Remote Handling System Engineering and R&D Expert

Technical Specification

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Table of Contents

1 Abstract 3
2 Background and Objectives 3
3 Scope of Work 3
4 Estimated Duration 4
5 Work Description 4
6 Required Skills 4
7 Deliverables, reporting, acceptance criteria 5
8 References / Terminology and Acronyms 5
8.1 References 5

1 Abstract

The purpose of this contract is to acquire the services of an engineer with experience in the field of Remote Handling (RH) system engineering and RH systems R&D activities preparations and follow up.

2 Background and Objectives

The ITER RH system [RD1] consists of equipment designed to perform maintenance operations on ITER where man access is highly restricted or forbidden.

The ITER Remote Handling (RH) section is responsible for the RH system lifecycle management. For this purpose, a system engineering approach is used to manage the key phases of conceptual design, procurement/procurement oversight and usage. This lifecycle is regulated by the following six phases:

- Phase 1: Conceptual Design (with associated Conceptual Design Reviews);
- Phase 2: Preliminary Design (with associated Preliminary Design Reviews);
- Phase 3: Final Design (with associated Final Design Reviews);
- Phase 4: Fabrication, Assembly and Test with intermediate Manufacturing Readiness Reviews, Test Readiness Reviews and the final Operational Readiness Review;
- Phase 5: Operations and Support;
- Phase 6: Project Close-out, to include the dismantling and disposal of the plant and systems.

and controlled through the execution of the following specific actions:

- Action 1: RH System Analysis, integrated logistic support/maintenance/cleaning and decontamination assessments, establishment of the Procurement Technical Specifications;
- Action 2 and 3: requirements for further testing during preliminary and final design;
- Action 4: responsibilities and key actions for the following steps: manufacture, pre-assembly and factory acceptance testing, shipping, on site assembly and on-site testing, integration and commissioning, issue of statement of readiness.

Throughout the above phases and actions, R&D plays a key role, being used to verify the validity of the RH systems design from its concept phase and to verify correct interfacing with the machine components to be remotely handled.

3 Scope of Work

The scope of the work of this contract is to provide support to the IO in the execution of selected phases of the RH systems lifecycle and R&D programme.

The work will be executed based on Task Orders issued by the IO. For each task, the IO and the Contractor will agree:

- The Task Request contents
- The Task duration

- The place of work (at ITER or at the Contractor site)

There is no pre-established minimum limit to the number of Task Requests that the IO will place with the Contractor.

4 Estimated Duration

The contract duration is maximum 220 days, spread over a period of two years from the signature date. The contract can be extended by a further year upon agreement between the IO and the Contractor.

5 Work Description

Support the RH section in the:

- execution of System Analysis, integrated logistic support/maintenance/cleaning and decontamination assessments, establishment and review of Procurement Technical Specifications;
- support in the execution of RH compatibility assessments;
- support in preparation and execution of the RH systems design reviews;
- definition of the R&D requirements for the RH systems. Monitoring the progress of R&D activities based of QA standards established by the IO and/or agreed with the ITER Domestic Agencies;
- definition and/or analysis of standards for the manufacture, pre-assembly and factory acceptance testing, on site assembly and on-site testing, integration and commissioning, issue of statement of readiness;
- definition and/or analysis of R&D programmes for the development of the RH systems; monitoring/follow-up as required.

6 Required Skills

The engineer providing the services should meet the following requirements:

- Degree in Mechanical engineering;
- Minimum of 10 years' experience in robotics/remote handling engineering in nuclear engineering applications;
- Minimum of 10 years' experience in developing, implementing and follow-up of contracts for the procurement of robotics/remote handling systems for nuclear engineering applications;
- Experience in system engineering and design process management and control;
- Knowledge and experience of system engineering tools and methodology;
- Excellent knowledge of the English language, for correct technical communication with his/her colleagues and for correct writing of technical documentation.

7 Deliverables, reporting, acceptance criteria

The work specified in this contract is deliverable based. Each task order will be concluded with the issuing of a task report which will need to be submitted to the RH Section leader for acceptance.

8 References / Terminology and Acronyms

8.1 References

[RD1] ITER Remote Maintenance Management System (IRMMS) *(ITER_D_2FMAJY v1.6)*