Technical Specifications (In-Cash Procurement)

Engineering services to the Area Manager of the Tokamak Complex buildings in integration & installation preparation of plant systems

This document specifies the requirements for engineering services to the Area Manager of the Tokamak Complex buildings in integration and installation preparation of plant systems. It covers mainly the preparation of plant installation in close collaboration with CST/engineering departments as well as the penetrations design, common support and local shielding design and platform design. The contract type is deliverable based with defined milestones.

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1 Purpose

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2 Scope

2.1 The ITER Project

The ITER project aims to demonstrate the scientific and technological feasibility of fusion power for peaceful purposes and to gain the knowledge necessary for the design of the next stage device.

The ITER project is organized as an international research and development project jointly funded by its seven Members; the European Union (represented by EURATOM), Japan, the People's Republic of China, India, the Republic of Korea, the Russian Federation and the USA.

ITER is being constructed in Europe, at St. Paul lez Durance in southern France, which is also the location of the headquarters of the ITER Organization (IO).

During ITER construction, most of its components will be supplied "in-kind" by the ITER Members. These in-kind contributions are being managed through a Domestic Agency (one per ITER Member) located within the Member's own territory.

The working language of the ITER Project is English.

More details about the Project Organization, The Domestic Agencies, the IO location and other different aspects of the Organization are available on the website: www.iter.org.

2.2 Scope of the Task

The ITER layout consists of many plant systems which are integrated in the Tokamak complex buildings. The interfaces need to be consolidated during MRR phase incl. the routing of the building systems.

The ITER Design Integration section (DINS) is part of the Design Integration and Construction division (DCIN) and, among others, has the following responsibilities:

- Define and control the Configuration with its interfaces;
- Follow-up and implementation of project change requests and system deviation requests;
- Review of system design and its interfaces;
- Integration of systems in the buildings;
- Follow-up of MRR with the DAs and the Architect/ Engineer;
- Establishment of the "As-built" configuration;

- Preparation and follow-up of the construction and installation phase;

- Support the Area Manager for the Transverse Studies analysis and implementation.

2.2.1   Scope

There is no cad work to be performed. CATIA/ENOVIA is used for viewing purpose only.
The scope of the work covers:
- Review of the engineering work packages provided by the engineering departments;
- Conceptual design of all plant systems penetrations;
- Design of local shielding;
- Conceptual design of platforms.

3   Definitions

BIPS PT: Building, Infrastructure and power supply Project team

AM   : Area Manager

CMAF: Cad Model Approval Form

DA   : Domestic Agency

DER   : Data Exchange Request

DET   : Data Exchange Tasks

DINS   : Design Integration Section

EP   : Embedded Plates

IO   : ITER Organization

MAM: Model Approval Meeting

MRR   : Manufacturing Readiness Review

RO   : Responsible Officer

WP   : Work Package

For a complete list of ITER abbreviations see: ITER Abbreviations (ITER_D_2MU6W5).

4   References

Ref [1]: ITER_D_R7SAGV - 1 - How to use SSD

Ref [2]: ITER_D_28LVHH - Procedure for the Promotion of CAD Data from In-Work to Draft Status

Ref [3]: ITER_D_P49NTN - CAD Requirements & Deliverables Relative to Functional Design Milestone

Ref [4]: ITER_D_2F6FTX - Procedure for the Usage of the ITER CAD Manual

Ref [5]: ITER_D_P7Q3J7 - Specification for CAD data Production in ITER direct contracts

Ref [6]: CAD Manual 07 - CAD Fact Sheet (249WUL)

Ref [7]: ITER_D_P49NTN - CAD Requirements & Deliverables Relative to Functional Design Milestone

Ref [8]: ITER_D_22MFG4 - ITER Procurement Quality Requirements

Ref [9]: ITER_D_22MFMW - Requirements for Producing a Quality Plan

Ref [10]: ITER_D_22F53X - Procedure for management of Nonconformities

Ref [11]: ITER_D_258LKL - Quality Assurance for ITER Safety Codes Procedure

Ref [12]: ITER_D_KTU8HH - Software Qualification Policy

Ref [13]: ITER_D_4EUQFL - Overall Surveillance Plan of External Interveners Chain for Protection Important Components, Structures and Systems and Protection Important Activities

Ref [14]: ITER_D_22K4QX - ITER Quality Assurance Program (QAP)

Ref [15]: ITER_D_2LZJHB - Procedure for the management of Deviation Request

Ref [16]: ITER_D_22MAL7 - Procedure for Analyses and Calculations

5 Estimated Duration

The estimated starting date of the tasks shall be after Task Order signature. Implementation of the activities shall only start after the Kick off Meeting (T0). The expected duration of tasks is T0 + 12 months.

The contract is a deliverable based contract (work package).

6 Work Description

The Contractor shall perform the Task(s) assigned to him described in the section 2 and the deliverable in section 10, in order for IO to perform quality check(s) and accept the deliverable(s).

