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02 Jun 2023 / 2.1 / Signed

EXTERNAL REFERENCE / VERSION

Technical Specifications (In-Cash Procurement)

Technical specification for engineering services regarding the PBS 43 EWPs/HOPs

Technical specification for engineering services regarding the PBS 43 EWPs/HOPs

Table of Contents

1 Purpose

1.1 General Presentation

In southern France, 35 nations are collaborating to build the world's largest tokamak, a magnetic fusion device that has been designed to prove the feasibility of fusion as a large-scale and carbon-free source of energy based on the same principle that powers our Sun and stars.

The tokamak is an experimental machine designed to harness the energy of fusion. Inside a tokamak, the energy produced through the fusion of atoms is absorbed as heat in the walls of the vessel. Just like a conventional power plant, a fusion power plant will use this heat to produce steam and then electricity by way of turbines and generators.

For more information on ITER Project, please visit our site www.iter.org .

1.2 Document Purpose

The purpose of this technical specification is to define technical and managerial requirements of the ITER Organization (IO) for a new service contract for the provision of specialized engineering services to perform the following tasks:

- ICIS PBS 43 Engineering Services related to MRR of 4.1.P8A.EU.01 - Emergency Power Supply System for the SIC part:
  - Single Line Diagrams and Cable Block Diagrams creation/updates;
  - Electrical distribution equipment specifications;
  - Equipment layout drawings;

- ICIS PBS 43 Baseline changes PCRs implementation:
  - Load list updates;
  - Electrical network calculations;
  - Electrical network load flow analysis;

- ICIS PBS 43 Mechanical & Site Engineering activities:
  - PBS 43 Electrical equipment mechanical support design and calculations;
  - To support during the installation of PBS43 MDB's, SDB's and SDP's inside Tokamak complex;
  - To support during the installation of PBS43 cables inside Tokamak complex;

- ICIS Transversal activity for TKC Electrical Enclosures Baseline change PCRs implementation:
  - 3D model Electrical Enclosures layout updates;
  - Electrical Enclosures layout drawings;

- HCR PBS 23 Conceptual design for Hot Cell Complex electrical network:
  - Work on the Pre-concept design;
  - Describe the design methodology for Conceptual Design for HCC;
  - Review of 3D model for Hot Cell Building;

- Involvement in the preparation of Hot Cell Conceptual design review (updated CDR);

- ICIS PBS 43 Engineering Services related to Emergency Power Supply System for the Non-SIC/Investment Protection part:
  - Develop Load Flow, LV Calculation Reports (CANECO) in B71N;
  - Single Line Diagrams and Cable Block Diagrams creation/updates;
  - Electrical distribution equipment specifications (UPS, batteries, sub-distribution boards);
  - Follow up MRR process for IP components in B46/47, B71N and Tokamak Complex;
  - Follow-up field installation activities by EUDA for PBS43 IP components in B46/47 and B71N.

2 Scope

2.1 Geographical situation

The geographical scope of the current technical specification is related to the following areas of the ITER project:

- Low voltage centers: LC01/02 & LC15/16
- Medium Voltage Centers: MV04/05
- Emergency & IP Power Supply Buildings: B44/45/46/47, B71N
- Hot Cell Complex;
- Tokamak Complex

2.2 System Description - PBS 43 Steady-State Electric Network (SSEN)

The ITER PBS 43 SSEN provides the electrical power to the whole ITER Installation.

2.2.1 PBS 43 System Classifications

SSEN Element/ System	Quality Class	Safety Class	Seismic Class (SC)	Seismic Level (SL)
400kV substation components	Class 3	Non-PIC	NSC	EC-8 and SL-1 [4]
Emergency diesel for Safety	Class 1	PIC/SIC-1	SC1-SF	SL-2 [2]
Safety related transformers	Class 1	PIC/SIC-1	SC1-SF	SL-2 [2]
Safety related components: - SIC MV distribution - SIC LV distribution - SIC batteries	Class 1	PIC/SIC-1 PIC-SIC-2	SC1-SF	SL-2 [2]
Emergency diesel for IP	Class 2	Non-PIC	NSC	EC-8 and SL-1 [4]
IP transformers	Class 2	Non-PIC	NSC	EC-8 and SL-1 [4]
IP related components: - IP MV distribution - IP LV distribution - IP batteries	Class 2	Non-PIC	SC2	SL-2 [3]
		Non-PIC	NSC	EC-8 and SL-1 [4]
OL transformers	Class 3	Non-PIC	SC2	SL-2 [3]
		Non-PIC	NSC	EC-8 and SL-1 [4]
OL components:	Class 3	Non-PIC	SC2	SL-2 [3]

