) A sum, to be certified by the Purchaser, being the amount of any expenditure, which in the circumstances was reasonably incurred by the Supplier in the expectation of completing the whole of, the Works, in so far as such expenditure shall not have been covered by the payments in this Sub-Clause before mentioned.
- d) The reasonable cost of removal under Sub-Clause b of this Clause and (if enquired by the Supplier) return thereof to the Supplier's works in his country or to any other destination at no greater cost.
- e) The reasonable cost of repatriation of all the Supplier's staff and workmen employed on or in connection with the Works at the time of such termination.

Provided always that, against any payments due from the Purchaser under this Sub-Clause, the Purchaser shall be entitled to be credited with any outstanding balances due from the Supplier for advances in respect of Plant and materials, and any sum previously paid by the Purchaser to the Supplier in respect of the execution of the Works.

25. Termination for Insolvency

25.1. The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, without compensation to the Supplier, if:

- a) The Supplier becomes bankrupt or otherwise insolvent,
- b) The Supplier being a Company is wound up voluntarily by the order of a Court receiver, liquidator or Manager appointed on behalf of the debenture holders or circumstances shall have arisen which entitle the court or debenture holders to appoint a receiver, liquidator or a Manager, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.

26. Termination for Convenience

26.1. The Purchaser may, by written communication sent to the Supplier, terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the purchaser's convenience, the extent to which performance of work under

the Contract is terminated, and the date upon which such termination becomes effective.

26.2. The Goods that are complete and ready for shipment within 30 days after the Suppliers receipt of notice of termination shall be purchased by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:

- a) To have any portion completed and delivered at the Contract terms and prices; and/or
- b) To cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and for materials and parts previously procured by the Supplier.

27. Resolution of Disputes

27.1. The Purchaser and the Supplier shall make every effort to resolve amicably by dire informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

27.2. If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Supplier have been unable to resolve amicably a Contract dispute either party may require that the dispute be referred for resolution to the form mechanisms specified in the Special Conditions of Contract. These mechanisms include, but are not restricted to, conciliation mediated by a third party, adjudication an agreed national or international forum, and/or international arbitration, the mechanism shall be specified in the Special Conditions of Contract.

28. Governing Language

28.1. The Contract shall be written in the language of the bid, as specified by the Purchase in the Instructions to Bidders. Subject to Clause 30, that language version of Contract shall govern its interpretation. All correspondence and other document pertaining to the Contract, which is exchanged by the parties, shall be written in the same language.

29. Applicable Law

29.1. The Contract shall be interpreted in accordance with the laws of the Union of India.

30. Notices

- 30.1. Any notice given by one party to the other pursuant to the Contract shall be sent in writing or by telegram or telex/fax and confirmed in writing to the address specified for that purpose in the Special Conditions of Contract.
- 30.2. A notice shall be effective when delivered or on the notice's effective date, whichever is later.

31. Taxes and Duties

- 31.1. A supplier shall be entirely responsible for payment of all taxes, duties, license fees, etc. until taking over of the works by the Purchaser. However, Octroi, if any shall be reimbursed at actual on submission of documentary evidence and Entry Tax, wherever applicable shall be paid by the Project Authority.

32. Income Tax and Other Taxes:

- 32.1. The Supplier shall be liable to pay all corporate taxes, income tax, GST, and other taxes, duties, levies that shall be levied according to the laws and regulations applicable from time to time and the price bid by the Supplier shall include all such taxes.
- 32.2. Wherever the laws and regulations require deduction of such taxes at the source of payment, the Purchaser shall effect such deductions from the payment due to the Supplier. The remittance of amounts so deducted and issuance of certificate for such deductions shall be made by the Purchaser as per the laws and regulations in force. Nothing in the Contract shall relieve the Supplier from his responsibility to pay any tax that may be levied on income and profits made by the Supplier in respect of the Contract.
- 32.3. The Suppliers staff, personnel and labour will be liable to pay personal income taxes in respect of such of their salaries and wages as are chargeable under the laws and regulations to the time being in force, and the Supplier shall perform such duties in regard to such deductions thereof as may be imposed on him by such laws and regulations. The Purchaser shall not, in any way, be responsible for such payments by the Supplier/Suppliers' staff.

33. Right to use defective Goods

If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the Goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such Goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchasers' operation.

34. Construction of the contract

34.1. Notwithstanding anything stated elsewhere in the Bidding Documents, the entire work could be awarded in more than one contract.

34.2. The award of more than one contract shall 'not in any way dilute the responsibility of supplier for the successful commissioning of the plant/equipment as per the Bid Specifications and all the contracts will contain cross-fall breach clause. Any delay in one contract shall be construed as delay in completion of all the contracts and the liquidated damages shall be imposed accordingly.

35. Jurisdiction

This invitation for bids is issued for and on behalf of Banaskantha District Co-operative Milk Producers' Union Ltd. having its head office situated at Palanpur (Gujarat), for the settlement of any dispute arising out of the contract against this bid, only the Courts at Palanpur shall have jurisdiction.

SECTION – IV

SPECIAL CONDITIONS OF CONTRACT

SECTION – IV – SPECIAL CONDITIONS OF CONTRACT

PART – 1

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SECTION – IV – SPECIAL CONDITIONS OF CONTRACT

PART – I

1. The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The corresponding clause number of the General Conditions is indicated in parentheses.

2. Definitions (Clause 1)

- a) The Purchaser is Banas Dairy and would include the term “Owner”.
- b) The Supplier is (Name of Supplier).

3. Country of Origin (Clause 3)

The place where the goods were mined, grown or produced and from which the services are supplied.

4. Equivalency of Standards and Codes (Clause 4)

Wherever reference is made in the contract to the respective' standards and codes in accordance with which goods and materials are to be furnished, and work is to be performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly set forth in the Contract. Where such standards and codes are national in character, or relate to a particular country or region, other authoritative standards which ensure an equal or higher quality than the standards and codes specified will be accepted subject to the Purchasers prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the Supplier and submitted to the Purchaser at least 30 days prior to the date when the Supplier desires the Purchasers approval. In the event the purchaser determines that such proposed deviations do not ensure equal or higher quality, the Supplier shall comply with the standards set forth in the documents.

5. Performance Security (Clause 7)

- 5.1. The Performance Security shall be in the amount of 10% of the Contract price.
- 5.2. Additional Performance Security, if deemed necessary, shall be submitted as mutually agreed by the Purchaser and the successful bidder at the time of acceptance of the contract/Purchase order.

6. Inspection and Tests (Clause 8)

- 6.1. The inspection of the Goods shall be carried out to check whether the Goods are in conformity with the technical specifications attached to the purchase

order form and shall be in line with the inspection/test procedures laid down in the Schedule of Specifications and the Contract conditions.

6.2. Manufacturer must have suitable facilities at their works for carrying out various performance tests on the equipment. The bidder should clearly confirm that all the facilities exist for inspection and shall be made available to the inspecting Authority.

6.3. A load and functional tests as indicated in the specifications must be carried out at the manufacturer's works. Reliability of the equipment shall be demonstrated to the satisfaction of the appointed inspector or inspecting Agency.

6.4. Approved supplier's drawings shall not be departed from except as provided in the Bidding Document.

6.5. The Purchaser shall have the right at all reasonable times to inspect, at the Suppliers premises all Suppliers drawings of any part of the work.

6.6. The supplier shall provide, within the time stated in the contract or in the programme, drawings showing how the plant is to-be designed and any other information required for

- a) Preparing suitable foundations or other means of support.
- b) Providing suitable access on the site for the plant and any necessary equipment to the place where the plant is to be erected and
- c) Making necessary electrical connections from the panel board provided in the individual sections to the machines.

6.7. Before the goods and equipment are taken over by the Purchaser, the Supplier shall supply operation and maintenance manuals together with drawings of the goods and equipment as built. These shall be in such details as will enable the Purchaser to operate, maintain, adjust and repair all parts of the works as stated in the specifications.

The manuals and drawings shall be in the ruling language (English) and in such form and numbers as stated in the contract.

Unless and otherwise agreed, the goods and equipment shall not be considered to be completed for the purposes of-taking over until such manuals and drawings have been supplied to the Purchaser.

6.8. The goods will be accepted after inspection by the Purchaser, his representative or any inspection agency appointed by Purchaser and the costs for such inspector/Agency shall be borne by the Purchaser.

7. Delivery and Documents (Clause 10)

Upon shipment/dispatch, the supplier shall notify to the purchaser by cable or email or fax the full details of dispatch including purchaser order no description of the goods, quantity, mode of transport, place of loading, date of dispatch etc. The supplier will mail the following documents to the purchaser with a copy to the Insurance Company:

Original and three copies of:

- I. The Suppliers invoice showing purchase order no Goods description quantity unit price total amount
- II. Delivery note/case-wise detailed packing list identifying contents of each package/ lorry receipt
- III. Manufacturer's/Supplier's guarantee certificate
- IV. Inspection Certificate issued by the nominated inspection agency and the Suppliers factory inspection report
- V. Certificate of origin
- VI. Insurance policy
- VII. Excise gate pass /octroi receipts wherever applicable duly sealed indicating payments made and
- VIII. Any other document evidencing payment of statutory levies
- IX. The suppliers' certificate certifying that the defects pointed out during inspection have been rectified
- X. Manufacturers' original GST Invoice along with manufacturers' packing list

Note-The nomenclature used for the Item description in the invoice/s packing list/s and delivery note/s etc should be identical to that used in the purchase order The dispatch particulars including name of transporter LR No. and date should also be mentioned in the invoices

8. Insurance (clause 11)

- a) The marine / transit insurance to be taken by the contractor/ supplier shall be in an amount equal to 110% of the FOR-Destination value of the goods from 'warehouse to warehouse on 'All Risks' basis including Strike, Natural calamities but exclusive of War Risk valid for a period not less than 3 months after the date of arrival of Goods at final destination

- b) Storage-cum-erection ALL Risks' insurance for an amount equal to 110% of the contract value valid for a period not less than 3 months after installation including one month for testing and commissioning shall be taken by the contractor/ supplier

OR

As an alternative to (a) & (b) above "Marine-cum erection ALL Risks" insurance policy covering storage of equipment and other erection materials at site for an amount equal to 110% of the contract value of supply, installation & commissioning and valid for a period not less than 3 months after installation including one month for testing and commissioning shall be taken by the contractor/ supplier.

- c) Third Party Insurance: Before commencing the erection work the contractor/ supplier without limiting his obligations and responsibilities shall insure against his liability for any material or physical damage loss or injury which may occur to any property including that of the Owner/Banas Dairy or to any person including any employee of the Owner/Banas Dairy

Such insurances shall be for an amount not less than Rs 10 lakhs per occurrence with the number of occurrence Limited to five.

9. Incidental services (Clause 13)

9.1. The incidental services for supply, installation and commissioning contract, as follows shall be provided by the Supplier:

- a) Furnishing of tools required for assembly and maintenance of the supplied goods;
- b) Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
- c) On-site assembly and start-up of the supplied Goods;
- d) Conduct of training of the Purchaser's personnel (approx. for 4 man-weeks); at the Supplier's plant and/or on-site, in assembly, start-up operation, maintenance and/or repair of the supplied Goods.
- e) Furnishing of layout drawing etc. as specified in clause 3 of Special Conditions of Contract Part II.

10. Spare Parts (Clause 14)

Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spares such as gaskets, plugs, washers, belts, etc. Other spare parts

and components shall be supplied as promptly as possible but, in any case, within six months of placement of order.

11. Warranty/Guarantee (Clause 15)

The warranty/guarantee shall be as per provision under Clause 15 of General Conditions.

12. Payment (Clause 16)

12.1. Payment for design and supply component: Cow Urine Processing Plant

On receipt of goods:

- a) 15% advance on supply value shall be payable against submission of Bank Guarantee of equivalent amount valid till schedule date of delivery/ actual delivery of materials
- b) 75% of contract price of the goods within 30 days of safe receipt of the material at destination / site after inspection and approval/acceptance by the purchaser.
- c) 10% of the contract price of the goods on continuous satisfactory running of the complete plant for one month on completion of other contracted services and accepted by the purchaser's representatives within the scope of this contract AGAINST SUBMISSION OF PERFORMANCE BANK GUARANTEE OF 10% of contract value.

12.2. Payment for installation, testing and commissioning component:

- a) On progress of work: 80% of the contract price for installation and commissioning Shall be paid on prorata basis on actual completion of installation/erection and after due inspection and approval by the purchaser (against detailed break up cost to be furnished by the Supplier in advance and accepted by the Purchaser).
- b) On commissioning: 10% of the contract price for installation and commissioning shall be paid on actual completion of commissioning and after due inspection and approval by the purchaser (against detailed break up cost to be furnished by the Supplier in advance and accepted by the Purchaser)
- c) On final acceptance: The balance 10% shall be paid on continuous satisfactory running of the complete plant for one month on completion of other contracted services and accepted by the purchaser s representative within the scope of this contract

12.3. Payments for Service Cover

No service cover to be considered for this project.

NOTE:

- I. All bank guarantees should be issued by Nationalized Banks /other banks like IDBI Bank treated/approved by RBI to be at par with Nationalized Banks for the limited purpose of acceptance of guarantee.
- II. The successful bidder may raise running bills for supply as soon as supply is completed as per the schedule and bills for labors job shall be raised once in a month.
- III. Retention money shall be deducted @ 10% of the Contract Price (excluding taxes) wherever tax break-up is available separately in the Purchase Order/Contract.
- IV. The Purchaser shall issue Material Transfer Challan (MTC) after safe receipt of equipment.

13. Resolution of Disputes (Clause 28)

In the event of any dispute in the interpretation of the terms of the order/contract or difference of opinion between the parties on any point in the order/contract arising out of or in connection with the agreement accepted order/contract or with regard to performance of any obligation hereunder by either party, the parties hereto shall use their best efforts to settle such disputes or difference of opinion amicably by mutual negotiations. In case no agreement is reached, either party may forthwith give to the other, a notice in writing of the existence of such question, dispute or difference of opinion and the same shall be referred to the adjudication of sole arbitrator to be appointed by BANAS DAIRY whose decision in the matter shall be final and binding on the parties.

The Arbitration proceedings shall be governed under the provisions of the Indian Arbitration and Conciliation Act, 1996 and the rules there under or any statutory modifications thereof for the time being in force. In the order/contract, the venue of such Arbitration shall be Palanpur, Gujarat and Courts at Palanpur alone shall have jurisdiction regarding any matter arising out of order/contract.

Performance under the Contract shall, if reasonably possible, continue during the Arbitration proceedings and payments due to the Supplier by the Purchaser shall not be withheld, unless they are the subjects of the Arbitration proceedings.

All awards for claims equivalent to Rupees thirty thousand or more shall be in writing and state the reasons for the amounts awarded.

14. Notices (Clause 31)

For the purpose of all the notices, the following shall be the address of the Purchaser and Supplier.

Purchaser – Banaskantha District Co-operative Union Ltd., Post Box No. 20, Palanpur – 385001 (Gujarat).

Supplier – (To be filled in at the time of Contract signature.)

SPECIAL CONDITIONS OF CONTRACT FOR INSTALLATION

PART II

1. SUFFICIENCY OF TENDER

The Supplier by bidding shall be deemed to have satisfied himself as to, all the conditions and circumstances affecting the Contract Price, as to the possibility of executing the works as shown and described in the Contract, as to the general circumstances at the site of the works, as to the general labor position at site and to have determined the prices accordingly.

2. PROGRAMME OF INSTALLATION AND COMMISSIONING

As soon as practicable after the acceptance of the bid, the Supplier shall submit to the Purchaser for his approval a comprehensive programme in the form of PERT network/ bar chart and any other form as may be required by the Purchaser showing the sequence of order in which the Supplier proposes to carry-out the works including the design, manufacture, delivery to site, erection and commissioning thereof. After submission to and approval by the Purchaser of such programme, the supplier shall adhere to the sequence of order and method stated therein. The submission to and approval by the Purchaser of such programme shall not relieve the Supplier of any of his duties or responsibilities under the Contract. The programme approved by the Purchaser shall form the basis of evaluating the pace of all works to be performed by the supplier.

3. PREPARATION OF DRAWINGS FOR APPROVAL

The Supplier should visit the site to acquaint himself in respect of existing site conditions and to know the details/information required for understanding the nature and type of civil construction works involved in the project. The Supplier shall submit to the Purchaser for approval:

- a) Within the time given in the specification or in the programme, such drawings, samples, patterns and models as may be called for therein, and in numbers therein required.
- b) During the progress of works and within such reasonable times as the Purchaser may require such drawings of the general arrangement and details of the works as the Purchaser may require.

Wherever necessary, the Supplier would be provided with a set of architectural drawings for the buildings where the erection works would be carried out and

also the details/ drawings for various equipment (other than those in the scope of supplier) which will be handed over to the Supplier by the Purchaser. The specifications/ conditions concerning the submission of drawings by the Supplier are detailed as under:

3.1. Within four weeks from the date of receipt of the Notification of Award, Supplier shall furnish a list of all necessary drawings as briefly described below which the Supplier shall submit for approval, identifying each drawings by a serial number and descriptive title and expected date of submission. This list shall be revised and extended if necessary, during the progress of work depending on the nature of the contract also.

The Purchaser shall signify his approval or disapproval of all drawings or such drawing that would affect progress of the contract as per the agreed programme.

Brief list of drawings:

- I. Equipment drawings for fabricated items.
- II. Equipment layout for production, packing and service blocks.
- III. Flow diagrams for Cow Urine Feed and various services.
- IV. Service piping layouts in production, packing and service blocks.
- V. SS piping layout in production and packing blocks.
- VI. Electrical cable, conduit/ cable tray/ cable trench layout.
- VII. Other miscellaneous drawings as required for erection work.
- VIII. Electrical single line diagram, PCC and MCC general arrangement drawing and wiring diagrams
- IX. Automation system scheme, controls and network diagrams.

3.2. Drawings showing fabrication details dimensions, layouts and bill of materials submitted for approval shall be signed by responsible representative of Supplier and shall be to any of the following sizes in accordance with Indian Standards: AO, A1, A2, A3 and A4.

3.3. All drawings shall show the following particulars in the lower right-hand corner in addition to Supplier's name:

1. Name of the Purchaser
2. Title of drawing
3. Date of drawing
4. Project Title
5. Scale
6. Drawing number
7. Space for BANAS DAIRY reference or drawing number

- 3.4. In addition to the information provided on drawings, each drawing shall carry a revision number, date of revision and brief description of revision carried out. Whenever any revision is carried out, correspondingly revision number must be up-dated.
- 3.5. All dimensions on drawings shall be in metric units.
- 3.6. Drawings (three sets) submitted by the Supplier for approval will be checked, reviewed by the Purchaser, and comments, if any, on the same will be conveyed to the Supplier. It is the responsibility of the Supplier to incorporate correctly all the comments conveyed by the Purchaser on the Supplier's drawings. The drawings, which are approved with comments, are to be re-submitted in quadruplicate to the Purchaser for purpose of records. Such drawings will not be checked/ reviewed by the Purchaser to verify whether all the comments have been incorporated by the Supplier.
- If the Supplier is unable to incorporate any comments in the revised drawings, Supplier shall clearly state in his forwarding letter such non-compliance along with the valid reasons.
- 3.7. Drawings prepared by the Supplier and approved by the Purchaser shall be considered as a part of the specifications. However, the examination of the drawings by the Purchaser shall not relieve the Supplier of his responsibility for engineering design, workmanship, and quality of materials, warranty obligations and satisfactory performance on installation covered under the contract.
- 3.8. If at any time before completion of the work, changes are made necessitating revision of approved drawings, the Supplier shall make such revisions and proceed in the same routine as for the original approval.
- 3.9. Date of submission
- In the event, the drawings submitted for approval require many revisions amounting to re-drawing of the same then the date of submission of the revised drawings would be considered as the date of submission for approval. Four sets of all the drawings finally approved for fabrication I execution of works along with their soft copy on a CD/DVD shall be submitted to the Purchaser.
- 3.10. The Supplier shall furnish to the Purchaser before the works are taken over, Operating and Maintenance instructions together with four sets of hard & Soft copy (on.CD/DVD) of Drawings of the works as completed, in sufficient detail to enable the Purchaser to maintain, dismantle, reassemble and adjust

all parts of the works, unless otherwise agreed, the works shall not be considered to be completed for the purposes of taking over until such instructions and drawings have been supplied to the Purchaser.

4. SUPPLIER'S SUPERINTENDENCE (AND) DEPLOYMENT OF ERECTION TEAM AND CONDUCT OF PERSONNEL

The Supplier shall employ one or more competent representatives, whose name or names shall have previously been communicated in writing to the Purchaser by the Supplier, to superintend the carrying out of the works on the site. The said representative or if more than one shall be employed, then one of such representatives shall be present on the site during all times, and any orders or instructions which the Purchaser may give to the said representative of the Supplier shall be deemed to have given to the Supplier. They said representative shall have full technical capabilities and complete administrative and financial powers to expeditiously and efficiently execute the work under the contract.

4.1. The Supplier shall, execute the works with due care and diligence within the time for completion and employ Supplier's team comprising qualified and experienced engineers together with adequate skilled, semi-skilled and unskilled workmen in the site for carrying out the works. The Supplier shall ensure adequate workforce to keep the required pace at all times as per the schedule of completion. Supplier shall also ensure availability of competent engineers during commissioning/start up, trial runs, Operation of the plant/ equipment till handing over of the plant.

4.2. The Supplier shall furnish the details of qualifications and experience of their senior supervisors and engineers assigned to the work site, including their experience in supervising erection and commissioning of plant and equipment of comparable capacity.

4.3. When the Supplier or Supplier's representative is not present on any part of the work where it may be desired to give directions in the event of emergencies, orders may be given by the Purchaser and shall be received and observed by the supervisors or foremen who may have charge of the particular part of the work in reference to which orders are given. Any such instructions, directions or notices given by the Purchaser shall be deemed to have been given to the Supplier.

- 4.4. The Supplier's employment records shall include any reasonable information as may be required by the Purchaser. The Supplier should also display necessary information as may be required by statutory regulations.
- 4.5. None of the Supplier's supervisors, engineers, or labourers may be withdrawn from the work without notice to the Purchaser and further no such withdrawals shall be made if in the opinion of the Purchaser, it will adversely affect the required pace of progress and/or the successful completion of the work.
- 4.6. The Purchaser shall be at liberty to object to any representative or person skilled or unskilled worker employed by the Supplier in the execution of or otherwise about the works who shall, in the opinion of the Purchaser, misconduct himself or be incompetent, or negligent or unsuitable, and the Supplier shall remove the person so object to, upon receipt of notice in writing from the Purchaser and shall provide in that place a competent representative at Suppliers own expense within a reasonable time.
- 4.7. In the execution of the works no persons other than the Supplier, sub-Supplier and their employees shall be allowed on the site except by the written permission of the Purchaser.

5. PURCHASER'S INSTRUCTIONS

The Purchaser may in his absolute discretion issue from time-to-time drawings and/or instructions, directions and clarifications which are collectively referred to as Purchasers instructions in regard to:

- 5.1. Any additional drawing and clarifications to exhibit or illustrate details.
- 5.2. Variations or modifications of the design, quality or quantity of work or the additions or omissions or substitution of any work.
- 5.3. Any discrepancy in the drawings or between the schedule of quantities and/or specifications.
- 5.4. Removal from the site of any material brought there by the Supplier which are unacceptable to the Purchaser and the substitution of any other material thereof.
- 5.5. Removal and/or re-execution of any work erected by the Supplier, which are unacceptable to the Purchaser.
- 5.6. Dismissal from the work of any persons employed there upon who shall in the opinion of the Purchaser, misconduct himself, or be incompetent or negligent.

