**REVISED TS TEMPLATE (rev in March 2024)**

Revised because of modification in Drawing / document submission methodology (Clause 2.11.3.3) to facilitate submission through EDDMS.

**Extract from Manual of standardisation for preparation of TS**

4.2 **STANDARD PAGE LAYOUT**

* Layout should be as follows :

|  |  |
| --- | --- |
| **Item** | **Specification** |
| Paper size | A4 |
| Top Margin | 3.0 cm |
| Bottom Margin | 3.0 cm |
| Left Margin | 3.5 cm |
| Right Margin | 2.0 cm |
| First Tab | 2.0 cm |
| Subsequent Tabs | 1.0 cm |
| Header at | 1.0 cm |
| Header size | 1.0 cm |
| Footer at | 1.8 cm |
| Footer font size | 10 |
| Footer Font type | Same as in document |
| Font size in document | 12 |
| Font type | Optional, but should be uniform everywhere in document |
| Line Spacing in a paragraph | Single |
| Spacing after a paragraph | 6 pts. |
| Final document printing | In case the printing is on both sides of paper, Mirror margins should be ‘ON’. |

4.3 **Standard Layout for ‘Contents’ Pages**

* Only the term ‘Contents’ should be used. ‘Index’ etc. should not be used.
* ‘Contents’ includes list of Chapters (including Sub-chapters, if required), Annexures, Schedules and Drawings given in separate pages.
* Layout of ‘Contents’ page should be as follows :
* Top, Bottom, Right and Left margins should be as specified under ‘Standard Page Layout’ paragraph above.
* Heading should be given in Level-I format but should be centred.
* Contents should be in a tabular form.
* Giving details of sub-chapters of any major heading (Like for ‘Technical Specifications’, details of sub-chapters may be Mechanical, Electrical, Civil etc.) is optional. However, for large sized Reports / Specifications, it is suggested that details of sub-chapter should be given.
* Contents for Annexure and Schedule should have a mention of the numbering system for the same so as to facilitate the client to understand the method followed for traceability.
* Header (on the outer edge) for ‘contents’ pages should be as below :



* Format of the Footer should be as below : (Font size 10, all in capitals)

For contents chapter

Client’s abbreviation Contents Document no. with revision status

Project abbreviation Page # (Serial no.) of # (Total pages in contents)

For main chapters

Client’s abbreviation Page (Chapter no).(Serial no) Document no. with revision status

Project abbreviation

For Schedules

Client’s abbreviation SCHEDULE (schedule no) Document no. with revision status

Project abbreviation Page # (Serial no.) of # (Total pages in contents)

For Annexures

Client’s abbreviation Annexure (annexure no) Document no. with revision status

Project abbreviation Page # (Serial no.) of # (Total pages in contents)

4.4 **Layout of Cover Page and Interleaf**

* Layout of cover page and inside cover should be as enclosed in **Annexure-4.4**-1. Margins and font formatting should be as follows :

|  |  |
| --- | --- |
| **Item** | **Specification** |
| Paper size | A4 |
| Top Margin | 2.5 cm |
| Bottom Margin | 2.0 cm |
| Left Margin | 3.0 cm |
| Right Margin | 2.0 cm |
| Font size in document | As explained in Annexure- |
| Font format | All bold and centred |

4.5 **Presentation of Information - Paragraphs**

* The contents of document should be paragraphed in a **hierarchical** manner.
* Numbering of different paragraphs should be in uniformity to the numbering system explained below :

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Level** | **All Capitals** | **Bold** | **Underline** | **Alignment** | **Font Size** |
| Level - 1 heading | Yes | Yes | No | Left | 14 |
| Level - 2 heading | Yes | Yes | No | Left | 12 |
| Level - 3 heading | No (Words to begin with Caps ie. Title case) | Yes | No | Left | 12 |
| Level - 4 heading | No (Title case) | No | Yes | Left | 12 |
| All headings beyond Level-4 | No (Title case) | No | No | Left | 12 |

Example :

4 **TECHNICAL SPECIFICATIONS** (Level - 1)