SSEN Element/ System	Quality Class	Safety Class	Seismic Class (SC)	Seismic Level (SL)
- OL MV distribution - OL LV distribution		Non-PIC	NSC	EC-8 and SL-1 4)
Non-safety LV and MV busbars crossing Last confinement barrier and their supports	Class 1	HCC	SC2	SL-3 1)
Safety LV busbars crossing Last confinement barrier and their supports	Class 1	HCC	SC1-SF	SL-3 1)

Note 1: The SSEN component is classified as seismic class SC1 (PIC) or SC2 (non-PIC) for SL-2 seismic event, but Seismic level SL-3 is also a load to be considered for HCC SSEN component following stress tests events (See [20]).

Note 2: The SSEN components that are classified as seismic class SC1 shall maintain their function in the event of an SL-2 earthquake without significant damage requiring special inspection or test.

Note 3: The SSEN components that are classified as seismic class SC2 shall not lead to failure of PIC components or compromise safety functions of PIC components in the event of an SL-2 earthquake.

Note 4: Spectra for non-seismic class buildings are defined following the rules that are described in Euro-code 8 and associated French Order. Also, the SSEN component shall maintain their physical function in the event of an SL-1 earthquake without significant damage requiring special inspection or test.

All safety Class I, II and III EPSS components, their internal devices supporting safety functions, including instrumentation and control, shall be qualified and classified as PIC/SIC-1 or PIC/SIC-2. Others SSEN components shall be non-PIC

2.2.2 PBS 43 System Structure

The SSEN shall provide rated nominal voltages in accordance with IEC 60038, as follows:

- 15 kV ac / 3 phases: Class IV, (LC15/16)
- 6.6 kV ac / 3 phases: Class IV, Class III
- 400 V ac / 3 phases: Class IV, Class III, Class II
- 230 V ac / single phase: Class IV, Class III, Class II
- 48 V dc: Class I

2.3 General Scope of Work

The final design of the PBS43 systems has to be brought to the level of Manufacturing/Installation design, in order to produce the EWPs/HOPs. To fulfill this target, IO needs the support of a specialized Engineering Company to profiles following general tasks:

1. ICIS PBS 43 Engineering Services related to MRR of 4.1.P8A.EU.01 - Emergency Power Supply System for the SIC part;
2. ICIS PBS 43 Baseline changes PCRs implementation;
3. ICIS PBS 43 Mechanical & Site Engineering activities;
4. ICIS Transversal activity for TKC Electrical Enclosures Baseline change PCRs implementation;
5. HCR PBS 23 Conceptual design for Hot Cell Complex electrical network;
6. ICIS PBS 43 Engineering Services related to Emergency Power Supply System for the Non-SIC/Investment Protection part

3 Definitions

Term	Definition
IO	ITER Organization
Contractor	The potential supplier of the requested services
BoM	Bill of Materials

CMM	Configuration Management Model
CWP	Construction Work Package
DM	Detailed Model
EWP	Engineering Work Package
HOP	Hand Over Package
KoM	Kick of Meeting
PIA	Protection Important Activity
PIC	Protection Important Component
PNI	Part Number of ITER
QC	Quality Class
SC	Seismic Class
SIC	Safety Important Class Component
SMDD	System for Management of Diagrams and Drawings
SR	Safety Relevant
WP	Work Package

