



सत्यमेव जयते

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भारत सरकार
GOVERNMENT OF INDIA
भाभा परमाणु अनुसंधान केन्द्र
BHABHA ATOMIC RESEARCH CENTRE
प्रगत भारी पानी प्रभाग
ADVANCED HEAVY WATER REACTOR DIVISION

ट्रॉम्बे,
मुंबई - 400 085,
HALL No. 7,
TROMBAY,
MUMBAI - 400 085

Ref: AHWRD/VMS /MF/P25334 /2022

20th January , 2022

To,
All Parties Concerned

Sub: Minor Fabrication - Invitation to quote

Dear Sirs,

Note : Only Postal Quotations will be accepted.

1. Sealed quotations are invited by undersigned for and on behalf of the President of India for the work as per the requirements given in the Scope of Supply, details listed in this document and Technical Specification (enclosed as Annexure-I).
2. The quotation must reach Head, Advanced Heavy Water Reactor Division, BARC Mumbai at given address latest by **08/02/2022**. The envelope should be super scribed "**Minor Fabrication- Preparation, Review comment implementation and delivery of I&C detailed engineering documentation and drawings using CAE Software as per the Technical Specifications for Process Systems Set-1**" and should indicate this office Ref. No. and due date of opening clearly. The envelope should be sealed.
3. The quotation should be sent by speed post/registered post/ordinary post through Indian Postal Services only so that it reaches office on or before **08/02/2022 by 16.00 Hrs.** Address for sending quotation is as following:

Head, AHWRD,
Engineering Hall No.7,
Bhabha Atomic Research Centre
Trombay Mumbai 400085
(Kind attention: Shri V.M. Shanware, AHWRD, Tel no. 2559 1609)

4. SCOPE OF THE WORK:

The scope of work involves the preparation of I&C detailed engineering documentation and drawings namely Intelligent Process & Instrumentation Diagrams, Piping Line List, Mechanical Equipment List, Instrument Index, Inline Instrument List, I&C Design Basis Report, Instrument data sheets, Installation Hook up diagrams, Bill of Material for Installations and Logic diagrams for Process Systems Set-1 using Computer Aided Engineering Software (PRODOK) as per the details given in Annexure-1 of Technical Specification. The drawings and documents are to be prepared in digital format. The process systems, respective approximate P&ID sheets and Instrument Tags along with list of deliverables are given in Annexure-1 of Technical Specification. The Process &

Instrumentation Diagrams of the process systems will be handed over after the order is placed.

The following table summarises the scope of work.

Sr.	Item description	Quantity
1	Preparation, Review comment implementation and delivery of I&C detailed engineering documentation and drawings using CAE Software for the following deliverables for Process Systems Set-1 as per the details given in Annexure-1 of Technical Specifications 1. Intelligent P&I Diagram 2. Piping line list (as per P&ID) 3. Equipment, pump, valves, filters and strainers, etc List (from P&ID) 4. Instrument Index 5. Inline Instrument List 6. Equipment List 7. Process Data Sheets 8. C&I Design Basis Report 9. Instrument Data Sheets 10. Installation diagrams/ HookUp Diagrams 11. Bill of Material for installations 12. Logic Diagrams	1 Set

5 Free Issue Materials:

No free issue materials for this work order.

6 Duration of work:

The entire work is to be completed within 6 (Six) months reckoned from the 5th day after the date of issue of the work order. This period should be strictly adhered to.

7 General Instructions:

- 7.1 In this document, the agency/supplier on whom the work order will be placed is referred to as the “Vendor”. The agency executing/issuing this work order will be referred to as the “Client”.
- 7.2 **The bidders should quote in a modular way, for deliverables listed per P&ID as per the table in the scope of work.**
- 7.3 Taxes, duties, if any, applicable should be indicated separately.
- 7.4 Where, the prices quoted are inclusive of excise duty, the percentage/quantum of excise duty included in the quoted price should be specifically indicated in the tender.
- 7.5 **The firms executed similar jobs as detailed under the scope of work above in the past in DAE will be preferred.**
- 7.6 **For any technical clarifications, the bidder may contact through E-mail at vms@barc.gov.in.**
- 7.7 **Place of work: All work covered in the scope of supply, is to be carried out at the Vendor premises.**
- 7.8 The necessary infrastructure to execute this documentation job, namely PRODOK software, PC systems and trained man power are in the scope of vendor and shall be arranged by the vendor at his premises.