4.1 **TECHNOLOGICAL PROCESS EQUIPMENT** (Level - 2)

4.1.1 **Basic Oxygen Furnace (BOF)** (Level - 3)

4.1.1.1 Lance Cooling System (Level - 4)

* Numbering of paragraphs and sub-paragraphs within the first tab of width 2.0 cm should be left aligned and limited to level - 4 (Example 3.1.2.5).
* For subsequent identification of sub-paragraphs, numerals at first hanging indent and small roman numbers (eg. i, ii, etc.) at subsequent hanging indent should be used. Such numerals and roman numbers should be followed by right hand bracket enclosure (eg. 1) , 2) , iii) , ix) etc.). Beyond that, Bullets (eg. • , ⇒ , ◼ , ◆ etc.) should be used for identifying sub-paragraphs.
* All headings beyond Level-4 shall have additional indent of 1cm each.

Example :

* + - 1. Lance Cooling System
				1. Water for Cooling

Inlet Water Temperature

Maximum

Minimum

Outlet Water Temperature

Peak

Mean

**Please note that these five pages up to the cover page and all instructions appearing in** Blue with yellow background **at various places in the document need to be deleted after reading, understanding and incorporating the instructions. Any example given is for understanding purpose only, and the same also need to be deleted.**

**(CLIENT’S NAME )**(FONT SIZE 18)

**(PLACE)**(FONT SIZE 18)

**<NAME OF THE ASSIGNMENT>** (FONT SIZE 16)

**TENDER SPECIFICATION** (FONT SIZE 18)

**FOR (FONT SIZE 14)**

**< PACKAGE NAME >(FONT SIZE 14)**

**<PACKAGE NO.> (FONT** SIZE 14)



**STEEL AUTHORITY OF INDIA LIMITED**(FONT SIZE 14)

**CENTRE FOR ENGINEERING & TECHNOLOGY**(FONT SIZE 12)

**RANCHI - 834002**(FONT SIZE 12)

|  |  |
| --- | --- |
| **(MONTH, YEAR)** (FONT SIZE 12) | **CET/………………. (TS NO.)** (FONT SIZE 12) |

**CONTENTS - CHAPTERS**

|  |  |  |
| --- | --- | --- |
| **Chapter No.** | **Description** | **Page No.** |
| 1 | Introduction | 1.1 - 1.2 |
| 2 | Scope of Work | 2.1 - 2.6 |
| 3 | Technical Specification | 3.1 - 3.55 |
| 4. | Commissioning and Performance Guarantee | 4.1 - 4.4 |
|  | Annexures |  |
|  | Schedules |  |
|  | Drawings |  |

|  |  |  |
| --- | --- | --- |
| **PACKAGE LEADER(PL)** | **TASK FORCE LEADER(TFL)** | **HOD (PL)** |
| <Name with designation> | <Name with designation> | <Name with designation> |

**CONTENTS - ANNEXURES**

|  |  |  |
| --- | --- | --- |
| **Annexure No.** | **Description** | **No. of Pages** |
|  |  |  |
|  |  |  |

**CONTENTS - SCHEDULES**

|  |  |  |
| --- | --- | --- |
| **Schedule No.** | **Description** | **No. of Pages** |
|  |  |  |
|  |  |  |

**CONTENTS - DRAWINGS**

|  |  |  |
| --- | --- | --- |
| **Sl. No.** | **Drawing No.** | **Description** |
| 1 |  |  |
| 2 |  |  |

Blue with yellow background: Instructions for the respective write-up.

**“Successful bidder”** shall not be used at any place in the TS and only “**bidder”** shall be used.

1. **INTRODUCTION**
	1. **GENERAL:**
		1. (Only specific information related to project should be given like :
2. Brief about concerned plant
3. Brief about the unit to be modified/ upgraded/ new installation)
	1. **EXISTING FACILITIES** (if applicable)
		1. (Brief description of the existing system)
	2. **OVERVIEW OF THE PROJECT** (A brief overview of the project in one paragraph consisting of upgraded parameters and envisaged outputs; details w.r.t. proposed schemes shall be included in subsequent clause 1.4.2)

Example:

B.F No. 1 will be upgraded to enhance useful volume to about 1700 cum (indicative) for a hot metal production of 2900 tpd (avg.) through incorporation of latest state-of-art design furnace cooling system & refractories, cooling elements, etc. uitlilising the existing foundation.