The work shall be performed at IO in Cadarache with read access to CATIA/ENOVIA.

The work is mainly related to the construction preparation of the Tokamak Complex buildings with all involved interfaces and the building systems which are currently in the final design phase by the contractor.

7 Input Data

The input data for the contractor are the CMM in bldg. 11, 14 and 74 in status DRAFT or APPROVED. It has to be considered that the data for bldg. 14 are ITER restricted and need to be treated according to the rules as defined by IO.

The CMM are stored in CATIA/ENOVIA. The contractor only requires read access.

8 Responsibilities

The responsibilities are defined hereafter.

8.1 IO Responsibilities

The IO contact person for the task is the DINS Section Leader and the Area Managers. The IO representative will assess the performance and quality of the work.

The IO representative shall be responsible for checking the deliverables against requirements, schedule the processes (including CAD).

IO shall make available to the Contractor all technical data and documents which the Contractor requires to carry out its obligations pursuant to this specification in a timely manner. For delays of more than two weeks in making them available, the Contractor shall advise IO representative of the potential impact on the delivery of the Work Packages, to agree and define all the correction actions to take in place.

8.2 Contractor's responsibilities

The Contractor shall ensure that he complies with the following:
- The Contractor shall guaranty that all input information provided to perform the task remain property of IO and shall not be used for any other activity than the one specified in this specification.
- The Contractor shall be in charge of the training & coaching of all its resources.
- The Contractor shall provide an organization suitable to perform the work as describe in this specification;
- The Contractor shall work in accordance with the Quality Plan approved by IO;
- The Contractor shall perform the activities accordingly to this specification taking into account all relevant additional documents and IO processes into account (hand books, export control, intellectual properties, …);
- The Contractor shall be responsible to produce and manage, using the ITER software platform, all the documents listed in chapter 8;
- The Contractor shall provide to the IO representative full access to its work premises and related documentation, to permit to follow up the progress of the work.

Prior to the start of work on each activity, the Contractor shall review the input technical information provided to it by IO for completeness and consistency, and shall advise the IO representative of any deficiencies it may find. The contractor shall not be responsible for errors in the input technical information which could not be reasonably detected during such review; duration of this review will be agreed between Contractor and IO representative and will have no impact on the delivery schedule.

9 Schedule / Work Monitoring

The contractor has to deliver the documents at the due date as summarised in the table hereunder in Section 10. The required input data is currently unavailable but will be delivered to the contractor in due time, i.e. by the time that the preceding contractual milestone will have been completed. It is further on understood that the documentation preparation based on the to be delivered "input data" can be handled by one single (experienced) engineer.

10 List of Deliverables / Outputs

10.1 Scope

Milestones	Description	Deliverable date
Milestones 1	Tokamak Complex buildings (B11/B74); - Conceptual design of opening/penetrations for all plant systems with a Configuration Model and associated drawings (for Tokamak Complex Building B11/B74 Level B2/B1); - Design of radiological protection as required; - Conceptual design of Common support with a Configuration Model and associated drawings/calculation (for Tokamak Complex Building B11/B74 Level B2/B1);	Kick-off mtg. + 3 months
Milestones 2	Tokamak Complex buildings (B11/B74): - Conceptual design of opening/penetrations for all plant systems with a Configuration Model and associated drawings (for Tokamak Complex Building B11/B74 Level L1); - Design of radiological protection as required; - Conceptual design of Common support with a Configuration Model and associated drawings/calculation (for Tokamak Complex Building B11/B74 Level L2/L1); - Conceptual design for platforms as required;	Kick-off mtg. + 6 months
Milestones 3	Level L3/L4 of Tokamak Complex buildings: - Conceptual design of opening/penetrations for all plant systems with a Configuration Model and associated drawings (for Tokamak Complex Building B11/B74 required Level); - Conceptual design of Common support with a Configuration Model and associated drawings/calculation (for Tokamak Complex Building B11/B74 required Level); - Conceptual design for platforms as required;	Kick-off mtg. + 9 months
Milestones 4	Level L5/roof of Tokamak Complex buildings: - Conceptual design of opening/penetrations for all plant systems with a Configuration Model and associated drawings (for Tokamak Complex Building B11/B74 required Level); - Conceptual design of Common support with a Configuration Model and associated drawings/calculation (for Tokamak Complex Building B11/B74 Level L2/L1); - Conceptual design for platforms as required;	End of contract

11 Acceptance Criteria

All deliverable shall be reviewed in the IO system:

- IDM for relevant output
- ENOVIA for relevant output

An IDM folder to store the input and related output will be specified at the kick-off of each activity.

The process of acceptance is driven by IO internal process of approval, until this process is completed, modifications can be requested of the Contractor. The IO approval process involves all the interfacing system concerned.