5.7. Opening up for inspection of any work covered up.

5.8. Amending and making good of any defects.

6. RIGHT OF THE PURCHASER

6.1. Right to direct works:

6.1.1. The Purchaser shall have the right to direct the manner in which all works under this Contract shall be conducted, in so far as it may be necessary to secure the safe and proper progress and specified quality of the works. All work shall be done and all materials shall be furnished to the satisfaction and approval of the Purchaser.

6.1.2. Whenever in the opinion of the Purchaser, the Supplier has made marked departures from the schedule of completion or when circumstances or requirement force such a departure from the said schedule, the Purchaser, in order to ensure compliance with the schedule, shall direct the order, pace and method of conducting the work, which shall be adhered to by the Supplier.

6.1.3. If in the judgment of the Purchaser, it becomes necessary at any time to accelerate the overall pace of the plant erection work, the Supplier, when directed by Purchaser, shall cease work at any particular point and transfer Supplier's men to such other point or points and execute such works, as may be directed by the Purchaser and at the discretion of the Purchaser.

6.2. Right to order modifications of methods and equipment

If at any time the Supplier's methods, materials or equipment appear to the Purchaser to be unsafe, inefficient or inadequate for securing the safety of workmen or the public, the quality of work or the rate of progress required, the Purchaser may direct the Supplier to ensure safety, and increase their efficiency and adequacy and the Supplier shall promptly comply with such directives. If at any time the Suppliers working force and equipment are inadequate in the opinion of the Purchaser, for securing the necessary progress as stipulated, the Supplier shall if so directed, increase the working force and equipment to such an extent as to give reasonable assurance of compliance with the schedule of completion, The absence of such demands from the Purchaser shall not relieve the Supplier of Supplier's obligations to secure the quality, the safe conducting of the work and the rate of progress required by the contract. The Supplier alone shall be and remain liable and

responsible for the safety, efficiency and adequacy of Supplier's methods, materials, working force and equipment, irrespective of whether or not the Supplier makes any changes as a result of any order or orders received from the Purchaser.

6.3. Right to inspect the work

- 6.3.1. The Purchasers representative shall be given full assistance in the form of the necessary tools, instruments, equipment and qualified operators to facilitate inspection.
- 6.3.2. The Purchaser reserves the right to call for the original test certificates for all the materials used in the erection work.
- 6.3.3. In the event the Purchaser's inspection reveals poor quality of work/materials the Purchaser shall be at liberty to specify additional inspection procedures if required, to ascertain Supplier's compliance with the specifications of erection work.
- 6.3.4. Even though inspection is carried out by the Purchaser or Purchasers representatives, such inspection shall not, however, relieve the Supplier of any or all responsibilities as per the contract, nor prejudice any claim, right or privilege which the Purchaser may have because of the use of defective or unsatisfactory materials or bad workmanship.

7. SUPPLIER'S FUNCTIONS

- 7.1. The Supplier shall provide everything necessary for proper execution of the works, according to the drawings, schedule of quantities and specifications taken together whether the same may or may not be particularly shown or described therein, provided that the same can reasonably be inferred there from and if the Supplier finds any discrepancy therein, Supplier shall immediately refer the same to the Purchaser whose decision shall be final and binding on the Supplier.
- 7.2. The Supplier shall proceed with the work to be performed under this Contract in the best and workman like manner by engaging qualified and efficient workers and finish the work in strict conformance with the drawings and specifications and any changes/modifications

7.3. VARIATIONS

- 7.3.1. Variation of Works by Purchaser
 - 7.3.1.1. The Purchaser shall make any variation of the form, quality or quantity of the Works or any part thereof that may, in his opinion,

be necessary and for that purpose, or if for any other reason it shall, in his opinion be desirable, he shall have power to order the Supplier to do and the Supplier shall do any of the following:

- a) Increase or decrease the quantity of any work included in the contract.
- b) Omit any such work.
- c) Change the character or quality or kind of any such work,
- d) Change the levels, lines, position and dimensions of any part of the works, and
- e) Execute additional work of any kind necessary for the completion of the works and no such variation shall in any way vitiate or invalidate the contract, but the value, if any, of all such variations shall be taken into account in ascertaining the amount of the Contract price.

7.3.1.2. No such variations shall be made by the Supplier without an order in writing of the Purchaser. Provided that no order in writing shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an order given under this clause, but is the result of the quantities exceeding or being less than those stated in the Contract/Bill of Quantities. Provided further that if the Supplier shall within seven days confirm in writing to the Purchaser and such confirmation shall not be contradicted in writing by the Purchaser within 14 days, it shall be deemed to be an order in writing by the Purchaser.

7.3.2. Valuation of Variations and Adjustments

7.3.2.1. All extra or additional work done or work omitted by order of the Purchaser shall be valued at the rates and prices set out in the contract if in the opinion of the Purchaser, the same shall be applicable. If the contract does not contain any rates or price applicable to the extra or additional work, then suitable rates or prices shall be agreed upon between the Purchaser and the Supplier. In the event of disagreement, the Purchase shall fix such rates or prices as shall, in his opinion, be reasonable and proper.

7.3.2.2. Provided that if the nature or amount of any omission or addition relative to the nature or amount of the whole of the works or to any part thereof shall be such that, in the opinion of the Purchaser, the

rate or price contained in the Contract for any item of the works is, by reason of such omission or addition, rendered unreasonable or inapplicable, then a suitable rate or price shall be agreed upon between the Purchaser and the Supplier. In the event of disagreement, the Purchaser shall fix such other rate or price as shall, in his opinion, be reasonable and proper having regard to the circumstances.

Provided also that no increase or decrease under sub-clause 7.3.2.1 of this clause or variation of rate or price under sub-clause 7.3.2.2 of this clause shall be made unless, as soon after the date of the order as is practicable and, in the case of extra or additional work, before the commencement of the work or as soon thereafter as is practicable, notice shall have been given in writing:

a) By the Supplier to the Purchaser of his intention to claim extra payment or a varied rate or price.

OR

b) By the Purchaser to the Supplier of his intention to vary a rate or price.

7.3.2.3. If, on certified completion of the whole of the works, it shall be found that a reduction or increase greater than 15 per cent of the sum named in the Letter of Acceptance results from the aggregate effect of all Variation Orders but not from any other cause, the amount of the Contract Price shall be adjusted by such sum as may be agreed between the Supplier and the Purchaser or, failing agreement, fixed by the Purchaser having regard to all material and relevant factors, including the Supplier's site and general overhead costs of the contract.

7.4. The Supplier shall send to the Purchasers representative once in every month an account giving particulars, as full and detailed as possible, of all claims for any additional payment to which the Supplier may consider himself entitled and of all extra or additional work ordered by the Purchaser which he has executed during the preceding month.

7.5. No final or interim claim for payment for any such work or expense will be considered which has not been included in such particulars. Provided always that the Purchaser shall be entitled to authorize payment to be made for any such work or expense, notwithstanding the Suppliers failure to comply with

this condition, if the Supplier has, at the earliest practicable opportunity, notified the Purchaser in writing that he intends to make a claim for such work.

- 7.6. The work shall be carried out as approved by the Purchaser or his authorized representative/s from time to time, keeping in view the overall schedule of completion the project. The Supplier's job schedule must not disturb or interfere with Purchaser's other Suppliers' or Contractors' schedules of day-to-day work. The Purchaser will provide all reasonable assistance for carrying out the jobs.
- 7.7. Night work will be permitted only with prior approval of purchaser. The purchaser may also direct the Supplier to operate extra shifts over and above normal day shift to ensure completion of contract as per schedule. Adequate lighting wherever required should provide by the Supplier at no extra cost. The Supplier should employ qualified electrician and wiremen for these facilities. In case of Supplier's failure to provide these facilities and personnel, the Purchaser has the right to arrange such facilities and personnel and to charge the cost thereof to the Supplier.
- 7.8. The Supplier shall, in the joint names of the Supplier and the Purchaser naming BANAS DAIRY as the beneficiary, insure the received goods and equipment and so far, as reasonably practicable the Works and keep each part thereof insured for the 110% of the Contract. Sum or such other value as may be mutually agreed between the Purchaser and the Supplier against all loss or damage from whatever cause arising, other than the excepted risks, from the date of shipment or the date on which it becomes the property of the Purchaser, whichever is the earlier, until it is taken over by the Purchaser. The Supplier shall insure against the Suppliers liability in respect of any loss or damage occurring while the Supplier is on Site for the purpose of making good a defect or carrying out the Tests on Completion.
- 7.9. The Purchaser shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the employment of the Supplier or any sub-Supplier, save and except an accident or injury resulting from any act or default of the Purchaser, his agents, or servants. The Supplier shall indemnify and keep indemnified the Purchaser against all such damages and compensation, save and except as aforesaid and against all claims,

proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

7.10. The Supplier shall insure against such liability with an insurer approved by the Purchaser, which approval shall not be unreasonably withheld, and shall continue such insurance during the whole of the time that any persons are employed by him on the works shall, when required, produce to the Purchaser or Purchaser's representative such policy of insurance and the receipt for payment of the current premium.

Provided always that, in respect of any persons employed by any sub-supplier, the Suppliers obligations to ensure as aforesaid under this sub-clause shall be satisfied if the sub-supplier shall have insured against the liability in respect of such persons in such manner that the Purchaser is indemnified under the policy, but the Supplier shall require such sub-supplier to produce to the Purchaser or Purchaser's representative, when required, such policy of insurance and the receipt for the payment of the current premium.

7.11. Whenever proper execution of the work under the Contract depends on the jobs carried out by some other supplier, in such cases the Supplier should inspect all such erection and installation jobs and report to the Purchaser regarding any defects or discrepancies. The Supplier's failure to do so shall constitute as acceptance of the other supplier's installation/jobs as fit and proper for reception of Supplier's works except those defects which may develop after execution. Supplier should also report any discrepancy between the executed work and the drawings.

7.12. The Supplier shall extend all necessary help/co-operation to other suppliers working at the site in the interest of the work.

7.13. The Supplier shall keep a check on deliveries of the Goods covered. in the scope of erection work and shall advise the Purchaser well in advance regarding possible hold-up in Supplier's work due to the likely delay in delivery of such Goods to enable him to take remedial actions.

7.14. The Supplier shall be permitted to substitute equipment of equal or better performance subject to approval by the Purchaser; which approval shall not be unreasonably withheld, provided however that the Supplier establishes to the Purchaser's satisfaction that the performance of the substituted equipment is equal or better than the performance of the equipment specified in the contract and without any increase in the Contract price.

8. DUTIES OF THE PURCHASER VIS-A-VIS THE SUPPLIER:

- 8.1. The Goods, if any, to be supplied by the Purchaser for erection, testing and commissioning by the Supplier, shall be as listed in the Contract.
- 8.2. Besides the utilities/services as specified in battery limits the following assistance/ facilities shall also be provided to the Supplier by the Purchaser for carrying out the installation work.
 - 8.2.1. Plant building for Cow Urine reception, processing, and packaging and for services including internal lighting will be made available by the Purchaser.
 - 8.2.2. Supplier shall carry-out final adjustments of foundations, levelling and dressing of foundation surfaces, bedding and grouting of anchor bolts, bed plates etc. required for seating of equipment in proper position. The Supplier shall be responsible for the reference lines and proper alignment of the equipment. However, all minor civil works which form and inseparable part of the installation and erection job like digging trenches for laying of cables, conduits and underground pipes, making cut-outs in walls, floors and ceilings for pipelines, adjustment, levelling, dressing and grouting of foundations, grouting of supports are to be carried out by the Supplier at no extra cost. The necessary refilling/repairs of these cut outs, pockets and trenches shall be done by the Supplier. The Supplier should arrange for laying the supports, cut outs, grouting of bolts, etc. when the civil works are in progress, so as to avoid refilling repair works. The damages occurring to civil and other works are to be made good by the Supplier at Supplier's own costs.
 - 8.2.3. Necessary temporary water for carrying out the installation shall be supplied at only one point within the project site by the Purchaser free of charge. All necessary distribution tapings from this point onwards shall be the Supplier's responsibility.
 - 8.2.4. Necessary temporary power for carrying out the installation shall be supplied at only one point within the project site by the Purchaser free of charge. All necessary distribution tapings from this point onwards shall be the Supplier's responsibility.

8.3. The details of temporary water and power requirements shall be furnished one month in advance by the Supplier to enable the Purchaser to make timely arrangement.

8.4. If the Supplier suffers delay from failure on the part of the Purchaser to give possession of the civil works in accordance with the mutually agreed schedule, the Purchaser shall determine any extension of time to which the Supplier is entitled under Clause 22 of GCC.

9. SUPPLY OF TOOLS, TACKLES AND MATERIALS

The Supplier shall, at his own expense, provide all the necessary equipment, tools and tackles, haulage power, consumables necessary for effective execution and completion of the works during erection and commissioning.

10. PROTECTION OF PLANT

10.1. The Purchaser shall not be responsible or held liable for any damage to person or property consequent upon the use, misuse or failure of any erection tools and equipment used by the Supplier or any of Supplier's sub-suppliers even though such tools and equipment may be furnished, rented or loaned to the Supplier or any of Supplier's sub-suppliers. The acceptance and/or use of any such tools and equipment by the Supplier or Supplier's sub-supplier shall be construed to mean that the Supplier accepts all responsibility for and agrees to indemnify and save the Purchaser from any and all claims for said damages resulting from the said use, misuse or failure of such tools and equipment.

10.2. The Supplier and Supplier's sub-supplier shall be responsible, during the works, for Protection of work, which has been completed by other Suppliers. Necessary care must be taken to see that the Suppliers men cause no damage to the same during the course of execution of the work.

10.3. All other works completed or in progress as well as machinery and equipment that are liable to be damaged by the supplier's work shall be protected by the Supplier and protection shall remain and be maintained until its removal is directed by the Purchaser.

10.4. The Supplier shall effectively protect from the effects of weather and from damages or defacement and shall cover appropriately, wherever required, all the works for their complete protection.

- 10.5. The work shall be carried out by the Supplier without damage to any work and property adjacent to the area of Supplier's work to whomsoever it may belong and without interference with the operation of existing machines or equipment.
- 10.6. Adequate lighting, guarding and watching at and near all the storage handling, fabrication, and pre-assembly and erection sites for properly carrying out the work and for safety and security shall be provided by the Supplier at Supplier's cost. The Supplier should adequately light the work area during night time also. The Supplier should also engage adequate electricians/wiremen, helper etc. to carry out and maintain these lighting facilities. If the Supplier fails in this regard, the Purchaser may provide lighting facilities as he may deem necessary and charge the cost thereof to the Supplier.
- 10.7. The Supplier shall take full responsibility for the care of the works or any section or portions thereof until the date stated in the taking over certificate issued in respect thereof and in case any damage or loss shall happen to any portion of the works not taken over as aforesaid, from any cause whatsoever, the same shall be made good by and at the sole cost of the Supplier and to the satisfaction of the Purchaser. The Supplier shall also be liable for any loss of or damage to the works occasioned by the Supplier or the Supplier's Sub-Supplier in the course of any operations carried out by the Supplier or by the Supplier's Sub-Suppliers for the purpose of completing any outstanding work or complying with the Supplier's obligations.

11. UNLOADING, TRANSPORTATION AND INSPECTION

- 11.1. The Supplier shall be required to unload all the Goods from the carriers, received at site after Supplier's team arrives at site. The Supplier shall plan in advance, based the information received from their Purchaser, Supplier's requirement of various tools, tackles, jacks, cranes, sleepers etc. required to unload the material/equipment promptly and efficiently. The Supplier shall ensure that adequate and all measures necessary to avoid any damage whatsoever to the equipment at the time of unloading are taken. Any demurrage/detention charges incurred due to the delay in unloading the material equipment and releasing the carriers shall be charged to the Supplier's account. The Supplier shall be responsible for receipt at site of all Goods and Supplier's equipment delivered for the purposes of the Contract.

- 11.2. The Supplier shall safely transport/shift the unloaded Goods and equipment to the storage area.
- 11.3. In case of turnkey contracts, the cost incurred on unloading of all the Goods received by the Purchaser prior to arrival of the Supplier at site shall be debited to the Supplier and all such goods shall be handed over to the Supplier when it reports at site and there upon the Supplier shall inspect the same and furnish a receipt to the Purchaser. The manner in which the inspection shall be carried out is enumerated below:
- 11.3.1. The materials/equipment would be carefully unpacked by opening the wooden cases /other modes of packing as the case may be.
- 11.3.2. Detailed inventory of various items would be prepared clearly listing out the shortages, breakages/damages after checking the contents with respect to the supplier's packing list, the Purchasers Contract and approved equipment drawings. The Supplier shall also check every equipment for any shortage/shortcoming that may eventually create difficulty at the time of installation or commissioning.
- 11.3.3. All the information and observations by the Supplier shall be furnished in the form of 'INSPECTION REPORT' to the Purchaser with specific mention / suggestions which in the opinion of the Supplier should be given due consideration and immediate necessary actions, to enable the Purchaser to arrange repair or replacement well in time and delays due to non-availability of equipment and parts at the time of their actual need.
- 11.3.4. The inspection for all the Goods handed over to the Supplier shall be completed three week's period.
- 11.4. The protection, safety and security of the Goods so taken over from the Purchaser the responsibility of the Supplier, until they are handed over to the Purchaser after erection commissioning and testing as per the terms of the contract.

12. STORAGE OF GOODS

The Supplier shall be responsible for the proper storage and maintenance of all under Supplier's custody. Supplier shall take all required steps to carry out inspection of equipment/materials stored as well as erected equipment until the same taken over by the Purchaser. The following procedure shall apply for the same.

- 12.1. The Supplier's inspector shall check stored and installed Goods to observe signs of corrosion, damage to protective coating to parts, open ends in pipes, vessels equipment, insulation resistance of electrical equipment etc. The Supplier shall immediately arrange a coat of protective painting whenever required. A record of all observations mentions on Goods, defects noticed shall be promptly communicated to the Purchaser Purchaser's advice taken regarding the repairs/rectifications. The Supplier shall there carry out such repairs/ rectifications at Supplier's own cost. In case the Supplier is competent to carry out such repairs/ rectifications, the Purchaser reserves the right to have this done by other competent agencies at the Supplier's responsibility and risk and entire cost for the same shall be recovered from the Supplier's' bills.
- 12.2. The Supplier's inspector shall also inspect and provide lubrication to the assembled Good. The shafts of such equipment shall be periodically rotated to prevent rusting as well as check freeness of the same.
- 12.3. The Inspector shall check for any signs of moisture or rusting in any Goods.
- 12.4. If the commissioning of Goods is delayed after installation of the Goods, the Supplier shall carry out all protective measures suggested by the Purchaser during such period.
- 12.5. Adequate security measures shall be taken by the Supplier to prevent theft and loss of Goods handed over to the Supplier by the Purchaser. The Supplier shall carry out periodical inventory checks of the Goods received, stored and installed by the Supplier and any loss noticed shall be immediately reported to the purchaser. A proper record of these inventories shall be maintained by the Supplier. The Supplier should not sell, assign mortgage, hypothecate or remove Goods which have been installed or which may be necessary for completion of the work without the written consent of the Purchaser.
- 12.6. A suitable grease recommended for protection of surfaces against rusting (refined from petroleum oil with lanclin minimum (70 deg C) and water in traces) shall be applied over Goods as required once in every six months.
- 12.7. All Goods shall be stored inside a closed shed or in the open depending upon whether are of indoor or outdoor design. The space heaters where provided into the equipment shall be kept connected with power supply irrespective of their type of storage.

Where space heaters are not provided adequate heating with bulb is recommended. For transformers heating of oil shall be done by giving 440 V supply and short-circuiting the LT terminals. Frequent checks on insulation resistance are essential for all electrical equipment and record of the inspection reports and megger readings shall be maintained equipment wise. Such records shall be presented to the Purchaser whenever demanded.

- 12.8. All the necessary Goods required for protection as described above shall be arranged by the Supplier and such cost shall be included in the Contract Price.

13. APPROVALS

- 13.1. The Supplier shall obtain the necessary approvals of the Factory inspector, Boiler Inspector, Electrical Inspector, Weights & Measures Inspector, Explosive Inspector and any other state and local authorities as may be required and the cost of obtaining such approvals shall be included in the Contract Price. All the necessary details, drawings, submission of application and proformas will be furnished by the Supplier to the purchaser for verification/ signature. The necessary application duly filled-in, together with the prescribed fees shall be submitted to the appropriate authorities by the Supplier on behalf of the Purchaser, however all the actual statutory prescribed fees paid by the Supplier shall be reimbursed by the Purchaser upon production of the receipt/vouchers.
- 13.2. Wherever necessary or required, the Supplier shall furnish the necessary test and/or inspection certificates etc. from the appropriate authorities as per IER and other statutory regulations and the cost for obtaining these certificates shall be included in the Contract Price.

14. REVIEW AND CO-ORDINATION OF ERECTION WORK

The Supplier shall depute senior and competent personnel to attend the site co-ordination meetings that would generally be held at the site every month. The Supplier shall take necessary action to implement the decisions arrived at such meetings and shall also update the erection schedule.

15. EXTENSION OF TIME FOR COMPLETION

Should the amount of extra or additional work of any kind or any cause of delay referred to in these conditions, or exceptional or adverse climatic conditions, or other special circumstances of any kind whatsoever which may occur, as described in Clause 25 of the General Conditions of Contract, other than through a default of the Supplier, be such' as fairly to entitle the Supplier to an extension of time for the completion of the works, the Purchaser shall determine the amount of such extension and shall notify the Supplier accordingly. Provided that the Purchaser is not bound to take into account any extra or additional work or other special circumstances unless the Supplier has within twenty-eight days after such work has been commenced, or such circumstances have arisen, or as soon thereafter as is practicable, submitted to the Purchaser full and detailed particulars of any extension of time to which he may consider himself entitled in order that such submission may be investigated at the time.

Section – IV

Special Conditions of Contract

Part – III – A: Terms and Conditions for Mechanical Installations

1. MECHANICAL INSTALLATION

The installation work would comprise:

- a. General installation i.e. positioning and installing all the processing, miscellaneous and service equipment as per approved layout drawings and as per the contract.
- b. Supply and installation of structural platforms and tables.
- c. Supply and installation of all service and product piping including ancillary items.
- d. Insulation and cladding of piping and equipment including supply of materials.
- e. Interconnections of services and electrical with equipment.
- f. Guide line for erection work.
- g. Clean up of work site.
- h. Supply of all cleaning chemicals (except CIP chemicals) and lubricants.
- i. Testing, commissioning and start-up.
- j. Painting including supply of paints as approved by the Owner.
- k. Training of personnel.

Detailed specifications are given in the subsequent clauses.

2. GENERAL INSTALLATION

2.1. Positioning of Equipment

The work involves preparation of access for moving of the plant and equipment including their fittings from the work site godown or from the place within the site where they have been unloaded, to the place of erection, decorating and placing on the – foundation wherever required. All the civil foundations as per the manufacturer/supplier's drawings shall be arranged by the Owner. The Supplier shall place the equipment and carry out final adjustment of the foundations including alignment and dressing of foundation surface, embedding and grouting of anchor bolts and bedplates. The Supplier shall be responsible for obtaining correct reference

lines for purpose of fixing the alignment of various equipment from master benchmarks provided by the Owner.