* 1. **IMPLEMENTATION STRATEGY**
		1. The complete job of (Project name) is envisaged to be executed through ………………nos of package(s)
			+ 1. (Package name and number to be specified)
		2. This tender specification pertains to (Package name and no.) to be executed on turnkey basis which includes …………………… (Part of the scheme covered in this package to be broadly mentioned here)
		3. **Details of pre-shutdown and shutdown activities with duration** (if applicable)**:**
			1. Details of activities pre-shutdown as well as during shutdown and their duration shall be mentioned by the bidder in their offer and also to be shown in the implementation schedule.
		4. **Other site related details**
			1. Details of over ground facilities at erection site which may need diversion and special handling equipment to be deployed at site, if any, are to be clearly brought out by the bidder in their offer.
	2. **INTENT OF SPECIFICATION**
		1. The intent of this tender specification is to furnish required details for enabling the bidder to submit their best offers (technical & commercial) as per the scope of work mentioned at chapter 2.0, technical specifications at chapter 3.0, and commissioning & performance guarantee at chapter 4.0.
		2. This tender specification shall be read in conjunction with other documents enclosed with the NIT.
	3. **SITE VISIT AND OTHER REQUIREMENTS**
		1. The bidder shall visit the site, study drawings/ documents and discuss with the employer/ consultant, if required, regarding any technical clarification and get satisfied with respect to the nature and extent of work involved. The bidder shall also obtain first-hand information regarding location, work terrain, climate condition, railways, roads, airports and communication etc. before offering the bid for the job.
		2. All materials/ equipment/ machinery/ fabricated items used in the subject package shall be according to the specification given herein and any deviation should be clearly brought-out in schedules of exclusions and deviations attached with this TS. No mention of exclusions and deviations will mean that the bidder has accepted the scope and specification given herein.
	4. **DRAWINGS AND TECHNICAL DOCUMENTS TO BE SUBMITTED WITH THE OFFER**
		1. The Bidder shall submit along with the bid, drawings / documents / data as per the following details:
			+ 1. General layout showing disposition of all major units and interconnection with the existing facilities such as roads, railway tracks, utility and power lines etc.
				2. General arrangement drawings of all units, equipment and systems with relevant dimensions.
				3. Power single line diagram.
				4. Process flow diagram.
				5. Automation configuration drawing.
				6. Manufacturers' catalogues/ brief technical descriptions of offered equipment and bought-out items.
				7. Schedule of quantity of equipment.
				8. Delivery/ commissioning schedule (Bar chart/PERT Network).
				9. Weight and mounting arrangement of each critical item/ equipment.
				10. Details of major construction equipment required for carrying out the job within the stipulated time which they possess, with location and details of construction equipment, which they would hire to facilitate the dismantling, and construction activities.
		2. Drawings & documents listed are minimum requirement only. The Bidder shall ensure that all other necessary write-ups, curves and information, required to fully describe the equipment and system offered, are submitted with this offer.
	5. **SCHEDULES TO BE DULY FILLED AND SUBMITTED WITH THE OFFER** (indicative list)

|  |  |
| --- | --- |
| 1.8-1 | Declaration of site visit |
| 1.8-2 | List of exclusions |
| 1.8-3 | List of deviations |
| 1.8-4 | List of recommended spares for two years normal operation |
| 1.8-5 | List of commissioning spares |
| 1.8-6 | List of special tools and tackles |
| 1.8-7 | List of first fill of oils and lubricants |
| 1.8-8 | Details of authorised person of bidder during tender evaluation  |
| 1.8-9 | Requirement of construction water & power |

Blue with yellow background: Instructions for the respective write-up.