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

4 References

IDM Code	IDM Description
Engineering Guides	
5NGNEP	ITER_D_5NGNEP - EMC & SMF Test Result Database Summary
5PDRWV	ITER_D_5PDRWV - 3. Electrical Load Database and Workflow Procedure
4UPNE9	ITER_D_4UPNE9 - PBS 44 Cabling HOPs Workflow
Data Management Guides	
28QDBS	ITER_D_28QDBS - ITER Numbering System for Components and Parts
VH2EKY	ITER_D_VH2EKY - DATA MANAGEMENT REQUIREMENTS
7RAEB3	ITER_D_7RAEB3 - 10 - CAD Tools & SMDD
QEV75T	ITER_D_QEV75T - KCMS ITER Manual
Quality Guides	
22MFG4	ITER_D_22MFG4 - ITER Procurement Quality Requirements
24VQES	ITER_D_24VQES - Quality Classification Determination
22MFMW	ITER_D_22MFMW - Requirements for Producing a Quality Plan
22F53X	ITER_D_22F53X - Procedure for Management of Nonconformities
2LZJHB	ITER_D_2LZJHB - Procedure for the management of Deviation Request
Safety Guides	
KF63PB	ITER_D_KF63PB - Safety requirement Roombook
7M2YKF	Order dated 7 February 2012 relating to the general technical regulations applicable to BNI - FR (7GJHSE) translated for guidance in Order dated 7 February 2012 relating to the general technical regulations applicable to BNI - EN (7M2YKF) and the subsequent ASN decisions linked to this Order
2ST4QL	ITER_D_2ST4QL - PBS 62.11/14/74 and 65.11/4/74 - Justification for Relaxation of Nuclear Safety Defined Requirements (QDs) applicable to the TB04 Building Services Contract Scope in the Tokamak Complex - B11, B14, B74 - OME_DH_RG_000144_EQ

SBSTBM	ITER_D_SBSTBM - Provisions for Implementation of the Generic Safety Requirements by the External Actors/Interveners

5 Estimated Duration

The duration of the contract will be for 24 months from the contract signature.

The estimated start date of the tasks shall be after Task Order signature. Implementation of the activities shall only start after the Kick off Meeting (T0).

6 Work Description

6.1 Task 1: ICIS PBS 43 Engineering Services related to MRR of 4.1.P8A.EU.01 - Emergency Power Supply System for the SIC part

*6.1.1 **T1.1** Layout execution and review*

- Review of 3D model done by TB13 contractor;
- Execution of the Layouts required for the delta MRR for TB13;

*6.1.2 **T1.2** Integration activity*

- Taking part in integration workshop as PBS43 representative;
- Resolving issues/clashes identified during the workshop thereby responsible to have a clean model to carry out EWP production;
- Responsible to provide/obtain loading information related to shared and common support;

6.2 Task 2: ICIS PBS 43 Baseline changes PCRs implementation

*6.2.1 **T2.1** CANECO-BT/ETAP Calculation*

- To integrate existing Client PBS Caneco-BT/ETAP Calculations in the PBS43 Design and to further verify the Client PBS Electrical design;
- To update Class IV OL Caneco-BT/ETAP Calculations;
- To prepare Caneco-BT/ETAP Calculations for PBS43 Client PBS Systems;

*6.2.2 **T2.2** PBS43 Load Flow Reports (Power Balance Calculations)*

- To update PBS43 Non-SIC (OL and IP) Load Flow Reports during changes in MRR;

*6.2.3 **T2.3** PBS43 Design Documents - Preparation/ Update /Review*

- To update and review PBS43 Non-PIC Low Voltage Typical Schematics and Wiring Diagrams for Main Distribution Boards (MDBs) ,Sub-Distribution Boards (SDBs) and Sub-Distribution Panels (SDP's);
- To update and review PBS 43 Single Line Diagrams (SLDs) and Cable Block Diagrams (CBDs);
- Preparation of Typical Control Diagrams for Class IVOL, Class II IP and Class III IP systems;
- Update of Client PBS Interface Sheets;

6.3 Task 3: ICIS PBS 43 Mechanical & Site Engineering activities

*6.3.1 **T3.1** PBS 43 Equipment mechanical supporting and fixing*

- Review of isometrics and 3D / CAD models;
- Review and perform stress analyses and engineering calculations;
- Review and preparation of support drawings;
- Review and preparation of interface load reports;

*6.3.2 **T3.2** Support PBS43 with response to any installation requests from contractors (RFI, FCR, DR, and NCR)*

- Review and process all mechanical aspects of the contractor's changes requested via RFI, FCR, DR, and NCR;

*6.3.3 **T3.3** Support the TRO on PBS43 contractors documentation*

- Support PBS43 in MRR, CRR, PIM and participate to the clearance of PBS43 actions;
- Coordination and follow up with PBS43 contractors, review contractors documentation;