Tolerances shall be as specified in equipment manufacturers drawings or as stipulated by the Owner's Engineer. No equipment shall be permanently bolted down to foundations or structure until the alignment has been checked by the Supplier and witnessed by the Purchaser. The Supplier shall carry out minor alterations in the anchor bolts, pockets etc., at no extra cost and set the equipment properly as per approved layout, drawings and manufacturer's instructions. The Supplier shall supply all the necessary foundation/ anchor bolts and bedplates if required without extra cost.

The Supplier shall supply, fix and maintain, at his own cost, during the erection work, all the necessary centering, scaffolding, staging required not only for proper execution and protection of the said work but also for protection of the surrounding plant and equipment. The Supplier shall take out and remove any or all such centering, scaffolding, staging planking etc., as occasion shall require or when ordered to do so and shall fully reinstate and make good all things disturbed during execution of the work, to the satisfaction of the Owner. The Supplier shall be paid no additional amount for the above.

2.2. Structural Platforms, Service Pipe Bridge and Tables

Structural platforms shall be required to provide access for various equipments. Pipe support bridges/gantry shall be required for supporting the pipes from the ground, including road crossings outside the buildings. Tables shall be required for handling milk/milk products. These platforms, bridges/ gantry and tables shall be fabricated keeping stability and other functional as well as aesthetic requirements into consideration as approved by the Owner. The payment shall be made on the basis of the actual weight executed and the unit rates agreed upon or as per provisions made in the contract for such items.

The purchaser shall arrange for any civil works required for the above works based on the drawings and load details provided by the bidder. Necessary templates and other accessories required by the civil contractor shall be provided by the bidder.

3. SERVICE PIPING INSTALLATION

3.1. General Guidelines

All piping systems shall comply with the latest editions of the following regulations wherever applicable.

3.1.1. All applicable Indian Standards.

3.1.2. All applicable State Government/ Central Government laws / acts.

3.1.3. The Supplier has to prepare all erection drawings of the proposed plant including equipment positions and service-piping positions (isometric), spacing between pipes, all other relevant details and submit these drawings to BANAS DAIRY for approval.

3.2. Scope of Supply

The Supplier shall supply all piping materials like pipes, fittings, flanges measuring instruments and all other items as shown in the flow diagram/specifications and schedule of quantities. All the pipes & fittings and insulation material etc. should be of class and make as approved by the Owner. Prior approval of the Owner must be obtained by the Supplier for the class and make of all materials The Supplier should furnish the details of makes selected by him in the proforma given in Annexure 1

3.3. Scope of Piping Erection

This to be performed by the Supplier as outlined below

3.3.1. The scope of erection for piping includes all system covered in the flow diagrams and specifications.

3.3.2. The Suppliers work commences/terminates at the pipe connections with valves flanges as specified in flow diagrams/battery limits.

3.3.3. The Supplier shall also install necessary piping and any specialties furnished with or for equipment such as relief valves built in pass and other items of this type.

3.3.4. The Supplier shall install primary elements for flow measurements control valves and on-line metering equipment.

3.3.5. The Supplier shall perform necessary internal machining of pipes for installing orifices, flow nozzles control valves etc.

3.3.6. The Supplier shall install all pipes valves and specialties being procured from other sources

3.4. Testing of Piping

3.4.1. The Supplier shall test all piping systems mentioned below including valves and specialties and instruments as per procedure mentioned under 3.4.4

- a. H.P. & L.P. Steam piping
- b. Glycol & Chilled water piping
- c. Furnace oil & diesel piping
- d. Soft and raw water
- e. Air
- f. SS Piping
- g. Ammonia
- h. Molasses

3.4.2. All piping shall be internally cleaned and flushed by the Supplier after erection in a manner suited to the service and as directed by the Owner.

3.4.3. For hydrostatic testing and water flushing, the Supplier shall furnish necessary pumps, equipment, instruments and piping etc.

3.4.4. The details of testing pressures for various pipelines are mentioned below:

Sr. no.	Name	Test Pressure Kg/cm ²	Test Medium	Duration of Test (hour)	Allowable pressure Drop Kg/cm ²
1	Steam Pipelines				
1a	H.P.Steam	27	Water	1/2	0
1b	L.P.Steam	8	Water	1/2	0
2	Water Pipelines				
2a	Raw water, soft Water	8	Water	1/2	0
2b	Chilled water and Glycol	8	Water	1/2	0
3	Furnace oil/ LSHS Pipelines	16	Water	1/2	0
4	SS pipes for Cow Urine Feed & Product	6	Water	1/2	0
5	Air Pipelines	12	Air	81	0.1
6	Vapor Pipelines				
6a	Suction	16	Nitrogen	24	0.2
6b	Discharge	24	Nitrogen	24	0.2
6c	Vacuum Test for Complete MVR Unit	Absolute Zero	Vacuum	48	NIL

3.5. Other Guidelines

- 3.5.1. Colour code shall be used to identify pipe material. The Supplier shall be able to identify on request all random piping prior to held fabrication.
- 3.5.2. The Supplier shall be responsible for the quality of welding done by them and shall conduct tests to determine the suitability of the welding procedure by him.
- 3.5.3. All piping supports, guides, anchors, hangers, rollers with structural framework shall be supplied and erected by the Supplier. Only anchor fasteners of adequate size shall be provided for anchoring supports from RCC structures and Hilti Gun shall be used for fastening the anchors. The kinds of pipe support like CI clamps, PUF/wooden saddles, roller supports and support framework shall be as per the design approved by the Owner prior to taking up the work.
- 3.5.4. All piping shall be suspended, guided and anchored with due regard to general requirements and to avoid interference with other pipes, hangers, electrical conduits and their supports, structural members and equipment and to accommodate insulation and conform to buildings structural limitations. It is the responsibility to the piping Supplier to avoid all interference while locating hangers and supports.
- 3.5.5. Anchors and/or guides for pipelines or for other purposes shall be furnished, when specified, for holding the pipeline in position for alignment. Hangers shall be designed fabricated and assembled in such a manner that they cannot become disengaged by any movement of the support pipes.
- 3.5.6. All piping shall be wire brushed and purged with air blast to remove all rust, mill scale from inner surface. The method of cleaning shall be such that no material is left on the inner or on outer surfaces which will affect the serviceability of the pipes a thin coat of any lubricating oil shall be applied on entire inner surface of steel pipes (black) to prevent rusting.
- 3.5.7. Effective precautions such as capping and sealing shall be taken to protect all pipe ends against ingress of dirt and damage during transit or storage. The outside of the steel pipes (black) shall be painted with two coats of red oxide paint or as directed by the Owner.
- 3.5.8. All pipes in the corridor shall be supported from the sidewall.
- 3.5.9. SS box section pipe supports for services in process & packaging areas as well as Cow Urine lines shall be provided by the supplier. Box section

pipe supports for services and cable trays in other areas shall be of steel of suitable thickness coated with rust preventive paints and finish coated with dark admiral grey of approved shade. Where pipes and clamps are of dissimilar material, gaskets shall be provided in between. Spacing of utilities pipe supports shall not exceed the following:

Pipe size	Spacing between supports
Up to 12mm	1.5m
15 to 25mm	2.0m
30 to 150mm	2.0m
Over 150mm	2.5m

- 3.5.10. Vertical risers shall be parallel to walls and column lines and shall be straight and in plumb. Risers passing from floor to floor shall be supported at each floor slab by clamps or collars attached to pipe and with a 15mm thick rubber pad or any resilient material. Where pipes pass through the terrace floor, suitable flashing shall be provided to prevent water leakage. Risers shall have a suitable clean out at a lower point and air vent at the highest point.
- 3.5.11. Pipe sleeves at least 3mm thick, 50mm/100mm larger in diameter than the pipes shall be provided wherever pipe passes through walls and slabs. Annular space shall be filled with fiber glass and finished with retainer rings. No extra payment shall be made on account of providing the sleeves.
- 3.5.12. All piping works shall be carried out in a workman like manner, causing minimum disturbance to the services, buildings, roads and structures. The entire piping work shall be organized, in consultation with other agencies work, so that laying of pipe support, pipes and pressure testing for each area shall be carried out in one stretch.
- 3.5.13. Cutouts details in the floors and slabs for installing various pipes are to be provided by the contractor immediately after receipt of the purchase order, so as to make the cutouts ready by civil contractor.
- 3.5.14. The contractor shall make sure that the clamps, brackets, clamp saddles and hangers provided for pipe supports are adequate. Piping layout shall take due care for expansion and contraction in pipes and include expansion joints wherever required.

- 3.5.15. All pipes shall be accurately cut to the required size in accordance with the relevant BIS code and burrs removed before laying. Open ends of the piping shall be closed as the pipe is installed to avoid ingress of foreign matters. Where reducers are to be made in horizontal runs, eccentric reducers shall be used for piping to drain fully. In other locations concentric reducers may be used.
- 3.5.16. All buried pipes shall be cleaned and coated with zinc chromate primer and bitumen paint, then wrapped with three layers of fiber glass tissue, each layer laid in bitumen.
- 3.5.17. Auto purge valve shall be provided with all high points in the piping system for venting. Vent valve shall be of pipe size with screwed joints. Discharge from the vent valves shall be piped through an equal size mild steel, hot galvanized pipe to the nearest drain or sump. These pipes shall be pitched towards drain point.
- 3.5.18. Tee-off connections shall be through equal or reducing tees. Otherwise, ferrules welded to the main pipe shall be used. Drilling and tapping of the walls of the main pipe shall not be resorted to.

4. SPECIAL INSTRUCTIONS AND SPECIFICATIONS

4.1. Steam Piping

- 4.1.1. Steam piping work can be classified into two categories:
- a. High-pressure steam piping when the working pressure of steam is more than 3.1 kg/sq.cm (50 psi).
 - b. Low pressure steam piping when the working pressure of steam is below 3.1 kg/sq.cm (50 psi).

All the pipes and fitting used for high pressure steam piping work should conform to IBR and they should be IBR certified and also to be identified with number and mark showing that they are tested by the Boiler Inspector and supported with duly authentic certificates to this effect. ALL HIGH-PRESSURE STEAM PIPES SHALL BE SEAMLESS TYPE, SCHEDULE 40.

4.1.2. The high-pressure steam piping after installation should be hydraulically tested in presence of the Boiler Inspector for his approval.

4.1.3. The high-pressure steam piping work should also include fabrication and installation of pressure reducing stations strictly conforming to IBR.

4.2. Chilled Water Piping:

All the piping for chilled water, glycol, ammonia, soft & raw water, steam and condensate, furnace oil, and air shall be generally of welded construction. Whenever welding is done for pipes of smaller size special care should be exercised to avoid clogging of flow area with the welding material.

4.3. SS Piping:

4.3.1. Generally, all SS piping for process and CIP shall be of welded construction. However, SMS unions may be used as per the process requirement or as directed by the Engineer In-charge. The overhead and ground pipe supports for SS piping shall be of SS square sections of suitable wall thickness. The accessories like nipples, clamps, base plates etc. are included in the scope of this package shall be provided by the supplier.

4.3.2. Pipe supports for straight length of SS piping are to be provided at suitable distance as instructed by Engineer-in-charge to avoid any sag or hang in the pipelines.

4.3.3. PROCEDURE TO BE ADOPTED FOR SS WELDING

- a. The SS pipes shall be cut square and joints to be prepared without damage to the electro polishing of the pipes.
- b. The welding shall be done using TIG welding procedure with inert gas masking to prevent oxidation of the joints.
- c. The joints then shall be cleaned using proper abrasive material such as 3M abrasive weld cleaning cloth so that proper polishing is maintained at the weld joints.
- d. Weld penetration of the inner side of the pipe shall be avoided.

5. INSULATION OF PIPING AND EQUIPMENT

5.1. Insulation of Cooling Water, Glycol and Vapor Pipeline

All the chilled water pipelines shall be insulated by expanded polystyrene or urethane foam or another hi grade insulation acceptable to the Purchaser. This insulation could be in pre-formed sections or cast in situ. The insulation with pre-formed sections shall be carried out in the following manner.

5.1.1. Before starting insulation work all pipelines shall be tested for 8.5 kg/sq. cm pressure.

- 5.1.2. The surface of the pipes to be insulated should be properly cleaned.
- 5.1.3. Hot bitumen of 85/40 or 85/25 conforming to IS 702 should be applied uniformly @ 1.5 kg per sq. m. on the surface of the pipes.
- 5.1.4. A similar layer of bitumen should be applied on the inner surface and on the edges of the insulation sections.
- 5.1.5. The sections should then be stuck to the coated pipes with joints staggered. Adjacent sections should be tightly pressed together.
- 5.1.6. All joints should be properly sealed with bitumen.
- 5.1.7. A thick vapor seal of hot bitumen @ 2.5 kg/sq. cm should be applied uniformly on the outer surfaces of the pipe sections and allowed to dry.
- 5.1.8. In case the insulation sweats or the specified/required insulation properties are not attained, the entire insulation in such region shall be redone with fresh material, entirely at the Supplier's cost.
- 5.1.9. The thickness of insulation may be as per Annexure II.

Note: In site insulation shall be carried out as per standard procedure.

5.2. INSULATION OF STEAM, CONDENSATE AND HOT WATER PIPE LINES.

- 5.2.1. All the steam and hot water pipelines shall be insulated with mineral wool or equivalent resin bonded pipe section of specified thickness. The insulation shall be carried out in the following manner and should be supplied in the form of properly required sizes.
- 5.2.2. Clean the surfaces to be insulated. Apply a coat of red oxide primer and fix glass wool / mineral wool / resin bonded pipe section of specified thickness, tightly to the pipes, butting all joints and tie with lacing wire.
- 5.2.3. It should then be covered with GI wire netting of 20 mm x 24 SWG.
- 5.2.4. In case the insulation does not have the desired insulation properties, the entire insulation will have to be redone at the Supplier's cost to give the desired results.
- 5.2.5. In case of condensate return piping all the steps mentioned above shall be executed except that thickness of the insulation shall be 25 mm.

5.3. Aluminium /GI Cladding

- 5.3.1. The ammonia accumulators, chilled water, ammonia, water, steam & hot water lines after insulations shall be covered by Aluminium / GI cladding as per the requirement and the payment will be made as per the executed items.

- 5.3.2. Aluminium cladding will be done with 22-gauge aluminium sheet with proper grooves and overlaps and screwed in position with 12 mm. self-tapping parker screws.
- 5.3.3. GI sheet cladding will be done with 22-gauge sheet with proper grooves and overlaps and screwed in position with 12 mm self-tapping parker screw. The GI sheet cladding will final paint with 2 coats of approved shade and quality of paint.
- 5.3.4. All the necessary materials of quantity and make approved by the Owner, required for carrying out insulation, cladding and other works mentioned above, shall be supplied by the Supplier.

6. INTER CONNECTIONS OF SERVICE AND ELECTRICALS WITH EQUIPMENT

- 6.1. The Supplier shall lay service piping and provide connections with the equipment complying strictly with the equipment manufacturers' instructions. The Supplier shall also carry out all the interconnecting service piping with the various items of plant/system. The work shall be complete with capillary piping if required and connections with instruments and controls supplied with the equipment.
- 6.2. The Supplier shall also carry out electrical connections for equipment with the control panels including equipment lighting as per the wiring diagrams of the equipment suppliers.
- 6.3. Connection shall be made for small electrically operated devices on equipment installed as accessories to, or assembled with equipment. Connections regarding instruments, float switches, limit switches, pressure switches, thermostats and other miscellaneous equipment shall be done as per manufacturers' drawings and Instructions.

7. GUIDELINES FOR ERECTION WORK

7.1. Shutdowns

Plant shutdown shall be required for making tappings /interconnections of the new equipment proposed to be installed with the existing equipment. These shut downs should be planned carefully well in advance to enable the Owner to take suitable actions for ensuring normal Plant operations. The details of shut downs; the numbers and duration should be worked out and intimated to the Owner for approval. The Supplier should ensure completion

of all the necessary works well within the allowed time so that no inconvenience is caused in regular operation and working of the existing plant.

7.2. Cleanliness

Wherever the Supplier is required to work in existing plant area he should take due care and extra precautions to ensure absolute cleanliness and minimum hindrance for proper working of the existing plant.

7.3. Change over

The programmes for change over from existing plant system to new plant system should be prepared by the Supplier and should be got approved by the Owner.

7.4. Modifications and rectifications of existing plant and equipment

During Erection work, the Supplier shall be required to carry out modifications, repairs/replacement of the existing equipment. The alterations/modifications not specified in the contract/order and or minor in nature requiring not more than 24 man-hours for each item, will be carried out by the Supplier without any extra cost.” However, if the modifications are of major nature and if not specified in the Contract/order, the Supplier shall be paid for such works based on man-hour rates.

8. CLEAN UP OF WORKS SITE

8.1. All soils, filth or other matters of an offensive nature taken out of any trench, drain or other places shall not be deposited on the surfaces, but shall at once be carted away by the Supplier from the site of work for proper disposal.

8.2. The Supplier shall not store or place the equipment, materials or erection tools on the drive ways and passages and shall take care that his work in no way restricts or impedes traffic or passage of men and materials during erection, The Supplier shall without any additional payment, at all-time keep the working and storage area used by him free from accumulation of dust or combustible materials, waste materials rubbish packing, wooden planks to avoid tire hazards and hindrance to other works.

8.3. If the Supplier fails to comply with these requirements in spite of written instructions from the Owner, the Owner will proceed to clear these areas and

the expenses incurred by the Owner in this regard shall be payable by the Supplier. Before completion of the work, the Supplier shall remove or dispose-off in a satisfactory manner all scaffolding, temporary structures, waste and debris and leave the premises in a condition- satisfactory to the Owner. Any packing materials received with the equipment shall remain as the property of the owner and may be used by the Supplier on payment of standard charges to the Owner and with prior approval of the Owner. At the completion of his work and before final payment, the Supplier shall remove and shall restore the site to neat workman like conditions at his cost.

9. CLEANING CHEMICALS AND LUBRICANTS

The necessary quantities of cleaning chemicals (except CIP chemicals) and the first charge of oil and lubricants required for the installation, commissioning, testing and start of all the equipment till handing over are to be supplied by the Supplier and nothing extra would be paid for these.

10. TESTING, COMMISSIONING AND START-UP

- 10.1. The Supplier shall operate, maintain and give satisfactory trial run of the plant in such manner and for such periods as has been specified in Section VI (Technical Specifications). All rectification of damages defects during the trial period should be carried out by the Supplier.
- 10.2. The commissioning shall also include the following for each equipment:
 - 10.2.1. Field disassembly and assembly of equipment, instruments and controls where required for access to fixing or adjustment.
 - 10.2.2. Clean out of lubrication system including chemical cleaning wherever required.
 - 10.2.3. Circulation of lubricant to check flow.
 - 10.2.4. Clean out and check out of all the service lines.
 - 10.2.5. Check out and commissioning of instruments, equipment and plants, filtering of transformer and other oils so that if deteriorated, they shall attain the required properties/standards, specified tests in this regard must be carried out by approved authorities and their satisfactory reports submitted to the Owner before start-up.
 - 10.2.6. Recharging or make-up filling of lubricant oil up to the desired level in the lubrication system of individual machine.

- 10.2.7. Operation in empty condition to check general operation details wherever required and wherever possible.
 - 10.2.8. Closed loop dynamic testing with water wherever required.
 - 10.2.9. Operation under load and gradual load increase to attain maximum rated output.
 - 10.2.10. Trouble shooting during the trial period.
- 10.3. The Supplier shall demonstrate proper working of all mechanical and electrical controls; safety and protective device, in presence of the Owner's engineer and the same should be duly recorded.

Commissioning of automation system:

The supplier should provide a detailed schedule of testing all automation and control systems.

All controlled or monitoring devices on the plant should be tested from the relevant control centre and recorded to be operating as designed, including feedback detection.

A log of these operations is to be maintained, and each completed group of tests to be signed by the supplier's commissioning engineer.

The purchaser reserves the right to witness as much of these test procedures, as he may feel necessary.

Testing procedures and commissioning period will be as specified in Section VI.

- 10.4. After conducting testing, in case, a particular equipment is not working properly or not giving rated output the Supplier will furnish a detailed report to the Owner stating therein the detailed account on the performance of the equipment with possible reasons for improper or not working of the same and will arrange the visit of the representative of original manufacturers to get the same commissioned satisfactorily.
- 10.5. After satisfactory commissioning and start-up, the Supplier shall keep/depute his representatives at the plant in the manner, for the duration and for the performance of such tasks as specified in Section VI. During this period the Supplier shall ensure proper working of complete plant and equipment and attend any works required to be done for proper operation of the complete plant and equipment.

11. PAINTING

All the equipment/machineries like motors, pumps, HT/LT panel, transformer, switch boards, starters, junction boxes, isolators, storage tanks, supporting structures, pipe supports and MS/GI pipes and all exposed and visible iron parts included in the scope of erection/commissioning shall be given double coat of paint of approved shade over a double coat of anti-corrosive primer wherever necessary irrespective of the condition of original paint of equipment machineries/ structures/supports. All surfaces, wherever required, must be properly cleaned from scale, dirt and grease prior to painting. Spray painting must preferably be used on all the equipment/machineries and wherever practicable. Suitable and necessary cleaning/ wiping of sight/dial glasses, other non- metallic parts, flooring, walls and other surfaces which have been spoiled by paint during painting must also be carried out by the Supplier.

Lettering and other markings, including capacity and flow direction markings, shall also be carried out by the Supplier on the tanks, pipe lines, starters and wherever else necessary, as directed and as per the standard practice of installation. BIS colour codes and colour charts as mentioned in Annexure - III must be adhered to.

Supply of all paints and all other materials required for painting is included in the scope of The Supplier under this contract/order.

12. TRAINING OF PERSONNEL

Necessary staff as may be deputed by the Owner shall be trained by the Supplier for operating the plant. The personnel will be associated for the training during the installation; testing, commissioning and start-up period and the training tenure shall be extended for a minimum period of six months from the date of commissioning and start-up. This training will be a continuous process during commissioning and stand by period and as described in the Technical Specifications.