1. **SCOPE OF WORK**
	1. **GENERAL**
		1. The bidder shall be responsible for execution of the jobs envisaged for (Name of the package) on Turnkey basis.
		2. The scope of work shall cover design, engineering, procurement, manufacture, fabrication, supply, transportation, insurance, storage, handling, dismantling & removal of debris, construction, erection, testing, commissioning, stabilisation and demonstration of performance guarantee of the complete plant and equipment to the satisfaction of the employer. The plant and equipment supplied shall be new and best of its kind.
		3. All indigenous items shall be as per the List of Acceptable Makes of equipment and supplies furnished in **Annexure-2.1.3-1** and as given in the Plant’s (name of the plant to be mentioned) acceptable make list attached along with NIT, if any. ~~For any other item / make which are not appearing in the above list, approval from employer shall be taken~~.

Also please note that

1. Where more than one Vendor is listed, the Contractor is free to choose any of them, but it must notify the Employer of its choice well in advance prior to appointing any selected Vendor.
2. The contractor shall not be permitted to propose a new vendor for items where at least three approved vendors are available for providing supplies. However, where at least three vendors are not available to provide supplies, the contractor may propose additional vendors for approval of the employer.
3. No approval of the Employer is required to be obtained by the contractor for procurement of items that are not listed Annexure 2.1.3-1 and the Plant’s (name of the plant to be mentioned) acceptable make list attached along with NIT, if any.

***(For TS which is prepared exclusively for a single equipment/item/supply, the following is also to be added):***

However, it may be noted that if bidder is the OEM/manufacturer of (name of the equipment/item/supply), Sl. No. (xxxx) of **Annexure-2.1.3-1** shall not be applicable.

* + 1. The equipment and facilities envisaged under this package shall be located generally as per general layout drawings enclosed with the TS. Layout of plant and equipment shall have provision for easy and safe movement of operation/ maintenance personnel for operation/ inspection of the running plant. Adequate space for dismantling/ removal of equipment/ parts for repair shall also be built in the layout.
		2. All the manufacturing/ fabrication works shall be carried out only on the basis of approved drawings and schemes or as directed by the employer. Approval given by the employer shall not relieve the bidder of any obligations under the contract.
		3. Wide Parallel Flange Beam (WPB) and Narrow Parallel Flange Beam (NPB) sections, being produced by SAIL, shall be used. In case of non-availability /non- suitability of WPB or NPB sections, tapered rolled SAIL sections or built up sections using SAIL steel shall be used. This is in addition to the relevant clauses of SBD with regards to usage of SAIL steel.
		4. Any equipment/ work/ service, which may not have been specifically mentioned in this document but is necessary for completeness of the work, shall be clearly brought out in the offer and included in their scope of work.
		5. **Scope of Services**
			- 1. Receiving of equipment from bidder’s stores/ employer’s stores and transportation to site.
				2. Unloading of equipment at site, unpacking, cleaning up, and checking for completeness and transportation to site for erection.
				3. Transferring of centre lines and levels from standard benchmark(s), including geodetic survey.
				4. Filling of lubricants/ grease as per manufacturer’s instructions.
				5. Supply of all erection consumables like oil, kerosene, cotton waste, oxygen and acetylene gas cylinders, electrodes, asbestos sheets, asbestos ropes, sealing compounds etc.
				6. Arranging tools, tackles, construction & erection machineries, cranes and other handling & testing equipment, scaffolding, temporary platforms, erection fixtures, skilled/semi-skilled/unskilled personnel etc
				7. Required loading/ unloading / transportation of the equipment part, which may require repairs at employer’s repair shop(s).
				8. Arranging inspection of equipment at manufacturer’s/ sub-supplier’s works wherever required as per approved QAP.
				9. Arranging and rendering equipment and personnel to employer for checking the correctness of the work in progress.
				10. Submission of test certificates and data sheet from approved third part testing laboratory or manufacturer respectively.
				11. All equipment shall conform to the relevant provisions of Statutory and other Regulations in force such as Indian explosives Act, Indian Factories Act, Indian Boiler Regulation, State Factories Act, Indian Electricity Rules, Central Pollution Control Board, Indian Weights & Measures Act as applicable. The bidder shall provide all necessary assistance to the employer to get all the installations within the scope of supply approved by the concerned legal authorities.
				12. Any rectification / modification of existing facilities required during erection of equipment.
				13. The bidder shall be responsible for protection and / or diversion of underground and all existing over-ground services, wherever required and / or diversion of the underground services which are indicated in the drawing made available to the bidder. In case there are under-ground services which need to be protected and / or diverted but are not shown in the drawing, the bidder shall be responsible to execute the same at extra price, if any, to be mutually agreed between bidder & employer.
				14. Sundry works such as making of holes, grouting, chiselling of holes/ opening through walls, ceiling, floors, steel structures, etc. including providing inserts as per requirement, cleaning of site periodically and at the time time of final handing over.
				15. Periodic transportation including Loading, unloading and spreading the unserviceable material, debris & surplus excavated earth with all lift and lead within plant premises unless otherwise specified.
				16. All instructions in the manuals for assembly, erection, testing and commissioning of the equipment shall be in English.
				17. Clearance of installations from the statutory and other concerned authorities on behalf of Employer. The successful bidder shall also assist in preparing application forms, providing necessary drawings, documents, test certificates etc., including necessary co-ordination with statutory and other concerned authorities.
		6. **Implementation Schedule**
			1. The project shall be implemented within a period of \_\_\_\_\_ months from the effective date of contract up to commissioning.
			2. An indicative implementation schedule is shown at **Annexure 2.1.9.2-1**. However, the bidder may improve upon the same and submit a schedule with their offer, showing all major activities, with respective duration proposed.
		7. Discipline wise scope of work has been elaborated in the subsequent clauses of this Chapter.

