Management of the requirements of the ITER Technical Baseline Documentation

Technical Specification

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1 Abstract

This document describes the technical needs for Requirements Management of the ITER Technical Baseline Documentation.

2 Background and Objectives

ITER is an international project which is currently building the world's largest and most advanced experimental tokamak and will be constructed in Europe, at Cadarache in the south of France. The ITER tokamak aims to make the transition from today's studies of plasma physics to full scale electricity-producing fusion power plants.

To ensure that this complex design is internally consistent and complete, requirements engineering techniques need to be applied to the highest levels of the technical baseline documentation.

3 Scope of Work

The objective of this contract is to provide a person to support the Responsible Officers in the ITER Organization (IO) in the management of the database of requirements for the technical baseline.

4 Estimated Duration

Six months contract with the possibility of extensions up to a cumulated duration of 36 months.

5 Work Description

The person selected for this contract will do the following:

- Support the Technical Responsible Officers (TRO) of the individual ITER systems in the propagation of requirements from ITER Project Requirements (PR) down to System Requirements Documents (SRDs) and lower level technical requirements for the system design development;
- Support the Responsible Officers (RO) within the Central Integration & Engineering (CIE) Directorate, in their development of the technical requirements database as a tool:
    - for propagating requirements from PR down to lower level system requirements.
    - for checking the consistency and completeness of the design;
    - for supporting the management of changes;
    - for supporting the implementation of regulatory requirements;
    - for supporting cost-saving by highlighting sources of over-specification that could be eliminated;
- Develop and structure the use of the technical requirements database.
- Develop the exploitation of data in the technical requirements database.
- Effectively interface with other ITER Organization divisions and with ITER domestic agencies, as necessary;
- Supervise the use of the technical requirements database by the system ROs, and helps in any training that they require;

- Assist in the development of appropriate procedures and other documentation, as needed.

6 List of Deliverables and Due Dates

- At the beginning of each three month period of the Contract (hereinafter called Period), a work plan covering the Period shall be developed and discussed with CIE. Once agreed by CIE, it shall be delivered. At the end of the first month and at the end of the second month of the Period, this work plan shall be re-discussed with CIE, and if needed a revised version incorporating corrections agreed by CIE shall be prepared and delivered.
- At the end of each Month, a Progress Report describing the activity and achievements of the Month against the work plan shall be prepared and delivered. The Progress Report shall include Performance indicators agreed by CIE, suitable to measure the progress of the work as compared to the approved work plan, and shall show variances that should be used for trending.
- At the end of each Period, a Quarterly Report describing the activity and achievements of the Period against the work plan shall be prepared and delivered. The Quarterly Report shall include Performance indicators suitable to measure the progress of the work as compared to the approved work plan, and shall show variances that should be used for trending.
- At the end of the Contract, a Final Report describing the activity and achievements of the Contract against the work plan shall be prepared and delivered.
- Each deliverable of the contract will be stored in the ITER Documentation Management (IDM) system in order to ensure traceability of the work performed.

7 Special Requirements and Conditions

7.1 Contractor profile

The person who is proposed by the bidder to carry out the work that is described in Section 5 shall:

- Have level of study corresponding to a Masters or higher degree in Science, Engineering or other relevant discipline;
- Have at least 4 years of relevant experience in the overall technology of tokamaks;
- Have a proven experience in the techniques involved in requirements engineering;
- Have a proven experience to work effectively in a complex multi-cultural environment, to work in a team and to promote team-spirit;
- Be fully fluent in English (written and spoken), since this is the working language within ITER, and all documentation must be clearly understood by native and non-native English readers alike;
- Have standard-user level of knowledge of the use of PCs in general, and of Word and Excel in particular. Experience in the use of DOORS would be an advantage.

7.2 Other Requirements and conditions

- The person(s) in charge of the service shall work on the IO site, unless exceptionally and temporarily agreed by the IO.
- All relevant documentation shall be stored in the CIE area of the ITER document management system (IDM) unless instructed otherwise by IO.
- All information acquired from parties associated with the contract or directly is confidential.
- Any breach of confidentiality will lead to the termination of the contract, according to the terms of the contract.

8 Responsibilities

8.1 The IO is responsible for:

- Providing the contractor with all input documentation needed to execute the work.
- Providing the contractor with a badge for site access, a canteen card (without supporting the cost of the meals), an office equipped with a desk, a chair and a computer with access to the internal IT network.
- Informing the contractor about the rules applicable to on-site workers.

8.2 The Contractor's responsibilities include (but are not limited to):

- Executing the work that is described in section 5
- Preparing the work plans and other deliverables described in section 6;
- Executing the work plans approved by CIE;
- Reporting any problems that might cause delay;
- Respecting all the terms of the contract;
- Respecting the rules applicable to on-site workers.

9 Work Monitoring / Meeting Schedule

The work will be managed by means of progress reports and quarterly reports, and/or formal exchange of documents transmitted by emails which provide detailed progress. Progress meetings can also be called by the ITER Organization, to review the progress of the work, the technical problems, the interfaces and the work plan.

The main purpose of the progress reports, quarterly reports and meetings is to allow the System Engineering & Configuration Management (SECM) section head to:

- Early detect issues that may cause delays, and decide corrective actions if needed;
- Review the completed and planned activities and asses the progress made;
- Permit fast and consensual resolution of unexpected problems;
- Clarify doubts and prevent misinterpretations of the specifications.

In addition to the progress reports, quarterly reports and meetings, if necessary, the ITER Organization and/or the Contractor may request additional meetings to address specific topics as needed.

10 Payment Schedule

- Key for payment: Progress Report describing the activity of the month and showing the successful achievements of the objectives specified in the work plan.

- The contractor will invoice CIE after completing and submitting an agreed Progress Report. Invoices will reference Progress Report completed in a format provided by CIE.

11 Quality Assurance (QA) Requirement

The Contractor shall work in accordance with the standards set out by ITER QA.

Documentation developed as the result of this contract shall be retained by the performer of the task or the DA organization for a minimum of 5 years and then may be discarded at the direction of the IO.

12 References / Terminology and Abbreviations

CIE: Central Integration and Engineering (one of the divisions of the IO management structure)

IO: ITER Organization (the legal body that oversees and coordinates the design work on the ITER project)

SECM: Systems Engineering and Configuration Management (one of the sections within the TI department)

TI: Technical Integration (one of the departments within the CIE division)

TRO: Technical Responsible Officer (in this context, the owner or author of the technical document that is under consideration)