GENERAL SPECIFICATIONS FOR PIPES AND FITTINGS

PIPING			
Service	Material	Specification	Ends
HP Steam (IBR Approved)	Heavy duty, seamless Cast Steel	Schedule 40, ASTM A 53	Piping to be welded type
LP Steam	ERW, Heavy duty (C class)	BIS: 1239, 3601	Piping to be welded type

Air	ERW, Heavy duty (C class)	BIS: 1239, 3601	Piping to be welded type
Refrigerant, including oil, Purger, vent, line (minus 19 Deg C and above)	Steel pipe (Seamless)	BIS :1239/ BIS : 3589/ SA106	Piping to be welded type
Refrigerant Piping (minus 20 Deg C and below)	Steel pipe (seamless)	ASTM A 333 Grade	Piping to be welded type
Evaporative condenser tube	Steel pipe (seamless)	ASME B31.5 compliant	Piping to be welded type
Water circulating pipelines / chilled water lines (up to 150 NB)	Galvanised steel (ERW) medium duty class B	BIS :1239	Piping to be welded type
Water circulating pipelines / chilled water lines (above 150 NB)	Galvanised steel (ERW) medium duty class B	BIS: 3589	Piping to be welded type
Make up water supply, bleeds, drains, defrosting water, etc	Galvanised steel (ERW) medium duty class B	BIS :1239 /BIS: 3589	Piping to be welded type
SS Piping (Cow Urine)	TIG welded, annealed and descaled, outside mirror polished & inside pickled as per dairy standard	AISI 304	Product lines unions with SMS unions (welded in automated dairy) & CIP dairy lines with welded joints

MANUALLY OPERATED VALVES

Service	Material	Specification	Ends
HP Steam (IBR Approved)	Cast steel body Globe /Piston Valve & NRV with SS working parts		Flanged ≥25 NB Screwed < 25 NB
LP Steam	Cast steel /GM body Globe/Piston Valve & NRV with SS working parts		Flanged ≥ 25 NB Screwed < 25 NB
Air	Cast steel / GM body Globe /Piston Valve &NRV with SS working parts rubber (Inert to moisture &. Oil traces)		Flanged ≥ 25 NB Screwed < 25 NB
Refrigerant	Ferrous, globe, lift check.	IS: 11 132 or relevant ASME/ DIN /HAR Standards	flanged ≥ 25 NB Weldable up to 25 NB

Cooling water: Over 75 mm Up to 75 mm	CI, butterfly CS ball valve	IS :778, 1703	Flanged ≥25 NB Weldable up to 25 NB
Water supply, bleeds, and drain	Cast steel ball valve	IS:778	Flanged ≥ 25 NB
Chilled water supply and return lines	Butterfly Valve Swing check	IS :778	Weldable up to 25 NB
Defrost water supply and return	Cast steel ball valve	IS: 778	Flanged ≥ 25 NB
Valves (Cow Urine)	SS AISI 304 plug type Butterfly valves with unions		SMS unions

- The Diaphragm valves shall be of glandless design, self-lubricated and 100% leak tightness unless, otherwise specified and shall be suitable for not less than 10 kg/sq.cm gauge working pressure.
- Flanges shall be of good make. The supply of flanges shall also include supply of bolts, nuts, Washers and suitable asbestos fibre/rubber insertion food grade gaskets (minimum 3 mm thick).
- The above specifications for valves are general specifications. However, pipes and valves shall be required to be supplied as per details mentioned in Section VI -the technical specifications of plant and equipment.

LIST OF APPROVED MAKES FOR MAJOR COMPONENTS

A table of makes of various major components is given at Appendix - 1 under Technical Specifications Section VI. The supplier will adhere to makes of items as per this list only. For an item not mentioned in the table or item having more than one preferred / approved make; supplier will obtain approval of the Purchaser for the make before initiating actual procurement.

ANNEXURE II

RECOMMENDED THICKNESS OF EXPANDED POLYSTYRENE FOR PIPE INSULATIONS NORMAL PIPE SIZES

Temp In °C	15 mm	20 mm	25 mm	32 mm	40 mm	50 mm	65 mm	80 mm	100 mm	125 mm	150 mm
20	25	25	25	25	25	25	40	40	40	50	50
10	25	25	25	40	40	40	40	40	50	50	50
0	40	40	40	50	50	50	50	50	50	50	75
(-)10	50	50	50	50	65	65	75	75	75	75	75
(-) 20	50	50	65	65	65	75	75	75	100	100	100
(-)30	65	65	65	75	75	100	100	100	100	100	100

Above data is based on average conditions and should be modified to suit the individual technical requirements.

CODE of PRACTICE FOR PAINTING OF SERVICE PIPE LINES, EQUIPMENT AND STRUCTURAL WORK

1. PAINTING OF SERVICE PIPE LINES

1.1. On Non-insulated Pipe Line

1.1.1. Ground colour to be applied throughout the length of the pipeline.

1.1.2. Colour bands to be applied, over the ground colour, near every valve and branch connections as well as in every room near the entry.

1.1.3. The relative proportional widths of the 1st colour band to the subsequent bands shall be 421. The minimum width of colour band shall conform to the following table:

Nominal Pipe Size	Width of 1 Colour Band	Width of 2 Colour Band
80 NB and below	100 mm	25 mm
100 NB to 150 NB	200 mm	50 mm
200 NB to 300 NB	300 mm	75 mm
350 NB and above	400 mm	100 mm

1.1.4. On the 1st band a white arrow to be put to indicate the direction of flow.

1.1.5. The arrows should be put on the bottom of the pipelines so that the same are visible from below in case of horizontal bank of pipes and on sides in case of vertical bank of pipes.

1.1.6. The valves should be painted with the same colour as the ground colour of the pipeline.

1.2. On Insulated Pipeline but without Aluminium Cladding

Procedure same as above.

1.3. On Insulated Pipeline with Aluminium Cladding

1.3.1. Ground colour to be applied in a minimum length of 1000 mm of the pipe all round near every valve and branch connections as well as in

every room near the entry., The complete length of the pipeline should not be painted.

1.3.2. Colour bands should be applied in the middle of every ground colour strip. The relative proportional widths of the 1st colour band to the subsequent bands shall be 4:1:1. The minimum width of colour band shall conform to the following table:

Nominal Pipe Size	Width of 1 Colour Band	Width of 2 Colour Band
80 NB and below	100 mm	25 mm
100 NB to 150 NB	200 mm	50 mm
200 NB to 300 NB	300 mm	75 mm
350 NB and above	400 mm	100 mm

For insulated pipes nominal pipe size means the outside diameter of pipe with insulation

1.3.3. On the 1st band a white arrow IS to be put to indicate the direction of flow of the fluid.

1.3.4. The arrows should be put on the bottom of the pipelines so that the same are visible from below in case of horizontal bank of pipes and on slides in case of vertical ban of pipes.

1.3.5. The valves should be painted with the same colour as the ground colour.

1.4. The ground colours and the colours of the 1st and 2nd colour bands have been indicated on the enclosed list for the pipe lines carrying various types fluids and gases. The list also indicates the shade nos. of the colours to be used. in case the exact shade is not available the nearest possible shade in the same colour may be selected.

1.5. Only synthetic enamel paint should be used for the painting and band markings on the pipelines and it should be ensured that the finish should be glossy.

1.6. Where no colour bands have been recommended only the ground colour to be applied as per the above procedure. If only one colour band is recommended the width of the same should be as per the first band and applied on the ground colour in case of 2 Nos colour bands the 1st band and second band of width as per above table should be applied on the ground colour.

1.7.To avoid mixing of colours, it is recommended to apply the bands only after the ground color paint is dry and subsequently to apply the arrow only after the first band paint is dry.

2. PAINTING OF EQUIPMENT & STRUCTURAL WORK

All storage equipment with Outer M S	Pale cream shade
All M S platforms/ pipe supports/ Pipe bridges and any other Structures	Dark admiral grey shade No 632 of BSI
Hot water set, vacuum heating set, Water pumps, geared motor of Tanks and vats, butter churn, Gearbox and supports	Original colour
Coal handling equipment	Black
HWG chimney and Generator exhaust	Aluminium paint
Vapor compressors and air compressors	Original colour
Air handling units of cold store and deep freeze and butter Packing, making room and lab including ducting	Aluminium paint
Can washer	Lower half in dark aluminium gray Upper half in aluminium Paint or original colour
Milk weigh scales	Original colour
Refrigeration plant receiver	Dark admiral grey
Atmospheric condensers	Galvanizing
HT 81 LT panels	Original colour
LT distribution switchboards	Original colour

COLOUR CODE FOR PIPELINES AS PER IS 2379-1963

Sr. No.	Services –	Application	Ground colour		First Band		Second Band	
1.	Cooling Water	1.Ref.comp.Jacket cooling 2.condenser water piping for ref.	Sea green	217	French blue	166		
2.	HWG Feed Water	HWG feed water piping	Sea Green	217				
3	Hot Water	1.Milk pasteuriser hot water 2.defrosting line for diffuser	Sea green	217	Light grey	631		

Sr. No.	Services –	Application	Ground colour		First Band		Second Band	
4	Drinking Water	Water lines for water coolers	Sea green	217	French blue	166	Signal red	537
5	Treated Water	Soft water lines	Sea green	217	Light orange			
6	Cold Water	Chilled water supply & return lines	Sea green	217	French blue			309
7	Untreated Water	Raw water lines	Sea green	217	white			
8	Boiler Feed Water	Boiler	Sea green	217	Gulf red			
9	Condensate	Steam Line	Sea green	217	Light brown			
10	Compressed Air	All compressed air pipelines	Sky blue	101				
11	Instrument air	Instruments	Sky blue	101	French blue			
12	Vacuum	1.cream pasteurizer	Sky blue	101	black			
13	Soft Water	All plant and Equipment	Sea green	217	Light brown			
14	Steam	HP steam lines	Aluminium to is 2339		French blue			
15	Furnace	Boiler and Furnaces	Light brown	410	French blue			
16	Diesel	Diesel generating set	Light brown	410				
17	Light Diesel Oil	Hot water generator	Light brown	410				
18	Lubricating Oil	Oil piping lines	Light brown	410				
19	Drainage	All drain lines from equipment	Black					
20	Ammonia	All ammonia gas & liquid lines	Signal red	537				

Section – IV

Special Conditions of Contract

Part – III – B: Terms and Conditions for Electrical Installations

1. SCOPE

The intent of this specification is to define the requirements for the installation, testing and commissioning of the electrical system like high tension switchyard with accessories and equipment, transformers, HT panel vacuum circuit breakers, LT panels and power control centres, motor control centres, distribution boards, capacitor banks and panels, power, control and Instrumentation cables, remote push button stations, motors, earthing network, etc. Requirement of a particular project shall be as specified in schedule of quantities/approved drawings or as per the battery limits fixed in the contract.

2. STANDARDS

2.1. The work shall be carried out in the best workmanlike manner in conformity with this specification, the relevant specification/codes of practice of the Bureau of Indian Standards, approved drawings and the instructions issued by the Engineer-in-charge or his authorized representative, from time to time. Some of the relevant Indian Standards are listed in Annexure-IV.

2.2. In addition to the standards as mentioned in 2.1, all works shall also confirm to the requirements of the following:

- a) Indian Electricity Act and Rules framed there under.
- b) Fire Insurance Regulations.
- c) Regulations laid down by the Chief Electrical Inspector of the State I State Electricity Board.
- d) Regulations laid down by the Factory inspector of the State.
- e) Any other regulations laid- down by the local authorities.
- f) Installation & operating manuals of original manufacturers of equipment.

3. EQUIPMENT AND ACCESSORIES – SPECIFICATIONS

This defines specifications and requirements mainly for the equipment and accessories which are generally supplied by the erection agency and do not cover the specification of main electrical equipment such as Transformers, HT and LT panels, switch boards and motors etc., which may be supplied by the Owner.

All materials, fittings and appliances to be supplied by the Supplier shall be of best quality and shall conform to the specification given hereunder. The

equipment shall be manufactured in accordance with current Bureau of Indian Standard Specifications wherever they exist or with the BS or NMA specifications, if no such BIS are available. In the absence of any specification, the materials shall be as approved by the Owner or his authorized representative.

All similar materials and removable parts shall be uniform and interchangeable with one another.

Makes of bought out items selected by the Supplier must be furnished by him.

3.1. Power Cables (HT)

Three core Aluminium conductor screened XLPE insulated armored shielded and PVC sheathed cables suitable for 11 / 22 / 33 KV, earthed system, conforming to IS 7098 (Part – II) – 1988 amended up to date.

3.2. Power Cables (LT)

Power cables for use on 415 V system shall be of 1100-volt grade, Aluminium conductor, XLPE insulated, PVC sheathed, armoured and overall PVC sheathed, shall be used from PCC to incomer of IMCCS. However, armoured /shielded Copper conductor cables (Lapp/Concab) shall be used from IMCC to individual motor

Control Cables

3.2.1. Control cables for power

Control cables for use on 415 V. system shall be of 1100 volts grade, copper conductor, PVC insulated, PVC sheathed, armoured and overall PVC sheathed, strictly as per IS: 1554(part I)-1976 amended up to date. Conductor of cable shall be solid type for sizes up to 2.5 sq. mm and stranded for higher sizes. Un armoured cables to be used only if specifically mentioned in schedule of quantities.

The size of these cables shall be as specified in schedule of quantities or as per erection drawing. THE MINIMUM CONDUCTOR DIAMETER SHALL BE 1.5 SQMM.

3.2.2. Screened control cables for Analog signals:

These shall be used for carrying out analogue Signal. Multi -stranded base annealed copper conductor, PVC insulated, cores colour coded,

laid up, screened by braiding with ATC copper wire and finally overall PVC sheathed. Sizes of their cable shall be as specified in schedule of quantities/approved drawings. These cables shall be with armouring unless specified otherwise in Schedule of qualities/approve drawings.

3.3. Cable Trays

These shall be GI /FRP Ladder type for main cables from PCC to IMCC. From IMCC to the individual motor SS 304 cage type trays shall be used. The width of cable tray shall be as per the requirement. Height to be minimum 50mm. For cable trays having width more than 300mm height to be 75mm. Cable trays to be supplied to site in standard lengths of 2.5 M. Necessary accessories of cable trays such as coupler plates for joining cable trays, horizontal and vertical bends, outside riser, inside riser, tee etc. also to be supplied. Plain cable tray covers 1.5mm thick to be supplied if specially required. Sample of cable tray to be got approved from Site in charge before supply.

3.4. Cable Glands

These shall be provided at both ends of armoured/ un armoured electrical cables. Cable glands to be manufactured as per performance requirements of BS-6121 & IP 65 as per IS 13947 (Part I) amended as on date, with BRASS material accurately machined and NICKEL finish. These shall be of heavy-duty single compression type for cable conductor sizes above 35 sq.mm and weather proof double compression type for cable conductor sizes up to 35 sq.mm Single compression cable glands to be complete with check nut, gland body, 3 nos. metal washers, and outer seal rubber ring and compression nut. Double compression glands to be complete with check-nut, gland body, neoprene inner ring, armour clamping cone, armour-clamping ring, armour clamping nut, neoprene outer ring, skid washer & outer seal nut. Sample of cable gland to be got approved from the Site in charge before supply.

3.5. Cable Connectors

Cable connectors, lugs/sockets, shall be of copper/aluminium alloy, suitably tinned solder less, crimping type. These shall be suitable for the cable being connected and type of function (such as power, control or connection to instruments, etc.). The current rating of the lugs shall be the same as that of

the respective cable conductors. If the aluminium lug is terminated on a brass stud or copper bus bar then bimetallic washer shall be used.

3.6. Cable Route Markers

These shall be galvanized Cast Iron plate with marking (LT/HT) and of diameter 150 mm with 600 mm long 25x25 mm MS angle riveted/bolted with this plate. Sample to be got approved before use.

3.7. Cable Indicators.

These shall be self-sticking type and of 2 mm thick lead Strap for overall cable. PVC identification numbers, Ferrule shall be used for each wire.

3.8. Pipes for Cables

For laying of cables under floor, G.I. class 'A' pipes shall be used. MS conduits are not acceptable for this purpose. For laying cable in the air whereas cable trays are not being used, MS 'B' class pipe shall be used. Size of pipe shall depend upon the overall outer diameter of cable to be drawn through pipe. NO PIPE LESS THAN 40 MM DIA SHALL BE USED FOR THIS PURPOSE. To determine the size of pipe, assume that 40% area of pipe shall be free after drawing of cable. In dairy's process area wherever required SS 304 pipe, 1.6mm thick shall be used.

3.9. Motor Isolators

These shall be in Aluminium cast housing or unbreakable self-extinguishing thermoplastics of high quality, completely dust, vermin and weather proof (conforming to minimum IP-55 class of protection) suitable for 30/25 A, 415 volts, 50 Hz with rotary type switch and complete with cable gland for incoming and outgoing cables. Final finish of Aluminium housing to be buffer mirror or powder coated grey. Sample to be got approved before supply.

3.10. Motor Junction Box/Control Junction Box

These shall be in Aluminium cast housing or unbreakable, self-extinguishing thermoplastics of high quality, completely dust, vermin and weather proof (conforming to minimum IP 55 class of protection), suitable for 25A, 415 volts, 50 Hz, with heavy duty Bakelite connector, complete with cable/conduit gland. Sample to be got approved before use.

3.11. Remote Push Button Stations (for Cow Urine Process Area)

These shall be floor/wall-mounted type as specified in schedule of quantities / drawings. These shall be fabricated from 1.6 mm thick stainless-steel sheets (S.S.304). In case of floor-mounted stations, these shall be supported on 51 mm 'A' class MS pipe clad with S.S. Pipe. Front cover shall be removable type with suitable rubber gaskets to make them dust, vermin and moisture proof. All outer S.S. surfaces shall be polished to 150 grit finishes.

Each push button station shall be provided with one lockable (key operated) push button to control supply to station. Each feeder of station shall be provided with name plate (white Bakelite), LED type indication lamp, one 'ON' (Green) push button and one 'OFF' (Red) mushroom push button half turn to lock. Green and Red push buttons shall have contact elements having 1 NO + 1 NC. Indication lamp can be combined with 'ON' (Green) push button in place of providing separate indication lamp and push button. Number of feeders shall be specified in schedule of quantities/drawings.

3.12. Remote Push Button Stations (for Other Projects)

These shall be used for remote ON-OFF for motors, away from MCC. These shall be suitable for surface/structure mounting in Cast Aluminium housing having IP-55 class of protection i.e., completely weather proof. For each motor, one ON, one OFF red mushroom half turn to lock button, one LED type indication lamp to be provided with a heavy-duty connector inside the housing to receive control cables. If more than one motor is nearby, a common ON-OFF station can be used of suitable size otherwise for one motor one station can be used. Indication lamp can be combined with 'ON' (Green) push button in place of providing separate indication lamp and push button. Riveted type plastic nameplate to be provided for each feeder. If functionally required Ammeter also can be located in such ON-OFF station.

Such ON-OFF station can also be used in dairy projects whenever to be installed in utility building such as refrigeration, boiler, water handling etc or being installed in open (exposed to rains).

4. ERECTION OF EQUIPMENT

The cases containing the equipment (being supplied by the Purchaser) shall be handed over to the supplier. The Supplier shall make his own arrangements for

safe transportation of all the items to the erection site and also carry out complete loading/unloading during transportation. Equipment shall not be removed from packing cases unless the floor has been made ready for installing them. The cases shall be opened in presence of the Engineer-in-charge or his authorized representative. These empty packing cases shall be returned to the stores and any document if found with the equipment shall be handed over to the Engineer-in-charge. Any damage or shortage noticed shall be reported to the Engineer-in-charge in writing immediately after opening of packing cases.

4.1. Electric Motors

All electric motors shall be energy efficient motors and shall comply with the following:

All poly phase motors of 0.375 kW or more shall have a minimum acceptable nominal full load motor efficiency not less than shown in Table below or as per the IS 12615 2004 (Rev 1) for energy efficient motors.

Table for Minimum Acceptable Motor Efficiencies

Motor Size (KW)	Efficiency (%)	
	2 Pole	4 Pole
0.37 (0.5 hp)	70.2	69.4
0.55 (0.75 hp)	74	72
0.75 (1 hp)	78.5	74.6
1.1 (1.5 hp)	82.2	83.8
1.5 (2 hp)	84.1	85.0
2.2 (3 hp)	85.6	86.4
3.0 (4 hp)	86.7	87.4
4.0 (5.5 hp)	87.6	88.3
5.5 (7.5 hp)	88.6	89.2
7.5 (10 hp)	89.5	90.1
11.0 (15 hp)	90.6	91.0
15.0 (20 hp)	91.3	91.8
18.5 (25 hp)	91.8	92.2
22.0 (30 hp)	92.2	92.6

4.1.1. Erection and testing

Erection and coupling of motors with machines will be done under the mechanical erection. However, earthing, cable termination, testing and commissioning are covered under this section. Before starting the alignment and coupling of motors with machines, the insulation resistance of the motors will be measured and recorded by the Supplier. Wipe, brush or blow accumulated dirt from the frame and air passages of the motor. Feel for air being discharged from the cooling air ports. If the flow is weak or unsteady then clean it. Dry the motor before installation if motor has been lying in the store for a long time. Motors having low megger readings because of contamination by moisture, oil or conductive dust should be thoroughly cleaned and dried. The direction of the rotation of the motor shall also be checked before the driven equipment is finally coupled. Motor bearings are to be checked and rectified including supply and changing of grease (If required) checking of fans coupling with bodies etc The Supplier shall take adequate precaution and care while executing the work.

For all damage due to negligence etc the Supplier shall be responsible to replace/repair at his own cost.

Before connecting power cables to motors the insulation resistance of all motor windings shall be measured Measurement shall be repeated after power cable terminations are completed and before first charging.

Motors shall be operationally tested together with the starting gear and auxiliary apparatus such as push button stations the contactors level and pressure controls signal and alarm apparatus power and control circuit etc

Check the anti-condensation heater and its circuit (If installed)

Check the setting of the thermal overload protection / single phase preventer Testing of these devices IS to be done wherever required as per the instructions of the Engineer in charge.

All motors shall run uncoupled for a maximum period of 4 hours before the driven equipment is placed in regular service.

4.1.2. Performa for motor testing

1	Name plate details	Voltage, Mounting, Current, RPM, Frame Size, Make, Sr. No., Others
2	Insulation test (before cable connection)	
	Between phase and earth	Mega ohms
	Between each phase	Mega ohms
3	Insulation test (after cable connection)	
	Between phase and earth	Mega ohms
	Between each phase	Mega ohms
4	No load current	R Phase, Y Phase, B Phase in Amp.
5	Full load current	R Phase, Y Phase, B Phase in Amp.
6	Temperature rise after 4 hours run On no load 'On full load, Ambient temperature during test °C	
7	Operation of thermal overload relay:	
	At normal FL current of motor	
	At twice FL current of motor: trip in Seconds.	

5. INSTALLATION OF CABLE NETWORK

Cable network shall include power, control, signal & instrumentation and lighting cables which shall be laid in underground trenches, Hume pipes, open trenches, cable trays, GI/SS pipes, or on building structure surfaces as detailed in the relevant drawings, Cable schedules or as per the Engineer-in-charge's instructions. Supply & installation of cable trays, GI / SS pipes/ conduits, cable glands sockets at ends, isolators, junction boxes, remote push buttons stations, etc. shall be under the scope of the Supplier.

5.1. General requirements for handling of cables.

5.1.1. Before laying cables, these shall be tested for physical damage, continuity, absence of cross phasing, insulation resistance to earth and between conductors. Insulation resistance tests shall be carried out with 500/1000-volt megger.

5.1.2. The cables shall be supplied at site, wound on wooden drum as far as possible. For smaller length and sizes, cables in properly coiled form can be accepted. The cables shall be laid by mounting the drum of the cable on drum carriage. Where the carriage is not available, the drum

shall be mounted on a properly supported axle, and the cable laid out from the top of the drum. In no case the cable will be rolled on, as it produces kinks, which may damage the conductor.