Only specific scope of the respective discipline to be mentioned in their respective areas. Repetition of any of the general clauses like design, engineering, construction, supply etc. are not to be done in the write-up of the respective areas. The same sequence of the departments as given below shall be followed expect in case of the TFL department, which shall be placed first after Process and Technology.

* 1. **PROCESS AND TECHNOLOGY**
	2. **MECHANICAL**
	3. **UTILITIES**
	4. **REFRACTORY**
	5. **ELECTRICAL**
	6. **PROCESS CONTROL AND AUTOMATION**
	7. **C&IT**
	8. **STRUCTURAL**
	9. **CIVIL**
	10. **DRAWINGS AND TECHNICAL DOCUMENTS**
		1. Following drawings and documents are to be submitted by the bidder within 30 days of effective date of contract.

(Drawings and document required for the first 5% payment to be mentioned here.

* + 1. Following documents are to be submitted by the bidder within 60 days of effective date of contract.

(Document required for the second 5% payment to be mentioned here.)

* + 1. The following drawings / documents shall be submitted by the bidder after placement of order:-

(Respective departments shall fill the specified row with drawings/documents relevant to their respective disciplines.)

| **Discipline** | **Description** |
| --- | --- |
| Process and Technology | 1 L-II network (To be submitted within 3 weeks of placement of order)2. General Layout3. QAP |
| Mechanical | 1.2.3. |
| Utilities | 1.2.3. |
| Refractory | 1.2.3. |
| Electrical | 1.2.3. |
| Process Automation | 1.2.3. |
| C&IT | 1.2.3. |
| Structural | 1.2.3. |
| Civil | 1.2.3. |
| Manuals | 1. Operation Manual2. Maintenance Manual3. Erection Manual |

* + - 1. The drawings/ documents submitted after placement of order shall be submitted for approval as per SBD Cl. No. 20.3. The drawings of sub-suppliers shall be duly vetted and stamped by the principal bidder before submission to employer.
			2. Drawings shall be submitted in pre-decided and agreed sequence. In order to expedite the approval of drawings, engineering meeting shall be routinely held with the bidder at plant/ consultant’s location every 2 to 4 weeks for clearing of drawings across the table and sorting out issues, if any. These meetings are to be held during the entire engineering phase of a project.
			3. Drawing / document submission methodology:

