

## Technical Specifications (In-Cash Procurement)

### **CFE - Mechanical design plan integration components**

The objective of this engineering contract is primarily to work with the ITER Diagnostic Team in the analysis that assists the diagnostic design, with particular emphasis on the plan design.

Table of Contents

1 PURPOSE .....2

2 SCOPE .....2

3 DEFINITIONS .....2

4 ESTIMATED DURATION .....2

5 WORK DESCRIPTION.....2

6 RESPONSIBILITIES .....2

7 LIST OF DELIVERABLES AND DUE DATES .....2

8 ACCEPTANCE CRITERIA.....5

9 SPECIFIC REQUIREMENTS AND CONDITIONS.....5

10 WORK MONITORING / MEETING SCHEDULE .....5

11 DELIVERY TIME BREAKDOWN.....5

12 QUALITY ASSURANCE (QA) REQUIREMENTS.....5

13 CAD DESIGN REQUIREMENTS (IF APPLICABLE) .....5

14 SAFETY REQUIREMENTS .....6

## 1 Purpose

The objective of this engineering contract is primarily to work with the ITER Diagnostic Team in the analysis that assists the diagnostic design, with particular emphasis on the plan design.

## 2 Scope

The main scope of this contract is the integration of diagnostic systems in the tokamak complex. The scope of work extends also to the assembly building with the integration of the back-end equipment and platform to support the diagnostics.

## 3 Definitions

For a complete list of ITER abbreviations see: [ITER Abbreviations \(ITER\\_D\\_2MU6W5\)](#).

## 4 Estimated Duration

The duration shall be for 12 months from the starting date of the task order. Services are to be provided generally off-site, with at least three visits per week for meetings or as per business requirements.

## 5 Work Description

- a) The deliverables as described in the following section are done on the base of full-time involvement
- b) Control and integration of the design of equipment (or parts of equipment) performed by external companies and other parts of IO impacting on diagnostics scope especially for the diagnostic systems in diagnostic building and tokamak building.
- c) Assessing the impacts of designs and design alterations as they may impact on the integration of building and the corresponding Diagnostics requirements.
- d) Working on the development of alternatives to conflicting designs.
- e) Ensuring design compliance with the ITER requirements and with the Diagnostics system requirements.
- f) Contribution to the preparation of data for CAD exchange to facilitate the provision of data to IO and external agencies.
- g) Ensuring that the ENOVIA representations of the CAD data of diagnostics in the area of B11 are up to date and conforming to the ITER CAD requirements.
- h) Working on the development and preparation of models especially of generic or common diagnostics components in particular with regards to the penetration.

## 6 Responsibilities

### 6.1 Contractor's Responsibilities

In order to successfully perform the tasks in these Technical Specifications, the Contractor shall:

- Strictly implement the IO procedures, instructions and use templates;
- Provide experienced and trained resources to perform the tasks;
- Contractor's personnel shall possess the qualifications, professional competence and experience to carry out services in accordance with IO rules and procedures;

- Contractor's personnel shall be bound by the rules and regulations governing the IO ethics, safety and security IO rules.

## 6.2 IO's Responsibilities

The IO shall:

- Nominate the Responsible Officer to manage the Contract;
- Organise a monthly meeting(s) on work performed;
- Provide offices at IO premises, computers and access to databases relevant to perform the tasks.

## 7 List of deliverables and due dates

	Deliverable	
D1	<p>Integration of the diagnostic at the L2 level.</p> <p>The aim of this deliverable is to create the configuration which is stable for diagnostics at the L2 level in the building 11 (B11) with the help of the HIT team.</p> <p>In order to achieve this goal some step need to be follow by the contractor:</p> <ol style="list-style-type: none"> <li>Survey of the ENOVIA database in order to extract the component installed at the L2 level in the area mention before.</li> <li>Make a comparison between the "WORK", "CONTEXT" and "CONFIG" branch in ENOVIA. This will be done in order to evaluate which version is the most up to date.</li> <li>Make a list of the task that need to be done by the DO in order to propagate the most up to date version in the 3 ENOVIA branch.</li> </ol> <p>The deliverable will be a report stored in IDM. The list of the reviewer and approver need to be put by the contractor this list need to be done in accordance with the <a href="#">ITER_D_2EXFXU - Sign-Off Authority for Project Documents</a>.</p> <p>All the work done in the data base need to be done in accordance with the procedure <a href="#">ITER_D_EGPR3D - Procedure for Management of Contextual CAD Data</a></p>	TO + 3 months
D2	<p>Integration of the diagnostic at the L3 levels.</p> <p>The aim of this deliverable is to create the configuration which is stable for diagnostics at the L3 levels in the building 11 (B11).</p> <p>In order to achieve this goal some step need to be follow by the contractor:</p> <ol style="list-style-type: none"> <li>Survey of the ENOVIA database in order to extract the component installed at the L3 and L4 levels in the area mention before.</li> <li>Make a comparison between the "WORK", "CONTEXT" and "CONFIG" branch in ENOVIA. This will be done in order to evaluate which version is the most up to date.</li> <li>Make a list of the task that need to be done by the DO in order to</li> </ol>	TO + 6 months