- 5.1.3. Sharp bending and kinking of cables shall be avoided. The bending radius for PVC insulated and sheath armoured cable shall be as per IS 1255-1983 and shall not be less than 10 D Where 'D' is overall diameter of the cable.
- 5.1.4. While drawing cables through GI /SS pipes, conduits, RCC pipe, ensure that size of pipe is such that, after drawing cables, 40 % area is free. After drawing cable, the end of pipe shall be sealed with cotton/bituminous compound.
- 5.1.5. High voltage (11 KV and above), medium voltage (230 V and above) and other control cables shall be separated from each other by adequate spacing or running through independent pipes/trays.
- 5.1.6. Armoured cables shall never be concealed in walls /floors /roads without GI pipes, Conduits / RCC pipes
- 5.1.7. Joints in the cable throughout its length of laying shall be avoided as far as possible and if unavoidable, prior approval of site engineer shall be taken. If allowed, proper straight through epoxy resin type joint shall be made, without any additional cost.
- 5.1.8. A minimum loop of 3 M shall be provided on both ends of the cable, or after every 50 M of unjointed length of cable and on both ends of straight through cable joint. This additional length shall be used for fresh termination in future. Cable for this loop shall be paid for supply and laying if the contract awarded is on item rate basis.
- 5.1.9. Cable shall be neatly arranged in the trenches/trays in such a manner so that criss-crossing is avoided and final take off to the motor/switchgear is facilitated. Arrangement of cables within the trenches/trays shall be the responsibility of the Supplier.
- 5.1.10. All cable routes shall be carefully measured and cable cut to the required lengths and undue wastage of cables to be avoided. The routes indicated in the drawings are indicative only and the same may be rechecked with the Engineer-in-charge before cutting of cables. While selecting cable routes, interference with structures, foundations, pipeline, future expansion of buildings, etc. should be avoided.

- 5.1.11. All temporary ends of cables must be protected against dirt and moisture to prevent damage to the insulation. For this purpose, ends of all PVC insulated cables shall be taped with an approved PVC or rubber insulating tape. Use of friction type or other fabric type tape is not permitted. Lead sheathed cables shall be plumbed with lead alloy.
- 5.1.12. Wherever cable rises from underground/concrete trenches to motors / switchgears/push buttons, these shall be taken in G.I. Pipes of suitable size, for mechanical protection up to 300 mm distance of concerned cable gland or as instructed by the Engineer-in-charge.
- 5.1.13. Where cables pass through foundation/walls of other underground structures, the necessary ducts or openings will be provided in advance for the same. However, should it become necessary to cut holes in existing foundations or structures the electrical supplier shall determine their location and obtain approval of the Engineer-in-charge.

5.2. Termination and Jointing of Cables.

5.2.1. Use of Glands

All PVC cable up to 1.1 KV grade, armoured or unarmoured shall be terminated at the equipment/ junction box/ isolators/push buttons/control accessories / instruments, etc by means of suitable size compression type cable glands. Armour of cable shall be connected to earth point. The Supplier shall drill holes for fixing glands wherever necessary. Wherever threaded cable gland is to be screwed into threaded opening of different size, suitable galvanized threaded reducing bushing shall be used for approved type.

In case of termination of cables at the bottom of the panel over a cable trench having no access from the bottom, a close-fit holes should be drilled in the bottom plate for all the cables in one line, then bottom plate should be split in two parts along the centre line of holes. After installation of bottom plate and cables with glands, it shall be sealed with cold sealing compound.

5.2.2. Use of Lugs/Sockets

All cable leads shall be terminated at the equipment terminals, by means of crimped type solder less connectors unless the terminals at

the equipment ends are suitable for direct jointing without lugs/sockets.

The following is the recommended procedure for crimped joints and the same shall be followed:

- a. Strip off the insulation of the cable ends with every precaution so as not to sever or damage any strand. All insulations to be removed from the stripped
- b. The cable should be kept clean as far as possible before assembling it with the terminal/socket. For preventing the ingress of moisture and possibility of re-oxidation after crimping of the aluminium conductors, the socket should be filled with corrosion inhibiting compound. This compound should also be applied over the stripped portion of the conductor and the palm surface of socket.
- c. Correct size and type of socket/ferrule/lug should be selected depending on size of conductor, and type of connection to be made.
- d. Make the crimped joint by suitable crimping tool.
- e. If after crimping the conductor in socket/lug, some portion of the conductor remains without insulation the same should be covered sufficiently with PVC tape.

5.2.3. Dressing of cables/Wires/Cores

After fixing of cable glands, the individual cores of cable shall be dressed and taken along the cable alleys/wiring trough (if provided) or shall be fixed to the panels with polyethylene straps. Cable shall be dressed in such a manner that small loop of each core is available inside the panel.

For motors of 20 HP and above, terminal box if found not suitable for proper dressing of aluminium cables, the Supplier shall modify the same without any additional cost.

Cables inside the equipment shall be measured and paid for if the contract awarded is on item rate basis.

5.2.4. Identification of Cables/Wires/Cores

After laying & pulling cable, the contractor shall provide the cable identification tags to be tied by GI wire at each end of the cable. Power

cables shall be identified with red, yellow & blue PVC tapes for trip circuits identification, additional red ferrules shall be used only in the particular cores of control cable at the termination points in the switchgear/control panels and control switches.

In case of control cables all cores shall be identified at both ends by their wire numbers by means of PVC ferrules or self-sticking cable markers, wire numbers shall be as per schematic/connection drawing. For power circuit also wire numbers shall be provided if required as per the drawings of switchgear manufacturer.

5.2.5. Cable between Isolators/Junction Box & Motors/Controls.

Wherever possible Copper Conductor Armoured cables with glands shall be used between isolator/junction box (installed near motor/controls) and motors/ controls. However, if terminal box of the motor or control switch is not suitable for accepting armoured cable or it is difficult to lay, multi strand copper conductor, multi-core, unarmoured flexible cable in PVC flexible conduit (steel reinforced) with flexible conduit glands shall be used.

Termination of cables of 6.6 kV and above shall be carried out using heat shrinkable sleeves. This termination must be no-tracking and weather resistant.

5.3. Testing of Cables

5.3.1. Before energizing, the insulation resistance of every circuit shall be measured between conductors and between each conductor and ground. This requires 3 measurements if one side is grounded and 6 measurements for 3 phase circuits. Continuity test on each lead of cable shall also be tested.

5.3.2. Where splices or terminations are required in circuits rated above 650 volts, measure insulation resistance of each length of cable before splicing and/or terminating. Report measurements after splices and/or terminations are complete.

5.3.3. DC High Voltage test shall be made after installation on the following:

- a) All 1100 Volts grade cables in which straight through joints have been made.
- b) All cables above 1100 V grade.

For record purposes test data shall include the measured values of leakage current versus time.

The DC High Voltage test shall be performed as detailed below:

Cables shall be installed in final position with the entire straight through joints complete. Terminations shall be kept unfinished so that motors, switchgear transformer etc. are not subjected to test voltage.

The test voltage and duration shall be as per relevant codes and practices of Indian Standards Institution.

5.4. Proforma for Testing Cables

DATE OF TEST

- a. Drum No. From which cable taken
- b. Cable from to
- c. Length of run of this cable meter
- d. Insulation resistance test:
 - Voltage of Megger Volts
 - i. between core-1 to earth Mega-ohm
 - ii. between core-2 to earth Mega-ohm
 - iii. between core-3 to earth Mega-ohm
 - iv. between core 4 (neutral) to earth Mega-ohm
 - v. between core-1 to core-2 Mega-ohm
 - vi. between core-2 to core-3 Mega-ohm
 - vii. between core-3 to core-1 Mega-ohm
 - viii. between core 4(neutral) to core 1 Mega-ohm
 - ix. between core 4(neutral) to core 2 Mega-ohm
 - x. between core 4(neutral) to core 3.... Mega-ohm
- e. High voltage test Voltage Duration
 - i. between cores and earth
 - ii. between individual cores

(This proforma shall be jointly signed by the Engineer-in-charge and the Supplier).

6. Earthing Network

The entire earthing installation shall be done in accordance with the earthing drawings, specification and instructions of the Engineer-in-charge. The entire earthing system shall fully comply WITH the Indian Electricity Act and Rules

framed there under, The Supplier shall carry out any changes desired by the electrical inspector or the Owner in order to make the installation conform to the Indian Electricity Rules, at no extra cost. The exact location of the earth pits, earth electrode and conductors and earthing points of the equipments shall be determined at site, in consultation with the Engineer-in-charge. Any change in the methods, routing, size of conductor etc shall be subject to approval of the owner/engineer-in-charge before execution.

6.1. Earth Bus Earthing Lead and Earth Wire/Strip

6.1.1. All electrical equipment is to be doubly earthed by connecting two earth strip/wire conductor from the frame of the equipment to an earthing pit/main earthing ring. The earthing ring will be connected via links to several earth electrodes. The cable armoured will be earthed through the cable glands. Conductor size for connection to various equipment shall be as specified in the drawing /as instructed by the Engineer-in-charge. However, the length of the branch leads from equipment to earthing grid/ring shall not be more than 10 to 15 meters.

6.1.2. All hardware for earthing installation shall be hot dip galvanized. Spring washers shall be used for all earthing connections of equipment having vibrations.

6.1.3. Size of earthing lead/wire shall be as specified in schedule of quantities/drawings.

Following may be considered as general guidelines:

Control switches	- PVC insulated 4 sq mm copper conductor wire
Motor up to 10 HP	- PVC insulated 4 sq mm copper conductor wire
Motor above 10 HP up to 125 HP	- GI strip 25x3 mm
Motor above 125 HP	- GI strip 25x6 mm
Switch Board	- GI strip 25x6 mm
Power Control Centre/LT Panel Of Sub Station	- GI Strip 40X6 mm

When earthing wire is to be drawn under floor/in underground, Copper conductor wire of 4 sq mm with PVC insulation shall be used.

However, while deciding type & size of earth lead, the resistance between the earthing system and the general mass of the earth shall be as per IS code of practice. The earth loop impedance to any point in the

electrical system shall not be in excess of 1.0 ohm in order to ensure satisfactory operation of protective devices.

- 6.1.4. Copper wire shall be connected to the equipment by providing crimping type socket/lug.
- 6.1.5. Wherever earthing strip to be provided in cable tray, it shall be suitably clamped on cable tray and electrically bonded to the cable tray at regular interval.
- 6.1.6. Excavating & refilling of earth, necessary for laying underground earth bus loops, shall be responsibility of the Supplier.
- 6.1.7. Wherever earth leads / strips/wire are laid in cable trenches, these shall be firmly and suitably cleated to the walls/supporting steel structure on which cable is clamped.
- 6.1.8. The neutral of the transformer shall be connected to earth pit independently and earth pit shall have copper earth plate of 600 mm X 600 mm X 3 mm.
- 6.1.9. Long runs of GI strip shall be connected at each end with lap type welding to ensure continuity.
- 6.1.10. The following selection table shall be followed for starters of motor feeders unless otherwise specified:

BUREAU OF INDIAN STANDARDS TO BE FOLLOWED FOR ELECTRICAL ERECTION

1	PVC insulated cables (light duty) for working voltage up to 1100 volts	694 1990 Part I & II
2	PVC insulated cables (heavy duty) for Voltage up to 1100 volts	1554 -1988 Part I
3	do for voltage 3.3 KV to 11 KV	1554 – 1988 Part II
4	Specification for polyethylene insulated PVC Sheathed heavy duty electric cables voltage not exceeding 1100 V	5959 – 1970 Part I
5	do voltage 3.3 KV to 11 KV	5959 – 1970 Part II
6	Guide for marking of insulated conductors	5578 -1970 or 5575
7	Code of practice for installation and Maintenance of power cables upto 33 kV	1255 -1983
8	Code of practice for earthing	3043 -1987
9	Guide for safety procedures and practices in electrical work	5216 -1982
10	Code of practice for installation and Maintenance of AC induction motor starters	5214-1969

11	Code of practice for installation and Maintenance of induction motors	900-1992
12	Code of practice for installation and Maintenance of switchgears	10118 – 1982 Part I, II, III, IV
13	Code of practice for installation and Maintenance of transformers	10028 – 1981 Part I
14	Code of practice for electrical wiring Installation, voltage not exceeding 650 V	732-1989
15	Code of practice for electrical wiring Installation (system voltage exceeding 650 V)	2274-1963
16	Guide for testing three-phase induction Motor	4029-1967
17	Guide for safety Procedures & Practices in electrical works	5316
18	XLPE Cables for working voltage up to And including 1100 Volts V	7098 - 1988 Part 1
19	-- Do --- up to 33 KV	7098 - 1988 Part II
20	Boxes for enclosures of electrical accessories	51333
21	Electric Power connectors	5561-
22	HRC Cartridge Fuse Link up to 650 V	2208-
23	Code of Practice for Selection, Installation and Maintenance of Fuse up to 650 V	3108-
24	Cables methods of testing	10810-
25	Danger/ Lattice Boards	3551-
26	National Electric Code	SP: 30

Minimum size of steel braided LAPP/Concab Copper Cable for various rating of motors (To be laid between MCC and motors)

SN	Motor rating HP	Full load Current (Amp.)	Type of starter	Power cable rating (At Ambient Temp. of 45 °C)
1	0.5	1	Soft starter	4 C X 1.5 sq. mm
2	0.75	1.3	Soft starter	4 C x 1.5 sq. mm
3	1	1.9	Soft starter	4 C X 1.5 sq. mm
4	1.5	2.6	Soft starter	4 C x1.5 sq. mm
5	2	3.7	Soft starter	4 C X 1.5 sq. mm
6	3	4.8	Soft starter	4 C X 1.5 sq. mm
7	4	5.2	Soft starter	4 C X 1.5 sq. mm
8	5	7.8	Soft starter	4 CX 1.5 sq. mm
9	7.5	11.2	Soft Starter	4 C X 2.5 sq. mm
10	10	16	Soft starter	4 C X 2.5 sq. mm
11	12.5	19	Soft starter	4 C X 4 sq. mm
12	15	20.8	Soft starter	4 C X 4 sq. mm
13	20	28	Soft starter	4 C X 6 sq. mm
14	25	34	Soft starter	4 C X 10 sq. mm
15	30	40	Soft starter	4 C X 10 sq. mm
16	40	53	Soft starter	4 C X 16 sq. mm
17	50	65	Soft starter	4 C X 25 sq. mm
18	60	78	Soft starter	4 C X 35 sq. mm
19	75	96	Soft starter	4 C X 50 sq. mm
20	100	131	Soft starter	4 C X 70 sq. mm

SN	Motor rating HP	Full load Current (Amp.)	Type of starter	Power cable rating (At Ambient Temp. of 45 °C)
21	125	156	Soft starter	4 C X 120 sq mm
22	150	189	Soft starter	4 C x 150 sq mm
23	180	227	Soft starter	4 C X 185 sq mm
24	215	271	Soft starter	4 C X 240 sq mm
26	250	325	Soft starter	4 C X 300 sq mm
27	275	360	Soft starter	4 C X 185 sq mm 2 runs
28	300	390	Soft starter	4 C X 185 sq mm 2 runs
29	335	400	Soft starter	4 C X 240 sq mm 2 runs
30	375	N.A	Soft starter	4 C X 300 sq mm 2 runs

SECTION – V
SCHEDULE OF REQUIREMENT

Section – V
Schedule of Requirement

Sr. No.	Item Description	Qty	Completion Period
1	Design, engineering, manufacture, supply of Cow Urine Processing Plant at Sardarpura, Radhanpur, Dist.: Banaskantha, Gujarat on turnkey basis utilizing existing equipments and facilities available at the Radhanpur Milk Chilling Centre	1 Lot	08 months
2	Labour charges and consumables for installation, testing and commissioning of Cow Urine Processing Plant at Sardarpura, Radhanpur, Dist.: Banaskantha, Gujarat on turnkey basis utilizing existing equipments and facilities available at the Radhanpur Milk Chilling Centre	1 Lot	

NOTE: Bidders must quote their prices for Sr. no-1 and 2 separately for each item in schedule of quantity. In case the bidders omit any of the Part/s their bid shall be rejected.

SECTION – VI

DESIGN BASIS AND TECHNICAL SPECIFICATIONS

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Section – VI

Design Basis and Technical Specification

1. INTRODUCTION

Banas dairy envisages to establish completely new Cow Urine Processing Plant with all required utilities at Sardarpura, Radhanpur, Gujarat.

Tender Package: Cow Urine Processing Plant which comprises of MECHANICAL VAPOR RE-COMPRESSOR (MVR) BASED FORCED CIRCULATION EVAPORATION PLANT FOLLOWED BY AGITATED THIN FILM DRYER (ATFD).

This tender comprises of design, engineering, supply, installation, testing and commissioning of Cow Urine Processing Plant with allied equipment having urine feed capacity of 10,000 LPD at Sardarpura, Radhanpur on turnkey basis. The tender also covers Required training of Purchaser manpower in efficient management, operation & maintenance of proposed facility.

Scope of the tender includes:

1. Multiple Effect Evaporator (MEE) with Feed Rate: 1250 Kg/hr
2. Agitated Thin Film Dryer (ATFD) with Feed Rate: 50 Kg/hr
3. Pumps – Feed, Concentrate and Distillate
4. Tanks & Vessels – NH3 Ark
5. Mechanical Vapor Recompression (MVR) Unit, Capacity matched to Evaporator.
6. Reverse Osmosis (RO) Unit, Capacity: 1 m³/hr
7. Bottle Filling Unit
8. Piping and Fittings
9. Controls & Instrumentations

Project Information:

Project Authority	I/c Managing Director, Banaskantha District Co-operative Milk Producers' Union Ltd., Palanpur.
Site Address	Radhanpur Chilling Centre, Banas Dairy Village: Sardarpura, Ta: Radhanpur Dist.: Banaskantha, Gujarat
Nearest Railway Station	Radhanpur
Nearest airport	Ahmedabad
Nearest City	Radhanpur/Mehsana/Palanpur

The contract comprises of two parts viz.

Part – 1: Design, engineering and supply of Cow Urine Processing Plant and allied service equipment, accessories.

Part – 2: Labour charges and consumables for installation, testing and commissioning of Cow Urine Processing Plant and allied service equipment and accessories.

The bidder accepts to undertake the complete work and there would not be any exclusion whatsoever of any PART. It should be understood that any minor work, which may not have been explicitly detailed but is necessary for the proper functioning of the individual equipment, unit operation, unit process or plant as a whole, is included in the scope of work without any additional cost.

All the equipment for the plant/systems shall be designed, engineered, supplied and installed in accordance with the prevailing and applicable standards.

The bidder shall be responsible for arranging approval from various applicable Indian Statutory authorities on behalf of the Purchaser. The Purchaser on production of documentary evidence shall reimburse the statutory fees.

The design and layout of the additional facilities, selection of equipment and services, methodology of plant execution, testing and commissioning shall be carefully planned and executed with the knowledge of normal operational & processing routines of the Cow Urine Processing plant.

The general technical specifications of the major components and the ancillary items described in the technical section and the equipment, its capacities and quantity proposed by the Purchaser is furnished in the basis of design and schedule of quantities are for the guidance of the contractor only. However, the bidder has to get themselves familiarized/acquainted about the nature and the quantum of work involved and submit their offer without deviation in the basic configuration of the plant.

The quantity of pipes, fittings, valves, cables, instruments cable trays, earthing, etc are offered based on the actual requirement at site. The site layout/equipment layout & pipe header routing enclosed are for the reference only. However, contractor has to work out the exact details based on the system offered by them.

Water for installation: Shall be provided at one point within the site, free of charge.

Electricity for installation: Shall be provided at one point within the site, free of charge.

2. SCOPE OF WORK

The work comprises of design, engineering, supply, installation, testing and commissioning Cow Urine Processing Plant equipments:

I. Design and Engineering:

- a) Comprehensive design and engineering of the Cow Urine Processing Plant, including detailed drawings, specifications, and design calculations.

II. Manufacturing and Supply:

- a) Manufacture and supply of all equipment as per the specifications, including:
 - b) Falling Film Evaporator
 - c) Concentrate Tank (0.5 KL capacity)
 - d) NH₃ Rich Ark Tanks
 - e) Reactors with Agitators (2 KL and 10 KL capacities)
 - f) Nutch Filter
 - g) Various Pumps (Cow Urine Transfer Pump, Feed Pump, Recirculation Pump, etc.)
 - h) Mechanical Vapor Recompression (MVR) Unit
 - i) RO Unit and Bottle Filling Unit
 - j) Associated Piping and Fittings

III. Installation and Supervision of Start-up & Commissioning:

- a) Installation and Supervision by qualified engineers during the start-up & commissioning of the plant. This includes:
 - b) Supervision of equipment installation.
 - c) Overseeing trial runs and performance verification.
 - d) Training of client's personnel on plant operation.
 - e) Supply of Operation and Maintenance Manuals:
 - f) Provision of detailed Operation and Maintenance manuals for all supplied equipment to ensure smooth and efficient plant operation.

3. BASIS OF DESIGN

Banaskantha District Cooperative Milk Producers' Union Limited known as Banas Dairy is a cooperative organization established in the year 1969 under the Gujarat Co-operative societies Act 1961. Banas Dairy is committed to innovation and sustainable practices in dairy and agricultural processes. The dairy plays a

significant role in the socio-economic development of the region, supporting thousands of farmers and their families. In line with its mission to enhance rural livelihoods and promote eco-friendly practices, Banas Dairy is embarking on a project to establish a Cow Urine Processing Plant. This initiative aims to utilize cow urine, a by-product of dairy farming, to produce valuable products such as bio-fertilizers and natural pesticides, contributing to both environmental sustainability and additional income streams for the farmers.

The primary objective of this project is to design, engineer, and construct a Cow Urine Processing Plant that efficiently processes cow urine into concentrated forms that can be further utilized or marketed. The plant will enhance Banas Dairy's sustainability initiatives by converting waste into valuable products, thereby reducing environmental impact and supporting the local agricultural economy.

Basis of Design

Feed Capacity:

The plant is to be designed to process 10,000 Liters per day of cow urine.

Operating Conditions:

Operating Hours: 8 hours per day.

Feed Temperature: Ambient.

Initial Total Dissolved Solids (TDS): 3.0%.

Steam Pressure: 3.0 kg/cm² (g).

Steam Temperature: Dry and Saturated.

Cooling Water Temperature: Inlet at 32°C, Outlet at 36°C.

Drive: 415V ± 10%, 50 Hz, 3-phase. (To be Confirmed by Bidder).

Evaporation and Concentration Process:

Water Evaporation Capacity: 1,000 kg/hr.

Final Concentration: The plant is designed to concentrate the solids in the feed from 3% to 15%.

Concentrate Outlet: 250 kg/hr.

Drying Process:

Utilization of an Agitated Thin Film Dryer (ATFD) to reduce moisture content, ensuring the final product has 8-10% free moisture.

Utilities Requirements:**Steam Requirement:**

For Multiple Effect Evaporator (MEE): 50 kg/hr @ 3.0 kg/cm² (g).

For ATFD: 50 kg/hr @ 6.0 kg/cm² (g).

Total Steam: 100 kg/hr (continuous), with an additional 85 kg/hr for startup.

Cooling Water Requirement:

Flow rate: 10 m³/hr.

Pressure: 2.0 kg/cm² (g).

Power Requirements: (To be supplied by Bidder).

Absorbed Power: (To be supplied by Bidder).

Installed Power: (To be supplied by Bidder).

Material of Construction:

Evaporator: SS 304 for contact parts.

Tanks and Reactors: SS 316 for shell and nozzle, with FRP for specific tanks.

Pumps and Piping: SS 316 and SS 304, depending on application.

Control and Instrumentation:

The plant will include appropriate instrumentation for monitoring and controlling critical process parameters, such as pressure, temperature, and flow.

Performance Criteria:

The plant must achieve the specified feed rate, evaporation capacity, and concentration levels within a tolerance of ±10%.

Performance will be validated based on the confirmed output at specified input conditions.

Compliance and Standards:

The design and construction must comply with relevant national and international standards, including ASME U, National Board R, and NB stamp requirements.

Optional Equipment:

Provision for an optional Agitated Thin Film Dryer (ATFD) with Variable Frequency Drive (VFD) for enhanced drying capabilities.