 The bidder shall submit drawings online as per approved Master
Drawing List (MDL) with submission schedule to online Electronic
Drawing Management System for approval in accordance with SBD sub clause 20.3.1 to 20.3.3. Approved MDL shall be uploaded by consultant
in the online Electronic Drawing Management System. The drawings
proposed to be submitted by the bidder shall be in accordance with the
approved MDL. In case a new drawing is required to be submitted by
the bidder, revised MDL shall be submitted by the bidder for approval
by consultant and uploading in online Electronic Drawing Management
System. Additionally, one hard copy of each drawing for consultant and
one hard copy for plant may also be submitted.

The employer/consultant shall scrutinize the drawings within 14 days
after receipt of drawings and shall furnish comment/approval on the
drawings as applicable. The stamped copy shall be forwarded to the
bidder on-line through the system. The bidder shall receive the
notification for the same.

In case, the drawing is not approved, the bidder shall prepare the
revised drawing, after suitably incorporating the comments furnished by
the employer/consultant and resubmit the same online for approval
within 10 days. The employer / consultant shall scrutinize the revised
drawings and the above process shall be continued till the drawing is
approved online.

After approval and online stamping of the drawing by the consultant,
the bidder shall take out 5 prints of the same within Seven (7) days and
out of these, 4 hard copies shall be sent to the employer and 1 hard
copy shall be sent to the consultant.

Format of bidder drawing list shall have minimum following fields:-

* + - * 1. Sl. No.
				2. Employer drawing No
				3. Bidder drawing No
				4. Name of consortium member
				5. Area
				6. Drawing/Document Name
				7. Category (Approval/Reference)
				8. Discipline
				9. Stage (BE/DE)
				10. Schedule date of submission
				11. Remarks
			1. Drawing list shall be in excel format. Any additional field, if required, shall be added after Column 11. In case the drawing has more than one sheet, employer drawing shall include the sheet number as part of drawing number.
			2. Editable format soft copies (3 sets) on CD/DVD of all “**As-Built**” drawings (full set of drawings as per the approved drawing list) and manufacturing drawings of critical parts, spares and fast wearing parts shall be supplied by the bidder.
			3. In case the proposed plant uses any process, equipment or software which is covered under any patent and SAIL is required to have the relevant user’s license for the same, the scope of work of this tender shall include transferring such licenses to SAIL and indemnifying SAIL against infringement of any intellectual property rights.
	1. **BATTERY LIMIT**

Battery limit for each area to be specified separately as below:-

|  |
| --- |
| **Incoming (Co-ordinates to be mentioned wherever possible)** |
| Process and Technology | 1.2.3. |
| Utilities | 1.2.3. |
| Electrical | 1.2.3. |

|  |
| --- |
| **Outgoing (Co-ordinates to be mentioned wherever possible)** |
| Process and Technology | 1.2.3. |
| Utilities | 1.2.3. |
| Electrical | 1.2.3. |

Any addition / deletion of the areas mentioned above for the battery limits may be done as per the requirement of the package.

* 1. **EMPLOYER’S OBLIGATION**

Construction water and power shall be provided to the bidder as per SBD Cl. No. 20.4.2 and 20.4.3.

If the above requirement is at variance with SBD, the same to be specified accordingly under this clause. Apart from the above any specific requirement may also be added here.

* 1. **TRAINING In case training is required for the package.**

The bidder shall make arrangement for training of employer’s and consultant’s personnel in the area of design & engineering, operation & maintenance of plant and equipment under the scope of work as below:

1. Manufacturer’s premises in India for ............. man-days

2. Foreign training for ............. man-days

3. On site for ............. man-days

Above may be modified depending on the requirement of the package.

2.15 The bidder will identify any hazard / risks which may result in fatal accidents / severe damage to human health and safety, damage to equipment and material resulting in loss of time and having cost implication. The bidder will carry out the above assessment and formulate appropriate action plan to prevent such incidents. This action plan shall be submitted to the Employer before start of the work.

Blue with yellow background: Instructions for the respective write-up.

