CONTRACT TECHNICAL SPECIFICATIONS

Framework Contract

Support for safety and accident analyses

Technical Specifications

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1 Abstract

The purpose of this contract is to provide support to the Plant Engineering Department in the area of safety analyses and accident analyses. Technical expertise from a specialist supplier in these analyses including radiation protection, confinement, internal and external risks, etc, will provide the technical information required in order to answer to the engagements related to Hot Cell, Radwaste and Tritium Plant facilities, including the Remote Handling equipment and the treatment of radiological waste.
The aim of this document is to define the scope of a framework contract for safety and accident analyses.

2 Background and Objectives

As part of the ITER licensing and following the Decree authorizing IO to create a basic nuclear facility called « ITER » (*Décret d'Autorisation de Création*), safety studies and demonstrations have to be provided to the French Regulator (ASN: *Autorité de Sûreté Nucléaire*).
The objectives include:

- Support to the reply to ITER Technical Prescriptions related to the activities of the department,
- Provide the assessments of the impact of design changes on the safety case.

3 Scope of Work

On request, the supplier shall perform safety analyses and safety demonstration on subjects such as:

(1) Radiation protection (e.g. shielding calculation, ALARA approach…),
(2) Confinement (activated dust, activation corrosion products, tritium),
(3) Accident scenario,
(4) Fire,
(5) Explosion (dust and hydrogen isotope explosion),
(6) Lightning (protection measures, impact of magnetic field, etc),
(7) Flooding (analysis of the systems and vessels containing fluids, detection measures, impact reduction, etc),
(8) Overpressure, missile and pipe whip effects (identification of pipe or component under high pressure, prevention, impact on PIC/SIC, etc), and mechanical risks (load drop…),
(9) Chemical risks (use of beryllium and appropriate zoning, requirements on Test Blanker Modules, etc),
(10) Waste management (waste study, waste zoning, waste management),
(11) Human factor,
(12) Instrumentation & control.

The studies can involve the use of modelling codes and calculations.
The studies must follow the French regulations and ASN guide requirements.

Reports need to be provided within the contract.

4 Work Description

The supplier will be asked to provide safety analysis related to

- The overall Hot Cell,Radwaste facilities or Tritium Plant,
- Integrated systems such as:
  - Remote Handling equipment (transfer cask including its rescue system, remote handling tools…),
  - Solid radwaste processes (tritium recovery system, cutting workstation, characterization, packaging…),
  - Liquid radwaste processes (Evaporator, dryer system, filtration, cementation…),
  - Port plug test facility,
  - Building systems,
  - Confinement and detritiation system,
  - Etc.

The supplier will be asked to provide support on zoning, safety and accident analyses for the Tritium Plant Building and associated processes.

The supplier will be asked to provide support in the areas of nuclear qualification planning and program supervision for the Detritiation System qualification plan.

When the need arises, IO launches a request defining the technical content of the work to be performed and the deadline to be respected.

5 Responsibilities (including customs and other logistics)

5.1 Responsible Officers of the IO

The IO Responsible Officer (IO-RO) is the representative of the ITER Organization for the execution of the framework contract and is responsible for all management and technical functions. He will co-ordinate with all parties involved in the project. He has full authority to carry out these functions.
The Task Responsible Officer is the representative of the ITER Organization for the execution of a Task Order and is responsible for technical functions related to the Task Order. He will coordinate with all parties involved in the Task Order. He has full authority to carry out these functions.
The ITER Organization's Contract Officer, as representative of the Procurement and Contract Division is responsible for all legal, contractual and administrative aspects of the framework Contract and the related Task Orders. He assists and advises the IO-RO in all matters having legal, contractual and administrative implications during Contract negotiations and Contract execution.

5.2 Responsible Officers of the Contractor

The Contractor's Project Manager is responsible for the execution of all Contractor tasks. The Contractor's Contracts Officer is responsible for all legal, contractual and administrative aspects of the Contract.

5.3 Responsibilities of the Contractor

Staff qualification:
The contractor warrants that all personnel forming part of the core team have the necessary qualifications and experience to perform their work.

Access and regulation:
Contractors will be responsible for all work visas and other required documentation and their respective costs associated with working on the ITER site and at supplier's premises.

IT equipment and licences:
The contractor shall have and maintain the necessary equipment and licences to run the software tools required to carry out the engineering analyses and produce the deliverables in accordance with the tools adopted by the IO.

6 Deliverables and Time Schedule (proposed or required by ITER)

The duration of the Framework Contract will be 2 (two) years from the signature date.
It is anticipated that an initial set of Task Orders will be issued in 2016.
Individual Task Orders will have varying durations depending on the content of the Task Request.
Specific deliverables and due dates will be defined in each Task Order.

When the need arises, IO launches a Task Request defining:

- the technical content (input data, the detailed specification),
- the deadline and schedule,
- the necessary meetings for the follow-up of the contract,
- required languages (English, French).

The supplier has to answer to IO within the time specified in the Task Request with an offer indicating the firm price for delivering the services and confirm the schedule.

Upon agreement with the supplier, a formal work assignment will be issued by IO mentioning the technical request, the deliverables, the deadline and the firm price.