	<p>propagate the most up to date version in the 3 ENOVIA branch.</p> <p>The deliverable will be a report stored in IDM. The list of the reviewer and approver need to be put by the contractor this list need to be done in accordance with the <a href="#">ITER_D_2EXFXU - Sign-Off Authority for Project Documents</a>.</p> <p>All the work done in the data base need to be done in accordance with the procedure <a href="#">ITER_D_EGPR3D - Procedure for Management of Contextual CAD Data</a></p>	
D3	<p>Installation of the diagnostic at the B1 and L1 level.</p> <p>The aim of this deliverable is to support the RO in the creation and update of the EWP at the B1 and L1 level in the building 11 (B11) and building 74 (B74).</p> <p>In order to achieve this goal some step need to be follow by the contractor:</p> <ol style="list-style-type: none"> <li>Survey of the ENOVIA data base in order to extract the component installed at the L1 level in the area mention before.</li> <li>Make a comparison between the “WORK”, “CONTEXT” and “CONFIG” branch in ENOVIA. This will be done in order to evaluate which version is the most up to date.</li> <li>Make a list of the task that need to be done by the DO in order to propagate the most up to date version in the 3 ENOVIA branch.</li> <li>Creation of 2D drawing .</li> </ol> <p>The deliverable will be a report stored in IDM. The list of the reviewer and approver need to be put by the contractor this list need to be done in accordance with the <a href="#">ITER_D_2EXFXU - Sign-Off Authority for Project Documents</a>.</p> <p>All the work done in the data base need to be done in accordance with the procedure <a href="#">ITER_D_EGPR3D - Procedure for Management of Contextual CAD Data</a></p>	TO + 9 months
D4	<p>Installation of the diagnostic cubicle</p> <p>Installation of the cubicle at the B1, L1 and L2 level in the diagnostic building and L2, L3 and L4 level in the tritium building.</p> <p>The aim of this deliverable is to make an update of the cubicles located in the tritium and diagnostic buildings.</p> <p>The update will be done in accordance with the revision of the document <a href="#">ITER_D_SNQJQ6 - Diagnostic Cubicles repartition in Tokamak Complex , including for first plasma</a></p> <p>The deliverable will be a report stored in IDM with the list of all the modifications done by the contractor.</p> <p>The list of the reviewer and approver need to be put by the contractor this list need to be done in accordance with the <a href="#">ITER_D_2EXFXU - Sign-Off Authority for Project Documents</a>.</p> <p>The deliverable will explain the localisation of the different modification and the ENVOIA tree with the data at the EP_DRAFT status done in accordance with the procedure <a href="#">ITER_D_EGPR3D - Procedure for Management of Contextual CAD Data</a></p>	TO + 12 months

## 8 Acceptance Criteria

The deliverables as described in section 7 shall be reviewed for acceptance by the Responsible Officer for the Contract - or his delegate.

## 9 Specific requirements and conditions

- a) Engineering Degree (bachelor level) in appropriate Engineering discipline is necessary
- b) Minimum of 5 years' experience in Construction /Facilities Engineering
- c) Experience in Nuclear Fission/Fusion is very important
- d) Experience with remote handling equipment is an advantage
- e) Experience of working with CAD and CAD Designers
- f) Ability to balance quality/risk/cost when providing design information.
- g) Ability to work in multidisciplinary, international team environment.
- h) Knowledge of Quality Assurance systems and their practical application
- i) Must be fluent in English language, both written and oral.

## 10 Work Monitoring / Meeting Schedule

The work progress shall be reported in Port-Plug and Diagnostics Division meetings on a weekly basis.

## 11 Delivery time breakdown

See section 8.

## 12 Quality Assurance (QA) requirements

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 Procurement Quality Requirements \(ITER\\_D\\_22MFG4\)](#).

Prior to commencement of the task, a Quality Plan 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 (see [Procurement Requirements for Producing a Quality Plan \(ITER\\_D\\_22MFMW\)](#)).

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, in accordance with [Quality Assurance for ITER Safety Codes \(ITER\\_D\\_258LKL\)](#).

## 13 CAD Design Requirements (if applicable)

For the contracts where CAD design tasks are involved, the following shall apply:

The Supplier shall provide a Design Plan to be approved by the IO. Such plan shall identify all design activities and design deliverables to be provided by the Contractor as part of the contract.

The Supplier shall ensure that all designs, CAD data and drawings delivered to IO comply with the Procedure for the Usage of the ITER CAD Manual ([2F6FTX](#)), and with the Procedure for the Management of CAD Work & CAD Data (Models and Drawings [2DWU2M](#)).

The reference scheme is for the Supplier to work in a fully synchronous manner on the ITER CAD platform (see detailed information about synchronous collaboration in the ITER [GNJX6A](#) - Specification for CAD data production in ITER Contracts.). This implies the usage of the CAD software versions as indicated in CAD Manual 07 - CAD Fact Sheet ([249WUL](#)) 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 call-for-tender package. Any cost or labour resulting from a deviation or non-conformance of the Supplier with regards to the CAD collaboration requirement shall be incurred by the Supplier.

## 14 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.
- The list of the requirements, including defined requirements, applicable for the PBS 55 are listed in [ITER\\_D\\_28B39L - SRD-55 \(Diagnostics\) from DOORS](#) (version 5.2)

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 ([PRELIMINARY ANALYSIS OF THE IMPACT OF THE INB ORDER - 7TH FEBRUARY 2012 \(AW6JSB v1.0\)](#)).