1. **TECHNICAL SPECIFICATION**
	1. **GENERAL**
		1. 1. 1.
	2. **PROCESS AND TECHNOLOGY**
	3. **MECHANICAL**
	4. **UTILITIES**
	5. **REFRACTORY**
	6. **ELECTRICAL**
	7. **PROCESS CONTROL AND AUTOMATION**
	8. **C&IT**
	9. **STRUCTURAL**
	10. **CIVIL**
	11. **If Operational & maintenance spares have been considered. Please provide the list of spares wherever a firm list can be prepared**

|  |  |  |
| --- | --- | --- |
| **Sl. No.** | **Item** | **Quantity** |
|  |  |  |
|  |  |  |

**Or**

**We may mention that the list of operational & maintenance spares shall be decided during tender discussion/ clarifications.**

Blue with yellow background: Instructions for the respective write-up.

1. **COMMISSIONING AND PERFORMANCE GUARANTEE**
	1. **PRELIMINARY ACCEPTANCE**

On completion of erection of the facilities by the bidder, trial runs for individual equipment / units shall be conducted by the bidder to prove that the facilities have been supplied and erected as per contract and after erection, facilities are fit for start-up and commissioning. After liquidation of all the defects and after fulfilling all the provision of **clause 24 of GCC of Standard Bidding Document (SBD)** employer shall issue Preliminary Acceptance Certificate (PAC) for the subsequent commissioning of facilities.

* 1. **COMMISSIONING**

Commissioning test shall be undertaken by the bidder as per the provisions of **Clause 25 of GCC of SBD**. On successful completion of commissioning test employer shall issue commissioning certificate.

The facilities shall be deemed to be commissioned on fulfilment of following:

(Define commissioning of the project including period of commissioning test, as applicable. This may be furnished separately for each equipment or sub-systems, if applicable)

* + - * 1. Define commissioning:

(As per clause 25.2 of GCC of SBD- The Contractor shall conduct commissioning test as specified in Technical Specifications or establish seventy five percent (75%) of the guaranteed production capacity for a continuous period of 168 hours)

(In case of multiple facilities which can be commissioned independently, provision of part commissioning may be kept in the TS. Accordingly, independent commissioning parameters need to be defined for each such independent facility)

* + - * 1. Define duration/period of commissioning tests

In case of any interruption during the specified period/duration of commissioning on account of reasons attributable to the Employer, the acceptance of commissioning with regards to duration of commissioning tests shall be as per the mutually agreed terms between the Employer and the Bidder.

* 1. **PERFORMANCE GUARANTEE**
		1. **General**
			1. The bidder shall guarantee the equipment for its workmanship, materials, design and satisfactory operation in accordance with relevant specifications and provisions of the contract. The guarantee for performance shall include individual items and systems for various ratings / out puts as well as for the integrated operation of the plant.
			2. The details of the performance guarantee tests, test procedures, test schedules for the demonstration of performance guarantee parameters shall be submitted to the employer which shall be mutually agreed upon.
			3. The bidder shall conduct the performance guarantee tests to demonstrate PG parameters as defined hereunder in subsequent para and as per provisions of **Clause 27 of GCC and Appendix-V of SBD**.
			4. PG Test shall be conducted within a period of six months after the date of commissioning once facilities achieve stable operation as well as production level.
			5. Period of PG Test shall be for ……. days. (define the period as applicable for the project) during which bidder shall demonstrate the PG parameters.
		2. **Preconditions for Performance Guarantee Tests**
			1. Preconditions for the employer: (List out conditions which are to be ensured by the employer for carrying out successful PG tests.)

2)

* + - 1. Preconditions for the bidder: (List out conditions which are to be ensured by the bidder for carrying out successful PG tests.)
				1.
		1. **Performance Guarantee Parameters**

Bidder shall have to demonstrate following parameters as listed hereunder:

(List out the performance guarantee parameters separately for each equipment or sub-system or for the overall system, as applicable, in tabular form)

(In case of multiple facilities PG tests for which can be conducted independently, provision of part PG may be kept in the TS. Accordingly, independent PG parameters need to be defined for each such independent facility)

| **Sl. No.** | **PG Parameter**  | **Guaranteed Value** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

* + - 1. Variance of input conditions for PG parameters

In the event of any variance in the input conditions w.r.t quality, quantity, or any other parameter as defined in cl. 4.3.2 and 4.3.3, which has a bearing on the PG parameter, the output PG parameter shall be mutually discussed and revised as per the agreement between the Employer and Bidder, before the start of PG tests.

