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EXTERNAL REFERENCE

**Technical Specifications (In-Cash Procurement)**  
**Design and progression of the Safety Important Classified**  
**Components for Diagnostics - PR 10010112 CFE**

The objective of this contract is to provide a suitable person to support the Diagnostics Division in the preparation of the Diagnostic Systems for ITER construction in particular for the overseeing of high Safety Important Class components. The requirement is for a suitably qualified and experienced person to classify and specify SIC (Safety Importance Class) and vacuum classification for all Diagnostics components at ITER

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# Technical Specifications

For

## Design and progression of the Safety Important Classified components for ITER Diagnostics Division

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## 1 Abstract

This document describes technical needs for support of the design and progression of the diagnostics at ITER, especially in the area of Safety Important components.

## 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 objective of this contract is to provide a suitable person to support the Diagnostics Division in the preparation of the Diagnostic Systems for ITER construction in particular for the overseeing of high Safety Important Class components. The requirement is for a suitably qualified and experienced person to classify and specify SIC (Safety Importance Class) and vacuum classification for all Diagnostics components at ITER

## 4 Estimated Duration

The duration shall be up to 2 years (220 days per year) from the starting date of the contract. Overall, it is envisaged that the work shall be done predominantly 'on-site' at the ITER site at Cadarache.

## 5 Work Description

- Oversee the implementation and monitoring of the safety important component boundaries in the diagnostic area.
- Advise and progress on vacuum systems, and the safety impacts of same, on the diagnostics systems.
- Provide technical advice on mechanical assemblies and bonding methods appropriate for ITER Diagnostics.
- Define the development and testing of vacuum interfaces as necessary.
- Manage interface sheets with the vacuum section and other relevant areas.

- Supports the Division Head or his appointed experts in appropriate matters related to the diagnostic systems for ITER construction.
- Oversee and manage various technical aspects of these systems
- Effectively interfaces with other ITER Organization Departments and with ITER Domestic Agencies (DA), as necessary, to achieve successful implementation
- Assists in the development of appropriate documentation as needed

There is a requirement to liaise with IO personnel, IO contractors, the EU Domestic agency and its contractors over the period of the contract

## 6 List of deliverables and due dates

Deliverable	Dates
Technical Progress report	Every 3 months after starting date
Final report	At the end of the contract period

## 7 Acceptance Criteria

This criteria shall be the basis of acceptance by IO following the successful completion of the services. These will be in the form of monthly progress reports as indicated in section 9.

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

- A suitable qualification in physics or appropriate engineering discipline
- Minimum 10 years' experience in a tokamak environment (or closely related field)
- Proven experience with vacuum systems (at least 10 years);
- Experience working with internationally recognised QA systems
- Proven experience in design, installation and operation, of diagnostic systems on magnetic fusion devices, is desirable
- Knowledge of optics and the typical materials used in the construction of fusion devices is desirable
- Strong interpersonal skills
- Ability to work effectively in a multi-cultural environment, ability to work in a team and to promote team spirit.
- Person(s) to carry out the work described in this document must have proven experience, as appropriate.

## 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 work record 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