6.4 Task 4: ICIS Transversal activity for TKC Electrical Enclosures Baseline change PCRs implementation

*6.4.1 **T4.1** 3D model Electrical Enclosures layout updates*

- To update 3D Model and the corresponding documents when there is an update in electrical enclosures due to integration cycle;
- To allocate new slots and track the changes of Electrical enclosures raised via PCR by coordinating with Design Integration team and the respective PBS;
- To support in the CMAF launch of Electrical enclosures in Tokamak Complex;

*6.4.2 **T4.2** Electrical Enclosures layout drawings*

- To update 2D General Arrangement drawings of Electrical enclosures for all PBS in Tokamak complex;
- To support as-built documentation for PBS43 Boards General Arrangement drawing;

6.5 Task 5: HCR PBS 23 Conceptual design for Hot Cell Complex electrical network

*6.5.1 **T5.1** Work on the Pre-concept design*

- Support PBS23 in preparing all electrical documentation related to HCC Pre-CDR;

*6.5.2 **T5.2** Describe the design methodology for Conceptual Design for HCC*

- Preparation of Basis of Design for Electrical and I&C;
- Preparation of Design Description Document for Electrical and I&C;
- Preparation of Electrical Schematic Drawings for Hot Cell Building;
- Preparation of Electrical Load Schedule;

*6.5.3 **T5.3** Review of 3D model for Hot Cell Building*

- Review and instruct designer for all electrical equipment updates that need to be applied to the HCC 3D model ;

*6.5.4 **T5.4** Involvement in the preparation of Hot Cell Conceptual design review (updated CDR)*

- Support PBS23 in preparing all electrical documentation related to HCC CDR;

6.6 Task 6: ICIS PBS 43 Engineering Services related to Emergency Power Supply System for the Non-SIC/Investment Protection part

*6.6.1 **T6.1** CANECO-BT/ETAP Calculations*

- To update PBS43 LC04 Caneco-BT/ETAP calculations and integrate Class II IP and Class III IP loads in B71N
- To integrate existing Client PBS Caneco-BT/ETAP Calculations in the PBS43 IP Design and to further verify the Client PBS Electrical design for Tokomak Complex;
- To prepare Caneco-BT/ETAP Calculations for PBS43 Client PBS Systems where these are missing completely;

*6.6.2 **T6.2** PBS43 Design Documents - Preparation/ Update /Review*

- To review PBS43 Non-PIC Low Voltage Typical Schematics and Wiring Diagrams for Main Distribution Boards (MDBs) ,Sub-Distribution Boards (SDBs) and Sub-Distribution Panels (SDP's);
- To update and review PBS 43 Single Line Diagrams (SLDs) and Cable Block Diagrams (CBDs);
- Update of Client PBS Interface Sheets;

*6.6.3 **T6.3** PBS43 IP Load Flow Reports (Power Balance Calculations)*

- To update PBS43 Non-SIC (IP) Load Flow Reports for B71N for PCR#1281 and PCR#1358 implementation;

*6.6.4 **T6.4** PBS43 IO procurement of IP components follow up*

- Preparation of procurement specification for UPS (B71N), batteries (B71N, B46, B47) and sub-distribution boards part (B71N, Tkm Complex) of IO scope for procurement;
- Participation at FATs for IP components at Supplier premises;
- Follow up field installation of IP components, liaise with IO Supplier for on-site modifications

6.7 Deliverables

6.7.1 Task 1 - ICIS PBS 43 Engineering Services related to MRR of 4.1.P8A.EU.01 - Emergency Power Supply System for the SIC part:

a. 3D model review report;
b. Electrical room layout drawings;

6.7.2 Task 2 - ICIS PBS 43 Baseline changes PCRs implementation:

a. CANECO calculation reports;
b. Load Flow reports;
c. Delta MRR documentation review report.

6.7.3 Task 3 - ICIS PBS 43 Mechanical & Site Engineering activities:

a. Stress analysis & calculation reports
b. Supporting system layout drawings

6.7.4 Task 4 - ICIS Transversal activity for TKC Electrical Enclosures Baseline change PCRs implementation:

a. 3D model review report;
b. General Arrangement drawings for the electrical enclosures;

6.7.5 Task 5 - HCR PBS 23 Conceptual design for Hot Cell Complex electrical network:

a. 3D model review report;
b. Electrical Equipment layout drawings;
c. Electrical Equipment specifications;
d. Electrical Load List for HCC;
e. Power Supply System Functional Description document for HCC

6.7.6 Task 6 - ICIS PBS 43 Engineering Services related to Emergency Power Supply System for the Non-SIC/Investment Protection part

a. Load Flow Report;
b. CANECO calculation reports;
c. Electrical Equipment specifications;
d. General Arrangement drawings;
e. Single Line Diagrams and Cable Block Diagrams;

7 Responsibilities

7.1 ITER Responsibilities

7.1.1 General responsibilities

IO is responsible to provide to the all-necessary input data to perform for the execution of activities covered by the Contract.

