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Technical Specifications (In-Cash Procurement)

Technical Specifications for Services in Support of Blanket Design Review, Analysis, and Contract and Procurement Follow-Up

Technical Specifications for contract to be placed on Provision for Services in Support of Blanket Design Review, Analysis, and Contract and Procurement Follow-Up

Provision for Services in Support of Blanket Design Review, Analysis, and Contract and Procurement Follow-Up

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1 Purpose

The Blanket System is one of the most technically challenging components of the ITER machine, having to accommodate high heat fluxes from the plasma, large electromagnetic loads during off-normal events and demanding interfaces with many key systems (in particular the vacuum vessel, blanket manifolds and in-vessel coils and diagnostics) and the plasma. The Final Design Review for the Blanket System (Shield Block, First Wall panels and Attachments) was successfully held in April 2013 and the Blanket System is now in its Procurement Arrangement (PA) phase with the first PAs having been signed in November 2013. The effort on the Blanket System at this stage requires analysis to assess design changes dictated by post-PA deviation requests and/or Project Change Requests (PCRs) as well as PA and contract follow-up support.

The First Plasma Protection Components (FPPC) will be required for first plasma in the physical absence of the Blanket first wall and divertor. The CDR for this component took place in November 2016. A CDR for the Blanket Operational Instrumentation/Divertor Operational Instrumentation/ FPPC Operational Instrumentation (BOI/DOI/FOI) will be held in December 2016. For both of these, support is required to help the follow-up on post-CDR action items and Chits and to make sure that the CDR closure occurs on schedule in each case.

The IDM database for the Blanket is being reorganized to make it more user-friendly. In addition there is the plan to start using the ENOVIA PLM and to have a transition and possible reorganisation from IDM. Support for these reorganisations is required in 2017.

The objective of the services required under these Specifications is to provide the above-mentioned support to the Blanket Section.

2 Scope

The scope of work includes the following tasks:

- Provide support on tracking and facilitating progress of design and analysis effort on First Plasma Protection Components in particular on Chits and action items following CDR, to help bring the CDR to a closure on schedule.
- Provide support on tracking and facilitating progress of design and analysis effort on BOI/DOI/FOI in particular on Chits and action items following CDR, to help bring the CDR to a closure on schedule.
- Provide support for the CDR preparation of the NB port liners including keeping track of required documentation to be produced.
- Provide support on tracking and facilitating progress of design and analysis effort on NB port liners in particular on Chits and action items following CDR to help bring the CDR to a closure on schedule.
- Provide support on the thermal-hydraulic and mechanical analysis linked to design changes of the Blanket System (per BICRs, deviation requests or Project Change Requests (PCRs)) following PA signatures.

- Provide organizational support in following up on PAs and contracts including facilitating and tracking procedures and documents and general support to the Responsible Officers (ROs). These include the following.
  - The EU FW PA requires reinforced supervision, due to the possible implementation of several manufacturing lines. This means that the number of documents and control points to be processed is two or three times the number of a normal PA and support is needed in managing these documents.
  - A 4 year contract is currently running, for calculating the pressure drop of all individual blanket cooling circuits. The tasks is large, due to the number of individual design which combines into many blanket design variants, due to the need of running the activity while the design is evolving, and to the evolving nomenclature of blanket components and circuits. A technical support is needed for providing the IO needed workforce to the day-to-day management of data exchange with the supplier, and for the preparation of the needed inputs to the activity.

3 Definitions

For a complete list of ITER abbreviations see: ITER Abbreviations (ITER_D_2MU6W5).

4 References

Not applicable.

5 Estimated Duration

The duration of the engineering support services will be for one year.
The IO may exercise the option to extend these services for an additional period of one year. Such option shall be exercised by written notice to the Contractor no later than 90 days before the expiration of the initial term of the contract or of the additional period.

This is a deliverable based contract.
The contract activities shall start on the signature of this contract (T0).

6 Work Description

The work description of the engineering support to be provided by the Contractor comprises the following:

1. Produce and keep track of documentation, organize meetings, interface with ROs and send reminder notes to follow up on Chits and close the FPPC CDR.
2. Produce and keep track of documentation, organize meetings, interface with ROs and send reminder notes to follow up on Chits and close the BOI/DOI/FOI CDR.
3. Provide support for the preparation of the CDR of the NB port liners (planned for September 2017) including keeping track of required documentation to be produced and helping organize the CDR.

4. Produce and keep track of documentation, organize meetings, interface with ROs and send reminder notes to follow up on Chits and help close the NB Port Liners CDR.
5. Perform thermal-hydraulic and thermomechanical analysis in support of the finalization and delivery of the series-production CAD model for two Shield Blocks.
6. Perform thermal-hydraulic and thermomechanical analysis in support of the finalization and delivery of the series-production CAD model for two First Wall Panels.
7. Provide organizational support in following up on the EU FW PA which requires reinforced supervision, due to the possible implementation of several manufacturing lines. This means that the number of documents and control points to be processed is two or three times the number of a normal PA and support is needed in managing these documents.
8. For the contract on the calculation of the pressure drop of all individual blanket cooling circuits:
   - Identify which are the relevant hydraulic variants from the design variants
   - Manage the input data folder
   - Follow up on the evolving "Bill of material" (which variant is used where).
9. Reorganize the PBS 16 IDM folder to make it more "user-friendly". The overall existing structure should remain, but a re-organization including use of short cuts would ease the access to essential information. Help prepare the transfer of data towards the new ENOVIA PLM.