- 7.9 In case any extension in the job completion period is required, the vendor has to write to the Client, giving proper justification for the delay. The decision to approve the extension rests with the Client. No extra cost will be paid to the Vendor for this extension of time.
- 7.10 With the offer, bidders should please furnish the detailed information regarding whether an ex-employee of BARC is working in your organization or whether any of your relatives is working in DAE/BARC or you are an ex-employee of DAE/BARC. In absence of such information or wrong information, the quotation or contract is likely to be rejected / cancelled.
- 7.11 The offer shall be kept valid for a period of 60 days from the date of opening of the tender.
- 7.12 The Client reserves the right to alter the quantity while placing the order.
- 7.13 The Client reserves the right to accept or reject any or all the quotations received without assigning any reasons whatsoever.

8 Commercial Terms:

- 8.10 No Part Payment will be made. Final payment will be made after satisfactory completion of the entire scope of work i.e. after all the documents have been delivered and found acceptable after the final stage of review or after 6 months based on completed & accepted deliverables as per pro rata, reckoned from the 5th day after the date of issue of work order, whichever is earlier.
- 8.11 Payment will be made by ECS after satisfactory completion of the work as per Government rules.
- 8.12 At the time of settlement of claims, the Vendor has to submit bills/Invoice in triplicate, advanced stamped receipt, work completion certificate from the Client and Bank Details of the vendor to the Client.
- 8.13 In the event that the full scope of supply has not been completed by the Vendor for any reason, on the expiry of the term of contract i.e. after 6 months reckoned from the 5th day after the issue of the work order, the payment shall be made on a pro-rata basis for the work carried out for fully completed, reviewed and accepted documents only. Payment will not be made for work which has not been fully completed or found unacceptable by the client.
- 8.14 Taxes: Income tax @ 1.5% and applicable surcharge will be deducted from your bill. TDS certificate to that effect will be issued by BARC, if so desired.
- 8.15 Bidder should note that BARC is final consumer of the goods/services procured and does not intend to make any outward supply. BARC will not avail the benefits of input tax credit and hence, the good can be supplied without quoting the GSTIN of BARC, Mumbai on invoice. The invoices taxed under GST, as per rates applicable under the GST schedule of rates, will be admitted for payment.
- 8.16 GSTN Invoice: The invoice raised by the registered supplier of taxable goods/services along with other details specifically indicating: GSTN, PAN, Location of supply, tax component to be separately indicated.
- 8.17 An undertaking shall be furnished by the registered supplier that the GST has been promptly deposited with the authorities.
- 8.18 Recovery of TDS @2% on GST in case of payment of invoices for supply under contract exceeding Rs.2.50Lakhs.

9 Option:

After the placement of the work-order, the Client reserves the right to terminate the contract by giving a notice of one month and without any financial obligation on the part of the client. In the event of cancellation of the contract for any reason, the payment for work carried out will be on the basis of work that has been fully completed. Payment will not be made for work which has not been fully completed and found un-acceptable after review by the client.

10 Confidentiality:

- 10.1 No party shall disclose any information to any third party concerning the matters under this contract generally. In particular, any information identified as proprietary in nature by the disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party. This clause shall apply to the sub-vendors, consultants, advisers or the employees engaged by the party with equal force.
- 10.2 Restricted information categories under section 18 of the Atomic Energy Act, 1962 and "Official Secrets" under section 5 of the official secret act, 1923: Any contravention of the above mentioned provisions by any vendor, sub-vendor, consultant, adviser or the employees of a vendor will invite penal consequences under the aforesaid legislation.
- 10.3 Prohibition against use of BARC's name without permission for publicity purposes: The vendor or sub vendor, consultant, adviser or the employees engaged by the vendor shall not use BARC's name for any publicity purpose through any public media like press, radio, T.V. or Internet without prior approval of BARC.
- 10.4 The vendor on receiving the order shall give an undertaking and shall not disclose and share the contents of tender with any other division of BARC without permission from Head, AHWRD.