All data and tools access provided by the IO are for the Contractor's sole use and limited to execute the work required to perform the tasks and activities covered by this Contract.

7.1.2 Tools for Contractor Staff working in the Premises of the Contractor

To the Contractor's related personnel working in the premises of the Contractor, the IO shall provide remote access, via standard web browsers or CITRIX server, to the following work collaboration tools:

i) ITER Document Management system (IDM);

ii) ITER Collaborative Platform (ICP);

iii) ITER CATIA Configuration Management Model and Enovia Database;

iv) MS Teams ITER Team Work Communication Tool;

7.2 Responsibilities of the Contractor

7.2.1 Codes and Standards

The Contractor shall be responsible for a design that meets the applicable design codes and standards listed in this technical specification or as mutually agreed during the execution of a task. The same shall apply to QA requirements. The agreed codes and standards will be recorded in the approved minutes of meetings or a specific document issued by the IO-TRO and formally accepted by the Contractor.

Crt.	Standard	Description
1	RCC-E 2016	Règles de Conception et de Construction des Systèmes et Matériels Electriques et de Contrôle Commande
2	NF C 18 510	Operations on electrical network and installations and in an electrical environment - Electrical risk prevention
3	NF C 13 200	High voltage electrical installations for electrical energy production sites, industrial, commercial and agricultural sites
4	NF C 15 100	Low-voltage electrical installations

7.2.2 Deviation and Changes

The Contractor is responsible for communicating without delay any technical difficulty which might result in a deviation from this Contract. The deviation process in ITER is under configuration management; please refer to the following document for further details:

ITER_D_2LZJHB - Procedure for the management of Deviation Request

Any such change request must involve the prior approval of the IO in accordance with the rules specified in Section 9.1 of this technical specification.

7.2.3 Resources

The Contractor shall have the sufficient resources to provide the services, including human resources, to perform the activities in accordance with this Technical Specification.

7.2.4 Tools for Contractor Staff working in the Premises of the Contractor

To the Contractor's related personnel working in the premises of the Contractor, the Contractor shall provide to the following tools:

i) Personal laptop/computer;

ii) CANECO BT, ETAP and other software as identified in their specific task description;

iii) All necessary digital office work tools including, but not limited to MS Office, Adobe Reader and internet access.

7.2.5 Contractor Staff Training

The Contractor shall guarantee, at its own cost, that all personnel forming part of the Contractor's team have the necessary background knowledge of the ITER Facility to perform their work. This basic information regarding the ITER project is available freely online at www.ITER.org and in this Technical Specification.

The Contractor shall guarantee, at its own cost, that all personnel part of The Contractor's team have the necessary background knowledge, are trained to use the software tools and that enough licenses are available for the execution of activities covered by the Contract.

The Contractor shall guarantee, at its own cost, that all personnel part of the Contractor's team have the electrical habilitation for positions related to all task except for task 3 that is mechanical. Refer to NF C 18-510 (H2/B2). This is required in order to have a good understanding of the specific requirement related to electrical installations to be operative on France.

In order to successfully perform the work, the Contractor's engineering resource allocated:

- At least have 5 years' experience in nuclear / energy industries;
- Demonstrate knowledge to perform the tasks described in this specification;
- Demonstrate previous experience in using the calculation software required by the tasks described in this specification;
- Demonstrate knowledge of relevant electrical industrial practices regarding electrical power supply network design;

8 Acceptance Criteria

8.1 Deliverables

Each activity has defined deliverables, under which the Contractor presents the results of the work carried out. The detailed content of the deliverable for each activity is described in Section 6.

All reports shall conform to standard practice for technical documents. The intermediate reports shall also contain sufficient details on milestone completion for monitoring purposes.