Process Description and Requirements**Overview**

Banas Dairy's Cow Urine Processing Plant is designed to transform raw cow urine into concentrated bio-fertilizer and other value-added products through a series of advanced processing steps. The plant will employ evaporation, concentration, and drying technologies to achieve the desired product specifications.

Banas Dairy intends to use its existing equipment available at Radhanpur Chilling Centre, details are mentioned below;

Sr. No.	Existing Equipments	Purpose	Quantity
1.	Can Conveyer System	Transfer of Cow Urine Can	1 Set
2.	Dump tank with transfer Pump	For Cow Urine Collection	1 Set
3.	Feed Tank (Capacity – 5 KL)	For Cow Urine Collection	1 No.
4.	Storage Tank (Capacity – 30 KL)	For Cow Urine	1 No.
5.	Storage Tank (Capacity – 5 KL)	For Product (Khet Varsha)	1 No.
6.	Storage Tank (Capacity – 15 KL)	For Product (Khet Balram)	1 No.
7.	Storage Tank (Capacity – 15 KL)	For Product (Khet Booster)	1 No.
8.	Storage Tank (Capacity – 15 KL)	For Distillate	1 No.

Sr. No.	Existing Equipments	Purpose	Quantity
9.	Storage Tank (Capacity – 15 KL)	For RO Permeate	1 No.
10.	Electrical Panels	For Processing Plant	1 No.

Process Flow

The process involves several key stages:

a) Feed Collection and Pre-treatment:

Collection: Raw cow urine will be collected in 40 Liter Cans from the villages and stored in designated storage tanks at Radhanpur Chilling Center.

Pre-treatment: The urine will undergo preliminary filtration to remove any solid impurities before entering the evaporation system.

b) Evaporation:

The pre-treated cow urine will be fed into a Multiple Effect Evaporator (MEE) system, which will concentrate the urine by removing water content. The MEE system is designed to handle a feed rate of 1,250 kg/hr with a water evaporation capacity of 1,000 kg/hr.

Concentration: The solids in the feed will be concentrated from 3% to 15% during this stage.

c) Concentration:

After evaporation, the concentrated urine will be further processed to achieve the desired solid content. This will involve additional concentration techniques to ensure consistent output quality.

d) Drying:

The concentrated liquid will then be fed into an Agitated Thin Film Dryer (ATFD), which will reduce the moisture content to achieve a final product with 8-10% free moisture. This step ensures the stability and usability of the final product.

e) Condensation and Recovery:

The vapors generated during the evaporation process will be condensed, and the resulting distillate will be treated through a Reverse Osmosis (RO) Unit to recover clean water, which can be reused within the plant or for other purposes.

f) Packaging and Storage:

The dried product will be collected, packaged, and stored in designated facilities. A Bottle Filling Unit will be available for packaging liquid products if required.

4. TECHNICAL SPECIFICATIONS

The technical specification for the various equipment included in the bid are given below:

4.1. Evaporator System: Multiple Effect Evaporator (MEE)

Function: Concentrates cow urine by removing water content through evaporation.

Feed Rate: 1,250 kg/hr

Water Evaporation Capacity: 1,000 kg/hr

Total Solids in Feed: 3.0%

Final Concentration: 15% solids

Material of Construction: SS 304 for all contact parts

Steam Pressure: 3.0 kg/cm² (g)

Heat Exchanger Type: Falling Film Evaporator

Temperature Control: Automated temperature control system for precise operation.

Accessories:

Feed and Concentrate Tanks

Recirculation Piping and Valves

Vapor Separator and Condenser

4.2. Agitated Thin Film Dryer (ATFD)

Function: Reduces the moisture content of the concentrated urine to produce a stable, dry product.

Feed Rate: 50 kg/hr

Water Evaporation Capacity: 41.5 kg/hr

Final Moisture Content: 8-10% free moisture

Material of Construction:

Inner Shell: SS 316

Jacket: Carbon Steel

Rotor and Shaft: SS 316

Steam Pressure: 6.0 kg/cm² (g)

Drive System: Non-flameproof electric motor with VFD (Variable Frequency Drive) for speed control

Insulation: High-quality thermal insulation to minimize heat loss

Accessories:

Entrainment Separator

Condensate Drain Tank and Pumps

Vapour Blower with Base Frame and VFD Control

4.3. Mechanical Vapor Recompression (MVR) Unit

Function: Increases the efficiency of the evaporation process by compressing vapor and reusing it for heating.

Capacity: Designed to match the evaporation system requirements.

Material of Construction: SS 304 for vapor contact parts

Electric Motor: Non-flameproof, IP-55, 415V, 50 Hz, 3-phase

Control System: VFD for motor speed control, ensuring optimal vapor compression

Accessories:

Condensate Drain Tank

Vapour Blower with Expansion Joint and Lube Oil System

Control Panel with VFD for Motor Speed Regulation

4.4. Reverse Osmosis (RO) Unit

Function: Purifies the distillate from the evaporation process for reuse or discharge.

Capacity: 1 m³/hr

Stages: Multi-stage filtration

Material of Construction: SS 316 for all contact parts

Control System: Automated with monitoring for TDS and flow rate

4.5. Pumps

Types:

Feed Pump: Transfers cow urine from storage to the evaporator.

Recirculation Pump: Recirculates the liquid within the evaporation system.

Concentrate Outlet Pump: Transfers concentrated liquid from the evaporator to the ATFD.

Distillate Outlet Pump: Transfers condensed water from the evaporation system.

Specifications:

Flow Rate: 1 m³/hr (for Feed, Concentrate, Distillate Pumps)

Material of Construction: SS 316 for all pumps

Electric Motor: Non-flameproof, IP-55, 415V, 50 Hz, 3-phase, IE-2 efficiency

Seal Type: Mechanical Seal with SS 316 components

4.6. Tanks and Vessels

Types:

Concentrate Tank: Stores concentrated liquid before further processing.

NH₃ Rich Ark Tanks: Stores ammonia-rich by-products.

Feed Tank: Holds cow urine before processing.

Distillate Storage Tank: Holds purified water post-distillation.

Specifications:

Capacity:

Concentrate Tank: 0.5 KL

NH₃ Rich Ark Tanks: Various capacities

Feed Tank: 5 KL

Distillate Storage Tank: 15 KL

Material of Construction:

Concentrate Tank: SS 316

NH₃ Rich Ark Tanks: FRP

Feed Tank: SS 316

Distillate Tank: SS 316

Insulation: Tanks handling hot liquids must be adequately insulated to prevent heat loss.

4.7. Bottle Filling Unit

Function: Semi-automatic unit for filling liquid products into bottles for packaging.

Capacity: Customizable based on plant output

Material of Construction: SS 304

Control System: Semi-automatic operation with manual input for filling and capping

4.8. Piping and Fittings

Material of Construction:

Evaporation Piping: SS 304 for vapor and condensate lines

Feed and Concentrate Piping: SS 316

Cooling Water Piping: SS 304 with appropriate insulation

Specifications:

Valves: Ball valves for pipes up to 3", Butterfly valves for pipes above 3"

Fittings: SS 316/304 as per application, with PTFE gaskets

4.9. Control and Instrumentation

- **Function:** Monitor and control all critical process parameters including temperature, pressure, flow, and concentration.
- **Control Panel:** Centralized with PLC (Programmable Logic Controller) for automated operation
- **Instrumentation:**
 - Pressure Gauges: SS 304, 4" dial size
 - Temperature Sensors: RTD, PT-100
 - Flow Meters: Magnetic or Ultrasonic, compatible with SS 316 piping
 - Level Indicators: For all tanks and vessels
- **System Requirements:**
 - Redundancy:** Critical control systems must have backup power supply to ensure continuous operation during power failures.

5. BATTERY LIMITS

The **Battery Limits** define the physical and operational boundaries within which the contractor is responsible for the design, supply, installation, and commissioning of the Cow Urine Processing Plant. These limits also specify the

scope of responsibility for the contractor and purchaser regarding utilities, infrastructure, and other project-related aspects.

5.1. Contractor's Responsibility Within Battery Limits

The contractor's scope of work is confined to the plant and associated systems within the following battery limits:

5.1.1. Process Equipment

All equipment necessary for the operation of the Cow Urine Processing Plant, including the **Multiple Effect Evaporator (MEE)**, **Agitated Thin Film Dryer (ATFD)**, **Mechanical Vapor Recompression (MVR)**, **Reverse Osmosis (RO) Unit**, and all associated components (tanks, pumps, valves, piping, and instrumentation).

5.1.2. Utility Connections (Within Battery Limits)

- a) The contractor is responsible for all piping, cabling, and connections required to bring utilities (e.g., steam, water, electricity) to the equipment located within the plant.
- b) For utilities supplied by the Purchaser (such as water, power, steam and air), the contractor is responsible for distributing these within the battery limits to each piece of equipment.

5.1.3. Interconnecting Piping & Electrical Cabling

- a) All process piping and fittings required for the connection of various equipment within the plant (such as piping between the evaporator, ATFD, RO Unit, and pumps) are the responsibility of the contractor.
- b) Electrical cabling and wiring required for power distribution to equipment, control panels, instrumentation, and other components inside the plant are included in the contractor's scope.

5.1.4. Instrumentation and Control Systems

- a) Installation of all instrumentation, sensors, and control systems needed for monitoring and controlling key parameters (e.g., pressure, flow, temperature) within the plant. The contractor will also install and commission the **centralized PLC-based control panel** to manage the plant's operations.
- b) Redundancies such as backup power systems for critical instruments and control panels are also within the contractor's scope.

5.1.5. Structural Support & Foundations

- a) The contractor is responsible for the design and construction of all necessary structural supports, foundations, and platforms for the plant's equipment within the defined boundaries.
- b) This includes any platforms, walkways, and ladders required for the operation and maintenance of the equipment.

5.1.6. Insulation and Safety Systems

- a) Insulation of piping, tanks, and other equipment that handle high-temperature fluids or require temperature control is within the contractor's responsibility. The insulation materials used must conform to industry standards to ensure energy efficiency and personnel safety.
- b) Installation of safety systems, including pressure relief valves, emergency shutdown systems, and alarms for high-pressure or high-temperature conditions, is also the contractor's responsibility.

5.2. Purchaser's Responsibility Outside Battery Limits

The Purchaser's responsibilities typically begin at the point where utilities and infrastructure are supplied to the plant boundary. These include:

Utility Supply Points

The Purchaser is responsible for the supply of utilities up to a single connection point within the plant's battery limits, which includes:

5.2.1. Water Supply

- a) **Process Water:** The Purchaser will provide water at the required pressure and flow rate for use in the plant's processes, including for cooling purposes, cleaning, and other utility needs.
- b) **Cooling Water:** Water supplied at the required temperature (32°C inlet, 36°C outlet) and flow rate (10 m³/hr) to ensure adequate heat exchange for cooling requirements in the evaporators, condensers, and other process equipment.
- c) **Point of Supply:** The Purchaser shall deliver water to a single connection point within the plant's battery limits. Raw water or cooling water at the required pressure and temperature, delivered to a designated entry point inside the plant's boundaries.

5.2.2. Electricity Supply

- a) **Power Supply:** The Purchaser is responsible for supplying electricity to the plant's boundary at the required voltage of 415V \pm 10%, 50 Hz, 3-phase.
- b) **Load Capacity:** The power supply shall be sufficient to meet the plant's installed load, including additional power needed for testing, commissioning, and startup activities.
- c) **Point of Supply:** The Purchaser shall provide a connection point to the plant's main switchgear or distribution board, ensuring compatibility with the plant's internal electrical distribution network.

5.2.3. Steam Supply

- a) **Steam Requirement:** The Purchaser is responsible for providing steam at two different pressures as required by the plant processes:
 - i. For the Multiple Effect Evaporator (MEE): 50 kg/hr at 3.0 kg/cm² (g) pressure.
 - ii. For the Agitated Thin Film Dryer (ATFD): 50 kg/hr at 6.0 kg/cm² (g) pressure.
- b) **Point of Supply:** The Purchaser will ensure that steam is delivered to the plant's steam header within the battery limits, from where it will be distributed to the respective equipment.
- c) **Startup Requirement:** Additional steam may be needed during startup, and the Purchaser is responsible for ensuring this supply during the initial commissioning phase.

5.2.4. Compressed Air Supply

- a) **Compressed Air Requirement:** If required by the plant for instrumentation, control valves, or other pneumatic systems, the Purchaser will provide compressed air at the appropriate pressure and flow rate.
 - i. Typical requirement: **5-7 bar** for general control systems.
 - ii. Exact requirements should be confirmed during the detailed design phase.
- b) **Point of Supply:** Compressed air must be delivered to a designated point within the battery limits where it can be routed to the plant's internal air distribution system.

5.2.5. Effluent and Waste Handling

- a) **Effluent Discharge:** The Purchaser is responsible for providing an effluent discharge system or pipeline capable of handling the liquid

waste generated from the plant's operation. This includes waste from the evaporation process, cleaning processes, and any condensate or distillate streams not reused in the plant.

- b) **Point of Discharge:** The Purchaser must ensure that an effluent treatment or disposal system is available at the plant boundary, with appropriate connections made for handling plant effluent.

5.2.6. Air Supply for Ventilation and Safety Systems

- a) **Ventilation Air:** If required, the Purchaser must provide a general ventilation system to ensure adequate air circulation for personnel safety and equipment cooling within the plant building.
- b) **Emergency Air Supply:** If applicable, the Purchaser must supply fresh air for emergency ventilation in case of gas leaks or equipment failure.

5.3. Utility Interfaces & Tie-Ins

At the **utility interfaces** where key plant utilities (water, electricity, steam, compressed air, and effluent) cross the battery limits, the following outlines the tie-in points for each utility to mark clear demarcation and coordination between the Purchaser and the Contractor to ensure proper integration;

5.3.1. Water Tie-In

Point of Supply: The Purchaser is responsible for supplying water to a single-entry point at the plant's battery limits. The water provided will be used for both process water (for cow urine processing) and cooling water for equipment such as the evaporator and condensers.

Water Requirements:

Contractor's Responsibility: Once within the battery limits, the contractor will be responsible for distributing the water to the required equipment, including piping, pumps, and instrumentation for flow control and monitoring.

5.3.2. Electricity Tie-In

Point of Supply: The Purchaser will provide electrical power at a designated point on the plant's boundary, supplying 415V \pm 10%, 50 Hz, 3-phase electricity.

Power Requirements:

The plant requires an installed power capacity of 75 kW, which will be used for running process equipment, pumps, control systems, and other utilities.

Contractor's Responsibility: The contractor will handle the internal distribution of electrical power, including wiring, switchgear, and control systems to ensure all equipment operates efficiently.

5.3.3. Steam Tie-In

Point of Supply: Steam will be supplied by the Purchaser to a single steam header within the battery limits, where it will be distributed to the equipment requiring steam.

Steam Requirements:

For Multiple Effect Evaporator (MEE): 50 kg/hr at 3.0 kg/cm² (g) pressure.

For Agitated Thin Film Dryer (ATFD): 50 kg/hr at 6.0 kg/cm² (g) pressure.

Startup Steam Requirement: An additional 85 kg/hr of steam may be needed during the startup phase.

Contractor's Responsibility: The contractor will handle steam distribution from the steam header to the individual units (MEE and ATFD). This includes installing steam traps, pressure control valves, and monitoring instruments for steam flow and temperature control.

5.3.4. Compressed Air Tie-In

Point of Supply: Compressed air will be supplied by the Purchaser to a central distribution point within the battery limits. This air will primarily be used for instrumentation, control valves, and possibly for cleaning purposes in the plant.

Compressed Air Requirements:

Pressure: The compressed air must be provided at a pressure of 5-7 bar depending on the plant's requirements, ensuring adequate air supply for the control systems.

Flow Rate: The required flow rate should be determined during the detailed engineering phase based on the number of control valves and instruments using pneumatic actuation.

Contractor's Responsibility: The contractor will be responsible for distributing compressed air to all required systems within the plant. This includes the installation of air dryers, filters, pressure regulators, and pneumatic control devices, ensuring clean and stable air supply to all instrumentation and control systems.

5.3.5. Effluent Tie-In

Point of Discharge: The Purchaser will provide an effluent discharge system or pipeline capable of handling liquid waste from the plant. This includes the distillate waste, any cooling water blowdown, and wastewater from the cleaning processes.

Effluent Requirements:

The effluent should be directed to an effluent treatment plant (ETP) or other suitable disposal systems, ensuring that any wastewater meets environmental discharge standards before being released.

Contractor's Responsibility: The contractor will manage the internal effluent collection and routing system, ensuring that all waste generated within the plant is properly directed to the designated discharge point.

5.3.6. General Coordination at Tie-In Points

- a) At each tie-in point, the contractor and Purchaser must coordinate closely to ensure proper alignment and compatibility between the external utility supply and the plant's internal systems.
- b) Instruments and Controls: The contractor is responsible for installing appropriate control systems and instrumentation at each tie-in point to monitor utility usage, pressure, flow rates, and other relevant parameters. This includes flow meters, pressure gauges, and temperature sensors.
- c) Pressure Management and Safety Systems: For utilities like steam and compressed air, the contractor will install pressure relief valves, regulators, and safety shut-off systems to ensure the plant operates within safe limits.
- d) Startup and Commissioning Support: The Purchaser will ensure the availability of all utilities during the plant's startup and commissioning phases, including any additional requirements for steam, compressed air, or water beyond normal operating needs.

6. LIST OF PREFERRED MAKES OF BOUGHT OUT ITEMS

Sr. No.	Item Description	Make
1.	Multiple Effect Evaporator (MEE) with Feed Rate: 1250 Kg/hr	Bidder to submit details one day in advance to Pre-Bid meeting
2.	Agitated Thin Film Dryer (ATFD) with Feed Rate: 50 Kg/hr	Bidder to submit details one day in advance to Pre-Bid meeting
3.	Pumps – Feed, Concentrate and Distillate	Bidder to submit details one day in advance to Pre-Bid meeting
4.	Tanks & Vessels – NH3 Ark	Bidder to submit details one day in advance to Pre-Bid meeting
5.	Mechanical Vapor Recompression (MVR) Unit, Capacity matched to Evaporator	Bidder to submit details one day in advance to Pre-Bid meeting
6.	Reverse Osmosis (RO) Unit, Capacity: 1 m ³ /hr	Bidder to submit details one day in advance to Pre-Bid meeting
7.	Bottle Filling Unit	Bidder to submit details one day in advance to Pre-Bid meeting
8.	Piping and Fittings	Bidder to submit details one day in advance to Pre-Bid meeting
9.	Controls & Instrumentations	Bidder to submit details one day in advance to Pre-Bid meeting

7. SCHEDULE OF QUANTITIES (SOQ)

Sr. No.	DESCRIPTION OF MAJOR ITEMS	CAPACITY	QTY	UOM	SUPPLY		I & C	
					UNIT RATE	Total PRICE	UNIT RATE	Total PRICE
					(RS.)	(RS.)	(RS.)	(RS.)
1.1	Multiple Effect Evaporator (MEE) with Feed Rate: 1250 Kg/hr	1250 Kg/Hr	1	SET				
1.2	Agitated Thin Film Dryer (ATFD) with Feed Rate: 50 Kg/hr	50 KG/hr	3	EA				
1.3	Pumps – Feed, Concentrate and Distillate	SUITABLE	3	EA				
1.4	Tanks & Vessels – NH3 Ark	SUITABLE	2	EA				
1.5	Mechanical Vapor Recompression (MVR) Unit, Capacity matched to Evaporator	SUITABLE	2	EA				
1.6	Reverse Osmosis (RO) Unit, Capacity: 1 m3/hr	1 m3/hr	1	EA				
1.7	Bottle Filling Unit	SUITABLE	1	EA				
1.8	Piping and Fittings including all SS/MS/GI piping with vales, fittings and support structure	SUITABLE	1	Lot				
1.9	Controls & Instrumentations including cables, cable trays etc.	SUITABLE	1	Lot				
2.0	Electrical including cables, cable trays etc.	SUITABLE	1	Lot				
2.1	Automation hardware and software: Control panel/s with HMI, Control, signal & communication cables, trays, accessories etc	SUITABLE	1	Lot				
TOTAL FOR RADHANPUR PRICE FOR DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING INCLUDING ALL ABOVE								

8. GENERAL TECHNICAL REQUIREMENT FOR PUMP, HEAT EXCHANGER & TANKS

This section outlines the technical specifications and general requirements for the Pumps, Heat Exchanger, and Tanks used in the Cow Urine Processing Plant. The equipment must be suitable for handling the unique properties of cow urine, ensuring corrosion resistance, process efficiency, and compliance with applicable standards.

8.1. Pumps:

Pumps are vital for fluid transfer at various stages of the cow urine processing plant, such as feeding, recirculating, and transferring distillates and concentrates. The specifications for the pumps must account for the chemical properties of cow urine and the need for continuous, efficient operation.

Technical Requirements for Pumps:

Material of Construction:

- SS 316 is required for all wetted parts (pump casing, impellers, shafts, etc.) to handle the corrosive nature of cow urine, which contains salts, ammonia, and other chemical compounds.
- Non-wetted parts may be constructed from SS 304 or similarly durable materials.

Seal Type:

- Pumps should feature mechanical seals made from SS 316 components to ensure longevity in handling cow urine and its by-products, reducing the risk of leaks and mechanical failure.

Flow Capacity and Pressure:

- Feed Pump: Capable of transferring 1 m³/hr from storage to the evaporator, handling raw cow urine at ambient temperature.
- Recirculation Pump: Designed to recirculate fluid through the evaporator to maintain stable process conditions, operating with a variable flow rate to accommodate concentration variations.
- Concentrate Pump: Must handle highly concentrated fluids (up to 15% solids) at 50 kg/hr without clogging or degradation.
- Distillate Pump: Transfer of 1 m³/hr of distilled water to the Reverse Osmosis (RO) unit or storage, maintaining purity and avoiding cross-contamination.

Motor Specifications:

- All pumps will use non-flameproof IP-55 motors, rated for 415V, 50 Hz, 3-phase power, with IE-2 efficiency to reduce energy consumption.
- Pumps should be equipped with Variable Frequency Drives (VFD) to allow flexible speed control, adapting to different operating conditions.

Pump Type:

- Centrifugal pumps for low-viscosity fluids like cow urine and distillates.
- Positive displacement pumps for handling concentrated urine, providing consistent flow and pressure regardless of viscosity changes.

Corrosion and Abrasion Resistance:

- Pumps must be treated with anti-corrosion coatings or have internal surfaces designed to withstand the harsh chemical environment of cow urine and its concentrated by-products.

General Requirements for Pumps:

- Pumps must comply with IS/ASME standards for design, manufacturing, and testing.
- Pressure safety valves and monitoring instruments must be included to prevent system overload and ensure operational safety.

8.2. Heat Exchanger:

The Heat Exchanger is critical in the evaporation process, where cow urine is concentrated by removing water. It is designed to maximize heat transfer efficiency while handling the chemical nature of cow urine.

Technical Requirements for the Heat Exchanger:**Type:**

- A Falling Film Evaporator is recommended for the Cow Urine Processing Plant. This design allows cow urine to flow over a heated surface in a thin film, promoting efficient evaporation while reducing the risk of scaling.

Material of Construction:

- The heat transfer plates must be made from SS 304 to ensure resistance against corrosion from the ammonia, salts, and organic matter present in cow urine.
- Gaskets and seals must be made from PTFE (Teflon) or EPDM, materials that can withstand the chemical properties of cow urine.

