

Technical Specifications

For

ITER Specialist Diagnostics Engineering Support

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Table of Contents

1	Abstract	3
2	Background and Objectives	3
3	Scope of Work	3
4	Estimated Duration.....	3
5	Work Description	3
6	List of deliverables and due dates	4
7	Acceptance Criteria	4
8	Specific requirements and conditions.....	4
9	Work Monitoring / Meeting Schedule	5
10	Payment schedule / Cost and delivery time breakdown.....	6
11	Quality Assurance (QA) requirement	6
12	References / Terminology and Acronyms	6

1 Abstract

This document describes technical needs of ITER Diagnostics Division, with particular reference to the requirement for a Specialist Engineering Support, including follow up activities, as appropriate.

2 Background and Objectives

ITER is a major new device that is under construction at Cadarache, near Marseille, France. This device will study the potential of controlled nuclear fusion to provide energy for mankind. To study the behaviour of this device, a set of monitoring systems (called Diagnostics) are required. These systems will provide the information required to understand and control the performance of the device.

3 Scope of Work

The primary objective of this engineering contract is to support the ITER Diagnostic Team in the technical oversight of design work, and preparation of design reviews, including follow up and documentation activities as appropriate.

4 Estimated Duration

The duration shall be for approximately 440 working days from the starting date of the contract.

It is anticipated that at least one working week in three should be on- site at ITER.

5 Work Description

The bidder will prepare work in the following areas:

- Remote handling compatibility assessment and manufacturing studies of selected Diagnostics components
- Mechanical design of Diagnostics systems, including completion drawings.
- Kinetic and layout studies of Diagnostics (including in-vessel cabling and instrumentation)
- Assembly and tooling studies for Diagnostics (including in-vessel and in-cryo components)
- Review and contribute as directed to design plan
- Involvement with design reviews as directed
- Prepare documentation and presentations as requested
- Engineering analysis work as required

There will be a requirement to liaise with IO personnel and particular external contractors over the period of the contract.

It will be necessary to collect inputs from these contractors and use them to generate internal IO documentation.

The bidder is required to

- Report work at regular intervals to the relevant ROs.
- Work with the organisation's processes to achieve the best results
- Work to priorities within overall project schedule

6 List of deliverables and due dates

Deliverable	Dates
Progress report	Every month after starting date
Final report	At the end of the contract

7 Acceptance Criteria

The criteria shall be the basis of acceptance by IO following the successful completion of the Work. These will be in the form of monthly progress reports as indicated in section 6 above and further detailed below:

Report and Document Review criteria

Reports as deliverables shall be stored in the ITER Organization's document management system, IDM by the Contractor for acceptance. A named ITER Organization's Contract Technical Responsible Officer is the Approver of the delivered documents. The Approver can name one or more Reviewers(s) in the area of the report's expertise.

The Reviewer(s) can ask modifications to the report in which case the Contractor must submit a new version. The acceptance of the document by the Approver is the acceptance criterion.

8 Specific requirements and conditions

Person(s) nominated to carry out the work described in this document must have proven experience, in the following areas

Particular Skills and competencies

- Proven experience with RH systems and tooling (at least 5 years);
- Proven experience in working with CAD designers (at least 5 years);
- Proven experience in mechanical engineering (at least 5 years);
- Proven experience in working with ANSYS or similar software packages (at least 5 years);
- Proven experience in Project Management (at least 5 years).

General

- ability to work with partners and host to define optimum/critical needs for ITER
- ability to work with ITER processes to achieve optimum results
- ability to align work priorities with overall project schedule
- excellent technical writing skills
- excellent communication and influencing skills
- excellent attention to detail
- excellent inter-personal skills
- work well under pressure
- ability to work in team environment
- ability to interface with global partners
- appropriate ability to comprehend technical issues and ensure addressed by others

9 Work Monitoring / Meeting Schedule

Meetings and progress reports

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

The main purpose of the Progress Meetings is to allow the ITER Organization/Diagnostics Division and the Contractor Technical Responsible Officers to:

- a) Allow early detection and correction of issues that may cause delays;
- b) Review the completed and planned activities and assess the progress made;
- c) Permit fast and consensual resolution of unexpected problems;
- d) Clarify doubts and prevent misinterpretations of the specifications.

In addition to the Progress Meetings, if necessary, the ITER Organization and/or the Contractor may request additional meetings to address specific issues to be resolved.

For all Progress Meetings, a document describing tasks done, results obtained, blocking points must be written by the engineer. Each report will be stored in the ITER IDM in order to ensure traceability of the work performed.

Every 3 months, the Contractor shall submit to ITER Organization a Progress Report to be issued five working days before the each Progress Meeting so that the report can be reviewed prior to, and discussed at, that Meeting.

The quarterly Progress Report shall illustrate the progress against the baseline work plan and indicate variances that should be used for trending. Performance indicators suitable to measure the progress of the work as compared to the approved work plan shall also be reported in the Monthly Progress Report.

10 Payment schedule / Cost and delivery time breakdown

Interim payments will be made monthly upon production of a monthly report and completed time sheet in line with the table of deliverables in section 6. Payments will only be processed upon IO approval of the reports and against receipt of a valid invoice.

11 Quality Assurance (QA) requirement

The organisation conducting these activities should have an ITER approved QA Program or an ISO 9001 accredited quality system.

The general requirements are detailed in ITER document [ITER Procurement Quality Requirements \(22MFG4\)](#)

Prior to commencement of the task, a Quality Plan [Quality Plan \(22MFMW\)](#) must be submitted for IO approval giving evidence of the above and describing the organisation for this task; the skill of workers involved in the study; any anticipated sub-contractors; and giving details of who will be the independent checker of the activities.

Prior to commencement of any manufacturing, a Manufacturing & Inspection Plan [Manufacturing and Inspection Plan \(22MDZD\)](#) must be approved by ITER who will mark up any planned interventions.

Deviations and Non-conformities will follow the procedure detailed in IO document [MQP Deviations and Non Conformities \(22F53X\)](#)

Prior to delivery of any manufactured items to the IO Site, a Release Note must be signed [MQP Contractors Release Note \(22F52F\)](#).

Documentation developed as the result of this task 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. 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, it should fulfil IO document on Quality Assurance for ITER Safety Codes [Quality Assurance for ITER Safety Codes \(258LKL\)](#).

12 References / Terminology and Acronyms