The form of deliverable is according to the formalized in Section 10. Any deviations, if not previously agreed, may lead to the deliverable being refused.

A BOM of the CAD data produced and used as context in the frame of Task (when required) shall be delivered by the contractor identifying the delivered life cycle state of the data.

The CAD data produced shall be delivered by the contractor through the submission of a DET containing the BOM identifying the delivered data as frozen:

- In ENOVIA: to an EP (External Partner)-Draft status, accompanied by a possible transfer of ownership if the data is handed over back to IO.
- In SSD: through the submission of the diagram into the EDB as described in ref [1].

The Acceptance of the CAD data will be performed by the IO-DO in accordance with the promotion process (ref [2]) and the criteria as defined in ref [3].

The maximum time for IO acceptance / comments is 10 working days after the storage (+IDM email) of the deliverables in IDM. After this period if no action has been performed by the IO, the deliverable shall considered as accepted.

Non-CAD deliverables (graphics, Powerpoint Documents, etc.) will be reviewed upon delivery by the IO RO/RE and will be accepted if compliant with the requirements advised by the RO at the start of the task, all these document shall follow a IDM workflow.

In case of non-compliance / conformity of a deliverable or a set of deliverables, the Contractor shall correct them and re-submit them for review and acceptance; resubmission shall be at contractor's cost.

12 Payment Conditions, Amendments and Liquidated Damages

N/A

13 IO CAD requirements

The Contractor shall ensure that all designs, CAD data and drawings delivered to IO comply with the ref [4].

The reference scheme is for the Contractor to work in a fully synchronous manner on the ITER CAD platform (see detailed information about synchronous collaboration in the ref [5].

This implies the usage of the CAD software versions as indicated in ref [6] and the connection to one of the ITER project CAD data-bases. Any deviation against this requirement shall be defined in a Design Collaboration Implementation Form (DCIF) prepared and approved by DO and included in the all-for-tender package. Any cost or labour resulting from a deviation or non-conformance of the Contractor with regards to the CAD collaboration requirement shall be incurred by the Contractor itself.

The ref [7] introduces CAD methodologies and details on required CAD deliverables for deliverable based Task aiming at Functional Design stage completion. **The non-respect of these requirements can lead to withhold of deliverable acceptance.**

14 Quality Assurance (QA) requirement

14.1 Overview

The Contractor should have ISO 9001 accredited quality system. Otherwise the Contractor shall have QA Program approved by the IO.

The Quality Assurance Program (QAP) as ref [14] is to ensure that ITER activities are performed at a level of quality appropriate to achieving the safety and performance objectives of the Project.

The general requirements are detailed in ref [8].

Prior to commencement of the work, a Quality Plan which complies with ref [9] shall be submitted to IO for approval with evidence of the above. The Contractor's Quality Plan shall describe the organisation for tasks; roles and responsibilities of workers involved in; any anticipated sub-contractors; and giving details of who are the independent checkers of the activities.

Where any deviation is requested or non-conformity has happened from the Technical Specification, Contractors Deviations and Non Conformities the ref [10] and ref [15] shall be followed.

Documentation developed as the result of this task shall be retained by the Contractor of the task for a minimum of five (5) years and then may be discarded at the direction of the IO.

IO will monitor implementation of the Contract's Quality Plan. Where necessary, IO will assess the adequacy and effectiveness of the quality system specified in the Quality Plan through surveillance or audit. Where condition adverse to quality is found during monitoring, IO may request to the Contractor to take corrective action.

The use of computer software to perform a safety basis task activity such as analysis and/or modelling, etc. shall be reviewed and approved by the IO prior to its use, in accordance with the ref [11] and ref [16]. Where applicable, the ref [12] shall be taken into consideration to ensure quality and integrity of software prior to application.

14.2   Task classification

There is no change in classification demanded for this task.

- Quality Class for this Activity: N/A
- Remote Handling Class: N/A
- Safety Class: N/A
- Seismic Class: N/A
- Seismic Level: N/A
- Vacuum Class: N/A

15   Safety requirements

ITER is a Nuclear Facility identified in France by the number-INB-174 ("Installation Nucléaire de Base").

For Protection Important Components and in particular Safety Important Class components (SIC), the French Nuclear Regulation must be observed, in application of the Article 14 of the ITER Agreement.

In such case the Suppliers and Subcontractors must be informed that:
- The Order 7th February 2012 applies to all the components important for the protection (PIC) and the activities important for the protection (PIA).
- The compliance with the INB-order must be demonstrated in the chain of external contractors.
- In application of article II.2.5.4 of the Order 7th February 2012, contracted activities for supervision purposes are also subject to a supervision done by the Nuclear Operator.

For the Protection Important Components, structures and systems of the nuclear facility, and Protection Important Activities the contractor shall ensure that a specific management system is implemented for his own activities and for the activities done by any Supplier and Subcontractor following the requirements of the Order 7th February 2012 [20] (Please ref [13]).