11 Intellectual Property & Copyright:


All work covered in the scope of supply, shall remain as an intellectual property of the client. The vendor shall not make any claim for copyright or intellectual property right at any point of time.

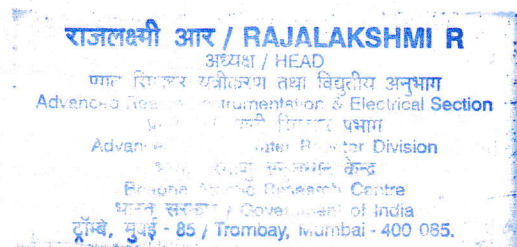
12 Guarantee:

The work pertaining to the design shall be guaranteed against any defects/faulty workmanship for a period of one year from the date of acceptance. During the above period if the items become defective, bidder will be responsible for making arrangements for repairing at free of charge. Vendor will issue the guarantee certificate at the time of commissioning/acceptance by department, mentioning the contents of the guarantee clause as mentioned above.

Enclosures:

- 1) Annexure-I: Technical Specifications


(Rajalakshmi.R)
Head, ARIES, AHWRD



ANNEXURE-I

Technical Specifications

1 INTRODUCTION

1.1 Terms Used

In this document, the agency/supplier on whom the work order will be placed is referred to as the “Vendor”. The agency executing/issuing this work order will be referred to as the “Client”.

1.2 General

For improved quality & reliability of the engineered system, it is desired that vendor shall carryout project I&C engineering through use of high standard data centric State-of-the-art Computer Aided Engineering (CAE) and Documentation tool i.e. PRODOK software system

Any data to be entered exactly once and then picked and placed in different drawings/documents. That is, all drawing & document engineered from PRODOK System must be linked to database tags such that any change in drawing and/or database gets adjusted through all documents.

In this document, the agency/supplier on whom the work order will be placed is referred to as the “Vendor”. The agency executing/issuing this work order will be referred to as the “Client”.

1.3 Instrument Database

Vendor shall create and use common database of all instruments, equipment and signals for design of I&C system

- 1) Every tag i.e. field instruments, control valves, Motorized valves, Dampers, Pumps, Fans etc. shall be mapped
- 2) Every tag shall have following technical details:
 - a. Device tag number, type and description
 - b. Process parameters
 - c. Associated Signals and classifications
 - d. Design specification
 - e. Linkage to Instrument Hook-up Diagrams
 - f. Linkage to Logic Diagrams

The purpose of this design instruction is to provide an overall guideline to Instruments Group for the method of creating the instrument deliverable reports through PRODOK software to avoid common mistakes, miss-matching of data in different deliverables.

2 Scope of Work

The scope of work involves the preparation of Intelligent Process & Instrumentation Diagrams on A0 size and extracts the deliverables listed below using PRODOK software for the following Process Systems.

	System Description	P&ID No of A0 size sheets (approx.)	No of I&C Tags (Approx)
1.	Fire Water System	08	350
2.	Compressed Air System	14 (2 main shts)	450
3.	MHT Purification System	2	129
4.	Active Shut down cooling System	1	73
5.	Failed Fuel Detection System	1	35
6.	Fuel Oil Storage & transfer System	1	41
7.	Resin Fixation & Transfer System	1	60

Basic inputs for these systems will be provided in the form Design Information Report (DIR) containing Process and C&I requirements, process Design Basis report (DBR) with normal P&I Diagrams by the client to the Vendor during job execution. The P&I Diagrams of the above systems will be handed over after the order is placed.