Final reports shall be self-contained, and relevant documentation, such as drawings, shall be supplied together with it in electronic form.

Deliverables shall be reviewed and approved by the IO in accordance with the provisions set in this Technical Specification.

9 Specific requirements and conditions

9.1 Exchange and sharing of data management files and Engineering reports

All files involved in the activities related to tasks 1 to 5 are to be exchanged and shared through the IDM (ITER Document Management) system and SMDD for CAD deliverables. Specific folder structure is to be created by ITER CRO for this contract.

10 Work Monitoring / Meeting Schedule

Until final deliverables are received, a contractor has to provide status reports and available deliverables accordingly on a weekly basis.

11 Delivery time breakdown

No.	Deliverable breakdown and main milestones	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Task 1: ICIS PBS 43 Engineering Services related to MRR of 4.1.P8A.EU.01 - Emergency Power Supply System for the SIC part				◊	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	◊
2	T1.1 Layout execution and review				◊		◊		◊			◊			◊			◊			◊		◊
3	T1.2 Integration activity				◊		◊		◊			◊			◊			◊			◊		◊
4	Task 2: ICIS PBS 43 Baseline changes PCRs implementation					◊	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	◊
5	T2.1 CANECO-BT Calculation					◊			◊		◊		◊			◊		◊			◊		◊
6	T2.2 PBS43 Load Flow Reports (Power Balance Calculations)						◊				◊					◊					◊		◊
7	T2.3 PBS43 Design Documents - Preparation/ Update /Review									◊			◊		◊			◊		◊			◊
8	Task 3: ICIS PBS 43 Mechanical & Site Engineering activities						◊	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	◊
9	T3.1 PBS 43 Equipment mechanical supporting and fixing						◊					◊	◊						◊	◊			◊
10	T3.2 Support PBS43 with response to any installation requests from contractors (RFI, FCR, DR, and NCR)											◊		◊					◊		◊		◊
11	T3.3 Support the TRO on PBS43 contractors documentation							◊				◊			◊				◊			◊	◊
12	Task 4: ICIS Transversal activity for TKC Electrical Enclosures Baseline change PCRs implementation							◊	2	3	4	5	6	7	8	9	10	11	12	13	14	15	◊
13	T4.1 3D model Electrical Enclosures layout updates							◊			◊		◊	◊			◊		◊	◊			◊
14	T4.2 Electrical Enclosures layout drawings								◊		◊		◊		◊		◊		◊		◊		◊
15	Task 5: HCR PBS 23 Conceptual design for Hot Cell Complex electrical network					◊	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	◊
16	T5.1 Work on the Pre-concept design					◊			◊	◊				◊	◊				◊	◊			◊
17	T5.2 Describe the design methodology for Conceptual Design for HCC						◊		◊		◊			◊		◊			◊		◊		◊
18	T5.3 Review of 3D model for Hot Cell Building								◊			◊		◊			◊		◊			◊	◊
19	T5.4 Involvement in the preparation of Hot Cell Conceptual design review (updated CDR)																						◊
12	Task 6: ICIS PBS 43 Engineering Services related to Emergency Power Supply System for the Non-SIC/Investment Protection part							◊	2	3	4	5	6	7	8	9	10	11	12	13	14	15	◊
13	T6.1 Develop Load Flow, LV Calculation Reports (CANECO) in B71N							◊			◊		◊	◊			◊		◊	◊			◊
14	T6.2 Single Line Diagrams and Cable Block Diagrams creation/updates								◊		◊		◊		◊		◊		◊		◊		◊
15	T6.3 Electrical distribution equipment specifications (UPS, batteries, sub-distribution boards)								◊		◊		◊		◊		◊		◊		◊		◊
16	T6.4 Follow up MRR process for IP components in B46/47, B71N and Tokamak Complex								◊		◊		◊		◊		◊		◊		◊		◊
17	T6.5 Follow-up field installation activities by EUDA for PBS43 IP components in B46/47 and B71N								◊		◊		◊		◊		◊		◊		◊		◊

12 Quality Assurance (QA) requirements

The organization 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 (P7Q3J7) - 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. The contractor shall submit the drawings and diagram in the SMDD for the IO approval according to the procedure Procedure for the Management of Diagrams and Drawings in pdf Format Using the SMDD Application (KFMK2B).

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 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 (see Safety Guides section in Chapter 4).