Heat Transfer Efficiency:

- The Heat Exchanger must have a high heat transfer coefficient to achieve the required evaporation rate of 1000 kg/hr.
- Proper temperature control mechanisms should be in place to ensure that the plant maintains consistent heating and evaporation without overloading the system.

Design Pressure and Temperature:

- The Heat Exchanger must operate at 3.0 kg/cm² (g) steam pressure, with temperatures ranging up to 150°C for the evaporation process. Cooling water will be supplied at 32°C inlet and 36°C outlet for efficient condensation.

Scaling and Fouling Resistance:

- The Heat Exchanger must be designed with anti-scaling features, given the propensity of cow urine to form deposits. Easy access for cleaning and maintenance is crucial to minimize downtime.

General Requirements for the Heat Exchanger:

- The Heat Exchanger must comply with ASME U and National Board R stamps, ensuring it meets international standards for pressure vessels.
- It must be equipped with automatic controls for temperature and flow, as well as safety interlocks to prevent overheating or system malfunctions.

8.3. Tanks:

Various tanks are used throughout the plant for storing raw cow urine, concentrates, distillates, and ammonia-rich by-products. Each tank must be designed to handle the specific fluid properties and process conditions.

Technical Requirements for Tanks:**Feed Tank:**

- Capacity: 5 KL to store raw cow urine before processing.
- Material of Construction: SS 316 for high corrosion resistance.
- Features: Equipped with agitators to prevent settling of solids and ensure uniform feed to the evaporator.

Concentrate Tank:

- Capacity: 0.5 KL for concentrated cow urine after evaporation.
- Material of Construction: SS 316 for withstanding high concentrations of dissolved solids and salts.

Features:

- Thermal insulation to maintain process temperature.
- Closed-top design to prevent contamination and exposure to environmental elements.

Distillate Tank:

- Capacity: 15 KL to store purified water recovered during the evaporation process.
- Material of Construction: SS 316 to ensure clean storage conditions and prevent contamination of the distillate.
- Features: Fitted with pressure relief valves and filtration elements to ensure the quality of water being stored for reuse or disposal.

NH₃ Rich Ark Tanks (Ammonia By-product Storage):

- Material of Construction: FRP (Fiber Reinforced Plastic) or SS 316, depending on the chemical composition of the by-products.
- Features: Insulated and designed to handle ammonia-rich liquids, ensuring no leaks or emissions.

General Features for All Tanks:

- Thermal Insulation: All tanks handling heated liquids must be adequately insulated to reduce heat loss, optimize energy usage, and ensure product quality.

Instrumentation:

- Level indicators, temperature sensors, and pressure gauges must be installed on each tank for real-time monitoring.
- Tanks must be integrated into the plant's control system for automated filling, discharge, and process control.
- Corrosion Resistance: Tanks must be designed to withstand the chemical properties of cow urine, including ammonia, salts, and organic compounds.
- Maintenance and Cleaning: Tanks should feature CIP (Clean-In-Place) systems for easy cleaning and maintenance, minimizing downtime.

General Requirements for Tanks:

- All tanks must comply with relevant IS/ASME standards for pressure vessels and storage.

- Tanks must include ventilation systems to manage any gases generated during the process, particularly in the ammonia-rich storage tanks.

9. MAJOR RESPONSIBILITIES OF CONTRACTOR & PURCHASER

9.1. Responsibilities of contractor

It is not the intent of these technical specifications to specify completely all details of design & fabrication of any plant/equipment, nevertheless, the equipment shall conform in all respects to high standards of engineering design & workmanship and be capable of performing in continuous commercial operation up to agreed performance standards in a manner acceptable to the purchaser.

The purchaser will interpret the meaning of various equipment specification and drawings and shall have the power to reject any material/ equipment which in their opinion is not in full accordance to tender specifications.

The contractor shall be responsible to undertake all work involved in implementing the project within their battery limits. This shall include but not limited to design, manufacture, supply, installation and commissioning of the entire project component including process equipment, process pipe-work, utilities equipment, services pipe-work, electrical equipment, power cabling, instruments and controls, instrumentation & control cabling, pneumatics, and automation. Also, all necessary supports, support structures, cable ducts, trenching, conduits etc. required to complete the installation and to meet the purchaser high standards are included. No exclusions of any nature are acceptable, other than those detailed in this Tender document to be in the supply of purchaser, or in the scope of one of the other Tender Packages.

In particular the Supplier shall be responsible for:

- Developing the process design, complete engineering design, manufacture and/or supply of all goods and services and ensuring best performance of individual equipment/system/ process plant as a whole. The supplier shall avail the assistance of reputed specialists in their respective fields, wherever required.
- Development of Automation schemes, software, interfaces etc. and their incorporation in the project to the entire satisfaction of the Purchaser.

- Providing purchaser with technical data, technical literature, production and service load calculations.
- Arranging for approvals from various statutory authorities on behalf of the purchaser. The statutory fees shall be reimbursed by the purchaser on production of receipts.
- Providing first charge of oil, lubricants and consumables. First charge means that these items shall be replenished until the successful completion of product trials.
- Execution of the project in accordance with the prevailing Indian Standards, Indian Electricity Rules, Indian Explosives Act, Indian Factories Act, Indian Pollution Act and any other Act which may be relevant to the project and obtaining approvals thereof. Wherever Indian Standards are not available the bidder shall follow International Standards.
- Adequate protection of equipment stored in open within the project site premises.
- Ensuring satisfactory performance and After-Sales service of all items included in the scope.
- Test equipment, test kits, instrumentation & materials required for establishing performance parameters.
- Fire detection and alarm system for control rooms and supply of fire extinguishers at all strategic points as per statutory requirement for the building where the equipment under this package would be installed.
- Necessary man-power, construction equipment and tools required to undertake all work involved in tender package.
- Insurance coverage against mishaps including due to fire, lightning etc.
- Arrangement of proper and adequate lighting at work places. It shall be responsibility of the bidder to arrange power required for construction/erection at site. In case power is available and provided by purchaser amount @ 0.5% of the contract value or at actuals shall be recovered from the bidder.
- Arranging and deploying required security personnels for preventions of theft/damage to the equipment supplied shall be responsibility of

the bidder to keep ward and watch for all the equipments from supply till plant is handed over to purchaser.

- Ancillary services like spares inventory for testing & trial runs, maintenance schedules, special tools/tackles etc.
- Testing, commissioning and operation of the plant during production trials to the satisfaction of the purchaser.
- Performance guarantees with regard to the following:
 - a. Rated performance of section(s) and complete system(s).
 - b. Product quality standards conforming to the prevailing International Standards.
 - c. Consumption of utilities for section-wise individual equipment and for the complete system.
 - d. Establishment of product losses
- Training of purchaser personnel in use and management of the automation systems, plant operation and control, maintenance and repair of systems and equipment.

9.2. Responsibilities of purchaser:

- Details of civil design, building layout and drainage and sewage disposal details.
- Document on local site conditions related to climate, access and communications.
- Temporary water and power supply at one point within the dairy premises, if available, on chargeable basis.
- Lockable store, if available, for storage of expensive materials within the dairy premises. Otherwise, contractor has to arrange on its own.
- Engineering personnel to liaison with the supplier, Project Manager and the execution team.
- Lightning protection system of building.
- Permanent water and power supply at the time of commissioning of the plant.
- Adequate staff including operators, supervisors and engineers for testing, commissioning and product trials.
- All buildings including roads, drainage and minor civil works after and during plant execution.

- Provision of and cost of services, raw products, packaging materials & chemicals (if available in the country).

10. GENERAL GUIDELINES

10.1. General Specification

The following shall apply to all the equipment in various sections of the Cow Urine Processing Plant at Radhanpur Chilling Centre.

All MS structures and equipment to be given one coat of anti-corrosive paint followed by two coats of paint of approved shade.

All motors in processing unit shall be covered with SS shrouds. Shrouds should be easily removable and should allow free air circulation as well as entry of electrical cables. All motors installed outside the building shall have GI shrouds.

Suitable safety guards should be provided wherever required.

Makes of various equipment/components shall be selected out of the makes given in the tenders by Purchaser mutually after considering their merits.

All weld joints shall be ground smooth. All corners should be well-rounded. In case of SS surfaces, external & internal surfaces shall be polished to 150 grits. DP tests shall be carried out for all welds after polishing for all holding vessels/tanks.

For non-specified equipment/item, surfaces coming in contact with Cow Urine shall be made of SS 304 or SS 316 depending on the application as subsequently desired.

All SS joints should be argon-arc welded only.

Stainless steel tables of required size and at appropriate locations shall be provided for work-in-process inventory and other such activities. Platforms and hoists for general operation and maintenance of equipment shall also be provided.

Wherever a "Lot" has been indicated a detailed list shall be provided by the Contractor.

All instruments, controls, and Automation system should be manufactured by an internationally recognized Indian manufacturer or foreign manufacturer with suitable agency representation in India.

All fittings/equipments are to conform to SMS standard.

Detailed preventive maintenance schedules as well as operational manuals of all equipment shall be provided by the contractor in the form of computer software after commissioning along with printed copies.

The manual shall cover the following aspects:

- Brief Process Description & Flow sheet.
- Unit-wise function and description.
- Equipment-wise details, operational instructions, maintenance procedures and schedules.
- Plant start-up, commissioning, normal operation, and emergency operation.
- Trouble-shooting.
- As-built drawings of the equipments and connection diagrams.
- Spares inventory and services of supply.

The manuals and drawings are to be supplied as follows:

- 4 sets of manuals and drawings in hard copy.
- 3 sets of above in soft copy in CDs/Pen Drive.

10.2. Automation

The automation system shall be dispatched to site only after testing by simulation and FAT (Factory/Site Acceptance Test).

10.3. Bid Structure of Technical Section

10.3.1. General

This part of the tender document defines the way the bidders are required to structure the presentation of the technical section of the bid.

All the technical data required by the tender is to be provided in the format given in this section. If no format is given for any specific item the bidder may request formal approval of their own format at the bidders meetings.

Any bidder not following the required bid document structure or presenting technical data that is not the required format is liable to be deemed non-responsive.

10.3.2. Proposed Structure

The technical section of the bid is to be structured in the same order as the tender document. Each statement is to be numbered with the same sub-section & paragraph number as in the tender document. Every page of the document of the bid is to be numbered using the pre-fix of the sub-section and the suffix of the page no. The general structure is, therefore, to be as below:

Sub-section	:	Subject	:	Table of contents.
1.	:	Introduction.		
2.	:	Responsibilities.		
3.	:	General specifications.		
4.	:	Design Basis.		
5.	:	Project Management.		
6.	:	List of equipment and specifications.		
7.	:	Deviations from technical requirements.		
8.	:	Additional items.		
9.	:	Drawings and tables.		
10.	:	Battery limits.		

The bidder shall cover each requirement of the tender document by statements technical data & descriptive material and, in particular to detail the following:

Introduction

The bidder is to describe his technical proposal in detail, stating the processes and systems which he has applied in designing the plant. Also to highlight any special technical innovations that the bidder proposes to include in the plant that will improve the performance, reduce the operating cost, or improve product quality. Any such highlights should be cross referred with the bid sub-section and paragraph number as applicable.

Responsibilities

Responsibilities of the Contractor :

The bidder is required to specifically state his acceptance or non-acceptance of each clause in this subsection. Non-acceptance shall be deemed a deviation from the tender, and should be mentioned in the Technical/ Bidding Terms Deviations in the bid.

Responsibilities of Purchaser :

The bidder is required to state here any additional responsibilities that he considers or to be borne by Purchaser besides those described in the tender.

General Guidelines

The bidder is required to provide information asked for in this subsection.

Design Basis

The bidder is required to follow the design basis in the tender, and indicate clearly where additional processes or alternative processes or equipment are considered to be necessary for achieving the optimum plant operating efficiency and optimum product quality within the standards specified.

Under the utilities quantify the peak and daily load of each utility & cross refer this to service load histograms that are to be provided with this bid.

Project Management

Time Schedule

The contractor is to state in this sub-section the proposed programme of implementation from receipt of order to commencement of product trials, in the form of MS Project, project Bar chart or PERT network.

Management Team

The contractor is to detail the make-up of the management team in terms of designation, qualifications & proposed man months of attendance in accordance of this section of the tender. Also it is to quantify the support that will be given by foreign collaborators, with designation and man-months attendance in India & at site. The bidder is to ensure that the following sections are fully detailed and quantify the duration and man-power applied to each.

- Execution
- Commissioning.
- Product trials.
- Training.
- Stand-by operation.
- Service cover.

List of equipment and specifications

The bidder is required to follow the sequence of tender document in each of the sections/sub-sections for which he bids, & make a statement on each paragraph. No item is to be left without a clarifying statement.

Deviation from technical requirements

All technical deviations are to be stated. This is mandatory, and failure to comply will make the bid liable to be deemed non-responsive.

Additional Items

The bidder should include additional items as anticipated by him, however, acceptance of any/all the items shall be at the discretion of Purchaser.

Drawings & Tables

The list of drawings and technical documents required for technical evaluation are included in this sub-section. This includes a number of data sheet formats to be completed by the bidder. The completion of these formats is mandatory, and failure to comply will make the bid liable to be deemed non responsive.

Battery Limits

Any point in the battery limits that are not clear to the bidder should raise query for clarification.

11. PROJECT MANAGEMENT

11.1. Time Schedule

The project execution shall be time-bound as per the mutually agreed time schedule which would not exceed 6 months from the date of signing the contract to commissioning of the plant i.e., up to commencement of product trials and service load trials.

The Project Manager will provide the Purchaser's Project In-charge with monthly progress reports which clearly indicate the actual Vs. planned progress and the new likely completion dates of supply, erection, commissioning and product trials.

The project staffing pattern shall be submitted with the offer and should include sufficient personnel to meet the execution time schedule.

Details of documentation to be submitted shall be according to the overall project programme.

11.2. Management Team

A competent execution team shall be deputed at site and shall be headed by a Project Manager who shall be adequately experienced in Project Management of such magnitude and type. The Project Manager shall avail of assistance from reputed experts in various fields who shall be directly responsible for satisfactory execution.

The Project Manager shall be responsible for overall implementation of the entire project, from commencement to the final takeover of the plant.

Services of a Project Engineer shall be ensured for the day to day operations and co-ordination to ensure successful and satisfactory design, procurement, manufacture, inspection, erection, testing & commissioning of all the equipment/ facilities/ systems within the time-bound schedule.

The Project Manager and Project Engineer shall attend all technical and review meetings between various parties involved in the project and ensure implementation of all decisions taken in the meetings.

The Project Manager shall be responsible for detailed material accounting at site and management of the store maintained at site.

The Purchaser shall nominate a Project In-charge with whom the supplier shall generally communicate/co-ordinate.

The contractor has to fully authorize the Project Manager to take on-the-spot decision with regard to :-

- a) Modification in layout and execution programme to suit local conditions.
- b) To purchase essential materials from local market to avoid delays.

For smooth execution of the project, a team of Project Manager and Key Personnel shall remain consistent throughout the execution period.

After satisfactory erection and testing, competent commissioning team shall be deputed to establish the performance parameters for a specific period.

11.3. Approvals

Approval on technical documentation (with or without specified amendments) shall be given by Purchaser within ten working days after submission. The amendments which are not in the original scope of work or due to changes in concept, shall be taken up by the supplier as per mutually agreed rates to be decided before execution, and shall be binding on the supplier.

Supplier shall obtain approval for purchase of specific makes of equipment whose makes are not mentioned in his offer.

All the detailed design calculations regarding the selection of equipment sizes, system types, etc. shall be submitted to Purchaser for their specific observation and record.

11.4. Inspection

For indigenous items, the supplier shall invite Purchaser for inspection and preliminary testing. The inspection may be required at various stages of

manufacture/assembly for some items. However, for imported items where the inspection has to be done abroad, the supplier shall do the inspection at his cost and submit the necessary test certificate.

11.5. Site work & Installation

Protection of electronic equipment:

It is the responsibility of contractor to ensure that all the electronic equipment & control systems are fully protected against hostile environment, humidity, heat and dust that will be encountered during storage & installation.

11.6. Commissioning

After satisfactory erection & testing a competent team shall be deputed to commission the plant & to run product trials & to establish performance parameters. Commissioning means the stabilized operation of the plant on Cow Urine for commercial purpose product.

11.7. Product Trials & Performance Guarantees

The plant will be operated at full capacity to the satisfaction of Purchaser for a period of 15 days (after stabilized operation of plant on Cow Urine), during which the entire plant including the utilities shall run simultaneously & the plant shall fulfil all the performance criteria. These operation tests shall be simultaneous & consecutive. Each section of the plant shall be operated at rated capacity for 15 days trials for 3 Hours of continuous operation for morning and 3 Hours of continuous operation for evening shift.

Performance & services consumption guarantees and the relevant penalties for not meeting the rated capacities and efficiencies shall be covered in detailed tender document.

12. PERFORMANCE TEST AND GURANTEES

Performance test :

The contractor is required to detail the documentation proposed for performance test of all major items of equipment and all major processes and services plants. This shall detail the guaranteed v/s actual throughput or output or performance (as relevant) and the tolerance of accuracy. Also the test methods proposed to demonstrates that these guarantees have been met:

Formats of Guarantees :

- a) Guarantees for throughput of various sections of plant
- b) Product quality
- c) Weight and measurement tolerance
- d) Product Solid loss
- e) Service consumption

Formats for performance tests:

- a) Procedure for carrying out the tests
- b) Method of measurement
- c) Test durations
- d) Evaluation methodology

SECTION - VII

BID FORM, PRICE SCHEDULE AND PRICE SUMMARY

Section – VII

Bid Form, Price Schedule and Price Summary

Form of Bid

(Bidders are requested to furnish the Form of Bid and appropriate Price Schedule in the Format given in this Section and filling all the blank spaces.)

Ref. No.

Date:

To: Banaskantha District Co-operative Milk Producers' union Ltd.

Palanpur-385001(GUJARAT)

Gentlemen:

Having examined the Conditions of Contract , technical Specifications and the Drawings included in or referred to in the Bidding Documents including Addenda Nos.(insert Numbers), the receipt of which is hereby duty acknowledged , we the undersigned, offer to supply and deliver Goods and Services including installation and commissioning as detailed in the price schedule, in conformity with technical specifications and drawings except to the extent of deviation statement furnished in our bid) and the conditions of counteract as mentioned in or referred to in the said bidding Document for the sum of total bid Amount in words and figures) or such other sums may be ascertained in accordance with the schedule of prices attached herewith and made part of this bid and the said conditions.

Our acceptance to all the conditions of the Bidding Document in this bid form shall persist over any other terms and conditions, if any, given in our bid.

We undertake, if our bid is accepted to commence and complete delivery of all the goods and Services including installation and commissioning as specified in the Schedule of Requirement ns of the Bid Document, from the date of receipt of your Purchase order.

If our Bid is accepted, we will obtain the bank guarantees as per the condition of the Contract for the due performance of the contract.

We agree to abide by this bid for the period of 120 days from the days fix for bid opening as per the instruction to Bidders and it shall remain binding upon us and may be accepted at any time expiration of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your purchase order /notification of award shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest bid you may receive.

Dated this _____ day of _____ 2024

Signature
(In the Capacity of)
Duly authorized to sign bid for and on Behalf
of
(Name and Address of Bidder):

Name of Witness: _____

Signature: _____

Address: _____

Section – VII (A)

Bid Form, Price Schedule and Price Summary

PRICE SCHEDULE

(Refer clause 11.2-Section –II)

Sr. No.	Item Description	Qty	Unit	Amount (In Rs.)
1	Design, engineering, manufacture, supply of Cow Urine Processing Plant at Sardarpura, Radhanpur, Dist.: Banaskantha, Gujarat on turnkey basis utilizing existing equipments and facilities available at the Radhanpur Milk Chilling Centre	1	Job	
2	Labour charges and consumables for installation, testing and commissioning of Cow Urine Processing Plant at Sardarpura, Radhanpur, Dist.: Banaskantha, Gujarat on turnkey basis utilizing existing equipments and facilities available at the Radhanpur Milk Chilling Centre	1	Job	
	TOTAL FOR Sardarpura, Radhanpur, Gujarat inclusive of all taxes, GST, duties, freight, insurance etc.			

Signature:

Name and Address of the Bidder with seal: _____

Note:

1. In case Of discrepancy between unit price and total price, unit price shall prevail.
2. BIDDER MUST QUOTE THEIR PRICES PART-1, PART- 2 AND PART-3 AT S.N. 1,2,3. IN CASE THE BIDDER OMITTS ANY PART(S), THEIR BID WILL BE CONSIDERED AS INCOMPLETE AND TREATED AS NON-RESPONSIVE.
3. Forms as applicable under GST regime shall be issued by the project Authority. Bidder should indicate GST no/TIN/applicable registration and Pan Numbers in their bid.

Bidder to submit the FOR-Site price break up of individual item/equipment with basic price, taxes and duties, insurance, freight, installation and commissioning charges.

Section – VII (B)

Bid Form, Price Schedule and Price Summary

PRICE SCHEDULE SUMMARY

(PLEASE REFER CLAUSE 11.2 Section II)

Sr. No.	Item Description	Amount (In Rs)
	A. DESIGN AND SUPPLY	
1.	Value of Supplies from outside the state (Figure inclusive of applicable GST may please be furnished – see note below)	
2.	Value of Local Supplies inclusive of GST (Figure inclusive of local taxes may please be furnished)	
3.	Value of imported Supplies inclusive of custom duties and other duties (Figure inclusive of local taxes may please be furnished)	
	SUB TOTAL A:	
	B. INSTALLATION TESTING AND COMMISSIONING CHARGES	
1.	Job Charges	
2.	GST	
3.	Other taxes (If Applicable)	
	SUB TOTAL B:	
	TOTAL OF A+B IN INR	

Note:

The bidder is contractually obligated to make supplies from outside the State against Form C/D as indicated in Sr. No. A (1) to the extent of supply value mentioned. The purchaser is registered dealers under the CST Act in the state in which the works are executed and shall issue Form D/C to the Bidder to the extent of the supplies indicated.

SECTION – VIII

**BANK GUARANTEE FORMAT FOR BID SECURITY / EARNEST
MONEY DEPOSIT**

Section – VIII

Bank Guarantee Format for Bid Security / Earnest Money Deposit

(On the non-judicial stamp paper as per the stamp act of local state govt.)

Bank Guarantee no.

Date:

This deed of guarantee made this _____ day of 2024 (Two Thousand Twenty Four) by (name and address of the bank), hereinafter referred to as the bank which shall unless repugnant to the context and meaning thereof includes its legal representative, successors and assignees and the Banas Dairy (hereinafter referred to as the BANAS DAIRY) which expression shall unless repugnant to the context and meaning there of include its legal representative, successors and assignees.

Whereas, BANAS DAIRY has invited bids for the supply/ supply and installation of _____ by the invitation to bid No. _____ AND WHERE AS M/s. _____ (name and address of the Bidders) and have agreed to deposit to the Banas Dairy an amount indicated in the invitation to Bid as per terms and condition of the bidding documents.

And whereas the Banas Dairy is also willing to accept a Bank guarantee in lieu of payment by demand draft of an amount equivalent to the amount of bid security required to be deposited by the bidder to the Banas Dairy and the guarantee shall be kept valid for 150 days after day of opening of bid.