7 Responsibilities

Contractor's Obligations

The Contracted engineer will be fully dedicated to performing the Services.

The contracted engineer is expected to be on assignment at the ITER Site of Cadarache, France, to perform the work for the entire duration of this Expert Contract.

The contract does not allow reassignment of the contracted engineer for the duration of the task without the prior approval of the ITER Organization (IO).
The Contractor will be bound by the rules and regulations governing IO safety and security.

In case of a non-EU citizen, it is required for the Contracted engineer to obtain his/her French working visa prior their arrival in France.

Obligations of IO

IO shall make available to the Contractor at the IO site in Saint Paul lez Durance:

- Procedures, information and data and any other information to perform this Scope of Work;

- User facilities on equipment (including communication lines and computers) with adequate capacity necessary for a proper execution of the Services; Computers, software and all data produced during the contract shall remain property of the ITER Organisation.

- A safe work area which meets the requirements which are generally made for such an area for the satisfactory execution of the Services.

8 List of Deliverables and Due Dates

The deliverables for the first year of the contract (firm part) are described below and the reports on the completion of these deliverables should be provided by the due dates.

	DELIVERABLES	DUE DATES
1	Report on closure of the FPPC CDR.	T0 + 5 months
2	Report on closure of the BOI/DOI/FOI CDR.	T0 + 6 months
3	Report on preparation and organization of the CDR of the NB port liners.	T0 + 9 months
4	Report on follow up on Chits progress on getting ready to close the NB Port Liners CDR.	T0 + 12 months
5A	Report on analysis in support of the finalization and delivery of the series-production CAD model of Shield Block (no. 1).	T0 + 4 months
5B	Report on analysis in support of the finalization and delivery of the series-production CAD model of Shield Block (no. 2).	T0 + 9 months
6A	Report on analysis in support of the finalization and delivery of the series-production CAD model of First Wall Panels (no. 1).	T0 + 6 months
6B	Report on analysis in support of the finalization and delivery of the series-production CAD model of First Wall Panels (no. 2).	T0 + 12 months
7	Report on organizational support in following up on the EU FW PA and helping manage associated documents.	T0 + 12 months
8	Report on support to the contract on the calculation of the pressure drop of all individual blanket cooling circuits, comprising: • Identification of the relevant hydraulic variants from the design variants. • Organization of the input data folder. • Following up on the evolving “Bill of material” (which variant is used where).	T0 + 12 months
9	Report on reorganization of the PBS 16 IDM folder to make it more “user-friendly”. The overall existing structure should remain, but a re-organization including use of short cuts would ease the access to essential information. Help prepare the transfer of data towards the new ENOVIA PLM.	T0 + 6 months

Note: The priority order of the Deliverables can be modified by the IO Responsible Officer.

9 Acceptance Criteria

Invoices will be paid following acceptance of the deliverables described in Section 6.

The reports shall be reviewed by the IO Responsible Officer who shall inform the contractor in writing of its approval or disapproval of the report within 20 working days after the receipt of

each report. In case of disapproval, the IO shall provide a justification to the contractor and necessary measures for improvement shall be taken by the contractor without delay.

10 Specific Requirements and Conditions

The Contracted engineer assigned to perform the services described under these Specifications agrees to abide by the following nondisclosure conditions:

- Not to disclose, deliver, or use for the benefit of any person other than the IO, or its authorized agents, any restricted or confidential information or material he or she receives from the IO, other than material or information previously in the records of the Contractor or obtainable prior to such disclosure, delivery, or use, from third parties or from the public domain, or required to be disclosed by law or court order;

- To adhere to any reasonable policies or instructions provided by the IO as to the classification, use or disposition of any restricted or confidential information or materials;

- Not to use any restricted or confidential information or material for personal gain.

The Contracted engineer further agrees to take such reasonable steps as may be needed to ensure that the terms of the nondisclosure statements are observed during and after the termination of the Services.

Technical Requirements

The contractor shall propose an engineer with the following competences:

- Masters or preferably higher degree in Engineering or Physics
- Experience in working on fusion system and in particular on internal components
- Past experience on ITER is highly desirable
- At least 5 year's practical experience in general Engineering Support
- At least 5 year's practical experience in Project Management support and in particular in the preparation, running and post-follow-up of design reviews of complex systems (such experience on fusion internal components would be a plus)
- Familiarity with ANSYS software (Mechanical and Workbench) is desirable
- Ability to work effectively in a multi-cultural environment in English language
- Ability to work in a team
- Ability to organize and monitor activities
- Superior planning and organisational skills

11 Work Monitoring / Meeting Schedule

The contracted engineer will work at the ITER site to execute the deliverables foreseen in this contract. Meetings will be arranged with the IO Responsible Officer, and any other required specialist, on a need basis. They are aimed at providing the required input data and monitoring the progress of work.

12 Delivery Time breakdown

See Section 8.

13 Quality Assurance (QA) Requirements

Not applicable for this expertise contract.

14 CAD Design Requirements

Not applicable.

15 Safety Requirements

Not applicable for this expertise contract.