List of Deliverables:

S. No.	Name of Document	Format
1	Intelligent P&I Diagram	PRODOK and “dwg / dxf” format
2	Piping line list (as per P&ID)	PRODOK and MS Excel “.xlsx” format
3	Equipment, pump, valves, filters and strainers, etc List (from P&ID)	PRODOK and MS Excel “.xlsx” format
4	Instrument Index	PRODOK and MS Excel “.xlsx” format
5	Inline Instrument List	PRODOK and MS Excel “.xlsx” format
6	Equipment List	PRODOK and MS Excel “.xlsx” format
7	Process Data Sheets	PRODOK and MS Excel “.xlsx” format
8	C&I Design Basis Report	MS Word .docx format
9	Instrument Data Sheets	PRODOK and MS Excel “.xlsx” format
10	Installation diagrams/ HookUp Diagrams	PRODOK and “dwg”
11	Bill of Material for installations	PRODOK and MS Excel “.xlsx” format
12	Logic Diagrams	PRODOK and “dwg”

2.1 P&ID

- 2.1.1 Vendor shall use integrated CAE software PRODOK to create all P&IDs.
- 2.1.2 The P&ID shall be created using standard symbols, attributes, templates available in PRODOK software.
- 2.1.3 Vendor shall input all possible data within P&ID while creating it. So that same data can be used to create Instrument List and associated deliverables.
- 2.1.4 In the subsequent modification/revision in P&ID, changed data should be compared with existing I&C database for carrying out necessary changes in I&C design data.
- 2.1.5 Changed data in P&ID must be time stamped / recorded.
- 2.1.6 P&I Diagram of the process system will be given by the client for preparation of PRODOK made P&ID. The Standardized Operating Procedure (SOP) for preparation of P&IDs will be provided during job execution to the vendor.
- 2.1.7 In the cases where input P&IDs are provided by client as *DWG file, vendor should open the same P&ID in the PRODOK system to do the required modifications by adding all the attributes.

2.2 INSTRUMENT INDEX

- 2.2.1 Vendors shall use PRODOK software to list all instrument devices and signals required to perform the function of the plant, together with all the associated loop and tag level information. Database created for P&ID should be used to create Instrument list & related deliverables to avoid duplicate entry of data.
- 2.2.2 The scope of data input required covers P&ID sourced information but shall also include implied information from the P&ID. Users must be aware of how and where to populate/check data as well as being as comprehensive as possible in including all the relevant information from the source data, in this case the P&ID.
- 2.2.3 Distinction is made between Instrument Index data and the various other types of data to be populated within PRODOK software.
- 2.2.4 The Instrument Index performs several functions and it is the responsibility of the Database Administrator to define the structure of the database in order to capture all of the information to perform these functions. However, it is the users' responsibility to populate/check the data to fulfil these functions. The data to perform these functions comes from various sources - P&ID is the basis to perform the following functions, all of which must be considered in the process of data population/checking:
 - Loop Listing

- Tag Listing
- I/O Listing
- Alarms, Ranges and Trips Identification

- 2.2.5 It is important to note that these listings are not stand-alone listings within CAE software, all of these will contain some degree of common information i.e. the listings read information from central common data points which are linked together to form a relational database. Therefore, users must be aware that populating any information in PRODOK will have effects into other areas of PRODOK where that information is also required and as such data population must be made carefully. In effect, PRODOK is structured such that any single piece of data is populated once and once only in the database and the data is then read and reported into the above listings, amongst others, as and when required. For example, the Tag Listing and I/O listing will read the Tag Number from a central tag listing.
- 2.2.6 Vendor should use PRODOK library to populate Instrument database to maintain uniformity of data, symbols, reports, instrument types etc.
- 2.2.7 It should be possible to browse data in tabular format and edit I&C data in bulk to speed-up work / save time for modification.
- 2.2.8 It should be possible to highlight changes in modified data and export data in excel format. It should be possible to sort and filter every column of the tabulated data.

2.3 Inline Instrument List

- 2.3.1 Vendor should use PRODOK library to populate Instrument database to maintain uniformity of data, symbols, reports, instrument types etc.
- 2.3.2 Inline instruments are considered to be all instruments and components directly mounted in or on process and utility lines or equipment, which are subjected to the pressure and temperature of the piping system or equipment in or on which they are installed.
- 2.3.3 The source of all data for defining **Inline Instrument List** shall be the Piping and Instrumentation Diagram (P&ID). The scope of data input required covers P&ID sourced information but shall also include implied information from the P&ID. Users must be aware of how and where to populate/check data as well as being as comprehensive as possible in including all the relevant information from the source data, in this case the P&ID.