In consideration of the BANAS DAIRY having agreed to consider the bid proposals having submitted by the bidder without depositing the amount of bid security and against this Bank guarantee, we (name and the address of the bank) hereby undertake and guarantee to make payment to the Banas Dairy the amount of bid security or any part thereof not deposited by the bidder to the Banas Dairy at any time (time being essence of the contract) when Banas Dairy ask for the same as per terms and condition of the bidding documents within 120 days from the date of opening of the bids.

The Bank further undertake not to revoke this guarantee during its currency except with the previous consent of the BANAS DAIRY in writing and guarantee shall be a continuous and irrevocable guarantee up to a sum of the Rs. _____ (Rupees _____ only) provided always that any indulgence or forbearance on the part of the Banas Dairy to the said bidder, with or without the consent of the Bank shall not prejudice or restrict remedies against the bank nor shall the same in any event be a ground of defence by the Bank against the Banas Dairy.

In case the Banas Dairy puts forth a demand in writing on the Bank for the payment of the amount in full or in part this bank guarantee, the bank will consider; without demur that such demand by it is conclusive evidence and proof that the Bidder has failed in complying with the terms & conditions stipulated by the Banas Dairy in its bidding document and payment will be made to the Banas dairy without raising any disputes regarding the reasons for such failures on the part of the bidder.

The Bank shall not be discharged or released from this guarantee by any arrangement between the bidder and the Banas Dairy with or without the consent of

the Bank or any alterations in the obligations of the parties or by an indulgence forbearance shown by the Banas Dairy to the bidder.

This guarantee shall be in addition to and without prejudice to any other securities or remedies which the BANAS DAIRY may have or hereafter possess in respect of the goods supplied or intended to be supplied and the BANAS DAIRY shall be under no obligation to marshal in favour of the bank any such securities or funds or asset that the BANAS DAIRY may be entitled to receive or have a claim upon and the BANAS DAIRY at its absolute discretion may vary, exchange, renew, modify or refuse to complete to enforce or assign any security or instrument.

The bank agrees that the amount hereby guaranteed shall be due and payable to the BANAS DAIRY on serving us with a notice before expiry of guarantee, requiring the payment of the amount and such notice shall be deemed to have been served on the Bank either by actual delivery thereof to the Bank by Registered post at the address of the Bank.

In order to give full effect to the provisions of this guarantee the Bank hereby waives all rights inconsistent with the above provisions and which the Bank might otherwise as a guarantor be entitled to claim and enforce.

Notwithstanding anything stated hereinbefore: (i) our liability under this guarantee is restricted to Rs. _____. (ii) the guarantee shall remain in force till _____ 2024 and (iii) The Bank is liable to pay the guarantee amount or any part thereof under this bank guarantee only if the BANAS DAIRY serves upon the Bank a written claim or demand on or before _____.

Place:

Date:

(SIGNATURE)

SEAL

CODE NO:

NOTE:

1. BIDDERS SHOULD ENSURE THAT SEAL AND CODE NO. OF THE SIGNATORY IS PUT BY THE BANKERS, BEFORE SUBMISSION OF THE BANK GUARANTEES.
2. STAMP PAPER IS NOT REQUIRED IN CASE OF FOREIGN SUPPLIERS.
3. THE VALUE OF STAMP DUTY SHOULD BE AS THE LATEST STAMP ACT OF LOCAL STATE GOVERNMENT FROM WHERE THE BANK GUARANTEE ISSUED.

SECTION - IX
CONTRACT FORM

CONTRACT FORM

(On a Non-Judicial Stamp Paper of Rs. 100.00)

This agreement made the _____ day of _____, 2017 between Banaskantha District Co-Operative Milk Producers' Union Ltd. Palanpur (GUJARAT), India (hereinafter "The Purchaser") of the one part and of _____ (hereinafter "The Supplier") of the other part:

Whereas the purchaser is desirous that certain goods and ancillary Services should be provide by the supplier viz. _____ (Brief description of goods and Services)and has accepted a bid submitted by the Supplier in response to the Purchaser's bidding Document Reference for the design ,supply ,installation ,testing and commissioning of those Goods and Services in the sum of Rs. _____ (Rupees _____) (hereinafter "the Contract Price").

NOW THIS AGREEMENT WITNESSTH AS FOLLOWS:

1. In this agreement words and expressions shall have the same meaning as in the in the above referred Bidding Document.
2. The following Documents shall be deemed to form and be read and construed as part this agreement, viz:
 - a. The offer and price schedule submitted by the supplier:
 - b. The schedule of requirement /list of items and the technical specifications in section and in the above referred document:
 - c. The terms and conditions in the above referred document:
 - d. The purchaser's purchase order No.: _____ dated _____ (File ref: _____)
3. In consideration of the payments to be made by the purchaser to the supplier as hereinafter mentioned, the supplier hereby convents with the purchase to provide the goods and services and to remedy defects therein in conformity in all as respects with the provisions of the purchaser's purchase order and BIDDING document.
4. The purchaser hereby convents to pay the supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the contract price or such other sum may become payable under the provisions of the purchase Order at the times and in the manner prescribed in the purchase order and Bidding Document.

In Witness whereof the parties have caused this agreement to be executed in accordance with their respective laws the day and year first above written.

Signed sealed and delivered by the said Banaskantha District Co-operative Milk Producers' Union Ltd. (For and behalf of the purchaser) in presence of:

1)

2)

Signed sealed and delivered by the said M/s. _____ (For the Supplier) in the presence of:

1)

2)

SECTION - X

**FORM OF BANK GUARANTEES FOR PERFORMANCE
SECURITY & ADVANCE PAYMENT**

Section – X

(Form of bank guarantee for performance security)

(On the non-judicial stamp paper as per the stamp act of local state govt.)

Bank Guarantee No.:

Date:

1. This deed of performance guarantee made this _____ day of 2024 (Two Thousand Twenty Four) by (name and address of the bank) which expression shall unless repugnant to the context and meaning thereof includes its legal representative, successors and assignees and the Banas Dairy (hereinafter referred to as the BANAS DAIRY) which expression shall unless repugnant to the context and meaning thereof include its legal representative.
2. Whereas, BANAS DAIRY/ its clients has awarded a contract and purchase order bearing NO. _____ dated _____ on M/s. _____ (name and address of the party) (hereinafter referred to as the 'supplier') for the supply/supply and erection and commissioning of _____. And whereas, The supplier has agreed to submit a performance guarantee in the form of the Bank guarantee to a the BANAS DAIRY in term and conditions of the Bidding Document and the contract which will be kept valid up to ____calendar months from the date of Bank Guarantee (the period of warranty period).And whereas, the Bank and its duty constituted agent and officer has already read and understood the contact made between the BANAS DAIRY and the supplier.
3. In consideration of the BANAS DAIRY having agreed to award the contact/purchase order on the supplier, we _____(name of the Bank), do hereby guarantee, undertake, promise and agree to with the BANAS DAIRY, its legal representative, successors and assignees that the BANAS DAIRY, its legal representatives, successors and assignees that the within named(name of the supplier) their legal representatives and assignees will faithfully perform and fulfil everything within the Bidding Document and the contract/purchase order on their part to be performed or fulfilled at the time (time being the essence of the contract)and in the manner therein provided, do all obligations there under and we further undertake and guarantee to make payment to the BANAS DAIRY of Rs. _____(Rupees _____only) being the 10% of the contact value, without any demur perform and fulfil everything within the bidding document and the contract/purchase order on their part to by performed or

fulfilled, at the time and the manner therein provided and do not wilfully and promptly do all obligations there under.

4. In case, the supplier fails to perform or fulfil the contract/purchase order as per the terms and conditions agreed upon ,the BANAS DAIRY is entitled to demand an amount equal to 10% of the contract value from the supplier and the demand made by the BANAS DAIRY by itself will be conclusive evidence and proof that the supplier has failed to perform or fulfil his obligations and neither the supplier nor the Bank will be entitled to raise any dispute regarding the reasons for the failure of performance or fulfilment, on any ground.
5. We, (name of the Bank),do hereby undertake to pay an amount equal to 10% of the order value, being the amount due and payable under this guarantee without any demur, merely on a demand from the BANAS DAIRY which has to be served on us before the expiry, date of Bank Guarantee i.e.,_____ stating that the amount claimed is due by way of non-performance of the contractual obligation as aforesaid commitments/purchase order, any such demand made on the Bank shall be conclusive 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) being the amount equal to 10% of the total order value.
6. We, (name of the Bank), further ,agree that the performance guarantee herein contained shall remain in full force and effect for a period_____ calendar months from the date of Bank guarantee (the period should be till end of warranty period) and till the BANAS DAIRY certifies that the and conditions of the said contract/ purchase order have been fully and properly carried out by the said supplier and accordingly discharge the guarantee, unless a demand or claim under this guarantee is made on us in writing by the BANAS DAIRY on or before_____, we shall be discharged from all under this performance guarantee thereafter.
7. We,(name of the bank),further, agree with the BANAS DAIRY that the BANAS DAIRY 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 bidding document and the contract/purchase order or to extend the time of performance by the said supplier from time to time or postpone for any time or from time to time and any of the power exercisable by the BANAS DAIRY against the supplier and to forebear or enforce any of the terms and conditions relating to the said bidding document and the contract/purchase order and we shall not

be relieved from our liability by reason of any such variation, or extension being granted to the said supplier, or for any forbearance, act or omission on the part of the BANAS DAIRY to the said supplier 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.

8. This guarantee shall be in addition to and without prejudice to any other securities or remedies which the BANAS DAIRY may have or hereafter possess in respect of the goods supplied or intended to be supplied and the BANAS DAIRY shall be under no obligation to marshal in favour of the bank any such securities or funds or asset that the BANAS DAIRY may be entitled to receive or have a claim upon and the BANAS DAIRY at its absolute discretion may vary, exchange, renew, modify or refuse to complete to enforce or assign any security or instrument.
9. The bank agrees that the amount hereby guaranteed shall be due and payable to the BANAS DAIRY on serving us with a notice before expiry of guarantee, requiring the payment of the amount and such notice shall be deemed to have been served on the Bank either by actual delivery thereof to the Bank by Registered post at the address of the Bank.
10. In order to give full effect to the provisions of this guarantee the Bank hereby waives all rights inconsistent with the above provisions and which the Bank might otherwise as a guarantor be entitled to claim and enforce.
11. We, _____, undertake to renew the Bank Guarantee provided the request for renewal is made by the supplier before the expiry of Bank Guarantee.
12. We, _____, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the BANAS DAIRY in writing and guarantee shall be a continuous and irrevocable guarantee up to a sum of the Rs. _____ (Rupees _____ only).
13. Notwithstanding anything stated hereinbefore: (i) our liability under this guarantee is restricted to Rs. _____. (ii) the guarantee shall remain in force till _____ 20____ and (iii) The Bank is liable to pay the guarantee amount or any part thereof under this bank guarantee only if the BANAS DAIRY serves upon if the BANAS DAIRY serves upon the Bank a written claim or demand on or before _____.

Place:

Date:

(SIGNATURE)

SEAL

CODE No.:

NOTE:

1. SUPPLIERS SHOULD ENSURE THAT SEAL AND CODE NO. OF THE SIGNATORY IS PUT BY THE BANKERS, BEFORE SUBMISSION OF THE BANK GUARANTEES.
2. STAMP PAPER IS NOT REQUIRED IN CASE OF FOREIGN SUPPLIERS.
3. THE VALUE OF STAMP DUTY SHOULD BE AS THE LATEST STAMP ACT OF LOCAL STATE GOVERNMENT FROM WHERE THE BANK GUARANTEE ISSUED.

(Form of bank guarantee against advance payment)

(On the Non-Judicial Stamp Paper as per the stamp Act of local state govt.)

Bank Guarantee No.:

Date:

1. In consideration of the Banaskantha District Co-Operative Milk Producers' Union Ltd. (hereinafter called Banas dairy) having agreed to grant an advance of Rs. _____ (Rupees _____ only) to M/s. _____ (hereinafter called the said supplier) under the terms and conditions of an contract/purchase order No. _____ dated _____ made between the BANAS DAIRY and M/s. _____ for the design, supply, erection and commissioning (hereinafter called the said contract/purchase order) on production of a bank guarantee for Rs. _____ (Rupees _____ only) Against any loss/damage caused to or suffered would be caused or suffered by the BANAS DAIRY by reason of any breach by the said supplier (s) of any of the terms and conditions contained in the said contract/purchase order.
2. We, _____, do hereby undertake to pay the amounts due and payable under this guarantee without any demur merely on a demand from the BANAS DAIRY which has to be served on us before the expiry date of bank guarantee i.e., _____ stating that the amount claimed is due by way of loss or damage caused to our would be caused to or suffered by the BANAS DAIRY by reasons of any breach by the said supplier (s) of any of the terms and conditions contained in the contract/purchase order or by reasons of the supplier (s) failure to perform the said contract/purchase order, any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this guarantee shall be restricted to an amount not exceeding Rs. _____ (Rupees _____ only)
3. We, _____, 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 contract/purchase order and that it shall said contract purchase order have been fully paid and it's claims satisfied or discharged or till the BANAS DAIRY certifies that the terms and conditions of the said contract/purchase order have been fully paid and it's claims satisfied or discharged or till the BANAS DAIRY certifies that the terms and conditions of the said contract/purchase order have been fully and properly carried out by the said

supplier this guarantee made on us in writing on or order _____, we shall be discharged from all liability under this guarantee thereafter.

4. We _____, further agree with the BANAS DAIRY that the BANAS DAIRY shall have the fullest liability without affecting in any manner our obligation hereunder to vary any of the terms and conditions of the said contract/purchase order to extend time of performance by the said supplier from time to time or to postpone for any time or from time to time any of the power exercisable by the BANAS DAIRY against the said supplier and to forbear or enforce any of the terms and conditions relating to the said contract/purchase order and we shall not be relieved from our liability by reason of any such variation, or extension or for any forbearance, act of omission on the part of the BANAS DAIRY or any indulgence by the BANAS DAIRY to the said supplier 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.
5. The Bank agrees that the amount hereby guaranteed shall be due and payable to the BANAS DAIRY on serving us with a notice before expiry of Bank Guarantee requiring the payment of the amount and such notice shall be deemed to have been served on the Bank either by actual delivery thereof the Bank or by dispatch thereof to the Bank by registered post at address of the Bank.
6. We, _____, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the BANAS DAIRY in writing.
7. We, _____, undertake to renew the Bank Guarantee provided the request for renewal is made by the said supplier before the expiry of Bank Guarantee.
8. Notwithstanding anything stated hereinbefore (i) our liability under this bank guarantee _____ is _____ restricted _____ to Rs. _____ (Rupees _____ only) (ii) The guarantee shall remain in force till the _____ 20 _____ and (iii) The bank is liable to pay the guarantee amount or any part thereof under this bank guarantee only if the BANAS DAIRY serves upon the bank a written claim or demand on or before _____

Place:

Date:

(SIGNATURE)

SEAL

CODE No.:

NOTE:

1. SUPPLIERS SHOULD ENSURE THAT SEAL AND CODE NO. OF THE SIGNATORY IS PUT BY THE BANKERS, BEFORE SUBMISSION OF THE BANK GUARANTEES.
2. STAMP PAPER IS NOT REQUIRED IN CASE OF FOREIGN SUPPLIERS.
3. THE VALUE OF STAMP DUTY SHOULD BE AS THE LATEST STAMP ACT OF LOCAL STATE GOVERNMENT FROM WHERE THE BANK GUARANTEE ISSUED.

SECTION - XI
DEVIATION STATEMENT FORMS

Section – XI
DEVIATION STATEMENT FORMS

TECHNICAL DEVIATION STATEMENT

FORM PART – A

(1) The following are particulars of deviation from the requirement of tender specification:

CLAUSE	DEVIATION	REMARKS (Including Justification)

The technical specification furnished in the bidding document shall prevail over those of any other document forming a part of our bid, except only to the extent of deviation furnished in this statement.

Dated:

Signature and Seal of the
Manufacturer/Bidder

Note:

1. Where there is no deviation, the statement should be returned duly signed with an endorsement indication “NO DEVIATIONS”.

BIDDING TERMS DEVIATION STATEMENT

FORM PART – B

(2) The following are the particulars of deviations from the requirement of the bidding condition/terms:

CLAUSE	DEVIATION	REMARKS (Including Justification)

Dated:

Signature and Seal of the
Manufacturer/Bidder

Note:

1. Where there is no deviation, the statement should be returned duly signed with an endorsement indication “NO DEVIATIONS”.

SECTION – XII

QUALIFICATION APPLICATION

Section – XII

QUALIFICATION APPLICATION

All the bidders submitting their bids against this bid for any or all the items must submit the qualification application along with the information in the following formats together with the relevant documentation:

FINANCIAL, BUSINESS AND TECHNICAL CAPABILITY

(FORMATE-A)

NAME and Address of bidder:

Phones: _____ Fax: _____

1. Latest balance sheet filed with _____ on _____ (Attach audited copies of annual accounts of past 3 years. Indigenous bidders to attach copy of accounts audited under section 44 ab of income tax act. In case the accounts are not required to be audited, the information in this statement should be attested by a chartered accountant or Manager of a Nationalized bank).
2. Latest profit & Loss statement from _____ to _____ filed with _____ on _____ (Attach an audited copy)
3. Financial position (in the respective currency)
 - (a) Cash & Bank balances
 - (b) Fixed assets – Gross and Net
 - (c) Current Assets
 - (d) Current Liabilities
 - a. Bank cash credit
 - b. Other (including sun-dry creditors)
 - (e) Provisions
 - (f) Contingent liabilities (including claims not acknowledged please specify)
 - (g) Inventories
 - (h) Share capital
 - a. Free reserves
 - b. Other reserves (please specify)
 - (i) Term loans from financial institution and banks
 - (j) Working capital

- (k) Net worth
- (l) Debtors and advances considered good:
 - a. More than 6 months
 - b. Less than 6 months
- 4. Total liabilities:
 - (a) Current ratio: current Assets to current liabilities
 - (b) Acid test ratio: case temporary investment held in held in lieu of cash and current receivable to current liabilities.
 - (c) Total liability to net worth.
- 5. Net sales (in the respective currency)
 - (a) Current period
 - (b) During the last financial year
 - (c) During the year before last financial year
- 6. Net profit before tax
 - (a) Current period
 - (b) During the last financial year
 - (c) During the year before last financial year

The profit and loss statement have been certified through _____ by _____.

- 7. Bidders financial arrangement (check appropriate item)
 - (a) Own resources
 - (b) Bank credits
 - (c) Others (specify)
- 8. Certificate of financial soundness from bankers of bidders.
- 9. Income tax details:

Please enclose copies of following documents:

 - (a) Income tax PAN No. and
 - (b) Last income tax return filed.

10. Sales

Category	Value of current orders to be executed in respective currency	Value of anticipated sales for next financial year in respective currency
Govt. Department		
Commercial		

11. Licensed capacity to manufacture:

Description of equipment	Size/capacity	Licensed capacity	No. of units manufactured		
			Current year	Last year	Second last year

12. List, if any, of bidders' rate contact with the following organizations:

	Organization	Yes/no	If yes, date contract finalized
a)	Directorate General of supplies & Disposal, Government of India		
b)	Central Equipment stores purchase organization for state governments.		

13. Describe quality control organization, if any and give the organization chart.

- (a) Are goods offered subject to batch test, random sampling or full 100% test for quality?
- (b) Are tests carried out by factory employees or by a separate testing agency?
- (c) Are independent Quality control organization checks made and certificates issued?

CAPABILITY STATEMENT OF PERSONNEL, EQUIPMENT, PLANT AND PAST PERFORMANCE

FORMAT – B

1. NAME and Address of bidder:

Phones: _____ Fax: _____

2. CLASSIFICATIONS (CIRCLE WHAT IS APPLICABLE)

- (a) Manufacturer
- (b) Authorized agent
- (c) Dealer
- (d) Others, please specify

3. Plant

- (a) Location
- (b) Description, type & size of building
- (c) Is property on lease or free hold? if on lease indicate date of expiry of lease in each case.

4. Equipments

(a) Type of equipment manufactured and supplied during last 2 year:

Name of Equipment.	Capacity/size	Nos. manufactured	Projects to which supplies are made	No. of orders on hand

(b) Type of equipment manufactured and supplied, installed, and commissioned during last 2 year:

Name of Equipment.	Capacity/size	Nos. manufactured	Projects to which supplies are made	No. of orders on hand

SECTION - XIII

MANUFACTURERS' AUTHORIZATION FORM

Section – XIII

MANUFACTURERS' AUTHORIZATION FORM

Reference:

Dated: _____

To:

Banas Dairy

Dear Sir,

Subject: IFB (Invitation for Bid) No.:

We (Name of manufacturer), an established and reputable manufacturer of having factories at (Name place of works) do hereby authorize (Name and address of Agents) to bid negotiate and conclude the contract with you against IFB No. _____ for the above goods manufactured by us.

No company or firm or individual other than (Name of your sole agent/distributor) are authorize to bid, negotiate and conclude the contract in regard to this business against this specific IFB. (Strike out this, if not applicable)

We hereby extend our full guarantee and warrantee as per clause 15 of general conditions of contract for the good offered for supply against this invitation for bid by above form.

Yours faithfully

Name

For and On-behalf of
(Name of Manufacturer)

Note: This letter of authority should be on the Letterhead of manufacturing concern and should be signed by a person competent and having the power of attorney to bind the manufacturer.

SECTION - XIV

PROFORMA OF COMPLETION CERTIFICATE

Section – XIV

PROFORMA OF COMPLETION CERTIFICATE

(TO BE ISSUED BY THE PURCHASER AFTER SUUCCESSFUL COMMISSIONING OF PLANT)

Reference No.

Date: _____

M/s

Sub: Certificate of commissioning plant

1. This is to certify that plants as detailed below have been received in good condition along with all the slandered and special accessories (subject to remark in Para no. 2) and a set of spares in accordance with the contract / specification. The same has been installed and commissioned.

(a) Contract No.: _____ Dated _____

(b) Description of the plant _____

(c) Plant no. (s) _____

(d) Quantity _____

(e) Bill of loading _____ Dated _____ (for import contract)

(f) Name of the vessel/transporter _____

(g) R/R no _____ Dated _____

(h) Name of consignee _____

(i) Date of commissioning & proving test _____

2. Details of accessories/spares not yet supplied and recoveries to be made on that account.

Sr. No.	Description	Amount to be recovered
---------	-------------	------------------------

3. The proving test has been done to our entire satisfaction and operators have been trained to operate the plant

4. The supplier has fulfilled his contractual obligation satisfactorily.

Or

The supplier has failed to fulfil his contractual obligations with regard to the following.

(a)

(b)

(c)

(d)

5. The amount of recovery on account of non- supply of accessories and spares is given under Para no. 2
6. The amount of recovery on account of failure of the supplier to meet his contractual obligations is as indicated in endorsement of the letter.

Signature

Name

Designation with Stamp

➤ Explanatory note for filling up the certificates:

1. Points to be considered while filling up Para no.4 of the certificate on contractual obligation of the supplier.
 - (a) He has adhered to the time schedule specified in the contract in dispatching the documents/drawings pursuant to technical specifications.
 - (b) He has installed and commissioned the plant in time i.e within the period specified in the contract from the date of the installation by the purchaser in respect of the installation of the plant
 - (c) Training of personnel as per contractual obligation by the supplied has been done.
 - (d) In the event of documents/drawings having not been supplier or installation and commissioning of the plant have been delayed on account of the supplier, the extent of delay should always be mentioned.