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EXTERNAL REFERENCE

Call for Expert Documents

CFE for Qualification of magnet assembly procedures

Tech spec for enigneering support on qualification of magnet assembly procedures

Approval Process			
	Name	*Action*	*Affiliation*
Author	**Vostner A.**	**25 Mar 2015:signed**	**IO/DG/DIP/TKM/MAG/SSA**
Co-Authors			
Reviewers	**Romano G.**	**25 Mar 2015:recommended (Fast Track)**	**IO/DG/DIP/TKM/MAG/SSA**
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Approver	**Alekseev A.**	**25 Mar 2015:approved**	**IO/DG/DIP/TKM**
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Change Log			
CFE for Qualification of magnet assembly procedures (R34F76)			
Version	***Latest Status***	***Issue Date***	***Description of Change***
v1.1	Approved	25 Mar 2015	Document template updated Requirement to have a car added. Provision to perform specific training needed for the workshop operation added.
v1.0	Signed	24 Mar 2015	

china eu india japan korea russia usa

CONTRACT TECHNICAL SPECIFICATION

Engineering Work to Support the Qualification of Magnet Assembly Procedures

Technical Specification

Table of Contents

1 Purpose

This technical specification describes engineering work to support the qualification of assembly procedures for magnet components, in particular for the Feeder System.

2 Scope

ITER superconducting magnet system consists of 18 TF (Toroidal Field) coils, 6 PF (Poloidal Field) coils, a Central Solenoid (CS), 18 Correction Coils (CC) and a Feeder System. Feeder System provides not only electric current, e.g. 68 kA for TF coil, but also supercritical Helium, instrumentation, etc. Their design is very complex and most of them unique. Due to limited space availability in the ITER machine and given the fact that the feeders are up to 30 m long with a 3D shape, the installation and assembly of the feeders is very demanding. The assembly procedures are being developed by the IO and CNDA with its supplier but it is essential that all critical procedures (e.g. joint preparation and manufacturing, cable routing and pulling, support installation, …) have to be tested and qualified before acceptance. This work can be performed at the Magnet workshop (MIFI) but requires extensive monitoring to ensure proper implementation of the procedures. This contract provides support in the monitoring and follow up of the qualification process of assembly procedures for magnet components performed at MIFI workshop.

3 Definitions

A complete list of ITER Abbreviations can be found under ITER_D_2MU6W5 (https://user.iter.org/?uid=R3HQSK).

4 Estimated Duration

The duration of the contract shall be 24 months based on 220 working days per year. The contract duration may be extended of 12 months only with the express written agreement of the parties.

5 Work Description

The work required in this technical specification includes the following engineering activities:

-) To follow up activities at the IO/MIFI workshop in particular assembly procedures for feeders;

-) To supervise and lead the MIFI technicians to ensure proper execution of task orders;

-) To support proper reporting on MIFI activities;

-) To coordinate the MIFI technicians among the different activities according to the MWP (Monthly Work Programme);

-) To contribute to writing magnet assembly and inspection plans and detailed procedures with technical acceptance criteria, based on results from magnet workshop when available;

-) To check the tooling and materials are properly registered in the database;

-) To assist the ROs of MIFI activities in the preparation of task orders, including technical plans and activity schedules.

6 Deliverables and Due Dates

The specific work to be carried out is driven by the MIFI MWPs updated on a monthly basis. The IO will, in mutual agreement with the expert, establish tasks and priorities, along with the written reports to be produced. These will be part of a work plan for the three-month period. Quarterly, yearly and final reports are the deliverables measuring the accomplishment of the objectives.

7 Acceptance Criteria

The acceptance of the work is based on completion of the tasks and goals set on the work plan for each trimester, as well as on the completion of reports and documents specified in the work plan.

8 Specific Requirements and Conditions

The expert proposed by the bidder to carry out the work described in Section 5 must have proven experience in the following areas:

- PhD in physics or engineering
- 5 years-experience in the field of monitoring and supervising a workshop performing activities related to qualification and installation of components
- Involvement in commissioning and control systems of cryogenic components
- Experience in Non-destructive examination
- Good knowledge in factory acceptance tests
- Ability to work effectively in a multi-cultural environment
- Good knowledge of factory acceptance tests
- Ability to communicate fluently and write reports in English
- Driving license valid in Europe (to commute between IO and MIFI site). The expert must have a personal or company car.
- Knowledge in high voltage insulation using glass fiber reinforced composite material for cryogenic application is advantageous.
- Ability to communicate in the French is advantageous.

Curriculum Vitae, CV showing evidence above is required.

The Contractor may be required to be certified in performing specific tests according to relevant standards; in this case the IO will bear the relative costs.

9 Work Conditions and Monitoring

- A work plan shall be established and agreed by IO every three months;
- This contract shall be executed by one sole staff. Splitting it into parts and sharing those between several parties or individuals are not permitted;
- The staff working on this contract shall be available full time and deployed to the IO site in St Paul-lez-Durance, France and at CEA Cadarache (in St. Paul-lez-Durance), where the MIFI workshop is located;
- Given the fact suppliers hold trade secrets in the manufacture of ITER Magnet and Feeder System and some of their components, and that competitive considerations are at play, the

expert is expected to disclose any and all conflicts of interest in the conduct of this contract, and sign non-disclosure agreements as directed by the IO.

10 Timetable

The tentative timetable is as follows:

Call for Expertise	April 2015
Contract award	June 2015

11 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.