2.4 Process Data Sheets

- 2.4.1 Vendor shall use PRODOK to create Process Data Sheets to maintain common database and data integrity / uniformity with other deliverables.

- 2.4.2 As part of PRODOK Software, Process Data is to be defined against Instrumentation on a tag number level for any item requiring Process Data to allow Instruments Group to purchase these items. All data shall be populated in PRODOK software; no other/ separate database shall be used for Instrument Process Data.
- 2.4.3 Vendor shall develop queries to generate tabular view of process data in the project to easily view & manipulate the data. These queries shall be saved for future use.
- 2.4.4 Process data may undergo several changes during the engineering phase. These changes shall be time stamped and stored for comparison.
- 2.4.5 Vendor shall be able to print modified process data sheet with changes marked as and when required by the client i.e. BARC.

2.5 Instrument Data Sheets

- 2.5.1 Vendor shall use standard predefined formats (approved by BARC) in PRODOK for each type of Instrument. Only approved specification formats by BARC has to be used by different vendor to maintain the uniformity of data and report format.
- 2.5.2 An **Instrument Data Sheet** is a document summarizing the performance and other technical characteristics of an instrument developed to enable the Instrument engineers to prepare documentation required for inquiry and purchase of instruments. The Instrument Data Sheet includes the operating and design process conditions and measurement range for each process component that the vendors can specify and size the instrument required. The physical properties of the fluids must be established in the process datasheet.
- 2.5.3 Vendor shall create library of all the data sheets with frequently used items details and copy these details within project as and when required to avoid repeated manual entries.
- 2.5.4 Vendor shall create blank data sheets without process and project specific data in library.
- 2.5.5 Vendor should use/copy these blank data sheets from the library into their project.
- 2.5.6 Process data in these instrument data sheet shall get populated automatically from process data sheet. Vendor shall not populate process data again manually.
- 2.5.7 Vendor shall develop queries to generate tabular view of all types of instrument data sheet (containing Device data, process data etc.) in the project to easily view & manipulate the data. One query shall be generated for each Instrument data sheet. It helps vendor to export data in excel format and share bulk data with client i.e. BARC.
- 2.5.8 Vendor shall group/package specifications as per different type of instrument. It should be possible to print these specifications in bulk or as a single document for enquiry and procurement purpose.

2.6 Installation diagrams/ Hook Up Diagrams

- 2.6.1 **Hook-up drawing** is a detailed **drawing** showing typical installation of **instrument** in a correct manner so that **instrument** operates properly (gives accurate indication and prevent any issued which could potentially affect the measurement such as liquid trap in gas impulse line).
- 2.6.2 Vendors shall use PRODOK to create Installation Diagrams/Hookup diagrams. BOM should be derived from assigned Hook up diagrams. It should get updated automatically in case of modification in Hookup material during engineering phase.
- 2.6.3 Vendor shall create library for all types of installation diagrams and unique material list. Vendor shall create all types of standard Installation diagrams with material in the library for the project.
- 2.6.4 Vendor shall get these standard installation diagrams approved by BARC.
- 2.6.5 Vendor shall use only these installation diagrams in project. CAE system shall generate BOM based on used installation diagrams automatically. Vendor shall not calculate BOM manually in any case.
- 2.6.6 In case of changes in Installation diagram or material used during engineering phase, CAE system shall be able to update BOM automatically.

2.7 Bill of Material for installations

Vendor to generate BOM automatically from the PRODOK system after assigning Hookup diagrams to Instruments. BOM for process equipment and field sensors and Instruments shall be prepared separately.

2.8 C&I Design Basis Report

Vendor shall create the detailed C&I Design Basis Report (DBR) with the help of design basis report of process system, C & I Design information report and P & ID of the system. C&I Design Basis Report consists all the information process measurement details (Temperature, Pressure, Flow, etc.), type of the instruments used and associated control logics, alarms and trips in descriptive manner. A sample document and template of Contents for the DBR will be provided by the client during job execution.