The following deliverables can be requested by the IO to the supplier, and further detailed in each work assignment:

- Report on results of modelling and calculations, plus related set of computed data,

- Report on the safety analysis of Hot Cell and Radwaste facilities design changes and the impact on the current safety demonstration,
- Report on the safety analysis of systems to be implemented in Hot Cell and Radwaste facilities.
- Sections/chapters of the response to the ASN technical prescriptions for the Tritium Plant and Hot Cell Complex, such as zoning, safety and accident analyses, as well as supporting documents.
- Report on the analysis and synthesis of existing technical reports,
- Report on the analysis and synthesis of R&D results.

The Contractor will be required to provide quality and implementation plans for all Task Orders.

The Contractor will be required to provide monthly performance reports for all Task Order activities for which it is responsible.

7 Acceptance Criteria (including rules and criteria)

The Contractor shall submit a draft of the deliverable(s) if foreseen in the work assignment scope.

The IO-Technical Responsible Officer (person delegated by the IO-RO for all technical matters, but limited to one specific instruction to proceed) shall review the deliverables and reply, within the agreed time frame as per the Framework Contract, with a commented version of the deliverable(s).

The Contractor shall perform all the necessary modifications or iterations to the deliverables and submit a revised version.

Task Orders will be considered completed after ITER has accepted the last deliverable covered by the last work assignment.

8 Required skills

The companies or consortia of companies selected shall be recognised for their knowledge and expertise in nuclear engineering and will have experience in:

- providing technical support on safety issues, either directly or indirectly, with the French nuclear regulatory body ,
- writing reports both in French and in English language,
- providing safety and accident analysis related to nuclear hot cells or tritium facilities, in particular justification of the safety zoning, implementation of ALARA approach,
- developing maintenance solutions and procedures (remote and hands-on) for nuclear plants with a similar profile to ITER,
- developing in-service inspection, surveillance, and maintenance programs for basic nuclear installations,

- implementation of infrastructure for operation of a maintenance system suitable for nuclear plant installations,
- providing safety analyses related to shipping flask and/or transfer cask,
- producing documentation for the nuclear installation licensing basis,
- providing support in the areas of nuclear qualification planning and program supervision.

The companies shall have suitable qualified staff covering all the disciplines required for carrying out the tasks outlined in the scope of work.

- Senior safety engineer,
- Senior accident analysis engineer,
- Fire protection specialist,
- Remote Handling engineer,
- Radwaste engineer,
- Control command specialist,
- Technical writers.

The companies or consortia of companies shall have suitable code and software to support the broad nature of the work:

- MCNP code for shielding calculations,
- Melcore code for overpressure calculation.

9 Specific requirements and conditions

The official language of the ITER project is English. The official language for the French Nuclear regulator is French.

Therefore all input and output documentation relevant for this Contract can be in English or in French, depending on the input document or expected deliverable. The Contractor shall ensure that all the professionals in charge of the Contract have an adequate knowledge of English and French, to allow easy communication and adequate drafting of technical documentation. This requirement also applies to the Contractor's staff working at the ITER site or participating to meetings with the ITER Organization.

The work shall require the presence of the Contractor's personnel at the site of the ITER Organization, Cadarache, 13 067 St Paul-lez-Durance, France, for short time, for the purpose of meetings and data gathering.

10 Meeting schedule

The following meetings should be organised:

Scope of meeting	Point of check/Deliverable	Place of meeting
Kick-off Framework contract Kick-off Task Orders	Work program	ITER site
Progress meetings if required by ITER or Contractor for the Task Orders	Checking progress Permission for work continuation	ITER site or video conference or other locations linked to the examination
On-request meetings	Expert support during technical meetings linked to the examination	ITER site or video conference or other locations linked to the examination

11 Contract administration principles

The following are the guiding key principles under which the contract will be administered:

- No element of work or activity shall begin without the prior written notification by the IO in the form of a fully signed "Task Order".
- The scope of this contract is as outlined within Section 2 of this document. IO reserves the right to increase or decrease the scope at any given time without justification to the contractor.

In the event that the contractor, in the process of executing works within the scope of this contract, executes work or services which, in the opinion of IO, is erroneous or incorrect for reasons not reasonably to be expected from an experienced consultant, IO shall so advise the contractor in writing.

In such instances, IO reserve the right to instruct the contractor to perform any re-work necessary to make good any erroneous work or services of his own volition at the contractor's own cost.

Such re-work will not be reimbursable and will be executed in a manner so as not to impact adversely on the progress of other parallel contract scope activity by the contractor.

12 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 (ITER_D_22MFG4).

Deviations and Non-conformities will follow the procedure detailed in IO document (ITER_D_22F53X).

Documentation developed as the result of this task shall be retained by the performer of the task 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 (ITER_D_258LKL).

These documents will be provided at the kick-off meeting.

13 Payment Schedule

The payment schedule shall be defined in the Task Orders.

14 Terminology and Acronyms

In the following table denominations and definitions are given of all the actors, entities and documents referred to in this Specification, together with the acronyms used in this document.

Denomination	Definition	Acronym
ITER Organization (IO)	For this Contract the ITER Organization	IO-
ITER Organization Responsible Officer	Person appointed by the ITER Organization with responsibility to manage all the technical aspects of this contract	IO-RO
Contractor Responsible	The person appointed (in writing) by the legally authorised representative of the Contractor, empowered to act on behalf of the Contractor for all technical, administrative legal and financial matters relative to the performance of this contract	C-R
Autorité de Sûreté Nucléaire	French Regulator	ASN

15 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.