* + - 1. Non fulfilment of Performance Guarantee Parameters and Liquidated Damage

In case the bidder is unable to attain the guaranteed value of performance guarantee parameters but attains within the minimum acceptable level of the performance guarantee parameters as specified either in whole or in part then employer shall recover the amount of liquidated damage as mentioned hereunder:

| **Sl. No.** | **PG Parameter**  | **Guaranteed Value** | **Acceptable Limit with LD** | **LD in %**  |
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Total Liquidated damage for non-fulfilment of PG parameters shall be limited to 7.5% of contract value, excluding taxes and duties, as stipulated in GCC of SBD.

* 1. **FINAL ACCEPTANCE**

Final acceptance shall be as per **clause no. 28 of GCC of SBD**.

**DECLARATION OF SITE VISIT**

(To be filled up by the Bidder)

I, hereby, declare that I have visited the site to understand the site conditions, and acquainted myself with atmosphere prevalent therein. I have also understood the extent of total works involved for this package.

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|  | Signature of the Bidder: |
| Seal of company | Name: |
|  | Designation: |

**LIST OF EXCLUSIONS**

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| **Sl. No.** | **Reference clause of TS** | **Details of Exclusions** | **Reasons** |
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| Seal of company | Name |
|  | Designation |

**LIST OF DEVIATIONS**

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| **Sl. No.** | **Reference clause of TS** | **Details of Deviations** | **Reasons** |
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| Seal of company | Name |
|  | Designation |

**LIST OF RECOMMENDED SPARES FOR**

**TWO YEARS NORMAL OPERATION**

(To be filled by the Bidder)

Bidder shall recommend and tabulate below the list of additional spare parts for two years trouble free operation. Additional sheet of like format may be used if necessary.

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| --- | --- | --- | --- |
| **Sl. No.** | **Name of Sub Assembly** | **Description of Items** | **Quantity recommended** |
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Seal of Company Signature of the Bidder

 Name:

 Designation:

**LIST OF COMMISSIONING SPARES**

(To be filled by the Bidder)

Bidder shall tabulate below item wise the list of commissioning spares necessary for the equipment offered. Additional sheet of like format may be used if necessary.

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| --- | --- | --- | --- |
| **Sl.No.** | **Name of Sub Assembly** | **Description of items** | **Quantity recommended** |
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Seal of Company Signature of the Bidder

 Name:

 Designation

**LISTS OF SPECIAL TOOLS AND TACKLES**

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| **Sl. No.** | **Description** | **Quantity** |
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| Seal of company | Name |
|  | Designation |

**LIST OF FIRST FILL OF OILS AND LUBRICANTS**

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| **Sl. No.** | **Description** | **Quantity** |
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|  | Signature of the Bidder |
| Seal of company | Name |
|  | Designation |

**DETAILS OF AUTHORISED PERSON OF BIDDER DURING TENDER EVALUATION**

1. Name of Project :
2. Tender No. :
3. Name & Address of Bidder :
4. Name of authorized person (TECHNICAL) :
5. Email address :
6. Mobile No. :
7. Name of alternate authorised person (TECH) :
8. Email address :
9. Mobile No. :
10. Name of authorized person (COMMERCIAL) :
11. Email address :
12. Mobile No. :
13. Name of alternate authorised person (COMM) :
14. Email address :
15. Mobile No. :

Authorised Signatory

**REQUIREMENT OF CONSTRUCTION WATER & POWER**

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| --- | --- | --- |
| **Sl. No.** | **Description** | **Quantity** |
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|  | Signature of the Bidder |
| Seal of company | Name |
|  | Designation |