2.9 Logic Diagrams

- 2.9.1 All the Logic diagrams /Functional Block diagram should be prepared using PRODOK system. When logic flows to multiple sheets, cross-references to other sheets of linked soft-signals shall be generated automatically. Any changes to source or destination, cross-references should be automatically updated in corresponding drawings. Dynamic linkage of control logics with Project data base with two way updating of signals should be possible.
- 2.9.2 Vendor shall use standard symbols of Logic in the project. The PRODOK system shall have standard symbols in the library. Vendor shall use only approved Logic diagram format to develop project logics.
- 2.9.3 The CAE system shall have feature to pick and place signals from PRODOK software's Input/ Output database in logic sheets. Signals defined in IO list should be picked and placed in Logic sheet to avoid discrepancy in signal text.
- 2.9.4 In case, Input/ Output list is updated during project engineering, signals in logic sheet should be updated automatically to avoid mismatches.
- 2.9.5 It shall be possible to generate following outputs from the Logic Diagrams automatically as reports.
 - i) Index sheet
 - ii) List of Drives
 - iii) List of Analog I/O
 - iv) List of Digital I/O
 - v) List of Alarms, etc.

3 Preparation of I&C detailed engineering documentation and drawings:

- 3.1 The Technical details for I&C detailed engineering documentation and drawings, Standards to be followed for drawings, naming & nomenclature etc., are to be necessarily followed from the Standardized Operating Procedure (SOP) for the same. The SOP will be provided to the vendor by the client during job execution.

- 3.2 List of deliverables mentioned in scope of supply have to be prepared by the Vendor based on inputs provided by the Client. These inputs could be in the form of sketches, tabulated data in digital format, soft copy of Design Information Reports (DIR) of Process and I&C. As per the clients understanding, these inputs will be sufficient in making I & C documents using PRODOK to complete the work. However, the Vendor has to arrange the appropriate manpower/Personnel to understand the inputs provided by the Client and to execute the documentation job. The work assigned, has to be organized, monitored & managed by the Vendor's personnel at vendor's premises in consultation with the Client.
- 3.3 The Drawing/document templates for various deliverables shall be finalized in consultation with the client. Any technical clarifications required shall be carried out through discussion meetings.
- 3.4 After each stage of review, as given below, the Client/BARC will provide the Vendor's personnel with their review comments marked on the soft copy of the document or through sketches and notes etc.(Review Comment Documents (RCD)). The comments, suggestions, modifications etc. marked on the RDC by the client will have to be incorporated by the Vendor in the respective set of documents before they are submitted for the next stage of review.

4 Review comment implementation of the work carried out by Vendor

- 4.1 Review of the work shall be carried out by the Clients Representative, to check its content and conformity to specifications, after the completion of each stage of progress for each of I&C detailed engineering documentation and drawings.
- 4.2 The Vendor has to install the deliverables required for stage wise review at BARC/Trombay. The data base Tables and Libraries should be provided along with deliverables at each stage of review.
- 4.3 The Vendor should carry out a self-review and offer a refined work to the Client for review.
- 4.4 The quality of documents submitted by vendor for review shall be good so that number of revisions for implementing corrections shall be limited to three. However, if the quality of document is very good and if there are no corrections required, it can be cleared in 1st review itself.

- 4.5 The Vendor shall submit the Drawings and other I&C detail documents in their respective editable, digital format i.e., native file format of PRODOK and Dwg/dxf for drawings, PRODOK & xlsx for MS-Excel Tables and MS WORD doc for Reports to the coordinator of the client at each stage of these review.
- 4.6 The Vendor has to preserve all the Review Commented Documents (RCDs) submitted to them. At the next stage of review, along with the digital version of the documents, the Vendor shall also submit the RCDs of the previous stage of review to the Client.
- 4.7 As one P&ID representing one particular Process System is likely to be spread over more than one drawing sheet (P&ID-Sheet), cross linking across its sheets shall be implemented by off-sheet connector references.
- 4.8 The vendor shall maintain records of documents / drawings / marked-up prints / sketches received from client for this documentation job and give back the same to client and permanently delete the soft copies before the end of contract. The vendor shall obtain client's endorsement after returning the above.

5 Place of work & Infrastructure Provided:

- 5.1 All work covered in the scope of supply, is to be carried out at the Vendor premises.
- 5.2 The necessary infrastructure to execute this documentation job, namely PRODOK software, PC systems and trained man power are in the scope of vendor and shall be arranged by the vendor at his premises.

6 Work Requirements:

- 6.1 The Vendor shall deploy skilled person having good knowledge and command over PRODOK and experience in I&C design for project execution.
- 6.2 The Vendor shall be responsible for the correctness and accuracy of the drawings and documents prepared by him and towards this responsibility, the Vendor shall make amends/corrections after review to the drawings and documents without any additional charge.

7 Vendor Qualification & Technical Demonstration:

- 7.1 At the time of bid-evaluation, the offers received will be technically evaluated on the basis of the technical merit of the team proposed by the Bidder/Vendor to be deployed for this work.
- 7.2 All the vendors shall demonstrate the capabilities for creation of documentation/drawings in PRODOK during Trade Test for Technical Evaluation before placing order. The required man power for execution of job should be available during Trade Test/demonstration. The demonstration can be carried out through online Video Conference mode due to Covid-19 situation
- 7.3 The vendor shall arrange the availability of their full proposed team for this test at no cost to the client.
- 7.4 As a part of this exercise, a typical set of input documents will be shared by the client with the vendor's team. This will be discussed & explained to the Vendors team for about an hour. During this time, the vendors' personnel will be introduced to the h/w & s/w. In the next 2 hours, the personnel of the Vendor will have to create an A0 size P&ID in PRODOK s/w and create the List-Tables in MS-Excel and incorporate them in A3 size Drawing sheets using PRODOK s/w. The work out-put shall be rated based on its quality, quantity, adherence to the SOP/standards enclosed/listed in Annexure-II . The drawing template for A0 & A3 size sheets will be provided by the client. The P&ID symbol set will be provided by the client.
- 7.5 The personnel of the Vendor are expected to be trained in these respective s/w used.
- 7.6 The vendors and their personnel, qualifying this Trade-Test will be considered for further assessment.
- 7.7 These qualifying personnel alone will be considered for executing the final work. If a vendor wants to replace such a qualified person with a new one, at any stage, this person will first have to qualify the trade test. The loss of man-days due to such an effort after the order is placed, will rest on the vendor.
- 7.8 The vendors whose teams have been qualified on the basis of the trade test will be required to arrange a visit to their premises by the representatives of the client, wherein the vendor will present the similar work carried out by them and demonstrate their working process and infrastructure in place at there venue.
- 7.9 At the time of their offer/bid submission, the bidders must submit a list of work-orders executed by them in the past 5 years, similar to the present scope of supply. They should also list the value of such orders, the name and contact details of the relevant parties. The Bidders should have no reservations if the client will contact these parties for the vendor feedback.

8 Delivery

All documents covered in the scope of supply and deliverable list shall be prepared by the vendor and delivered as soft copy in CDs/ read only storage devices to the Client at final stage of delivery. The deliverables shall be in the native file format of PRODOK software as well as .dwg/.dxf for drawings and .xlsx for Tables/Lists and .doc for reports for respective deliverables after completion of the work. All the documents listed in deliverable list shall be stored in system wise directory.

S. No.	Name of Document for Process System	Format
1	Intelligent P&I Diagram	PRODOK and “dwg / dxf” format
2	Piping line list (as per P&ID)	PRODOK and MS Excel “.xlsx” format
3	Equipment, pump, valves, filters and strainers, etc List (from P&ID)	PRODOK and MS Excel “.xlsx” format
4	Instrument Index	PRODOK and MS Excel “.xlsx” format
5	Inline Instrument List	PRODOK and MS Excel “.xlsx” format
6	Equipment List	PRODOK and MS Excel “.xlsx” format
7	Process Data Sheets	PRODOK and MS Excel “.xlsx” format
8	C&I Design Basis Report	MS Word .docx format
9	Instrument Data Sheets	PRODOK and MS Excel “.xlsx” format
10	Installation diagrams/ HookUp Diagrams	PRODOK and “dwg”
11	Bill of Material for installations	PRODOK and MS Excel “.xlsx” format
12	Logic Diagrams	PRODOK and “dwg”